Environmental Conditions Manual

IDPH
Iowa Department of Public Health

Guide to Surveillance, Investigation, and Reporting

A publication of the Iowa Department of Public Health

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Comments, questions and suggestions regarding this reference manual are welcome. Please direct correspondence to:

Center for Acute Disease Epidemiology
Iowa Department of Public Health
Lucas State Office Building, 6th Floor
321 E. 12th Street
Des Moines, IA 50319-0075

Iowa Department of Public Health

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*Note: In general, it is STRONGLY recommended that health professionals NOT rely on printed copies of the Epi Manual. Anyone considering updating a "paper copy" of the Epi Manual may want to consider printing out the entire manual as **most** chapters during this review have grammar, statistical or new terminology corrections, revised review dates as well as the edits listed below. All fact sheets were reviewed and almost all have edits. Included in detail here are edits of a more substantial nature.*

General Contact Information

The following contact information maps were replaced with new versions in this section:

Public Health Epidemiologists

Disease Prevention Specialists

Child care Consultants

Community Health Consultants

State Veterinarians

Reportable Disease Information

Cyclospora
Edits to "Responsibilities" for investigation

E. coli
Many edits to classification of the various types of E. coli throughout the chapter.
E. coli Fact sheet was replaced

Hepatitis B - Maternal
All materials updated and replaced, primarily for the IDPH contact information.

Legionella
Laboratory information section replaced with updated information on legionella testing.

Meningitis
The Entire chapter has undergone grammar and other small edits. The most substantive changes are in Child Care Contacts

Polio
Edits made to the following sections and HP Fact Sheet:
Epidemiology
Protection of Contacts of a Case
Polio Vaccine and Travel

Plague
The Epidemiology section replaced with updated information.

Q Fever
Edits to "Responsibilities" for investigation

Rubella
Added comments to “Protection of Contacts” in this chapter.

Salmonella
The entire chapter has undergone edits to grammar and IDSS instructions

Shigella
The entire chapter has undergone edits to grammar and IDSS instructions. Child care investigations has important changes. In addition, edits to investigation of food handlers, fact sheet etc.

Syphilis
Laboratory information section replaced with updated information on syphilis testing.

Tetanus
Edits to Epidemiology section

Tuberculosis
New Tuberculosis Patient info sheet

Typhoid Fever
New language added to section on food handlers, and restrictions with diagnosis.
Epidemiology information updated
Fact sheet updated also

Viral Hemorrhagic Fever
Edits to Reservoirs, incubation period, and epidemiology

Law Changes
New Iowa Code 139A
New Iowa Code 141A
New IAC 641.1
Added HIPAA statement back in

Glossary - food handler definition added.

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TAB # 5. Environmental Disease:

Appendices A:

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Patricia Quinlisk, MD, MPH
Medical Director/State Epidemiologist

Ann Garvey, DMV, MPH
Public Health Veterinarian & Deputy State Epidemiologist

Judy Goddard, RN, BS
Past Epidemiology Program Manager

Mary Rexroat, RN, BS
Nurse Epidemiologist

Diana Von Stein, MPH
Field Epidemiologist

Carrie Stief
Surveillance Officer

Shawnice Cameron
Administrative Assistant

Chris Galeazzi, MPH
Field Epidemiologist

Matt Hobson, MA
Field Epidemiologist

Rob Ramaekers, MPH
Field Epidemiologist

Marnell Kretschmer
CDC Public Health Advisor

Terri Thornton, RN, NNP
Past Nurse Consultant Immunization Program

Bethany Kintigh
Perinatal Hepatitis B Coordinator

Randy Mayer, MS, MPH
Chief, Bureau of HIV, STD, and Hepatitis

Allan Lynch
Tuberculosis Control Program Manager/ Refugee Health Coordinator

Rita Gergely, Chief of the Bureau of Lead Poisoning Prevention

Tim Wickam, MPH
Environmental Health Specialists Network Coordinator

Michael A. Pentella, PhD
Past Associate Director
University Hygienic Lab

Heather Adams
Iowa Assistant Attorney General

Sandy Briggs
Health Promotions Designer

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General Photos
State of Iowa Capitol Building – Sandy Briggs, Iowa Dept. of Public Health
Telephone – Sandy Briggs, Iowa Dept. of Public Health
Bees – Scott Bauer U.S. Department of Agriculture, Agricultural Research Service
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X-ray - David Wollaston, Radiology Department, Broadlawns Hospital Des Moines, Iowa

Microscopic images of diseases from the Center for Disease Control and Prevention website: http://phil.cdc.gov/phil/search.asp
Lyme Disease - Dr. Edwin P. Ewing, Jr.
Measles - Dr. Edwin P. Ewing, Jr.
Plague
GreenE. coli
Brown E. coli
Polio
Botulism - Dr. George Lombard
Campylobacter - Dr. William A. Clark
Hantavirus - Dr. Sherif R. Zaki
Lyme disease - Dr. Edwin P. Ewing, Jr.
Norovirus - Dr. Erskine Palmer
Pertussis
Rabies
Salmonella - CDC/Armed Forces Institute of Pathology, Charles N. Farmer
West Nile Virus - W.-J. Shieh and S. Zaki
Yellow Fever
Cholera - Dr. R. Weaver
Lung Disease – Dr. Russell K. Brynes
Anthrax

Iowa Department of Public Health

Mission & Vision Statements

Mission:

Promoting and protecting the health of Iowans

Vision:

Healthy Iowans living in healthy communities

One of the goals of public health professionals at the local and state level, in cooperation with private health professionals across the State of Iowa, is to prevent epidemics and the spread of disease. Strategies used to achieve this goal include monitoring for infectious diseases, detecting and investigating these diseases and providing disease prevention and control services. Members of this local, state and private medical "team" are in critical positions to deter potential public health threats due to communicable diseases. An effective surveillance system and prompt evaluation and response by the "team" are essential to the control of disease.

The purpose of this manual is:

1. To be a reference for all health care providers at the time of a suspected case, a particular disease or condition, or at the time of an outbreak of a communicable disease to institute public health prevention and control measures.

2. To assure more rapid and appropriate responses to situations that present danger to high-risk populations or the population at large.

3. To standardize the reporting and investigation of communicable diseases throughout the state.

4. To clarify the roles of the public and local providers and to optimize the surveillance of a population when a communicable disease(s) occur.

The book Control of Communicable Diseases Manual, Heymann, D., MD, Editor; Nineteenth Edition, 2008, (an official report of the American Public Health Association*) may also be consulted about disease investigation or follow-up.

If there are questions for which this manual or the Control of Communicable Diseases Manual does not provide answers, please contact the Iowa Department of Public Health, Center for Acute Disease Epidemiology (CADE) anytime at (800) 362-2736 or (515) 242-5935.

Introduction

Purpose of *Guide to Surveillance, Investigation, and Reporting*: Infectious diseases are a continuing threat to all people, regardless of age, gender, lifestyle, ethnic background, or socioeconomic status. They cause illness, suffering and even death, and place an enormous financial burden on society. Although modern advances have controlled some infectious diseases, new ones are constantly emerging. State public health officials rely on local public health agencies, healthcare providers, laboratories and other public health personnel to report the occurrence of notifiable diseases. Without such data, trends cannot be accurately monitored, unusual occurrences of diseases (such as outbreaks) might not be detected or appropriately responded to, and the effectiveness of control and prevention activities cannot be evaluated.

The Iowa Department of Public Health (IDPH), Center for Acute Disease Epidemiology (CADE) is placing increased emphasis on strengthening infectious disease surveillance and response. This reference manual is part of the IDPH focus on providing more training and technical assistance to local public health agencies and healthcare facilities. The purpose of this manual is to guide local public health agencies and healthcare providers through specific surveillance and reporting responsibilities for the diseases reportable to the IDPH. For more specific information on surveillance and reporting of reportable diseases, contact CADE (800) 362-2736.

The manual is arranged alphabetically by reportable disease, with each disease in its own chapter. While this manual is targeted to local public health agency personnel and infection preventionists, other healthcare professionals can also use the information to facilitate their understanding of communicable diseases. The private provider and laboratory responsibility in reporting and surveillance is a vital and collaborative piece in acquiring timely and accurate information for assuring healthy Iowa communities.

The terms "local public health agency" and "local health department" are used interchangeably.

"You" and "your" refers to the people/audience for whom this manual is intended, namely, personnel of local public health agencies and local health departments and infection preventionists from health care facilities.

All information in this manual must be considered in light of newer information available after publication. The three-ring binder format of this manual allows for addition of new and updated material as they become available. The web based version of the manual will have the most current information.

Organization

The Iowa Department of Public Health is a division of state government. The Division of Acute Disease Prevention and Emergency Response, and the Division of Environmental Health and Bureau of Health Statistics are located within IDPH, and are housed at the Lucas State Office Building in Des Moines, Iowa.

The Iowa Reportable Disease Surveillance System

A. What is surveillance? Disease surveillance is the regular collection, monitoring and analysis of data relevant for control and prevention of diseases. The data is used to define baseline levels of disease. By knowing the baseline, one may then identify unusual occurrences of disease.

The purposes of infectious disease surveillance are to interrupt transmission of disease to susceptible persons and to reduce morbidity and mortality through:

- Timely reporting,
- Identification and investigation of individual cases and outbreaks, and
- Interpretation of investigative data and dissemination of findings

Surveillance is often categorized into two types: "active surveillance" and "passive surveillance."
Active Surveillance: An active surveillance system is one in which public health officials regularly solicit disease reports. This is often accomplished by regularly (daily, weekly, bi-weekly) telephoning selected individuals and asking if specific diseases have been identified. The reports are generally solicited from health care providers, infection preventionists, laboratories, schools, minor emergency clinics, etc. This type of system has been shown to double the number of reports of some diseases.

In the case of active surveillance, the organization receiving information takes *direct* action in collecting this information. This may occur through direct review of medical records, laboratory records, or screening of high-risk populations.

Passive Surveillance: A passive surveillance system, such as Iowa has, is one in which reporting is left to individuals (i.e. physicians, nurse practitioners, physician assistants, infection preventionists, laboratories, etc.). Passive surveillance is the most common type of surveillance used in state and local health departments. The two major limitations of this type of system have been under reporting and delayed reporting.

Traditional reporting of diseases by healthcare providers and laboratories is considered passive surveillance. This means that the organization receiving the information waits for initial data on a case to be submitted. This usually leads to collection of additional information and the implementation of follow-up activities. An example of this would be when a local public health agency receives a report of invasive *Neisseria meningitidis* infection from a healthcare provider or facility and then initiates patient interview and contact tracing with recommendations on post-exposure prophylaxis.

A sub-category of passive surveillance is "enhanced passive surveillance." In this situation, the organization receiving data works closely with healthcare providers and laboratories that are most likely to report a particular disease or group of diseases and sets up systems to increase timeliness and completeness of reporting.

Guide to Using the Specific Disease Format: The format chosen for describing the specific diseases is designed to make the information easy to read and to orient the reader with terminology specific for communicable disease investigation. The following information defines the headings used and provides helpful hints in interpreting the information included in the specific disease sections.

Synonyms: Some disease names have changed over time, and some health professionals or laypersons may describe the disease by other terms.

Agent: The specific pathogen that produces the disease. Whether the agent is bacteria, virus, fungus, parasite, or other organism, it is important to refer to it appropriately when conversing with health professionals or the public. If the agent is an insect (e.g., lice) producing an infestation, the appropriate terminology for the problem is infestation, not disease or infection.

Reservoir: The normal habitats where the infectious agent can live, multiply, and reproduce. These habitats can include man, animals, or the environment.

Mode of Transmission: The direct (person-to-person or animal-to-person) or indirect (through vehicles such as food or water, vectors, etc.) transfer of an infectious agent from a reservoir to a susceptible host. The reservoir and mode of transmission are integrally related and the specific information about them should direct the types of questions asked during the case investigation. Let's take the example of two enteric diseases, salmonellosis and shigellosis. The reservoir for *Salmonella* includes domestic and wild animals and man. The mode of transmission is most often by ingestion of contaminated food, but also may be by the fecal-oral route resulting from contact with infected animals or persons. Having this information, the case investigation to determine the source must include a complete food history and investigation of possible ways persons and animals could transmit the organism via their feces. For *Shigella* the only reservoir is man and the mode of transmission is the fecal-oral route. In this instance, the case investigation to determine the source centers only on the possible ways that a person(s) can transmit the organism via their feces. No history about animals is necessary.

Incubation Period: The interval between exposure to an agent that results in infection and the appearance of the first symptom of illness. There will be a range (shortest - longest) and an average incubation period for each disease.

When investigating the occurrence of a specific disease, the shortest and longest incubation periods should compose the time frame in question. For example, the incubation period for hepatitis A is 15-50 days, average 28-30. When interviewing the case, you should ask, "In the 15-50 days (2-6 weeks) before you became ill . . ." or preferably use specific dates. For example, if the person with hepatitis A had onset of symptoms on February 14, ask about specific exposures from January 1-30.

Period of Communicability: The time during which a person or animal with an infectious disease is a potential source of infection. Period of communicability is important when assessing the risk that the case under investigation may have transmitted his/her disease to others. For example, when investigating a case of hepatitis A, request the names of "contacts" in the 2 weeks prior to and 1 week after the onset of illness (the period of communicability for hepatitis A).

Clinical Illness: The symptoms commonly associated with a particular disease. If specific laboratory testing is not completed, a good clinical history of signs (objective physical findings) and symptoms (experienced by the patient) are necessary to determine the likelihood of diseases for which follow-up would be indicated.

Diagnosis: The use of scientific and skillful methods to establish the cause and nature of a person's disease. Cases may be grouped as follows:

- Confirmed: A person who has a laboratory-confirmed infection with a particular agent. The person may have clinical symptoms or the infection may be sub clinical (asymptomatic). Sub clinical disease can only be diagnosed by laboratory testing.

- Probable: A person with clinical symptoms of a disease (but no laboratory confirmation) who is a contact to a laboratory-confirmed case or is associated with a documented outbreak. The case is then epidemiologically linked.

- Suspect: (frank, apparent) A person with a clinical syndrome suggesting a particular disease. Epidemiologically, this refers to a case which is not (yet) either laboratory confirmed or epidemiologically linked.

Prevention: Slowing or stopping the occurrence of disease. This may include direct intervention by the public health or educating the cases and contacts about the disease, how it is transmitted and how to prevent transmission.

Glossary: A glossary of other pertinent terms can be found at the end of this manual.

Investigation of Communicable Diseases: Not every disease reported requires a detailed follow-up. Diseases are to be reported by health care providers, laboratories, infection preventionists, school nurses, local health department personnel, and can be reported by private citizens.

Confirmation: The first step taken before any action is initiated is to confirm the diagnosis (if at all possible). If the disease is being reported by a physician or infection preventionists, confirmation in most instances is obtained by requesting information on specific laboratory tests to confirm the diagnosis.

When a disease that requires public health follow-up is reported by a private citizen, confirmation requires contact with the appropriate physician, laboratory, or both, and requesting specific test results used to make the diagnosis. If the diagnosis is a clinical diagnosis without laboratory confirmation, it is sometimes necessary to request a clinical history in order to determine if the illness is consistent with the diagnosis. If the symptoms are not consistent with the diagnosis, contact the Center for Acute Disease Epidemiology (CADE) at (800) 362-2736 for recommendations.

Case Investigation: Case investigation involves determining possible sources of the person's infection, assessing the likelihood that the individual will transmit the infection to others, and providing education regarding prevention of further spread to the ill person and their contacts. This may lead to investigation of the possible source and/or other cases.

Critical factors in any case investigation include:

- **Timely response to the initial disease report**. Investigation of diseases requiring follow-up should be initiated within 24 hours.

- **Collection of appropriate data needed to make an accurate assessment**. Prior to interviewing, review material related to the specific disease. Critical information to

consider when collecting data is the reservoir(s), incubation period, mode of transmission, period of communicability and appropriate control measures necessary for the disease.

- **Follow-up of leads regarding a possible source of infection**.

Example: An adult with shigellosis reports his child had fever and diarrhea a few days earlier and the child attends a child care center. An appropriate response would be to visit the child care center to evaluate if other children in the center are, or have been, ill with fever and diarrhea.

Intervening appropriately to interrupt transmission and prevent disease.
Example: A patient with salmonellosis reports that she had eaten at a local food establishment with a large group and several members of the group had become ill with fever and diarrhea. While you are taking food histories on all ill persons, an environmental health specialist/sanitarian should be consulted to visit the food establishment to conduct an inspection, gather necessary information, and collect food samples if warranted.

Accurate documentation of information obtained.
Complete information regarding any case investigation should be recorded in a neat, organized manner and filed. Case investigations should either be filed in a communicable disease file (for example: Hepatitis A Cases - 1985), in a patient file (by patient name) or entered into the Iowa Disease Surveillance System (IDSS), Iowa's secure web-based disease reporting system. If the patient file is used, a log of all case investigations performed in the county should be kept. The record should not only include information given to you about the case but also any recommendations, instructions and education that was provided to the case. Recording should be done as information is obtained or service given. **Do not rely on your memory.**

Legal Basis: Reporting of communicable diseases is required under Iowa Code Chapter 139A. These laws are implemented by regulation under Iowa Administrative Code Chapter 641.1 The purpose of these regulations is "to list those diseases declared dangerous by the Iowa Department of Public Health, and to establish reporting, isolation, and quarantine requirements. This is intended for use by local public health agencies, hospitals, healthcare providers, laboratories, educational and recreational program health officials, food industry officials, and the public."

Infectious diseases designated as a threat to the public health must be reported directly to the local public health agency and the Iowa Department of Public Health. The only exceptions to this are sexually transmitted diseases, tuberculosis, and HIV/AIDS, which are reported directly to the IDPH. Local public health agencies or their designees are authorized to accept, investigate and submit reportable disease case information to IDPH, Center for Acute Disease Epidemiology (CADE).

Reporting of Tuberculosis: Healthcare providers, laboratories, or local public health agencies who have knowledge of a case of confirmed tuberculosis (TB) or clinically suspected tuberculosis case shall notify the Tuberculosis Program within 24 hours. Upon receipt of such notice, the TB Program shall notify the local public health agency within 24 hours. This notice shall include the case name, date of birth, age, sex, case address, and provider name and provider phone number. For more information, local public health agencies should contact the

TB Program directly at (515) 281-7504.

Reporting of HIV/AIDS: HIV and AIDS (as determined by a laboratory test diagnostic of HIV infection or AIDS) are reportable directly to the IDPH, HIV/AIDS Surveillance Program. Perinatal exposures to HIV (i.e., births to HIV-infected women) are also reportable, as are deaths of persons with HIV/AIDS. Reporting is to be done by healthcare providers, laboratories, and other officials using the HIV/AIDS Case Report Form developed and approved by the IDPH. Because information beyond what can be captured in the Iowa Disease Surveillance System is needed for HIV/AIDS reports, reporting through IDSS will prompt the HIV/AIDS Surveillance Office to send the initial reporter the case report form to complete reporting. Local public health agencies should contact the HIV/AIDS Surveillance Program directly at (515) 242-5141 to obtain a case report form or if there are any questions regarding reporting of HIV/AIDS.

Reporting of STDs: Cases of certain sexually transmitted diseases (STD), as determined by a clinical diagnosis and/or from laboratory evidence of an infection, are reportable directly to the IDPH, STD Prevention Program. Specifically, Syphilis, Gonorrhea, and Chlamydia are reportable. Reporting is accomplished by clinicians, laboratories and other officials designated by the IDPH using a form or format approved by the IDPH or by reporting through the Iowa Disease Surveillance System. When using IDSS to report STDs, providers should indicate any treatment provided in the NOTES tab because the follow-up form is closed from view due the partner services information located within it. Local public health agencies, clinicians and laboratories can contact the STD Prevention Program directly at (515) 281-3031.

Reportable sexually transmitted diseases include chlamydial infection, syphilis, and gonorrhea. Minors may give consent for STD prevention, tests, and treatment without parental consent or notification. Case investigation will be conducted by trained disease prevention specialists at the state or local level.

Reporting and Case Investigation; State versus Local Role: CADE collaborates with local public health agencies and health care facilities in the investigation of cases of communicable disease and the implementation of appropriate control and prevention measures. The guidelines in this manual, as well as other referenced material, form the basis for local public health agency communicable disease reporting, investigation and control measures.

When clusters or outbreaks of illness, potential bioterrorist agents, emerging infections or other serious threats to public health are identified, IDPH will provide technical assistance to local public health agencies. IDPH assistance may range from serving in a medical consulting capacity to direct management of the investigation, implementation of control and prevention measures, and initiating follow-up activities. In special situations, IDPH may request technical assistance from the Centers for Disease Control and Prevention (CDC). (**Note**: Requests for CDC technical assistance must be made by the IDPH.)

When an institution such as a healthcare facility or a school is the site of possible transmission, the infection preventionist of the healthcare facility or the school nurse is typically actively involved in the investigation and the application of control and prevention measures. Ideally decisions about control measures are made collectively by the IDPH, the local public health agency, and the infection preventionist (or equivalent) in the affected institution. However, IDPH and the local board of health working together have ultimate authority.

Timeliness of Reporting: Cases of diseases reportable to IDPH are reported to CADE. Certain diseases should be **immediately reported by phone** to the IDPH when a suspect or confirmed case is identified. Diseases that require immediate reporting should always be prioritized above other case investigations. In addition, any disease where a cluster exists or where there is a suspected cluster or outbreak of disease should be reported immediately and prioritized accordingly. Post investigation, the local public health agency can follow up with the official case report form(s). All diseases that are not categorized as "immediate" should be reported as outlined in IAC 641.1 and investigated within a week and a completed case report form with appropriate laboratory test confirmation (if applicable for the disease) should be submitted preferably through the IDSS.

Note: Local public health agencies (LPHA) are responsible for residents of their county. Reports of illness received for residents of other cities/towns outside of the county should be forwarded to CADE or the appropriate LPHA.

The importance of timely reporting cannot be overemphasized. For example, if a local health authority holds reports of salmonella and only submits them once a month, a potential outbreak occurring across city/town limits may go unnoticed and uncontrolled.

The Center for Acute Disease Epidemiology (CADE) has an epidemiologist available during normal business hours (515) 242-5935 or (800) 362-2736 to answer questions about case investigation and control measures. Surveillance information is available during normal business hours at (515) 281-6493 for questions about reporting requirements. For disease reporting please call the Disease Reporting Hotline at (800) 362-2736. A medical epidemiologist is also available during non-work hours and weekends for emergency situations *e.g.,* if you receive several complaints and are concerned about a potential foodborne illness outbreak. All calls are returned promptly.

Examples of top priorities include:

- Clusters of illness
- Diseases that require prompt administration of countermeasures to prevent further spread and/or to reduce morbidity and mortality (*e.g.,* rabies, hepatitis A, or meningococcal invasive disease)
- Diseases with high mortality rates (*e.g.,* eastern equine encephalitis)
- Suspect bioterrorist agents (*e.g.,* anthrax or smallpox)
- Diseases that are unusual in the infected individual's demographic group or within a geographic region
- Disease with a high potential for spread to others (*e.g.,* measles)

Note*:* To help local public health agencies distinguish those diseases that pose a more serious public health threat, certain chapters have been flagged. These disease chapters have a box with the notation "Report Immediately" at the top of the first page. If you are unsure about which investigations to do first, or need technical assistance, contact the epidemiologist on-call at (800) 362-2736.

Confidentiality

Confidentiality is a legal requirement. The information that public health officials collect is often personal. Success and cooperation lies in protecting an individual's right to privacy. It is important to realize that confidentiality concerns extend beyond the investigator. Clerical staff,

administrative staff, interns and local public health agency members who may be aware of personal information on a case should all be familiar with and mindful of the basic tenets of maintaining confidentiality. Only individuals who have a "need to know" should have access to sensitive records. During and after an investigation, only those individuals directly involved in interviewing a case or contacts and/or those directly involved in follow-up activities to control the spread of the disease, fall into the category of "need to know." This category would normally not include general administrators, town officials, elected officials and others involved in town government who are not directly providing disease control services. Individuals assisting in general education to the public also have no need to know personally identifying information about a case.

If you are unsure about whether it is appropriate to release information, ***do not release it!*** Check with a supervisor, the municipal attorney or legal advisor, or contact the Center for Acute Disease Epidemiology at (515) 242-5935 or (800) 362-2736 for advice. Make sure information is released only to people who are authorized to receive it. Do not be pressured into a hasty decision. Do not confirm an individual case unless you are certain it is appropriate to release that information. If you are unsure about who is requesting information, obtain confirmation of the requestor's identity before releasing information *i.e.,* a signed consent form with documented identification such as a driver's license; for guardians, documentation of guardianship. Inappropriate release of data could pose a liability threat to your agency and/or municipality and possibly endanger affected individuals.

It is important to realize that information may be shared between local public health officials, healthcare providers, and with IDPH during the course of a public health investigations and control activities. However, even in these instances "need to know" applies. Information on individual cases may be obtained from IDPH Center for Acute Disease Epidemiology (CADE) only by the responsible representative of a local public health authority involved in an investigation of the case, the person who is the case, the health care provider involved, or the individual's guardian or designee (with written informed consent).

The IDPH strongly encourages local public health agencies to acquire a secure fax machine for the use of individuals involved in communicable disease reporting, investigation and control. This machine should be located in a secured area where disease control staff work and should not be accessible to the general public. Communicable disease control personnel's use of a fax machine shared by many personnel in town government presents a heightened risk for breach of confidentiality.

Remember the type of information released cannot personally identify a case. What facts could be released can change with each situation. For example, demographic information such as age, race, sex, or zip code could or could not be used depending how large the outbreak is, and whether it can be traced back to an individual case. The rule remains that if released information can identify or be traced back to an individual case, the information should not be released.

Local and state public health authorities have investigated cases of infectious disease and collected sensitive information for more than 100 years. These efforts would not be as successful if all personnel did not uphold the public's trust by maintaining strict confidentiality.

Important Points Regarding Confidentiality

- Everyone with access to case information is required to maintain confidentiality.
- Confidential information can be released only to those who "need to know."
- Be certain of the identity of the person to whom you release confidential information. Insist on confirmation of identity *e.g.* copy of driver's license, if unsure.
- Maintain confidentiality during reporting. If reporting by fax, be certain that the receiving number is a confidential fax *e.g.,* (515) 281-5698 is the number of the Center for Acute Disease Epidemiology, Surveillance Program confidential fax. When receiving information by fax to your office, confidentiality also must be maintained.
- Personally identifying information from case report forms and other forms **cannot be released** without the individual's signed consent, except to those directly involved in case investigation, control and prevention who have a "need to know."

Reporting by Clinicians: Throughout the country, reporting of diseases by clinicians is variable. Clinicians are more likely to report disease with high mortality or diseases spotlighted in local and national media. Some strategies to increase reporting by clinicians include:

- Education on the importance of reporting.
- Appropriate mechanisms for reporting.
- Identification of professional or support staff who work with clinicians and who are able to take on the responsibility for reporting of clinician-diagnosed reportable disease.
- Prioritization of reportable diseases that pose a more serious risk to public health.

Note: Local public health agencies (LPHA) having difficulty obtaining information from clinicians should contact the Center for Acute Disease Epidemiology at (515) 242-5935 for assistance. Also, sample letters outlining the roles and responsibilities of the local public health agency for use with healthcare providers and patients are available in disease specific chapters.

An important strategy to improve reporting by healthcare providers is to develop better working relationships with those in your jurisdiction through education, provision of reports on public health activities and disease data, and by asking for their participation in timely public health initiatives. This includes such things pandemic influenza planning, or a bioterrorism response and/or surveillance planning for emerging infections.

Healthcare providers do not always inform patients that a disease is reportable to local or state health departments. This may lead to distress in a patient when they are contacted for a case investigation. Healthcare provider education on this issue is a good strategy for LPHAs. The LPHA should ask when the test results and diagnoses were communicated to a patient. It is usually best to begin an investigation by contacting the reporting clinician.

Laboratory Reporting: Laboratory results are often reported directly to the IDPH from laboratories. This has led to more timely disease reporting. IDPH sends these laboratory results to LPHAs for follow-up using the Iowa Disease Surveillance System (IDSS). Some laboratories batch their test results and submit them periodically, potentially leading to long delays in receipt and identification or confirmation of cases. IDPH is working to eliminate this situation through laboratory education and the implementation of electronic laboratory data transmission via IDSS. The University of Iowa State Hygienic Laboratory (SHL) reports directly into IDSS. As

time progresses IDPH will reach out to additional laboratories to initiate secure electronic data submission.

Current laboratory systems often are not equipped to collect much of the information needed, nor are they linked directly to clinical/patient information systems. As hospital and laboratory databases become more integrated, better demographic information will become available. IDPH currently attempts to gather additional information when patient information is too limited to allow local public health agency follow-up.

Sentinel Surveillance and Reporting of Selected Diseases: In addition to passive, enhanced passive and active surveillance, IDPH has several "sentinel" surveillance projects. The primary purpose of sentinel surveillance is the initial and/or representative detection of disease, whether it is emergent or recurrent. This requires that the organization receiving data work closely with a select number of sites, *e.g.,* healthcare providers, laboratories, or school nurses, to supplement standard reporting. Sentinel surveillance reporting is particularly useful in providing warning of the arrival of a disease. For diseases that are high in volume and not individually reportable, such as influenza, it can also provide estimates about the burden of disease among the general population. Sentinel surveillance and reporting may also be helpful when monitoring a disease that is newly introduced to a population, such as West Nile virus, or when providing information about a disease disproportionately affecting specific populations, such as varicella surveillance in schools.

Limitations of Data; Under-Reporting and Incomplete Data: Because most surveillance systems are based on a passive disease reporting, under-reporting is inevitable. It is estimated that, depending on the disease, only 5% to 80% of cases that actually occur will be reported. For example, foodborne illness is often underreported because individuals with disease do not consult a healthcare provider, or a diagnosis of "gastrointestinal illness" is made and treated without any diagnostic tests that might identify the particular pathogen. Even with incomplete information, it is often possible to detect key trends and/or sources of infection. For diseases that occur less frequently, the need for completeness becomes more important. Each individual case must be treated as a "key" event.

Lack of Representativeness of Reported Cases: Health conditions are not reported randomly. For example, illnesses in a healthcare facility are reported more frequently than those diagnosed by outpatient care providers. A provider is more likely to report a case of hepatitis A if the patient is ill than if the patient has few or no symptoms. A case of meningitis is more likely to be reported than a case of chickenpox. Reporting bias can distort interpretation of disease data.

Changing/Evolving Case Definitions: Different practitioners frequently use different case definitions for health problems. The more complex the disease syndrome, the greater the difficulty in reaching consensus on a case definition. With newly emerging diseases and as understanding progresses, case definitions are frequently adjusted to allow greater accuracy of diagnosis. Also, as new diagnostic tests are developed, case definitions sometimes change to incorporate these tests. Case definitions establish uniform criteria for disease reporting and are not definitive for diagnosis. The case definitions used by IDPH for disease reporting are put forth by the Council of State and Territorial Epidemiologist (CSTE) and are used nationwide for accurate comparison of disease burden across states. The case definitions can be found at: www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm#top

Bioterrorism: Bioterrorism is the intentional use of disease agents to create fear, disrupt society or cause injuries and/or death. The use of biologic agents by terrorists may involve acts that are announced or otherwise immediately recognized. Alternatively, and considered to be more likely, would be the silent introduction of a biologic agent into the population that could take days to weeks before illness becomes apparent.

Because some diseases caused by bioterrorism may initially resemble common infectious diseases, the detection of a bioterrorist event may be difficult. **Local health departments should immediately notify the epidemiologist on-call for Center for Acute Disease Epidemiology at (800) 362-2730** if any of the following are noticed:

- A cluster of illness that is unexplained after preliminary investigation
- One or more cases of disease in a community in which the disease does not normally occur
- Illness in an unusual geographic distribution *e.g.,* patients all residing in one area possibly downwind of a point-location or in an unusual population or *e.g.,* serious pneumonia among young adults.

Local communities must lead the response to a bioterrorist event, or to any infectious disease emergency. Planning, exercising plans, and communication are important and will be most effective if a strong partnership among public health, first responders *e.g.,* fire departments, emergency management, law enforcement, local health care providers and hospitals have been developed in advance.

Conclusion: The best surveillance lies in collecting accurate and timely data, and in carefully and correctly interpreting the data. The interpretation should focus on elements that might lead to control and prevention of the condition. Investigators can use surveillance as a basis for appropriate public health actions. The results of such actions can be assessed for effectiveness. This manual is designed to give an overview of local public health agency responsibility for surveillance, reporting, control, and prevention of the diseases reportable to the Center of Acute Disease Epidemiology. As experience has proved, case investigation can vary greatly from setting to setting, and it is impossible to address all the questions and situations that may arise. The Center for Acute Disease Epidemiology is available at (515) 242-5935 to offer guidance and assistance as needed.

Reportable Disease Information

CHAPTER 139A COMMUNICABLE AND INFECTIOUS DISEASES AND POISONINGS

139A.1 TITLE.

This chapter shall be known as the *"Communicable and Infectious Disease Reporting and Control Act"*.

139A.2 DEFINITIONS.

For purposes of this chapter, unless the context otherwise requires:

1. *"Area quarantine"* means prohibiting ingress and egress to and from a building or buildings, structure or structures, or other definable physical location, or portion thereof, to prevent or contain the spread of a suspected or confirmed quarantinable disease or to prevent or contain exposure to a suspected or known chemical, biological, radioactive, or other hazardous or toxic agent.
2. *"Business"* means and includes every trade, occupation, or profession.
3. *"Care provider"* means an individual who is trained and authorized by federal or state law to provide health care services or services of any kind in the course of the individual's official duties, for compensation or in a voluntary capacity, who is a health care provider, emergency medical care provider as defined in section 147A.1, fire fighter, or peace officer. *"Care provider"* also means an individual who renders emergency care or assistance in an emergency or due to an accident as described in section 613.17.
4. *"Communicable disease"* means any disease spread from person to person or animal to person.
5. *"Contagious or infectious disease"* means hepatitis in any form, meningococcal disease, tuberculosis, and any other disease, with the exception of AIDS or HIV infection as defined in section 141A.1, determined to be life-threatening to a person exposed to the disease as established by rules adopted by the department, based upon a determination by the state epidemiologist and in accordance with guidelines of the centers for disease control and prevention of the United States department of health and human services.
6. *"Department"* means the Iowa department of public health.
7. *"Designated officer"* means a person who is designated by a department, agency, division, or service organization to act as an infection control liaison officer.
8. *"Exposure"* means the risk of contracting disease as determined by the centers for disease control and prevention of the United States department of health and human services and adopted by rule of the department.
9. *"Exposure-prone procedure"* means a procedure performed by a health care provider which presents a recognized risk of percutaneous injury to the health care provider and if such an injury occurs, the health care provider's blood is likely to contact a patient's body cavity, subcutaneous tissues, or mucous membranes, or an exposure-prone procedure as defined by the centers for disease control and prevention of the United States department of health and human services.
10. *"HBV"* means hepatitis B virus.
11. *"Health care facility"* means a health care facility as defined in section 135C.1, an ambulatory surgical center, or a clinic.
12. *"Health care provider"* means a person licensed to practice medicine and surgery, osteopathic medicine and surgery, chiropractic, podiatry, nursing, dentistry, optometry, or as a physician assistant, dental hygienist, or acupuncturist.
13. *"HIV"* means HIV as defined in section 141A.1.
14. *"Hospital"* means hospital as defined in section 135B.1.

15. *"Isolation"* means the separation of persons or animals presumably or actually infected with a communicable disease or who are disease carriers for the usual period of communicability of that disease in such places, marked by placards if necessary, and under such conditions as will prevent the direct or indirect conveyance of the infectious agent or contagion to susceptible persons.
16. *"Local board"* means the local board of health.
17. *"Local department"* means the local health department.
18. *"Placard"* means a warning sign to be erected and displayed on the periphery of a quarantine area, forbidding entry to or exit from the area.
19. *"Public health disaster"* means public health disaster as defined in section 135.140.
20. *"Quarantinable disease"* means any communicable disease designated by rule adopted by the department as requiring quarantine or isolation to prevent its spread.
21. *"Quarantine"* means the limitation of freedom of movement of persons or animals that have been exposed to a quarantinable disease within specified limits marked by placards for a period of time equal to the longest usual incubation period of the disease in such manner as to prevent the spread of a quarantinable disease which affects people.
22. *"Reportable disease"* means any disease designated by rule adopted by the department requiring its occurrence to be reported to an appropriate authority.
23. *"Sexually transmitted disease or infection"* means a disease or infection as identified by rules adopted by the department, based upon a determination by the state epidemiologist and in accordance with guidelines of the centers for disease control and prevention of the United States department of health and human services.
24. *"Terminal cleaning"* means cleaning procedures defined in the isolation guidelines issued by the centers for disease control and prevention of the United States department of health and human services.

139A.3 REPORTS TO DEPARTMENT -- IMMUNITY -- CONFIDENTIALITY -- INVESTIGATIONS.

1. The health care provider or public, private, or hospital clinical laboratory attending a person infected with a reportable disease shall immediately report the case to the department. However, when a case occurs within the jurisdiction of a local health department, the report shall be made to the local department and to the department. A health care provider or public, private, or hospital clinical laboratory who files such a report which identifies a person infected with a reportable disease shall assist in the investigation by the department, a local board, or a local department. The department shall publish and distribute instructions concerning the method of reporting. Reports shall be made in accordance with rules adopted by the department and shall require inclusion of all the following information:

a. The patient's name.
b. The patient's address.
c. The patient's date of birth.
d. The sex of the patient.
e. The race and ethnicity of the patient.
f. The patient's marital status.
g. The patient's telephone number.
h. The name and address of the laboratory.
i. The date the test was found to be positive and the collection date.

j. The name of the health care provider who performed the test.

k. If the patient is female, whether the patient is pregnant.

2. *a.* Any person who, acting reasonably and in good faith, files a report, releases information, or otherwise cooperates with an investigation under this chapter is immune from any liability, civil or criminal, which might otherwise be incurred or imposed for such action.

b. A report or other information provided to or maintained by the department, a local board, or a local department, which identifies a person infected with or exposed to a reportable or other disease or health condition, is confidential and shall not be accessible to the public.

c. Notwithstanding paragraph *"b"*, information contained in the report may be reported in public health records in a manner which prevents the identification of any person or business named in the report. If information contained in the report concerns a business, information disclosing the identity of the business may be released to the public when the state epidemiologist or the director of public health determines such a release of information necessary for the protection of the health of the public.

3. A health care provider or public, private, or hospital clinical laboratory shall provide the department, local board, or local department with all information reasonably necessary to conduct an investigation pursuant to this chapter upon request of the department, local board, or local department. The department may also subpoena records, reports, and any other evidence necessary to conduct an investigation pursuant to this chapter from other persons, facilities, and entities pursuant to rules adopted by the department.

139A.3A INVESTIGATION AND CONTROL.

When the department receives a report under this chapter or acts on other reliable information that a person is infected with a disease, illness, or health condition that may be a potential cause of a public health disaster, the department shall identify all individuals reasonably believed to have been exposed to the disease, illness, or health condition and shall investigate all such cases for sources of infection and ensure that such cases are subject to proper control measures. Any hospital, health care provider, or other person may provide information, interviews, reports, statements, memoranda, records, or other data related to the condition and treatment of any individual, if not otherwise prohibited by the federal Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191, to the department to be used for the limited purpose of determining whether a public health disaster exists.

139A.4 TYPE AND LENGTH OF ISOLATION OR QUARANTINE.

1. The type and length of isolation or quarantine imposed for a specific communicable disease shall be in accordance with rules adopted by the department.

2. The department and the local boards may impose and enforce isolation and quarantine restrictions.

3. The department shall adopt rules governing terminal cleaning.

4. The department and local boards may impose and enforce area quarantine restrictions according to rules adopted by the department. Area quarantine shall be imposed by the least restrictive means necessary to prevent or contain the spread of the suspected or confirmed quarantinable disease or suspected or known hazardous or toxic agent.

139A.5 ISOLATION OR QUARANTINE SIGNS ERECTED.

When isolation or a quarantine is established, appropriate placards prescribed by the department shall be erected to mark the boundaries of the place of isolation or quarantine.

139A.6 COMMUNICABLE DISEASES.

If a person, whether or not a resident, is infected with a communicable disease dangerous to the public health, the local board shall issue orders in regard to the care of the person as necessary to protect the public health. The orders shall be executed by the designated officer as the local board directs or provides by rules.

139A.7 DISEASED PERSONS MOVING -- RECORD FORWARDED.

If a person known to be suffering from a communicable disease dangerous to the public health moves from the jurisdiction of a local board into the jurisdiction of another local board, the local board from whose jurisdiction the person moves shall notify the local board into whose jurisdiction the person is moving.

139A.8 IMMUNIZATION OF CHILDREN.

1. A parent or legal guardian shall assure that the person's minor children residing in the state are adequately immunized against diphtheria, pertussis, tetanus, poliomyelitis, rubeola, rubella, and varicella, according to recommendations provided by the department subject to the provisions of subsections 3 and 4.

2. *a.* A person shall not be enrolled in any licensed child care center or elementary or secondary school in Iowa without evidence of adequate immunizations against diphtheria, pertussis, tetanus, poliomyelitis, rubeola, rubella, and varicella.

b. Evidence of adequate immunization against Haemophilus influenza B and invasive pneumococcal disease shall be required prior to enrollment in any licensed child care center.

c. Evidence of hepatitis type B immunization shall be required of a child born on or after July 1, 1994, prior to enrollment in school in kindergarten or in a grade.

d. Immunizations shall be provided according to recommendations provided by the department subject to the provisions of subsections 3 and 4.

3. Subject to the provision of subsection 4, the state board of health may modify or delete any of the immunizations in subsection 2.

4. *a.* Immunization is not required for a person's enrollment in any elementary or secondary school or licensed child care center if either of the following applies:

(1) The applicant, or if the applicant is a minor, the applicant's parent or legal guardian, submits to the admitting official a statement signed by a physician, advanced registered nurse practitioner, or physician assistant who is licensed by the board of medicine, board of nursing, or board of physician assistants that the immunizations required would be injurious to the health and well-being of the applicant or any member of the applicant's family.

(2) The applicant, or if the applicant is a minor, the applicant's parent or legal guardian, submits an affidavit signed by the applicant, or if the applicant is a minor, the applicant's parent or legal guardian, stating that the immunization conflicts with the tenets and practices of a recognized religious denomination of which the applicant is an adherent or member.

b. The exemptions under this subsection do not apply in times of emergency or epidemic as determined by the state board of health and as declared by the director of public health.

5. A person may be provisionally enrolled in an elementary or secondary school or licensed child care center if the person has begun the required immunizations and if the person continues to receive the necessary immunizations as rapidly as is medically feasible. The department shall adopt rules relating to the provisional admission of persons to an elementary or secondary school or licensed child care center.

6. The local board shall furnish the department, within sixty days after the first official day of school, evidence that each person enrolled in any elementary or secondary school has been immunized as required in this section subject to subsection 4. The department shall adopt rules pursuant to chapter 17A relating to the reporting of evidence of immunization.

7. Local boards shall provide the required immunizations to children in areas where no local provision of these services exists.

8. The department, in consultation with the director of the department of education, shall adopt rules for the implementation of this section and shall provide those rules to local school boards and local boards.

139A.8A VACCINE SHORTAGE -- DEPARTMENT ORDER -- IMMUNITY.

1. In the event of a shortage of a vaccine, or in the event a vaccine shortage is imminent, the department may issue an order controlling, restricting, or otherwise regulating the distribution and administration of the vaccine. The order may designate groups of persons which shall receive priority in administration of the vaccine and may prohibit vaccination of persons who are not included in a priority designation. The order shall include an effective date, which may be amended or rescinded only through a written order of the department. The order shall be applicable to health care providers, hospitals, clinics, pharmacies, health care facilities, local boards of health, public health agencies, and other persons or entities that distribute or administer vaccines.

2. A health care provider, hospital, clinic, pharmacy, health care facility, local board of health, public health agency, or other person or entity that distributes or administers vaccines shall not be civilly liable in any action based on a failure or refusal to distribute or administer a vaccine to any person if the failure or refusal to distribute or administer the vaccine was consistent with a department order issued pursuant to this section.

3. The department shall adopt rules to administer this section.

139A.9 FORCIBLE REMOVAL -- ISOLATION -- QUARANTINE.

The forcible removal and isolation or quarantine of any infected person shall be accomplished according to the rules and regulations of the local board or the rules of the state board of health.

139A.10 FEES FOR REMOVING.

The officers designated shall receive reasonable compensation for their services as determined by the local board. The amount determined shall be certified and paid in the same manner as other expenses incurred under this chapter.

139A.11 SERVICES AND SUPPLIES -- ISOLATION -- QUARANTINE.

If the person under isolation or quarantine or the person liable for the support of the person, in the opinion of the local board, is financially unable to secure proper care, provisions, or medical attendance, the local board shall furnish supplies and services during the period of isolation or quarantine and may delegate the duty, by rules, to one of its designated officers.

139A.12 COUNTY LIABILITY FOR CARE, PROVISIONS, AND MEDICAL ATTENDANCE.

The local board shall provide proper care, provisions, and medical attendance for any person removed and isolated or quarantined in a separate house or hospital for detention and treatment, and the care, provisions, and medical attendance shall be paid for by the county in which the infected person has a legal settlement, if the patient or legal guardian is unable to pay.

139A.13 RIGHTS OF ISOLATED OR QUARANTINED PERSONS.

Any person removed and isolated or quarantined in a separate house or hospital may, at the person's own expense, employ the health care provider of the person's choice, and may provide such supplies and commodities as the person may require.

139A.13A EMPLOYMENT PROTECTION.

1. An employer shall not discharge an employee, or take or fail to take action regarding an employee's promotion or proposed promotion, or take action to reduce an employee's wages or benefits for actual time worked, due to the compliance of an employee with a quarantine or isolation order or voluntary confinement request issued by the department, a local board, or the centers for disease control and prevention of the United States department of health and human services.
2. An employee whose employer violates this section may petition the court for imposition of a cease and desist order against the person's employer and for reinstatement to the person's previous position of employment. This section does not create a private cause of action for relief of money damages.

139A.14 SERVICES OR SUPPLIES -- AUTHORIZATION.

All services or supplies furnished to persons under this chapter must be authorized by the local board or an officer of the local board, and a written order designating the person employed to furnish such services or supplies, issued before the services or supplies are furnished, shall be attached to the bill when presented for audit and payment.

139A.15 FILING OF BILLS.

All bills incurred under this chapter in establishing, maintaining, and terminating isolation and quarantine, in providing a necessary house or hospital for isolation or quarantine, and in making terminal cleanings, shall be filed with the local board. The local board at its next regular meeting or special meeting called for this purpose shall examine and audit the bills and, if found correct, approve and certify the bills to the county board of supervisors for payment.

139A.16 ALLOWING CLAIMS.

All bills for supplies furnished and services rendered for persons removed and isolated or quarantined in a separate house or hospital, or for persons financially unable to provide their own sustenance and care during isolation or quarantine, shall be allowed and paid for only on a basis of the local market price for such provisions, services, and supplies in the locality furnished. A bill for the terminal cleaning of premises or effects shall not be allowed, unless the infected person or those liable for the person's support are financially unable to pay.

139A.17 APPROVAL AND PAYMENT OF CLAIMS.

The board of supervisors is not bound by the action of the local board in approving the bills, but shall pay the bills for a reasonable amount and within a reasonable time.

139A.18 REIMBURSEMENT FROM COUNTY.

If any person receives services or supplies under this chapter who does not have a legal settlement in the county in which the bills were incurred and paid, the amount paid shall be certified to the board of supervisors of the county in which the person claims settlement or owns property, and the board of supervisors of that county shall reimburse the county from which the claim is certified, in the full amount originally paid.

139A.19 CARE PROVIDER NOTIFICATION.

1. *a.* Notwithstanding any provision of this chapter to the contrary, if a care provider sustains an exposure from an individual while rendering health care services or other services, the individual to whom the care provider was exposed is deemed to consent to a test to determine if the individual has a contagious or infectious disease and is deemed to consent to notification of the care provider of the results of the test, upon submission of an exposure report by the care provider to the hospital or other person specified in this section to whom the individual is delivered by the care provider. The exposure report form may be incorporated into the Iowa prehospital care report, the Iowa prehospital advanced care report, or a similar report used by an ambulance, rescue, or first response service or law enforcement agency.

b. The hospital or other person specified in this section to whom the individual is delivered shall conduct the test. If the individual is delivered by the care provider to an institution administered by the Iowa department of corrections, the test shall be conducted by the staff physician of the institution. If the individual is delivered by the care provider to a jail, the test shall be conducted by the attending physician of the jail or the county medical examiner. The sample and test results shall only be identified by a number and shall not otherwise identify the individual tested.

c. A hospital, institutions administered by the department of corrections, and jails shall have written policies and procedures for notification of a care provider under this section. The policies and procedures shall include designation of a representative of the care provider to whom notification shall be provided and who shall, in turn, notify the care provider. The identity of the designated representative of the care provider shall not be revealed to the individual tested. The designated representative shall inform the hospital, institution administered by the department of corrections, or jail of those parties who received the notification, and following receipt of this information and upon request of the individual tested, the hospital, institution administered by the department

of corrections, or jail shall inform the individual of the parties to whom notification was provided.

d. Notwithstanding any other provision of law to the contrary, a care provider may transmit cautions regarding contagious or infectious disease information in the course of the care provider's duties over the police radio broadcasting system under chapter 693 or any other radio-based communications system if the information transmitted does not personally identify an individual.

2. If the individual tested is diagnosed or confirmed as having a contagious or infectious disease, the hospital or other person conducting the test shall notify the care provider or the designated representative of the care provider who shall then notify the care provider.

3. The notification to the care provider shall advise the care provider of possible exposure to a particular contagious or infectious disease and recommend that the care provider seek medical attention. The notification shall be provided as soon as is reasonably possible following determination that the individual has a contagious or infectious disease. The notification shall not include

> the name of the individual tested for the contagious or infectious disease unless the individual consents. If the care provider who sustained an exposure determines the identity of the individual diagnosed or confirmed as having a contagious or infectious disease, the identity of the individual shall be confidential information and shall not be disclosed by the care provider to any other person unless a specific written release is obtained from the individual diagnosed with or confirmed as having a contagious or infectious disease.

4. This section does not require or permit, unless otherwise provided, a hospital, health care provider, or other person to administer a test for the express purpose of determining the presence of a contagious or infectious disease, except that testing may be performed if the individual consents and if the requirements of this section are satisfied.

5. This section does not preclude a hospital or a health care provider from providing notification to a care provider under circumstances in which the hospital's or health care provider's policy provides for notification of the hospital's or health care provider's own employees of exposure to a contagious or infectious disease that is not life-threatening if the notice does not reveal a patient's name, unless the patient consents.

6. A hospital, health care provider, or other person participating in good faith in complying with provisions authorized or required under this section is immune from any liability, civil or criminal, which might otherwise be incurred or imposed.

7. A hospital's or health care provider's duty of notification under this section is not continuing but is limited to a diagnosis of a contagious or infectious disease made in the course of admission, care, and treatment following the rendering of health care services or other services to which notification under this section applies.

8. A hospital, health care provider, or other person who is authorized to perform a test under this section who performs the test in compliance with this section or who fails to perform the test authorized under this section, is immune from any liability, civil or criminal, which might otherwise be incurred or imposed.

9. A hospital, health care provider, or other person who is authorized to perform a test under this section has no duty to perform the test authorized.

10. The department shall adopt rules pursuant to chapter 17A to administer this section. The department may determine by rule the contagious or infectious diseases for which testing is reasonable and appropriate and which may be administered under this section.
11. The employer of a care provider who sustained an exposure under this section shall pay the costs of testing for the individual who is the source of the exposure and of the testing of the care provider, if the exposure was sustained during the course of employment. However, the department shall pay the costs of testing for the individual who is the source of the significant exposure and of the testing of the care provider who renders direct aid without compensation.

139A.20 EXPOSING TO COMMUNICABLE DISEASE.

A person who knowingly exposes another to a communicable disease or who knowingly subjects another to a child or other legally incapacitated person who has contracted a communicable disease, with the intent that another person contract the communicable disease, shall be liable for all resulting damages and shall be punished as provided in this chapter.

139A.21 REPORTABLE POISONINGS AND ILLNESSES -- EMERGENCY INFORMATION SYSTEM.

1. If the results of an examination by a public, private, or hospital clinical laboratory of a specimen from a person in Iowa yield evidence of or are reactive for a reportable poisoning or a reportable illness from a toxic agent, including methemoglobinemia, the results shall be reported to the department on forms prescribed by the department. If the laboratory is located in Iowa, the person in charge of the laboratory shall report the results. If the laboratory is not in Iowa, the health care provider submitting the specimen shall report the results.
2. The health care provider attending a person infected with a reportable poisoning or a reportable illness from a toxic agent, including methemoglobinemia, shall immediately report the case to the department. The department shall publish and distribute instructions concerning the method of reporting. Reports shall be made in accordance with rules adopted by the department.
3. A person in charge of a poison control information center shall report to the department cases of reportable poisoning, received.
4. The department shall adopt rules designating reportable poisonings, including methemoglobinemia, and illnesses which must be reported under this section.
5. The department shall establish and maintain a central registry to collect and store data reported pursuant to this section.
6. The department shall timely provide copies of all reports of pesticide poisonings or illnesses received pursuant to this section to the secretary of agriculture who shall timely forward these reports and any reports of pesticide poisonings or illnesses received pursuant to section 206.14 to the registrant of a pesticide which is the subject of any reports.
7. The department shall adopt rules specifying the requirements for the operation of an emergency information system operated by a registrant pursuant to section 206.12, subsection 3, paragraph *"c"*, which shall not exceed requirements adopted by a poison control center as defined in section 206.2. The rules shall specify the qualifications of individuals staffing an emergency information system and shall specify the maximum

amount of time that a registrant may take to provide the information to a poison control center or an attending physician treating a patient exposed to the registrant's product.

139A.22 PREVENTION OF TRANSMISSION OF HIV OR HBV TO PATIENTS.

1. A hospital shall adopt procedures requiring the establishment of protocols applicable on a case-by-case basis to a health care provider determined to be infected with HIV or HBV who ordinarily performs exposure-prone procedures as determined by an expert review panel, within the hospital setting. The protocols established shall be in accordance with the recommendations issued by the centers for disease control and prevention of the United States department of health and human services. The expert review panel may be an established committee of the hospital. The procedures may provide for referral of the health care provider to the expert review panel established by the department pursuant to subsection 3 for establishment of the protocols. The procedures shall require reporting noncompliance with the protocols by a health care provider to the licensing board with jurisdiction over the relevant health care providers.
2. A health care facility shall adopt procedures in accordance with recommendations issued by the centers for disease control and prevention of the United States department of health and human services, applicable to a health care provider determined to be infected with HIV or HBV who ordinarily performs or assists with exposure-prone procedures within the health care facility. The procedures shall require referral of the health care provider to the expert review panel established by the department pursuant to subsection 3.
3. The department shall establish an expert review panel to determine on a case-by-case basis under what circumstances, if any, a health care provider determined to be infected with HIV or HBV practicing outside the hospital setting or referred to the panel by a hospital or health care facility may perform exposure-prone procedures. If a health care provider determined to be infected with HIV or HBV does not comply with the determination of the expert review panel, the panel shall report the noncompliance to the licensing board with jurisdiction over the health care provider. A determination of an expert review panel pursuant to this section is a final agency action appealable pursuant to section 17A.19.
4. The health care provider determined to be infected with HIV or HBV, who works in a hospital setting, may elect either the expert review panel established by the hospital or the expert review panel established by the department for the purpose of making a determination of the circumstances under which the health care provider may perform exposure-prone procedures.
5. A health care provider determined to be infected with HIV or HBV shall not perform an exposure-prone procedure except as approved by the expert review panel established by the department pursuant to subsection 3, or in compliance with the protocol established by the hospital pursuant to subsection 1 or the procedures established by the health care facility pursuant to subsection 2.
6. The board of medicine, the board of physician assistants, the board of podiatry, the board of nursing, the dental board, and the board of optometry shall require that licensees comply with the recommendations issued by the centers for disease control and prevention of the United States department of health and human services for preventing transmission of human immunodeficiency virus and hepatitis B virus to patients during exposure-prone invasive procedures, with the recommendations of the expert review panel established pursuant to subsection 3, with hospital protocols

established pursuant to subsection 1, and with health care facility procedures established pursuant to subsection 2, as applicable.
7. Information relating to the HIV status of a health care provider is confidential and subject to the provisions of section 141A.9. A person who intentionally or recklessly makes an unauthorized disclosure of such information is subject to a civil penalty of one thousand dollars. The attorney general or the attorney general's designee may maintain a civil action to enforce this section. Proceedings maintained under this section shall provide for the anonymity of the health care provider and all documentation shall be maintained in a confidential manner. Information relating to the HBV status of a health care provider is confidential and shall not be accessible to the public. Information regulated by this section, however, may be disclosed to members of the expert review panel established by the department or a panel established by hospital protocol under this section. The information may also be disclosed to the appropriate licensing board by filing a report as required by this section. The licensing board shall consider the report a complaint subject to the confidentiality provisions of section 272C.6. A licensee, upon the filing of a formal charge or notice of hearing by the licensing board based on such a complaint, may seek a protective order from the board.
8. The expert review panel established by the department and individual members of the panel shall be immune from any liability, civil or criminal, for reasonable actions taken in the good faith performance of functions authorized or required by this section. A hospital, an expert review panel established by the hospital, and individual members of the panel shall be immune from any liability, civil or criminal, for reasonable actions taken in the good faith performance of functions authorized or required by this section.Complaints, investigations, reports, deliberations, and findings of the hospital and its panel with respect to a named health care provider suspected, alleged, or found to be in violation of the protocol required by this section constitute peer review records under section 147.135, and are subject to the specific confidentiality requirements and limitations of that section.

139A.23 CONTINGENT REPEAL.

If the provisions of Pub. L. No. 102-141 relating to requirements for prevention of transmission of HIV or HBV to patients in the performance of exposure-prone procedures are repealed, section 139A.22 is repealed.

139A.24 BLOOD DONATION OR SALE -- PENALTY.

A person suffering from a communicable disease dangerous to the public health who knowingly gives false information regarding the person's infected state on a blood plasma sale application to blood plasma-taking personnel commits a serious misdemeanor.

139A.25 PENALTIES.

1. Unless otherwise provided in this chapter, a person who knowingly violates any provision of this chapter, or of the rules of the department or a local board, or any lawful order, written or oral, of the department or board, or of their officers or authorized agents, is guilty of a simple misdemeanor.
2. Notwithstanding subsection 1, an individual who repeatedly fails to file any mandatory report specified in this chapter is subject to a report being made to the licensing board governing the professional activities of the individual. The department

shall notify the individual each time that the department determines that the individual has failed to file a required report. The department shall inform the individual in the notification that the individual may provide information to the department to explain or dispute the failure to report.
3. Notwithstanding subsection 1, a public, private, or hospital clinical laboratory that repeatedly fails to file a mandatory report specified in this chapter is subject to a civil penalty of not more than one thousand dollars per occurrence. The department shall not impose the penalty under this subsection without prior written notice and opportunity for hearing.

139A.26 MENINGOCOCCAL DISEASE VACCINATION INFORMATION FOR POSTSECONDARY STUDENTS.

1. Each institution of higher education that has an on-campus residence hall or dormitory shall provide vaccination information on meningococcal disease to each student enrolled in the institution. The vaccination information shall be contained on student health forms provided to each student by the institution, which forms shall include space for the student to indicate whether or not the student has received the vaccination against meningococcal disease. The vaccination information about meningococcal disease shall include any recommendations issued by the national centers for disease control and prevention regarding the disease. Vaccination information obtained under this section that is in the possession of an institution of higher education pursuant to this section shall not be considered a public record. Data obtained under this section shall be submitted annually to the department in a manner prescribed by the department and such that no individual person can be identified.
2. This section shall not be construed to require any institution of higher education to provide the vaccination against meningococcal disease to students.
3. This section shall not apply if the national centers for disease control and prevention no longer recommend the meningococcal disease vaccine.
4. This section does not create a private right of action.
5. The department shall adopt rules for administration of this section. The department shall review the requirements of this section at least every five years, and shall submit its recommendations for modification to, or continuation of, this section based upon new information about the disease or vaccination against the disease in a report that shall be submitted to the general assembly no later than January 15, 2010, with subsequent reports developed and submitted by January 15 at least every fifth year thereafter.

139A.27 THROUGH 139A.29 Reserved.

139A.30 CONFIDENTIAL REPORTS.

Reports to the department which include the identity of persons infected with a sexually transmitted disease or infection, and all such related information, records, and reports concerning the person, shall be confidential and shall not be accessible to the public. However, such reports, information, and records shall be confidential only to the extent necessary to prevent identification of persons named in such reports, information, and records; the other parts of such reports, information, and records shall be public records. The preceding sentence shall prevail over any inconsistent provision of this subchapter.

139A.31 REPORT TO DEPARTMENT.

Immediately after the first examination or treatment of any person infected with any sexually transmitted disease or infection, the health care provider who performed the examination or treatment shall transmit to the department a report stating the name of the infected person, the address of the infected person, the infected person's date of birth, the sex of the infected person, the race and ethnicity of the infected person, the infected person's marital status, the infected person's telephone number, if the infected person is female, whether the infected person is pregnant, the name and address of the laboratory that performed the test, the date the test was found to be positive and the collection date, and the name of the health care provider who performed the test. However, when a case occurs within the jurisdiction of a local health department, the report shall be made directly to the local health department which shall immediately forward the information to the department. Reports shall be made in accordance with rules adopted by the department. Reports shall be confidential. Any person filing a report of a sexually transmitted disease or infection who is acting reasonably and in good faith is immune from any liability, civil or criminal, which might otherwise be incurred or imposed as a result of such report.

139A.32 EXAMINATION RESULTS FROM LABORATORY -- REPORT.

A person in charge of a public, private, or hospital clinical laboratory shall report to the department, on forms prescribed by the department, results obtained in the examination of all specimens which yield evidence of or are reactive for those diseases defined as sexually transmitted diseases or infections, and listed in the Iowa administrative code. The report shall state the name of the infected person from whom the specimen was obtained, the address of the infected person, the infected person's date of birth, the sex of the infected person, the race and ethnicity of the infected person, the infected person's marital status, the infected person's telephone number, if the infected person is female, whether the infected person is pregnant, the name and address of the laboratory that performed the test, the laboratory results, the test employed, the date the test was found to be positive and the collection date, the name of the health care provider who performed the test, and the name and address of the person submitting the specimen.

139A.33 DETERMINATION OF SOURCE.

The local board or the department shall use every available means to determine the source and spread of any infectious case of sexually transmitted disease or infection which is reported.

139A.34 EXAMINATION OF PERSONS SUSPECTED.

The local board shall cause an examination to be made of every person reasonably suspected, on the basis of epidemiological investigation, of having any sexually transmitted disease or infection in the infectious stages to ascertain if such person is infected and, if infected, to cause such person to be treated. A person who is under the care and treatment of a health care provider for the suspected condition shall not be subjected to such examination. If a person suspected of having a sexually transmitted disease or infection refuses to submit to an examination voluntarily, application may be made by the local board to the district court for an order compelling the person to submit to examination and, if infected, to treatment. The person shall be treated until

certified as no longer infectious to the local board or to the department. If treatment is ordered by the district court, the attending health care provider shall certify that the person is no longer infectious.

139A.35 MINORS.

A minor shall have the legal capacity to act and give consent to provision of medical care or services to the minor for the prevention, diagnosis, or treatment of a sexually transmitted disease or infection by a hospital, clinic, or health care provider. Such medical care or services shall be provided by or under the supervision of a physician licensed to practice medicine and surgery or osteopathic medicine and surgery, a physician assistant, or an advanced registered nurse practitioner. Consent shall not be subject to later disaffirmance by reason of such minority. The consent of another person, including but not limited to the consent of a spouse, parent, custodian, or guardian, shall not be necessary.

139A.36 CERTIFICATE NOT TO BE ISSUED.

A certificate of freedom from sexually transmitted disease or infection shall not be issued to any person by any official health agency.

139A.37 PREGNANT WOMEN.

The department shall adopt rules which incorporate the prenatal guidelines established by the centers for disease control and prevention of the United States department of health and human services as the state guidelines for prenatal testing and care relative to infectious disease.

139A.38 MEDICAL TREATMENT OF NEWLY BORN.

A physician attending the birth of a child shall cause to be instilled into the eyes of the newly born infant a prophylactic solution approved by the department. This section shall not be construed to require treatment of the infant's eyes with a prophylactic solution if the infant's parent or legal guardian states that such treatment conflicts with the tenets and practices of a recognized religious denomination of which the parent or legal guardian is an adherent or member.

139A.39 RELIGIOUS EXCEPTIONS.

A provision of this chapter shall not be construed to require or compel any person to take or follow a course of medical treatment prescribed by law or a health care provider if the person is an adherent or member of a church or religious denomination and in accordance with the tenets or principles of the person's church or religious denomination the person opposes the specific course of medical treatment. However, such person while in an infectious stage of disease shall be subject to isolation and such other measures appropriate for the prevention of the spread of the disease to other persons.

139A.40 FILING FALSE REPORTS.

A person who knowingly makes a false statement in any of the reports required by this subchapter concerning persons infected with any sexually transmitted disease or infection, or who discloses the identity of such person, except as authorized by this subchapter, shall be punished as provided in section 139A.25.

139A.41 CHLAMYDIA AND GONORRHEA TREATMENT.

Notwithstanding any other provision of law to the contrary, a physician, physician assistant, or advanced registered nurse practitioner who diagnoses a sexually transmitted chlamydia or gonorrhea infection in an individual patient may prescribe, dispense, furnish, or otherwise provide prescription oral antibiotic drugs to that patient's sexual partner or partners without examination of that patient's partner or partners. If the infected individual patient is unwilling or unable to deliver such prescription drugs to a sexual partner or partners, a physician, physician assistant, or advanced registered nurse practitioner may dispense, furnish, or otherwise provide the prescription drugs to the department or local disease prevention investigation staff for delivery to the partner or partners.

CHAPTER 141A ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)

141A.1 DEFINITIONS.

As used in this chapter, unless the context otherwise requires:

1. *"AIDS"* means acquired immune deficiency syndrome as defined by the centers for disease control and prevention of the United States department of health and human services.
2. *"AIDS-related conditions"* means any condition resulting from the human immunodeficiency virus infection that meets the definition of AIDS as established by the centers for disease control and prevention of the United States department of health and human services.
3. *"Blinded epidemiological studies"* means studies in which specimens which were collected for other purposes are selected according to established criteria, are permanently stripped of personal identifiers, and are then tested.
4. *"Blood bank"* means a facility for the collection, processing, or storage of human blood or blood derivatives, including blood plasma, or from which or by means of which human blood or blood derivatives are distributed or otherwise made available.
5. *"Care provider"* means an individual who is trained and authorized by federal or state law to provide health care services or services of any kind in the course of the individual's official duties, for compensation or in a voluntary capacity, who is a health care provider, emergency medical care provider as defined in section 147A.1, fire fighter, or peace officer. *"Care provider"* also means an individual who renders emergency care or assistance in an emergency or due to an accident as described in section 613.17.
6. *"Department"* means the Iowa department of public health.
7. *"Good faith"* means objectively reasonable and not in violation of clearly established statutory rights or other rights of a person which a reasonable person would know or should have known.
8. *"Health care provider"* means a person licensed to practice medicine and surgery, osteopathic medicine and surgery, chiropractic, podiatry, nursing, dentistry, or optometry, or as a physician assistant, dental hygienist, or acupuncturist.
9. *"Health facility"* means a hospital, health care facility, clinic, blood bank, blood center, sperm bank, laboratory organ transplant center and procurement agency, or other health care institution.

10. *"HIV"* means the human immunodeficiency virus identified as the causative agent of AIDS.
11. *"HIV-related condition"* means any condition resulting from the human immunodeficiency virus infection.
12. *"HIV-related test"* means a diagnostic test conducted by a laboratory approved pursuant to the federal Clinical Laboratory Improvement Amendments for determining the presence of HIV or antibodies to HIV.
13. *"Infectious bodily fluids"* means bodily fluids capable of transmitting HIV infection as determined by the centers for disease control and prevention of the United States department of health and human services and adopted by rule of the department.
14. *"Legal guardian"* means a person appointed by a court pursuant to chapter 633 or an attorney in fact as defined in section 144B.1. In the case of a minor, *"legal guardian"* also means a parent or other person responsible for the care of the minor.
15. *"Nonblinded epidemiological studies"* means studies in which specimens are collected for the express purpose of testing for the HIV infection and persons included in the nonblinded study are selected according to established criteria.
16. *"Release of test results"* means a written authorization for disclosure of HIV-related test results which is signed and dated, and which specifies to whom disclosure is authorized and the time period during which the release is to be effective.
17. *"Sample"* means a human specimen obtained for the purpose of conducting an HIV-related test.
18. *"Significant exposure"* means the risk of contracting HIV infection by means of exposure to a person's infectious bodily fluids in a manner capable of transmitting HIV infection as determined by the centers for disease control and prevention of the United States department of health and human services and adopted by rule of the department.

141A.2 LEAD AGENCY.

1. The department is designated as the lead agency in the coordination and implementation of the Iowa comprehensive HIV plan.
2. The department shall adopt rules pursuant to chapter 17A to implement and enforce this chapter. The rules may include procedures for taking appropriate action with regard to health facilities or health care providers which violate this chapter or the rules adopted pursuant to this chapter.
3. The department shall adopt rules pursuant to chapter 17A which require that if a health care provider attending a person prior to the person's death determines that the person suffered from or was suspected of suffering from a contagious or infectious disease, the health care provider shall place with the remains written notification of the condition for the information of any person handling the body of the deceased person subsequent to the person's death. For purposes of this subsection, *"contagious or infectious disease"* means hepatitis in any form, meningococcal disease, tuberculosis, and any other disease including AIDS or HIV infection, determined to be life-threatening to a person exposed to the disease as established by rules adopted by the department based upon a determination by the state epidemiologist and in accordance with guidelines of the centers for disease control and prevention of the United States department of health and human services.
4. The department shall provide consultation services to all care providers, including paramedics, ambulance personnel, physicians, nurses, hospital personnel, first

responders, peace officers, and fire fighters, who provide care services to a person, and to all persons who attend dead bodies regarding standard precautions to prevent the transmission of contagious and infectious diseases.
5. The department shall coordinate efforts with local health officers to investigate sources of HIV infection and use every appropriate means to prevent the spread of the infection.
6. The department, with the approval of the state board of health, may conduct epidemiological blinded and nonblinded studies to determine the incidence and prevalence of HIV infection. Initiation of any new epidemiological studies shall be contingent upon the receipt of funding sufficient to cover all the costs associated with the studies. The informed consent, reporting, and counseling requirements of this chapter shall not apply to blinded studies.

141A.3 DUTIES OF THE DEPARTMENT.

1. All federal and state moneys appropriated to the department for HIV-related activities shall be utilized and distributed in a manner consistent with the guidelines established by the United States department of health and human services.
2. The department shall do all of the following:
a. Provide consultation services to agencies and organizations regarding appropriate policies for testing, education, confidentiality, and infection control.
b. Provide health information to the public regarding HIV infection, including information about how the infection is transmitted and how transmittal can be prevented. The department shall prepare and distribute information regarding HIV infection and prevention.
c. Provide consultation services concerning HIV infection in the workplace.
d. Implement HIV education risk-reduction programs for specific populations at high risk for infection.
e. Provide an informational brochure for patients who provide samples for purposes of performing an HIV test which, at a minimum, shall include a summary of the patient's rights and responsibilities under the law.
f. In cooperation with the department of education, recommend evidence-based, medically accurate HIV prevention curricula for use at the discretion of secondary and middle schools.

141A.4 TESTING AND EDUCATION.

1. HIV testing and education shall be offered to persons who are at risk for HIV infection including all of the following:
a. All persons testing positive for a sexually transmitted disease.
b. All persons having a history of injecting drug abuse.
c. Male and female sex workers and those who trade sex for drugs, money, or favors.
d. Sexual partners of HIV-infected persons.
e. Persons whose sexual partners are identified in paragraphs *"a"* through *"d"*.
2. *a.* All pregnant women shall be tested for HIV infection as part of the routine panel of prenatal tests.
b. A pregnant woman shall be notified that HIV screening is recommended for all prenatal patients and that the pregnant woman will receive an HIV test as part of the routine panel of prenatal tests unless the pregnant woman objects to the test.

c. If a pregnant woman objects to and declines the test, the decision shall be documented in the pregnant woman's medical record.
d. Information about HIV prevention, risk reduction, and treatment opportunities to reduce the possible transmission of HIV to a fetus shall be made available to all pregnant women.

141A.5 PARTNER NOTIFICATION PROGRAM -- HIV.

1. The department shall maintain a partner notification program for persons known to have tested positive for HIV infection.
2. In administering the program, the department shall provide for the following:
a. A person who tests positive for HIV infection shall receive post-test counseling, during which time the person shall be encouraged to refer for counseling and HIV testing any person with whom the person has had sexual relations or has shared drug injecting equipment.
b. The physician or other health care provider attending the person may provide to the department any relevant information provided by the person regarding any person with whom the tested person has had sexual relations or has shared drug injecting equipment.
c. (1) Devise a procedure, as a part of the partner notification program, to provide for the notification of an identifiable third party who is a sexual partner of or who shares drug injecting equipment with a person who has tested positive for HIV, by the department or a physician, when all of the following situations exist:
(a) A physician for the infected person is of the good faith opinion that the nature of the continuing contact poses an imminent danger of HIV infection transmission to the third party.
(b) When the physician believes in good faith that the infected person, despite strong encouragement, has not and will not warn the third party and will not participate in the voluntary partner notification program.
(2) Notwithstanding subsection 3, the department or a physician may reveal the identity of a person who has tested positive for HIV infection pursuant to this subsection only to the extent necessary to protect a third party from the direct threat of transmission. This subsection shall not be interpreted to create a duty to warn third parties of the danger of exposure to HIV through contact with a person who tests positive for HIV infection.
(3) The department shall adopt rules pursuant to chapter 17A to implement this paragraph *"c"*. The rules shall provide a detailed procedure by which the department or a physician may directly notify an endangered third party.
3. In making contact the department shall not disclose the identity of the person who provided the names of the persons to be contacted and shall protect the confidentiality of persons contacted.
4. The department may delegate its partner notification duties under this section to local health authorities unless the local authority refuses or neglects to conduct the partner notification program in a manner deemed to be effective by the department.
5. In addition to the provisions for partner notification provided under this section and notwithstanding any provision to the contrary, a county medical examiner or deputy medical examiner performing official duties pursuant to sections 331.801 through 331.805 or the state medical examiner or deputy medical examiner performing official duties pursuant to chapter 691, who determines through an investigation that a deceased person was infected with HIV, may notify directly, or request that the

department notify, the immediate family of the deceased or any person known to have had a significant exposure from the deceased of the finding.

141A.6 HIV-RELATED CONDITIONS -- CONSENT, TESTING, AND REPORTING -- PENALTY.

1. Prior to undergoing an HIV-related test, information shall be available to the subject of the test concerning testing and any means of obtaining additional information regarding HIV infection and risk reduction. If an individual signs a general consent form for the performance of medical tests or procedures, the signing of an additional consent form for the specific purpose of consenting to an HIV-related test is not required during the time in which the general consent form is in effect. If an individual has not signed a general consent form for the performance of medical tests and procedures or the consent form is no longer in effect, a health care provider shall obtain oral or written consent prior to performing an HIV-related test. If an individual is unable to provide consent, the individual's legal guardian may provide consent. If the individual's legal guardian cannot be located or is unavailable, a health care provider may authorize the test when the test results are necessary for diagnostic purposes to provide appropriate urgent medical care.

2. Within seven days of the receipt of a test result indicating HIV infection which has been confirmed as positive according to prevailing medical technology or immediately after the initial examination or treatment of an individual infected with HIV, the physician or other health care provider at whose request the test was performed or who performed the initial examination or treatment shall make a report to the department on a form provided by the department.

3. Within seven days of diagnosing a person as having AIDS or an AIDS-related condition, the diagnosing physician shall make a report to the department on a form provided by the department.

4. Within seven days of the death of a person with HIV infection, the attending physician shall make a report to the department on a form provided by the department.

5. Within seven days of the receipt of a test result indicating HIV infection which has been confirmed as positive according to prevailing medical technology, the director of a blood bank shall make a report to the department on a form provided by the department.

6. Within seven days of the receipt of a test result that is indicative of HIV, the director of a clinical laboratory shall make a report to the department on a form provided by the department.

7. The forms provided by the department shall require inclusion of all of the following information:

a. The name of the patient.

b. The address of the patient.

c. The patient's date of birth.

d. The gender of the patient.

e. The race and ethnicity of the patient.

f. The patient's marital status.

g. The patient's telephone number.

h. If an HIV-related test was performed, the name and address of the laboratory or blood bank.

i. If an HIV-related test was performed, the date the test was found to be positive and the collection date.

j. If an HIV-related test was performed, the name of the physician or health care provider who performed the test.

k. If the patient is female, whether the patient is pregnant.

8. An individual who repeatedly fails to file the report required under this section is subject to a report being made to the licensing board governing the professional activities of the individual. The department shall notify the individual each time the department determines that the individual has failed to file a required report. The department shall inform the individual in the notification that the individual may provide information to the department to explain or dispute the failure to report.

9. A public, private, or hospital clinical laboratory that repeatedly fails to make the report required under this section is subject to a civil penalty of not more than one thousand dollars per occurrence. The department shall not impose the penalty under this subsection without prior written notice and opportunity for hearing.

141A.7 TEST RESULTS -- COUNSELING -- APPLICATION FOR SERVICES.

1. At any time that the subject of an HIV-related test is informed of confirmed positive test results, counseling concerning the emotional and physical health effects shall be initiated. Particular attention shall be given to explaining the need for the precautions necessary to avoid transmitting the virus. The subject shall be given information concerning additional counseling. If the legal guardian of the subject of the test provides consent to the test pursuant to section 141A.6, the provisions of this subsection shall apply to the legal guardian.

2. Notwithstanding subsection 1, the provisions of this section do not apply to any of the following:

a. The performance by a health care provider or health facility of an HIV-related test when the health care provider or health facility procures, processes, distributes, or uses a human body part donated for a purpose specified under the revised uniform anatomical gift Act as provided in chapter 142C, or semen provided prior to July 1, 1988, for the purpose of artificial insemination, or donations of blood, and such test is necessary to ensure medical acceptability of such gift or semen for the purposes intended.

b. A person engaged in the business of insurance who is subject to section 505.16.

c. The performance by a health care provider or health facility of an HIV-related test when the subject of the test is deceased and a documented significant exposure has occurred.

d. The performance by a health care provider or health facility of an HIV-related test when the subject of the test is unable to provide consent and the health care provider or health care facility provides consent for the patient pursuant to section 141A.6.

3. A person may apply for voluntary treatment, contraceptive services, or screening or treatment for HIV infection and other sexually transmitted diseases directly to a licensed physician and surgeon, an osteopathic physician and surgeon, or a family planning clinic. Notwithstanding any other provision of law, however, a minor shall be informed prior to testing that, upon confirmation according to prevailing medical technology of a positive HIV-related test result, the minor's legal guardian is required to be informed by the testing facility. Testing facilities where minors are tested shall have available a program to assist minors and legal guardians with the notification process which emphasizes the

need for family support and assists in making available the resources necessary to accomplish that goal. However, a testing facility which is precluded by federal statute, regulation, or centers for disease control and prevention guidelines from informing the legal guardian is exempt from the notification requirement. The minor shall give written consent to these procedures and to receive the services, screening, or treatment. Such consent is not subject to later disaffirmance by reason of minority.

141A.8 CARE PROVIDER NOTIFICATION.

1. *a.* Notwithstanding any provision of this chapter to the contrary, if a care provider sustains a significant exposure from an individual, the individual to whom the care provider was exposed is deemed to consent to a test to determine the presence of HIV infection in that individual and is deemed to consent to notification of the care provider of the HIV test results of the individual, upon submission of a significant exposure report by the care provider as provided by rule.

b. The hospital or clinic in which the exposure occurred or any other person specified in this section to whom the individual is delivered shall conduct the test. If the individual is delivered by the care provider to an institution administered by the Iowa department of corrections, the test shall be conducted by the staff physician of the institution. If the individual is delivered by the care provider to a jail, the test shall be conducted by the attending physician of the jail or the county medical examiner. The sample and test results shall only be identified by a number.

c. A hospital, institutions administered by the department of corrections, and jails shall have written policies and procedures for notification of a care provider under this section. The policies and procedures shall include designation of a representative of the care provider to whom notification shall be provided and who shall, in turn, notify the care provider. The identity of the designated representative of the care provider shall not be revealed to the individual tested. The designated representative shall inform the hospital, institution administered by the department of corrections, or jail of those parties who received the notification, and following receipt of this information and upon request of the individual tested, the hospital, institution administered by the department of corrections, or jail shall inform the individual of the parties to whom notification was provided.

2. *a.* If the test results are positive, the hospital or other person performing the test shall notify the subject of the test and ensure the performance of counseling and reporting requirements of this chapter in the same manner as for an individual from whom actual consent was obtained. The report to the department required pursuant to section 141A.6 shall include the name of the individual tested.

b. If the HIV test results of the subject of the test are positive, the hospital or other person performing the test shall notify the care provider or the designated representative of the care provider who shall then notify the care provider who sustained the exposure.

c. The notification shall be provided as soon as is reasonably possible following determination that the HIV test results of the subject of the test are positive. The notification shall not include the name of the individual tested for HIV infection unless the individual provides a specific written release. If the care provider who sustained the significant exposure determines the identity of the individual tested, the identity of the individual shall be confidential information and shall not be disclosed by the care

provider to any other person unless a specific written release is obtained from the individual tested.
3. This section does not preclude a hospital or health care provider from providing notification to a care provider under circumstances in which the hospital's or health care provider's policy provides for notification of the hospital's or health care provider's own employees of exposure to HIV infection if the notice does not reveal a patient's name, unless the patient consents.
4. A hospital, health care provider, or other person participating in good faith in making a report under the notification provisions of this section, under procedures similar to this section for notification of its own employees upon filing of a significant exposure report, or in failing to make a report under this section, is immune from any liability, civil or criminal, which might otherwise be incurred or imposed.
5. A hospital's or health care provider's duty to notify under this section is not continuing but is limited to the diagnosis of HIV infection made in the course of admission, care, and treatment following the rendering of health care services or other services to the individual with the infection to which notification under this section applies.
6. Notwithstanding subsection 5, if, following discharge from or completion of care or treatment by a hospital, an individual for whom a significant exposure report was submitted but which report did not result in notification, wishes to provide information regarding the individual's HIV infection status to the care provider who submitted the report, the hospital shall provide a procedure for notifying the care provider.
7. A hospital, health care provider, or other person who is authorized to perform an HIV test under this section, who performs the HIV test in compliance with this section or who fails to perform an HIV test authorized under this section, is immune from any liability, civil or criminal, which might otherwise be incurred or imposed.
8. A hospital, health care provider, or other person who is authorized to perform a test under this section has no duty to perform the HIV test authorized.
9. The employer of a care provider who sustained a significant exposure under this section shall pay the costs of HIV testing for the individual who is the source of the significant exposure and of the testing and counseling of the care provider, if the significant exposure was sustained during the course of employment. However, the department shall assist an individual who is the source of the significant exposure in finding resources to pay for the cost of the HIV test, and shall assist a care provider who renders direct aid without compensation in finding resources to pay for the cost of the testing and counseling.

141A.9 CONFIDENTIALITY OF INFORMATION.

1. Any information, including reports and records, obtained, submitted, and maintained pursuant to this chapter is strictly confidential medical information. The information shall not be released, shared with an agency or institution, or made public upon subpoena, search warrant, discovery proceedings, or by any other means except as provided in this chapter. A person shall not be compelled to disclose the identity of any person upon whom an HIV-related test is performed, or the results of the test in a manner which permits identification of the subject of the test, except to persons entitled to that information under this chapter.
2. HIV-related test results shall be made available for release to the following individuals or under the following circumstances:

a. To the subject of the test or the subject's legal guardian subject to the provisions of section 141A.7, subsection 3, when applicable.
b. To any person who secures a written release of test results executed by the subject of the test or the subject's legal guardian.
c. To an authorized agent or employee of a health facility or health care provider, if the health facility or health care provider ordered or participated in the testing or is otherwise authorized to obtain the test results, the agent or employee provides patient care or handles or processes samples, and the agent or employee has a medical need to know such information.
d. To a health care provider providing care to the subject of the test when knowledge of the test results is necessary to provide care or treatment.
e. To the department in accordance with reporting requirements for an HIV-related condition.
f. To a health facility or health care provider which procures, processes, distributes, or uses a human body part from a deceased person with respect to medical information regarding that person, or semen provided prior to July 1, 1988, for the purpose of artificial insemination.
g. To a person allowed access to an HIV-related test result by a court order which is issued in compliance with the following provisions:
(1) A court has found that the person seeking the test results has demonstrated a compelling need for the test results which need cannot be accommodated by other means. In assessing compelling need, the court shall weigh the need for disclosure against the privacy interest of the test subject and the public interest which may be disserved by disclosure due to its deterrent effect on future testing or due to its effect in leading to discrimination.
(2) Pleadings pertaining to disclosure of test results shall substitute a pseudonym for the true name of the subject of the test. The disclosure to the parties of the subject's true name shall be communicated confidentially in documents not filed with the court.
(3) Before granting an order, the court shall provide the person whose test results are in question with notice and a reasonable opportunity to participate in the proceedings if the person is not already a party.
(4) Court proceedings as to disclosure of test results shall be conducted in camera unless the subject of the test agrees to a hearing in open court or unless the court determines that a public hearing is necessary to the public interest and the proper administration of justice.
(5) Upon the issuance of an order to disclose test results, the court shall impose appropriate safeguards against unauthorized disclosure, which shall specify the persons who may gain access to the information, the purposes for which the information shall be used, and appropriate prohibitions on future disclosure.
h. To an employer, if the test is authorized to be required under any other provision of law.
i. Pursuant to section 915.43, to a convicted or alleged sexual assault offender; the physician or other health care provider who orders the test of a convicted or alleged offender; the victim; the parent, guardian, or custodian of the victim if the victim is a minor; the physician of the victim if requested by the victim; the victim counselor or person requested by the victim to provide counseling regarding the HIV-related test and results; the victim's spouse; persons with whom the victim has engaged in vaginal, anal, or oral intercourse subsequent to the sexual assault; members of the victim's family

within the third degree of consanguinity; and the county attorney who may use the results as evidence in the prosecution of sexual assault under chapter 915, subchapter IV, or prosecution of the offense of criminal transmission of HIV under chapter 709C. For the purposes of this paragraph, *"victim"* means victim as defined in section 915.40.
j. To employees of state correctional institutions subject to the jurisdiction of the department of corrections, employees of secure facilities for juveniles subject to the department of human services, and employees of city and county jails, if the employees have direct supervision over inmates of those facilities or institutions in the exercise of the duties prescribed pursuant to section 80.9B.
3. Release may be made of medical or epidemiological information for statistical purposes in a manner such that no individual person can be identified.
4. Release may be made of medical or epidemiological information to the extent necessary to enforce the provisions of this chapter and related rules concerning the treatment, control, and investigation of HIV infection by public health officials.
5. Release may be made of medical or epidemiological information to medical personnel to the extent necessary to protect the health or life of the named party.
6. Release may be made of test results concerning a patient pursuant to procedures established under section 141A.5, subsection 2, paragraph *"c"*.
7. Medical information secured pursuant to subsection 1 may be shared between employees of the department who shall use the information collected only for the purposes of carrying out their official duties in preventing the spread of the disease or the spread of other reportable diseases as defined in section 139A.2.

141A.10 IMMUNITIES.

1. A person making a report in good faith pursuant to this chapter is immune from any liability, civil or criminal, which might otherwise be incurred or imposed as a result of the report.
2. A health care provider attending a person who tests positive for the HIV infection has no duty to disclose to or to warn third parties of the dangers of exposure to HIV infection through contact with that person and is immune from any liability, civil or criminal, for failure to disclose to or warn third parties of the condition of that person.

141A.11 REMEDIES.

1. A person aggrieved by a violation of this chapter shall have a right of civil action for damages in district court.
2. A care provider who intentionally or recklessly makes an unauthorized disclosure under this chapter is subject to a civil penalty of one thousand dollars.
3. A person who violates a confidentiality requirement of section 141A.5 is guilty of an aggravated misdemeanor.
4. A civil action under this chapter is barred unless the action is commenced within two years after the cause of action accrues.
5. The attorney general may maintain a civil action to enforce this chapter.
6. This chapter does not limit the rights of the subject of an HIV-related test to recover damages or other relief under any other applicable law.
7. This chapter shall not be construed to impose civil liability or criminal sanctions for disclosure of HIV-related test results in accordance with any reporting requirement for a diagnosed case of AIDS or a related condition by the department or the centers for

disease control and prevention of the United States department of health and human services.

CHAPTER 1
REPORTABLE DISEASES, POISONINGS AND CONDITIONS, AND QUARANTINE AND ISOLATION

641—1.1(139A) Definitions. For the purpose of these rules, the following definitions shall apply:

"Acute or chronic respiratory conditions due to fumes, vapors or dusts" means acute chemical bronchitis; any acute, subacute, or chronic respiratory condition due to inhalation of a chemical fume or vapor; or pneumoconioses not specifically listed elsewhere in these rules. (ICD-10 codes J63.0 to J64, J66, and J68.0 to J68.9) "Acute or chronic respiratory conditions due to fumes, vapors or dusts" excludes those respiratory conditions related to tobacco smoke exposure.

"Agriculturally related injury" means any nonhousehold injury to a farmer, farm worker, farm family member, or other individual, which occurred on a farm, or in the course of handling, producing, processing, transporting or warehousing farm commodities.

"AIDS" means AIDS as defined in Iowa Code section 141A.1.

"Area quarantine" means prohibiting ingress to and egress from a building or buildings, structure or structures, or other definable physical location, or portion thereof, to prevent or contain the spread of a suspected or confirmed quarantinable disease or to prevent or contain exposure to a suspected or known chemical, biological, radioactive, or other hazardous or toxic agent.

"Business" means and includes every trade, occupation, or profession.

"Care provider" means an individual who is trained and authorized by federal or state law to provide health care services or services of any kind in the course of the individual's official duties, for compensation or in a voluntary capacity, who is a health care provider, emergency medical care provider as defined in Iowa Code section 147A.1, firefighter, or peace officer. "Care provider" also means an individual who renders emergency care or assistance in an emergency or due to an accident as described in Iowa Code section 613.17.

"Case" means an individual who has confirmatory evidence of disease.

"Clinical laboratory" means any laboratory performing analyses on specimens taken from the body of a person in order to assess that person's health status.

"Communicable disease" means any disease spread from person to person or animal to person.

"Congenital or inherited disorder" means congenital or inherited disorder as defined in Iowa Code section 136A.2.

"Contagious or infectious disease" means hepatitis in any form, meningococcal disease, tuberculosis, and any other disease, with the exception of AIDS or HIV infection as defined in Iowa Code section 141A.1, determined to be life-threatening to a person exposed to the disease based upon a determination by the state public health medical director and epidemiologist and in accordance with guidelines of the Centers for Disease Control and Prevention of the United States Department of Health and Human Services.

"Department" means the Iowa department of public health.

"Designated officer" means a person who is designated by a department, agency, division, or service organization to act as an infection control liaison officer.

"Director" means the director of the Iowa department of public health.

"Exposure" means the risk of contracting disease.

"Fetal death" means an unintended death occurring after a gestation period of 20 completed weeks, or an unintended death of a fetus with a weight of 350 or more grams. "Fetal death" is synonymous with stillbirth.

"HBV" means hepatitis B virus.

"Health care facility" means a health care facility as defined in Iowa Code section 135C.1, an ambulatory surgical center, or a clinic.

"Health care provider" means a person licensed to practice medicine and surgery, osteopathic medicine and surgery, osteopathy, chiropractic, podiatry, nursing, dentistry, optometry, or licensed as a physician assistant, dental hygienist, or acupuncturist.

"HIV" means HIV as defined in Iowa Code section 141A.1.

"Hospital" means hospital as defined in Iowa Code section 135B.1.

"Hypersensitivity pneumonitis" means a disease in which the air sacs (alveoli) of the lungs become inflamed when certain dusts are inhaled to which the person is sensitized or allergic. "Hypersensitivity pneumonitis" includes but is not limited to farmer's lung, silo filler's disease, and toxic organic dust syndrome.

"IDSS" means the Iowa disease surveillance system, a secure Web-based statewide disease reporting and surveillance system.

"Infectious disease" means a disease caused by the entrance into the body of organisms, including but not limited to bacteria, protozoans, fungi, prions, or viruses which grow and multiply.

"Infectious tuberculosis" means pulmonary or laryngeal tuberculosis as evidenced by:

1. Isolation of M. tuberculosis complex (positive culture) from a clinical specimen or positive nucleic acid amplification test, or

2. Both radiographic evidence of tuberculosis, such as an abnormal chest X-ray, and clinical evidence, such as a positive skin test or whole blood assay test for tuberculosis infection, coughing, sputum production, fever, or other symptoms compatible with infectious tuberculosis that lead a physician to diagnose infectious tuberculosis according to currently acceptable standards of medical practice and to initiate treatment for tuberculosis.

"Injury" means physical damage or harm to the body as the result of an act or event.

"Investigation" means an inquiry conducted to determine the specific source, mode of transmission, and cause of a disease or suspected disease occurrence and to determine the specific incidence, prevalence, and extent of the disease in the affected population. "Investigation" may also include the application of scientific methods and analysis to institute appropriate control measures.

"Isolation" means the separation of persons or animals presumably or actually infected with a communicable disease, or that are disease carriers, for the usual period of communicability of that disease. Isolation shall be in such places, marked by placards if necessary, and under such conditions to prevent the direct or indirect conveyance of the infectious agent or contagion to susceptible persons.

"Local board" means the local board of health.

"Local department" means the local health department.

"Noncommunicable respiratory illnesses" means an illness indicating prolonged exposure or overexposure to asbestos, silica, silicates, aluminum, graphite, bauxite, beryllium, cotton dust or other textile material, or coal dust. "Noncommunicable respiratory illnesses" includes, but is not limited to asbestosis, coal worker's pneumoconiosis, and silicosis.

"Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction" means any extrinsic asthma or acute chemical pneumonitis due to exposure to toxic agents in the workplace. (ICD-10 codes J67.0 to J67.9)

"Pesticide" means (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating directly or indirectly any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living persons, which the Iowa secretary of agriculture shall declare to be a pest; and (2) any substances intended for use as a plant growth regulator, defoliant, or desiccant. Pesticides include active and inert ingredients of herbicides, insecticides, rodenticides, repellants, fumigants, fungicides, wood treatment products, and disinfectants as well as adjuvants that are added to a pesticide formulation to improve or change properties such as deposition, persistence, or mixing ability.

"Pesticide poisoning" means any acute or subacute systemic, ophthalmologic, or dermatologic illness or injury resulting from or suspected of resulting from inhalation or ingestion of, dermal exposure to, or ocular contact with a pesticide. Laboratory confirmation is not required.

"Placard" means a warning sign to be erected and displayed on the periphery of a quarantine area, forbidding entry to or exit from the area.

"Poison control or poison information center" means any organization or program which has as one of its primary objectives the provision of toxicologic and pharmacologic information and referral services to the public and to health care providers (other than pharmacists) in response to inquiries about actual or potential poisonings.

"Public health disaster" means an incident as defined in Iowa Code section 135.140.

"Quarantinable disease" means any communicable disease which presents a risk of serious harm to public health and which may require isolation or quarantine to prevent its spread. "Quarantinable disease" includes but is not limited to cholera; diphtheria; infectious tuberculosis; plague; smallpox; yellow fever; viral hemorrhagic fevers, including Lassa, Marburg, Ebola, Crimean-Congo, South American, and others not yet isolated or named; novel influenza; and severe acute respiratory syndrome (SARS).

"Quarantine" means the limitation of freedom of movement of persons or animals that have been exposed to a quarantinable disease within specified limits marked by placards for a period of time equal to the longest usual incubation period of the disease in such manner as to prevent the spread of a quarantinable disease which affects people.

"Reportable cancers" means those cancers included in the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) Program.

"Reportable disease" means any disease designated by this chapter.

"Severe skin disorder" means those dermatoses, burns, and other severe skin disorders which result in death or which require hospitalization or other multiple courses of medical therapy.

"Sexually transmitted disease or infection" means a disease or infection as identified by this chapter that is transmitted through sexual practices. "Sexually transmitted disease or infection" includes, but is not limited to, acquired immunodeficiency syndrome (AIDS), chlamydia, gonorrhea, hepatitis B and hepatitis C, human immunodeficiency virus (HIV), human papillomavirus, and syphilis.

"Suspected case" means an individual that presents with clinical signs or symptoms indicative of a reportable or quarantinable disease.

"Toxic agent" means any noxious substance in solid, liquid or gaseous form capable of producing illness in humans including, but not limited to, pesticides, heavy metals, organic and inorganic dusts and organic solvents. Airborne toxic agents may be in the form of dusts, fumes, vapors, mists, gases or smoke.

"Toxic hepatitis" means any acute or subacute necrosis of the liver or other unspecified chemical hepatitis caused by exposure to nonmedicinal toxic agents other than ethyl alcohol including, but not limited to, carbon tetrachloride, chloroform, tetrachloroethane, trichloroethylene, phosphorus, trinitrotoluene (TNT), chloronapthalenes, methylenedianilines, ethylene dibromide, and organic solvents. (ICD-10 codes K71.0 to K71.9)

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.2(139A) Purpose and authority.

1.2(1) *Purpose.* The purpose of this chapter is to establish rules that identify diseases, poisonings and conditions, and incidents that are to be reported to the department in accordance with Iowa Code chapters 135, 136A, 139A, 141A, and 144. These rules also establish the information to be reported, how and when to report, and who is to report. This chapter provides for disease investigation and disease control through preventive measures including but not limited to quarantine and isolation.

1.2(2) *Authority.* The director is the principal officer of the state to administer disease, poisoning and condition, and incident reporting and control. The State Health Registry of Iowa, administered by the Department of Epidemiology of the College of Public Health at the University of Iowa, is a public health authority for purposes of collecting cancer data in accordance with this chapter.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

REPORTABLE COMMUNICABLE AND INFECTIOUS DISEASES

641—1.3(139A,141A) Reportable communicable and infectious diseases. Reportable communicable and infectious diseases are those listed in Appendix A. The director may also designate any disease, poisoning or condition or syndrome temporarily reportable for the purpose of a special investigation.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.4(135,139A) Reporting of reportable communicable and infectious diseases. Each case of a reportable disease is required to be reported to the Iowa Department of Public Health, Lucas State Office Building, 321 E. 12th Street, Des Moines, Iowa 50319-0075, in a manner specified by this chapter.

1.4(1) *Who is required to report communicable and infectious diseases.*

a. Health care providers, hospitals, clinical laboratories, and other health care facilities are required to report cases of reportable communicable and infectious diseases.

b. School nurses are required to report suspected cases of reportable diseases occurring among the children supervised.

c. School officials, through the principal or superintendent as appropriate, are required to report when there is no school nurse.

d. Laboratories are required to report cases of reportable diseases and results obtained in the examination of all specimens which yield evidence of or are reactive for sexually transmitted diseases.

e. Poison control and poison information centers are required to report inquiries about cases of reportable diseases received by them.

f. Medical examiners are required to report their investigatory findings of any death which was caused by or otherwise involved a reportable disease.

g. Occupational nurses are required to report cases of reportable diseases.

h. Hospitals, health care providers and clinical laboratories outside the state of Iowa shall immediately report any confirmed or suspect case of a reportable disease, poisoning or condition in an Iowa resident.

1.4(2) *What to report.* Each report shall contain all of the following information:

a. The patient's name.

b. The patient's address.

c. The patient's date of birth.

d. The sex of the patient.

e. The race and ethnicity of the patient.

f. The patient's marital status.

g. The patient's telephone number.

h. The name and address of the laboratory.

i. The date the test was found to be positive and the collection date.

j. The name and address of the health care provider who performed the test

k. If the patient is female, whether the patient is pregnant.

l. The name of the reportable disease.

1.4(3) *How to report.*

a. Immediate reporting by telephone of diseases identified in Appendix A as immediately reportable. A health care provider and a public, private, or hospital clinical laboratory shall immediately report any confirmed or suspected case of a disease identified in Appendix A as immediately reportable to the department's disease notification hotline at 1-800-362-2736. The report shall include all information required by 1.4(2) and the following:

(1) The stage of the disease process.

(2) Clinical status.

(3) Any treatment provided for the disease.

(4) All household and other known contacts.

(5) Whether household and other known contacts have been examined and the results of such examinations.

b. Other diseases that carry serious consequences or spread rapidly. A health care facility, health care provider and a public, private, or hospital clinical laboratory shall immediately report any confirmed or suspected case of a common source epidemic or disease outbreak of unusual numbers by telephone to the department's 24/7 disease reporting telephone hotline at 1-800-362-2736.

c. Reporting of other reportable diseases. Cases of other reportable communicable or infectious diseases not included in 1.4(3)*"a"* shall be reported to the department in accordance with Appendix A by mail, telephone, facsimile, or other secure electronic means. The preferred method is secure Web-based

reporting when available. If the department determines that reporting by mail hinders the application of organized control measures to protect the public health, the department may require that the reportable disease be reported by telephone, facsimile or secure Web-based reporting.

1.4(4) *Contagious or infectious disease notification at time of death.* The purpose of this subrule is to establish contagious or infectious disease notification requirements for the information of any person handling a dead body.

a. A health care provider attending a person prior to the person's death shall, at the time of death, place with the body a written notice which specifies or signifies either "known contagious or infectious disease" or "suspected contagious or infectious disease."

b. The health care facility in which the health care provider is working shall be responsible for establishing written procedures and implementing the specific internal practices necessary to satisfy this notification requirement.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

REPORTABLE POISONINGS AND CONDITIONS—NONCOMMUNICABLE

641—1.5(139A,135) Reportable poisonings and conditions. Reportable poisonings and conditions are those listed in Appendix B. The director may also designate any disease, poisoning or condition or syndrome temporarily reportable for the purpose of a special investigation.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.6(135,139A) Reporting poisonings and conditions.

1.6(1) *Who is required to report.*

a. Health care providers, hospitals, and clinical laboratories and other health care facilities are required to report cases of reportable poisonings and conditions. Health care providers are exempted from reporting blood lead testing if the laboratory performing the analysis provides the report containing the required information to the department.

b. School nurses are required to report suspected cases of a reportable poisoning or condition occurring among the children supervised.

c. School officials, through the principal or superintendent as appropriate, are required to report when there is no school nurse.

d. Poison control and poison information centers are required to report inquiries about cases of a reportable poisoning or condition received by them.

e. Medical examiners are required to report their investigatory findings of any death which was caused by or otherwise involved a reportable poisoning or condition.

f. Occupational nurses are required to report cases of reportable poisonings and conditions.

g. Hospitals, health care providers and clinical laboratories outside the state of Iowa shall immediately report any confirmed or suspected case of a reportable poisoning or condition in an Iowa resident.

1.6(2) *What to report.* Each report shall contain all of the following information:

a. The patient's name.
b. The patient's address.
c. The patient's date of birth.
d. The sex of the patient.
e. The race and ethnicity of the patient.
f. The patient's marital status.
g. The patien's telephone number.
h. The name and address of the laboratory.
i. The collection date.
j. The analytical result.
k. In the case of blood lead testing, whether the sample is a capillary or venous blood sample.
l. For conditions not identified by a laboratory analysis, the date that the condition was diagnosed.
m. The name and address of the health care provider who performed the test.

n. If the patient is female, whether the patient is pregnant.

o. In the case of occupational conditions, the name of the patient's employer.

1.6(3) *How to report.*

a. Blood lead testing. All analytical results greater than or equal to 20 micrograms per deciliter (μg/dL) in a child under the age of six years or a pregnant woman shall be reported to the department immediately by telephone at 1-800-972-2026. All other analytical results shall be reported to the department at least weekly in an electronic format specified by the department.

b. Each instance of carbon monoxide poisoning shall be reported to the department immediately by telephone at 1-800-972-2026.

c. Reportable poisonings and conditions other than blood lead testing and carbon monoxide poisoning shall be reported to the department in accordance with Appendix B.

d. Occupational nurses shall submit cases of occupationally related reportable poisonings or conditions on report forms provided by the department.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

INVESTIGATION

641—1.7(135,139A) Investigation of reportable diseases. A health care provider and a public, private, or hospital clinical laboratory shall assist in a disease investigation conducted by the department, a local board, or a local department.

1.7(1) A health care provider and a clinical laboratory shall provide the department, local board, or local department with all information necessary to conduct the investigation, including but not limited to medical records; exposure histories; medical histories; contact information; and test results necessary to the investigation, including positive, pending, and negative test results.

1.7(2) Issuance of investigatory subpoenas.

a. The department may upon the written request of a local board of health, the state public health medical director and epidemiologist or designee, or the state public health veterinarian or designee, subpoena records, reports, or any other evidence necessary to conduct a disease investigation. The subpoena shall be signed by the division director of the division of acute disease prevention and emergency response or the division director's designee following review and approval of the written request for subpoena.

b. A written request for a subpoena shall contain the following:

(1) The name and address of the person, facility, or entity to which the subpoena will be directed;

(2) A specific description of the records, reports, or other evidence requested; and

(3) An explanation of why the documents sought to be subpoenaed are necessary for the department to conduct the disease investigation.

c. Each subpoena shall contain:

(1) The name and address of the person, facility, or entity to which the subpoena is directed;

(2) A description of the records, reports, or other evidence requested;

(3) The date, time, and location for production, inspection, or copying;

(4) The time within which a motion to quash or modify the subpoena must be filed;

(5) The signature, address, and telephone number of the division director;

(6) The date of issuance; and

(7) A return of service.

d. Process to challenge a subpoena.

(1) Any person who is aggrieved or adversely affected by compliance with the subpoena and who desires to challenge the subpoena must, within five days after service of the subpoena, or before the time specified for compliance if such time is less than five days, file with the department a motion to quash or modify the subpoena. The motion shall describe the reasons why the subpoena should be quashed or modified, and may be accompanied by legal briefs or factual affidavits.

(2) Upon receipt of a timely motion to quash or modify a subpoena, the department may request an administrative law judge to issue a decision. Oral argument may be scheduled at the discretion of the

administrative law judge. The administrative law judge may quash or modify the subpoena, deny the motion, or issue an appropriate protective order.

(3) A person aggrieved by a ruling of an administrative law judge who desires to challenge that ruling must appeal the ruling to the department by serving on the department director, either in person or by certified mail, a notice of appeal within ten days after the service of the decision of the administrative law judge. The department director's decision is final for purposes of judicial review.

e. Subpoenas issued under this subrule and requests, motions, and pleadings related to the issuance of subpoenas are confidential pursuant to Iowa Code sections 139A.3 and 22.7.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

ISOLATION AND QUARANTINE

641—1.8(139A) Isolation and quarantine. Isolation and quarantine should be consistent with guidelines provided by the Centers for Disease Control and Prevention's 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, June 2007; http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/Isolation2007.pdf.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.9(135,139A) Quarantine and isolation.

1.9(1) *Examination, testing, and treatment of quarantinable diseases.*

a. A health care provider who attends an individual with a suspected or active quarantinable disease shall make all reasonable efforts in accordance with guidance from a local health department or the department to examine or cause all household and other known contacts of the individual to be examined by a physician. The physician shall promptly report to the department the results of such examination. If the individual refuses or is unable to undergo examination, the health care provider shall promptly report such information to the department.

b. When required by the department, all contacts not examined by a physician, including all adult and minor contacts, shall submit to a diagnostic test or tests. If any suspicious abnormality is found, steps satisfactory to the department shall be taken to refer the individual promptly to a physician or appropriate medical facility for further evaluation and, if necessary, treatment. The referring health care provider or facility shall notify the receiving health care provider or facility of the suspicious abnormality. When requested by the department, a physician shall report the results of the examination of a contact to the case or suspected case or incident.

c. Upon order of the department or local board of health, an individual with a suspected or active quarantinable disease shall not attend the workplace or school and shall not be present at other public places until the individual receives the approval of the department or a local board of health to engage in such activity. Upon order of the department or local board of health, employers, schools and other public places shall exclude an individual with a suspected or active quarantinable disease. An individual may also be excluded from other premises or facilities if the department or a local board of health determines the premises or facilities cannot be maintained in a manner adequate to protect others against the spread of the disease.

d. A person diagnosed with or clinically suspected of having infectious tuberculosis shall complete voluntary treatment until, in the opinion of the attending physician or the state public health medical director and epidemiologist, the person's tuberculosis is cured or such person is no longer a threat to public health. If such person refuses to complete the course of voluntary treatment, the department or local board of health may issue an order compelling mandatory treatment. Such order shall include the identity of the person subject to the mandatory treatment order, a description of the treatment ordered, the medical basis upon which the treatment is ordered, and a description of the potential medical and legal consequences of violating such order. A person who violates a mandatory treatment order may be subject to the penalties provided in Iowa Code section 135.38 or 137.21 and may be placed under mandatory quarantine or isolation in accordance with the provisions of this chapter.

e. A person diagnosed with extrapulmonary tuberculosis or clinically suspected of having infectious tuberculosis who fails to comply with a physician's recommendation for diagnostic testing

may be ordered to undergo diagnostic testing by the department or local board of health. Such order shall include the identity of the person subject to mandatory diagnostic testing, a description of the diagnostic testing ordered, the medical basis upon which the diagnostic testing is ordered, and a description of the potential medical and legal consequences of violating such order. A person who violates a mandatory diagnostic testing order may be subject to the penalties provided in Iowa Code section 135.38 or 137.21 and may be placed under mandatory quarantine or isolation in accordance with the provisions of this chapter.

1.9(2) *General provisions.*

a. Voluntary confinement. Prior to instituting mandatory isolation or quarantine pursuant to this rule, the department or a local board of health may request that an individual or group of individuals voluntarily confine themselves to a private home or other facility.

b. Quarantine and isolation. The department and local boards of health are authorized to impose and enforce quarantine and isolation restrictions. Quarantine and isolation shall rarely be imposed by the department or by local boards of health. If a quarantinable disease occurs in Iowa, individuals with a suspected or active quarantinable disease and contacts to the case may be quarantined or isolated as the particular situation requires. Any quarantine or isolation imposed by the department or a local board of health shall be established and enforced in accordance with this rule.

1.9(3) *Conditions and principles.* The department and local boards of health shall adhere to all of the following conditions and principles when isolating or quarantining individuals or a group of individuals:

a. The isolation or quarantine shall be by the least restrictive means necessary to prevent the spread of a communicable or possibly communicable disease to others and may include, but not be limited to, confinement to private homes, other private premises, or public premises.

b. Isolated individuals shall be confined separately from quarantined individuals.

c. The health status of isolated or quarantined individuals shall be monitored regularly to determine if the individuals require further or continued isolation or quarantine.

d. If a quarantined individual subsequently becomes infected or is reasonably believed to have become infected with a communicable or possibly communicable disease, the individual shall be promptly removed to isolation.

e. Isolated or quarantined individuals shall be immediately released when the department or local board of health determines that the individuals pose no substantial risk of transmitting a communicable or possibly communicable disease.

f. The needs of isolated or quarantined individuals shall be addressed in a systematic and competent fashion including, but not limited to, providing adequate food; clothing; shelter; means of communicating with those in and outside of isolation or quarantine; medication; and competent medical care.

g. The premises used for isolation or quarantine shall be maintained in a safe and hygienic manner and shall be designed to minimize the likelihood of further transmission of infection or other harm to isolated or quarantined individuals.

h. To the extent possible, cultural and religious beliefs shall be considered in addressing the needs of individuals in isolation or quarantine premises and in establishing and maintaining the premises.

1.9(4) *Isolation and quarantine premises.*

a. Sites of isolation or quarantine shall be prominently placarded with isolation or quarantine signs prescribed and furnished by the department and posted on all sides of the building wherever access is possible.

b. An individual subject to isolation or quarantine shall obey the rules and orders of the department or the local board of health and shall not go beyond the isolation or quarantine premises.

c. The department or a local board of health may authorize physicians, health care workers, or others access to individuals in isolation or quarantine as necessary to meet the needs of isolated or quarantined individuals.

d. No individual, other than an individual authorized by the department or a local board of health, shall enter isolation or quarantine premises. If the department has requested the assistance of

law enforcement in enforcing the isolation or quarantine, the department shall provide law enforcement personnel with a list of individuals authorized to enter the isolation or quarantine premises.

e. Any individual entering an isolation or quarantine premises with or without authorization of the department or a local board of health may be isolated or quarantined pursuant to this rule.

1.9(5) *Isolation and quarantine by local boards of health.*

a. A local board of health may:

(1) Isolate individuals who are presumably or actually infected with a quarantinable disease;

(2) Quarantine individuals who have been exposed to a quarantinable disease;

(3) Establish and maintain places of isolation and quarantine; and

(4) Adopt emergency rules and issue orders as necessary to establish, maintain, and enforce isolation or quarantine.

b. Isolation and quarantine undertaken by a local board of health shall be accomplished according to the rules and regulations of the local board of health so long as such rules are not inconsistent with this chapter.

1.9(6) *Isolation and quarantine by the Iowa department of public health.*

a. Authority.

(1) The department, through the director, the department's medical director, or the director's or medical director's designee, may:

1. Isolate individuals or groups of individuals who are presumably or actually infected with a quarantinable disease; and

2. Quarantine individuals or groups of individuals who have been exposed to a quarantinable disease, including individuals who are unable or unwilling to undergo examination, testing, vaccination, or treatment, pursuant to Iowa Code section 135.144(9).

(2) The department may:

1. Establish and maintain places of isolation and quarantine; and

2. Adopt emergency rules and issue orders as necessary to establish, maintain, and enforce isolation or quarantine.

(3) Isolation and quarantine undertaken by the department, including isolation and quarantine undertaken by the department in the event of a public health disaster, shall be established pursuant to paragraph 1.9(6)*"b"* or *"c."*

b. Temporary isolation and quarantine without notice. The department may temporarily isolate or quarantine an individual or groups of individuals through an oral order, without notice, only if delay in imposing the isolation or quarantine would significantly jeopardize the department's ability to prevent or limit the transmission of a communicable or possibly communicable disease to others. If the department imposes temporary isolation or quarantine of an individual or groups of individuals through an oral order, the department shall issue a written order as soon as is reasonably possible and in all cases within 24 hours of issuance of the oral order if continued isolation or quarantine is necessary to prevent or limit the transmission of a communicable or possibly communicable disease.

c. Written order. The department may isolate or quarantine an individual or groups of individuals through a written order issued pursuant to this rule.

(1) The written order shall include all of the following:

1. The identity of the individual, individuals, or groups of individuals subject to isolation or quarantine.

2. The premises subject to isolation or quarantine.

3. The date and time at which isolation or quarantine commences.

4. The suspected communicable disease.

5. A description of the less restrictive alternatives that were attempted and were unsuccessful, or the less restrictive alternatives that were considered and rejected, and the reasons such alternatives were rejected.

6. A statement of compliance with the conditions and principles for isolation and quarantine specified in subrule 1.9(3).

7. The legal authority under which the order is requested.

8. The medical basis upon which isolation or quarantine is justified.

9. A statement advising the individual, individuals, or groups of individuals of the right to appeal the written order pursuant to subrule 1.9(7) and the rights of individuals and groups of individuals subject to quarantine and isolation as listed in subrule 1.9(8).

10. A copy of this chapter and the relevant definitions.

(2) A copy of the written order shall be provided to the individual to be isolated or quarantined within 24 hours of issuance of the order in accordance with any applicable process authorized by the Iowa Rules of Civil Procedure. If the order applies to a group or groups of individuals and it is impractical to provide individual copies, the order may be posted in a conspicuous place in the isolation or quarantine premises.

1.9(7) *Appeal from order imposing isolation or quarantine.*

a. Contested case. The subject of a department order imposing isolation or quarantine may appeal a written order and has the right to a contested case hearing regarding such appeal. The subject of a department order imposing isolation or quarantine may appeal the order by submitting a written appeal within ten days of receipt of the written order. The appeal shall be addressed to the Department of Public Health, Division of Epidemiology, Emergency Medical Services, and Disaster Operations, Lucas State Office Building, Des Moines, Iowa 50319-0075. Unless stayed by order of the director or a district court, the written order for quarantine or isolation shall remain in force and effect until the appeal is finally determined and disposed of upon its merits.

b. Presiding officer. The presiding officer in a contested case shall be the director or the director's designee. The director or the director's designee may be assisted by an administrative law judge in conducting the contested case hearing. The decision of the director or the director's designee shall be the department's final decision and is subject to judicial review in accordance with the provisions of Iowa Code chapter 17A.

c. Proceeding. The contested case hearing shall be conducted in accordance with the provisions contained at 641—Chapter 173. The hearing shall be held as soon as is practicable, and in no case later than ten days from the date of receipt of the appeal. The hearing may be held by telephonic or other electronic means if necessary to prevent additional exposure to the communicable or possibly communicable disease. In extraordinary circumstances and for good cause shown, the department may apply to continue the hearing date for up to ten additional days on a petition filed pursuant to this rule. The presiding officer may use discretion in granting a continuance giving due regard to the rights of the affected individuals, the protection of the public's health, and the availability of necessary witnesses and evidence.

d. Judicial review. The aggrieved party to the final decision of the department may petition for judicial review of that action pursuant to Iowa Code chapter 17A. Petitions for judicial review shall be filed within 30 days after the decision becomes final.

e. Immediate judicial review of department order. The department acknowledges that in certain circumstances the subject or subjects of a department order may desire immediate judicial review of a department order in lieu of proceeding with the contested case process. The department recognizes that the procedural step of pursuing exhaustion of administrative remedies may be inadequate for purposes of Iowa Code section 17A.19, and the department may consent to immediate jurisdiction of the district court when requested by the subject or subjects of a department order and justice so requires. Unless stayed by order of the director or a district court, the written order for quarantine or isolation shall remain in force and effect until the judicial review is finally determined and disposed of upon its merits.

1.9(8) *Rights of individuals and groups of individuals subject to isolation or quarantine.* Any individual or group of individuals subject to isolation or quarantine shall have the following rights:

a. The right to be represented by legal counsel.

b. The right to be provided with prior notice of the date, time, and location of any hearing.

c. The right to participate in any hearing. The hearing may be held by telephonic or other electronic means if necessary to prevent additional exposure to the communicable or possibly communicable disease.

d. The right to respond and present evidence and argument on the individual's own behalf in any hearing.

e. The right to cross-examine witnesses who testify against the individual.

f. The right to view and copy all records in the possession of the department which relate to the subject of the written order.

1.9(9) *Consolidation of claims.* In any proceeding brought pursuant to this rule, to promote the fair and efficient operation of justice and having given due regard to the rights of the affected individuals, the protection of the public's health, and the availability of necessary witnesses and evidence, the department or a court may order the consolidation of individual claims into group claims, if all of the following conditions exist:

a. The number of individuals involved or to be affected is so large that individual participation is impractical.

b. There are questions of law or fact common to the individual claims or rights to be determined.

c. The group claims or rights to be determined are typical of the affected individuals' claims or rights.

d. The entire group will be adequately represented in the consolidation.

1.9(10) *Implementation and enforcement of isolation and quarantine.*

a. Jurisdictional issues. The department has primary jurisdiction to isolate or quarantine individuals or groups of individuals if the communicable disease outbreak has affected more than one county or has multicounty, statewide, or interstate public health implications. When imposing isolation or quarantine, the department shall coordinate with the local health department as appropriate. If isolation or quarantine is imposed by the department, a local board of health or local health department may not alter, amend, modify, or rescind the isolation or quarantine order.

b. Assistance of local boards of health and local health departments. If isolation or quarantine is imposed by the department, the local boards of health and the local health departments in the affected areas shall assist in the implementation of the isolation or quarantine order.

c. Assistance of law enforcement. Pursuant to Iowa Code section 135.35, all peace officers of the state shall enforce and execute a lawful department order for isolation or quarantine within their respective jurisdictions. The department shall take all reasonable measures to minimize the risk of exposure to peace officers and others assisting with enforcement of an isolation or quarantine order.

d. Penalty. Pursuant to Iowa Code section 135.38, any individual who knowingly violates a lawful department order for isolation or quarantine, whether written or oral, shall be guilty of a simple misdemeanor. The court-ordered sentence may include a fine of up to $500 and imprisonment not to exceed 30 days.

e. Enforcement action. The department may file a civil action in Polk County district court or in the district court for the county in which the individual resides or is located to enforce a department order for isolation or quarantine. Such action shall be filed in accordance with the Iowa Rules of Civil Procedure.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.10 and **1.11** Reserved.

641—1.12(135,137,139A) Quarantine and isolation—model rule for local boards.

1.12(1) *Applicability.* The provisions of rule 641—1.12(135,137,139A) are applicable in jurisdictions in which a local board has adopted this rule by reference in accordance with Iowa Code section 137.6. This rule shall not be construed to require a local board to adopt this model rule.

1.12(2) *Definitions.*

"Board" means [insert the name of the city, county, or district board of health].

"Department" means the Iowa department of public health.

"Isolation" means the separation of persons or animals presumably or actually infected with a communicable disease, or that are disease carriers, for the usual period of communicability of that

disease. Isolation shall be in such places, marked by placards if necessary, and under such conditions to prevent the direct or indirect conveyance of the infectious agent or contagion to susceptible individuals.

"Quarantinable disease" means any communicable disease which presents a risk of serious harm to public health and which may require isolation or quarantine to prevent its spread. "Quarantinable disease" includes but is not limited to cholera; diphtheria; infectious tuberculosis; plague; smallpox; yellow fever; viral hemorrhagic fevers, including Lassa, Marburg, Ebola, Crimean-Congo, South American, and others not yet isolated or named; novel influenza; and severe acute respiratory syndrome (SARS).

"Quarantine" means the limitation of freedom of movement of persons or animals that have been exposed to a communicable disease, within specified limits marked by placards, for a period of time equal to the longest usual incubation period of the disease. The limitation of movement shall be in such manner as to prevent the spread of a communicable disease.

1.12(3) *General provisions.*

a. Voluntary confinement. Prior to instituting mandatory isolation or quarantine pursuant to this rule, the board may request that an individual or group of individuals voluntarily confine themselves to a private home or other facility.

b. Quarantine and isolation. The board is authorized to impose and enforce quarantine and isolation restrictions. Quarantine and isolation shall rarely be imposed by the board. If a quarantinable disease occurs in Iowa, individuals with a suspected or active quarantinable disease and contacts to the case may be quarantined or isolated as the particular situation requires. Any quarantine or isolation imposed by the board shall be established and enforced in accordance with this rule.

c. The local board of health shall notify, consult and work cooperatively with the Iowa department of agriculture and land stewardship and the state veterinarian office on issues relating to isolation and quarantine of animals.

1.12(4) *Conditions and principles.* The board shall adhere to all of the following conditions and principles when isolating or quarantining individuals or a group of individuals:

a. The isolation or quarantine shall be by the least restrictive means necessary to prevent the spread of a communicable or possibly communicable disease to others and may include, but is not limited to, confinement to private homes, other private premises, or public premises.

b. Isolated individuals shall be confined separately from quarantined individuals.

c. The health status of isolated or quarantined individuals shall be monitored regularly to determine if the individuals require further or continued isolation or quarantine.

d. If a quarantined individual subsequently becomes infected or is reasonably believed to have become infected with a communicable or possibly communicable disease, the individual shall be promptly removed to isolation.

e. Isolated or quarantined individuals shall be immediately released when the board determines that the individuals pose no substantial risk of transmitting a communicable or possibly communicable disease.

f. The needs of isolated or quarantined individuals shall be addressed in a systematic and competent fashion including, but not limited to, providing adequate food; clothing; shelter; means of communicating with those in and outside of isolation or quarantine; medication; and competent medical care.

g. The premises used for isolation or quarantine shall be maintained in a safe and hygienic manner and shall be designed to minimize the likelihood of further transmission of infection or other harm to isolated or quarantined individuals.

h. To the extent possible, cultural and religious beliefs shall be considered in addressing the needs of individuals in isolation and quarantine premises and in establishing and maintaining the premises.

1.12(5) *Isolation and quarantine premises.*

a. Sites of isolation or quarantine shall be prominently placarded with isolation or quarantine signs prescribed and furnished by the department and posted on all sides of the building wherever access is possible.

b. An individual subject to isolation or quarantine shall obey the rules and orders of the board and shall not go beyond the isolation or quarantine premises.

c. The department or the board may authorize physicians, health care workers, or others access to individuals in isolation or quarantine as necessary to meet the needs of isolated or quarantined individuals.

d. No individual, other than an individual authorized by the department or the board, shall enter an isolation or quarantine premises. If the department has requested the assistance of law enforcement in enforcing the isolation or quarantine, the department shall provide law enforcement personnel with a list of individuals authorized to enter the isolation or quarantine premises.

e. Any individual entering an isolation or quarantine premises with or without authorization of the department or the board may be isolated or quarantined pursuant to this rule.

1.12(6) *Isolation and quarantine.*

a. Authority. The board may:

(1) Isolate individuals who are presumably or actually infected with a quarantinable disease;

(2) Quarantine individuals who have been exposed to a quarantinable disease;

(3) Establish and maintain places of isolation and quarantine; and

(4) Adopt emergency rules and issue orders as necessary to establish, maintain, and enforce isolation or quarantine.

b. Isolation and quarantine undertaken by the board shall be accomplished in accordance with this rule.

c. Temporary isolation and quarantine without notice. The board may temporarily isolate or quarantine an individual or groups of individuals through an oral order, without notice, only if delay in imposing the isolation or quarantine would significantly jeopardize the board's ability to prevent or limit the transmission of a communicable or possibly communicable disease to others. If the board imposes temporary isolation or quarantine of an individual or groups of individuals through an oral order, the board shall issue a written order as soon as is reasonably possible and in all cases within 24 hours of issuance of the oral order if continued isolation or quarantine is necessary to prevent or limit the transmission of a communicable or possibly communicable disease.

d. Written order. The board may isolate or quarantine an individual or groups of individuals through a written order issued pursuant to this rule.

(1) The written order shall include all of the following:

1. The identity of the individual, individuals, or groups of individuals subject to isolation or quarantine.

2. The premises subject to isolation or quarantine.

3. The date and time at which isolation or quarantine commences.

4. The suspected communicable disease.

5. A description of the less restrictive alternatives that were attempted and were unsuccessful, or the less restrictive alternatives that were considered and rejected, and the reasons such alternatives were rejected.

6. A statement of compliance with the conditions and principles for isolation and quarantine specified in subrule 1.12(4).

7. The legal authority under which the order is imposed.

8. The medical basis upon which isolation or quarantine is justified.

9. A statement advising the individual, individuals, or groups of individuals of the right to appeal the written order pursuant to subrule 1.12(7) and the rights of individuals and groups of individuals subject to quarantine and isolation as listed in subrule 1.12(8).

10. A copy of this rule and the relevant definitions.

(2) A copy of the written order shall be provided to the individual to be isolated or quarantined within 24 hours of issuance of the order in accordance with any applicable process authorized by the Iowa Rules of Civil Procedure. If the order applies to a group or groups of individuals and it is impractical to provide individual copies, the order may be posted in a conspicuous place in the isolation or quarantine premises.

1.12(7) *Appeal from order imposing isolation or quarantine.*

a. Appeal. The subject of a board order imposing isolation or quarantine may appeal a written order by submitting a written appeal within ten days of receipt of the written order. The appeal shall be addressed to [insert name of board and board address]. Unless stayed by order of the board or a district court, the written order for quarantine or isolation shall remain in force and effect until the appeal is finally determined and disposed of upon its merits.

b. Proceeding. The appeal proceeding shall be conducted in accordance with this rule [or insert specific board rule governing appeal proceedings]. The proceeding shall be held as soon as is practicable, and in no case later than ten days from the date of receipt of the appeal. The hearing may be held by telephonic or other electronic means if necessary to prevent additional exposure to the communicable or possibly communicable disease. In extraordinary circumstances and for good cause shown, the board may continue the proceeding date for up to ten days, giving due regard to the rights of the affected individuals, the protection of the public's health, and the availability of necessary witnesses and evidence. At the appeal proceeding, the subject of the appeal shall have the right to introduce evidence on all issues relevant to the order. The board, by majority vote, may modify, withdraw, or order compliance with the order under appeal.

c. Judicial review. The aggrieved party to the final decision of the board may petition for judicial review of that action by filing an action in the appropriate district court. Petitions for judicial review shall be filed within 30 days after the decision becomes final.

d. Immediate judicial review of board order. The board acknowledges that in certain circumstances the subject or subjects of a board order may desire immediate judicial review of a board order in lieu of proceeding with the board's appeal process. The board may consent to immediate jurisdiction of the district court when requested by the subject or subjects of a board order and justice so requires. Unless stayed by order of the board or a district court, the written order for quarantine or isolation shall remain in force and effect until the judicial review is finally determined and disposed of upon its merits.

1.12(8) *Rights of individuals and groups of individuals subject to isolation or quarantine.* Any individual or group of individuals subject to isolation or quarantine shall have the following rights:

a. The right to be represented by legal counsel.

b. The right to be provided with prior notice of the date, time, and location of any hearing.

c. The right to participate in any hearing. The hearing may be held by telephonic or other electronic means if necessary to prevent additional exposure to the communicable or possibly communicable disease.

d. The right to respond and present evidence and argument on the individual's own behalf in any hearing.

e. The right to cross-examine witnesses who testify against the individual.

f. The right to view and copy all records in the possession of the board which relate to the subject of the written order.

1.12(9) *Consolidation of claims.* In any proceeding brought pursuant to this rule, to promote the fair and efficient operation of justice and having given due regard to the rights of the affected individuals, the protection of the public's health, and the availability of necessary witnesses and evidence, the board or a court may order the consolidation of individual claims into group claims, if all of the following conditions exist:

a. The number of individuals involved or to be affected is large enough that consolidation would be the best use of resources.

b. There are questions of law or fact common to the individual claims or rights to be determined.

c. The group claims or rights to be determined are typical of the affected individuals' claims or rights.

d. The entire group will be adequately represented in the consolidation.

1.12(10) *Implementation and enforcement of isolation and quarantine.*

a. Jurisdictional issues. The department has primary jurisdiction to isolate or quarantine individuals or groups of individuals if the communicable disease outbreak has affected more than one

county or has multicounty, statewide, or interstate public health implications. If isolation or quarantine is imposed by the department, the board may not alter, amend, modify, or rescind the isolation or quarantine order.

b. Assistance of local boards of health and local health departments. If isolation or quarantine is imposed by the department, the local boards of health and the local health departments in the affected areas shall assist in the implementation of the isolation or quarantine order.

c. Penalty. Pursuant to Iowa Code sections 137.21 and 139A.25(1), any individual who violates a lawful board order for isolation or quarantine, whether written or oral, shall be guilty of a simple misdemeanor. The court-ordered sentence may include a fine of up to $500 and imprisonment not to exceed 30 days.

d. Enforcement action. The board, through the office of the county attorney, may file a civil action in the appropriate district court to enforce a board order for isolation or quarantine. Such action shall be filed in accordance with the Iowa Rules of Civil Procedure.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.13(135,139A) Area quarantine.

1.13(1) *General provisions.* The department and local boards of health are authorized to impose and enforce area quarantine in accordance with this rule. Area quarantine shall rarely be imposed by the department or by local boards of health.

1.13(2) *Conditions and principles.* The department and local boards of health shall adhere to all of the following conditions and principles when imposing and enforcing area quarantine:

a. Area quarantine shall be imposed by the least restrictive means necessary to prevent or contain the spread of a suspected or confirmed quarantinable disease or suspected or known hazardous or toxic agent.

b. Area quarantine shall be immediately terminated when the department or a local board of health determines that no substantial risk of exposure to a quarantinable disease or hazardous or toxic agent continues to exist.

c. The geographic boundaries of an area quarantine shall be established by risk assessment procedures including medical and scientific analysis of the quarantinable disease or hazardous or toxic agent, the location of the affected area, the risk of spread or contamination, and other relevant information.

1.13(3) *Area quarantine sites.*

a. Sites of area quarantine shall be prominently identified to restrict ingress to and egress from the area, to the extent practicable. The department or a local board of health may placard or otherwise identify the site, or may request the assistance of law enforcement in identifying the site.

b. No individual, other than an individual authorized by the department or a local board of health, shall enter a building, structure, or other physical location subject to area quarantine. The department or a local board of health may authorize public health officials, environmental specialists, health care providers, or others access to an area quarantine site as necessary to conduct public health investigations, to decontaminate the site, or for other public health purposes. Notwithstanding any provision in this chapter to the contrary, law enforcement, fire service, and emergency medical service providers may enter an area quarantine site to provide emergency response services or to conduct emergency law enforcement investigations or other emergency activities without authorization by the department or a local board of health. If the department has requested the assistance of law enforcement in enforcing the area quarantine, the department shall provide law enforcement personnel with a list of individuals authorized to enter the area quarantine site.

c. An individual authorized to enter an area quarantine site may be required to wear personal protective equipment as appropriate.

d. No individual, other than an individual authorized by the department or a local board of health, shall remove any item or object from a building, structure, or other physical location subject to area quarantine.

e. An individual entering an area quarantine site without authorization of the department or a local board of health may be isolated or quarantined pursuant to rule 641—1.9(135,139A) and may be found guilty of a simple misdemeanor.

1.13(4) *Area quarantine by local boards of health or the department of public health.*

a. Authority.

(1) The department, through the director, the department's medical director, or the director or medical director's designee, may impose area quarantine through oral or written order. Prior to imposing area quarantine, the department shall attempt to notify the local board or boards of health in the affected geographic area. If attempts to notify the local boards of health are initially unsuccessful, the department shall continue to make regular notification attempts until successful.

(2) A local board of health may impose area quarantine through oral or written order. Prior to imposing area quarantine, a local board of health shall attempt to notify the department by contacting the director, medical director, or department duty officer by telephone. If attempts to notify the department are initially unsuccessful, the local board of health shall continue to make regular notification attempts until successful.

b. Temporary area quarantine without notice. The department or a local board of health may temporarily impose area quarantine through an oral order, without notice, only if delay in imposing area quarantine would significantly jeopardize the department's or local board's ability to prevent or contain the spread of a suspected or confirmed quarantinable disease or to prevent or contain exposure to a suspected or known hazardous or toxic agent. If the department or local board imposes temporary area quarantine through an oral order, a written order shall be issued as soon as is reasonably possible and in all cases within 24 hours of issuance of the oral order if continued area quarantine is necessary.

c. Written order. The department or local board may impose area quarantine through a written order issued pursuant to this rule.

(1) The written order shall include all of the following:

1. The building or buildings, structure or structures, or other definable physical location, or portion thereof, subject to area quarantine.

2. The date and time at which area quarantine commences and the date and time at which the area quarantine shall be terminated, if known.

3. The suspected or confirmed quarantinable disease or the chemical, biological, radioactive, or other hazardous or toxic agent.

4. A statement of compliance with the conditions and principles for area quarantine specified in subrule 1.13(2).

5. The legal authority under which the order is imposed.

6. The medical or scientific basis upon which area quarantine is justified.

7. A statement advising the owner or owners of the building or buildings, structure or structures, or other definable physical location subject to area quarantine of the right to appeal the written order pursuant to subrule 1.13(5) and the rights of owners of sites subject to area quarantine pursuant to subrule 1.13(6).

8. A copy of 641—Chapter 1 and the relevant provisions of this rule.

(2) A copy of the written order shall be provided to the owner or owners of the building or buildings, structure or structures, or other definable physical location subject to area quarantine within 24 hours of issuance of the order in accordance with any applicable process authorized by the Iowa Rules of Civil Procedure; or, if the order applies to a group of owners and it is impractical to provide individual notice to each owner, the written order shall be posted in a conspicuous place at the site of area quarantine.

1.13(5) *Appeal from order imposing area quarantine.*

a. Contested case. The subject of a department order imposing area quarantine may appeal a written order and has the right to a contested case hearing regarding such appeal. The subject of a department order imposing area quarantine may appeal the order by submitting a written appeal within 10 days of receipt or other notice of the written order. The appeal shall be addressed to the Local Board of Health or to the Department of Public Health, Division of Acute Disease Prevention and Emergency Response, Lucas State Office Building, Des Moines, Iowa 50319-0075. Unless stayed by order of the

director or a district court, the written order for area quarantine shall remain in force and effect until the appeal is finally determined and disposed of upon its merits.

b. Presiding officer. The presiding officer in a contested case shall be the director or the director's designee. The director or the director's designee may be assisted by an administrative law judge in conducting the contested case hearing. The decision of the director or the director's designee shall be the agency's final decision and is subject to judicial review in accordance with the provisions of Iowa Code chapter 17A.

c. Proceeding. The contested case hearing shall be conducted in accordance with the provisions contained at 641—Chapter 173. The hearing shall be held as soon as is practicable, and in no case later than 10 days from the date of receipt of the appeal. In extraordinary circumstances and for good cause shown, the department may apply to continue the hearing date on a petition filed pursuant to this paragraph for up to 10 days, which continuance the presiding officer may grant in the presiding officer's discretion giving due regard to the rights of the affected individuals, the protection of the public's health, and the availability of necessary witnesses and evidence.

d. Judicial review. The aggrieved party to the final decision of the department may petition for judicial review of that action pursuant to Iowa Code chapter 17A. Petitions for judicial review shall be filed within 30 days after the decision becomes final.

e. Immediate judicial review of department order. The department or local board acknowledges that in certain circumstances the subject or subjects of a department order may desire immediate judicial review of a department order in lieu of proceeding with the contested case process. The department recognizes that the procedural step of pursuing exhaustion of administrative remedies may be inadequate for purposes of Iowa Code section 17A.19, and the department may consent to immediate jurisdiction of the district court when requested by the subject or subjects of a department order and justice so requires. Unless stayed by order of the director or a district court, the written order for area quarantine shall remain in force and effect until the judicial review is finally determined and disposed of upon its merits.

1.13(6) *Rights of owners of sites subject to area quarantine.* An owner of a building, structure, or other physical location subject to area quarantine shall have the following rights:

a. The right to be represented by legal counsel.

b. The right to be provided with prior notice of the date, time, and location of any hearing.

c. The right to participate in any hearing.

d. The right to respond and present evidence and argument on the owner's own behalf in any hearing.

e. The right to cross-examine witnesses who testify against the owner or individual.

f. The right to view and copy all records in the possession of the department which relate to the subject of the written order.

1.13(7) *Consolidation of claims.* In any proceeding brought pursuant to this rule, to promote the fair and efficient operation of justice and having given due regard to the rights of the affected individuals, the protection of the public's health, and the availability of necessary witnesses and evidence, the department or a court may order the consolidation of individual claims into group claims, if all of the following conditions exist:

a. The number of individuals involved or who may be affected is so large that individual participation is impractical.

b. There are questions of law or fact common to the individual claims or rights to be determined.

c. The group claims or rights to be determined are typical of the affected individuals' claims or rights.

d. The entire group will be adequately represented in the consolidation.

1.13(8) *Implementation and enforcement of area quarantine.*

a. Jurisdictional issues. The department has primary jurisdiction to impose area quarantine if the quarantinable disease or hazardous or toxic agent has affected more than one county and implicates multicounty or statewide public health concerns. If area quarantine is imposed by the department, a local board of health or local health department may not alter, amend, modify, or rescind the area quarantine order.

b. Assistance of local boards of health and local health departments. If area quarantine is imposed by the department, the local boards of health and the local health departments in the affected areas shall assist in the implementation of the area quarantine.

c. Assistance of law enforcement. Pursuant to Iowa Code section 135.35, all peace officers of the state shall enforce and execute a lawful department order for area quarantine within their respective jurisdictions. The department shall take all reasonable measures to minimize the risk of individual exposure of peace officers and others assisting with enforcement of an area quarantine order.

d. Emergency response, investigation, and decontamination—authority of other agencies. Emergency response, investigation, and decontamination activities in and around an area quarantine site shall be conducted by law enforcement, fire service, emergency medical service providers, or other appropriate federal, state, or local officials in accordance with federal and state law and accepted procedures and protocols for emergency response, investigation, and decontamination. This rule shall not be construed to limit the authority of law enforcement, fire service, emergency medical service providers, or other federal, state, or local officials to conduct emergency response, investigation, or decontamination activities to the extent authorized by federal and state law and accepted procedures and protocols.

e. Penalty. Pursuant to Iowa Code section 135.38, any individual who knowingly violates a lawful department order for area quarantine, whether written or oral, shall be guilty of a simple misdemeanor. The court-ordered sentence may include a fine of up to $500 and imprisonment not to exceed 30 days.

f. Enforcement action. To enforce a department order for quarantine, the department may file a civil action in Polk County District Court or in the district court for the county in which the area quarantine will be enforced. Such action shall be filed in accordance with the Iowa Rules of Civil Procedure.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

SPECIFIC NONCOMMUNICABLE CONDITIONS

641—1.14(139A) Cancer. Each occurrence of a reportable cancer that is diagnosed or treated in an Iowa resident or occurs in a nonresident who is diagnosed or treated in an Iowa facility shall be reported to the State Health Registry of Iowa, administered by the Department of Epidemiology of the College of Public Health at the University of Iowa, by mail, telephone or electronic means.

1.14(1) *Who is required to report.* Occurrences of reportable cancers shall be reported by registrars employed by the State Health Registry of Iowa, registrars employed by health care facilities, and health care providers involved in the diagnosis, care, or treatment of individuals with a reportable cancer.

1.14(2) *What to report.* The content of the reports shall include, but not be limited to, follow-up data and demographic, diagnostic, treatment, and other medical information. Tissue samples may also be submitted under the authority of this rule.

1.14(3) *How to report.* For these particular diseases, physicians and other health practitioners should not send a report to the department.

a. The department has delegated to the State Health Registry of Iowa the responsibility for collecting these data through review of records from hospitals, radiation treatment centers, outpatient surgical facilities, oncology clinics, pathology laboratories, and physician offices.

b. Prior to collecting the data from an office or facility, the State Health Registry of Iowa shall work with the office or facility to develop a process for abstracting records which is agreeable to the office or facility.

c. Where applicable, reportable cancers shall be reported on forms developed and distributed by the State Health Registry of Iowa.

d. Data will be supplemented with information obtained from records from hospitals, radiation treatment centers, outpatient surgical centers, oncology clinics, pathology laboratories, and physician offices through an abstracting process developed by the State Health Registry of Iowa.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.15(144) Congenital and inherited disorders. Each occurrence of a congenital and inherited disorder that is diagnosed or treated in an Iowa resident or occurs in a nonresident who is diagnosed or treated in an Iowa facility is a reportable condition, and records of these congenital and inherited disorders shall be abstracted and maintained in a central registry. Congenital and inherited disorder surveillance shall be performed in order to determine the occurrence and trends of congenital and inherited disorders, to conduct thorough and complete epidemiological surveys, to assist in the planning for and provision of services to children with congenital and inherited disorders and their families, and to identify environmental and genetic risk factors for congenital and inherited disorders.

1.15(1) *Who is required to report.* Occurrences of reportable congenital and inherited disorders shall be reported by registrars employed by the Iowa Registry for Congenital and Inherited Disorders, registrars employed by health care facilities, and health care providers involved in the diagnosis, care, or treatment of individuals with reportable congenital and inherited disorders.

1.15(2) *What to report.* The content of the reports shall include, but not be limited to, follow-up data and demographic, diagnostic, treatment, and other medical information. Tissue samples may also be submitted under the authority of this rule.

1.15(3) *How to report.*

a. The department has delegated to the Iowa Registry for Congenital and Inherited Disorders the responsibility for collecting these data through review of records from hospitals, radiation treatment centers, outpatient surgical facilities, oncology clinics, pathology laboratories, and physician offices.

b. Prior to collecting the data from an office or facility, the Iowa Registry for Congenital and Inherited Disorders shall work with the office or facility to develop a process for abstracting records.

1.15(4) *Fetal death (stillbirth).* Each occurrence of a fetal death that occurs in an Iowa resident or occurs in a nonresident who is identified in an Iowa facility is a reportable condition.

a. Providers shall complete the fetal death certificate supplied by the department.

b. Fetal death certificates are to be filed with the department's bureau of vital records within seven days.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

641—1.16(139A) Agriculturally related injury.

1.16(1) *Who is required to report.*

a. Health care providers are required to report all cases of agriculturally related injury attended by them.

b. Clinics, hospitals and other health care facilities are required to report all cases of agriculturally related injury treated at their facility.

c. Health care providers who reside and health care facilities that are located outside the state of Iowa shall report all cases of agriculturally related injury of an Iowa resident that are attended or treated by them.

d. Medical examiners are required to report their investigatory findings of any death occurring within the state of Iowa which was caused by or otherwise involved a reportable agriculturally related injury.

1.16(2) *What to report.* Each report shall contain all of the following information:

a. The patient's name.

b. The patient's address.

c. The patient's date of birth.

d. The sex of the patient.

e. The race and ethnicity of the patient.

f. The patient's marital status.

g. The patient's telephone number.

h. If the patient is female, whether the patient is pregnant.

i. In the case of occupational conditions, the name of the patient's employer.

j. The date that the injury occurred.

k. The name and address of the health care provider who diagnosed and treated the injury, and the name of the reporting site, clinic, or hospital.

l. Injury diagnosis and description, including diagnostic and external cause of injury codes utilizing the international classification of diseases (ICD) coding system.

m. Severity of injury.

1.16(3) *How to report.*

a. All data shall be reported to the department at least quarterly using formats approved by the department. Reports, using the Iowa Agricultural Injury Report Form found at www.idph.state.ia.us, may be submitted by facsimile to (515)281-4529, or by mail to the Iowa Department of Public Health, Bureau of Lead Poisoning Prevention, Occupational Safety and Health Surveillance Program, Lucas State Office Building, 321 E. 12th Street, Des Moines, Iowa 50319-0075. Information may also be reported by telephone to 1-800-972-2026 during normal office hours.

b. Trauma centers may report using the Iowa Trauma Patient Registry COLLECTOR software by indicating "Yes" for farm and agriculturally related injury. For more information about using the Iowa Trauma Patient Registry for reporting, contact the Iowa Department of Public Health Bureau of Emergency Medical Services at 1-800-728-3367.

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

CONFIDENTIALITY

641—1.17(139A,22) Confidentiality.

1.17(1) A report or other information provided to or maintained by the department, a local board, or a local department which identifies a person infected with or exposed to a reportable or other disease or health condition is confidential and shall not be accessible to the public.

1.17(2) The identity of a business named in a report or investigation is confidential and shall not be accessible to the public. If information contained in a report or other information provided to or maintained by the department, a local board, or a local department concerns a business, information disclosing the identity of the business may be released to the public when the state public health medical director and epidemiologist or the director determines such a release of information necessary for the protection of the public.

1.17(3) Reportable disease records and information, with the exception of AIDS and HIV records, which identify a person or a business named in a report, may be disclosed under the following limited circumstances:

a. By and between department employees and agents who have a need for the record in the performance of their duties.

b. By and between department employees and agents and local boards of health and local health departments as necessary to conduct an investigation.

c. By and between department employees and agents and health care providers, laboratories, and hospitals as necessary to conduct an investigation.

d. By and between department employees and agents and employees and agents of federal, state, and local agencies as necessary to conduct an investigation.

e. Reportable disease information may be included in a quarantine or isolation order or placard as necessary to prevent the spread of a quarantinable disease.

f. Pursuant to rule 641—175.9(17A,22) or 641—175.10(17A,22).

[**ARC 8231B**, IAB 10/7/09, effective 11/11/09]

These rules are intended to implement Iowa Code chapters 135, 136A, 139A, 141A and 144.

APPENDIX A
Iowa Department of Public Health
Table of Reportable Communicable and Infectious Diseases

Report cases of the diseases listed in the following table to the department within the time frame specified in the When to Report column and by the reporting method in the How to Report column.

To report diseases immediately, use the 24/7 disease reporting telephone hotline: 1-800-362-2736.

IMMEDIATELY report diseases, syndromes, poisonings and conditions of any kind suspected or caused by a biological, chemical, or radiological agent or toxin when there is reasonable suspicion that the disease, syndrome, poisoning or condition may be the result of a deliberate act such as terrorism.

IMMEDIATELY report to the department outbreaks of any kind, diseases that occur in unusual numbers or circumstances, unusual syndromes, or uncommon diseases. Outbreaks may be infectious, environmental or occupational in origin and include food-borne outbreaks or illness secondary to chemical exposure (e.g., pesticides, anhydrous ammonia).

Report diseases by:
Entering into the Iowa Disease Surveillance System (IDSS): For IDSS-related questions, call the Center for Acute Disease Epidemiology (CADE) at 1-800-362-2736.

Fax: (515)281-5698

Mail:
Iowa Department of Public Health
Center for Acute Disease Epidemiology
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319

Isolates shall be sent to:
University Hygienic Laboratory
102 Oakdale Campus, H101 OH
Iowa City, Iowa 52242

For specimen submission questions, call (319)335-4500 or go to http://www.uhl.uiowa.edu/.

Diseases	When to Report	How to Report
Acquired immune deficiency syndrome (AIDS) and AIDS-defining conditions	7 days	Report by mail ● Health care providers: use the Pediatric or Adult Confidential Case Report Form ● Laboratories: send copy of lab report or the Iowa Confidential Report of Sexually Transmitted Disease & HIV Infection. Mark envelope "Attention 03" **For HIV/AIDS-related questions, call (515)242-5141**
Anthrax	1 day	Phone, IDSS, or fax

Diseases	When to Report	How to Report
Arboviral disease (includes West Nile Disease, St. Louis, LaCrosse, WEE, EEE, VEE encephalitis)	3 days	Phone, IDSS, fax or mail
Botulism	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Brucellosis (Burcella)	3 days	Phone, IDSS, fax or mail
Campylobacteriosis (Campylobacter)	3 days	Phone, IDSS, fax or mail
Chlamydia	3 days	Use the Iowa Confidential Report of Sexually Transmitted Disease and HIV Infection
Cholera	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Cryptosporidiosis	3 days	Phone, IDSS, fax or mail
Cyclospora	3 days	Phone, IDSS, fax or mail
Diphtheria	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Enterococcus invasive disease	3 days	Laboratories send isolate to the UHL
Escherichia coli shiga toxin-producing and related diseases (includes HUS and TTP)	3 days	Phone, IDSS, fax or mail Laboratories send isolate to the UHL
Giardiasis (Giardia)	3 days	Phone, IDSS, fax or mail
Gonorrhea	3 days	Use the Iowa Confidential Report of Sexually Transmitted Disease and HIV Infection
Group A Streptococcus invasive disease	3 days	Send isolate to the UHL
Haemophilus influenza type B invasive disease	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736 Laboratories send isolate to the UHL
Hansen's disease (leprosy)	3 days	Phone, IDSS, fax or mail
Hantavirus syndromes	3 days	Phone, IDSS, fax or mail
Hepatitis A	1 day	Phone, IDSS or fax
Hepatitis B, C, D, E	3 days	Phone, IDSS, fax or mail
Human immunodeficiency virus (HIV) cases Death of a person with HIV Perinatally exposed newborn and child (newborn and child who was born to an HIV-infected mother)	7 days	Report by mail ● Health care providers: use the Pediatric or Adult Confidential Case Report Form ● Laboratories: send copy of lab report or the Iowa Confidential Report of Sexually Transmitted Disease & HIV Infection. Mark envelope "Attention 03" **For HIV/AIDS-related questions, call (515)242-5141**
Legionellosis (Legionella)	3 days	Phone, IDSS, fax or mail
Listeria monocytogenes invasive disease	1 day	Phone, IDSS, or fax Laboratories send isolate to the UHL
Lyme disease	3 days	Phone, IDSS, fax or mail
Malaria	3 days	Phone, IDSS, fax or mail
Measles (rubeola)	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Meningococcal invasive disease	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736 Laboratories send isolate to the UHL
Mumps	3 days	Phone, IDSS, fax or mail
Pertussis	3 days	Phone, IDSS, fax or mail

Diseases	When to Report	How to Report
Plague	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Poliomyelitis	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Psittacosis	3 days	Phone, IDSS, fax or mail
Rabies, animal	3 days	Phone, IDSS, fax or mail
Rabies, human	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Rocky Mountain spotted fever	3 days	Phone, IDSS, fax or mail
Rubella (including congenital)	1 day	Phone, IDSS, fax or mail
Salmonellosis (Salmonella)	3 days	Phone, IDSS, fax or mail Laboratories send isolate to the UHL
Severe acute respiratory syndrome (SARS)	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Shigellosis (Shigella)	3 days	Phone, IDSS, fax or mail Laboratories send isolate to the UHL
Smallpox	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Staphylococcus aureus invasive disease: Methicillin-resistant invasive disease (number of S. aureus isolates should be reported to the department quarterly) Vancomycin-resistant S. aureus	3 days **Immediately**	Laboratories send isolate to the UHL Mail the number of staphylococcus isolated quarterly to UHL 24/7 disease reporting telephone hotline: 800-362-2736
Streptococcus pneumoniae invasive disease	3 days	Laboratories send isolate to the UHL
Syphilis	3 days	Use the Iowa Confidential Report of Sexually Transmitted Disease and HIV Infection
Tetanus	3 days	Phone, IDSS, fax or mail
Toxic Shock Syndrome	3 days	Phone, IDSS, fax or mail
Trichinosis	3 days	Phone, IDSS, fax or mail
Tuberculosis	3 days	Phone, IDSS, fax or mail
Typhoid fever	1 day	Phone, IDSS or fax
Yellow fever	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736

APPENDIX B
Iowa Department of Public Health
Table of Reportable Poisonings and Conditions

Report cases of the poisonings and conditions listed in the following table to the department within the time frame specified in the When to Report column and by the reporting method in the How to Report column.

To report diseases immediately, use the 24/7 disease reporting telephone hotline: 1-800-362-2736.

IMMEDIATELY report diseases, syndromes, poisonings and conditions of any kind suspected or caused by a biological, chemical, or radiological agent or toxin when there is reasonable suspicion that the disease, syndrome, poisoning or condition may be the result of a deliberate act such as terrorism.

IMMEDIATELY report to the department outbreaks of any kind, diseases that occur in unusual numbers or circumstances, unusual syndromes, or uncommon diseases. Outbreaks may be infectious, environmental or occupational in origin and include food-borne outbreaks or illness secondary to chemical exposure (e.g., pesticides, anhydrous ammonia).

Mailing address:
Bureau of Lead Poisoning Prevention Division of Environmental Health
Iowa Department of Public Health
321 East 12th Street
Des Moines Iowa 50319-0075

Telephone: 1-800-972-2026

Fax: (515)281-4529

Poisoning or Condition	Cases to Report	When to Report	How to Report
Arsenic poisoning	Blood arsenic values equal to or greater than 70 µg/L Urine arsenic values equal to or greater than 100 µg/L of urinary creatinine	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Blood lead testing	All analytical results greater than or equal to 20 micrograms per deciliter (µg/dL) in a child under the age of 6 years or a pregnant woman	Daily	By telephone: 800-972-2026
	All other analytical values for all blood lead analyses	Weekly	Electronic format specified by the department
Cadmium poisoning	Blood cadmium values equal to or greater than 5 µg/L Urine cadmium values equal to or greater than 3 µg/g	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Carbon monoxide (CO) poisoning	Blood carbon monoxide level equal to or greater than 10% carboxyhemoglobin or its equivalent with a breath analyzer test, or a clinical diagnosis of CO poisoning regardless of any test results	Daily	By telephone: 800-972-2026

Poisoning or Condition	Cases to Report	When to Report	How to Report
Hypersensitivity pneumonitis	All cases	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Mercury poisoning	Blood mercury values equal to or greater than 2.8 µg/dL Urine mercury values equal to or greater than 20 µg/L	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Methemoglobinemia	Blood analyses showing greater than 5% of total hemoglobin present as methemoglobin	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Noncommunicable respiratory illness	All cases	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction	All cases	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Pesticide poisoning (including pesticide-related contact dermatitis)	All cases	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Severe skin disorder	All cases	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile.
Toxic hepatitis	All cases	Weekly	Format specified by department. Web-based reporting if available. Alternatives include by mail, telephone, and facsimile

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CHAPTER 11
HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION AND ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)

641—11.1(139A,141A) Definitions. For the purpose of rules 641—11.1(139A,141A) to 641—11.34(915), the following definitions shall apply:

"AIDS" means acquired immune deficiency syndrome as defined by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

"AIDS-related condition" means any condition resulting from HIV infection that meets the definition of AIDS as established by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

"Blood bank" means a facility for the collection, processing, or storage of human blood or blood derivatives, or from which or by means of which human blood or blood derivatives are distributed or otherwise made available.

"CDC" means the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

"CLIA" means Clinical Laboratory Improvement Amendments as administered by the Centers for Medicare and Medicaid Services of the U.S. Department of Health and Human Services.

"Clinical laboratory" means a facility for the microbiological, serological, chemical, hematological, radiobioassay, cytological, immunohematological, pathological or other examination of materials derived from the human body for the purpose of providing information for the diagnosis, prevention, or treatment of any disease or assessment of a medical condition.

"Confirmed positive test" means a reactive result or detectable quantity on any HIV-related test, including an antibody test, an antigen test, a culture, a nucleic acid amplification test, or other test or combination of tests, that is considered to be confirmatory according to prevailing medical technology and algorithms or guidance from CDC. When the confirmed positive test involves more than one test, all test results should be included in any reports to the department.

"Department" means the Iowa department of public health.

"Director of a plasma center, blood bank, clinical laboratory, or public health laboratory" means the person responsible for direction and operation of the facility, the medical director, or the person designated by the director or medical director to ensure compliance with applicable regulations and requirements.

"Emergency medical services personnel" means "emergency medical care provider" as defined in 641—131.1(147A).

"Health care facility" means a health care facility as defined in Iowa Code section 135C.1, an ambulatory surgical center, or a clinic.

"Health care provider" means a person licensed to practice medicine and surgery, osteopathic medicine and surgery, chiropractic, podiatry, nursing, dentistry, or optometry, or licensed as a physician assistant, dental hygienist, or acupuncturist.

"Health facility" means a hospital, health care facility, clinic, blood bank, blood center, sperm bank, laboratory organ transplant center and procurement agency, or other health care institution.

"HIV" means the human immunodeficiency virus identified as the causative agent of AIDS.

"HIV infection" means having acquired the human immunodeficiency virus.

"HIV-related test" means a diagnostic test conducted by a laboratory approved pursuant to CLIA for determining the presence of HIV or antibodies to HIV.

"Laboratory" means a clinical or public health laboratory, a plasma center, or a blood bank inside or outside the boundaries of Iowa.

"Physician" means a person currently licensed pursuant to Iowa Code chapter 148.

"Plasma center" means a facility that conducts plasmapheresis.

"Plasmapheresis" means the removal of blood from a human being to obtain plasma with the subsequent reinfusion of the remaining formed elements into the donor, but excludes such a procedure performed for the purpose of improving the health of the donor.

"Public health laboratory" means a laboratory operated by an agency of city, county or state government for the purpose of supporting disease control activities.

"Sexually transmitted disease or infection" means "sexually transmitted disease or infection" as defined in 641—1.1(139A).

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.2(141A) HIV testing—obtaining consent—voluntary HIV-related tests for adults who are not pregnant.

11.2(1) Prior to conducting a voluntary HIV-related test on an adult, the health care provider requesting the test shall provide information to the subject of the test concerning HIV testing and where to obtain additional information regarding HIV infection and risk reduction.

11.2(2) All adults who are able must give consent for an HIV test, but a separate written consent solely for the purpose of HIV testing shall not be required. If an adult signs a general consent form for the performance of medical tests or procedures, the signing of an additional consent form for the purpose of consenting to an HIV-related test is not required during the time in which the general consent form is in effect. If an adult has not signed a general consent form for the performance of medical tests and procedures, or if the consent form is no longer in effect, a health care provider shall obtain oral or written consent prior to performing the HIV-related test.

11.2(3) If an adult is unable to give consent, the adult's legal guardian may provide oral or written consent. If the adult's legal guardian cannot be located or is unavailable, a health care provider may authorize the HIV-related test when the test results are necessary for diagnostic purposes to provide appropriate urgent medical care.

11.2(4) Once an adult has been informed of a confirmed positive HIV-related test, no HIV-specific consent for medical procedures and tests shall be required for subsequent medical procedures and tests involved in the care or treatment of the adult with HIV infection.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.3(139A,141A) HIV testing—obtaining consent—voluntary HIV-related tests for minors who are not pregnant.

11.3(1) A minor shall have the legal capacity to act and give consent to the provision of medical care or services for the prevention, diagnosis, or treatment of HIV by a hospital, clinic, or health care provider. Consent shall not be subject to later disaffirmance by reason of such minority. The consent of another person, including but not limited to the consent of a spouse, parent, custodian, or guardian, shall not be necessary.

11.3(2) Prior to conducting a voluntary HIV-related test on a minor, the health care provider requesting the test shall provide information to the subject of the test concerning HIV testing and where to obtain additional information regarding HIV infection and risk reduction.

11.3(3) A minor shall be informed prior to testing that, upon confirmation according to prevailing medical technology of a positive HIV-related test result, the minor's legal guardian is required to be informed by the health facility conducting the test. Health facilities where minors are tested shall have available a program to notify the legal guardian of a newly diagnosed minor. The notification process shall emphasize the need for family support and shall assist in making available the resources necessary to accomplish that goal. However, a health facility which is precluded by federal statute, regulation, or CDC guidelines from informing the legal guardian is exempt from the notification requirement.

11.3(4) Prior to the test, a minor shall give written consent for performance of the HIV-related test and to the notification of the legal guardian should the test be confirmed as positive.

11.3(5) If a minor is unable to provide consent for an HIV-related test, the minor's legal guardian may provide oral or written consent for the minor. If the minor's legal guardian cannot be located or is unavailable, a health care provider may authorize the HIV-related test when the test results are necessary for diagnostic purposes to provide appropriate urgent medical care.

11.3(6) Once a minor has been informed of a confirmed positive HIV-related test and the legal guardian has been notified, no HIV-specific consent for medical procedures and tests shall be required for subsequent medical procedures and tests involved in the care or treatment of a minor with HIV infection.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.4(141A) HIV testing—obtaining consent—voluntary HIV-related tests for pregnant women.

11.4(1) All pregnant women, including minors, shall be tested for HIV infection as part of the routine panel of prenatal tests. The health care provider requesting the test shall notify a pregnant woman that HIV screening is recommended for all prenatal patients and that the pregnant woman will receive an HIV test as part of the routine panel of prenatal tests unless the pregnant woman objects to the test. No written or oral consent shall be required.

11.4(2) The testing shall occur as early as possible during each pregnancy.

11.4(3) The health care provider requesting the test shall make information about HIV prevention, risk reduction, and treatment opportunities to reduce the possible transmission of HIV to a fetus available to all pregnant women.

11.4(4) A pregnant woman who is a minor shall be informed prior to testing that, upon confirmation according to prevailing medical technology of a positive HIV-related test result, the minor's legal guardian is required to be informed by the health facility conducting the test. Health facilities where minors are tested shall have available a program to notify the legal guardian of a newly diagnosed minor. The notification process shall emphasize the need for family support and shall assist in making available the resources necessary to accomplish that goal. However, a health facility which is precluded by federal statute, regulation, or CDC guidelines from informing the legal guardian is exempt from the notification requirement.

11.4(5) If a pregnant woman objects to and declines the test, the decision shall be documented in the pregnant woman's medical record by the health care provider. A health care provider shall encourage women who decline the test early in prenatal care to be tested at a subsequent visit.

11.4(6) Once a pregnant woman has been informed of a confirmed positive HIV-related test and, if the pregnant woman is a minor, the legal guardian has been notified, no HIV-specific consent for medical procedures and tests shall be required for subsequent medical procedures and tests involved in the care or treatment of a pregnant woman with HIV infection.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.5(141A) HIV test results—post-test counseling.

11.5(1) At any time that the subject of an HIV-related test is informed of a confirmed positive test result, the health care provider who requested the test or other designated personnel shall initiate counseling concerning the emotional and physical health effects of HIV infection. Particular attention shall be given to explaining the need for the precautions necessary to avoid transmitting the virus. The subject of the test shall be given information concerning where to obtain additional counseling. If a legal guardian of the subject of the test provided consent to the test, the counseling shall be given to the legal guardian.

11.5(2) Post-test counseling requirements do not apply to any of the following:

a. The performance of an HIV-related test by a health care provider or health facility when the health care provider or health facility procures, processes, distributes, or uses a human body part donated for a purpose specified under the revised uniform anatomical gift Act as provided in Iowa Code chapter 142C, or semen provided prior to July 1, 1988, for the purpose of artificial insemination, or donations of blood, and such test is necessary to ensure medical acceptability of such gift or semen for the purposes intended.

b. A person engaged in the business of insurance who is subject to Iowa Code section 505.15.

c. The performance of an HIV-related test by a health care provider or health facility when the subject of the test is deceased and a documented significant exposure has occurred.

d. The performance of an HIV-related test by a health care provider or health facility when the subject of the test is unable to provide consent and the health care provider or health facility provided consent for the subject of the test.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.6(141A) Reporting of diagnoses and HIV-related tests, events, and conditions to the department.

11.6(1) The following constitute reportable events related to HIV infection:

a. A test result indicating HIV infection, including:

(1) Confirmed positive results on any HIV-related test or combination of tests, including antibody tests, antigen tests, cultures, and nucleic acid amplification tests.

(2) A positive result or report of a detectable quantity on any other HIV detection (non-antibody) tests, and results of all viral loads, including nondetectable levels.

b. AIDS and AIDS-related conditions, including all levels of CD4+ T-lymphocyte counts.

c. Birth of an infant to an HIV-infected mother (perinatal exposure) or any (positive, negative, or undetectable) non-antibody detection test (antigen test, viral culture, viral load, or qualitative nucleic acid amplification test) on an infant 18 months of age or younger.

d. Death resulting from an AIDS-related condition, or death of a person with HIV infection.

11.6(2) Within seven days of the receipt of a person's confirmed positive test result indicating HIV infection, the director of a plasma center, blood bank, clinical laboratory or public health laboratory that performed the test or that requested the confirmatory test shall make a report to the department on a form provided by the department.

11.6(3) Within seven days of the receipt of a test result indicating HIV infection, which has been confirmed as positive according to prevailing medical technology, or immediately after the initial examination or treatment of a person infected with HIV, the physician or other health care provider at whose request the test was performed or who performed the initial examination or treatment shall make a report to the department on a form provided by the department.

11.6(4) Within seven days of diagnosing a person as having AIDS or an AIDS-related condition, the diagnosing physician shall make a report to the department on a form provided by the department.

11.6(5) Within seven days of the death of a person with HIV infection, the attending physician shall make a report to the department on a form provided by the department.

11.6(6) Within seven days of the birth of an infant to an HIV-infected mother or a receipt of a laboratory result (positive, negative, or undetectable) of a non-antibody detection test (antigen test, viral culture, viral load, or qualitative nucleic acid amplification test) on an infant 18 months of age or younger, the attending physician shall make a report to the department on a form provided by the department.

11.6(7) The report shall include:

a. The person's name, address, date of birth, gender, race and ethnicity, marital status, and telephone number.

b. The name, address and telephone number of the plasma center, blood bank, clinical laboratory or public health laboratory that performed or requested the test, if a test was performed.

c. The address of the physician or other health care provider who requested the test.

d. If the person is female, whether the person is pregnant.

11.6(8) All persons who experience a reportable event while receiving services in the state, regardless of state of residence, shall be reported.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.7(141A) Penalties.

11.7(1) A director of a plasma center, blood bank, clinical laboratory or public health laboratory or a physician or other health care provider who repeatedly fails to file the report required pursuant to these rules is subject to a report being made to the licensing board governing the professional activities of the individual. The department shall notify the individual each time the department determines that the individual has failed to file a required report. The department shall inform the individual in the

notification that the individual may provide information to the department to explain or dispute the failure to report.

11.7(2) A public, private, or hospital clinical laboratory that repeatedly fails to make the report required under these rules is subject to a civil penalty of not more than $1,000 per occurrence. The department shall not impose the penalty without prior written notice and opportunity for hearing.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.8(141A) Immunity. An individual who makes a report in good faith pursuant to these rules is immune from any liability, civil or criminal, which might otherwise be incurred or imposed as a result of the report.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

Rules 641—11.1(139A,141A) to 641—11.8(141A) are intended to implement Iowa Code sections 139A.35, 141A.4, 141A.6, 141A.7 and 141A.10.

641—11.9 and **11.10** Reserved.

TRAINING PROGRAMS

641—11.11(135) Purpose. The purpose of this rule is to describe the required content of AIDS training programs and to identify the groups of personnel involved.

11.11(1) *Nonemergency personnel.* Within six months of their initial employment, all supervisory and patient care personnel of any agency listed below shall complete a minimum of two hours of training concerning AIDS-related conditions and the prevention of HIV infection:

a. A licensed hospice,

b. A homemaker-home health aide provider agency which receives state homemaker-home health aide funds, or

c. An agency which provides respite care services and receives state funds for respite care services.

11.11(2) *Content.* Training programs must address the following topics:

a. HIV disease processes,

b. Signs and symptoms,

c. Transmission,

d. High-risk activities,

e. Prevention recommendations, and

f. Standard precautions as defined by the CDC and the Occupational Safety and Health Administration of the U.S. Department of Labor.

11.11(3) *Emergency and law enforcement personnel.* All emergency medical services personnel, firefighters, and law enforcement personnel shall complete a minimum of two hours of training concerning AIDS-related conditions and the prevention of HIV infection.

11.11(4) *Content.* Training programs must address the following topics:

a. HIV disease processes,

b. Signs and symptoms,

c. Transmission,

d. High-risk activities,

e. Prevention recommendations, and

f. Standard precautions as defined by the CDC and the Occupational Safety and Health Administration of the U.S. Department of Labor.

This rule is intended to implement Iowa Code section 135.11.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.12 to **11.14** Reserved.

PARTNER NOTIFICATION SERVICES AND DIRECT NOTIFICATION OF AN IDENTIFIABLE THIRD PARTY

641—11.15(139A,141A) Purpose. The purpose of rules 641—11.15(139A,141A) to 641—11.18(141A) is to establish a voluntary partner notification program, including a procedure to allow a physician or the department to notify an identifiable third party of an HIV-infected person directly that the party has been exposed to HIV when the HIV-infected person will not participate in the voluntary partner notification program.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.16(139A,141A) Definitions. For the purpose of rules 641—11.15(139A,141A) to 641—11.18(141A), the following definitions shall apply:

"Identifiable third party" means a sexual partner of or a person who shares drug injecting equipment with a person who has been diagnosed with HIV infection.

"Partner notification" means services provided to a person who has tested positive for a sexually transmitted disease or infection or to the person's sexual or needle-sharing partners or social contacts. These services include, but are not limited to, counseling about the nature of the disease, modes of transmission, and risk reduction techniques; treatment or linkage to medical care and treatment; assessment for and referral to social or medical services; elicitation of exposed partners' names and contact information; testing for other diseases or conditions; and provision of or referral to other prevention services.

"Significant exposure" means "significant exposure" as defined in 641—11.22(139A).
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.17(139A,141A) Partner notification services by the department.

11.17(1) The department shall maintain a partner notification program for persons known to have tested positive for sexually transmitted diseases or infections. In administering the program, the department shall provide for the following:

a. A physician or other health care provider shall encourage a person who tests positive for a sexually transmitted disease or infection to refer for counseling and testing any party with whom the newly diagnosed person has had sexual relations or has shared drug injecting equipment.

b. The physician or other health care provider attending the person who tests positive for a sexually transmitted disease or infection may provide to the department any relevant information provided by the tested person regarding any party with whom the tested person has had sexual relations or has shared drug injecting equipment.

11.17(2) When making contact with partners of a person with a sexually transmitted disease or infection, the department shall not disclose the identity of the person who provided the names of the partners and shall protect the confidentiality of the partners who are contacted.

11.17(3) The department may delegate its partner notification duties under subrule 11.17(1) for persons who have tested positive for HIV infection to a local health authority unless the authority refuses or neglects to conduct the partner notification program in a manner deemed to be effective by the department.

11.17(4) The department may delegate its partner notification duties under subrule 11.17(1) for persons who have tested positive for sexually transmitted diseases other than HIV infection to a local health authority or a physician or other health care provider unless the authority or physician or other health care provider refuses or neglects to conduct the partner notification program in a manner deemed to be effective by the department.

11.17(5) In addition to the provisions for partner notification provided under these rules and notwithstanding any provision to the contrary, a county medical examiner or deputy medical examiner performing official duties pursuant to Iowa Code sections 331.801 through 331.805 or the state medical examiner or deputy medical examiner performing official duties pursuant to Iowa Code chapter 691 who determines through an investigation that a deceased person was infected with HIV may notify

directly, or request that the department notify, the immediate family of the deceased or any person known to have had a significant exposure from the deceased of the finding.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.18(141A) Direct notification of an identifiable third party by a physician or the department.

11.18(1) Direct notification shall be used when an HIV-infected person is having continuing contact with a sexual or needle-sharing partner who is unaware of the person's infection and when both of the following situations exist:

a. A physician for the HIV-infected person is of the good-faith opinion that the nature of the continuing contact through sexual intercourse or the sharing of drug injecting equipment poses an imminent danger of HIV transmission to the third party.

b. When the physician believes in good faith that the HIV-infected person, despite strong encouragement, has not and will not warn the third party and will not participate in the voluntary partner notification program.

11.18(2) The department or a physician may reveal the identity of an HIV-infected person pursuant to this rule only to the extent necessary to protect a third party from the direct threat of transmission. Notification of a person pursuant to this rule shall be made confidentially. Nothing in this rule shall be interpreted to create a duty to warn third parties of the danger of exposure to HIV through contact with an HIV-infected person.

11.18(3) When the physician is of the good-faith opinion and belief that third-party notification should be performed, notification of a person pursuant to this rule shall be made:

a. Directly by the physician in accordance with subrules 11.18(4), 11.18(5) and 11.18(7), or

b. By the department at the request of the physician in accordance with subrules 11.18(6) and 11.18(7).

11.18(4) Notification by the physician. Prior to notification of a third party by an HIV-infected person's physician, the physician shall make reasonable efforts to inform, in writing, the HIV-infected person. The written information shall state that, due to the nature of the person's continuing contact through sexual intercourse or the sharing of drug injecting equipment with the third party and the physician's belief that the HIV-infected person, despite strong encouragement, has not and will not warn the third party and will not participate in the voluntary partner notification program, the physician is forced to take action to provide notification to the third party. The physician, when reasonably possible, shall provide the following information to the HIV-infected person:

a. The nature of the disclosure and the reason for the disclosure.

b. The anticipated date of disclosure.

c. The name of the party or parties to whom disclosure is to be made.

NOTE: Reasonable efforts to inform, in writing, the HIV-infected person shall be deemed satisfied when the physician delivers the written notice in person or directs a written notice to the HIV-infected person's last-known address by restricted certified mail, return receipt requested, at least five days prior to the anticipated date of disclosure to the third party.

11.18(5) When performed by the HIV-infected person's physician, notification of the third party and any disclosure concerning the purpose of that notification shall be made in person. However, initial contact with the third party may be made by telephone, mail, or other electronic means to arrange the meeting with the physician at the earliest opportunity to discuss an important health matter. The nature of the health matter to be discussed shall not be revealed in the telephone call, letter, or other electronic message.

11.18(6) Notification by the department.

a. The physician attending the HIV-infected person shall provide by telephone to the department any relevant information provided by the HIV-infected person regarding any party with whom the HIV-infected person has had sexual relations or has shared drug injecting equipment. The information may include the third party's name, address, telephone number, and any other locating information

known to the physician. The department shall use the information in accordance with procedures established for the voluntary partner notification program.

b. Notification of the third party and any disclosure concerning the purpose of that notification shall be made in person. However, initial contact with the third party may be made by telephone, mail, or other electronic means to arrange the meeting with the department representative. The nature of the matter to be discussed shall not be revealed in the telephone call, letter, or other electronic message.

11.18(7) Confidentiality. The HIV-infected person's physician and the department shall protect the confidentiality of the third party and the HIV-infected person. The identity of the HIV-infected person shall remain confidential unless it is necessary to reveal it to the third party so that the third party may avoid exposure to HIV. If the identity of the HIV-infected person is revealed, the third party shall be presented with a statement in writing at the time of disclosure which includes the following or substantially similar language: "Confidential information revealing the identity of a person infected with HIV has been disclosed to you. The confidentiality of this information is protected by state law. State law prohibits you from making any further disclosure of the information without the specific written consent of the person to whom it pertains. Any breach of the required confidential treatment of this information subjects you to legal action and civil liability for monetary damages. A general authorization for the release of medical or other information is not sufficient for this purpose."

11.18(8) Immunity. A health care provider attending an HIV-infected person has no duty to disclose to or to warn third parties of the dangers of exposure to HIV through contact with the HIV-infected person and is immune from any liability, civil or criminal, for failure to disclose to or warn third parties of the condition of the HIV-infected person.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

Rules 641—11.15(139A,141A) to 641—11.18(141A) are intended to implement Iowa Code sections 139A.33 and 141A.5.

641—11.19 and **11.20** Reserved.

CARE PROVIDERS EXPOSED TO CONTAGIOUS OR INFECTIOUS DISEASES

641—11.21(139A) Purpose. The purpose of these rules is to implement Iowa Code section 139A.19, relating to care providers who are exposed to contagious or infectious diseases.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.22(139A) Definitions. For the purpose of rules 641—11.21(139A) to 641—11.26(139A), the following definitions shall apply:

"AIDS" means acquired immune deficiency syndrome as defined by CDC.

"Blood-borne viral hepatitis" means hepatitis B or hepatitis C.

"Care provider" means an individual who is trained and authorized by federal or state law to provide health care services or services of any kind in the course of the individual's official duties, for compensation or in a voluntary capacity, who is a health care provider, emergency medical care provider as defined in Iowa Code section 147A.1, firefighter, or peace officer. "Care provider" also means an individual who renders emergency care or assistance in an emergency or due to an accident as described in Iowa Code section 613.17.

"CDC" means the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

"Certification of a significant exposure report" means the determination by an authorized infection preventionist, occupational health professional, or other personnel trained in infection control or infectious disease medicine and designated by a facility to review significant exposure reports that the incident described by the exposed care provider meets the definition of a significant exposure as defined in this rule.

"Contagious or infectious disease" means blood-borne viral hepatitis, meningococcal disease, AIDS or HIV, tuberculosis, and any other disease determined to be life-threatening to a person exposed to the

disease as established by the department based upon a determination by the state epidemiologist and in accordance with guidelines from CDC.

"Department of corrections" means the Iowa department of corrections.

"Designated representative" means a person who is designated by a department, agency, division, or service organization to act on behalf of the exposed care provider as a liaison with the facility that received the source patient when the exposure occurred in the field or during patient transport.

"Exposure" means a specific eye, mouth, other mucous membrane, nonintact skin, or parenteral contact with blood or other potentially infectious bodily fluids.

"HBV" means hepatitis B virus.

"Health care facility" means a health care facility as defined in Iowa Code section 135C.1, an ambulatory surgical center, or a clinic.

"Health care provider" means a person licensed to practice medicine and surgery, osteopathic medicine and surgery, chiropractic, podiatry, nursing, dentistry, optometry, or as a physician assistant, dental hygienist, or acupuncturist.

"HIV" means the human immunodeficiency virus identified as the causative agent of AIDS.

"Home health services" means health care services provided by a care provider in a patient's home or other residence.

"Infectious bodily fluids" means bodily fluids capable of transmitting HIV as listed in "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers," found in Morbidity and Mortality Weekly Report, dated June 23, 1989, Volume 38, Number S-6, published by the U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, Georgia 30333, or subsequent CDC statements on this topic. To prevent HIV and blood-borne viral hepatitis disease transmission, this reference indicates that standard precautions should be followed for exposure to the following infectious bodily fluids: blood, amniotic fluid, pericardial fluid, peritoneal fluid, pleural fluid, synovial fluid, cerebrospinal fluid, semen, vaginal secretions, and saliva contaminated with blood. HIV and blood-borne viral hepatitis disease transmission has not occurred from feces, nasal secretions, sputum, sweat, tears, urine, vomitus, and saliva when it is not contaminated with blood.

"Respite care services" means health care services provided by a care provider in a patient's home or other residence on a short-term, temporary basis as relief to those who are caring for family members.

"Significant exposure" means a situation in which there is a risk of contracting disease through exposure to a patient's infectious bodily fluids in a manner capable of transmitting an infectious agent as determined by CDC. Exposure includes contact with blood or other infectious bodily fluids to which standard precautions apply through percutaneous inoculation or contact with an open wound, nonintact skin, or mucous membranes during the performance of normal job duties. Significant exposures include:

1. Transmission of blood, bloody fluids, or other infectious bodily fluids of the source patient onto a mucous membrane (mouth, nose, or eyes) of the care provider.
2. Transmission of blood, bloody fluids, or other infectious bodily fluids of the source patient onto an open wound or lesion with significant breakdown in the skin barrier, including a needle puncture with a needle contaminated with blood, bloody fluids, or other infectious bodily fluids.

"Significant exposure report" means the Report of Exposure to HIV or Other Infectious Disease form provided by the department. This is the only form authorized to be used to document a significant exposure to infectious bodily fluids such that the source patient is deemed to consent to a test to determine if the patient has a contagious or infectious disease, and is deemed to consent to notification of the care provider of the results of the test, pursuant to Iowa Code section 139A.19.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.23(139A,141A) Exposures in non-clinical settings.

11.23(1) If a care provider sustains a significant exposure from a patient while rendering health care or other services, other than home-health or respite care services, outside of a health care facility or hospital, the care provider shall file a significant exposure report as soon as reasonably possible following the exposure. When the exposure occurred outside a clinical setting, a care provider who has sustained

a significant exposure should file this report with the infection control, occupational health, or other designated office of the facility to which the patient was transported.

11.23(2) The source patient to whom the care provider was exposed is deemed to consent to a test to determine if the patient has a contagious or infectious disease and is deemed to consent to notification of the care provider or the designated representative of the results of the test, upon submission of a significant exposure report and certification of the significant exposure by an authorized infection preventionist, occupational health professional, or other professional trained in infectious disease control. No further consent from the source patient is required. However, the source patient shall be notified that an exposure has occurred and shall be told which specific tests are being performed to determine the presence of contagious or infectious diseases. If the source patient is a minor, the minor shall be informed prior to an HIV-related test that, upon positive confirmation of an HIV-related test result, the minor's legal guardian shall be informed of the positive result, pursuant to Iowa Code section 141A.7(3).

11.23(3) Hospitals, clinics, or other health care facilities, institutions administered by the department of corrections, and jails shall have written policies and procedures for reviewing and certifying significant exposure report forms, testing a source patient, and notifying a care provider who sustained a significant exposure while rendering health care services or other services to the source patient when the source patient is delivered to the facility and the exposure occurred prior to the delivery. The policies and procedures shall include the possibility for the care provider to designate a representative to whom notification shall be provided and who shall, in turn, notify the care provider. The identity of the designated representative of the care provider shall not be revealed to the source patient. The designated representative shall inform the hospital, clinic, or other health care facility, institution administered by the department of corrections, or jail of those parties who received the notification and, following receipt of this information and upon request of the source patient, the hospital, clinic, or other health care facility, institution administered by the department of corrections, or jail shall inform the source patient of the parties to whom notification was provided.

11.23(4) The hospital, clinic, or other health care facility to whom the source patient is delivered shall conduct the test. If the source patient is delivered to an institution administered by the department of corrections, the test shall be conducted by the staff physician of the institution. If the source patient is delivered to a jail, the test shall be conducted by the attending physician of the jail or the county medical examiner. If the source patient was deemed to consent upon certification of a significant exposure report, the sample and test results shall only be identified by a number.

11.23(5) If a test result is positive, the hospital, clinic, or other health care facility, or other person performing the test shall notify the source patient and make any required reports to the department pursuant to Iowa Code sections 139A.3 and 141A.6. The report to the department shall include the name of the source patient.

11.23(6) If a source patient is diagnosed or confirmed as having a contagious or infectious disease, the hospital, clinic, or other health care facility, or other person performing the test shall notify the care provider or the designated representative of the care provider who shall then notify the care provider. If the source patient is a minor and is diagnosed with HIV infection, the hospital, clinic, or other health facility, or other person performing the test shall notify the legal guardian of the minor.

11.23(7) The notification shall advise the care provider of possible exposure to a particular contagious or infectious disease and recommend that the provider seek medical attention. The notification shall be provided as soon as reasonably possible following determination that the source patient has a contagious or infectious disease. The notification shall not include the name of the source patient unless the patient consents. If the care provider who sustained a significant exposure determines the identity of a source patient who has been diagnosed or confirmed as having a contagious or infectious disease, the identity of the source patient shall be confidential information and shall not be disclosed by the care provider to any other person unless a specific written release is obtained from the source patient.

11.23(8) This rule does not preclude a hospital, clinic, other health care facility, or a health care provider from providing notification to a care provider under circumstances in which the hospital's,

clinic's, other health care facility's, or health care provider's policy provides for notification of the hospital's, clinic's, other health care facility's, or health care provider's own employees of exposure to a contagious or infectious disease that is not life-threatening if the notice does not reveal a source patient's name, unless the patient consents.

11.23(9) The infection control, occupational health, or other designated office of the facility shall maintain a record of all significant exposure reports it receives and shall retain each report for a period of five years.

11.23(10) The report form "Report of Exposure to HIV or Other Infectious Disease" is a confidential record pursuant to Iowa Code section 141A.9.

11.23(11) The employer of a care provider who sustained a significant exposure shall pay the cost of testing for the source patient and for the testing of the care provider, if the significant exposure was sustained during the course of employment. However, the department shall assist a source patient and an exposed care provider in finding resources to pay for the costs of the testing when a care provider was exposed while rendering direct aid without compensation.

11.23(12) A hospital's, clinic's, other health care facility's, or health care provider's duty to notify under these rules is not continuing. It is limited to the diagnosis of a contagious or infectious disease made in the course of admission, care, and treatment following the rendering of health care services or other services to a patient who was the source of the significant exposure.

11.23(13) Notwithstanding subrule 11.23(12), the hospital, clinic, or other health care facility may notify the exposed care provider if, following discharge from or completion of care or treatment by the hospital, clinic, or other health care facility, the patient who was the source of the significant exposure, and for whom a significant exposure report was submitted that did not result in notification of the exposed care provider, wishes to provide information regarding the source patient's contagious or infectious disease status to the exposed care provider.

11.23(14) Notwithstanding any other provision of law to the contrary, a care provider may transmit cautions regarding contagious or infectious disease information, with the exception of AIDS or HIV pursuant to Iowa Code section 80.9B, in the course of the care provider's duties over the police radio broadcasting system under Iowa Code chapter 693 or any other radio-based communications system if the information transmitted does not personally identify an individual.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.24(139A,141A) Exposures in clinical settings.

11.24(1) If a care provider sustains a significant exposure from a patient while rendering health care services or other services within a hospital, clinic, or other health care facility, or while delivering home-health or respite care services, the care provider shall file a report as soon as reasonably possible following the exposure. A care provider who has sustained a significant exposure should file the report with the infection control, occupational health, or other office designated by the facility in which the exposure occurred, or by the facility which has oversight for the delivery of home-health or respite care services.

a. If a general consent form was signed and in effect at the time of the significant exposure and the source patient is an adult, a significant exposure report form shall not be required to document the significant exposure. The health care facility or hospital may use an employee incident report or other similar form for this purpose. The source patient to whom the care provider was exposed is deemed to consent to a test to determine if the patient has a contagious or infectious disease and is deemed to consent to notification of the care provider or the designated representative of the results of the test, upon submission and review of an employee incident report and certification of the significant exposure by an authorized infection preventionist, occupational health professional, or other professional trained in infectious disease control. No further consent from the source patient is required. However, a source patient shall be notified that an exposure has occurred and shall be told which specific tests are being performed. Prior to conducting an HIV-related test, the health care facility or hospital shall provide information to the source patient concerning testing and a means of obtaining additional information regarding HIV infection and risk reduction pursuant to Iowa Code section 141A.6.

b. If no consent form was signed or in effect at the time of the exposure, or if the source patient is a minor, the source patient is deemed to consent to a test to determine if the patient has a contagious or infectious disease and is deemed to consent to notification of the care provider or the designated representative of the results of the test upon submission of a significant exposure report form and certification of the significant exposure by an authorized infection preventionist, occupational health professional, or other professional trained in infectious disease control. Source patients shall be notified that an exposure has occurred and shall be told which specific tests are being performed to determine the presence of contagious or infectious diseases. If the source patient is a minor, the minor shall be informed prior to an HIV-related test that, upon positive confirmation of an HIV-related test result, the minor's legal guardian shall be informed of the positive result, pursuant to Iowa Code section 141A.7(3).

11.24(2) Hospitals, clinics, or other health care facilities, institutions administered by the department of corrections, and jails shall have written policies and procedures for reviewing and certifying significant exposure report forms or other employee incident report forms, testing a source patient, and notifying a care provider who sustained a significant exposure while rendering health care services or other services to a patient during the admission, care, or treatment of the patient at the facility, or while delivering home-health or respite care services.

11.24(3) The hospital, clinic, or other health care facility where exposure occurred or which has oversight for the delivery of home-health or respite care services shall conduct the test. If a general consent form was signed and in effect and the source patient is an adult, the sample and test results shall be identified by name. If the source patient was deemed to consent to a test and to notification of the care provider upon certification of a significant exposure report pursuant to subrule 11.24(1) because no general consent was signed and in effect at the time of the exposure or because the source patient is a minor, the sample and test results shall be identified only by a number.

11.24(4) If a test result is positive, the hospital, clinic, or other health care facility or other person performing the test shall notify the source patient and make any required reports to the department pursuant to Iowa Code sections 139A.3 and 141A.6. The reports to the department shall include the name of the source patient.

11.24(5) If a source patient is diagnosed or confirmed as having a contagious or infectious disease, the hospital, clinic, or other health care facility or other person performing the test shall notify the care provider or the designated representative of the care provider who shall then notify the care provider. If the source patient is a minor and is diagnosed with HIV infection, the hospital, clinic, or other health care facility or other person performing the test shall notify the legal guardian of the minor.

11.24(6) The notification shall advise the care provider of possible exposure to a particular contagious or infectious disease and recommend that the provider seek medical attention. The notification shall be provided as soon as reasonably possible following determination that the source patient has a contagious or infectious disease.

11.24(7) This rule does not preclude a hospital, clinic, other health care facility, or a health care provider from providing notification to a care provider under circumstances in which the hospital's, clinic's, other health care facility's, or health care provider's policy provides for notification of the hospital's, clinic's, other health care facility's, or health care provider's own employees of exposure to a contagious or infectious disease that is not life-threatening if the notice does not reveal a source patient's name, unless the patient consents.

11.24(8) The infection control, occupational health, or other designated office of the facility shall maintain a record of all significant exposure reports it receives and shall retain each report for a period of five years.

11.24(9) The report form "Report of Exposure to HIV or Other Infectious Disease" is a confidential record pursuant to Iowa Code section 141A.9.

11.24(10) The employer of a care provider who sustained a significant exposure shall pay the cost of testing for the source patient and for the testing of the care provider, if the significant exposure was sustained during the course of employment.

11.24(11) A hospital's, clinic's, other health care facility's, or health care provider's duty to notify under these rules is not continuing. It is limited to the diagnosis of a contagious or infectious disease made in the course of admission, care, and treatment following the rendering of health care services or other services to the patient who was the source of the significant exposure.

11.24(12) Notwithstanding subrule 11.24(11), the hospital, clinic, or other health care facility may notify the exposed care provider if, following discharge from or completion of care or treatment by the hospital, clinic, or other health care facility, the patient who was the source of the significant exposure, and for whom a significant exposure report was submitted that did not result in notification of the exposed care provider, wishes to provide information regarding the source patient's contagious or infectious disease status to the exposed care provider.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.25(139A) Immunity. Hospitals, clinics, health care providers, or other persons participating in good faith in complying with provisions authorized or required under these rules are immune from any liability, civil or criminal, which may otherwise be incurred or imposed.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.26(139A) Duty to test. A hospital, clinic, other health care facility, health care provider, or other person who is authorized to perform a test under these rules has no duty to perform the test authorized.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

Rules 641—11.21(139A) to 641—11.26(139A) are intended to implement Iowa Code section 139A.19.

641—11.27 to **11.29** Reserved.

HIV-RELATED TEST FOR CONVICTED OR ALLEGED SEXUAL-ASSAULT OFFENDERS AND VICTIMS

641—11.30(915) Purpose. The purpose of these rules is to describe procedures to follow for testing of a convicted or alleged offender for HIV pursuant to Iowa Code chapter 915, and to establish procedures to follow for providing counseling, health care, and support services to the victim.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.31(915) Definitions. For the purpose of rules 641—11.30(915) to 641—11.34(915), the following definitions shall apply:

"AIDS" means acquired immune deficiency syndrome as defined by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

"Alleged offender" means a person who has been charged with the commission of a sexual assault or a juvenile who has been charged in juvenile court with being a delinquent as a result of actions that would constitute a sexual assault.

"Authorized representative" means an individual who is authorized by the victim to request an HIV-related test of a convicted or alleged offender and who is any of the following:

1. The parent, guardian, or custodian of the victim if the victim is a minor.
2. The physician of the victim.
3. The victim counselor or person requested by the victim who is authorized to provide the counseling regarding the HIV-related test and results.
4. The victim's spouse.
5. The victim's legal counsel.

"Convicted offender" means a person convicted of a sexual assault or a juvenile who has been adjudicated delinquent for an act of sexual assault.

"Department" means the Iowa department of public health.

"Department of corrections" means the Iowa department of corrections.

"Division" means the crime victim assistance division of the office of the attorney general.

"HIV" means the human immunodeficiency virus identified as the causative agent of AIDS.

"HIV-related test" means a diagnostic test conducted by a laboratory approved pursuant to CLIA for determining the presence of HIV or antibodies to HIV.

"Petitioner" means a person who is the victim of a sexual assault which resulted in alleged significant exposure, or the parent, guardian, or custodian of a victim if the victim is a minor, for whom the county attorney files a petition with the district court to require the convicted offender to undergo an HIV-related test.

"Sexual assault" means sexual abuse as defined in Iowa Code section 709.1, or any other sexual offense by which a victim has allegedly had sufficient contact with a convicted or an alleged offender to be deemed a significant exposure.

"Significant exposure" means contact of the victim's ruptured or broken skin or mucous membranes with the blood or bodily fluids, other than tears, saliva, or perspiration, of the convicted or alleged offender. "Significant exposure" is presumed to have occurred when there is a showing that there was penetration of the convicted or alleged offender's penis into the victim's vagina or anus, contact between the mouth and genitalia, or contact between the genitalia of the convicted or alleged offender and the genitalia or anus of the victim.

"Victim" means a petitioner or a person who is the victim of a sexual assault which resulted in significant exposure, or the parent, guardian, or custodian of such a victim if the victim is a minor, for whom the victim or the peace officer files an application for a search warrant to require the alleged offender to undergo an HIV-related test. "Victim" includes an alleged victim.

"Victim counselor" means a person who is engaged by a crime victim center as defined in Iowa Code section 915.20A, who is certified as a counselor by the crime victim center, and who has completed at least 20 hours of training provided by the Iowa coalition against sexual assault or a similar agency.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.32(915) HIV-related test—convicted or alleged sexual assault offender.

11.32(1) Unless a petitioner chooses to be represented by private counsel, the county attorney shall represent the victim's interest in all proceedings under Iowa Code chapter 915.

11.32(2) If a person is convicted of sexual assault or adjudicated delinquent for an act of sexual assault, the county attorney, if requested by the petitioner, shall petition the court for an order requiring the convicted offender to submit to an HIV-related test, provided that all of the following conditions are met:

a. The sexual assault for which the offender was convicted or adjudicated delinquent included sufficient contact between the victim and the convicted offender to be deemed a significant exposure pursuant to 641—11.31(915).

b. The authorized representative of the petitioner, the county attorney, or the court sought to obtain written informed consent to the testing from the convicted offender.

c. Written informed consent was not provided by the convicted offender.

11.32(3) If a person is an alleged offender, the county attorney, if requested by the victim, shall make application to the court for the issuance of a search warrant, in accordance with Iowa Code chapter 808, for the purpose of requiring the alleged offender to submit to an HIV-related test, if all of the following conditions are met:

a. The application states that the victim believes that the sexual assault for which the alleged offender is charged included sufficient contact between the victim and the alleged offender to be deemed a significant exposure pursuant to 641—11.31(915) and states the factual basis for the belief that a significant exposure exists.

b. The authorized representative of the victim, the county attorney, or the court sought to obtain written informed consent to the testing from the alleged offender.

c. Written informed consent was not provided by the alleged offender.

11.32(4) Upon receipt of the petition or application, the court shall:

a. Prior to the scheduling of a hearing, refer the victim for counseling by a victim counselor or a person requested by the victim who is authorized to provide the counseling regarding the nature,

reliability and significance of the HIV-related test and of any test results of the convicted or alleged offender.

b. Schedule a hearing to be held as soon as is practicable.

c. Cause written notice to be served on the convicted or alleged offender who is the subject of the proceeding, in accordance with the Iowa Rules of Civil Procedure relating to the service of original notice, or if the convicted or alleged offender is represented by legal counsel, provide written notice to the convicted or alleged offender and the convicted or alleged offender's legal counsel.

d. Provide for the appointment of legal counsel for a convicted or alleged offender if the convicted or alleged offender desires but is financially unable to employ counsel.

e. Furnish legal counsel with copies of the petition or application, written informed consent, if obtained, and copies of all other documents related to the petition or application, including, but not limited to, the charges and orders.

11.32(5) A hearing under this rule shall be conducted in an informal manner consistent with orderly procedure and in accordance with the Iowa Rules of Evidence.

a. The hearing shall be limited in scope to the review of questions of fact only as to the issue of whether the sexual assault for which the offender was convicted or adjudicated delinquent or for which the alleged offender was charged provided sufficient contact between the victim and the convicted or alleged offender to be deemed a significant exposure, and to questions of law.

b. In determining whether the contact should be deemed a significant exposure for a convicted offender, the court shall base the determination on the testimony presented during the proceedings on the sexual assault charge, the minutes of the testimony or other evidence included in the court record, or if a plea of guilty was entered, based upon the complaint or upon testimony provided during the hearing. In determining whether the contact should be deemed a significant exposure for an alleged offender, the court shall base the determination on the application and the factual basis provided in the application for the belief of the applicant that a significant exposure exists.

c. The victim may testify at the hearing, but shall not be compelled to testify. The court shall not consider the refusal of a victim to testify at the hearing as material to the court's decision regarding issuance of an order or search warrant requiring testing.

d. The hearing shall be in camera unless the convicted or alleged offender and the petitioner or victim agree to a hearing in open court and the court approves. The report of the hearing proceedings shall be sealed and no report of the proceeding shall be released to the public, except with the permission of all parties and the approval of the court.

e. Stenographic notes or electronic or mechanical recording shall be taken of all court hearings unless waived by the parties.

11.32(6) Following the hearing, the court shall require a convicted or alleged offender to undergo an HIV-related test only if the petitioner or victim proves all of the following by a preponderance of evidence.

a. The sexual assault constituted a significant exposure.

b. An authorized representative of the petitioner or victim, the county attorney, or the court sought to obtain written informed consent from the convicted or alleged offender.

c. Written informed consent was not provided by the convicted or alleged offender.

11.32(7) A convicted or alleged offender who is required to undergo an HIV-related test may appeal to the court for review of questions of law only, but may appeal questions of fact if the findings of fact are clearly erroneous.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.33(915) Medical examination costs. The cost of a medical examination for the purpose of gathering evidence and the cost of treatment for the purpose of preventing venereal disease shall be paid from the victim compensation fund as established in Iowa Code chapter 915. Information is available from the department of justice, crime victim assistance program, telephone (515)281-5044.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.34(915) Testing, reporting, and counseling—penalties.

11.34(1) The physician or other practitioner who orders the testing for HIV of a convicted or alleged offender under Iowa Code chapter 915 shall disclose the results of the test to the convicted or alleged offender and to the victim counselor or a person requested by the victim who is authorized to provide the counseling regarding the HIV-related test and results, who shall disclose the results to the petitioner.

11.34(2) Prior to ordering an HIV-related test on a convicted or alleged offender, the physician or practitioner shall provide information to the subject of the test concerning testing and where to obtain additional information on HIV transmission and risk reduction, pursuant to Iowa Code section 141A.6. The department may be contacted for brochures that may assist in meeting the requirements of Iowa Code section 141A.6.

11.34(3) At any time that the subject of an HIV-related test is informed of confirmed positive test results, the physician or other practitioner who ordered the test shall initiate counseling concerning the emotional and physical health effects of HIV infection, as required under Iowa Code section 141A.7, and shall make any required reports to the department pursuant to Iowa Code section 141A.6.

a. The physician or other practitioner shall encourage an HIV-infected person to participate in the voluntary partner notification program pursuant to rule 641—11.17(139A,141A).

b. The physician or other practitioner may provide to the department any relevant information provided by the HIV-infected person regarding any party with whom the HIV-infected person has had sexual relations or has shared drug injecting equipment.

11.34(4) Subsequent testing arising out of the same incident of exposure shall be conducted in accordance with the procedural and confidentiality requirements of 641—11.30(915) to 641—11.34(915).

11.34(5) Results of a test performed under 641—11.30(915) to 641—11.34(915), except as provided in subrule 11.34(6), shall be disclosed only to the physician or other practitioner who ordered the test of the convicted or alleged offender; the convicted or alleged offender; the victim, the victim counselor or person requested by the victim who is authorized to provide the counseling regarding the HIV-related test and results; the physician of the victim if requested by the victim; the parent, guardian, or custodian of the victim, if the victim is a minor; and the county attorney who filed the petition for the HIV-related testing under 641—11.30(915) to 641—11.34(915), who may use the results to file charges of criminal transmission of HIV. Results of a test performed under these rules shall not be disclosed to any other person without the written informed consent of the convicted or alleged offender. A person to whom the results of a test have been disclosed under 641—11.30(915) to 641—11.34(915) is subject to the confidentiality provision of Iowa Code section 141A.9, and shall not disclose the results to another person except as authorized by Iowa Code section 141A.9.

11.34(6) If HIV-related testing is ordered under 641—11.30(915) to 641—11.34(915), the court shall also order periodic testing of the convicted offender during the period of incarceration, probation, or parole or of the alleged offender during a period of six months following the initial test if the physician or other practitioner who ordered the initial test of the convicted or alleged offender certifies that, based upon prevailing scientific opinion regarding the maximum period during which the results of an HIV-related test may be negative for a person after being HIV-infected, additional testing is necessary to determine whether the convicted or alleged offender was HIV-infected at the time the sexual assault or alleged sexual assault was perpetrated. The results of the subsequent periodic tests conducted pursuant to subrule 11.34(6) shall be released only to the physician or other practitioner who ordered the test of the convicted or alleged offender; the convicted or alleged offender; the victim counselor or person requested by the victim to provide the counseling regarding the HIV-related test and results, who shall disclose the results to the petitioner; the physician of the victim if requested by the victim; and the county attorney, who may use the results as evidence in the prosecution of the sexual assault or in the prosecution of the offense of criminal transmission of HIV.

11.34(7) The court shall not consider the disclosure of an alleged offender's serologic status to an alleged victim, prior to conviction, as a basis for a reduced plea or reduced sentence.

11.34(8) The fact that HIV-related tests were performed under 641—11.30(915) to 641—11.34(915) and the results of the tests shall not be included in the convicted offender's medical or criminal record unless otherwise included in department of corrections records.

11.34(9) The fact that HIV-related tests were performed under 641—11.30(915) to 641—11.34(915) and the results of the tests shall not be used as a basis for further prosecution of a convicted offender in relation to the incident which is the subject of the testing, to enhance punishments, or to influence sentencing.

11.34(10) If the serologic status of a convicted offender, which is conveyed to the victim, is based upon an HIV-related test other than a test which is authorized as a result of the procedures established in 641—11.30(915) to 641—11.34(915), legal protections which attach to such testing shall be the same as those which attach to an initial test under 641—11.30(915) to 641—11.34(915), and the rights to a predisclosure hearing and to appeal provided under Iowa Code chapter 915 shall apply.

11.34(11) HIV-related testing required under 641—11.30(915) to 641—11.34(915) shall be conducted by the state hygienic laboratory.

11.34(12) Notwithstanding the provision of these rules requiring initial testing, if a petition is filed with the court under Iowa Code section 915.42 requesting an order for testing and the order is granted, and if a test has previously been performed on the convicted offender while under the control of the department of corrections, the test results shall be provided in lieu of the performance of an initial test of the convicted offender, in accordance with 641—11.30(915) to 641—11.34(915).

11.34(13) Test results shall not be disclosed to a convicted offender who elects against disclosure.

11.34(14) In addition to the counseling received by a victim, referral to appropriate health care and support services shall be provided.

11.34(15) In addition to persons to whom disclosure of the results of a convicted or alleged offender's HIV-related test results is authorized under these rules, the victim may also disclose the results to the victim's spouse, persons with whom the victim has engaged in vaginal, anal, or oral intercourse subsequent to the sexual assault, or members of the victim's family within the third degree of consanguinity.

11.34(16) A person to whom disclosure of a convicted offender's HIV-related test results is authorized under these rules shall not disclose the results to any other person for whom disclosure is not authorized under these rules. A person who intentionally or recklessly makes an unauthorized disclosure in violation of this subrule is subject to a civil penalty of $1,000. The attorney general or the attorney general's designee may maintain a civil action to enforce these rules. Proceedings maintained under this subrule shall provide for the anonymity of the tested subject, and all documentation shall be maintained in a confidential manner.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

Rules 641—11.30(915) to 641—11.34(915) are intended to implement Iowa Code sections 915.40 to 915.43.

641—11.35 to **11.39** Reserved.

AIDS DRUG ASSISTANCE PROGRAM (ADAP)

641—11.40(141A) Definitions. For purposes of rules 641—11.40(141A) to 641—11.49(141A), the following definitions shall apply:

"ADAP advisory committee" means the committee appointed by the bureau of HIV, STD, and hepatitis to provide advice and technical assistance to the department regarding ADAP.

"ADAP formulary" means the list of drugs approved for use in ADAP by the bureau upon recommendation of the ADAP advisory committee.

"AIDS" means acquired immune deficiency syndrome as defined by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

"AIDS drug assistance program" or *"ADAP"* means the Iowa AIDS drug assistance program administered by the bureau of HIV, STD, and hepatitis within the department and includes two components, the medication assistance program and the health insurance assistance program.

"Bureau" means the bureau of HIV, STD, and hepatitis within the department.

"Deductible" means an amount of money that an insured person must pay out of pocket before any benefits from the health insurance policy can be used.

"Department" means the Iowa department of public health.

"Director" means the director of the Iowa department of public health.

"Health insurance assistance program" means a component of ADAP that purchases health insurance and pays insurance premiums, copayments for medications, and deductibles for eligible enrollees in ADAP.

"HIV" means the human immunodeficiency virus identified as the causative agent of AIDS.

"Household" means a group of individuals residing together who are related by birth, marriage, or adoption; or an individual who does not reside with any other individual to whom the individual is related by birth, marriage, or adoption.

"Medication assistance program" means a component of ADAP that provides medications directly to eligible enrollees in ADAP.

"Modified adjusted gross income" or *"MAGI"* means the calculation of income based upon applicable Internal Revenue Code and regulations of the Centers for Medicare and Medicaid Services of the U.S. Department of Health and Human Services.

"Payer of last resort" means a requirement to coordinate services and seek payment from all other sources before Ryan White funds are used.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.41(141A) Purpose. The AIDS drug assistance program is a state-administered program that provides certain HIV/AIDS medications to eligible low-income individuals diagnosed with HIV if adequate funding is available for administration of the program. There are two components to the Iowa AIDS drug assistance program: the medication assistance program and the health insurance assistance program. The AIDS drug assistance program is authorized under Part B of Title XXVI of the Public Health Service (PHS) Act, as amended by the Ryan White HIV/AIDS Treatment Extension Act of 2009 (Public Law 111-87). This legislation requires that the Ryan White program, including the AIDS drug assistance program, be the payer of last resort for HIV-related services. ADAP is not an entitlement program and does not create a right to assistance. In the event that funding is exhausted or terminated or there are changes in state or federal guidelines, programs, or regulations that impact funding available to ADAP, the department reserves the right to close enrollment, cease to provide medication assistance or health insurance assistance, or alter eligibility criteria until such time that funding is again sufficient.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.42(141A) Ensuring payer of last resort. To ensure that ADAP is the payer of last resort, the Iowa Medicaid enterprise shall grant the department access to client information for persons enrolled in Medicaid.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.43(141A) Eligibility requirements.

11.43(1) An applicant is eligible to participate in the ADAP medication assistance program if the applicant:

a. Applies for enrollment in ADAP on a form provided by the department;

b. Has no health insurance to cover the cost of the drugs that are or may become available from ADAP;

c. Is currently being prescribed a drug on the ADAP formulary;

d. Has an annual MAGI that is less than or equal to 200 percent of the poverty level as determined by the most recent federal poverty guidelines published annually by the U.S. Department of Health and

Human Services for the size of the household (this income shall be determined after a $500 work-related allowance is deducted from the monthly salary of an employed person with HIV/AIDS);

e. Has a medical diagnosis of HIV infection or AIDS or is an unborn infant or an infant under 18 months of age who has an HIV-infected mother; and

f. Is a resident of Iowa.

11.43(2) An applicant is eligible to participate in the ADAP health insurance assistance program if the applicant:

a. Applies for enrollment in ADAP on a form provided by the department;

b. Has creditable health insurance coverage;

c. Is currently being prescribed a drug on the ADAP formulary;

d. Has an annual MAGI that is less than or equal to 400 percent of the poverty level as determined by the most recent federal poverty guidelines published annually by the U.S. Department of Health and Human Services for the size of the household;

e. Has a medical diagnosis of HIV infection or AIDS or is an unborn infant or an infant under 18 months of age who has an HIV-infected mother; and

f. Is a resident of Iowa.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.44(141A) Enrollment process.

11.44(1) The department shall review each completed application and shall determine enrollment based upon applicant eligibility, the date on which the application was completed, and the availability of funds. When the department determines that an applicant is eligible for enrollment, the applicant may be enrolled for six months commencing with the date of the determination or may be enrolled for a shorter time period at the discretion of the department.

11.44(2) An applicant shall provide the department with all requested information and shall execute any consent forms or releases of information necessary for the department to verify eligibility.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.45(141A) Discontinuation of services.

11.45(1) The department shall review eligibility semiannually after enrollment unless one of the following events occurs within the six-month period to end eligibility:

a. The enrolled individual dies;

b. The enrolled individual is determined eligible and enrolled to fully receive medical services through a third-party payer and is able to fully pay the insurance deductibles and copayments;

c. The enrolled individual's annual MAGI increases to an amount above the respective ADAP component's income guidelines;

d. The enrolled individual establishes residency outside the state of Iowa;

e. The enrolled individual does not request drugs over a 90-day period; or

f. The enrolled individual is placed in an institution such as a nursing home, state prison, or jail for more than 30 days.

11.45(2) An applicant must submit renewal documentation on a semiannual basis, accompanied by all information requested by the department.

[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.46(141A) Distribution requirements.

11.46(1) Enrolled individuals shall be eligible to receive financial assistance only for drugs that:

a. Have received Food and Drug Administration approval to treat HIV or prevent the deterioration of health due to HIV, coinfections, or opportunistic infections; and

b. Are on the ADAP formulary.

11.46(2) The primary care provider shall write each drug prescription for an applicant or enrolled individual.

11.46(3) The enrolled individual must obtain the approved drug from the department's contracted pharmacy unless an exception to this requirement is granted by the department.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.47(141A) ADAP waiting list.

11.47(1) If an applicant is eligible for ADAP and sufficient funds are available to provide services to the applicant, the department shall enroll the applicant. If the applicant is eligible for ADAP and sufficient funds are not available to provide services to the applicant, the department shall place the applicant's name on the ADAP waiting list in the order provided for in this rule.

11.47(2) The department shall place names on the waiting list in chronological order based upon the date of receipt of a completed application by the department.

11.47(3) To verify that applicants on the waiting list continue to meet ADAP eligibility requirements, the department shall require applicants on the waiting list to submit reapplication forms semiannually.

11.47(4) The department shall remove applicants from the waiting list in the chronological order in which their completed applications were approved, provided all updates were received by the department.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.48(141A) Appeals. The department shall cause an applicant to be notified of the department's decision to approve or deny an application or to place an applicant on the ADAP waiting list. In the event an applicant is dissatisfied with the department's decision, the applicant may submit a formal appeal in writing to the ADAP advisory committee. Such request shall be delivered in person or shall be mailed by certified mail, return receipt requested, to ADAP Advisory Committee, Iowa Department of Public Health, Lucas State Office Building, 321 E. 12th Street, Des Moines, Iowa 50319. Upon receipt of such an appeal, the ADAP advisory committee shall review the case and issue a written determination within 15 days of receipt of the request. The decision shall refer to the applicant by initials or other nonidentifying means. The ADAP advisory committee's decision shall be final and binding. This appeal process does not constitute a contested case proceeding as defined in Iowa Code chapter 17A.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

641—11.49(141A) Confidentiality. The ADAP application and all information received or maintained by the department in connection with ADAP shall be considered confidential information in accordance with Iowa Code section 141A.9.
[**ARC 1215C**, IAB 12/11/13, effective 1/15/14]

Rules 641—11.40(141A) to 641—11.49(141A) are intended to implement Iowa Code section 141A.3.

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Iowa

Department of Public Health

321 E. 12th Street ● Des Moines, IA 50319-0075
515-281-7689 www.idph.state.ia.us

The effect of HIPAA privacy provisions on the release of protected health information to the Iowa Department of Public Health

The Iowa Department of Public Health (IDPH), in conjunction with the Attorney General's Office, has completed a comprehensive review of its programs and has determined that neither the agency as a whole, nor any of its programs, are covered entities under HIPAA. However, both the EPSDT Program and Enhanced Services for Maternal Health Program are actually a part of the Medicaid Program of the Iowa Department of Human Services and, as such these programs, will be business associates of the Iowa Department of Human Services and, therefore, subject to many HIPAA provisions. Because IDPH is not a covered entity, many agencies and facilities in Iowa that are covered entities have questioned whether they can continue to disclose the protected health information of their patients or clients to the IDPH as they have in the past. The short answer is YES, such disclosures may continue to occur under HIPAA.

First, HIPAA recognizes that if there is a statute or administrative rule that requires a specific disclosure of protected health information, a covered entity must obey that law. (Section 164.512). Therefore, if there is another federal or state statute or administrative rule which requires a covered entity to disclose protected health information to the IDPH, the covered entity should follow that requirement. Many disclosures of PHI to IDPH are required by state laws, including Iowa Code chapters 135, 136A, 136B, 136C, 139A, 141A, 144, 147A, and 272C and the administrative rules that implement these chapters. These disclosures are legally required and must continue to be made as mandated by state law.

Second, HIPAA allows a covered entity to disclose protected health information to public health authorities for public health activities. (Section 164.512). HIPAA defines a public health authority as "an agency or authority of the United States, a State, a territory, a political subdivision of a State or territory, or an Indian tribe, or a person or entity acting under a grant of authority from or contract with such public agency, including the employees or agents of such public agency or its contractors or persons or entities to whom it has granted authority, that is responsible for public health matters as part of its official mandate." (Section 164.501). The IDPH has such a mandate and, therefore, is a public health authority under HIPAA.

The IDPH, in conjunction with the Iowa Attorney General's Office, has reviewed its programs and determined that protected health information being received by the Department from covered entities in Iowa is disclosed for public health activities. The disclosure of such information to IDPH is, therefore, unaffected by HIPAA and should continue in accordance with past practices. Because IDPH is a public health authority that is authorized to receive PHI under this provision, covered entities are not required to enter into a business associate agreement with IDPH in order for the exchange of protected health information to take place.

Third, in some instances, the IDPH is a health oversight agency as defined by HIPAA. Under HIPAA, a "health oversight agency" is "an agency or authority of the United States, a state, a territory, a political subdivision of a State or territory, or an Indian tribe, or a person or entity acting under a grant of authority from or contract with such public agency, including the employees or agents of such public agency or its contractors or persons or entities to whom it has granted authority, that is authorized by law to oversee the health care system (whether public or private) or government programs in which health information is necessary to determine eligibility or compliance, or to enforce civil rights laws for which health information is relevant."

HIPAA permits a covered entity to disclose protected health information to a health oversight agency for oversight activities authorized by law, including audits; civil, administrative, or criminal investigations; inspections; licensure or disciplinary actions; civil, administrative, or criminal proceedings or actions; or other activities necessary for appropriate oversight of:

1. The health care system *(e.g. State insurance commissions, state health professional licensure agencies, Offices of Inspectors General of federal agencies, the Department of Justice, state Medicaid fraud control units, Defense Criminal Investigative Services, the Pension and Welfare Benefit Administration, the HHS Office for Civil Rights, the FDA, data analysis to detect health care fraud)*;

2. Government benefit programs for which health information is relevant to beneficiary eligibility *(e.g. SSA and Dept. of Education)*;

3. Entities subject to government regulatory programs for which health information is necessary for determining compliance with program standards *(e.g. Occupational Health and Safety Administration and the EPA; the FDS's oversight of food, drugs, biologics, devices, and other products pursuant to the Food, Drug, and Cosmetic Act and the Public Health Service Act)*; or

4. Entities subject to civil rights laws for which health information is necessary for determining compliance *(the U.S. Department of Justice's civil rights enforcement activities, enforcement of the Civil Rights of Institutionalized Persons Act, the Americans with Disabilities Act, the EEOC's civil rights enforcement activities under titles I and V of the ADA)*. (Section 164.512(d)).

"Overseeing the health care system," encompasses activities such as oversight of health care plans, oversight of health benefit plans; oversight of health care providers; oversight of health care and health care delivery; oversight activities that involve resolution of consumer complaints; oversight of pharmaceutical, medical products and devices, and dietary supplements; and a health oversight agency's analysis of trends in health care costs, quality, health care delivery, access to care, and health insurance coverage for health oversight purposes.

Health oversight agencies may provide more than one type of health oversight. Such entities are considered health oversight agencies under the rule for any and all of the health oversight functions that they perform. The disclosure of protected health information to IDPH for these purposes is unaffected by HIPAA and should continue in accordance with past practices.

Finally, local public health departments and local contractors which are covered entities may release protected health information to IDPH under the above-cited legal authority applicable to all covered entities. For example, certain statutes and rules require local public health departments and local

contractors to disclose protected health information to IDPH. Further, as a health oversight agency a local health department is permitted, and in most cases required, to disclose protected health information to IDPH. Disclosures of PHI by local public health departments and local contractors to IDPH do not require business associate agreements and are not prohibited or otherwise affected by HIPAA.

Please call Janet Hoffman, Assistant Attorney General, (515) 281-8330 should you have additional questions regarding these issues.

QUARANTINE

Effective Dates From: _____ Through: _____

Due To Communicable Disease (_____)

No one shall enter or leave these premises without authorization by the Iowa Department of Public Health or the _____County Board of Health. Any individual entering a quarantine premises with or without authorization of the health department or County Board of Health may be isolated or quarantined. Pursuant to Iowa Code section 135.38, any individual who knowingly violates a lawful department order for isolation or quarantine, whether written or oral, shall be guilty of a simple misdemeanor. The court ordered sentence may include a fine up to $500 and imprisonment not to exceed 30 days. No person other than an authorized employee of the Iowa Department of Public Health or county health department shall alter, destroy, or remove this notice. Address inquiries to the Iowa Department of Public Health at 1-800-362-2736.

IOWA CODE 139A.5

Iowa Department of Public Health
321 East 12th Street
Des Moines, IA 50319-0075

Iowa Department of Public Health
Promoting and Protecting the Health of Iowans

Mariannette Miller-Meeks, B.S.N., M.Ed., M.D.
Director

Terry E. Branstad
Governor

Kim Reynolds
Lt. Governor

Facts about Quarantine and Isolation

Quarantine and isolation are public health measures used to prevent or control the spread of communicable diseases which present a risk of serious harm to the public. The Iowa Department of Public Health (Department) and county boards of health (local boards) have the authority to impose quarantine and isolation in very limited circumstances to prevent the spread of certain diseases. Quarantine and isolation are used to protect the public by preventing exposure to infected persons or persons who may be infected.

Here are some facts about quarantine and isolation you should know:

The Department and local boards will impose quarantine or isolation only in the event of an outbreak of a "quarantinable disease," which means a serious and unusual or novel disease such as cholera, diphtheria, measles, infectious tuberculosis, plague, SARS, smallpox, certain viral hemorrhagic fevers, and other diseases spread person to person which present a risk of serious harm to the public's health.

Quarantine means confining a person who has been exposed to a quarantinable disease to see if they become ill and infectious to others. Quarantine is imposed for a period of time equal to the longest incubation period of the disease, which could range from a couple of days to two weeks, depending on the disease.

Isolation means confining a person who is actually infected with a quarantinable disease for the period of time that they are infectious to others, which could range from a couple of days to weeks, depending on the disease.

Prior to imposing quarantine or isolation, the Department and local boards will request that an individual voluntarily confine him or herself to their private home. Only if a person refuses to voluntarily confine themselves will the Department or local boards consider mandatory quarantine or isolation.

The Department and local boards are required by law to impose mandatory quarantine or isolation by the least restrictive means necessary to prevent the spread of the disease. Typically this means the exposed or infected person will be quarantined or isolated in their home.

Only if a person refuses to comply with voluntary home confinement and refuses to comply with quarantine or isolation in their own home will the Department or a local board consider imposing quarantine or isolation to a facility. If a person is quarantined or isolated in a facility the Department or the local board will ensure that the person is confined to a safe and hygienic facility and that they have access to adequate food, medical care, and a means of communication with those outside the facility.

Updated 11/15/12

BEFORE THE IOWA DEPARTMENT OF PUBLIC HEALTH

DIRECTED TO:	)	[**insert case #**]
	)	
[**insert full name and address of subject of order**]	)	**FACILITY ISOLATION ORDER**

The Iowa Department of Public Health (Department) has determined that you have recently developed some symptoms of [**insert name of quarantinable disease (qd)**]. [**insert qd**] is a disease which is spread from person to person and is associated with [**insert symptoms of qd -- fever, cough, respiratory illness, etc.**]. [**insert qd**] presents a risk of serious harm to public health and if it spreads in the community severe public health consequences may result.

The Department has determined that it is necessary to confine your movement to a specific facility to prevent further spread of this disease. The Department has determined that isolation in your home and other less restrictive alternatives are not acceptable because [**insert the reason home isolation is not acceptable (e.g. the person violated a previously issued home isolation order, the person does not have an appropriate home setting conducive to home isolation, etc.)**] The Department is therefore ordering you to comply with the following provisions during the entire period of isolation:

1. **Terms of confinement.** You are ordered to remain at the isolation facility, _____[**insert name and address of facility**], from _____ to _____[**insert dates of isolation**].

2. **Requirements during confinement.** During the period of isolation:

   a. You must not leave the isolation facility at any time unless you have received prior written authorization from the Department to do so.

   b. You must not come into contact with anyone except the following persons:

      (i) other persons who are also under similar isolation order at the isolation facility;
      (ii) authorized healthcare providers and other staff at the isolation facility;
      (iii) authorized Department staff or other persons acting on behalf of the Department; and
      (iv) such other persons as authorized by the Department.

   c. Your daily needs, including food, shelter, and medical care, will be

provided for you during the period of isolation at the isolation facility. You should bring clothing, toiletries, and other personal items with you to the isolation facility. You will have limited access to a telephone at the isolation facility. You may bring your cell phone with you should you desire to have greater access to a means of communication.

d. You should inform your employer that you are under isolation order and are not authorized to physically come to the work place. You should be aware that Iowa law prohibits an employer from firing, demoting, or otherwise discriminating against an employee due to the compliance of an employee with an isolation order issued by the Department. (Iowa Code section 139A.13A).

3. **Information about [qd].** You should review the information contained at Attachment A for information about [**qd**]. You should refer to information provided at the isolation facility to address specific concerns and questions you have about **[qd]**. In order to find out more information about [**qd**] and its symptoms and spread, you may also access the Department=s web-page at www.idph.state.ia.us. If you do not have access to the internet from the isolation facility, you may contact the Department at 1-800-362-2736.

4. **Legal authority.** This order is issued pursuant to the legal authority contained at Iowa Code chapter 139A, [include Iowa Code chapter 135 if a public health disaster exists], and 641 Iowa Administrative Code chapter 1, a copy of which is labeled Attachment B and is attached to this order for your review. The Department shall comply with the principles for quarantine and isolation contained in subrule 1.9(3) of this attachment when issuing and implementing this order.

5. **Ensuring compliance.** In order to ensure that you strictly comply with this Isolation Order the Department or persons authorized by the Department may regularly inspect the isolation facility.

6. **Violations of order.** If you fail to comply with this Isolation Order you may be ordered to be isolated in a more restrictive facility. In addition, failure to comply with this order is a simple misdemeanor for which you may be arrested, fined, and imprisoned.

7. **Your rights -- appeal rights.** While under isolation you have the rights as described in subrule 1.9(8) of Attachment B. In addition, you have the right to appeal this order pursuant to subrule 1.9(7) of Attachment B.

_____ _____

DIRECTOR or MEDICAL DIRECTOR DATE

IOWA DEPARTMENT OF PUBLIC HEALTH
Lucas State Office Building
Des Moines, IA 50319

Attachments to this Order:

Attachment A -- Facts About [**qd**]

Attachment B B 641 Iowa Administrative Code chapter 1

BEFORE THE IOWA DEPARTMENT OF PUBLIC HEALTH

DIRECTED TO:	)	**[insert case #]**
	)	
[insert full name and address of subject of order]	)	)**FACILITY QUARANTINE ORDER**

The Iowa Department of Public Health (Department) has determined that you have had contact with [**insert name of quarantinable disease (qd)**]. [**insert qd**] is a disease which is spread from person to person and is associated with [**insert symptoms of qd -- fever, cough, respiratory illness, etc.**]. [**insert qd**] presents a risk of serious harm to public health and if it spreads in the community severe public health consequences may result.

The Department has determined that it is necessary to quarantine your movement to a specific facility to prevent further spread of this disease. The Department has determined that quarantine in your home and other less restrictive alternatives are not acceptable because [**insert the reason home quarantine is not acceptable (e.g. the person violated a previously issued home quarantine order, the person does not have an appropriate home setting conducive to home quarantine, etc.)**] The Department is therefore ordering you to comply with the following provisions during the entire period of quarantine:

1. **Terms of confinement.** You are ordered to remain at the quarantine facility, _____ [**insert name and address of facility**], from _____ to _____ [**insert dates of quarantine**].

2. **Requirements during confinement.** During the period of quarantine:

   a. You must not leave the quarantine facility at any time unless you have received prior written authorization from the Department to do so.

   b. You must not come into contact with anyone except the following persons:

      (i) other persons who are also under similar quarantine order at the quarantine facility;
      (ii) authorized healthcare providers and other staff at the quarantine facility;
      (iii) authorized Department staff or other persons acting on behalf of the Department; and
      (iv) such other persons as are authorized by the Department.

   c. Your daily needs, including food, shelter, and medical care, will be provided for you during the period of quarantine at the quarantine facility. You should bring clothing, toiletries, and other personal items with you to the quarantine facility. You will have limited access to a telephone at the quarantine facility. You may bring your cell phone with you should you desire to have greater access to a means of

communication.

d. You should inform your employer that you are under quarantine order and are not authorized to physically come to the work place, although you may work from the facility via electronic or other means if appropriate. You should be aware that Iowa law prohibits an employer from firing, demoting, or otherwise discriminating against an employee due to the compliance of an employee with a quarantine order issued by the Department. (Iowa Code section 139A.13A).

3. **Information about [qd].** You should review the information contained at Attachment A for information about [**qd**]. You should refer to information provided at the quarantine facility to address specific concerns and questions you have about **[qd]**. In order to find out more information about [**qd**] and its symptoms and spread, you may also access the Department=s web-page at www.idph.state.ia.us. If you do not have access to the internet from the quarantine facility, you may contact the Department at 1-800-362-2736.

4. **Legal authority.** This order is issued pursuant to the legal authority contained at Iowa Code chapter 139A, [include Iowa Code chapter 135 if a public health disaster exists], and 641 Iowa Administrative Code chapter 1, a copy of which is labeled Attachment B and is attached to this order for your review. The Department shall comply with the principles for quarantine contained in subrule 1.9(3) of this attachment when issuing and implementing this order.

5. **Ensuring compliance.** In order to ensure that you strictly comply with this Quarantine Order the Department or persons authorized by the Department may regularly inspect the quarantine facility.

6. **Violations of order.** If you fail to comply with this Quarantine Order you may be ordered to be quarantined in a more restrictive facility. In addition, failure to comply with this order is a simple misdemeanor for which you may be arrested, fined, and imprisoned.

7. **Your rights -- appeal rights.** While under quarantine you have the rights as described in subrule 1.9(8) of Attachment B. In addition, you have the right to appeal this order pursuant to subrule 1.9(7) of Attachment B.

_____ _____

DIRECTOR or MEDICAL DIRECTOR DATE
IOWA DEPARTMENT OF PUBLIC HEALTH
Lucas State Office Building
Des Moines, IA 50319

Attachments to this Order:

Attachment A -- Facts About [**qd**]

Attachment B B 641 Iowa Administrative Code chapter 1

BEFORE THE IOWA DEPARTMENT OF PUBLIC HEALTH

DIRECTED TO:	)	[***insert case #***]
	)	
[***insert full name and***	)	
address of subject of order]	)	**HOME ISOLATION ORDER**

The Iowa Department of Public Health (Department) has determined that you have recently developed some symptoms of [***insert name of* quarantinable *disease* (qd)**]. [***insert* qd**] is a disease which is spread from person to person and is associated with [***insert symptoms of* qd -- fever, cough, respiratory illness, etc.**]. [***insert* qd**] presents a risk of serious harm to public health and if it spreads in the community severe public health consequences may result.

The Department has determined that home isolation of persons who are known or suspected to have [***insert* qd**] is necessary to prevent further spread of this disease. The Department has determined that isolation in private homes is the least restrictive means necessary to prevent the spread of [***insert* qd**]. The Department is therefore ordering you to remain in your home and to comply with the following provisions during the entire period of isolation:

1. **Terms of confinement.** You are ordered to remain in your home at _____[***insert address***] from _____ to _____[***insert* dates of *isolation***].

2. **Requirements during confinement.** During the period of isolation:

   a. You must not leave your home at any time unless you have received prior written authorization from the Department to do so.

   b. You must remain reachable by telephone at all times and answer and respond fully and truthfully to telephone calls from Department staff and other persons acting on behalf of the Department.

   c. You must not come into contact with anyone except the following persons:

      (i) family members and other persons who reside in your home who are also under Home Isolation Order or Home Quarantine Order;

      (ii) authorized healthcare providers;

      (iii) authorized Department staff or other persons acting on behalf of the Department; and

      (iv) such other persons as are authorized by the Department.

   d. You should arrange by telephone for relatives, neighbors, or friends to assist with any needs you may have during the period of confinement. These persons should not have direct contact with you. If you need assistance in providing for your daily needs, you should call [***insert telephone number***].

e. You must follow the directions contained in the attachment to this order labeled Attachment A to monitor your health status on a daily basis.

f. You will have access to medical care during the period of confinement. If the symptoms you are experiencing become more severe, or if you develop any additional symptoms of [**qd**] detailed in Attachment A, including [***insert* main *symptoms* here**], you should immediately call a public health official at [***insert telephone number***~~]~~. If emergency medical treatment is required for conditions other than those listed in this paragraph (e.g. chest pain or severe accidental injury at home), you should call 911 for an ambulance. When seeking such assistance, you must inform the operator of the 911 line and the ambulance that you are under Home Isolation Order.

g. If other persons also reside in your home you must maintain good personal hygiene at all times, ~~i~~including complying with the directions contained in Attachment A, to prevent disease transmission. If any member of your household develops any symptoms of [**qd**] detailed in Attachment A, such person should immediately call a public health official at [**insert telephone number**].

h. You should inform your employer that you are under home isolation and are not authorized to physically come to the work place. You should be aware that Iowa law prohibits an employer from firing, demoting, or otherwise discriminating against an employee due to the compliance of an employee with an isolation order issued by the Department. (Iowa Code section 139A.13A).

3. **Information about** [**qd**]**.** You should review the information contained at Attachment A for information about [**qd**]. In order to find out more information about [**qd**] and its symptoms and spread, you may access the Departments web-page at www.idph.state.ia.us. If you do not have access to the internet from your home, you may contact the Department at 800.362.2736 for more information about this disease.

4. **Legal authority.** This order is issued pursuant to the legal authority contained at Iowa Code chapter 139A, [*include Iowa Code chapter 135 if a public health disaster exists*], and 641 Iowa Administrative Code chapter 1, a copy of which is labeled Attachment B and is attached to this order for your review. The Department shall comply with the principles for isolation and quarantine contained in subrule 1.9(3) of this attachment when issuing and implementing this order.

5. **Ensuring compliance.** In order to ensure that you strictly comply with this Home Isolation Order the Department or persons authorized by the Department may contact you by telephone on a regular basis and may carry out spot checks of your residence.

6. **Violations of order.** If you fail to comply with this Home Isolation Order you may be ordered to be isolated in a hospital or other facility as determined by the Department. In addition, failure to comply with this order is a simple misdemeanor for which you may be arrested, fined, and imprisoned.

7. **Your rights – appeal rights.** While under isolation you have the rights as described in subrule 1.9(8) of Attachment B. In addition, you have the right to appeal this order pursuant to subrule 1.9(7) of Attachment B.

_____ _____

DIRECTOR or MEDICAL DIRECTOR DATE
IOWA DEPARTMENT OF PUBLIC HEALTH
Lucas State Office Building
Des Moines, IA 50319

Attachments to this Order:

Attachment A -- Facts About [***insert disease name***]
Attachment B -- 641 Iowa Administrative Code chapter 1

BEFORE THE IOWA DEPARTMENT OF PUBLIC HEALTH

DIRECTED TO:	)	**[insert case #]**
	)	
[insert full name and address of subject of order]	)	**HOME QUARANTINE ORDER**

The Iowa Department of Public Health (Department) has determined that you have had contact with [**insert name of quarantinable disease (qd)**]. [**insert qd**] is a disease which is spread from person to person and is associated with [**insert symptoms of (e.g. fever, cough, respiratory illness, etc.)**]. [**Insert qd**] presents a risk of serious harm to public health and if it spreads in the community severe public health consequences may result.

The Department has determined that home quarantine of persons who have been exposed to [**insert qd**] is necessary to prevent further spread of this disease. The Department has determined that quarantine in private homes is the least restrictive means necessary to prevent the spread of [**insert qd**]. The Department is therefore ordering you to remain in your home and to comply with the following provisions during the entire period of quarantine:

1. **Terms of confinement.** You are ordered to remain in your home at _____[**insert address**] from _____ to _____[**insert dates of quarantine**].

2. **Requirements during confinement.** During the period of quarantine:

   a. You must not leave your home at any time unless you have received prior written authorization from the Department to do so.

   b. You must remain reachable by telephone at all times and answer and respond fully and truthfully to telephone calls from Department staff and other persons acting on behalf of the Department.

   c. You must not come into contact with anyone except the following persons:

      (i) family members and other persons who reside in your home;
      (ii) authorized healthcare providers;
      (iii) authorized Department staff or other persons acting on behalf of the Department; and
      (iv) such other persons as are authorized by the Department.

   d. If family members or other persons who reside in your home have not been issued a Home Quarantine Order, they may leave your home to carry on their daily routines and to assist you with any needs you may have during the period of confinement. If you live alone, or if every member of your household is under Home Quarantine Order, you should arrange by telephone for relatives, neighbors, or friends to assist with any needs you may have during the period of confinement. These persons should not have direct contact with you. If you need assistance in

providing for your daily needs, you should call [**insert telephone number**]

e. You must follow the directions contained in the attachment to this order labeled Attachment A to monitor your health status on a daily basis.

f. If you develop any symptoms of [**qd**] detailed in Attachment A, including [**insert main symptoms here**], you should immediately call a public health official at [**insert telephone number**]. If emergency medical treatment is required for conditions other than those listed in this paragraph (e.g. chest pain or severe accidental injury at home), you should call 911 for an ambulance. When seeking such assistance, you must inform the operator of the 911 line and the ambulance that you are under Home Quarantine Order.

g. If other persons also reside in your home you must maintain good personal hygiene at all times, including complying with the directions contained in Attachment A, to prevent disease transmission. If any member of your household develops any symptoms of [**qd**] detailed in Attachment A, such person should immediately call a public health official at [**insert telephone number**].

h. You should inform your employer that you are under home quarantine and are not authorized to physically come to the work place, although you may work from home via electronic or other means if appropriate. You should be aware that Iowa law prohibits an employer from firing, demoting, or otherwise discriminating against an employee due to the employee's compliance with a quarantine order issued by the Department. (Iowa Code section 139A.13A).

3. **Information about [qd].** You should review the information contained at Attachment A for information about **[qd]**. In order to find out more information about [**qd**] and its symptoms and spread, you may access the Department=s web-page at www.idph.state.ia.us. If you do not have access to the internet from your home, you may contact the Department at 1-800-362-2736.

4. **Legal authority.** This order is issued pursuant to the legal authority contained at Iowa Code chapter 139A, [include Iowa Code chapter 135 if a public health disaster exists], and 641 Iowa Administrative Code chapter 1, a copy of which is labeled Attachment B and is attached to this order for your review. The Department shall comply with the principles for quarantine contained in subrule 1.9(3) of this attachment when issuing and implementing this order.

5. **Ensuring compliance.** In order to ensure that you strictly comply with this Home Quarantine Order the Department or persons authorized by the Department may contact you by telephone on a regular basis and may carry out spot checks of your residence.

6. **Violations of order.** If you fail to comply with this Home Quarantine Order you may be ordered to be quarantined in a hospital or other facility as determined by the Department. In addition, failure to comply with this order is a simple misdemeanor for which you may be arrested, fined, and imprisoned.

7. **Your rights -- appeal rights.** While under quarantine you have the rights as described in subrule 1.9(8) of Attachment B. In addition, you have the right to appeal this order pursuant to subrule 1.9(7) of Attachment B.

_____ _____

DIRECTOR or MEDICAL DIRECTOR DATE
IOWA DEPARTMENT OF PUBLIC HEALTH
Lucas State Office Building
Des Moines, IA 50319

Attachments to this Order:

Attachment A -- Facts About [**qd**]
Attachment B -- 641 Iowa Administrative Code chapter 1

Contact Information

Iowa Department of Public Health
Lucas State Office Building
321 E. 12th Street
Des Moines, IA 50319-0075
Main Number: 515-281-7689

Center for Acute Disease Epidemiology (CADE)	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number: 515-242-5935 Fax: 515-281-5698**

The center works to protect and preserve the health and safety of Iowans from infectious diseases through disease surveillance; investigation of acute outbreaks; institution of interventions to prevent ongoing spread of disease, education and consultation to county, local, and private health agencies on infectious diseases; immunization and vaccine guidelines; treatment after animal bites; and vaccines for international travel.

The center also provides consultation to county and local health agencies on diseases requiring public health intervention, collaborates with Centers for Disease Control and Prevention by weekly reporting of nationally reportable diseases, and offers health education opportunities through lectures and organizational seminars.

Disease Reporting Number (24/7)	**800-362-2736**
Iowa State Patrol	**515-323-4360**

Bureau of Immunization and TB	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number: 515-281-5424**

The Bureau of Immunization and Tuberculosis works to protect the health of Iowans from vaccine preventable diseases and tuberculosis with the goal of reducing and ultimately eliminating the incidence of these diseases. The Bureau conducts surveillance and prevention activities in conjunction with public and private healthcare providers. Surveillance activities include disease monitoring and reporting, laboratory testing, disease investigation and rapid institution of disease control measures including isolation and quarantine. Bureau prevention and treatment activities include targeted disease testing, vaccination programs, dispensing medications, healthcare provider consultation and education.

Immunization	**800-831-6293**
Refugee Health	**515-281-7504**
Tuberculosis	**515-281-7504**

Bureau of HIV, STD and Hepatitis	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number 515-281-6801**

Prevention and care services target *Chlamydia*, syphilis, gonorrhea, HIV/AIDS, and hepatitis B and C. Staff from the Sexually Transmitted Disease, HIV/AIDS, and Adult Viral Hepatitis Prevention Programs partner with local public health departments, private health care agencies, regional disease prevention specialists, and community-based organizations to interrupt the disease transmission process and provide access to testing, treatment, immunizations, and prevention programs.

STD	**515-281-3031**

HIV/AIDS	**515-242-5141**
Hepatitis B – Perinatal	**515-281-7228**
Hepatitis B – Other	**515-242-5935**
Hepatitis C	**515-281-5027**

Bureau of Environmental Health Services	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number: 515-281-7726**

The Bureau of Environmental Health Services is actively engaged in work related to hazardous spills, evaluation of waste sites, healthy homes, emergency preparedness, Grade A milk inspection, swimming pool and spa safety, water fluoridation, food safety, Grants-to-Counties, healthy homes and several other areas of environmental health practice. Bureau staff also acts as a resource for new county environmental health professionals, and are available to local board of health members to provide education about the everyday impact of environmental health practice.

Bureau of Lead Poisoning Prevention	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number: 800-972-2026**

The Bureau of Lead Poisoning Prevention oversees programs related to occupational health and safety, work-related fatal injuries, pesticide poisoning surveillance, and the prevention of lead poisoning. The occupational health and safety surveillance program tracks standard occupational health. The work-related fatal injuries program investigates work-related fatal injuries and disseminates information about how to prevent work-related fatalities. The pesticide poisoning surveillance program collects information on all exposures of Iowans to pesticides. The lead poisoning prevention activities include the collection of the results of all blood lead testing done on Iowans of all ages. The Bureau implements the requirement that all Iowa children be tested for lead poisoning, works with local childhood lead poisoning prevention programs to follow up on cases of childhood lead poisoning, and follows up on cases of adult lead poisoning. Finally, the Bureau implements programs that require those who conduct renovation, lead abatement, and lead inspections to be certified and requires the owners and occupants of housing and child-occupied facilities be notified when paint is disturbed in these buildings.

Bureau of Radiological Health	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number: 515-281-3478**

The Bureau of Radiological Health programs protect Iowans from unnecessary exposure to radiation. Each year, Iowans are exposed to an average of 300 millirem of naturally occurring radiation and 60 millirem of manmade radiation. The Bureau functions under legislative mandates per Iowa Code, Chapters 136B, C and D.

Bureau of Family Health	**Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075**	**Main Number: 800-383-3826 or 515-281-3826**

The Bureau of Family Health guides the development of preventive health services for Iowa families in partnership with families, communities, health care providers and public health providers. Programs promote development of local systems of health care to assure that all women have access to reproductive health services and all Iowa children receive regular, preventive health care. Programs support family centered, community based and culturally sensitive health services for all Iowa families. The toll free *Healthy Families* line (800-369-2229), a 24-hour information and referral service, promotes access to community-based health resources.

Child Care Resources and Referral Services	**www.iowaccrr.org to locate the phone number for local/regional CCRR personnel**

Other Important Phone Numbers

University of Iowa State Hygienic Laboratory	**102 Oakdale Campus Iowa City, IA 52242-5002**	**Main Number: 319-335-4500**

As a state agency under the Iowa Board of Regents, within the Health Sciences Center of The University of Iowa, the State Hygienic Laboratory (SHL) provides multidisciplinary analytical and diagnostic scientific services, leadership and education to support environmental quality and public health. The Laboratory provides services for assessment, surveillance, research and development, and technology transfer in support of public policy and its development on a state, national and international level.

The Laboratory's Statement of Mission is derived from, and consistent with, its responsibilities as specified in the Code of Iowa under Chapter 263.7-8. (Rules implementing this statute and governing the operation of the Laboratory are found in the Iowa Administrative Code, Sections 720-5.1 through 720-5.3.) The Mission of the SHL has been affirmed by the Iowa Supreme Court.

Iowa Department of Agriculture and Land Stewardship	**Wallace State Office Building 502 E. 9th St. Des Moines, Iowa 50319**	**Main Number: 515-281-5321**

Iowa Department of Agriculture and Land Stewardship (IDALS) works to build a department of agriculture that can respond quickly and efficiently to changing global conditions in agriculture. The department wants to increase Iowa's agricultural market share -- both domestic and foreign, and assist in the removal of unnecessary barriers to agricultural trade. They work to develop and encourage agricultural education and new avenues for Iowa producers to market their products, increasing the independent farmer's impact on the market. IDALS adds value in Iowa to agriculture by developing new products and creating links for Iowa farmers with consumer-ready markets. The fight to preserve Iowa's precious soil, and improve water quality to ensure opportunities for future generations of Iowans and protect consumers and producers by assuring the quality of Iowa agricultural products and animal health.

Iowa Department of Natural Resources (DNR)	**Wallace State Office Building 502 E. 9th St. Des Moines, Iowa 50319**	**Main Number: 515-281-5918**

The Iowa Department of Natural Resources is the government agency that leads Iowans in caring for their natural resources. It is responsible for maintaining state parks and forests, protecting the environment, and managing energy, fish, wildlife, and land and water resources in Iowa.

Iowa State University – Entomology Department	**Entomology Department Rm 442, Science II Building Iowa State University Ames, Iowa 50011-3222**	**Main Number(s): 515-294-4387**

Entomologists at Iowa State university have engaged in teaching, research, and extension for more than a century. Professor Herbert Osborn taught the nation's first entomology course in 1880, beginning a tradition of excellence in basic and applied entomology. The Department of Entomology faculty work to provide education, develop innovative research programs and supply a creative, highly visible problem-solving extension program.

Iowa State University Veterinary Diagnostic Laboratory	**Iowa State University College of Veterinary Medicine 1600 South 16th St. Ames, IA 50011**	**Main Number: 515-294-1950 After Hours: 515-290-1969 Fax: 515-294-3564**

The Iowa State University Veterinary Diagnostic Laboratory (VDL) is accredited as a full service laboratory by the American Association of Veterinary Laboratory Diagnosticians (AAVLD).

Iowa Department of Inspections and Appeals	**Lucas State Office Building 321 E. 12th St. Des Moines, Iowa 50319-0075**	**Main Number: 515-281-7102**

The Department of Inspections and Appeals (DIA) is a multifaceted regulatory agency charged with protecting the health, safety and well being of Iowans. The agency is responsible for inspecting, licensing and/or certifying health care providers and suppliers, restaurants and grocery stores, social and charitable gambling operations, hotels and motels, and barber and beauty shops. In addition, DIA staff investigates alleged fraud in the State's public assistance programs and conducts contested case hearings to settle disputes between Iowans and various state government agencies.

The Department was created in 1986 to coordinate and conduct various audits, appeals, hearings, inspections, and investigations related to the operations of the executive branch of state government. DIA is organized into four major divisions, each with its own specific duties and responsibilities. Overseeing the daily operation of the agency is the Administration Division, which includes the Director's Office and staff. The Director's Office sets policy for the Department and is responsible for coordinating DIA's various programs and functions.

Iowa Statewide Poison Control Center	**St. Luke's Regional Medical Center 401 Douglas St, Suite 402 Sioux City, IA 51101**	**Main Number(s): 800-222-1222 (712) 277-2222**

The Iowa Statewide Poison Control Center (ISPCC) was formed in 2000 by combining the poison control resources and expertise of Iowa Health System and University of Iowa Hospitals and Clinics. The IHS and the UIHC each have a 25-year history of providing poison control services throughout the state.

The jointly sponsored statewide poison control center provides all of Iowa's 2.9 million citizens 24-hour toll-free telephone access to emergency poison information and treatment.

Specially trained nurses staff the ISPCC's hotline 24 hours a day and are backed-up by a physician toxicologist. These poison specialists answer questions about household products, drug overdoses, chemicals at work or in the environment, plant and mushroom ingestions, medication errors, bites and stings, or any other toxicology-related subject.

Clearinghouse	**Main Number: 319-398-5133**

Website:
healthclrhouse.drugfreeinfo.org/cart.php?target=category&category_id=295
Materials on reportable diseases are free of charge and may be obtained by contacting the clearinghouse. These materials are provided to local public health agencies and relevant partners. Among the materials available is disease reporting forms, disease brochures, and disease posters. The recommended way of ordering is by using the clearinghouse website.

Iowa Department of Public Health — Bureau of HIV, STD, and Hepatitis

Disease Prevention Specialist Regions

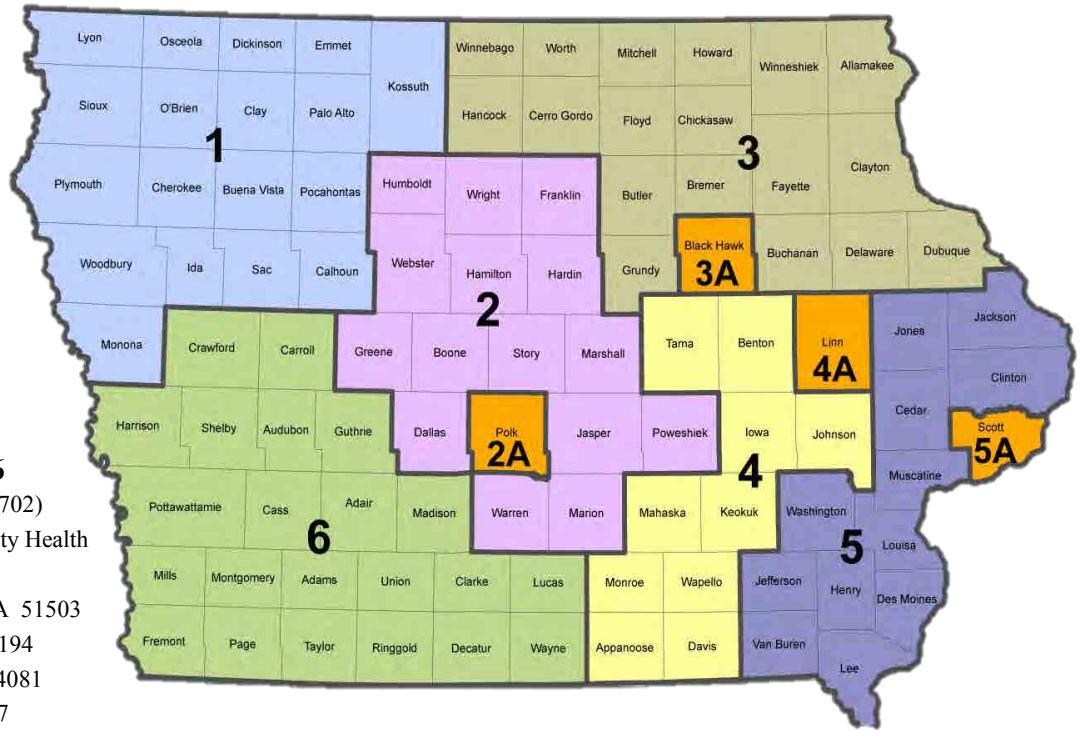
Region 1
Jodie Liebe (708)
Siouxland District Health Dept
1014 Nebraska St
Sioux City IA 51105
Office 712-234-3926
Mobile 515-783-4076
Fax 712-234-3920
jodie.liebe@idph.iowa.gov

Region 2
LaShaina Woods (706)
Iowa Dept of Public Health
Lucas State Office Building
321 E 12th 5th Fl
Des Moines IA 50319
Office 515-281-6087
Mobile 515-783-4077
Fax 515-281-0466
lashaina.woods@idph.iowa.gov

Region 2A Polk Co.
*Kari Lebeda Townsend (749)
*Beth Dooley (732)
*Jaimie Schwab (735)
*Kate Gilmore (738)
*Jean Phillips (740)
Polk County Health Dept
1907 Carpenter
Des Moines IA 50314
Phone 515-286-3798
Fax 515-286-2033

Region 3
Gina Mallett (704)
Black Hawk County Health Dept
1407 Independence Ave 5th Fl
Waterloo IA 50703
Office 319-292-2235
Mobile 515-783-4086
Fax 319-291-2529
gina.mallett@idph.iowa.gov

Region 3A Black Hawk Co.
*Carla Bergmeier (703)
*Brenda Hostetler (715)
*Ange Miller (751)
*Claudia Robinson (754)
Black Hawk County Health Dept
1407 Independence Ave 5th Fl
Waterloo IA 50703
Phone 319-292-2413
Fax 319-291-2529



Region 4
Shannon Wood (746)
Johnson County Public Health
855 S Dubuque St
Iowa City IA 52240
Office 319-358-1834
Mobile 515-783-4079
Fax 319-356-6039
shannon.wood@idph.iowa.gov

Region 4A Linn Co.
*Barbara Chadwick (761)
*Carissa Griffin (724)
*Sherri Schuchmann (729)
*Heather Meador (747)
Linn County Public Health
501 13th St NW
Cedar Rapids IA 52405
Phone 319-892-6000
Fax 319-892-6098

Region 5
Mary Costello (710)
Scott County Health Dept
600 W 4th St 4th Fl
Davenport IA 52801
Office 563-326-8216
Mobile 515-783-4078
Fax - 563-326-8774
mary.costello@idph.iowa.gov

Region 5A Scott Co.
*Roma Taylor (719)
*Stuart Scott (707)
*Lashon Moore (736)
*Jane Morehouse (739)
Scott County Health Dept
600 W 4th St 4th Fl
Davenport IA 52801
Phone 563-326-8618
Fax 563-326-8774

Region 6
Linda McQuinn (702)
Council Bluffs City Health
209 Pearl St
Council Bluffs IA 51503
Office 712-328-3194
Mobile 515-783-4081
Fax 712-328-4917
linda.mcquinn@idph.iowa.gov

***County Employee**

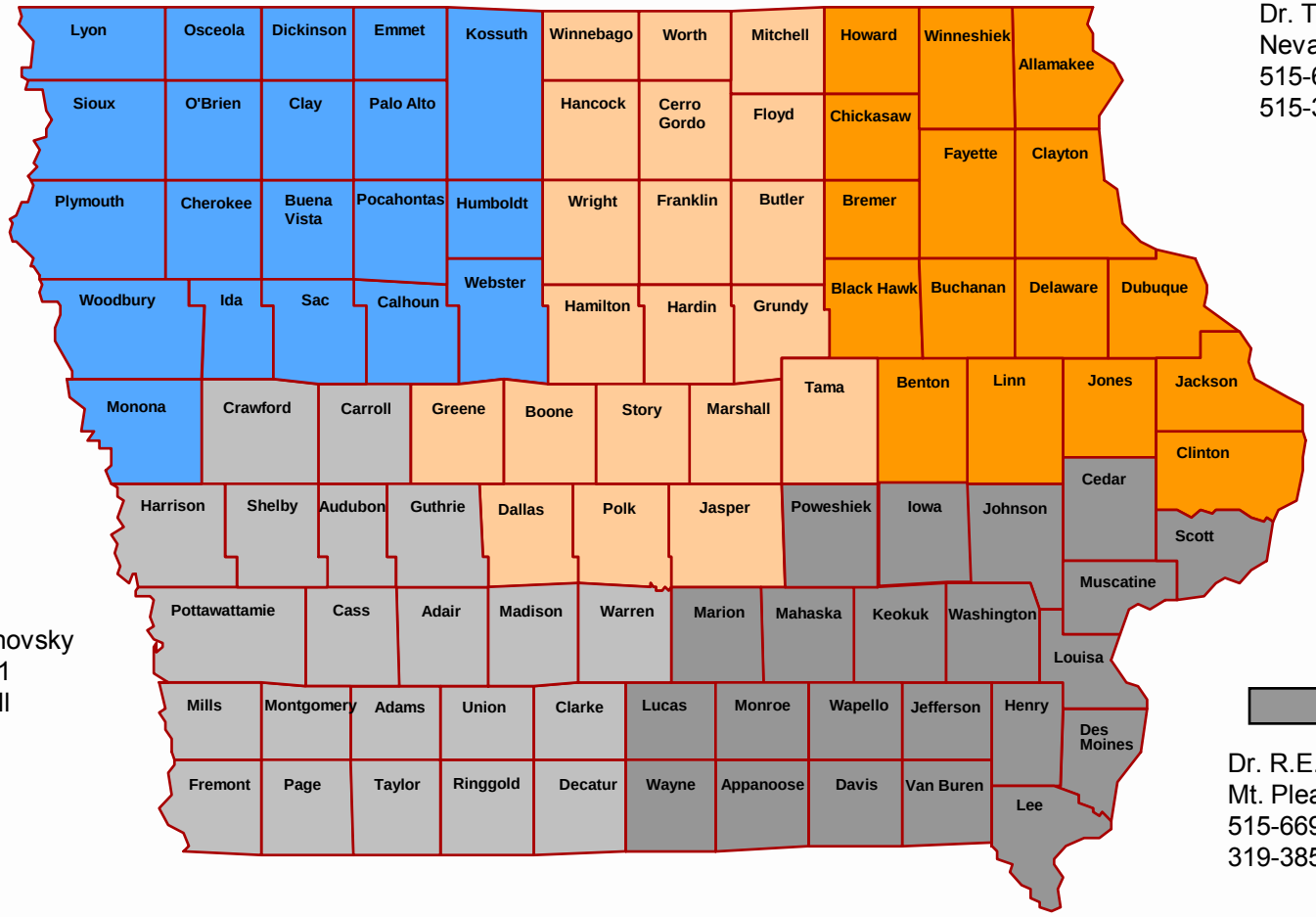
REVISED OCT. 2013

STATE VETERINARIAN DISTRICTS

Dr. David Schmitt, State Veterinarian
515-281-8601 * 515-669-3527 cell

Dr. Greg Schmitt
Le Mars IA 51031
515-669-5633 cell
712-541-6033 fax

Dr. Tim Smith
Nevada, IA 50201
515-669-6231 cell
515-382-4270 fax



Dr. Gary E. Eiben
Colesburg, IA 52035
515-669-6095 cell
563-856-3009 fax

Dr. Wayne Rychnovsky
Corning, IA 50841
515-971-7391 cell

Dr. R.E. Welander
Mt. Pleasant, IA 52641
515-669-5929 cell
319-385-7000 fax

Assistant State Veterinarian
515-281-0866 – office

March 2013

March 2013

Bureau of Local Public Health Services

Iowa Department of Public Health – Division of Health Promotion and Chronic Disease Prevention

Heather Bombei, RCHC

Cell: (515) 745-4877

Heather.Bombei@idph.iowa.gov

Erin Barkema, RCHC

Cell: (515) 829-0515

Erin.Barkema@idph.iowa.gov

Diane K. Anderson, RCHC

Cell: (515) 745-2163

Diane.K.Anderson@idph.iowa.gov

Dawn Mouw, RCHC

Cell: (515) 745-2368

Dawn.Mouw@idph.iowa.gov

VACANT, RCHC

Cell:

Email:

Berdette Ogden, RCHC
Office: (641) 634-2132
Cell: (515) 745-2373
Fax: (641) 634-2097
Berdette.Ogden@idph.iowa.gov

Diane M. Anderson, PP2
Office: (515) 242-6522
Fax: (515) 242-6384

Diane.M.Anderson@idph.iowa.gov

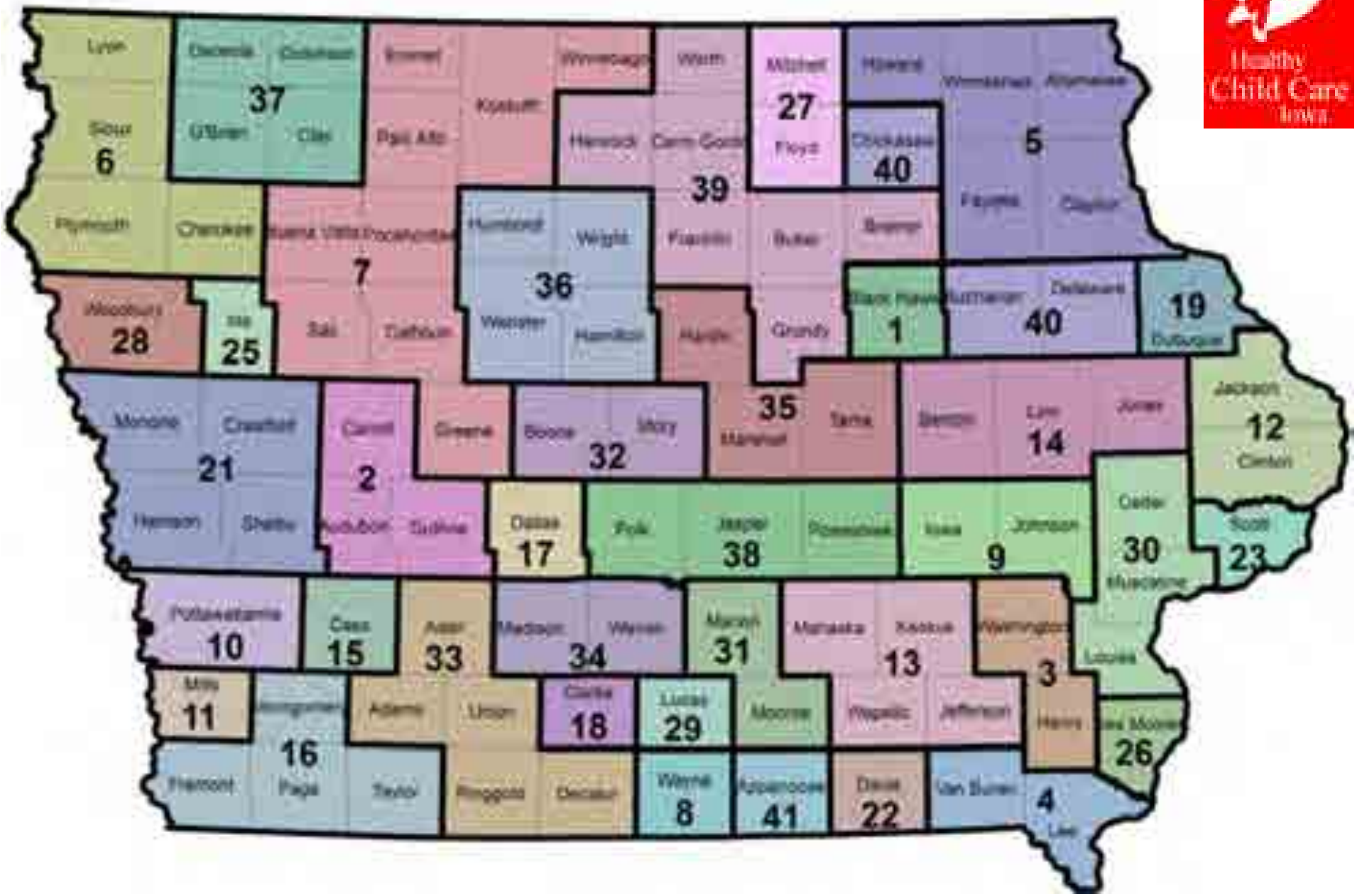
Gerd Clabaugh, Division Director
Gerd.Clabaugh@idph.iowa.gov
Office: (515) 281-7996

RCHC = Regional Community Health Consultant

PP2 = Program Planner 2

Revised 9/23/13

Healthy Child Care Iowa Map

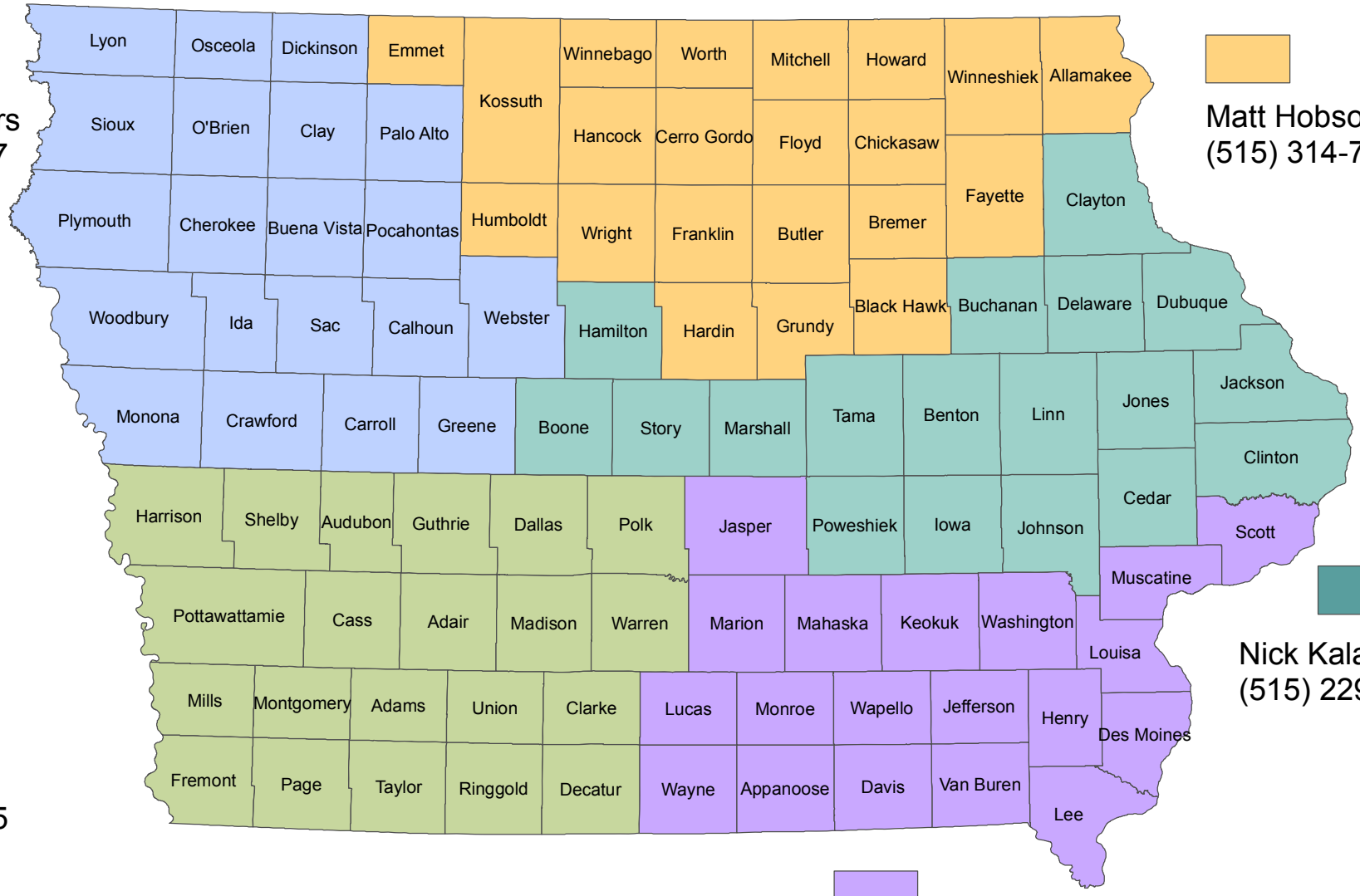


December 2012

CCNC Number	CCNC Name	Child Health Agency	CCNC Phone	CCNC E-Mail Address
1	Kate Phillips	Black Hawk County Health Department	(319) 292-2229 Office (319) 29-1734 Cell	Kphillips@co.black-hawk.ia.us
2	New Opportunities, Inc	New Opportunities, Inc	(712) 792-9266	
3	Washington County Public Health	Washington County Public Health	(319) 653-7758	
4	Cyndi Mason	Lee County Health Department	(319) 372-5225	cmason@leecountyhd.org
5	Darla Butikofer	Visiting Nurse Association of Dubuque	(563) 245-1145	darla.butikofer@finleyhospital.org
6	Deb Baldwin	Mid-Sioux Opportunity, Inc	(712) 786-3487	dbaldwin@midsioux.org
7	Deb Gimer	MATURA (BV), New Opportunities, Inc (Sac), NICAO (Koss, Winn) & Webster County Health Department (Greene, Emmet, Cal, PA, Poc)	(712) 297-8323	dgimer@calhouncountyiowa.com
8	Deidre Buttz	Marion County Public Health	(641) 342-3724	DButtz@grm.net
9	Johnson County Public Health	Johnson County Public Health	(319) 356-6042	
10	Family, Inc	Family, Inc	(712) 256-9566	
11	Emily Schroder	Family, Inc	(712) 256-9566	emily@familyia.org
12	Heidi Hotvedt	Visiting Nurse Services of Iowa	(563) 652-4048	heidi.hotvedt@jcrhc.org
13	Jane Matzen	Lee County Health Department	(641) 682-3449	jmatzen@ahfa.org
14	Jean Randolph	Hawkeye Area Community Action Program	(319) 739-0029	jrandolph@hacap.org
15	Julie Kixmiller	Crawford County Home Health	(712) 243-8006	kixmiljk@ihs.org
16	Julie Thomas	Taylor County Public Health	(712) 523-3405	jthomasmch@frontier.com
17	Chris Lee	New Opportunities, Inc	(712) 792-9266 Ext. 208	CLee@newopp.org
18	Kelly Bailey	Warren County Health Services	(641) 342-3724	bkelly@iowatelecom.net
19	Kim Gonzales, Cynthia Klein	Dubuque Visiting Nurse Association	(563) 556-6200	Kim.Gonzales@FinleyHospital.org; cynthia.klein@finleyhospital.org
21	Lori Hoch	Crawford County Home Health	(712) 263-3303	lorihochrn@yahoo.com
22	Lee County Health Department	Lee County Health Department	(319) 372-5225	
23	Jessica Redden	Scott County Health Department	(563) 326-8618	Jessica.Redden@scottcountyiowa.com
24	Mid-Iowa Community Action	Mid-Iowa Community Action	(800) 890-8230	
25	Mid-Sioux Opportunity, Inc	Mid-Sioux Opportunity, Inc	(800) 859-2025	
26	Nancy Granaman	Lee County Health Department	(319) 750-5258	bngranaman@gmail.com
27	North Iowa Community Action	North Iowa Community Action	(641) 423-5044	
28	Nicole Olhausen	Siouxland Community Health Center	(712) 252-2477	nolhausen@slandchc.com
29	Patti Scieszinski	Marion County Public Health	(641) 774-4312	pski@lucasco.org
30	Sandy Hill	Trinity Muscatine Public Health	(563) 263-0122	Sandra.Hill@trinitymuscatine.org.
31	Marion County Public Health	Marion County Public Health	(641) 828-2238	rcecil@marionph.org
32	Shannon Knudson	Mid-Iowa Community Action	(515) 298-4896	shannon.knudsen@micaonline.org
33	Sharon Campbell	MATURA	(641) 782-8431	scampbell@maturaaction.org
34	Shelly Jensen	Warren County Health Services	(515) 961-1074	shellyj@co.warren.ia.us
35	Jennifer Matters	Mid-Iowa Community Action	(641) 328-9133	jennifer.matters@micaonline.org
36	Tricia Nichols	Webster County Health Department	(515) 573-4107	tnichols@webstercountyia.org
37	Trish Dillard	MATURA	(712) 240-0281	tdillard@maturaact.org
38	Jeanette Luthringer	Visiting Nurse Services of Iowa	(515) 558-9604	jeannettel@vnsia.org
	Heather Jenks	Visiting Nurse Services of Iowa	(515) 557-9013	heatherj@vnsdm.org
	Kara Wall	Visiting Nurse Services of Iowa	(515) 557-9025	karaw@vnsia.org

	Amy Karaidos	Visiting Nurse Services of Iowa	(515) 558-9947	amyk@vnsdsm.org
	Kristin Sjulin	Visiting Nurse Services of Iowa	(515) 558-9960	Kristins@vnsdsm.org
	Joanna Cox	Visiting Nurse Services of Iowa	(515) 558-9968	joannac@vnsia.org
39	Wendy Taylor	North Iowa Community Action Organization (Butler, Cerro Gordo, Franklin, Hancock & Worth) & Black Hawk County Health Department (Bremer, Grundy)	(641) 423-5044	wtaylor@nicao-online.org
40	Marsha Platt	Black Hawk County Health Department	(319)415-8912 Cell (319) 292-2409 Office	mplatt@co.black-hawk.ia.us
41	Terri Sinclair	Marion County Public Health	(641) 437-4332	tsinclair@appanoosecounty.net

CADE Epidemiologist Coverage by County



Rob Ramaekers
(515) 314-7017

Matt Hobson
(515) 314-7259

Nick Kalas
(515) 229-0187

Chris Galeazzi
(515) 314-5895

Diana Von Stein
(515) 954-9499

04/16/14

Iowa Department of Public Health
Environmental and Occupational Surveillance
Reportable Poisonings, Injuries, Diseases, Conditions, and Exposures

IDPH Environmental Health (EH) hotline (Mon-Fri 8 am-4:30 pm): 800-972-2026
IDPH 24/7 Disease reporting hotline: 800-362-2736
IDPH Environmental Health Fax: 515-281-4529
IDPH EH Division Web Page: www.idph.state.ia.us/eh/default.asp
IDPH Bureau of Emergency Medical Services (EMS) Web Page: www.idph.state.ia.us/ems/data.asp

OUTBREAK REPORTING - CALL THE 24/7 DISEASE REPORTING HOTLINE: 800-362-2736
IMMEDIATELY report to the department outbreaks of any kind, diseases (including those not specifically noted) that occur in unusual numbers or circumstances, unusual syndromes, or uncommon diseases. Outbreaks may be infectious, environmental or occupational in origin and include food-borne outbreaks or illness secondary to chemical exposure (e.g., pesticides, carbon monoxide, anhydrous ammonia).

BIOTERRORISM REPORTING - CALL THE 24/7 DISEASE REPORTING HOTLINE: 800-362-2736
IMMEDIATELY report diseases, syndromes, poisonings and conditions of any kind suspected or caused by a biological, chemical, or radiological agent or toxin when there is reasonable suspicion that the disease, syndrome, poisoning or condition may be the result of a deliberate act such as terrorism (but are not limited to) anthrax, mustard gas, sarin gas, ricin, tularemia and small pox.

ELEVATED BLOOD LEAD TEST RESULTS GREATER THAN OR EQUAL TO 20 UG/DL- CALL THE EH HOTLINE: 800-972-2026
IMMEDIATELY during regular business hours (Mon-Fri 8am to 4:30 pm) report all blood lead test results greater than or equal to 20 ug/dL to the Environmental Health hotline and fax a hard copy of the result to the EH fax.

ROUTINE REPORTING
Reports not meeting the conditions given for immediate reporting shall report as directed below, using electronic or web-based reporting if available, or another IDPH approved reporting format. Iowa trauma nurse coordinators and data registrars in the trauma hospitals of Iowa can continue to use the Trauma Registry software for reporting agricultural related injuries and traumatic brain and spinal cord injuries or EMS approved hard copy report forms. Refer to the IDPH EH Web page for more details, approved formats, forms, and specific disease/poisoning/injury/condition reporting information.

WHO IS REQUIRED TO REPORT
Mandatory Reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident. Complete information can be found in the Iowa Administrative Code [641] Chapter 1, which is linked at the IDPH EH Division Web page.

For more information, please refer to the IDPH EH Division Web page at www.idph.state.ia.us/eh/default.asp or call the Environmental Health hotline during regular business hours.

Reportable Disease Information

IOWA DISEASE REPORTING CARD

FAX VERSION

Disease reporting is required by Iowa Administrative Code [641]-1 (139A)

Fax report to (515) 281-5698 or call (800) 362-2736

DISEASE AND LABORATORY INFORMATION

DISEASE/EVENT: _____ **Laboratory:** _____

Diagnosis date: / / **Lab city/state/zip:** _____

Onset date: / / **Collection date:** / /

Outcome: ☐Survived this illness ☐Died from this illness ☐Died unrelated to this illness ☐Unknown **Specimen source:** _____

Provider name: _____ **Lab test:** _____

Provider title: ☐ARNP ☐DO ☐MD ☐NP ☐PA **Result date:** / /

Facility name: _____ **Result:** ☐Positive/detected ☐Undetermined ☐Negative/undetected ☐Equivocal ☐Other: _____

Address: _____

Phone : ( ) - **City/State/Zip:** _____

Clinical sx: ☐Abdominal pain ☐Cough ☐Gland swelling ☐Sore throat ☐Anorexia ☐Diarrhea ☐Jaundice ☐Stiff neck ☐Bull's eye rash ☐Fever ☐Rash ☐Vomiting Other: _____

☐ **Specimen sent to UHL**

PATIENT INFORMATION

Name (last, first, middle): _____

Address: _____

City: _____ **County:** _____ **Zip:** _____

Long-term care resident: ☐Yes ☐No ☐Unk **Facility name:** _____

DOB: / / **Age:** _____ ☐Years ☐Months **Gender:** ☐M ☐F ☐Unk

Pregnant? ☐Yes ☐No ☐Unk **Due Date:** / /

Race: ☐White ☐Black or African American ☐American Indian or Alaska Native ☐Hawaiian or Pacific Islander ☐Asian ☐Unknown ☐Other

Marital status: ☐Single ☐Married ☐Widowed ☐Unknown ☐Divorced

Ethnicity: ☐Hispanic or Latino ☐Not Hispanic or Latino ☐Unknown

If minor, Parent name(s): _____

Phone: Home ( ) - Work ( ) - Other ( ) -

OCCUPATION INFORMATION

Job title: _____ **Facility name:** _____

Worked after symptom onset: ☐Yes ☐No ☐Unknown **Address:** _____

Handle food: ☐Yes ☐No ☐Unknown

Attend or provide child care: ☐Yes ☐No ☐Unknown **Zip code:** _____

Attend school: ☐Yes ☐No ☐Unknown

Work in a lab setting: ☐Yes ☐No ☐Unknown **City/State/County:** _____

Work in a health care setting: ☐Yes ☐No ☐Unknown

Direct patient care duties in lab or health care setting: ☐Yes ☐No ☐Unknown **Phone:** ( ) - Type: _____

Health care worker type:

HOSPITALIZATION INFORMATION

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown **Hospital:** _____

Admission date: / / **Discharge date:** / / ☐**Still hospitalized** **Days hospitalized:**

REPORTER INFORMATION

Reporter name: _____ **Reporter facility name:** _____

Reporter phone: _____ **Date reported to IDPH:** _____

Comments:

Revised 2/09

GENERAL INFECTION CONTROL MEASURES

Implementation and adherence to infection control practices are the keys to preventing the transmission of infectious diseases, including respiratory diseases spread by droplet or airborne routes. Recommended infection control practices include:

1. Hand hygiene;
2. Standard Precautions/Transmission-Based Precautions (Contact, Droplet, Airborne)
3. Respiratory hygiene

Hand hygiene is the single most effective means of preventing the spread of all infections among hospital patients and personnel. When followed properly, each of these practices decreases the risk of spreading common respiratory pathogens

Hand Hygiene

Proper hand hygiene is the most effective way to prevent the spread of infection. Detailed hand hygiene information is available on the CDC website at www.cdc.gov/handhygiene. To properly wash and clean hands, the following procedure should be followed:

- Wash hands when they are visibly dirty or soiled with blood or other body fluids. Wash hands with either a non-antimicrobial soap or an antimicrobial soap and water. When washing hands with soap and water, wet hands first with water, apply to hands the amount of product recommended by the manufacturer, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel or air dryer. Use a dry paper towel, if available to turn off the faucet.
- If hands are not visibly soiled, an alcohol-based hand rub or gel may be used in place of soap and water in most circumstances. When using an alcohol-based hand rub or gel, apply product to the palm of one hand and rub hands together, covering all surfaces of hands and fingers, until the hands are dry.
- Avoid wearing artificial fingernails when caring for patients at high risk for infection, and keep natural nail tips less than 1/4-inch long.
- Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and non-intact skin could occur.
- Remove gloves after caring for a patient. Always perform hand hygiene after removing gloves. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients.
- Change gloves during patient care if moving from a contaminated body site to a clean body site.

Standard Precautions

The Standard Precautions/Transmission-Based Precautions system is designed to prevent the transmission of infectious agents. It requires the use of work practice controls and protective apparel for all contact with blood and body substances, but uses Airborne Infection Isolation, Droplet, and Contact Precautions for patients with diseases known to be transmitted in whole or in part by those routes. Standard Precautions include consistent and prudent preventive measures to be used at all times regardless of a patient's known infection status, and include:

Hand hygiene. Practice hand hygiene after touching blood, body fluids, secretions, excretions, or contaminated items, whether or not gloves are worn. Wash hands immediately after gloves are removed, between patient contacts, and when otherwise indicated to avoid transfer of microorganisms to other patients or environments.

Gloves. Wear gloves (clean, nonsterile gloves are adequate) when touching blood, body fluids, secretions, excretions, or contaminated items. Put on clean gloves just before touching mucous membranes and non-intact skin. Change gloves between tasks and procedures. Practice hand hygiene whenever gloves are removed.

Mask, eye protection/face shield. Wear a mask and adequate eye protection (eyeglasses are not acceptable), or a face shield to protect mucous membranes of the eyes, nose, and mouth during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.

Gown. Wear a gown (a clean, nonsterile gown is adequate) to protect skin and to prevent soiling of clothing during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions. Carefully, remove a soiled gown as promptly as possible, to avoid contamination of personal clothing, and wash hands.

Patient care equipment. Handle used patient care equipment soiled with blood, body fluids, secretions, or excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of microorganisms to one's self, other patients and the environment. Ensure that reusable equipment is not used for the care of another patient until it has been cleaned and sanitized appropriately. Ensure that single-use items are discarded properly.

Contact Precautions

In addition to Standard Precautions, Contact Precautions should be used for the care of patients known or suspected to have illnesses that could be spread by usual contact with an infected person, or by the contaminated environmental surfaces or patient care items in the room. Example of diseases/organisms requiring Contact Precautions include:

- Severe Acute Respiratory Syndrome (SARS): See "SARS Infection Control" section
- Parainfluenza virus
- Respiratory syncytial virus
- Varicella (chickenpox): Also requires Airborne Infection Isolation
- Herpes Zoster (disseminated or in the immunocompromised host): Also requires Airborne Infection Isolation

Gown. Wear a gown when entering the room. Remove the gown before leaving the patient's environment. After gown removal, ensure that clothing does not contact potentially contaminated environmental surfaces. Wash hands.

Patient transport. Limit the movement of the patient from the room to essential purposes only. During transport, ensure that all precautions are maintained.

Patient care equipment. When possible, dedicate the use of noncritical patient care equipment to a single patient (or cohort of patients infected or colonized with the pathogen requiring precautions) to avoid sharing between patients. If use of common equipment or items is unavoidable, then adequately clean and disinfect them before use for another patient.

Patient placement (private room). Place the patient in a private room. If a private room is not available, place the patient in a room with other patients with the same illness (cohorting).

Contact Precautions include:

Gloves, gown and hand hygiene. Wear gloves when entering the room. During the course of providing care for a patient, change gloves after having contact with infective material. Wear gown to protect clothing if contact with body fluids is anticipated. Remove gloves and gown before leaving the patient's room and practice hand hygiene immediately with an antimicrobial agent or a waterless antiseptic agent. After glove removal and hand hygiene, ensure that hands do not touch potentially contaminated surfaces or items in the patient's room.

Droplet Precautions

In addition to Standard Precautions, use Droplet Precautions for a patient known or suspected to be infected with microorganisms transmitted by droplets (large-particle, wet droplets [larger than 5µm in size]) that can be generated by the patient during coughing, sneezing, talking, or the performance of procedures.

Examples of diseases/organisms requiring Droplet Precautions include:

- Invasive Hemophilus influenzae disease: meningitis, pneumonia (in infants and small children), epiglottitis
- Invasive Neisseria meningitidis disease: meningitis, pneumonia, and bacteremia
- Mycoplasma pneumonia
- Group A streptococcal pneumonia, pharnygitis, or scarlet fever in infants and young children
- Influenza
- Adenovirus: Also requires Contact Precautions
- Parvovirus B19
- Rubella

Droplet Precautions include:

Patient placement. Place the patient in a private room. When a private room is not available, place the patient in a room with a patient(s) who has active infection with the same microorganism but with no other infection (cohorting). When a private room is not available and cohorting is not achievable, maintain spatial separation of at least three feet between the infected patient and other patients and visitors. Special air handling and ventilation are not necessary, and the door may remain open.

Mask. In addition to standard precautions, wear a mask or respirator when working within three feet of the patient. (Hospitals may want to implement the wearing of a mask to enter the room.)

Patient transport. Limit the movement and transport of the patient from the room to essential purposes only. If transport or movement is necessary, minimize patient dispersal of droplets by masking the patient, if possible.

Airborne Infection Isolation

In addition to Standard Precautions, Airborne Infection Isolation measures are designed to reduce the risk of transmission of infectious agents that may be suspended in the air in either small particle aerosols or dust particles. Patients requiring Airborne Infection Isolation must be given a private room with special air handling and ventilation (negative pressure). Respiratory protection for healthcare workers is necessary when entering the patient's room.
Examples of diseases/organisms requiring Airborne Infection Isolation include:

- SARS: See "SARS Infection Control" section
- Tuberculosis (pulmonary or laryngeal, suspected or confirmed)
- Varicella: Also requires Contact Precautions
- Herpes Zoster (shingles) in an immunocompromised patient: Also requires Contact Precautions
- Measles (rubeola)

Airborne Infection Isolation includes:

Patient placement. Airborne Infection Isolation requires a negative pressure room in addition to a private room. Keep the room door closed and the patient in the room. When a private room is not available, place the patient in a room with a patient who has active infection with the same microorganism, but with no other infection (cohorting).

Respiratory protection. Respiratory protection must be worn when entering the room of a patient in Airborne Infection Isolation. A NIOSH-certified, fit-tested disposable N-95 respirator mask is recommended for all persons entering the room, including visitors. The use of higher-level respirators may be considered for certain procedures. If a particulate respirator with filter efficiency of 95% or greater is not available, a surgical mask should be worn. The mask should fit tightly around the nose and mouth to protect against large droplet transmission.

Respiratory Hygiene/Cough Etiquette

"Respiratory hygiene" is a term that has been adopted by the Centers for Disease Control and Prevention (CDC) and the Iowa Department of Public Health (IDPH) to describe measures that can be taken to decrease the risk of spreading respiratory pathogens. A universal "respiratory hygiene/cough etiquette" strategy for a healthcare facility should include the following:

- Place signs at the entrances of all outpatient facilities requesting that patients and visitors inform healthcare personnel of respiratory symptoms upon registration.
- Provide masks (e.g., surgical) for all patients presenting with respiratory symptoms (especially cough) and provide instructions on the proper use and disposal of masks.

- If a patient cannot wear a mask, provide tissues and instructions on when to use them (i.e., when coughing, sneezing or controlling nasal secretions), how and where to dispose of them, and the importance of hand hygiene after handling this material (cough etiquette).
- Provide hand hygiene materials in waiting room areas and encourage patients with respiratory symptoms to wash their hands.
- If possible, designate an area in waiting rooms where patients with respiratory symptoms can be segregated (ideally by more than three feet) from other patients without respiratory symptoms.
- Place patients with respiratory symptoms in a private room or cubicle as soon as possible for further evaluation.
- Healthcare workers evaluating patients with respiratory symptoms should wear a surgical or procedure mask.
- Consider the installation of Plexiglas barriers at the point of triage or registration to protect healthcare workers.
- If a physical barrier is not possible, instruct registration and triage staff to remain at least three feet from unmasked patients. Staff should consider wearing a surgical mask during registration and triage.
- Continue to use Droplet Precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond Standard Precautions.

Iowa Department of Public Health

Minimal Recommendations for Use of Surgical or Procedure Masks and Respirators Around Patients with Cough Illness

Influenza, pertussis and other diseases are transmitted via droplets produced by coughing. The following infection prevention guidelines are recommended when caring for anyone presenting with a cough illness. Clinicians or infection preventionists may recommend additional infection prevention measures if indicated by a specific patient or situation in the community.

Standard Precautions and Droplet Precautions should be used when caring for all patients with a cough illness.

Masks
A mask should fit snugly around the nose and mouth to prevent gaps, forcing air flow through the mask.

Standard Precautions
For complete guidelines visit: www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html.

Droplet Precautions
Health care providers should wear surgical or procedure masks when giving direct care to patients with a cough illness.

Specimen collection:
Use standard and droplet precautions for most specimen collection.

Aerosol-generating procedures (e.g. intubation, bronchoscopy, open-system respiratory suctions, resuscitation, autopsy, etc.)

- Particulate respirator (e.g. EU FFP2, USNIOSH-certified N-95)
- Eye protection
- A clean non-sterile, long sleeved gown
- Gloves (some of these procedures require sterile gloves)

Transport within healthcare facilities (for transport of patients with cough illness).

- Patient should wear a surgical or procedure mask when outside the patient's room.
- Encourage performance of hand hygiene frequently and follow respiratory hygiene and cough etiquette practices.

Transport between patient residence and healthcare facilities (for transport of patients with cough illness)

- Patient should wear a surgical or procedure mask when outside the patient's room.
- Transporters should wear a surgical or procedure mask whenever the patient is not masked.

Clinics, medical offices or other ambulatory care settings

- Patients with a cough illness in outpatient settings should be asked to wear a surgical or procedure mask until being examined in the exam room and again upon leaving the exam room.
- Staff who have close contact, including examining or providing direct patient care, should wear a surgical or procedure mask and put the mask on before entering the room.
- Staff should perform hand hygiene, and then put on mask followed by gloves. When patient care is complete, first remove gloves, then remove the mask, and lastly perform hand hygiene.

For additional information on Standard Precautions and Droplet Precautions, respiratory hygiene and cough etiquette go to www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html.

Revised 10/2013

Recommended Initial Followup Timelines for Infectious Diseases

Reportable disease	Clinical Diagnosis	Laboratory Criteria	Investigation Begins
Botulism, foodborne	Clinical symptoms include diplopia, blurred vision, and bulbar weakness. Symmetric paralysis that progresses rapidly & that can be linked to a potential food source in the previous 48 hours.	Detection of botulinum toxin in serum, stool, or patients food or isolation of *Clostridium botulinum* from stool	Immediate
Botulism, Infant	Characterized by constipation, poor feeding and "failure to thrive" that may be followed by progressive weakness, impaired respiration and death	Detection of botulinum toxin in stool or serum or isolation of *Clostridium botulinum* from stool	Immediate
Brucellosis	Clinical symptoms include fever, night sweats, undue fatigue, anorexia, weight loss, headache and arthralgia	Isolation of *Brucella* species from clinical specimen, or 4-fold or greater rise in *Brucella* titer > 2 weeks apart or demonstration by immunofluorescence of *Brucella* sp. in clinical specimen	24 hours
Diphtheria	Insidious onset, membranous pharyngitis with fever, enlarged anterior cervical lymph nodes, and edema of the surrounding soft tissue – "Bull Neck"	Isolation of *C. diphtheriae* from a clinical specimen, or Histopathologic diagnosis of diphtheria.	Immediate strict isolation
Encephalitis, arboviral	Clinical symptoms include febrile illness of variable severity associated with neurologic symptoms ranging from headache to aseptic meningitis or encephalitis.	4-fold or greater change in serum antibody titer, or isolation of virus form tissue, blood, CSF or other body fluid or specific IgM.	72 hours
Escherichia coli O157:H7	Clinical symptoms include diarrhea, often bloody and abdominal cramps, may be complicated by HUS or TTP, asymptomatic infection may also occur	Isolation of *E. coli* O157:H7 from a specimen or isolation of Shiga toxin-producing *E. coli* O157:NM from a clinical specimen	24 hours
Haemophilus Influenzae type B	Invasive disease caused by H. influenzae may produce any of several clinical syndromes, including meningitis, bacteremia, epiglottitis, or pneumonia.	Isolation of *H. influenzae* from a normally sterile site (e.g., blood or cerebrospinal fluid (CSF) or, less commonly, joint, pleural, or pericardial fluid)	48 hours
Hansen's Disease	Characterized by the involvement of primarily of skin as well as peripheral nerves and the mucosa of the upper airway.	Demonstration of AFB in skin or dermal nerve, obtained from full-thickness skin biopsy of a lepromatous lesion	5 days
Hantavirus syndromes	Characterized by bilateral interstitial pulmonary infiltrates and respiratory compromise usually requiring supplemental oxygen and clinically resembling ARDS.	Detection of hantavirus-specific IgM or rising titers of hantavirus-specific IgG, or detection of hantavirus-specific ribonucleic acid sequence by PCR in clinical specimens	5 days
Hepatitis A	Clinical symptoms include discrete onset of symptoms and Jaundice	Hepatitis A IgM antibody	Immediate
Hepatitis B	Clinical symptoms include discrete onset of symptoms and Jaundice	Hepatitis B core IgM antibody positive, or HBsAg positive	72 hours

Recommended Initial Followup Timelines for Infectious Diseases - cont

Legionellosis	Characterized by fever, myalgia, cough, pneumonia	Isolation of *legionella* from clinical specimen, 4-fold rise in titer against *L. pneumophila* serogroup 1, detection of *L. pneumophila* serogroup 1 in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody testing or , demonstration of *L. pneumophila* serogroup 1 antigens in urine by radioimmunoassay or enzyme-linked immunosorbent assay.	72 hours
Listeria monocytogenes invasive disease	Clinical symptoms include those of meningitis or bacteremia. Infection during pregnancy may result in fetal loss through miscarriage or stillbirth or neonatal meningitis or bacteremia.	Isolation of *L. monocytogenes* for a normally sterile site. Isolation of *L. monocytogenes* from placental or fetal tissue	48 hours
Lyme Disease	The best clinical marker for Lyme disease is the initial skin lesion-erythema migrans, late manifestations effect the musculoskeletal system, nervous system or cardiovascular system	Isolation of *Borrelia burgdorferi* from a clinical specimen, IgM antibodies to *Borrelia burgdorferi* in serum or CSF.	5 days
Malaria	Clinical symptoms include fever, headache along with various other symptoms including back pain, chills, sweats, nausea, vomiting, diarrhea and cough.	Demonstration of malaria parasites in blood films.	5 days
Measles	An illness characterized by all of the following: a generalized maculopapular rash lasting > 3 days; a temperature > 101ºF (38.3ºC); cough, coryza, or conjunctivitis	Positive serologic test for measles immunoglobulin M (IgM) antibody, or significant rise in measles antibody level by any standard serologic assay, or isolation of measles virus from a clinical specimen.	Immediate
Meningococcal invasive disease	Manifests most commonly as meningitis and/or meningococcemia.	Isolation of *Neisseria meningitidis* from normally sterile site.	Immediate
Mumps	An illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting >2 days, and without other apparent cause.	Isolation of mumps virus from clinical specimen, or significant rise between acute and convalescent-phase titers in serum mumps immunoglobulin G (IgG) antibody level by any standard serologic assay, or positive serologic test for mumps immunoglobulin M (IgM) antibody.	48 hours
Pertussis	A cough illness lasting at least 2 weeks with one of the following: paroxysms of coughing, inspiratory "whoop," or post-tussive vomiting, and without other apparent cause.	Isolation of *B. pertussis* from a clinical specimen, or positive polymerase chain (PCR) reaction assay for B. pertussis.	48 hours

Recommended Initial Followup Timelines for Infectious Diseases - cont

Polio	Acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss.	Poliovirus isolation is highest from stool specimens, intermediate from pharyngeal swabs, and very low from blood or spinal fluid. To increase the probability of poliovirus isolation, at least two stool specimens should be obtained 24 hours apart from patients with suspected poliomyelitis as early in the course of disease as possible (ideally within 15 days after onset).	48 hours
Psittacosis	Characterized by fever, chills, headache, photophobia, cough and myalgia	Isolation of *Chlamydia psittaci* from respiratory secretions, or 4-fold or greater rise in antibody titer against *C. psittaci*, or presence of IgM antibody against *C. psittaci*	24 hours
Rocky Mountain Spotted Fever	Characterized by acute onset of myalgia, headache, and petechial rash.	4-fold rise in titer to *Rickettsia rickettsii*, Positive PCR to *Rickettsia rickettsii,* demonstration of positive immunofluorescence of skin lesion or organ tissue, or isolation of *R. rickettsii* from clinical specimen.	5 days
Rubella	An illness that has all of the following characteristics: acute onset of generalized maculopapular rash; temperature >99ºF (37.2ºC), if measured; arthralgia/arthritis, lymphadenopathy, or conjunctivitis	Isolation of rubella virus, or significant rise between acute and convalescent-phase titers in serum rubella immunoglobulin G (IgG) antibody level by any standard serologic assay, or positive serologic test for rubella immunoglobulin M (IgM) antibody.	24 hours
Salmonellosis	Common symptoms include diarrhea, abdominal pain, nausea and sometimes vomiting, asymptomatic infections may occur.	Isolation of *Salmonnella* from clinical specimen.	24 hours
Shigellosis	Characterized by diarrhea, fever, nausea, cramps and tenesmus, asymptomatic infections may occur.	Isolation of *Shigella* from a clinical specimen.	24 hours
Tetanus	Acute onset of hypertonia and/or painful muscular contractions (usually of the muscles of the jaw and neck) and generalized muscle spasms without other apparent medical cause.	There are no laboratory findings characteristic of tetanus. The diagnosis is entirely clinical.	48 hours
Toxic Shock Syndrome	Fever > 102, diffuse macular erythroderma rash, BP < 90, and multisystem involvement.	May be negative or positive culture for *Staphylococcus aureus* or group A *Streptococcus* from a normally sterile site.	5 days
Trichinosis	Characterized by fever, myalgia, and periorbital edema	Demonstration of *Trichinella* larvae in tissue obtained by muscle biopsy, or positive serologic test for *Trichinella*	5 days
Tuberculosis	Positive TB skin test, prolonged cough, night sweats, and weight loss.	Isolation of *M. tuberculosis* from a clinical specimen.	48 hours

Iowa Department of Public Health Table of Reportable Communicable and Infectious Diseases

To report diseases immediately, use the 24/7 disease reporting telephone hotline: 1-800-362-2736

OUTBREAK REPORTING

IMMEDIATELY report to the department outbreaks of any kind, diseases that occur in unusual numbers or circumstances, unusual syndromes, or uncommon diseases. Outbreaks may be infectious, environmental or occupational in origin and include food-borne outbreaks or illness secondary to chemical exposure (e.g., pesticides, anhydrous ammonia).

BIOTERRORISM REPORTING

IMMEDIATELY report diseases, syndromes, poisonings and conditions of any kind suspected or caused by a biological, chemical, or radiological agent or toxin when there is reasonable suspicion that the disease, syndrome, poisoning or condition may be the result of a deliberate act such as terrorism. Examples of these include (but are not limited to) anthrax, mustard gas, sarin gas, ricin, tularemia and small pox.

Report cases of the diseases listed in the following table to the department within the time frame specified in the *When to Report* column and by the reporting method in the *How to Report* column.

Disease	When to Report	How to Report
Acquired immune deficiency syndrome (AIDS) and AIDS-defining conditions	7 days	Report by mail • Health care providers: Use the Pediatric or Adult Confidential Case Report form • Laboratories: Send copy of lab report or the Iowa Confidential Report of Sexually Transmitted Disease & HIV Infection • Mark envelope “Attention 03”
Anthrax	1 day	Phone, IDSS, or fax
Arboviral disease (includes West Nile Disease, St. Louis, LaCrosse, WEE, EEE, VEE encephalitis)	3 days	Phone, IDSS, fax or mail
Botulism	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Brucellosis (*Brucella*)	3 days	Phone, IDSS, fax or mail
Campylobacteriosis (*Campylobacter*)	3 days	Phone, IDSS, fax or mail
Chlamydia	3 days	Report by mail • Health care providers: Use the Iowa Confidential Report of Sexually Transmitted Disease and HIV Infection • Laboratories: Use the Laboratory Report of Tests Processed for STD • Mark envelope “Attention 00”
Cholera	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Cryptosporidiosis	3 days	Phone, IDSS, fax or mail
Cyclospora	3 days	Phone, IDSS, fax or mail
Diphtheria	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Enterococcus invasive disease	3 days	Laboratories: Send isolate to the University Hygienic Laboratory
Escherichia coli shiga toxin-producing and related diseases (includes HUS and TTP)	3 days	Phone, IDSS, fax or mail Laboratories: Send isolate to the University Hygienic Laboratory
Giardiasis (*Giardia*)	3 days	Phone, IDSS, fax or mail
Gonorrhea	3 days	Report by mail • Health care providers: Use the Iowa Confidential Report of Sexually Transmitted Disease and HIV Infection • Laboratories: Use the Laboratory Report of Tests Processed for STD • Mark envelope “Attention 00”
Group A Streptococcus invasive disease	3 days	Send isolate to the University Hygienic Laboratory
Haemophilus influenzae type B invasive disease	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736 Laboratories: Send isolate to the University Hygienic Laboratory
Hansen’s disease (leprosy)	3 days	Phone, IDSS, fax or mail
Hantavirus syndromes	3 days	Phone, IDSS, fax or mail
Hepatitis A	1 day	Phone, IDSS or fax
Hepatitis B, C, D, E	3 days	Phone, IDSS, fax or mail
Human immunodeficiency virus (HIV) cases Death of a person with HIV Perinatally exposed newborn and child (newborn and child who was born to an HIV-infected mother)	7 days	Report by mail • Health care providers: Use the Pediatric or Adult Confidential Case Report Form • Laboratories: Send copy of lab report or the Iowa Confidential Report of Sexually Transmitted Disease & HIV Infection • Mark envelope “Attention 03”
Legionellosis (*Legionellae*)	3 days	Phone, IDSS, fax or mail
Listeria monocytogenes invasive disease	1 day	Phone, IDSS, or fax – Laboratories: Send isolate to the University Hygienic Laboratory
Lyme disease	3 days	Phone, IDSS, fax or mail
Malaria	3 days	Phone, IDSS, fax or mail
Measles (rubeola)	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Meningococcal invasive disease	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736 Laboratories: Send isolate to the University Hygienic Laboratory
Mumps	3 days	Phone, IDSS, fax or mail
Pertussis	3 days	Phone, IDSS, fax or mail
Plague	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Poliomyelitis	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Psittacosis	3 days	Phone, IDSS, fax or mail
Rabies, animal	3 days	Phone, IDSS, fax or mail

Rabies, human	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Rocky Mountain spotted fever	3 days	Phone, IDSS, fax or mail
Rubella (including congenital)	1 day	Phone, IDSS, fax or mail
Salmonellosis (*Salmonella*)	3 days	Phone, IDSS, fax or mail Laboratories: Send isolate to the University Hygienic Laboratory
Severe acute respiratory syndrome (SARS)	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Shigellosis (*Shigella*)	3 days	Phone, IDSS, fax or mail Laboratories: Send isolate to the University Hygienic Laboratory
Smallpox	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Staphylococcus aureus:		
Invasive disease	Quarterly	Laboratories: Mail the number of isolates to University Hygienic Laboratory
Methicillin-resistant, invasive disease	3 days	Laboratories: Send isolates to University Hygienic Laboratory
Vancomycin-resistant S. aureus	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
	24 hours	Laboratories: Send isolates to University Hygienic Laboratory
Streptococcus pneumoniae invasive disease	3 days	Laboratories: Send isolate to the University Hygienic Laboratory
Syphilis	3 days	Report by mail • Health care providers: Use the Iowa Confidential Report of Sexually Transmitted Disease and HIV Infection • Laboratories: Use the Laboratory Report of Tests Processed for STD • Mark envelope "Attention 00"
Tetanus	3 days	Phone, IDSS, fax or mail
Toxic Shock Syndrome	3 days	Phone, IDSS, fax or mail
Trichinosis	3 days	Phone, IDSS, fax or mail
Tuberculosis		
Pulmonary and laryngeal (infectious)	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Extra-pulmonary	3 days	Phone, IDSS, fax or mail
Typhoid fever	1 day	Phone, IDSS or fax
Viral hemorrhagic fever (VHF) (e.g., Lassa, Marburg, Ebola, Crimean-Congo, South American)	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736
Yellow Fever	**Immediately**	24/7 disease reporting telephone hotline: 800-362-2736

Reporting of the above diseases is required by Iowa Administrative Code [641] Chapter 1

Iowa Department of Public Health/Center for Acute Disease Epidemiology
Lucas State Office Building, 321 E. 12th Street Des Moines, Iowa 50319-0075 Phone- 800-362-2736 Secure fax- 515-281-5698

Iowa Disease Surveillance System (IDSS) related questions, call the Center for Acute Disease Epidemiology (CADE) at 1-800-362-2736
STD questions- call 515 281-3031….HIV/AIDS questions- call 515-242-5141
Immunization questions- call 515-281-4938……TB questions- call 515 281-7504
Specimen submission questions –call the University Hygienic Laboratory 319-335-4500 or go to http://www.uhl.uiowa.edu/

Reporting forms may be obtained from the Clearing house at: http://www.drugfreeinfo.org/state/cart.php

Visit our web site at http://www.idph.state.ia.us

IDPH
Iowa Department of Public Health

Revised Dec 2009

POISONING OR CONDITION	CASES TO REPORT	WHEN TO REPORT	HOW TO REPORT
Agricultural related injury	A non-household injury to a farmer, farm worker, farm family member, or other individual, which occurred on a farm, or in the course of handling, producing, processing, transporting or warehousing farm commodities	Quarterly (recommend weekly)	Routine reporting See EH Div Web page Trauma Registry Users, see EMS Web page.
Arsenic poisoning	Blood arsenic values equal to or greater than 70 µg/L Urine arsenic values equal to or greater than 100 µg/L of urinary creatinine	Weekly	Routine reporting See EH Div Web page
Blood lead testing	All analytical results greater than or equal to 20 micrograms per deciliter (µg/dL) in a child under the age of 6 years or a pregnant woman	Daily	Phone: 800-972-2026
	All other analytical values for all blood lead analyses	Weekly	Electronic format specified by the department
Cadmium poisoning	Blood cadmium values equal to or greater than 5 µg/L Urine cadmium values equal to or greater than 3 µg/g	Weekly	Routine reporting See EH Div Web page
Carbon monoxide (CO) poisoning	Blood carbon monoxide level equal to or greater than 10% carboxyhemoglobin or its equivalent with a breath analyzer test, or a clinical diagnosis of CO poisoning regardless of any test result	Daily	Phone: 800-972-2026 See EH Div Web page Or: Iowa Statewide Poison Control Center 800-222-1222 for 24 hour consultation followed by fax to IDPH EH.
Hypersensitivity pneumonitis	A disease in which the air sacs (alveoli) of the lungs become inflamed when certain dusts are inhaled to which the person is sensitized or allergic. Includes but is not limited to farmer's lung, silo filler's disease, and toxic organic dust syndrome.	Weekly	Routine reporting See EH Div Web page
Mercury poisoning	Blood mercury values equal to or greater than 2.8 µg/dL Urine mercury values equal to or greater than 20 µg/L	Weekly	Routine reporting See EH Div Web page
Methemoglobinemia	Blood analyses showing greater than 5% of total hemoglobin present as methemoglobin	Weekly (recommend immediate)	Routine reporting See EH Div Web page
Microcystin (Blue-green algal) poisoning*	Gastrointestinal symptoms, respiratory symptoms, dermal symptoms or elevated serum GGT (gamma glutamyl transpeptidase) and a history of exposure within the past seven days to water testing positive for microcystin	Daily from May 1 to Oct. 31	Phone: 800-972-2026
Non-communicable respiratory illness	An illness indicating prolonged exposure or overexposure to asbestos, silica, silicates, aluminum, graphite, bauxite, beryllium, cotton dust or other textile material, or coal dust. Includes, but is not limited to asbestosis, coal worker's pneumoconiosis, and silicosis.	Weekly	Routine reporting See EH Div Web page

POISONING OR CONDITION	CASES TO REPORT	WHEN TO REPORT	HOW TO REPORT
Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction	Any extrinsic asthma or acute chemical pneumonitis due to exposure to toxic agents in the workplace. (ICD-10 codes J67.0 to J67.9) All cases of occupationally induced or exacerbated asthma.	Weekly	Routine reporting See EH Div Web page
Pesticide poisoning	Any acute or subacute systemic, ophthalmologic, or dermatologic illness or injury resulting from or suspected of resulting from inhalation or ingestion of, dermal exposure to, or ocular contact with a pesticide. Laboratory confirmation is not required.	Weekly	Iowa Poison Control Center 800-222-1222 for 24 hour consultation. See EH Div Web page
Severe skin disorder	Dermatoses, burns, and other severe skin disorders which result in death or which require hospitalization or other multiple courses of medical therapy.	Weekly	Routine reporting See EH Div Web page
Traumatic Spinal Cord Injury (TSCI)	An acute, traumatic lesion of the neural elements in the spinal canal, resulting in any degree of sensory deficit, motor deficit, or bladder/bowel dysfunction. The deficit can be temporary, permanent, or result in death. The lesion can occur at any level of the spinal cord and may be complete or incomplete. Spinal cord injuries include: cauda equina, conus medullaris injuries, central cord syndrome, anterior cord syndrome, posterior cord syndrome, Brown-Sequard syndrome, mixed syndrome, and cord compression. Patients presenting neurological symptoms upon admission which resolve before hospital discharge should also be reported.	Quarterly	See Bureau of EMS Web page
Toxic hepatitis	Any acute or subacute necrosis of the liver or other unspecified chemical hepatitis caused by exposure to nonmedicinal toxic agents other than ethyl alcohol including, but not limited to, carbon tetrachloride, chloroform, tetrachloroethane, trichloroethylene, phosphorus, trinitrotoluene (TNT), chloronapthalenes, methylenedianilines, ethylene dibromide, and organicsolvents. (ICD-10 codes K71.0 to K71.9)	Weekly	Routine reporting See EH Div Web page
Traumatic Brain Injury (TBI)	Clinically evident brain damage resulting from trauma or anoxia which temporarily or permanently impairs a person's physical or cognitive functions". The injury may be a penetrating or closed head injury resulting in death, or temporary or permanent impairment. Persons with brain injuries may display loss of consciousness, post-traumatic amnesia, a skull fracture, or damage to brain tissue as evidenced by neurological findings that can be reasonably attributed to a traumatic brain injury.	Quarterly	See Bureau of EMS Web page

*The Director of IDPH has temporarily designated suspected or confirmed cases of exposure to microcystin as a reportable disease.

Reporting of the above diseases is required by Iowa Administrative Code [641] Chapter 1.Chart Revised April 2010.
Visit our web site at http://www.idph.state.ia.us
Iowa Department of Public Health, Lucas State Office Building, 321 E. 12th Street Des Moines, Iowa 50319-0075

Lead Poison

As lead-based paint deteriorates, paint chips crumble, becoming part of the dust in the house and contaminating the soil around the house. Children become poisoned though ingestion.

Approximately 10% of all Iowa's children have lead poisoning. This is more than 4 times the national average. The most common exposure to lead is from lead-based paint in homes built before 1950. Recently, some ethnic remedies, produced in other countries, were found to contain high levels of lead and have poisoned several children in Iowa..

Environmental Disease

Contact Information for Environmental/Occupational Reportable Diseases

Division of Environmental Health

Report by IDSS, phone, fax, or mail using the disease specific forms found at www.idph.state.ia.us/EH/default.asp	**Report by phone, fax, or mail using the Environmental and Occupational Report Form**
Arsenic Poisoning Cadmium Poisoning Carbon Monoxide Poisoning Methemoglobinemia Mercury Poisoning	Hypersensitivity pneumonitis Non-communicable respiratory illness Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction Pesticide poisoning Severe skin disorder Toxic hepatitis
Medical Providers report by fax or mail using the Farm Injury Report Form **OR** **Trauma Sites report using the Iowa Trauma Registry (Bureau of EMS)**	**Report electronically:** Lead poisoning (child or adult) (If ≥ 20 µg/dL report by phone)
Agricultural related injury	**Report by phone:** Microcystin (Blue-green algal) poisoning

Contact information:	
Phone (Mon-Fri 8 am-4:30 pm):	800-972-2026
Fax:	515-281-4529
Address:	Iowa Department of Public Health Division of Environmental Health Lucas State Office Building 321 E. 12th Street Des Moines, Iowa 50319-0075
24-hour Disease Reporting Hotline: (For use outside of EH office hours)	800-362-2736

Bureau of Emergency Medical Services

Report by phone, fax, or mail using the Brain and Spinal Cord Injury Report Form found at www.idph.state.ia.us/ems/data.asp
Traumatic brain injury (TBI) Traumatic Spinal Cord Injury (SCI)

Contact information:	
Fax:	515-281- 0488
Address:	Iowa Department of Public Health Bureau of EMS Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075

ARSENIC POISONING

1. The Disease Definition

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton plants.

A. Clinical Description

Breathing high levels of inorganic arsenic can cause a sore throat or irritated lungs. Ingesting high levels of inorganic arsenic can result in death. Low levels of arsenic ingestion can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso. Skin contact with inorganic arsenic may cause redness and swelling.

Organic arsenic compounds are less toxic than inorganic arsenic compounds. Exposure to high levels of some organic arsenic compounds may cause effects similar to those of inorganic arsenic. Several studies have shown that inorganic arsenic can increase the risk of cancers of the lung, skin, bladder, liver, kidney, and prostate. The World Health Organization (WHO), the U.S. Department of Health and Human Services (DHHS), and the U.S. Environmental Protection Agency (EPA) have determined that inorganic arsenic is a human carcinogen.

Chronic exposure to arsenic can lead to whitish lines (Mees lines) on the fingernails, dermatitis, mild pigmentation keratosis of the skin, vasospasticity, gross pigmentation with hyperkeratinization of exposed areas, wart formation, decreased nerve conduction velocity, and lung cancer. Acute exposures can cause lung distress and death. The breath and tissue fluids of patients exposed to arsenic frequently smell like garlic.

B. Sources of Exposure

Arsenic exposure can occur through inhalation, ingestion, or dermal or eye contact. Historically, arsenic was used to treat syphilis and other diseases. The use of arsenic as a pesticide began in the late nineteenth century. Though the majority of arsenic-based pesticides are no longer used in agriculture or horticulture in the U.S., arsenic-based wood preservatives are still used in nonresidential construction. (EPA banned residential uses of arsenic-based wood preservatives in 2004). Today arsenic poisoning occurs through workplace exposure, from contaminated wine, moonshine or other products, or because of malicious intent. In some areas, arsenic can leach from bedrock to contaminate ground water and wells. There have been sporadic incidents of heavy metal contamination of unregulated herbal preparations and nutritional supplements. People who utilize complementary and alternative medicine (CAM) may have an increased risk of exposure to a variety of toxic substances including arsenic, especially when using products that are manufactured outside of the USA.

C. Population at Risk

Workers in industries that use inorganic arsenic and its compounds, including wood preservation, glass production, the production of nonferrous metal alloys, and electronic semiconductor manufacturing, that use inorganic arsenic and its compounds are at the highest risk for exposure to arsenic. Inorganic arsenic is also found in coke oven emissions associated with the smelter industry (arsenic is a byproduct of smelting lead, gold, zinc, cobalt, and nickel ores). Occupational exposure to arsenic hazards are addressed in specific OSHA (Occupational Safety and Health Administration) standards for general

industry, shipyard employment, and the construction industry. More information is available at www.osha.gov/SLTC/arsenic/.

The general population may be exposed if they live in areas where arsenic contaminates ground water or wells. Wooden decks and play areas constructed out of wood treated with arsenic-based wood preservatives prior to 2004 have been shown to increase the risk of exposure through contamination of the surrounding soil, direct contact, or during renovation or repair. Soil contamination may also be a risk in areas where arsenic-containing pesticides or industrial products were formerly utilized.

According to the American Association of Poison Control Centers' (AAPCC) National Poison Data System (NPDS), 864 non–pesticide-related arsenic exposures with no fatalities, and 67 arsenic-containing pesticide exposures with no fatalities, were reported in the United States during 2011.

D. Diagnosis, Treatment, and Prognosis

Absorbed arsenic is rapidly distributed into tissue storage sites with a blood half-life of <6 hours. There are tests to measure the level of arsenic in blood, urine, hair, or fingernails. These tests can determine exposure to above-average levels of arsenic. Test results alone cannot predict how the arsenic levels will affect health.

Normally, humans consume 5 to 25 micrograms (mcg) of arsenic each day as part of their normal diet; therefore, normal urine arsenic output is <25 mcg/L for a 24 hour urine sample. After a seafood meal (seafood contains a nontoxic, organic form of arsenic), the urine output of arsenic may increase to 300 mcg/L (micrograms per liter) for 1 day, after which it will decline to <25 mcg/L.

Arsenic testing using a urine test is the most reliable for acute and chronic arsenic exposure. Testing can be done on random (spot) urine samples or by utilizing a twenty-four hour collection technique. Testing protocols, reporting units, and reference values vary, so refer to your reference laboratory.

Acute exposure: Due to the short half-life of arsenic in the blood, urine is the preferred specimen for detection of exposure. Elevated urine results should be fractionated to differentiate between toxic inorganic forms and relatively nontoxic organic forms. When investigating very recent exposure (<24 hours) blood testing may be helpful. In patients with acute arsenic poisoning, blood arsenic concentrations commonly range from several hundred to several thousand µg/L. Blood arsenic levels may be reported as micrograms per liter (µg/L) or nanograms per milliliter (ng/ml), which are equivalent to each other. Unless a blood specimen is drawn within 2 days of exposure, arsenic is not likely to be detected in a blood specimen, so blood arsenic testing is not useful for evaluation of chronic arsenic exposure.

Chronic exposure or screening: The Biological Exposure Index (BEI) established by the American Conference of Governmental Industrial Hygienists (ACGIH) for the sum of inorganic arsenic and methylated metabolites of arsenic is 35 µg/L (micrograms per liter). Clinical symptoms may not be evident at 35 µg/L; toxic thresholds are not well established. For specimens with a total concentration between 35-2,000 µg/L, fractionation is recommended to determine proportion of organic, inorganic, and methylated forms. If low-level chronic poisoning is suspected, the µg/gCRT ratio (micrograms per gram of creatinine) may be more sensitive than total arsenic concentration. In some situations, it may be appropriate to fractionate specimens with a ratio >30 µg/gCRT despite a total arsenic concentration <35 µg/L.

Chronic or past exposures (>3 weeks): Analysis of hair or nails is most useful in determining time of exposure. Tests on hair and fingernails can measure exposure to high levels of arsenic over the previous 6 to 12 months.

Pre-hospital care consists of providing support to the airway, breathing, and circulation. Hemodynamic stabilization is of primary importance in emergency-room treatment, and large amounts of crystalloid solutions may be required because of vomiting and diarrhea. Treatment of acute arsenic toxicity is supportive. Chelation therapy is imperative in all patients who are symptomatic. Once arsenic is distributed into the tissues, treatment may be unsuccessful. Clinical trials are not available, but it makes some sense to attempt to remove arsenic from the plasma before it reaches the tissues. Because the clearance of arsenic by dialysis is substantial, hemodialysis may be indicated if available within a short time after exposure.

Perform a careful neurological evaluation in follow-up of all patients because the peripheral neuropathy, which may develop after an acute exposure, may not appear for 2-3 weeks. A complete work and travel history and environmental assessment are helpful

Worker medical monitoring information can be found on the OSHA website at www.osha.gov/SLTC/arsenic/.

E. Prevention of Exposure

Controlling occupational arsenic exposure is best accomplished through substituting it with a non-toxic chemical, depending on the application. If this cannot be done, engineering, administrative, and personal protective equipment (PPE) including protective clothing should be used.

Individuals living in areas known to have groundwater arsenic exposure should check with their local public health department for more information regarding well water testing.

Consumers of complementary and alternative medicine supplements, especially those manufactured outside of the USA should discuss their risk of exposure to heavy metals and other toxins with their medical practitioners to determine the need for testing or intervention. An FDA fact sheet is available at www.fda.gov/downloads/ForConsumers/ConsumerUpdates/ucm050819.pdf.

2. Reporting Criteria

A. Disease Reporting

Arsenic poisoning is currently reportable if:

- Blood arsenic values are equal to or greater than the equivalent of 70 micrograms per liter (µg/L or mcg/L).
- Urine arsenic values for spot or random urine samples are equal to or greater than the equivalent of 100 microgram per gram of creatinine (mcg/gCrt)

Arsenic poisonings must be reported within a week to the Iowa Department of Public Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Reporting can be through the Iowa Disease Surveillance System (IDSS), or by phone, fax, or mail. The preferred reporting method is through IDSS. To report via phone, fax or mail, please use the contact information and Arsenic Case Report Form available in the Epi Manual and online at www.idph.state.ia.us/eh/reportable_diseases.asp.

Arsenic

Agency: ______

Investigator: ______ Phone number: ______

STATE ONLY — Status: ☐ Confirmed ☐ Probable ☐ Suspect ☐ Not a case ☐ Exposure
Reviewer initials:
Referred to another state:

CASE

Last name: ______ Date of Birth: / / Estimated? ☐ Age:

First and middle name: ______

Gender: ☐ Female ☐ Male ☐ Other ____

Maiden name: ______ Suffix: ______

Pregnant: ☐ Yes ☐ No ☐ Unk Est. delivery date: / /

Address line: ______

Marital status: ☐ Single ☐ Married ☐ Separated ☐ Divorced ☐ Parent with partner ☐ Widowed

Zip: ______ City: ______

Race: ☐ American Indian or Alaskan Native ☐ Unknown ☐ Black or African American ☐ White ☐ Hawaiian or Pacific Islander ☐ Asian

State: ______ County: ______

Phone: ( )- - Type: ______

Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Unknown

Long-term care resident: ☐ Yes ☐ No ☐ Unknown

Parent/Guardian name: ______

Facility name: ______

Parent/Guardian phone: ( )- - Type: ______

EVENT

Diagnosis date: / / Onset date: / /

Event outcome: ☐ Survived this illness ☐ Died from this illness ☐ Died unrelated to this illness ☐ Unknown

Outbreak related: ☐ Yes ☐ No ☐ Unknown

Outbreak name: ______

Exposure setting: ______

Epi-linked: ☐ Yes ☐ No ☐ Unk To whom: ______

Location acquired: ☐ In USA, in reporting state ☐ In USA, outside reporting state ☐ Outside USA ☐ Unknown

State: ______ Country: ______

Healthcare provider information

Last name: ______

First name: ______

Provider title: ☐ ARNP ☐ MD ☐ DO ☐ NP ☐ PA

Facility name: ______

Address line 1: ______

Address line 2: ______

Zip code: ______ City: ______

State: ______ County: ______

Phone : ( )- - Type: ______

LABORATORY FINDINGS

Laboratory: ______ Accession #: ______ Collection date: / /

Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final

Test Type: ______ Test Result: ______

Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ______ Accession #: ______ Collection date: / /

Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final

Test Type: ______ Test Result: ______

Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ______ Accession #: ______ Collection date: / /

Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final

Test Type: ______ Test Result: ______

Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

OCCUPATIONS

Is the case employed, enrolled in school, or attending a child care facility? Interpret 'occupation' very loosely and consider every person to have at least one 'occupation'
(Complete the following sections for each known occupation)

Occupation #1:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend school:	☐ Yes ☐ No ☐ Unknown						
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

Occupation #2:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend school:	☐ Yes ☐ No ☐ Unknown						
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

HOSPITALIZATIONS

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown

Hospital: _____ Isolated at entry: ☐ Yes ☐ No ☐ Unk Isolation type (entry): _____

Admission date: / / Discharge date: / / Days hospitalized: _____

Currently isolated: ☐ Yes ☐ No ☐ Unk Current isolation type:

CLINICAL INFO & DIAGNOSIS

Reporting source: ☐ **Laboratory** ☐**Physician** ☐**Poison Control** ☐**Self diagnosis**

List any pre-existing medical conditions: _____

Symptoms

Symptoms:

☐ Abdominal pain	☐Cognitive impairment	☐Hyperkeratosis of the skin	☐Hyperpigmentation of the fingernails	☐Numbness	☐Skin redness or swelling
☐Anemia	☐Confusion	☐Fever	☐Hypotension	☐Pins & needles sensation	☐Sore throat
☐Bladder cancer	☐Convulsion	☐Garlic odor on breath	☐Light-headedness	☐Psychological disturbances	☐Thickened skin on palms
☐Burning pain or sensation	☐Dehydration	☐Gastrointestinal disturbances	☐Liver failure	☐Pulmonary edema	☐Throat constriction
☐Carcinoma: skin, tracheal, bronchogenic	☐Delirium	☐Headache	☐Lung irritation	☐Renal failure	☐Vomiting
☐Chills	☐Diarrhea	☐Heart arrhythmia	☐Mee's lines (nail discoloration)	☐Seizures	☐Weakness
	☐Drowsiness	☐Hepatic hemangiosarcoma	☐Muscle aches	☐Shock	☐ Other:
	☐Dysphagia		☐Nausea	☐Skin lesions on palms, soles, or torso	

Health Impact: ☐ Fatal ☐Non-fatal	Was educational information provided? ☐ Yes ☐ No ☐ Unknown
What was the time missed from work/school or daily activities?	☐ < 24 hours ☐1-2 days ☐3-5 days ☐1-2 weeks ☐2-3 weeks ☐> 3 weeks ☐> 1 month ☐ > 2 months ☐ > 3 months ☐> 6 months ☐> 1 year
Current smoker? ☐ Yes ☐ No ☐ Unknown	If no, did you smoke in the past? ☐ Yes ☐ No ☐ Unknown — If yes, date quit: / /
What resources were used by the patient? ☐None known ☐Treated on site ☐Work clinic or nurse ☐911 Call ☐Poison Control Call ☐ED Only ☐Visit to Physician/med provider ☐Hospitalization	

TREATMENT

What was the treatment level? ☐ None given or recommended ☐ Self ☐ED ☐Patient refused
☐ Recommended – not done ☐Outpatient ☐ Inpatient

EXPOSURES

Has the case been exposed to any of the following in the last 60 days? ☐ Yes ☐ No ☐Unknown

Complete an exposure table for each known exposure. *Attach additional information if necessary.*

Exposure List			
	Alcohol, homemade or illegal Battery recycling Chemical Processing Cigarette or tobacco smoke Coal-burning Computer circuit board manufacturing Contaminated air, soil, dust, water, food or drink Dental medicine	Electronic or appliance recycling Emergency response Fossil fuels Glass manufacturing Industrial processing Laboratories Medical facilities	Metal Processing Military arsenal work Mining Pesticides Smelter Waste incinerators Wood preservatives

Exposure #1			
	Exposure Date: / /		Exposure Time:
Location ☐ Home ☐ Work ☐ Farm, ranch, acreage ☐ Orchard or Garden ☐ Community Building ☐ Community Outdoor Site or Recreation ☐ Travel out of area ☐ Commercial Building ☐ Unknown	Name of Location:		
	Address:		
	Zip code:		Phone: - -
	Travel location:		
	Travel departure:	/ /	Travel return: / /

Reason for exposure:
☐Hobby or small market work
☐Work exposure
☐Secondary Work Exposure (Take home poisoning)
☐Volunteer or unpaid work
☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
☐Self-employed
☐Employed by other

Work Category
☐Agriculture, Forestry, Fishing and Hunting
☐Mining, Quarrying, and Oil and Gas Extraction
☐Utilities
☐Construction
☐Manufacturing
☐Wholesale Trade
☐Retail Trade
☐Transportation and Warehousing
☐Information sector
☐Finance and Insurance
☐Real Estate and Rental and Leasing
☐Professional, Scientific, and Technical
☐Management of Companies and Enterprises
☐Administrative and Support and Waste
☐Management and Remediation Services
☐Educational Services
☐Health Care and Social Assistance
☐Arts, Entertainment, and Recreation
☐Accommodation and Food Services
☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #2

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #3

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Does the case have a drinking water exposure? ☐ Yes ☐ No ☐Unknown

For each drinking water exposure, complete a drinking water exposure table. Attach additional information if necessary.

Drinking water exposure #1

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing?
_____

If municipal, rural, or bottled, what is the name of the provider?
_____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Drinking water exposure #2

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing?
_____

If municipal, rural, or bottled, what is the name of the provider?
_____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Fish Consumption

Did the case eat fish, shellfish or seafood in the past two weeks? ☐ Yes ☐ No ☐Unknown

If yes, how much fish did the case eat?
☐ Less than one serving per week
☐ 1 to 3 servings per week
☐ 4-6 servings per week
☐ 7 or more servings per week

Where did the fish come from?
☐Caught by self, family, friend
☐Store bought
☐School
☐Community Gathering
☐Work
☐Restaurant

In the last two weeks has the case taken:

Over the counter medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Prescription medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Nutritional supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Herbal supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Homeopathic medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Illicit drugs? ☐ Yes ☐ No ☐Unknown If yes, list: _____

FOR FINAL DETERMINATION ONLY:

Based on this investigation what was the primary determination for the source of the exposure?

☐Alcohol, homemade or illegal	☐Electronic or appliance recycling	☐Metal Processing
☐Battery recycling	☐Emergency response	☐Military arsenal work
☐Chemical Processing	☐Fossil fuels	☐Mining
☐Cigarette or tobacco smoke	☐Glass manufacturing	☐Pesticides
☐Coal-burning	☐Industrial processing	☐Smelter
☐Computer circuit board manufacturing	☐Laboratories	☐Waste incinerators
☐Contaminated air, soil, dust, water, food or drink	☐Medical facilities	☐Wood preservatives
☐Dental medicine		

Secondary source (if applicable):

☐Alcohol, homemade or illegal	☐Electronic or appliance recycling	☐Metal Processing
☐Battery recycling	☐Emergency response	☐Military arsenal work
☐Chemical Processing	☐Fossil fuels	☐Mining
☐Cigarette or tobacco smoke	☐Glass manufacturing	☐Pesticides
☐Coal-burning	☐Industrial processing	☐Smelter
☐Computer circuit board manufacturing	☐Laboratories	☐Waste incinerators
☐Contaminated air, soil, dust, water, food or drink	☐Medical facilities	☐Wood preservatives
☐Dental medicine		

Was the exposure associated with an incident or natural disaster? ☐ Yes ☐ No ☐Unknown

ADDITIONAL LABORATORY INFORMATION

ADDITIONAL LAB #1

Test Name

☐Arsenic (Ar) Urine (24 hr) ☐Arsenic (Ar) Fractionation ☐Inorganic Ar ☐Creatinine (Cr or Crt) concentration
☐Arsenic (Ar)Urine (Spot/random) ☐Arsenic (Ar) urine ☐Methylarsenic acid (MMA) ☐Heavy Metal Panel
☐Arsenic Blood ☐Organic Ar ☐Dimethylarsenic acid (DMA) ☐Total Volume

Date reported to IDPH: / / Collection date: / / Collection time: _____

Numeric result: _____

Result unit:

☐ug/L , mcg/L, micrograms per liter
☐mg/dL, milligrams per deciliter
☐ug/g Cr or mcg/g Cr, micrograms per gram
☐creatinine ratio
☐ug/d, mcg/d, micrograms per day
☐spot or random
☐ug/24 hr, mcg/24 hr, micrograms per 24 hours
☐mL or milliliters
☐hours
☐% or percent
☐24 hr

Result:
☐Low (L)
☐High (H)
☐*
☐See comment

LABORATORY COMMENTS:

ADDITIONAL LAB #2

Test Name

☐Arsenic (Ar) Urine (24 hr) ☐Arsenic (Ar) Fractionation ☐Inorganic Ar ☐Creatinine (Cr or Crt) concentration
☐Arsenic (Ar)Urine (Spot/random) ☐Arsenic (Ar) urine ☐Methylarsenic acid (MMA) ☐Heavy Metal Panel
☐Arsenic Blood ☐Organic Ar ☐Dimethylarsenic acid (DMA) ☐Total Volume

Date reported to IDPH: / / Collection date: / / Collection time: _____

Numeric result: _____

Result unit:

☐ug/L , mcg/L, micrograms per liter
☐mg/dL, milligrams per deciliter
☐ug/g Cr or mcg/g Cr, micrograms per gram
☐creatinine ratio
☐ug/d, mcg/d, micrograms per day
☐spot or random
☐ug/24 hr, mcg/24 hr, micrograms per 24 hours
☐mL or milliliters
☐hours
☐% or percent
☐24 hr

Result:
☐Low (L)
☐High (H)
☐*
☐See comment

LABORATORY COMMENTS:

NOTES:

ASBESTOSIS

Responsibilities:
Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the IDPH Division of Environmental Health:
Iowa Department of Public Health
Division of Environmental Health
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1. The Disease Definition

A. Clinical Description
Asbestosis is widespread scarring of lung tissue caused by breathing asbestos dust. Asbestos can cause serious disease when inhaled over a long period. Minute asbestos fibers are taken up by the lung cells. Unlike many ordinary dust particles, they cannot be removed by the lung. Because the fibers are small, thin, and narrow, they can penetrate the deepest lung tissues, where they remain permanently. Continued exposure can increase the amount of fibers that remain in the lung, causing one of several diseases to develop even two to three decades after exposure. These diseases include asbestosis, lung cancer, mesothelioma, and some less common conditions. Asbestosis is the most common form of asbestos-related lung disease. Smoking increases the risk of developing illness from asbestos exposure.

Signs and Symptoms of Asbestosis
- Shortness of breath.
- A persistent and productive cough (a cough that expels mucus).
- Chest tightness.
- Chest pain.
- Loss of appetite.
- A dry, crackling sound in the lungs while inhaling.

Symptoms of asbestosis appear gradually only after large areas of the lung become scarred. The scarring causes the lungs to lose their elasticity. The first symptoms are a mild shortness of breath and a decreased ability to exercise. Smokers who have chronic bronchitis along with asbestosis may cough and wheeze. Gradually, breathing becomes more and more difficult. In about 15% of people with asbestosis, severe shortness of breath and respiratory failure develop.

People with a noncancerous asbestos effusion may have difficulty breathing because of fluid accumulation. Pleural plaques cause only mild breathing difficulty resulting from stiffness of the chest wall. Mesothelioma is a form of cancer caused by exposure to asbestos. Persistent pain in the chest and shortness of breath are the most common symptoms of mesothelioma.

B. Sources of Exposure

The term "asbestos" is a generic name given to a fibrous variety of six naturally occurring minerals that have been used for decades in thousands of commercial products. Asbestos is a commercial name given to a group of minerals that possess high tensile strength, flexibility, resistance to chemical and thermal degradation, and electrical resistance. These minerals have been used in many products, including insulation and fireproofing materials, automotive brakes and textile products, and cement and wallboard materials.

Asbestos has over 3,000 uses, including insulation for boilers and pipes, automobile brake linings, and, until recently, insulating hair dryers. An estimated 30 million tons have been used in the United States since 1900. Most products made today do not contain asbestos. Those few products made which still contain asbestos that could be inhaled are required to be labeled as such. However, until the 1970s, many types of building products and insulation materials used in homes contained asbestos. Refer to the EPA Asbestos website listed under references for more information.

Naturally occurring asbestos (NOA) includes fibrous minerals found in certain types of rock formations. NOA can take the form of long, thin, separable fibers. Natural weathering or human disturbance can break NOA down to microscopic fibers, easily suspended in air. There is no health threat if NOA remains undisturbed and does not become airborne. Covering NOA with clean soil or planting grass reduces exposure.

C. Population at Risk

Asbestos is a well recognized health hazard, and is highly regulated by the government. When disturbed, the asbestos minerals have a tendency to separate into microscopic-size particles that can remain in the air and are easily inhaled. Although the use of asbestos and asbestos products has dramatically decreased, they are still found in many residential and commercial settings and continue to pose a health risk to workers and others.

The more a person is exposed to asbestos fibers, the greater the risk of developing an asbestos-related disease. People who regularly work with asbestos are at the greatest risk of developing lung disease, and can develop several types of life-threatening diseases, including lung cancer. Asbestosis is a much more common consequence of asbestos exposure than cancer. Between 1999 and 2004, there were 3,211 deaths due to asbestosis in the United States.

An estimated 1.3 million workers in the construction and general industry face significant exposure to asbestos on the job. Shipbuilders, textile and construction workers, home remodelers, workers who do asbestos abatement, and miners who are exposed to asbestos fibers are among the many workers at risk. The heaviest exposures are in the construction industry, especially during the removal of asbestos during renovation or demolition. Workers exposed to deteriorating, damaged, or disturbed asbestos-containing products such as insulation, fireproofing, acoustical materials, and floor tiles have an increased risk of exposure. Workers can also be exposed to asbestos during manufacturing of asbestos products (such as textiles, friction products, insulation and other building materials) and during automotive brake and clutch repair work.

Although the general public has become more aware of the risks of asbestos, people who have no occupational exposure have a very low risk of developing asbestos-related lung disease. However, secondhand exposure may occur among family members of exposed workers and among people who live close to mines. Persons living in buildings that have undergone renovation and repair without proper control of asbestos-containing materials or dust may also experience an increased risk of disease.

D. Diagnosis, Treatment, and Prognosis

A thorough history, including a detailed work history over the patient's lifetime, physical exam, and diagnostic tests, is needed to evaluate asbestos-related disease. Chest x-rays are the best screening tool to identify lung

changes resulting from asbestos exposure. Lung function tests and CAT scans also assist in the diagnosis of asbestos-related disease.

If diagnosis or screening is being done for a worker covered by the Coal Workers' X-Ray Surveillance Program as mandated by the Federal Mine Safety and Health Act of 1977, regulations mandate that all physicians who participate in the examination and/or classify chest radiographs under the Act must utilize the ILO System and Standard Films. This may also apply for asbestos-exposed workers covered by U.S. Department of Labor regulations, or for other medical screening, surveillance, research, or compensation programs. B Reader approval is granted to physicians with a valid U.S. state medical license who demonstrate proficiency in the classification of chest radiographs for the pneumoconioses using the International Labour Office (ILO) Classification System. Additional information about the B Reader program can be found at www.cdc.gov/niosh/topics/chestradiography/breader-info.html.

Major health effects associated with asbestos exposure include:

Asbestosis – Asbestosis is a serious, progressive, long-term non-cancer disease of the lungs. It is caused by inhaling asbestos fibers that irritate lung tissues and cause the tissues to scar. The scarring makes it hard for oxygen to get into the blood. Symptoms of asbestosis include shortness of breath and a dry, crackling sound in the lungs while inhaling. Most treatments for asbestosis ease symptoms rather than cure the disease. Oxygen therapy relieves shortness of breath. Draining fluid from around the lungs may make breathing easier. Occasionally, lung transplantation has been successful in treating asbestosis. Asbestosis is not necessarily fatal. While asbestosis is not cancer, it may lead to cancer. If the patient smokes, he or she should stop because smoking significantly increases the risk of developing lung cancer in people with underlying asbestosis. Some patients can die from severe forms of the disease or from complications, such as pneumonia.

Lung Cancer -- Lung cancer causes the largest number of deaths related to asbestos exposure. People who work in the mining, milling, manufacturing of asbestos, and those who use asbestos and its products are more likely to develop lung cancer than the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

Mesothelioma -- Asbestos also causes cancer in the pleura, called mesothelioma, or in the membranes of the abdomen, called peritoneal mesothelioma. In the United States, asbestos is the only known cause of mesothelioma. Smoking is not a cause of mesothelioma. Mesotheliomas most commonly occur after exposure to crocidolite, one of four types of asbestos. Amosite, another type, also causes mesotheliomas. Chrysotile probably causes fewer cases of mesotheliomas than other types, but chrysotile is often contaminated with tremolite, which does. Mesotheliomas usually develop 30 to 40 years after exposure and can occur after low levels of exposure. Mesotheliomas are invariably fatal within 1 to 4 years of diagnosis. Chemotherapy and radiation therapy do not work well, and surgical removal of the tumor does not cure the cancer. Other treatment is focused on controlling pain and shortness of breath in an effort to preserve as much quality of life as possible.

E. Prevention of Exposure

Diseases caused by asbestos inhalation can be prevented by minimizing asbestos dust and fibers in the workplace. Because industries that use asbestos have improved dust control, fewer people develop asbestosis today, but mesotheliomas are still occurring in people who were exposed as many as 30 to 50 years ago. Asbestos-containing materials in a home are typically only a concern if the materials are going to be removed or the home renovated, in which case they should be removed by workers trained in safe removal techniques.

Smokers who have been in contact with asbestos can reduce their risk of lung cancer by giving up smoking and should probably have a chest x-ray annually. Pneumococcal and influenza vaccination are recommended for people who have been in contact with asbestos to help protect against infections to which workers may be more vulnerable.

Worker exposures to asbestos hazards are addressed in specific U.S. Occupational Safety and Health Administration (OSHA) standards for the construction industry, general industry and shipyard employment sectors. These standards reduce the risk to workers by requiring that employers provide personal exposure

monitoring to assess the risk and hazard awareness training for operations where there is any potential exposure to asbestos. Airborne levels of asbestos are never to exceed legal worker exposure limits. Where the exposure does, employers are required to further protect workers by establishing regulated areas, controlling certain work practices and instituting engineering controls to reduce the airborne levels. The employer is required to ensure exposure is reduced by using administrative controls and provide for the wearing of personal protective equipment. Medical monitoring of workers is also required when legal limits and exposure times are exceeded.

Little research documents the overall degree of exposure and the extent to which health effects occur because workers inadvertently carry home hazardous substances such as asbestos on their clothes, bodies, or tools. For known work-place hazardous substances, a modest investment of resources could prevent transport into workers' homes.

Training efforts should be emphasized to increase employee and employer awareness of hazards and acceptance of safe work and material-handling procedures (e.g., changing clothes and showering before going home, separating work areas from living or eating areas, and using personal protective equipment). Equally important are the development and distribution of information and education programs aimed at family members and health care professionals.

Take-home exposures can also be managed by instituting and adhering to engineering controls such as the proper use of equipment, substitution of safer materials, use of equipment with improved engineering designs when available, and habitual use of personal protective equipment. Although various control measures are available for preventing the adverse health effects of known take-home exposures in workers' families, limited information exists to assess or predict their effectiveness.

2. Reporting Criteria

A. Disease Reporting

All cases of asbestos-related disease are reportable in Iowa as a sub-section of the non-communicable respiratory disease surveillance program, under the definition found in the Iowa Administrative Code [641] Chapter 1: *"Noncommunicable respiratory illnesses"* means an illness indicating prolonged exposure or overexposure to asbestos, silica, silicates, aluminum, graphite, bauxite, beryllium, cotton dust or other textile material, or coal dust. "Noncommunicable respiratory illnesses" includes, but is not limited to asbestosis, coal worker's pneumoconiosis, and silicosis."

Mandatory reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident. Primary responsibility for reporting falls to the physician or other health practitioner attending the patient and to laboratories performing tests identifying the disease, including tissue biopsy testing that is diagnostic of the disease.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp. Call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours if you have questions.

B. References

National Institute of Occupational Health and Safety (NIOSH):

- NIOSH asbestos website: www.cdc.gov/niosh/topics/asbestos/
- NIOSH Protecting Workers' Families report: www.cdc.gov/niosh/docs/2002-113/2002-113.html

US Department of Labor Mine Safety and Health Administration (MSHA)

- MSHA asbestos website: www.msha.gov/asbestos/asbestos.htm

US Environmental Protection Agency (EPA)
- EPA asbestos website: www.epa.gov/asbestos/

Agency for Toxic Substances and Disease Registry (ATSDR)
- ATSDR Toxic Substances Portal - asbestos: www.atsdr.cdc.gov/toxfaqs/tf.asp?id=29&tid=4

US Department of Labor Occupational Safety and Health Administration (OSHA):
- OSHA asbestos website: www.osha.gov/SLTC/asbestos/index.html

Merck online Medial Manuals, 2008. Asbestosis.
www.merckmanuals.com/professional/sec05/ch057/ch057c.html and
www.merckmanuals.com/home/sec04/ch049/ch049b.html?qt=asbestosis&alt=sh

American Lung Association: www.lungusa.org/lung-disease/asbestosis/

Michigan State University
University of Iowa Virtual Hospital
University of Missouri
Pennsylvania State University
eMedicine
MedLine

CADMIUM POISONING

1. The Disease Definition

Cadmium and its compounds are highly toxic and exposure to this metal is known to cause cancer and targets the body's cardiovascular, renal, gastrointestinal, neurological, reproductive, and respiratory systems.

A. Clinical Description

Acute inhalation exposure causes pulmonary edema, which may result in death. The most serious long-term exposure risk is cancer (lung and prostate). The first observed chronic effect is generally kidney damage. Cadmium also is believed to cause pulmonary emphysema and bone disease (osteomalcia and osteoporosis). The latter has been observed in Japan ("itai-itai" disease) where residents were exposed to cadmium in rice crops irrigated with cadmium-contaminated water. Cadmium may also cause anemia.

Metal fume fever may result from acute exposure. It includes flu-like symptoms of weakness, fever, headache, chills, sweating and muscular pain. Acute pulmonary edema usually develops within 24 hours and reaches a maximum by three days. If death does not occur, symptoms may resolve within a week. Excretion of excessive low molecular weight protein in the urine is usually the first symptom of chronic kidney damage.

B. Sources of Exposure

Cadmium (Cd) is a soft, malleable, bluish white metal found in zinc ores, and to a much lesser extent, in the cadmium mineral greenockite. It is used in numerous products and industrial applications. Most of the cadmium produced today is obtained from zinc byproducts and recovered from spent nickel-cadmium batteries. First discovered in Germany in 1817, cadmium found early use as a pigment because of its ability to produce brilliant yellow, orange, and red colors. Cadmium became an important metal in the production of nickel-cadmium (Ni-Cd) rechargeable batteries and as a sacrificial corrosion-protection coating for iron and steel. Common industrial uses for cadmium today are in batteries, alloys, coatings (electroplating), solar cells, plastic stabilizers, and pigments. Cadmium is also used in nuclear reactors where it acts as a neutron absorber. New market opportunities for industrial applications of Ni-Cd batteries will continue to fuel cadmium use. Increased investment in solar power will also drive cadmium use in the future.

Workers can be exposed to cadmium by breathing in dusts, fumes, or mists containing cadmium. Cadmium or cadmium compounds can also get on clothing or the skin where it can be transferred out of the workplace to expose other family members. Skin exposure can transfer to food eaten in the workplace causing cadmium to be ingested. Due to its low Permissible Exposure Limit (PEL), overexposures may occur even in situations where trace quantities of cadmium are found in the parent ore or smelter dust. Several deaths from acute exposure have occurred among welders who have unsuspectingly welded on cadmium-containing alloys or worked with silver solders. Cadmium is also found in industrial paints and may represent a hazard when sprayed. Operations involving removal of cadmium paints by scraping or blasting may similarly pose a significant hazard. Cadmium is also present in the manufacture of some types of batteries. Cadmium emits a characteristic brown fume (CdO) upon heating, which is relatively non-irritating, and thus does not alarm the exposed person.

C. Population at Risk

OSHA estimates that 300,000 workers are exposed to cadmium in the United States. Worker exposure to cadmium can occur in all industry sectors but mostly in manufacturing and construction. Workers may be exposed during smelting and refining of metals, and manufacturing batteries, plastics, coatings, and solar panels. The expanding Ni-Cd battery recycling industry is a concern for cadmium exposure. Electroplating, metal machining, welding and painting are operations associated with cadmium exposure.

Workers involved in landfill operations, the recycling of electronic parts, or the recycling of plastics may be exposed to cadmium. Compost workers and waste collectors are also potentially exposed to dust which may contain cadmium. The incineration of municipal waste is another source of cadmium exposure.

According to the American Association of Poison Control Centers' (AAPCC) National Poison Data System (NPDS), 70 cadmium exposures with 1 fatality were reported in the United States during 2011. Five hundred sixty seven metal fume fever exposures with no fatalities were reported in the United States during 2011.

D. Diagnosis, Treatment, and Prognosis

Requirements to protect workers from cadmium exposure are addressed in specific OSHA (Occupational Safety and Health Administration) cadmium standards covering general industry (1910.1027), shipyards (1915.1027), construction (1926.1127) and agriculture (1928.1027) with additional information available at www.osha.gov/SLTC/cadmium/. A blood test is used to determine recent exposure to cadmium. The amount of cadmium in the urine shows both recent and past exposure.

There are no effective chelating agents for cadmium poisoning. Vitamin D has been used to treat "itai-itai" disease.

The mortality rate for acute cadmium poisoning is about 15 percent. Death usually occurs within four to seven days. If the patient survives, respiratory problems may persist.

E. Prevention of Exposure

Controlling occupational cadmium exposure is best accomplished through substituting it with a non-toxic chemical, depending on the application. If this cannot be done, engineering, administrative, and personal protective equipment (PPE) including protective clothing and respirators should be used.

Primary control should focus on inhalation. Inhaled cadmium is more readily absorbed into the body than is ingested cadmium. Intake of cadmium by ingestion and skin absorption are considered to be of relatively less importance in occupational settings, but steps should be taken to prevent the transfer of cadmium on skin or clothing to outside of the workplace (take-home exposure).

2. Reporting Criteria

A. Disease Reporting

Cadmium poisoning is reportable if:

- Blood cadmium values are equal to or greater than the equivalent of 5 micrograms per liter (µg/l or mcg/l).
- Urine cadmium values are equal to or greater than the equivalent of 10 micrograms per liter (µg/l or mcg/l).

Cadmium poisoning must be reported to the Iowa Department of Public Health by the physician or other health practitioner attending the patient and by laboratories performing tests identifying the disease. Cadmium poisonings must be reported within a week to the Iowa Department of Public Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Reporting can be through the Iowa Disease Surveillance System (IDSS), phone, fax, or mail. The preferred reporting method is through IDSS. To report via phone, fax or mail, please use the contact information and the Cadmium Case Report Form available in the Epi Manual and online at www.idph.state.ia.us/eh/reportable_diseases.asp.

Cadmium

Agency: ______ Investigator: ______ Phone number: ______

STATE ONLY — Status: ☐ Confirmed ☐ Probable ☐ Suspect ☐ Not a case ☐ Exposure
Reviewer initials:
Referred to another state:

CASE

Last name: ______ Date of Birth: __/__/__ Estimated? ☐ Age:
First and middle name: ______ Gender: ☐ Female ☐ Male ☐ Other ____
Maiden name: ______ Suffix: ______ Pregnant: ☐ Yes ☐ No ☐ Unk Est. delivery date: __/__/__
Address line: ______ Marital status: ☐ Single ☐ Married ☐ Separated ☐ Divorced ☐ Parent with partner ☐ Widowed
Zip: ______ City: ______ Race: ☐ American Indian or Alaskan Native ☐ Unknown ☐ Black or African American ☐ White ☐ Hawaiian or Pacific Islander ☐ Asian
State: ______ County: ______ Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Unknown
Phone: ( )- - Type: ______
Long-term care resident: ☐ Yes ☐ No ☐ Unknown Parent/Guardian name: ______
Facility name: ______ Parent/Guardian phone: ( )- - Type: ______

EVENT

Diagnosis date: __/__/__ Onset date: __/__/__
Event outcome: ☐ Survived this illness ☐ Died from this illness ☐ Died unrelated to this illness ☐ Unknown
Outbreak related: ☐ Yes ☐ No ☐ Unknown
Outbreak name: ______
Exposure setting: ______
Epi-linked: ☐ Yes ☐ No ☐ Unk To whom: ______
Location acquired: ☐ In USA, in reporting state ☐ In USA, outside reporting state ☐ Outside USA ☐ Unknown
State: ______ Country: ______

Healthcare provider information

Last name: ______
First name: ______
Provider title: ☐ ARNP ☐ MD ☐ DO ☐ NP ☐ PA
Facility name: ______
Address line 1: ______
Address line 2: ______
Zip code: ______ City: ______
State: ______ County: ______
Phone : ( )- - Type: ______

LABORATORY FINDINGS

Laboratory: ______ Accession #: ______ Collection date: __/__/__
Date received: __/__/__ Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ______ Test Result: ______
Percent: Result date: __/__/__ Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ______ Accession #: ______ Collection date: __/__/__
Date received: __/__/__ Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ______ Test Result: ______
Percent: Result date: __/__/__ Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ______ Accession #: ______ Collection date: __/__/__
Date received: __/__/__ Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ______ Test Result: ______
Percent: Result date: __/__/__ Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

OCCUPATIONS

Is the case employed, enrolled in school, or attending a child care facility? Interpret 'occupation' very loosely and consider every person to have at least one 'occupation'
(Complete the following sections for each known occupation)

Occupation #1:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend school:	☐ Yes ☐ No ☐ Unknown						
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

Occupation #2:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend school:	☐ Yes ☐ No ☐ Unknown						
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

HOSPITALIZATIONS

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown

Hospital: _____ Isolated at entry: ☐ Yes ☐ No ☐ Unk Isolation type (entry): _____

Admission date: / / Discharge date: / / Days hospitalized: _____

Currently isolated: ☐ Yes ☐ No ☐ Unk Current isolation type:

CLINICAL INFO & DIAGNOSIS

Reporting source: ☐ **Laboratory** ☐**Physician** ☐**Poison Control** ☐**Self diagnosis**

List any pre-existing medical conditions: _____

Symptoms

Symptoms:				
☐Abdominal pain or cramps	☐Cough	☐Increased saliva production	☐Nausea	☐Sweet or metallic taste
☐Anemia	☐Cyanosis	☐Kidney Damage or renal failure	☐Osteomalacia (softening of bones)	☐Tachycardia
☐Anosmia (loss of smell)	☐Diarrhea	☐Kidney stones	☐Prostatic cancer	☐Tooth discoloration
☐Chest pain	☐Dizziness	☐Leg pain	☐Proteinuria	☐Tracheo-bronchitis, pneumonitis
☐Chills	☐Dry throat	☐Liver Damage	☐Pulmonary edema	☐Vomiting
☐Choking	☐Fever	☐Lung Cancer	☐Rectal spasms	☐Weakness
☐Coma	☐Gout	☐Lung Inflammation	☐Shortness of breath	☐Weight loss
☐COPD	☐Headache	☐Muscle aches	☐Sore throat or throat irritation	☐Wheezing
	☐Hypertension	☐Muscle weakness		☐ Other:
	☐Hypophosphatemia			

Health Impact: ☐ Fatal ☐Non-fatal	Was educational information provided? ☐ Yes ☐ No ☐ Unknown
What was the time missed from work/school or daily activities?	☐ < 24 hours ☐1-2 days ☐3-5 days ☐1-2 weeks ☐2-3 weeks ☐> 3 weeks ☐> 1 month ☐ > 2 months ☐ > 3 months ☐> 6 months ☐> 1 year
Current smoker? ☐ Yes ☐ No ☐ Unknown	If no, did you smoke in the past? ☐ Yes ☐ No ☐ Unknown — If yes, date quit: / /
What resources were used by the patient? ☐None known ☐Treated on site ☐Work clinic or nurse ☐911 Call ☐Poison Control Call ☐ED Only ☐Visit to Physician/med provider ☐Hospitalization	

TREATMENT

What was the treatment level? ☐ None given or recommended ☐ Self ☐ ED ☐ Patient refused ☐ Recommended – not done ☐ Outpatient ☐ Inpatient

EXPOSURES

Has the case been exposed to any of the following in the last 60 days? ☐ Yes ☐ No ☐ Unknown

Complete an exposure table for each known exposure. *Attach additional information if necessary.*

Exposure List			
	Alloys, including copper Ammunition manufacturing Auto mechanical work Batteries Bearing making Cable and trolley wires Cadmium vapor lamps Ceramic and pottery making Cigarette or tobacco smoke Contaminated air, soil, dust, water, food or drink Dental amalgam Electricial equipment making Electroplating	Engraving Fertilizers Glass manufacturing Hazardous waste sites Incandescent lamp makers Incinerators Jewelry and costume jewelry Jewelry making Lithograph making Lithophane makers Liver or kidney meats consumption Metal decorative items Mining	Mouthing objects (jewelry, toys) Municipal solid waste recovery Mushroom consumption Paint - spraying, manufacturing, industrial Pesticides Pharmaceutical manufacturing Photoelectric cell making Pigment making Plastic products making Sewage sludge Smelter Solder Textile printing Welding

Exposure #1				
	Exposure Date: / /		Exposure Time:	
Location ☐ Home ☐ Work ☐ Farm, ranch, acreage ☐ Orchard or Garden ☐ Community Building ☐ Community Outdoor Site or Recreation ☐ Travel out of area ☐ Commercial Building ☐ Unknown	Name of Location:			
	Address:			
	Zip code:		Phone:	- -
	Travel location:			
	Travel departure:	/ /	Travel return:	/ /

Reason for exposure:
☐Hobby or small market work
☐Work exposure
☐Secondary Work Exposure (Take home poisoning)
☐Volunteer or unpaid work
☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
☐Self-employed
☐Employed by other

Work Category
☐Agriculture, Forestry, Fishing and Hunting
☐Mining, Quarrying, and Oil and Gas Extraction
☐Utilities
☐Construction
☐Manufacturing
☐Wholesale Trade
☐Retail Trade
☐Transportation and Warehousing
☐Information sector
☐Finance and Insurance
☐Real Estate and Rental and Leasing
☐Professional, Scientific, and Technical
☐Management of Companies and Enterprises
☐Administrative and Support and Waste
☐Management and Remediation Services
☐Educational Services
☐Health Care and Social Assistance
☐Arts, Entertainment, and Recreation
☐Accommodation and Food Services
☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #2

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #3

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Does the case have a drinking water exposure? ☐ Yes ☐ No ☐Unknown

For each drinking water exposure, complete a drinking water exposure table. Attach additional information if necessary.

Drinking water exposure #1

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing?
_____

If municipal, rural, or bottled, what is the name of the provider?
_____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Drinking water exposure #2

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing?
_____

If municipal, rural, or bottled, what is the name of the provider?
_____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Fish Consumption

Did the case eat fish, shellfish or seafood in the past two weeks? ☐ Yes ☐ No ☐Unknown

If yes, how much fish did the case eat?
☐ Less than one serving per week
☐ 1 to 3 servings per week
☐ 4-6 servings per week
☐ 7 or more servings per week

Where did the fish come from?
☐Caught by self, family, friend
☐Store bought
☐School
☐Community Gathering
☐Work
☐Restaurant

In the last two weeks has the case taken:

Over the counter medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Prescription medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Nutritional supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Herbal supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Homeopathic medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
Illicit drugs? ☐ Yes ☐ No ☐Unknown If yes, list: _____

FOR FINAL DETERMINATION ONLY:

Based on this investigation what was the primary determination for the source of the exposure?

☐Alloys, including copper
☐Ammunition manufacturing
☐Auto mechanical work
☐Batteries
☐Bearing making
☐Cable and trolley wires
☐Cadmium vapor lamps
☐Ceramic and pottery making
☐Cigarette or tobacco smoke
☐Contaminated air, soil, dust, water, food or drink
☐Dental amalgam
☐Electricial equipment making
☐Electroplating
☐Engraving
☐Fertilizers
☐Glass manufacturing
☐Hazardous waste sites
☐Incandescent lamp makers
☐Incinerators
☐Jewelry and costume jewelry
☐Jewelry making
☐Lithograph making
☐Lithophane makers
☐Liver or kidney meats consumption
☐Metal decorative items
☐Mining
☐Mouthing objects (jewelry, toys)
☐Municipal solid waste recovery
☐Mushroom consumption
☐Paint - spraying, manufacturing, industrial
☐Pesticides
☐Pharmaceutical manufacturing
☐Photoelectric cell making
☐Pigment making
☐Plastic products making
☐Sewage sludge
☐Smelter
☐Solder
☐Textile printing
☐Welding

Secondary source, if applicable: *Choose from table above*

Was the exposure associated with an incident or natural disaster? ☐ Yes ☐ No ☐Unknown

ADDITIONAL LABORATORY INFORMATION

ADDITIONAL LAB #1

Test Name

☐Cadmium (Cd) Blood
☐Cadmium (Cd) Urine (Spot/random)
☐Cadmium (Cd) Urine (24 hr)
☐Cadmium (Cd) Occupational Monitor urine
☐Cd/Cr ratio, Cadmium creatinine ratio
☐Cadmium (Cd) Concentration
☐Beta-2-microglobulin in urine (B2-M)
☐Creatinine (Cr or Crt) concentration
☐Heavy Metal Panel
☐Total Volume
☐Cadmium (Cd) urine

Date reported to IDPH: / /
Collection date: / /
Collection time: _____

Numeric result: _____

Result unit:

☐ug/L , mcg/L, micrograms per liter
☐mg/dL, milligrams per deciliter
☐ug/g Cr or mcg/g Cr, micrograms per gram
☐creatinine ratio
☐ug/d, mcg/d, micrograms per day
☐spot or random
☐ug/24 hr, mcg/24 hr, micrograms per 24 hours
☐mL or milliliters
☐hours
☐% or percent
☐24 hr

Result:

☐Low (L)
☐High (H)
☐*
☐See comment

LABORATORY COMMENTS:

ADDITIONAL LAB #2

Test Name

☐Cadmium (Cd) Blood
☐Cadmium (Cd) Urine (Spot/random)
☐Cadmium (Cd) Urine (24 hr)
☐Cadmium (Cd) Occupational Monitor urine
☐Cd/Cr ratio, Cadmium creatinine ratio
☐Cadmium (Cd) Concentration
☐Beta-2-microglobulin in urine (B2-M)
☐Creatinine (Cr or Crt) concentration
☐Heavy Metal Panel
☐Total Volume
☐Cadmium (Cd) urine

Date reported to IDPH: / /
Collection date: / /
Collection time: _____

Numeric result: _____

Result unit:

☐ug/L , mcg/L, micrograms per liter
☐mg/dL, milligrams per deciliter
☐ug/g Cr or mcg/g Cr, micrograms per gram
☐creatinine ratio
☐ug/d, mcg/d, micrograms per day
☐spot or random
☐ug/24 hr, mcg/24 hr, micrograms per 24 hours
☐mL or milliliters
☐hours
☐% or percent
☐24 hr

Result:

☐Low (L)
☐High (H)
☐*
☐See comment

LABORATORY COMMENTS:

NOTES:

CARBON-MONOXIDE POISONING

1. The Disease Definition

Carbon monoxide is an odorless, colorless gas that can cause sudden illness and death.

A. Clinical Description

Carbon monoxide is harmful when breathed because it displaces oxygen in the blood and deprives the heart, brain, and other vital organs of oxygen. Large amounts of carbon monoxide can overcome a person in minutes without warning, causing loss of consciousness and suffocation. It may occur sooner in those most susceptible: young children, elderly people, people with lung or heart disease, people at high altitudes, or those who already have elevated carbon monoxide blood levels, such as smokers. Carbon-monoxide poisoning also poses a special risk to fetuses. It can be reversed if caught in time. However, even if a person recovers, acute poisoning may result in permanent damage to the parts of the body, such as the heart and brain that require large amounts of oxygen.

The most common symptoms of carbon-monoxide poisoning are headache, dizziness, weakness, nausea, vomiting, chest tightness and pain, and confusion. Sudden chest pain may occur in people with angina. Exposure to high levels of carbon monoxide can cause loss of consciousness and death. Unless suspected, carbon-monoxide poisoning can be difficult to diagnose because the symptoms mimic other illnesses. People who are sleeping or intoxicated can die before ever experiencing symptoms. If a carbon-monoxide detector sounds or a person experiences symptoms that could be carbon-monoxide poisoning, the person should leave the building immediately to get fresh and call 911.

B. Sources of Exposure

Carbon monoxide is found in combustion fumes, such as those produced by cars and trucks, small gasoline engines, lanterns, burning charcoal and wood, and any heating system or appliance that burns gas, oil , wood, propane or kerosene. Carbon monoxide from these sources can build up in enclosed or semi-enclosed spaces. Carbon-monoxide poisoning has occurred when vehicle engines are left running; when a home contains an incorrectly vented or malfunctioning water heater, furnace, space heater, fireplace or stove; and when charcoal, alcohol, or gasoline are burned in an enclosed tent or camper. In the workplace, people who work in boiler rooms, breweries, warehouses, petroleum refineries, pulp and paper production, and steel production are exposed to CO. The most common source of exposure in the workplace is the internal combustion engine.

C. Population at Risk

Everyone is at risk of carbon-monoxide poisoning. However, people with existing health problems, such as heart and lung disease, and the elderly are especially vulnerable. Infants, children, and pregnant woman are also at high risk. Each year, more than 500 Americans die from unintentional carbon-monoxide poisoning, and more than 2,000 commit suicide by intentionally poisoning themselves.

D. Diagnosis, Treatment, and Prognosis

The main reason to suspect carbon-monoxide poisoning is evidence that fuel is being burned in a confined area; for example, a car running inside a closed garage, a charcoal grill burning indoors, or an un-vented kerosene heater in a workshop. Under these circumstances, one or more persons suffering from the symptoms of carbon monoxide poisoning strongly suggests carbon-monoxide poisoning. In the absence of some concrete reason to suspect carbon monoxide poisoning, the disorder is often misdiagnosed as migraine headache, stroke, psychiatric illness, food poisoning, alcohol poisoning, or heart disease.

Concrete confirmation of carbon-monoxide poisoning comes from a carboxyhemoglobin test. This blood test measures the amount of carbon monoxide bound to hemoglobin. Blood is drawn as soon as possible after suspected exposure to carbon monoxide. Other tests useful in determining the extent of carbon-monoxide poisoning include measurement of other arterial blood gases and pH; a complete blood count;

measurement of other blood components, such as sodium, potassium, bicarbonate, urea nitrogen, and lactic acid; an electrocardiogram (ECG); and a chest x ray.

Immediate treatment is to remove victims from the source of carbon monoxide gas and get them into fresh air. If the victim is not breathing and has no pulse, cardiopulmonary resuscitation (CPR) should be started. Depending on the severity of the poisoning, 100 percent oxygen may be given with a tight fitting mask as soon as it is available. Rescuers may be exposed to fatal levels of carbon monoxide in a rescue attempt. They should be skilled at performing recovery operations and using recovery equipment. Employers should make sure that rescuers are not exposed to dangerous carbon-monoxide levels when performing rescue operations.

Taken with other symptoms of carbon-monoxide poisoning, carboxyhemoglobin levels of over 25 percent in healthy people, over 15 percent in patients with a history of heart or lung disease, and over 10 percent in pregnant women usually indicate the need for hospitalization. In the hospital, fluids and electrolytes are given to correct any imbalances that have arisen from the breakdown of cellular metabolism.

In severe cases of carbon-monoxide poisoning, patients are given hyperbaric oxygen therapy. This treatment involves placing the patient in a chamber, breathing 100 percent oxygen at a pressure of more than one atmosphere (the normal pressure the atmosphere exerts at sea level). The increased pressure forces more oxygen into the blood. Hyperbaric facilities are specialized, and are usually available only at larger hospitals.

The speed and degree of recovery from carbon-monoxide poisoning depends on the length and duration of exposure to the gas. The half-life of carbon monoxide in normal room air is four to five hours. This means that, in four to five hours, half of the carbon monoxide bound to hemoglobin will be replaced with oxygen. At normal atmospheric pressures, but breathing 100 percent oxygen, the half-life for the elimination of carbon monoxide from the body is 50 to 70 minutes. In hyperbaric therapy at three atmospheres of pressure, the half-life is reduced to 20 to 25 minutes. Although symptoms may subside in a few hours, some patients show memory problems, fatigue, confusion, and mood changes for two to four weeks after exposure.

E. Prevention of Exposure

To minimize the risk of carbon-monoxide poisoning:

1. Have furnaces and fireplaces inspected for cracks, gaps, rust, corrosion or debris by a qualified professional before each heating season. Fireplace chimneys and flues should also be checked and cleaned every year.
2. Have gas appliances serviced yearly by a qualified service technician. Stove burners should be cleaned and adjusted to minimize the amount of carbon monoxide produced. Gas dryer vents should be checked for lint buildup that may restrict ventilation.
3. Use non-electrical space heaters only in well-ventilated areas.
4. Never start or leave cars, trucks or other vehicles running in an enclosed area. Never leave the motor running in a vehicle parked in a closed garage.
5. Never operate barbecue grills indoors or use stove tops or ovens that operate on flammable fuels to heat a residence.
6. If living in a multi-family dwelling, be aware that carbon monoxide can enter your residence through floor boards, cracks, or underneath doors.
7. Never run a generator, pressure washer, or any gasoline-powered engine inside a basement, garage, or other enclosed structure, even if the doors or windows are open, unless the equipment is professionally installed and vented.
8 Use a carbon-monoxide detector. A detector can help alert you to increased levels of carbon monoxide in your home, but they are not foolproof. The Consumer Product Safety Commission recommends installing at least one CO detector per house, near the sleeping area. Homes with several sleeping areas require multiple detectors. For added protection, locate additional detectors at least 15 feet from the furnace. Look for detectors with the UL (Underwriters Laboratories) seal, and which feature an audible alarm.

2. Reporting Criteria

A. Disease Reporting

Carbon monoxide poisoning is reportable if:

- Blood carbon monoxide level equal to or greater than 10 percent carboxyhemoglobin or its equivalent in a breath analyzer test.
- A clinical diagnosis of carbon monoxide poisoning regardless of any test results.

Carbon monoxide poisonings must be reported within a week to the Iowa Department of Public Health Division of Environmental Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Reporting can be through the Iowa Disease Surveillance System (IDSS), phone, fax, or mail. The preferred reporting method is through IDSS. To report via fax or mail, please use the Carbon monoxide poisoning Case Report Form available in the Epi Manual and online at www.idph.state.ia.us/eh/reportable_diseases.asp

How to report to the Division of Environmental Health (Non IDSS Users)	
Phone (Mon-Fri 8 am-4:30 pm):	800-972-2026
Fax:	515-281-4529
Address:	Iowa Department of Public Health Division of Environmental Health Lucas State Office Building 321 E. 12th Street Des Moines, Iowa 50319-0075
24-hour Disease Reporting Hotline:	800-362-2736

B. Reference Sources

Iowa Statewide Poison Control Center
Agency for Toxic Substances and Disease Registry (ATSDR)
National Institute for Occupational Health and Safety (NIOSH)
Occupational Safety and Health Administration (OSHA)

Carbon Monoxide

Agency: ______

Investigator: ______ Phone number: ______

STATE ONLY — Status: ☐ Confirmed ☐ Probable ☐ Suspect ☐ Not a case ☐ Exposure
Reviewer initials:
Referred to another state:

CASE

Last name: ______ Date of Birth: __/__/__ Estimated? ☐ Age: ______

First and middle name: ______ Gender: ☐ Female ☐ Male ☐ Other _____

Maiden name: ______ Suffix: ______ Pregnant: ☐ Yes ☐ No ☐ Unk Est. delivery date: __/__/__

Address line: ______ Marital status: ☐ Single ☐ Married ☐ Separated ☐ Divorced ☐ Parent with partner ☐ Widowed

Zip: ______ City: ______ Race: ☐ American Indian or Alaskan Native ☐ Unknown ☐ Black or African American ☐ White ☐ Hawaiian or Pacific Islander ☐ Asian

State: ______ County: ______

Phone: ( )- - Type: ______ Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Unknown

Long-term care resident: ☐ Yes ☐ No ☐ Unknown Parent/Guardian name: ______

Facility name: ______ Parent/Guardian phone: ( )- - Type: ______

EVENT

Diagnosis date: __/__/__ Onset date: __/__/__

Event outcome: ☐ Survived this illness ☐ Died from this illness ☐ Died unrelated to this illness ☐ Unknown

Outbreak related: ☐ Yes ☐ No ☐ Unknown

Outbreak name: ______

Exposure setting: ______

Epi-linked: ☐ Yes ☐ No ☐ Unk To whom: ______

Location acquired: ☐ In USA, in reporting state ☐ In USA, outside reporting state ☐ Outside USA ☐ Unknown

State: ______ Country: ______

Healthcare provider information

Last name: ______

First name: ______

Provider title: ☐ ARNP ☐ MD ☐ DO ☐ NP ☐ PA

Facility name: ______

Address line 1: ______

Address line 2: ______

Zip code: ______ City: ______

State: ______ County: ______

Phone : ( )- - Type: ______

LABORATORY FINDINGS

Laboratory: ______ Accession #: ______ Collection date: __/__/__

Date received: __/__/__ Specimen source: ☐ Blood Result type: ☐ Preliminary ☐ Final

Test Type: ______ Test Result: ______

Percent: Result date: __/__/__ Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ______ Accession #: ______ Collection date: __/__/__

Date received: __/__/__ Specimen source: ☐ Blood Result type: ☐ Preliminary ☐ Final

Test Type: ______ Test Result: ______

Percent: Result date: __/__/__ Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ______ Accession #: ______ Collection date: __/__/__

Date received: __/__/__ Specimen source: ☐ Blood Result type: ☐ Preliminary ☐ Final

Test Type: ______ Test Result: ______

Percent: Result date: __/__/__ Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

OCCUPATIONS

Is the case employed, enrolled in school, or attending a child care facility? Interpret 'occupation' very loosely and consider every person to have at least one 'occupation'
(Complete the following sections for each known occupation)

Occupation #1:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in				
Attend school:	☐ Yes ☐ No ☐ Unknown		lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

Occupation #2:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in				
Attend school:	☐ Yes ☐ No ☐ Unknown		lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

HOSPITALIZATIONS

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown

Hospital: _____ Isolated at entry: ☐ Yes ☐ No ☐ Unk Isolation type (entry): _____

Admission date: / / Discharge date: / / Days hospitalized: _____

Currently isolated: ☐ Yes ☐ No ☐ Unk Current isolation type:

CLINICAL INFO & DIAGNOSIS

Reporting source: ☐ **Laboratory** ☐**Physician** ☐**Poison Control** ☐**Self diagnosis**

List any pre-existing medical conditions: _____

Symptoms

Symptoms:

☐Abdominal pain	☐Difficulty walking or doing tasks	☐Hallucinations	☐Nausea	☐Visual changes
☐Agitation	☐Dizziness	☐Headache	☐Numbness	☐Vomiting
☐Chest pain	☐Drowziness	☐Impaired judgment	☐Palpitation	☐Weakness
☐Confusion	☐Fainting	☐Light-headedness	☐Seizure	☐Wheezing
☐Death	☐Fatigue	☐Loss of consciousness	☐Shortness of breath	☐Other:
☐Depression	☐Flu-like symptoms	☐Memory problems or loss	☐Stomach pain	

Health Impact: ☐ Fatal ☐Non-fatal ☐Not Followed ☐Unable to follow ☐Unrelated effect

If Non-Fatal: ☐Major ☐Moderate ☐Minor ☐No effect If Not Followed: ☐Judged Nontoxic ☐Minimal effect possible

Was educational information provided? ☐ Yes ☐ No ☐ Unknown

What was the time missed from work/school or daily activities? ☐ < 24 hours ☐1-2 days ☐3-5 days ☐1-2 weeks ☐2-3 weeks ☐> 3 weeks ☐> 1 month ☐ > 2 months ☐ > 3 months ☐> 6 months ☐> 1 year

Current smoker? ☐ Yes ☐ No ☐ Unknown If no, did you smoke in the past? ☐ Yes ☐ No ☐ Unknown If yes, date quit: / /

What resources were used by the patient? ☐None known ☐Treated on site ☐Work clinic or nurse ☐911 Call ☐Poison Control Call ☐ED Only ☐Visit to Physician/med provider ☐Hospitalization

TREATMENT

What was the treatment level? ☐ None given or recommended ☐ Self ☐ED ☐Patient refused ☐ Recommended – not done ☐Outpatient ☐ Inpatient

EXPOSURES

Has the case been exposed to any of the following in the last 60 days? ☐ Yes ☐ No ☐Unknown

Complete an exposure table for each known exposure. *Attach additional information if necessary.*

Exposure List			
	Fire Vehicle/Automobile Boat	Zamboni Heating system Fixed appliance (grill, stove, space heater, etc.)	Portable appliance (stove, water heater, etc.) Generator Power Tools (mowers, power washer, etc.)

Exposure #1	Exposure Date: / /	Exposure Time:
Location ☐ Home ☐ Work ☐ Farm, ranch, acreage ☐ Orchard or Garden ☐ Community Building ☐ Community Outdoor Site or Recreation ☐ Travel out of area ☐ Commercial Building ☐ Unknown	Name of Location:	
	Address:	
	Zip code:	Phone: - -
	Travel location:	
	Travel departure: / /	Travel return: / /

Reason for exposure:
☐Hobby or small market work
☐Work exposure
☐Secondary Work Exposure (Take home poisoning)
☐Volunteer or unpaid work
☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
☐Self-employed
☐Employed by other

Work Category
☐Agriculture, Forestry, Fishing and Hunting
☐Mining, Quarrying, and Oil and Gas Extraction
☐Utilities
☐Construction
☐Manufacturing
☐Wholesale Trade
☐Retail Trade
☐Transportation and Warehousing
☐Information sector
☐Finance and Insurance
☐Real Estate and Rental and Leasing ☐ Professional, Scientific, and Technical
☐Management of Companies and Enterprises
☐Administrative and Support and Waste
☐Management and Remediation Services
☐Educational Services
☐Health Care and Social Assistance
☐Arts, Entertainment, and Recreation
☐Accommodation and Food Services
☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #2

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #3

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Was there a carbon monoxide detector present at the location? ☐ Yes ☐ No ☐Unknown
If yes, was it operational? ☐ Yes ☐ No ☐Unknown

FOR FINAL DETERMINATION ONLY:

Based on this investigation what was the primary determination for the source of the exposure?

Exposure List			
	☐Fire ☐Vehicle/Automobile ☐Boat	☐Zamboni ☐Heating system ☐Fixed appliance (grill, stove, space heater, etc.)	☐Portable appliance (stove, water heater, etc.) ☐Generator ☐Power Tools (mowers, power washer, etc.)

Secondary source (if applicable):

Exposure List			
	☐Fire ☐Vehicle/Automobile ☐Boat	☐Zamboni ☐Heating system ☐Fixed appliance (grill, stove, space heater, etc.)	☐Portable appliance (stove, water heater, etc.) ☐Generator ☐Power Tools (mowers, power washer, etc.)

Was the exposure associated with an incident or natural disaster?	☐ Yes ☐ No ☐Unknown

NOTES:

COAL WORKERS PNEUMOCONIOSIS

Other Names: Black lung disease; Pneumoconiosis; Anthrosilicosis; CWP. Caplan Syndrome is a related condition.

Responsibilities:

Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the IDPH Division of Environmental Health:

Iowa Department of Public Health
Division of Environmental Health
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1. The Disease Definition

Coal worker's pneumoconiosis (CWP) is a lung disease that results from breathing in dust from coal, graphite, or man-made carbon over a long period of time. CWP results from >10 years of occupational exposure.

A. Clinical Description

CWP occurs in two forms: simple and complicated (progressive massive fibrosis or PMF). The simple form is usually not disabling, but the complicated form often is, and also causes premature death.

Early CWP does not usually cause symptoms. Most chronic pulmonary symptoms in coal miners are caused by other conditions, such as industrial bronchitis from coal dust or coincident emphysema from smoking. Cough can be chronic and problematic in patients even after they leave the workplace, even in those who do not smoke. PMF causes progressive dyspnea. Occasionally, patients cough up black sputum (melanoptysis), which occurs as a result of rupture of PMF lesions into the airways. PMF often progresses to pulmonary hypertension with right ventricular and respiratory failure and premature death.

B. Sources of Exposure

Coal workers pneumoconiosis is caused by the inhalation of dust from coal, graphite, or man-made carbon.

C. Population at Risk

Chronic lung diseases, such as pneumoconiosis (black lung) were once common in miners, leading to reduced life expectancy. In some mining countries, CWP is still common, with approximately 4,000 new cases every year in the USA (4% of workers annually) and 10,000 new cases every year in China (0.2% of workers).

The incidence and rate of CWP progression is related to the amount of respirable coal dust to which miners were exposed during their working lifetime. Most affected workers are over the age of 50, and have over 20 years of exposure history, although some workers have been diagnosed after as few as 10 years of exposure

To characterize the impact of premature mortality attributed to CWP in the United States, CDC's National Institute for Occupational Safety and Health (NIOSH) analyzed annual underlying cause of death data from 1968--2006, the most recent years for which complete data were available.

During 1968--2006, CWP was identified as the underlying cause of death for 28,912 decedents aged ≥25 years. Of these, 3,983 (13.8%) were aged 25--64 years, including four (0.1%) aged 25--34 years, 40 (1.0%) aged 35--44 years, 494 (12.4%) aged 45--54 years, and 3,445 (86.5%) aged 55--64 years. Among CWP decedents aged 25--64 years, 3,954 (99.3%) were male and 3,891 (97.7%) were white.

Overall, CWP deaths among U.S. residents aged ≥25 years declined 73%, from an average of 1,106 per year during 1968--1972 to 300 per year during 2002—2006. Age-adjusted death rates among residents aged 25--64 years declined 96%, from 1.78 per million in 1968 to 0.07 in 2006; age-adjusted death rates among residents aged ≥65 years declined 84%, from 6.24 per million in 1968 to 1.02 in 2006.

Years of potential life lost before age 65 years (YPLL), and mean YPLL were calculated using standard methodology, and was reported in a December 2009 MMWR report. It described the results of that analysis, which indicate that during 1968--2006, a total of 22,625 YPLL were attributed to CWP (mean per decedent: 5.7). Annual YPLL attributed to CWP decreased 91.2%, from an average of 1,484 YPLL per year during 1968--1972 to 154 per year during 2002--2006. However, annual YPLL from CWP have been increasing since 2002, from 135 in that year to 169 YPLL in 2006, suggesting a need for strengthening CWP prevention measures.

D. Diagnosis, Treatment, and Prognosis

Diagnosis depends on a history of exposure and chest x-ray or chest CT appearance. In patients with CWP, x-ray or CT reveals diffuse, small, rounded opacities or nodules. The finding of at least one opacity > 10 mm suggests PMF. The specificity of the chest x-ray for PMF is low, because up to 1/3 of the lesions identified as being PMF turn out to be cancers, scars, or other disorders. Chest CT is more sensitive than chest x-ray for detecting coalescing nodules, early PMF, and cavitation.

Treatment is rarely necessary in simple CWP, although smoking cessation and tuberculosis (TB) surveillance are recommended. Patients with pulmonary hypertension, hypoxemia, or both are given supplemental oxygen therapy. Pulmonary rehabilitation can help more severely affected workers carry out activities of daily living. Workers with CWP, especially those with PMF, should be restricted from further exposure, especially to high concentrations of dust. TB is treated in accordance with current recommendations.

The outcome for the simple form of coal workers pneumoconiosis is usually good. However, the complicated form may become a disabling illness that may include cor pulmonale, or failure of the right side of the heart, pulmonary tuberculosis, and premature death.

E. Prevention of Exposure

CWP can be prevented by suppressing coal dust at the coal face. Despite long-standing regulations, exposures continue to occur in the mining trade. Respiratory masks provide only limited protection. Preventive measures include eliminating exposure, stopping smoking, and giving pneumococcal and influenza vaccinations.

Medical surveillance is critical to detect coal workers' pneumoconiosis as early as possible, to guide intervention, and to keep the disease from advancing to stages in which it becomes progressively debilitating and life-threatening. Because patients with CWP often have had exposure to both silica dust as well as coal dust, surveillance for TB is usually done utilizing annual tuberculin skin testing. In those with positive test results, sputum culture and cytology, CT, and bronchoscopy may be needed to confirm TB.

In light of an observed onset of advanced pneumoconiosis among younger coal miners, and the apparent regional clustering of rapidly progressive cases, the National Institute for Occupational Safety and Health

(NIOSH), in collaboration with the Department of Labor Mine Safety Health Administration (MSHA), has developed, staffed, and implemented the ECWHSP. Additional information is available at www.cdc.gov/niosh/topics/surveillance/ords/ecwhsp.html.

Coal mineralogy, mining conditions, respirable dust and silica exposure concentrations, mining and dust control strategies, and other relevant data in regions with disease clusters are being collected under a separate NIOSH project entitled, "Dust Control Technology for Black Lung Hot Spots." Outreach and awareness resources are available through the NIOSH website.

2. Reporting Criteria

A. Disease Reporting

All cases of coal workers pneumoconiosis are reportable in Iowa as a sub-section of the non-communicable respiratory disease surveillance program, under the definition found in the Iowa Administrative Code [641] Chapter 1: *"Noncommunicable respiratory illnesses"* means an illness indicating prolonged exposure or overexposure to asbestos, silica, silicates, aluminum, graphite, bauxite, beryllium, cotton dust or other textile material, or coal dust. "Noncommunicable respiratory illnesses" includes, but is not limited to asbestosis, coal worker's pneumoconiosis, and silicosis."

Mandatory reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident. Primary responsibility for reporting falls to the physician or other health practitioner attending the patient and to laboratories performing tests identifying the disease, including tissue biopsy testing that is diagnostic of the disease.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp. Call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours if you have questions.

B. References

National Institute of Occupational Health and Safety (NIOSH)
www.cdc.gov/niosh/topics/surveillance/ords/CoalWorkersHealthSurvProgram.html

Mine Safety and Health Administration: www.msha.gov/S&HINFO/BlackLung/Homepage2009.asp

PubMed Health www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001187/

CDC MMWR December 25, 2009 / 58(50);1412-1416 Coal Workers' Pneumoconiosis-Related Years of Potential Life Lost Before Age 65 Years --- United States, 1968--2006
www.cdc.gov/mmwr/preview/mmwrhtml/mm5850a4.htm

Merck Manuals Online Medical Library: www.merckmanuals.com/professional/sec05/ch057/ch057g.html

American Lung Association
Michigan State University
University of Iowa Virtual Hospital
University of Missouri
Pennsylvania State University
University of Pennsylvania
eMedicine
MedLine

Iowa Department of Public Health

Division of Environmental Health
Lucas State Office Building
321 E. 12th Street Des Moines, Iowa 50319-0075

Environmental and Occupational Poisonings, Injuries, Diseases, Conditions and Exposures

Disease reporting is required by Iowa Administrative Code [641]-1 (139A)

Fax report to 515-281-4529, call 1-800-972-2026 or mail to address above

PATIENT INFORMATION

Name: (Last) (First) (Middle Initial)

Address:

City: **County:** **Zip:**

Phone: Home ( ) - Work ( ) - Other ( ) -

DOB: / / **Age:** ☐Years ☐Months **Gender:** ☐M ☐F ☐Unk

Pregnant? ☐Yes ☐No ☐Unk **Due Date:** / /

Race: ☐White ☐Black or African American ☐American Indian or Alaska Native ☐Hawaiian or Pacific Islander ☐Asian ☐Unknown ☐Other

Marital status: ☐Single ☐Married ☐Widowed ☐Unknown ☐Divorced

Ethnicity: ☐Hispanic or Latino ☐Not Hispanic or Latino ☐Unknown

If minor, Parent name(s):

OCCUPATION INFORMATION

Occupation: **Job title:**

Employer name: **Address:**

City/State: **County:** **Zip code:**

Worked after symptom onset: ☐Yes ☐No ☐Unknown **Phone:** ( ) - Type:

DISEASE/EVENT INFORMATION

Test/Diagnosis date: / / **Onset date:** / /

Outcome as of reporting date: ☐Survived this illness ☐Died from this illness ☐Died unrelated to this illness ☐Unknown

Diagnosis:

☐Hypersensitivity pneumonitis
☐Non-communicable respiratory illness
☐Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction
☐Pesticide poisoning
☐Severe skin disorder
☐Toxic hepatitis

Clinical symptoms:

LABORATORY INFORMATION

Laboratory: **Lab city/state/zip:**

Collection date: / / **Result date:** / /

Lab test: **Specimen source:**

Result:

HOSPITALIZATION INFORMATION

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown **Hospital:**

Admission date: / / **Discharge date:** / / ☐**Still hospitalized** **Days hospitalized:**

MEDICAL PROVIDER INFORMATION

Provider name: **Facility name:**

Provider title: ☐ARNP ☐DO ☐MD ☐NP ☐PA **Address:**

Phone : ( ) - **City/State/Zip:**

REPORTER INFORMATION

Reporter name: **Reporter facility name:**

Reporter phone: **Date reported to IDPH:**

Comments:

FAX VERSION **Revised 5/10**

Who is required to report:
Health care providers, hospitals, clinical laboratories, and other health care facilities, school nurses or school officials, laboratories, poison control and poison information centers, medical examiners, occupational nurses and hospitals, health care providers and clinical laboratories are required to report all reportable poisonings and conditions to the Iowa Department of Public Health in the specified format below. Providers who treat Iowa patients outside the state of Iowa are also required to report.

Environmental and Occupational Diseases Reportable to the Iowa Department of Public Health

Diseases reportable to the Division of Environmental Health

Report by IDSS, phone, fax, or mail using the disease specific forms found at www.idph.state.ia.us/EH/default.asp	**Report by phone, fax, or mail using this form:**	**Medical Providers report by fax or mail using the Farm Injury Report Form:** OR **Trauma Sites report using the Iowa Trauma Registry (Bureau of EMS):** Agricultural related injury
Arsenic Poisoning Cadmium Poisoning Carbon Monoxide Poisoning Methemoglobinemia Mercury Poisoning	Hypersensitivity pneumonitis Non-communicable respiratory illness Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction Pesticide poisoning Severe skin disorder Toxic hepatitis	**Report electronically:** Lead poisoning (child or adult) (If ≥ 20 µg/dL report by phone) **Report by phone:** Microcystin (Blue-green algal) poisoning

How to report to the Division of Environmental Health

Phone (Mon-Fri 8 am-4:30 pm):	800-972-2026
Fax:	515-281-4529
Address:	Iowa Department of Public Health Division of Environmental Health Lucas State Office Building 321 E. 12th Street Des Moines, Iowa 50319-0075
24-hour Disease Reporting Hotline: (For use outside of EH office hours)	800-362-2736

Diseases reportable to the Bureau of Emergency Medical Services

Report by phone, fax, or mail using the Brain and Spinal Cord Injury Report Form found at www.idph.state.ia.us/ems/data.asp

Traumatic brain injury (TBI)
Traumatic Spinal Cord Injury (SCI)

How to report to the Bureau of Emergency Medical Services

Fax:	515-281- 0488
Address:	Iowa Department of Public Health Bureau of EMS Lucas State Office Building 321 E. 12th Street Des Moines, IA 50319-0075

Infectious and Communicable Diseases Reportable to the Iowa Department of Public Health

Diseases reportable to the Center for Acute Disease Epidemiology (CADE)

Please reference the Epi Manual for reportable infectious and communicable diseases and guidelines. The Epi Manual can be found on the Iowa Department of Public Health website: http://www.idph.state.ia.us/idph_universalhelp/main.aspx?system=IdphEpiManual

How to report to the Center for Acute Disease Epidemiology

24-hour Disease Reporting Hotline:	800-362-2736
Fax number:	515-281-5698
Iowa Disease Surveillance System (IDSS):	Contact the Center for Acute Disease Epidemiology at 800-362-2736

STD/HIV/AIDS Reporting to the Iowa Department of Public Health

STD/HIV/AIDS: report by mail	**Sexually transmitted disease (STD) reporting:** Use the Iowa Confidential Report of Sexually Transmitted Disease & HIV Infection for Chlamydia, Gonorrhea and Syphilis
HIV/AIDS cases or HIV-exposed newborn infant: ▪ *Healthcare providers:* use the Pediatric or Adult Confidential Case Report Form ▪ *Laboratories:* send copy of lab report or the Iowa Confidential Report of Sexually Transmitted Disease & HIV Infection	**For questions on HIV/AIDS call (515) 242-5141** **For questions on STDs call (515) 281-3031**

For more information, visit our website at http://www.idph.state.ia.us

Report the following IMMEDIATELY to the 24/7 DISEASE REPORTING HOTLINE: 800-362-2736

Outbreaks of any kind, unusual syndrome, or uncommon diseases. These could be infectious, environmental or occupational in origin and may include food-borne outbreaks and illness secondary to chemical exposure (e.g. pesticides, anhydrous ammonia).

Diseases or syndromes of any kind caused by a biological, chemical or radiological agent or toxin when there is reasonable suspicion that the agent or toxin may be the result of a deliberate act such as terrorism. Examples of these agents or toxins include (but are not limited to) anthrax, mustard gas, sarin gas, ricin, tularemia, and smallpox.

HYPERSENSITIVITY PNEUMONITIS

Also known as: Extrinsic Allergic Alveolitis; Farmer's lung; Mushroom pickers disease; Humidifier or air-conditioner lung; Bird breeder's lung; and many others – see table.

Responsibilities:

Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the IDPH Division of Environmental Health:

Iowa Department of Public Health
Division of Environmental Health
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Agent

Hypersensitivity pneumonitis is a syndrome of cough, dyspnea, and fatigue caused by sensitization and subsequent hypersensitivity to environmental antigens, frequently related to occupational exposures.

These dusts can be derived from a variety of sources, such as dairy and grain products, animal dander and protein, wood bark, and water reservoir vaporizers. Over 300 antigens have been identified as triggers for hypersensitivity pneumonitis, although farming, birds, and water contamination account for about 75% of cases. The most common antigens are thermophilic *Actinomycetes* species and avian proteins; the most common diseases are farmer's lung and bird fancier's lung.

Hypersensitivity Pneumonitis Syndrome – Various Types and Sources

Syndrome Names	Antigen or Agent	Exposure Source
Bagassosis	Thermophilic actinomycetes	Moldy bagasse (sugar cane)
Cheese worker or washer's lung	*Aspergillus clavatus; Penicillium casei; Penicillium roqueforti*	Moldy cheese
Coffee worker's lung	Coffee bean dust	Coffee beans
Compost lung	*Aspergillus* sp	Compost
Farmer's lung	Fungi, especially *Aspergillus* sp; Thermophilic actinomycetes	Vegetable compost (moldy grain, hay, silage)

Syndrome Names	Antigen or Agent	Exposure Source
Mushroom worker's lung	*Hypsizigus marmoreus* Thermophilic actinomycetes	Mushroom compost
Potato riddler's lung	*Aspergillus* sp Thermophilic actinomycetes	Moldy hay around potatoes
Tobacco grower's lung	*Aspergillus* sp *Scopulariopsis brevicaulis*	Tobacco plants
Tobacco grower's lung	*Botrytis cinerea*	Moldy grapes
WATER		
Hot tub lung	*Cladosporium* sp *Mycobacterium avium* complex	Contaminated mist and mold on ceilings and around tub
Humidifier lung	*Aureobasidium* sp; *Candida albicans*; Thermophilic actinomycetes	Contaminated water in air-conditioning or humidification systems
Sauna taker's lung	*Aureobasidium* sp	Contaminated sauna water
Sewer worker's lung	*Cephalosporium* sp	Contaminated basements (sewage); sewers
Tap water lung	Unknown	Contaminated tap water
BIRDS		
Bird fancier's lung, including: hen worker's lung, pigeon breeder's lung, turkey handler's lung; feather plucker's lung; duck fever	Parakeet, pigeon, chicken, turkey, and duck proteins	Bird droppings or feathers
ANIMALS		
Fish food lung	Unknown	Fish food
Fish meal worker's lung	Fish meal dust	Fish meal dust
Furrier's lung	Animal fur dust	Animal pelts
Laboratory worker's hypersensitivity pneumonitis	Rodent proteins	Male rat urine and fur
Mummy handler's lung	Unknown	Cloth mummy wrappings
Pituitary snuff taker's lung	Animal proteins	Heterologous (bovine, porcine) pituitary snuff
Sausage worker's lung	*Penicillium nalgiovense*	Dry sausage mold
GRAINS		
Malt worker's lung	*Aspergillus* sp	Moldy barley
Miller's lung, Wheat weevil lung	*Sitophilus granaries* (wheat weevil)	Infested wheat flour
MILLING AND CONSTRUCTION		
Sequoiosis	*Aureobasidium* sp; *Graphium* sp	Redwood sawdust
Thatched-roof worker's disease	*Saccharomonospora viridis*	Dried grass and leaves
Wood pulp worker's disease	*Penicillium* sp	Oak and maple tree pulp
Wood trimmer's disease	*Rhizopus* sp; *Mucor* sp	Contaminated wood trimmings
Woodworker's lung	*Alternaria* sp; *Bacillus subtilis*	Oak, cedar, pine, spruce, and mahogany dusts

Syndrome Names	Antigen or Agent	Exposure Source
INDUSTRY		
Chemical worker's lung	Isocyanates	Polyurethane foam, varnishes, lacquer
Detergent worker's lung	*Bacillus subtilis*	*B. subtilis* enzymes in detergent
Vineyard sprayer's lung	Copper sulfate	Copper sulfate use
OTHER		
Byssinosis (brown lung)	Mill dust	Cotton, flax, and hemp dust
Lycoperdonosis	Spores from puffball (*Lycoperdon*) mushrooms	Alternative medicine or recreational use (mistaking puffballs for hallucinogenic mushrooms)

Table reference: Merck Medical Manuals, 2008 accessed 3/15/11
www.merckmanuals.com/media/professional/pdf/Table_055-5.pdf

B. Clinical Description

Hypersensitivity pneumonitis is a syndrome of cough, dyspnea, and fatigue caused by prior sensitization over a period of time resulting in subsequent hypersensitivity to organic environmental antigens. Only a small proportion of exposed people develop symptoms.

Symptoms and onset: Hypersensitivity pneumonitis is categorized as acute, subacute, or chronic disease.

- Acute hypersensitivity pneumonitis: The acute form may develop 4-6 hours after heavy exposure to antigenic materials. Patients abruptly develop fever, chills, malaise, cough, chest tightness, dyspnea, and headache. Anorexia, nausea, and vomiting may also be present. Symptoms often resolve spontaneously within 12 hours to several days upon cessation of exposure.

- Subacute (intermittent) hypersensitivity pneumonitis: Subacute disease falls between the acute and chronic forms and manifests either as a productive cough, dyspnea, fatigue, and anorexia that develops over days to weeks or similarly to patients with acute disease, but superimposed on chronic symptoms that are less severe and last longer.

- Chronic hypersensitivity pneumonitis: Patients with chronic low-level antigen exposure, which is more common with bird owners, often lack a history of acute episodes. Disease manifests over months to years as exertional dyspnea, productive cough, fatigue, muscle wasting and weight loss. Clubbing is observed in 50% of patients. Tachypnea, respiratory distress, and inspiratory crackles over lower lung fields often are present. In advanced cases, pulmonary fibrosis produces signs and symptoms of right heart failure, respiratory failure, or both. Removing exposure sources results in only partial improvement.

- **Complications:** Pathologic changes are completely reversible if detected early and if antigen exposure is eliminated. Patients may develop complications of underlying medical problems during acute disease episodes. Acute disease is self-limiting with antigen avoidance; symptoms usually lessen within hours. Chronic disease has a more complicated prognosis: fibrosis is usually irreversible, but may not progress if the patient is no longer exposed to the antigen.

Case classification* – A Diagnostic Criteria for Hypersensitivity Pneumonitis

Category	Specifics
Case Classification	
Definite	**1, 2, and 3** **1, 2, and 4a** **1, 2a, 3, and 5** **2, 3, and 5**
Probable	**1, 2a and 3**
Subclinical	**1 and 3a**
Sensitization	**1 only**
Diagnostic Criteria:	
1. Known exposure to antigen	a. History of exposure b. Confirmation of antigen in environment by investigation c. Presence of elevated, specific IgG serum precipitins to an antigen obtained from the patient's environment
2. Clinical, imaging, and pulmonary function test findings	a. Characteristic symptoms and signs (especially after antigen exposure) b. Characteristic chest x-ray or high-resolution CT findings c. Abnormal pulmonary function test results
3. Lymphocytosis in bronchoalveolar lavage fluid	a. $CD4^+/CD8^+$ ratio < 1 b. Positive response to lymphocyte transformation testing
4. Recurrence of clinical and pulmonary function test findings with antigen challenge testing	a. Environmental exposure b. Controlled exposure to antigen extract
5. Histologic findings	a. Noncaseating granulomas b. Mononuclear cell infiltrate

*Source: Merck Manual Professional, Hypersensitivity Pneumonitis, 2008. Accessed online March 2011. www.merckmanuals.com/professional/sec05/ch055/ch055e.html

C. Reservoirs:

Environmental reservoirs can be found wherever the host for the antigenic material is present. Areas with conditions that are conducive to fungi and mold growth, indoor and confined spaces with limited ventilation, and storage areas are more likely to concentrate allergenic materials.

D. Modes of Transmission

Transmission is usually through airborne inhalation of allergenic particles.

E. Incubation period:

Not an infectious agent; see symptoms and onset, above

F. Period of Communicability or Infectious Period

Not an infectious agent, although antigenic particles can be transferred on clothing and equipment to other locations, which could theoretically cause an allergenic reaction in a susceptible individual if enough antigenic material was present.

G. Epidemiology

Serological testing supports the clinical diagnosis of hypersensitivity pneumonitis by detecting antibodies to a number of different environmental antigens. However, the presence of antibodies does not necessarily indicate hypersensitivity pneumonitis. Antibodies may be detected in normal individuals. Studies have found up to 85% of farmers have antibodies to common allergens but show no evidence of disease.

Frequency - United States: Incidence varies considerably. Studies document 8-540 cases per 100,000 persons per year for farmers and 6,000-21,000 cases per 100,000 persons per year for pigeon breeders. High attack rates are documented in sporadic outbreaks. Approximately 52% of office workers exposed to an infected humidifier were infected, and 27% of workers at a molding plant for polyurethane foam parts were infected.

Prevalence varies by region, climate, and farming practices. Hypersensitivity pneumonitis affects 0.4-7% of the farming population. Reported prevalence among bird fanciers is estimated to be 20-20,000 cases per 100,000 persons at risk.

Mortality/Morbidity: Most patients recover completely after the inciting exposure ceases. Bird fancier's disease has a worse prognosis than farmer's lung. The outcomes of other varieties of hypersensitivity pneumonitis are more variable.

Sex: One epidemiological study revealed a male to female ratio of 1.2:1.

Age: Hypersensitivity pneumonitis is usually seen in the fourth to sixth decade of life. One study looking at 85 consecutive patients with hypersensitivity pneumonitis found a mean age of 53 +/- 14 years.

H. Bioterrorism Potential - None

2) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To quantify the impact of the disease in Iowa
- To identify and control outbreaks involving groups of people.
- To help identify high-risk sources (*e.g.,* materials at worksites, workers in a facility with excess dust or other allergen) and recommend interventions to assist in the prevention of additional cases.
- To monitor the emergence of new types of hypersensitivity pneumonitis or new risk groups.
- To assist in the development of recommendations for control or prevention.

B. Laboratory and Healthcare Provider Reporting Requirements

All cases are required to be reported.

Mandatory Reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp. Call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours if you have questions.

C. Local Public Health Agency Follow-up Responsibilities - None; elective involvement in outbreak situations.

3) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements - None.

B. Protection of Contacts of a Case - None.

C. Managing Special Situations

When Reported Incidence Is Higher than Usual/Outbreak Suspected

If an outbreak is suspected, investigate to determine the type and source of exposure and mode of transmission that may be involved. Clues in the history include recurring atypical pneumonias; symptom onset with a recent history of work or activity involving environments with exposure to allergens known to cause the syndrome (see table); onset after moving to a new job or home; having birds as a hobby or pets; exacerbation of symptoms in specific settings and relief of symptoms away from specific settings.

Consult with the IDPH Environmental Health Occupational Health & Safety Surveillance program staff at (800) 972-2026 to help determine a course of action to prevent further cases, or to provide referral for additional information/action.

D. Preventive Measures

Workers should be protected by preventing or minimizing exposures to airborne contaminants by controlling dust at its source and by using controls such as ventilation and dust suppression. Exposure to dust and mold can be decreased by providing appropriate mechanical ventilation, wearing a respirator, storing only dried materials to prevent exposure to mold, and wetting materials before moving them to reduce exposure to dust.

The most important aspect of long-term management is avoidance of exposure to antigens. A complete change of environment is rarely realistic, especially for farmers and other workers, in which case dust control measures (such as wetting down compost before disturbing it) or using air filters or protective masks may be effective. Fungicides may be used to prevent the growth of antigenic microorganisms (e.g., in hay or on sugar cane), but the long-term safety of this approach is unknown. Extensive cleaning of wet ventilation systems, removal of moist carpets, and maintenance of low humidity are also effective in some settings. Patients must be told, however, that these measures may be inadequate in the presence of continued exposure to allergens.

4) ADDITIONAL INFORMATION

References

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CDC/NIOSH Health Hazard Evaluation Report HETA 92-0122-2570. Accessed March 2011 www.cdc.gov/niosh/hhe/reports/pdfs/1992-0122-2570.pdf

NIOSH Request for Assistance in Preventing Organic Dust Toxic Syndrome, Publication 94-102, April 1994 www.cdc.gov/niosh/docs/94-102/

LEAD POISONING

1. The Disease Definition

A. Clinical Description

Lead has adverse effects on nearly all the body's organ systems. It is especially harmful to the developing brains and nervous systems of children under the age of 6 years. At very high blood lead levels, children can have severe brain damage or even die. At blood lead levels as low as 10 micrograms per deciliter (µg/dL), children's intelligence, hearing, and growth are affected. This damage can be stopped if a child's lead exposure is reduced. A number of studies have estimated that a child's IQ will drop by one to three points for every increase of 10 µg/dL in the child's blood lead level. In a community, the presence of lead-poisoned children can be associated with an increase in the number of children with developmental deficits and learning disorders.

Adults

The health effects of lead in adults include weakness or loss of feeling in arms or legs, headaches, irritability, depression, high blood pressure, anemia, and infertility.

Many lead-poisoned adults do not have symptoms. Some, however, may have trouble remembering and concentrating, tire easily, or be unable to sleep. Adults may also have the symptoms mentioned above. They are more likely to have these symptoms if their lead levels are high for a long time. Adults who have high blood lead levels for a long time may also become anemic. Men may have a low sperm count. Women may have trouble becoming pregnant.

Children

Most lead-poisoned children do not show any signs of the disease. Some, however, may be easily excited, unable to pay attention, have stomachaches, or be more tired than usual. Lead-poisoned children may have learning and behavior problems as they grow older. Children with very high lead levels may develop seizures, become unconscious, or even die.

B. Sources of Exposure

Children

Iowa's children are most commonly poisoned by lead-based paint in homes built before 1950. It becomes a hazard as it deteriorates and lead-based paint chips end up on the floors and in window wells throughout the home as well as in the soil around the exterior. The paint chips also crumble and become part of the dust on the floors and window troughs. These homes are considered to have lead-based paint throughout. Young children who live there become lead-poisoned when they put paint chips or exterior soil in their mouths or when they get house dust and soil on their hands and put their hands in their mouths. Children can also be poisoned by dust on the clothes of parents who work with lead and by ethnic remedies such as azarcon.

Adults

Adults are usually lead-poisoned by breathing lead fumes and lead dust. They can also get lead dust on their hands, face and clothes. Then, if they eat, smoke, or apply cosmetics without washing their hands and face, they ingest lead dust. Most Iowa adults become lead-poisoned by working with lead in their jobs. Lead is used in lead battery production, welding, radiator repair, metal cutting, and sandblasting. Some adults have been lead-poisoned at home by removing lead-based paint from older homes or by remodeling such homes without following safety guidelines. Some adults are lead-poisoned by working with lead in hobbies like molding bullets, stripping furniture, or making stained glass items. Anything that produces lead dust or fumes can cause lead poisoning.

C. Population at Risk

All of Iowa's children under age 6 years are considered at risk for lead poisoning. Adults who work with lead on the job or in a hobby are also considered to be at risk.

Among children born between January 1, 1997 and December 31, 1999, 57.3 percent had at least one blood-lead test before the age of 6. Statewide, the prevalence of elevated blood-lead levels among this group was 7.6 percent, more than four times the national average of 1.6 percent.

D. Diagnosis, Treatment, and Prognosis. The only way to tell if a person is lead-poisoned is to get a blood-lead test.

Children

All Iowa children under the age of 6 should be tested regularly for lead poisoning. This test is required for children who are enrolled in Medicaid. Many children have normal blood-lead levels at 6-12 months of age. However, these same children may become lead-poisoned when they are older and more active, so it is important to get their blood lead tested at least once a year until they are 6 years old. Children are considered lead-poisoned at a blood lead level of 10 micrograms per deciliter. Initial testing can be done with a capillary blood sample. Capillary blood lead levels greater than or equal to 15 micrograms per deciliter should be confirmed with a venous blood-lead test.

Adults

Employers may be required to provide blood-lead testing for adults who work with lead on the job. Adults who have recently remodeled an older home or removed paint from it or who work with lead in a hobby should get a blood-lead test. Adult males and adult females who do not plan to have children should keep their blood-lead levels less than 25 micrograms per deciliter. Adult females who plan to have children should keep their blood-lead levels less than 10 micrograms per deciliter because lead can cross the placenta and poison an unborn child. Venous blood-lead samples should be used for adults.

The primary "treatment" for both adults and children is to reduce exposure to lead. The primary medical treatment is frequently monitoring the patient's blood-lead levels to determine whether exposure to lead is actually being reduced. Testing for iron deficiency is often indicated.

Children with blood-lead levels greater than or equal to 45 micrograms per deciliter, and adults with blood-lead levels greater than or equal to 80 micrograms per deciliter, should be treated with chelating agents. An occupational health physician may prescribe chelating agents for adults with lower blood lead levels on a case-by-case basis.

The reduction of exposure to lead will cause blood-lead levels to drop and will prevent further damage. However, any neurological damage that has already resulted from lead exposure cannot be reversed.

E. Prevention of Exposure

For children, the primary method of preventing exposure is to maintain lead-based paint in older homes in good condition and to use safe work practices when disturbing lead-based paint. For adults, the primary method to prevent exposure through the workplace and hobbies is to use engineering controls to reduce air-lead levels and to use protective clothing and respirators to reduce inhalation and ingestion of lead.

2. Reporting Criteria

A. Disease Reporting

The results of **all** blood-lead testing done on both adults and children must be reported to the Bureau of Lead Poisoning Prevention at the Iowa Department of Public Health. For patients under the age of 16 years, blood-lead test results greater than or equal to 20 micrograms per deciliter must be reported by telephoneto the Bureau of Lead Poisoning Prevention at 800-972-2026. This allows the bureau to start the follow-up process as soon as possible. Providers with concerns about lower blood-lead levels or any questions about blood-lead

testing or lead poisoning are also welcome to call the bureau. All results, including those reported by phone, must be reported electronically or on paper. The following information must be reported for each blood-lead test result:

- Patient's name, address, and date of birth.
- Name and address of provider ordering the test.
- Name of the laboratory that performed the analysis.
- Date of sample collection.
- Whether the test is capillary or venous.
- Results in micrograms per deciliter.

If this information is not included, the bureau will contact the laboratory and/or provider to get it. Some laboratories and providers have been hesitant because they believe it is a violation of the Health Insurance Portability and Accountability Act (HIPAA). However, the Iowa Administrative Code requires reporting of this information, and HIPAA states that providers must follow the law and report it.

Iowa regulations require both the health-care provider and the laboratory to report. However, the regulations also state that the provider does not need to report if the analytical laboratory reports all results to the bureau. Providers should check periodically to ensure that their hospital laboratory and/or analytical laboratory is reporting all blood-lead test results to the bureau.

B. References

Iowa Department of Public Health

Mercury Poisoning

1. The Disease Definition

Mercury is naturally occurring and is the only metal that is liquid at room temperature. It is found in organic and inorganic forms. The inorganic form can be further divided into elemental mercury and mercuric salts. Organic mercury can be found in long and short alkyl and aryl compounds. High mercury exposure results in permanent nervous system and kidney damage.

A. Clinical Description

Mercury in any form is toxic. There is a difference, however, in how it is absorbed, the clinical signs and symptoms, and the response to treatment modalities. Mercury poisoning can result from vapor inhalation, ingestion, injection, or absorption through the skin.

Elemental mercury can be in liquid form, which easily vaporizes at room temperature and is well absorbed (80 percent) through inhalation. Its lipid-soluble property allows for easy passage through the alveoli into the bloodstream and red blood cells. Once it is inhaled, elemental mercury mostly converts to an inorganic divalent or mercuric form by catalase in the erythrocytes. Small amounts of non-oxidized elemental mercury continue to persist and account for central nervous system toxicity. Elemental mercury as a vapor can penetrate the central nervous system, where it is ionized and trapped, attributing to its significant toxic effects. Elemental mercury is not well absorbed by the gastrointestinal tract and, therefore, when ingested, is only mildly toxic.

Short-term exposure (hours) to high levels of metallic mercury vapor in the air can damage the lining of the mouth and irritate the lungs and airways, causing tightness of the chest, a burning sensation in the lungs, and coughing. Other effects include nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Damage to the lining of the mouth and lungs can also occur from exposure to lower levels of mercury vapor over longer periods (for example, in some occupations where workers were exposed to mercury for many years).

Inorganic mercury, found mostly in mercuric salt, is highly toxic and corrosive. It enters the body orally or dermally and is absorbed at a rate of 10 percent of whatever is ingested. It accumulates mostly in the kidney, causing significant renal damage. Although poor lipid solubility limits penetration of the central nervous system, slow elimination and chronic exposure allow significant accumulation of mercuric ions in the central nervous system and subsequent toxicity. Long-term dermal exposure to inorganic mercury may also lead to toxicity.

Organic mercury can be found in three forms, aryl and short and long chain alkyl compounds. Organic mercurials are absorbed more completely from the gastrointestinal tract than are inorganic salts. Once absorbed, the aryl and long chain alkyl compounds are converted to their inorganic forms and possess similar toxic properties to inorganic mercury. The short chain alkyl mercurials are readily absorbed in the gastrointestinal tract and remain stable in their initial forms. Alkyl organic mercury has high lipid solubility and is distributed uniformly throughout the body, accumulating in the brain, kidney, liver, hair, and skin. Organic mercurials also cross the blood brain barrier and placenta and penetrate erythrocytes, attributing to neurological symptoms, teratogenic effects, and high blood-to-plasma ratio.

All forms of mercury are toxic to the fetus, but methylmercury most readily passes through the placenta. Even with an asymptomatic patient, maternal exposure can lead to spontaneous abortion or retardation.

Symptoms vary, depending on the nature of the exposure, the intensity of the exposure, and the chemical form. Acute toxicity usually results from the inhalation of elemental mercury or ingestion of inorganic mercury. Exposure to organic mercury leads to chronic toxicity and, occasionally, acute toxicity.

Acute exposure caused by inhaled elemental mercury can lead to pulmonary symptoms. Initial signs and symptoms, such as fever, chills, shortness of breath, metallic taste, and pleuritic chest pain, may be confused with metal-fume fever, which is caused by cadmium exposure. Other possible symptoms include stomatitis, lethargy, confusion, and vomiting.

Inorganic mercury or mercuric salt exposure mainly occurs through the oral and gastrointestinal tract. Its corrosive properties account for most of the acute signs and symptoms of inorganic mercury or mercuric salt toxicity. The acute presentation can include ashen-gray mucous membranes secondary to precipitation of mercuric salts, hematochezia, vomiting, severe abdominal pain, and hypovolemic shock. Systemic effects usually begin several hours after ingestion and may last several days. These effects include metallic taste, stomatitis, gingival irritation, foul breath, loosening of teeth, and renal tubular necrosis leading to oliguria or anuria.

Chronic exposure results in renal failure, dementia, and acrodynia. Acrodynia, known as pink disease and considered to be a mercury allergy, presents with erythema of the palms and soles, edema of the hands and feet, desquamating rash, hair loss, pruritus, diaphoresis, tachycardia, hypertension, photophobia, irritability, anorexia, insomnia, poor muscle tone, and constipation or diarrhea. Acrodynia does not present in everyone who is exposed to inorganic mercury, but it is an indicator of widespread disease.

The onset of symptoms usually is delayed (days to weeks) after exposure. Organic mercury targets enzymes, and the depletion of these enzymes must occur before the onset of symptoms. Toxicity symptoms are typically neurological, such as visual disturbance (e.g., scotomata, visual field constriction), ataxia, paresthesias (early signs), hearing loss, dysarthria, mental deterioration, muscle tremor, movement disorders, and, with severe exposure, paralysis and death. Organic mercury targets specific sites in the brain, including the cerebral cortex (especially visual cortex), motor and sensory centers (precentral and postcentral cortex), auditory center (temporal cortex), and cerebellum.

B. Sources of Exposure

Sources of exposure to elemental mercury include barometers, batteries, bronzing, calibration instruments, chlor-alki production, dental amalgams, electroplating, fingerprinting products, fluorescent and mercury lamps, infrared detectors, the jewelry industry, manometers, neon lamps, paints, paper pulp production, photography, silver and gold production, semiconductor cells, and thermometers.

Sources of exposure to inorganic mercury toxicity include antisyphilitic agents, acetaldehyde production, chemical laboratory work, cosmetics, disinfectants, explosives, embalming, fur hat processing, ink manufacturing, mercury vapor lamps, mirror silvering, the perfume industry, photography, spermicidal jellies, tattooing inks, taxidermy production, vinyl chloride production, and wood preservation.

Sources of exposure to organic mercury include antiseptics, bactericidals, embalming agents, the farming industry, fungicides, germicidal agents, insecticidal products, laundry products, diaper products, paper manufacturing, pathology products, histology products, seed preservation, wood preservatives, and contaminated food (mainly seafood).

People who utilize complementary and alternative medicine (CAM) may have an increased risk of exposure to a variety of toxic substances including mercury, especially when using products that are manufactured outside of the USA.

Occupational exposure to mercury hazards are addressed in specific OSHA (Occupational Safety and Health Administration) standards for the general industry, shipyard employment, and the construction industry. More information is available at www.osha.gov/SLTC/mercury/, including exposure limit information from OSHA, the National Institute for Occupational Safety and Health (NIOSH), and the American Conference of Industrial Hygienists (ACGIH).

C. Population at Risk

The 2011 annual report of the American Association of Poison Control Centers' National Poison Data System documented 3,957 exposures to mercury or compounds containing mercury. Of these, 764 were in children younger than 6 years and 1,338 were in persons older than 19. Overall, 44 people were reported to have moderate effects, two had major effects, and no one died as a result of mercury exposure. A cluster of mercury poisonings was seen in Iowa in 2011 from the use of Ayurvedic products obtained from India.

D. Diagnosis, Treatment, and Prognosis

Mercury in urine is used to test for exposure to metallic mercury vapor and to inorganic forms of mercury. Measurement of mercury in whole blood or scalp hair is used to monitor exposure to methylmercury. Urine is not useful for determining whether exposure has occurred to methylmercury. Levels in blood, urine, and hair may be used together to predict possible health effects that may be caused by the different forms of mercury. Whole blood mercury levels are usually less than 2 micrograms per deciliter (µg/dL) in unexposed people, except for those with a high dietary intake of fish

Methylmercury concentrates in erythrocytes; therefore, mercury levels in blood remain high in acute toxicity. The blood level correlation with chronic methylmercury toxicity is more variable. Methylmercury exhibits a blood-to-plasma ratio of 20:1, a characteristic of inorganic mercury. This higher ratio may be useful in determining if the patient was exposed to organic or inorganic mercurials. Aryl mercury compounds accumulate in red blood cells, but are metabolized to inorganic mercury more rapidly, thus, demonstrating lower blood-to-plasma ratios than those observed with methyl mercury exposures. Following high exposure to inorganic mercury salts, the blood-to-plasma ratio ranges from a high of 2:1, to 1:1. Paraesthesias are expected if blood mercury levels are higher than 20 µg/dL.

Inorganic mercury redistributes to other body tissue; thus, its levels in the blood are accurate only after acute ingestion. In general, blood levels of mercury are helpful for recent exposures and for determining if the toxicity is secondary to organic or inorganic mercury, but not for a guide to therapy. Urine mercury levels are typically less than 10 to 20 µg/L. Excretion of mercury in urine is a good indicator of inorganic and elemental mercury exposure but is unreliable for organic mercury (methylmercury) because elimination occurs mostly in the feces. No absolute correlation exists between the urine mercury levels and the onset of symptoms; however, levels higher than 300 µg /L are associated with overt symptoms. Mercury levels in the urine also can be used to gauge the efficacy of chelation therapy. For workers chronically exposed to mercury compounds, urinary excretion with mercury levels higher than 50 µg /L is associated with an increased frequency of tremor.

Do not induce emesis if the compound ingested is of the caustic inorganic form. Gastric lavage is recommended for organic ingestion, especially if the compound is observed on the abdominal x-ray series. Gastric lavage with protein-containing solutions (e.g., milk, egg whites, salt-poor albumin) or 5 percent sodium formaldehyde sulfoxylate solution may bind gastric mercury and limit its absorption. Activated charcoal is indicated for gastrointestinal decontamination because it binds inorganic and organic mercury compounds to some extent. Whole bowel irrigation may be used until rectal effluent is clear and void of any radiopaque material. However, effectiveness in decreasing the gastrointestinal transit time of elemental mercury is doubtful because of the high density of elemental mercury and the low density of the whole bowel irrigant solutions. Likewise, whole bowel irrigation has no adsorptive effect on any type of mercury within the gastrointestinal tract.

Use chelating agents if the patient is symptomatic, if systemic absorption is anticipated, or if increased blood or urine levels are present. Chelating agents contain thiol groups, which compete with endogenous sulfhydryl groups.

Hemodialysis is used in severe cases of toxicity when renal function has declined. The ability of regular hemodialysis to filter out mercury is limited because of mercury's mode of distribution among

erythrocytes and plasma. However, hemodialysis, with L-cysteine compound as a chelator, has been successful.

Neostigmine may help motor function in methylmercury toxicity. This toxicity often leads to acetylcholine deficiency. Polythiol is a non-absorbable resin that can help in facilitating the removal of methylmercury, which is then excreted in the bile after enterohepatic circulation.

The outcome depends on the form of the mercury compound and severity of exposure. Mild exposure can result in a complete recovery. Severe exposure to mercuric salt is usually fatal. Most organic mercury exposures leave a neurological sequela. Very minimal dermal exposure to dimethyl mercury has resulted in progressive neurologic deterioration and death, with initial symptoms delayed for several months.

E. Prevention of Exposure

Controlling occupational mercury exposure is best accomplished through substituting it with a non-toxic chemical, depending on the application. If this cannot be done, engineering, administrative, and personal protective equipment (PPE) including protective clothing and respirators should be used.

Information regarding how to safely handle, dispose of, or recycle fluorescent light bulbs that may contain mercury is available at www.epa.gov/solidwaste/hazard/wastetypes/universal/lamps/index.htm.

If a household thermometer is broken, the amount of mercury contained in an oral thermometer is small and does not present an immediate threat to human health. However, if it is not properly cleaned up and disposed of, it may present a health risk over time, particularly to infants, toddlers, and pregnant women. If a thermometer is broken on a counter top or uncarpeted floor, children should be removed from the area. Mercury is not absorbent, so it should not be wiped or blotted up with a cloth or paper towel. That will only spread the mercury and break it up into smaller beads, making it more difficult to find and remove. Instead, the beads of metallic mercury should be cleaned up by using one sheet of paper to carefully roll them onto a second sheet of paper, or by sucking very small beads of mercury into an eyedropper. After picking up the metallic mercury in this manner, it should be placed in a plastic bag or airtight container. The paper and eyedropper should also be bagged in a zip-lock plastic container. All plastic bags used in the cleanup should then be taken outside of the house or apartment and disposed of properly, according to instructions provided by the local health department or environmental officials. The room should be ventilated with outside air and closed off from the rest of the home. Fans that direct the air to the outside and away from the inside of the house should be used for a minimum of one hour to speed the ventilation. See also www.epa.gov/mercury/spills/index.htm#thermometer.

If larger amounts of metallic mercury are found (for example, a jar of liquid mercury), they should be contained in an airtight container, and the local health department should be called for instructions on how to safely dispose of it. If the mercury is in an open container or the container does not have a lid, a piece of plastic wrap should be placed around the top of the container to prevent vapors from escaping; then the handler's hands should be washed thoroughly. If a larger amount is spilled, people should leave the area and the local health department and fire department should be contacted. Metallic mercury should not simply be thrown away. Instead, professional help should be sought.

Consumers of complementary and alternative medicine supplements, especially those manufactured outside of the USA should discuss their risk of exposure to heavy metals and other toxins with their medical practitioners to determine the need for testing or intervention. An FDA fact sheet is available at www.fda.gov/downloads/ForConsumers/ConsumerUpdates/ucm050819.pdf.

The FDA advises that pregnant women and women of childbearing age who may become pregnant should not eat shark, swordfish, king mackerel, or tilefish. This advice is given because methylmercury (short chain alkyl organic mercury) levels are relatively high in these fish species. Women of childbearing

age are included in this advice because dietary practices immediately before pregnancy could have a direct bearing on fetal exposure during pregnancy, particularly during the earlier months.

2. Reporting Criteria

A. Disease Reporting

Mercury poisoning is reportable if:

- Blood mercury values are equal to or greater than the equivalent of 2.8 micrograms per deciliter.
- Urine mercury values are equal to or greater than the equivalent of 20 micrograms per liter.

Mercury poisonings must be reported within a week to the Iowa Department of Public Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Reporting can be through the Iowa Disease Surveillance System (IDSS), or by phone, fax, or mail. The preferred reporting method is through IDSS. To report via phone, fax or mail, please use the contact information and Mercury Case Report Form available in the Epi Manual and online at www.idph.state.ia.us/eh/reportable_diseases.asp.

Mercury

Agency: ____
Investigator: ____ Phone number: ____

STATE ONLY
Status: ☐ Confirmed ☐ Probable ☐ Suspect ☐ Not a case ☐ Exposure
Reviewer initials:
Referred to another state:

CASE

Last name: ____ Date of Birth: / / Estimated? ☐ Age:
First and middle name: ____ Gender: ☐ Female ☐ Male ☐ Other ____
Maiden name: ____ Suffix: ____ Pregnant: ☐ Yes ☐ No ☐ Unk Est. delivery date: / /
Address line: ____ Marital status: ☐ Single ☐ Married ☐ Separated ☐ Divorced ☐ Parent with partner ☐ Widowed
Zip: ____ City: ____ Race: ☐ American Indian or Alaskan Native ☐ Unknown ☐ Black or African American ☐ White ☐ Hawaiian or Pacific Islander ☐ Asian
State: ____ County: ____ Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Unknown
Phone: ( )- - Type: ____
Long-term care resident: ☐ Yes ☐ No ☐ Unknown Parent/Guardian name: ____
Facility name: ____ Parent/Guardian phone: ( )- - Type: ____

EVENT

Diagnosis date: / / Onset date: / /
Event outcome: ☐ Survived this illness ☐ Died from this illness ☐ Died unrelated to this illness ☐ Unknown
Outbreak related: ☐ Yes ☐ No ☐ Unknown
Outbreak name: ____
Exposure setting: ____
Epi-linked: ☐ Yes ☐ No ☐ Unk To whom: ____
Location acquired: ☐ In USA, in reporting state ☐ In USA, outside reporting state ☐ Outside USA ☐ Unknown
State: ____ Country: ____

Healthcare provider information

Last name: ____
First name: ____
Provider title: ☐ ARNP ☐ MD ☐ DO ☐ NP ☐ PA
Facility name: ____
Address line 1: ____
Address line 2: ____
Zip code: ____ City: ____
State: ____ County: ____
Phone : ( )- - Type: ____

LABORATORY FINDINGS

Laboratory: ____ Accession #: ____ Collection date: / /
Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ____ Test Result: ____
Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ____ Accession #: ____ Collection date: / /
Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ____ Test Result: ____
Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ____ Accession #: ____ Collection date: / /
Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ____ Test Result: ____
Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

OCCUPATIONS

Is the case employed, enrolled in school, or attending a child care facility? Interpret 'occupation' very loosely and consider every person to have at least one 'occupation'
(Complete the following sections for each known occupation)

Occupation #1:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in				
Attend school:	☐ Yes ☐ No ☐ Unknown		lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

Occupation #2:		Job title:					
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:					
Date worked from:	/ /	Address:					
Date worked to:	/ /	Zip code:					
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:	
Date removed:	/ /	Phone:	( )- - Type:				
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown			
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in				
Attend school:	☐ Yes ☐ No ☐ Unknown		lab or health care setting:	☐ Yes ☐ No ☐ Unknown			
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:				

HOSPITALIZATIONS

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown

Hospital: _____ Isolated at entry: ☐ Yes ☐ No ☐ Unk Isolation type (entry): _____

Admission date: / / Discharge date: / / Days hospitalized: _____

Currently isolated: ☐ Yes ☐ No ☐ Unk Current isolation type:

CLINICAL INFO & DIAGNOSIS

Reporting source: ☐ **Laboratory** ☐ **Physician** ☐ **Poison Control** ☐ **Self diagnosis**

List any pre-existing medical conditions: _____

Symptoms

Symptoms:

☐Abdominal pain	☐Decreased concentration	☐Hearing impairments	☐Muscle stiffness	☐Respiratory failure
☐Abnormal sensations	☐Decreased memory	☐Insomnia	☐Muscle twitching	☐Skin rashes or inflammation
☐Acrodynia	☐Depressed thoughts	☐Irritability	☐Muscle weakness	☐Speech impairments
☐Anxiety	☐Developmental delay	☐Joint/Lumbar pain	☐Nausea	☐Sweats
☐Arrhythmia	☐Dyspnea	☐Kidney or renal malfunction	☐Nervousness	☐Syncope
☐Bloody diarrhea	☐Emotional changes	☐Memory loss	☐Neurological malfunctions	☐Tremor
☐Chest pain	☐Erythematous/puritic rash	☐Metallic taste	☐Oral stinging sensations	☐Urinary complaints
☐Chills	☐Exfoliating Dermatitis	☐Mood swings	☐Palpitations	☐Vertigo
☐Cognitive impairment	☐Fatigue	☐Muscle atrophy	☐Parethesias	☐Vomiting
☐Constipation	☐Fever	☐Muscle fasciculation	☐Peripheral vision impairment	☐Weakness
☐Cough	☐Hair loss	☐Muscle pain	☐Poor coordination	☐ Other:
	☐Headache			

Health Impact: ☐ Fatal ☐Non-fatal	Was educational information provided? ☐ Yes ☐ No ☐ Unknown
What was the time missed from work/school or daily activities?	☐ < 24 hours ☐1-2 days ☐3-5 days ☐1-2 weeks ☐2-3 weeks ☐> 3 weeks ☐> 1 month ☐ > 2 months ☐ > 3 months ☐> 6 months ☐> 1 year
Current smoker? ☐ Yes ☐ No ☐ Unknown	If no, did you smoke in the past? ☐ Yes ☐ No ☐ Unknown — If yes, date quit: / /
What resources were used by the patient? ☐None known ☐Treated on site ☐Work clinic or nurse ☐911 Call ☐Poison Control Call ☐ED Only ☐Visit to Physician/med provider ☐Hospitalization	

TREATMENT

What was the treatment level? ☐ None given or recommended ☐ Self ☐ED ☐Patient refused
☐ Recommended – not done ☐Outpatient ☐ Inpatient

EXPOSURES

Has the case been exposed to any of the following in the last 60 days? ☐ Yes ☐ No ☐Unknown

Complete an exposure table for each known exposure. *Attach additional information if necessary.*

Exposure List			
	Alcohol, homemade or illegal Antiques (clocks, mirrors, lamps) Batteries Broken thermometers, barometers, fluorescent light bulbs, or electrical switches Chemical plants (chloralkali or chlorine) Commercial fishing Contaminated air, soil, dust, water, food or drink Dental amalgam Dental medicine Electrical work Electrical equipment making	Electroplating Emergency response Fluorescent light bulbs manufacturing Fungicide manufacturing Hazardous waste sites Imported jewelry Incinerators Laboratories Manufacturing/use of medical devices Mercury recycling Outdated medicines (laxatives, worming medications, teething powders)	Paint - spraying, manufacturing, industrial Pesticides/rodenticides Petroleum refineries Photography Pigment making Pulp/paper mills Religious practices using elemental mercury (azogue) such as Voodoo, Palo, Santeria, or Espiritismo Scientific chemicals, equipment, or old science sets Smelter Vaccinations

Exposure #1	Exposure Date: / /	Exposure Time:	
Location ☐ Home ☐ Work ☐ Farm, ranch, acreage ☐ Orchard or Garden ☐ Community Building ☐ Community Outdoor Site or Recreation ☐ Travel out of area ☐ Commercial Building ☐ Unknown	Name of Location:		
	Address:		
	Zip code:	Phone:	- -
	Travel location:		
	Travel departure: / /	Travel return:	/ /

Reason for exposure:
☐Hobby or small market work
☐Work exposure
☐Secondary Work Exposure (Take home poisoning)
☐Volunteer or unpaid work
☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
☐Self-employed
☐Employed by other

Work Category
☐Agriculture, Forestry, Fishing and Hunting
☐Mining, Quarrying, and Oil and Gas Extraction
☐Utilities
☐Construction
☐Manufacturing
☐Wholesale Trade
☐Retail Trade
☐Transportation and Warehousing
☐Information sector
☐Finance and Insurance
☐Real Estate and Rental and Leasing
☐Professional, Scientific, and Technical
☐Management of Companies and Enterprises
☐Administrative and Support and Waste
☐Management and Remediation Services
☐Educational Services
☐Health Care and Social Assistance
☐Arts, Entertainment, and Recreation
☐Accommodation and Food Services
☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #2

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #3

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Does the case have a drinking water exposure? ☐ Yes ☐ No ☐Unknown

For each drinking water exposure, complete a drinking water exposure table. Attach additional information if necessary.

Drinking water exposure #1

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing?
_____

If municipal, rural, or bottled, what is the name of the provider?
_____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Drinking water exposure #2

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing?
_____

If municipal, rural, or bottled, what is the name of the provider?
_____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Fish Consumption

Did the case eat fish, shellfish or seafood in the past two weeks? ☐ Yes ☐ No ☐Unknown

If yes, how much fish did the case eat?
☐ Less than one serving per week
☐ 1 to 3 servings per week
☐ 4-6 servings per week
☐ 7 or more servings per week

Where did the fish come from?
☐Caught by self, family, friend
☐Store bought
☐School
☐Community Gathering
☐Work
☐Restaurant

In the last two weeks has the case taken:

Over the counter medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
_____

Prescription medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
_____

Nutritional supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____
_____

Herbal supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____
_____

Homeopathic medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____
_____

Illicit drugs? ☐ Yes ☐ No ☐Unknown If yes, list: _____
_____

FOR FINAL DETERMINATION ONLY:

Based on this investigation what was the primary determination for the source of the exposure?

Alcohol, homemade or illegal	Electroplating	Paint - spraying, manufacturing, industrial
Antiques (clocks, mirrors, lamps)	Emergency response	Pesticides/rodenticides
Batteries	Fluorescent light bulbs manufacturing	Petroleum refineries
Broken thermometers, barometers, fluorescent light bulbs, or electrical switches	Fungicide manufacturing	Photography
	Hazardous waste sites	Pigment making
Chemical plants (chloralkali or chlorine)	Imported jewelry	Pulp/paper mills
Commercial fishing	Incinerators	Religious practices using elemental mercury (azogue) such as Voodoo, Palo, Santeria, or Espiritismo
Contaminated air, soil, dust, water, food or drink	Laboratories	
Dental amalgam	Manufacturing/use of medical devices	
Dental medicine	Mercury recycling	Scientific chemicals, equipment, or old science sets
Electrical work	Outdated medicines (laxatives, worming medications, teething powders)	Smelter
Electrical equipment making		Vaccinations

Secondary source, if applicable: *Choose from table above*

Was the exposure associated with an incident or natural disaster? ☐ Yes ☐ No ☐Unknown

ADDITIONAL LABORATORY INFORMATION

ADDITIONAL LAB #1

Test Name

☐Mercury (Hg) Occupational ☐Mercury (Hg) Urine ☐Mercury (Hg)/creatinine (Cr) ratio ☐Heavy Metal Panel
☐Mercury (Hg) Blood ☐Mercury (Hg) Urine (24 hr) ☐Creatinine (Cr or Crt) concentration ☐Total Volume
☐Mercury (Hg) Urine (spot/random) ☐Mercury (Hg) concentration

Date reported to IDPH: / / Collection date: / / Collection time: _____

Numeric result: _____

Result unit:

☐ug/L , mcg/L, micrograms per liter
☐mg/dL, milligrams per deciliter
☐ug/g Cr or mcg/g Cr, micrograms per gram
☐creatinine ratio
☐ug/d, mcg/d, micrograms per day
☐spot or random
☐ug/24 hr, mcg/24 hr, micrograms per 24 hours
☐mL or milliliters
☐hours
☐% or percent
☐24 hr

Result:
☐Low (L)
☐High (H)
☐*
☐See comment

LABORATORY COMMENTS:

ADDITIONAL LAB #2

Test Name

☐Mercury (Hg) Occupational ☐Mercury (Hg) Urine ☐Mercury (Hg)/creatinine (Cr) ratio ☐Heavy Metal Panel
☐Mercury (Hg) Blood ☐Mercury (Hg) Urine (24 hr) ☐Creatinine (Cr or Crt) concentration ☐Total Volume
☐Mercury (Hg) Urine (spot/random) ☐Mercury (Hg) concentration

Date reported to IDPH: / / Collection date: / / Collection time: _____

Numeric result: _____

Result unit:

☐ug/L , mcg/L, micrograms per liter
☐mg/dL, milligrams per deciliter
☐ug/g Cr or mcg/g Cr, micrograms per gram
☐creatinine ratio
☐ug/d, mcg/d, micrograms per day
☐spot or random
☐ug/24 hr, mcg/24 hr, micrograms per 24 hours
☐mL or milliliters
☐hours
☐% or percent
☐24 hr

Result:
☐Low (L)
☐High (H)
☐*
☐See comment

LABORATORY COMMENTS:

NOTES:

METHEMOGLOBINEMIA

1. The Disease Definition

Methemoglobinemia is a blood disorder caused when nitrite interacts with the hemoglobin in red blood cells.

A. Clinical Description

Nitrate, a relatively non-toxic substance, occurs naturally as part of the nitrogen cycle. However, bacteria can convert nitrate to nitrite in the environment, in foods, and in the human body. Until infants reach about six months of age, their digestive system secretes lower amounts of gastric acid and the pH level in their digestive system is higher than most adults. Adults with a diminished capability to secrete gastric acid also can experience a rise in pH in their digestive systems. In both situations, bacteria can proliferate, increasing the transformation of nitrate to nitrite. Once in the blood, nitrite oxidizes iron in the hemoglobin of red blood cells to form methemoglobin, which lacks hemoglobin's oxygen-carrying ability. The nitrite can come from nitrate in drinking water or from food, some drugs, or other sources.

Although methemoglobin is continually produced in humans, an enzyme in the human body reduces it to hemoglobin. In most people, the conversion is rapid. Typically, less than 1 percent of the total circulating hemoglobin in a healthy adult is present in the form of methemoglobin. Infants, however, have a low concentration (about 60 percent of the adult concentration) of the reducing enzyme, as do some older individuals with an enzyme deficiency. In these people, methemoglobin is not converted to hemoglobin as readily. When methemoglobin levels are elevated, the condition known as methemoglobinemia, often referred to as "blue baby syndrome," can result. The blood lacks the ability to carry sufficient oxygen to individual body cells.

Infants suffering from methemoglobinemia may seem healthy, but show intermittent signs of blueness around the mouth, hands and feet. They may have episodes of breathing trouble, some diarrhea and vomiting. In some cases, an infant with methemoglobinemia has a peculiar lavender color but shows little distress. Blood samples appear chocolate brown and do not turn pink when exposed to air. When the methemoglobin level is high, infants show a marked lethargy, excessive salivation, and loss of consciousness. Convulsions and death can occur at extreme levels.

B. Sources of Exposure

The Environmental Protection Agency (EPA) has set a public water-supply maximum contaminant level (MCL) of 10 milligrams per liter (mg/L), which is equal to 10 parts per million (ppm) for nitrate-nitrogen. This level provides a margin of safety against a significant risk for human health. EPA believes water containing nitrate-nitrogen at or below this level is acceptable for daily drinking over a lifetime and does not pose a methemoglobinemia health risk for infants or adults.

In Iowa, an unusual source of exposure was discovered in 2003. Approximately 63 guests from a wedding reception came to emergency rooms after consuming a peculiar-tasting punch. Within 15 minutes of ingesting the punch, they experienced headaches, dyspnea, dizziness, and nausea. Thirteen had cyanosis, and nine collapsed. Pulse oximetry remained in the mid 80s despite oxygen therapy. Chocolate-brown colored blood was noted in all of the cyanotic patients. Methemoglobin levels for all patients ranged from 1.0 to 60.2 percent. The mean methemoglobin level of the 20 hospitalized patients (13 children, 9 adults) was 14.4 percent. Thirty-five patients (19 hospitalized, 16 treated and released) were treated with methylene blue. All admitted patients were discharged the next day. All food and water was tested and the sodium nitrite concentration in the punch was 500 to 820 mg/L. An investigation revealed that sodium nitrite was accidentally substituted for citric acid during the processing of the punch mix. Two additional batches of the punch mix were recalled before distribution. A fourth batch was distributed and consumed by 13 people at a baby shower. Eight developed symptoms, but none sought medical attention.

C. Population at Risk

Infants under six months of age are the primary population at risk, although preventive measures are also encouraged for pregnant women, women who are breast feeding, and other high-risk people.

D. Diagnosis, Treatment, and Prognosis

Diagnosis is made based on symptoms and the level of methemoglobin in the blood.

If the condition is identified early and is not life-threatening, a change of drinking water to water with less than 10 milligrams per liter of nitrate-nitrogen is usually the only needed treatment. This will reduce methemoglobin to hemoglobin in two to three days. Severely affected infants may be treated with an intravenously administered solution of methylene blue.

Patients should recover promptly and suffer no lingering effects if the condition is identified and treated promptly.

E. Prevention of Exposure

Methemoglobinemia prevention is especially important for infants under six months of age, although preventive measures are also encouraged for pregnant women, women who are breast feeding, and other high-risk people. Water from a source containing nitrate-nitrogen at or below 10 ppm should be used. If the drinking water source contains nitrate-nitrogen above 10 ppm, bottled water should be used. Boiling the water does not reduce nitrate levels. In fact, boiling can concentrate them as some water evaporates as steam.

2. Reporting Criteria

A. Disease Reporting

Methemoglobinemia is reportable whenever there is a blood analysis showing greater than 5 percent of total hemoglobin is methemoglobin.

Methemoglobinemia cases must be reported within a week to the Iowa Department of Public Health Division of Environmental Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Reporting can be through the Iowa Disease Surveillance System (IDSS), phone, fax, or mail. The preferred reporting method is through IDSS. To report via fax or mail, please use the Methemoglobinemia Case Report Form available in the Epi Manual and online at www.idph.state.ia.us/eh/reportable_diseases.asp

How to report to the Division of Environmental Health (Non IDSS Users)	
Phone (Mon-Fri 8 am-4:30 pm):	800-972-2026
Fax:	515-281-4529
Address:	Iowa Department of Public Health Division of Environmental Health Lucas State Office Building 321 E. 12th Street Des Moines, Iowa 50319-0075
24-hour Disease Reporting Hotline:	800-362-2736

B. References

Nebraska Cooperative Extension G98-1369 Drinking Water: Nitrate and Methemoglobinemia
Iowa State Poison Control Center

Methemoglobinemia

Agency: ____________

Investigator: ____________ Phone number: ____________

STATE ONLY — Status: ☐ Confirmed ☐ Probable ☐ Suspect ☐ Not a case ☐ Exposure
Reviewer initials:
Referred to another state:

CASE

Last name: ____________ Date of Birth: / / Estimated? ☐ Age:

First and middle name: ____________ Gender: ☐ Female ☐ Male ☐ Other ____

Maiden name: ____________ Suffix: ____ Pregnant: ☐ Yes ☐ No ☐ Unk Est. delivery date: / /

Address line: ____________ Marital status: ☐ Single ☐ Married ☐ Separated ☐ Divorced ☐ Parent with partner ☐ Widowed

Zip: ______ City: ____________ Race: ☐ American Indian or Alaskan Native ☐ Unknown ☐ Black or African American ☐ White ☐ Hawaiian or Pacific Islander ☐ Asian

State: ______ County: ____________

Phone: ( )- - Type: ______ Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Unknown

Long-term care resident: ☐ Yes ☐ No ☐ Unknown Parent/Guardian name: ____________

Facility name: ____________ Parent/Guardian phone: ( )- - Type: ______

EVENT

Diagnosis date: / / Onset date: / /

Event outcome: ☐ Survived this illness ☐ Died from this illness ☐ Died unrelated to this illness ☐ Unknown

Outbreak related: ☐ Yes ☐ No ☐ Unknown

Outbreak name: ____________

Exposure setting: ____________

Epi-linked: ☐ Yes ☐ No ☐ Unk To whom: ____________

Location acquired: ☐ In USA, in reporting state ☐ In USA, outside reporting state ☐ Outside USA ☐ Unknown

State: ______ Country: ______

Healthcare provider information

Last name: ____________

First name: ____________

Provider title: ☐ ARNP ☐ MD ☐ DO ☐ NP ☐ PA

Facility name: ____________

Address line 1: ____________

Address line 2: ____________

Zip code: ______ City: ______

State: ______ County: ______

Phone : ( )- - Type: ______

LABORATORY FINDINGS

Laboratory: ____________ Accession #: ____________ Collection date: / /
Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ____________ Test Result: ____________
Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ____________ Accession #: ____________ Collection date: / /
Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ____________ Test Result: ____________
Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

Laboratory: ____________ Accession #: ____________ Collection date: / /
Date received: / / Specimen source: ☐ Blood ☐ Urine Result type: ☐ Preliminary ☐ Final
Test Type: ____________ Test Result: ____________
Percent: Result date: / / Result: ☐ High ☐ Out of Range ☐ Low ☐ See Notes

OCCUPATIONS

Is the case employed, enrolled in school, or attending a child care facility? Interpret 'occupation' very loosely and consider every person to have at least one 'occupation'
(Complete the following sections for each known occupation)

Occupation #1:		Job title:						
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:						
Date worked from:	/ /	Address:						
Date worked to:	/ /	Zip code:						
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:		
Date removed:	/ /	Phone:	( )- - Type:					
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown				
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in lab or health care setting:	☐ Yes ☐ No ☐ Unknown				
Attend school:	☐ Yes ☐ No ☐ Unknown							
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:					

Occupation #2:		Job title:						
Worked after symptom onset:	☐ Yes ☐ No ☐ Unknown	Facility name:						
Date worked from:	/ /	Address:						
Date worked to:	/ /	Zip code:						
Removed from duties:	☐ Yes ☐ No ☐ Unknown	City:		State:		County:		
Date removed:	/ /	Phone:	( )- - Type:					
Handle food:	☐ Yes ☐ No ☐ Unknown		Work in a health care setting:	☐ Yes ☐ No ☐ Unknown				
Attend or provide child care:	☐ Yes ☐ No ☐ Unknown		Direct patient care duties in lab or health care setting:	☐ Yes ☐ No ☐ Unknown				
Attend school:	☐ Yes ☐ No ☐ Unknown							
Work in a lab setting:	☐ Yes ☐ No ☐ Unknown		Health care worker type:					

HOSPITALIZATIONS

Was the case hospitalized? ☐ Yes ☐ No ☐ Unknown

Hospital: _____ Isolated at entry: ☐ Yes ☐ No ☐ Unk Isolation type (entry): _____

Admission date: / / Discharge date: / / Days hospitalized: _____

Currently isolated: ☐ Yes ☐ No ☐ Unk Current isolation type:

CLINICAL INFO & DIAGNOSIS

Reporting source: ☐ **Laboratory** ☐ **Physician** ☐ **Poison Control** ☐ **Self diagnosis**

List any pre-existing medical conditions: _____

Symptoms

Symptoms:

- ☐ Anxiety
- ☐ Bluish appearance of the skin
- ☐ Confusion
- ☐ Developmental delay
- ☐ Failure to thrive
- ☐ Fatigue
- ☐ Frustrated easily
- ☐ Headache
- ☐ Irritation
- ☐ Lack of energy
- ☐ Mental retardation
- ☐ Personality changes
- ☐ Psychological symptoms
- ☐ Seizures
- ☐ Shortness of breath
- ☐ Short-term memory loss
- ☐ Other:

Health Impact: ☐ Fatal ☐ Non-fatal	Was educational information provided? ☐ Yes ☐ No ☐ Unknown
What was the time missed from work/school or daily activities?	☐ < 24 hours ☐ 1-2 days ☐ 3-5 days ☐ 1-2 weeks ☐ 2-3 weeks ☐ > 3 weeks ☐ > 1 month ☐ > 2 months ☐ > 3 months ☐ > 6 months ☐ > 1 year
Current smoker? ☐ Yes ☐ No ☐ Unknown	If no, did you smoke in the past? ☐ Yes ☐ No ☐ Unknown — If yes, date quit: / /
What resources were used by the patient? ☐ None known ☐ Treated on site ☐ Work clinic or nurse ☐ 911 Call ☐ Poison Control Call ☐ ED Only ☐ Visit to Physician/med provider ☐ Hospitalization	

TREATMENT

What was the treatment level? ☐ None given or recommended ☐ Self ☐ ED ☐ Patient refused ☐ Recommended – not done ☐ Outpatient ☐ Inpatient

EXPOSURES

Has the case been exposed to any of the following in the last 60 days? ☐ Yes ☐ No ☐Unknown

Complete an exposure table for each known exposure. *Attach additional information if necessary.*

Exposure List			
	Recreational water - lake/river Recreational water - swimming pool/spa	Anesthetics - inhaled or dermal Medications	Topical pain meds Contaminated food or drink

Exposure #1				
	Exposure Date: / /		Exposure Time:	
Location ☐ Home ☐ Work ☐ Farm, ranch, acreage ☐ Orchard or Garden ☐ Community Building ☐ Community Outdoor Site or Recreation ☐ Travel out of area ☐ Commercial Building ☐ Unknown	Name of Location:			
	Address:			
	Zip code:		Phone:	- -
	Travel location:			
	Travel departure:	/ /	Travel return:	/ /

Reason for exposure:
☐Hobby or small market work
☐Work exposure
☐Secondary Work Exposure (Take home poisoning)
☐Volunteer or unpaid work
☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
☐Self-employed
☐Employed by other

Work Category
☐Agriculture, Forestry, Fishing and Hunting
☐Mining, Quarrying, and Oil and Gas Extraction
☐Utilities
☐Construction
☐Manufacturing
☐Wholesale Trade
☐Retail Trade
☐Transportation and Warehousing
☐Information sector
☐Finance and Insurance
☐Real Estate and Rental and Leasing ☐ Professional, Scientific, and Technical
☐Management of Companies and Enterprises
☐Administrative and Support and Waste
☐Management and Remediation Services
☐Educational Services
☐Health Care and Social Assistance
☐Arts, Entertainment, and Recreation
☐Accommodation and Food Services
☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #2

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Exposure #3

Exposure Date: / / Exposure Time:

Location
- ☐ Home
- ☐ Work
- ☐ Farm, ranch, acreage
- ☐ Orchard or Garden
- ☐ Community Building
- ☐ Community Outdoor Site or Recreation
- ☐ Travel out of area
- ☐ Commercial Building
- ☐ Unknown

Name of Location:
Address:
Zip code: Phone: - -
Travel location:
Travel departure: / / Travel return: / /

Reason for exposure:
- ☐Hobby or small market work
- ☐Work exposure
- ☐Secondary Work Exposure (Take home poisoning)
- ☐Volunteer or unpaid work
- ☐Other: _____

If Reason for exposure= **Work exposure** or **Secondary Work Exposure**, complete the following:

Employment Status
- ☐Self-employed
- ☐Employed by other

Work Category
- ☐Agriculture, Forestry, Fishing and Hunting
- ☐Mining, Quarrying, and Oil and Gas Extraction
- ☐Utilities
- ☐Construction
- ☐Manufacturing
- ☐Wholesale Trade
- ☐Retail Trade
- ☐Transportation and Warehousing
- ☐Information sector
- ☐Finance and Insurance
- ☐Real Estate and Rental and Leasing
- ☐Professional, Scientific, and Technical
- ☐Management of Companies and Enterprises
- ☐Administrative and Support and Waste
- ☐Management and Remediation Services
- ☐Educational Services
- ☐Health Care and Social Assistance
- ☐Arts, Entertainment, and Recreation
- ☐Accommodation and Food Services
- ☐Public Administration

Was the exposure intentional?	☐ Yes ☐ No ☐Unknown	
Were others exposed?	☐ Yes ☐ No ☐Unknown	Total number of exposed:_____
Is this what the patient suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what the medical provider suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	
Is this what another source suspects as the reason for poisoning?	☐ Yes ☐ No ☐Unknown	If yes, what source? _____

Comments:

Does the case have a drinking water exposure? ☐ Yes ☐ No ☐Unknown

For each drinking water exposure, complete a drinking water exposure table. Attach additional information if necessary.

Drinking water exposure #1

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing? _____

If municipal, rural, or bottled, what is the name of the provider? _____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

Drinking water exposure #2

Location
☐ Home
☐ Work
☐ Farm, ranch, acreage
☐ Orchard or Garden
☐ Community Building
☐ Community Outdoor Site or Recreation Area
☐ Travel out of area
☐ Commercial Building
☐ Unknown

Drinking water source ☐Municipal ☐Rural water ☐Private well ☐Bottled

If well water, what was the date of last microbiologic and/or nitrate testing? _____

If municipal, rural, or bottled, what is the name of the provider? _____

Have there been any recent changes to the:
Taste of the water? ☐ Yes ☐ No ☐Unknown
Odor of the water? ☐ Yes ☐ No ☐Unknown
Color of the water? ☐ Yes ☐ No ☐Unknown

In the last two weeks has the case taken:

Over the counter medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____

Prescription medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____

Nutritional supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____

Herbal supplements? ☐ Yes ☐ No ☐Unknown If yes, list: _____

Homeopathic medicines? ☐ Yes ☐ No ☐Unknown If yes, list: _____

Illicit drugs? ☐ Yes ☐ No ☐Unknown If yes, list: _____

Has the case recently had a medical procedure that required a local anesthetic? ☐ Yes ☐ No ☐Unknown

If yes: What is the name of the provider?

What anesthetic was used?

FOR FINAL DETERMINATION ONLY:

Based on this investigation what was the primary determination for the source of the exposure?

☐Recreational water - lake/river	☐Anesthetics - inhaled or dermal	☐Topical pain meds
☐Recreational water - swimming pool/spa	☐Medications	☐Contaminated food or drink

Secondary source (if applicable):

☐Recreational water - lake/river	☐Anesthetics - inhaled or dermal	☐Topical pain meds
☐Recreational water - swimming pool/spa	☐Medications	☐Contaminated food or drink

Was the exposure associated with an incident or natural disaster? ☐ Yes ☐ No ☐Unknown

NOTES:

MICROCYSTIN POISONING

1. The Disease Definition

Microcystin is a toxin that is released by blue-green algae or cyanobacteria. Cyanobacterial blooms occur when algae that are normally present grow exuberantly. Within a few days, a bloom can cause clear water to become cloudy. The blooms usually float to the surface and can be many inches thick, especially near the shoreline. Cyanobacterial blooms can form in warm, slow-moving waters that are rich in nutrients such as fertilizer runoff or septic tank overflows. Blooms can occur at any time, but most often occur in late summer or early fall. Exposure to microcystin at significant levels through ingestion, inhalation, and dermal exposure can lead to microcystin poisoning.

A. Clinical Description

Both humans and animals can get microcystin poisoning from exposure to contaminated water. People can get microcystin poisoning from being exposed to contaminated waters, either by intentionally or accidentally swallowing water, by having direct skin contact (as when swimming, wading, or showering), or by breathing airborne droplets containing microcystins, such as during boating or waterskiing. Microcystin poisoning cannot be spread from one person to another, or from an animal to a person.

Symptoms may take hours or days to show up in people, but normally show up within one week after exposure.

Symptoms of microcystin exposure/poisoning include

- Rash, hives, or skin blisters (especially on the lips and under swimsuits).
- Gastrointestinal symptoms such as stomach pain, nausea, vomiting, diarrhea, severe headaches, and fever.
- Runny eyes and nose, cough, and sore throat, pleuritic pain, asthma-like symptoms, or allergic reactions.
- Exposure to large amount of microcystin can cause liver damage (elevated gamma glutamyl transpeptidase).

B. Sources of Exposure

Microcystin poisoning is most likely to occur from exposure to surface water where cyanobacteria blooms are currently occurring or have occurred in the recent past. Exposure can occur from intentionally or accidentally swallowing water, by having direct skin contact, or by breathing airborne droplets. Another potential route of exposure could be from drinking water from a public water source that obtains its water from a surface water body that has elevated levels of microcystin toxin.

C. Population at Risk

People at greater risk are those who use recreational waters during and immediately after a cyanobacteria bloom is present. Populations whose drinking water supply is surface water that has experienced cyanobacteria blooms are also at risk. One of the populations to experience the greatest risk of adverse health impacts has been dialysis patients who were exposed to microcystin within the water used for dialysis and experienced liver and kidney damage and even death in some cases.

D. Diagnosis, Treatment, and Prognosis

Diagnosis of microcystin poisoning involves observation of the symptoms and exposure to water that is suspected of or tested to show evidence of elevated microcystin levels. Symptoms normally begin within 24 hours of exposure.

Treatment for both humans and animals is supportive. Patients are advised to not drink alcohol, not to use acetaminophen, or to use blue-green algal dietary supplements.

People exposed to small amounts of microcystin toxin experiencing gastrointestinal discomfort or headaches from oral exposure usually recover fully within 2 days of exposure. Symptoms including rash, skin irritation, or blisters from dermal exposure usually subside within 1 to 2 weeks after exposure.

E. Prevention of Exposure

People are advised to avoid contact with and exposure to recreational water where cyanobacteria blooms are currently occurring or have occurred in the recent past.

2. Reporting Criteria

A. Disease Reporting

Microcystin poisoning is reportable if:

Patients are experiencing:

- Gastrointestinal symptoms OR
- Respiratory symptoms OR
- Dermal symptoms OR
- Elevated serum GGT (gamma glutamyl transpeptidase)

- AND history of exposure to a body of surface water that is suspected to contain elevated levels of microcystin within the past 7 days.

Microcystin poisoning must be reported to the Iowa Department of Public Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Microcystin poisonings must be reported within a week to the Iowa Department of Public Health Division of Environmental Health by the physician or health practitioner attending any person having a reportable disease and by laboratories performing tests identifying reportable diseases. Reporting can be through phone, fax, mail or through the IDPH web page at www.idph.state.ia.us/eh/algal_blooms.asp through the "Contact Us" link.

The reporting is to include:

- Health care provider's name
- Health care provider's number
- Patient name
- Patient phone number
- Patient address
- Caller's name and phone number

How to report to the Division of Environmental Health (Non IDSS Users)	
Phone (Mon-Fri 8 am-4:30 pm):	800-972-2026
Fax:	515-281-4529
Address:	Iowa Department of Public Health Division of Environmental Health Lucas State Office Building 321 E. 12th Street Des Moines, Iowa 50319-0075
24-hour Disease Reporting Hotline:	800-362-2736

B. Reference Sources

Centers for Disease Control, Harmful Algal Blooms

World Health Organization, Toxic Cyanobacteria in Water: A Guide to Their Public Health Consequences, Monitoring, and Management

FACT SHEET Mosquito Repellents

Avoid mosquito bites by:

- Applying approved insect repellents (listed below).
- Wearing protective clothing, such as long sleeves, long pants, socks and shoes.
- Being aware of peak hours of mosquito activity: dusk and dawn.

CDC Approved/EPA Registered Mosquito Repellents:

1. **DEET**
    - The American Academy of Pediatrics recommends that repellents with DEET should not be used on infants less than 2 months old.
    - Repellents that contain up to 30 percent DEET are safe for children.
    - Refer to the IDPH DEET fact sheet for more information.
2. **Picaridin**
3. **Oil of Lemon Eucalyptus or PMD**
    - Should not to be used on children under the age of three years.
4. **IR3535**
5. **Permethrin**
    - Only recommended for use on clothing, shoes, bed nets, and camping gear. Permethrin should not be applied directly on skin.

Mosquito proof your home by:

- Emptying water from flower pots, pet food and water dishes, birdbaths, swimming pool covers, buckets, barrels, and cans. This should be done at least once or twice weekly.
- Checking for clogged rain gutters and cleaning them out.
- Removing discarded tires and other items that could collect water.
- Checking for containers or trash in places that may be hard to see, such as under bushes or under your home.

How often should mosquito repellent be applied?

The label directions on the repellent should always be followed. Length of protection against mosquito bites varies with the amount of the active ingredient, environmental factors such as temperature and humidity, amount of physical activity/perspiration, water exposure, and other factors.

What precautions should be followed when using insect repellents?

- Read and carefully follow product label directions and precautions.
- Apply repellent sparingly on exposed skin and/or clothing.
- Do not apply repellent near eyes, lips, or mouth.
- Never apply repellents over cuts, wounds, or irritated skin.
- Avoid using sprays in enclosed areas.
- Do not use repellents near food.
- Do not apply repellent to the hands of young children.
- Do not allow young children to apply repellent to themselves.
- After returning indoors, wash treated skin with soap and warm water.
- Avoid over application. Heavy application is not necessary to achieve protection.
- Wash treated clothing before wearing again.

Can mosquito repellents be used with sunscreen?

Yes. People can, and should, use both a sunscreen and an insect repellent when they are outdoors. Follow the instructions on the package for proper application of each product. In general, the recommendation is to apply sunscreen first, followed by repellent.

OCCUPATIONALLY RELATED ASTHMA, BRONCHITIS OR RESPIRATORY HYPERSENSITIVITY REACTION

1. The Disease Definition

Occupationally related asthma, bronchitis, or respiratory hypersensitivity reaction is an inflammation of the lungs (pneumonitis) or breathing difficulty caused by inhalation of noxious chemicals.

A. Clinical Description

Acute chemical pneumonitis causes swelling of the lung tissue, movement of fluid into the air spaces in the lung, and less ability to absorb oxygen and get rid of carbon dioxide. In severe cases, death may result from lack of oxygen reaching the tissues (hypoxia). Chronic chemical pneumonitis can follow low levels of exposure to the lung irritant over extended periods. This causes inflammation and may provoke fibrosis (scarring) with decreased oxygen exchange and stiffening of the lung. Unchecked, this condition may ultimately lead to respiratory failure and death.

Symptoms of acute exposure include an unusual feeling, possibly a feeling of burning in the chest, difficulty breathing, coughing, and abnormal lung sounds. Symptoms of chronic exposure include shortness of breath with only mild exercise, rapid breatthing, cough, and progressive disability related to shortness of breath.

B. Sources of Exposure

Many household and industrial chemicals can produce both an acute and a chronic form of inflammation in the lung. Chlorine is one of the most irritating of commonly inhaled substances. Exposure to dangerous levels may occur at home (during use of cleaning materials such as chlorine bleach), in industrial accidents, or near swimming pools. Inhalation of dangerous substances can occur in many different settings, including factories (especially during smelting, welding, or other metal work), the production or use of solvents or pesticides, fires (house fires, wildfires), and the handling of grain.

C. Population at Risk

The primary population at risk are those who work with chemicals in an occupational setting.

D. Diagnosis, Treatment, and Prognosis

Diagnosis is made by taking an occupational exposure history and through a chest x-ray, lung function studies, and blood-gas analysis.

The most important treatment is to stop the exposure to the chemical that caused the symptoms. Further teatment is focused on reducing symptoms. Oygen therapy may be helpful, and corticosteroids may be given to reduce inflammation.

The outcome depends on the chemical agent involved, the severity of exposure, and whether the problem is acute or chronic. Respiratory failure and death can occur.

E. Prevention of Exposure

Work rules on breathing masks should be followed, and the appropriate breathing mask should be worn. People who work near fires should take care to limit exposure to smoke or gases.

2. Reporting Criteria

A. Disease Reporting

Occupationally related asthma, bronchitis or respiratory hypersensitivity reaction, including any extrinsic asthma or acute chemical pneumonitis due to exposure to toxic agents in the workplace (ICD-10 codes J67.0-J67.9), must be reported to the Iowa Department of Public Health by the physician or other health practitioner attending the patient and by laboratories performing tests identifying reportable diseases. Reports are made to the Division of Environmental Health at 800-972-2026.

B. Reference

MedLinePlus

Organic Dust Toxic Syndrome

Other Names: ODTS; Toxic Organic Dust Syndrome (TODS); Grain fever; Pulmonary mycotoxicosis; Silo unloader's syndrome; Precipitin-negative farmer's lung disease; Mill fever; Inhalation fever; Toxic pneumonitis; Toxic alveolitis.

Responsibilities:

Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the IDPH Division of Environmental Health:

Iowa Department of Public Health
Division of Environmental Health
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1. The Disease Definition

Organic Dust Toxic Syndrome (ODTS) is a respiratory and systemic illness that may follow exposures to heavy concentrations of organic dusts contaminated with microorganisms. ODTS appears to result from inhaling particles and toxins produced by microorganisms such as gram negative bacteria (Pseudomonas species, Enterobacter agglomerans, and Klebsiella species), thermophilic organisms (Aspergillus fumigatus and Micropolyspora faeni), and fungi. Endotoxins are a common component of organic dust in agriculture and may be involved in the development of ODTS.

ODTS is a general term that includes all of the following conditions:

- Grain fever in grain elevator workers
- Inhalation fever
- Mill fever in cotton textile workers
- Precipitin-negative farmer's lung disease
- Pulmonary mycotoxicosis
- Silo unloader's syndrome
- Toxic alveolitis
- Toxic Organic Dust Syndrome (TODS)
- Toxic pneumonitis

ODTS may be associated with other respiratory illnesses or hazards found in similar settings, including:

- Bronchitis
- Farmer's Lung or Hypersensitivity Pneumonitis (an immunologic – allergic – response involving microbial antigens in moldy hay and other materials)
- Inhalation of toxic gases (from manure pits or other sources)
- Silo filler's disease (exposure to oxides of nitrogen in freshly filled silos)

A. Clinical Description

ODTS is a non-infectious, febrile illness associated with malaise, myalgia, a dry cough, dyspnea, headache and nausea which occurs after heavy organic dust exposure. The syndrome can occur on initial exposure, and is characterized by fever occurring 4 to 12 hours after exposure and flu-like symptoms such as general weakness, headache, chills, body aches, and cough. Shortness of breath may also occur.

B. Sources of Exposure

Agricultural activities may generate a wide range of respirable dust concentrations. For example, respirable dust concentrations during bedding chopping have been measured at 1.6 to 2.5 mg/m3, whereas they may be as high as 24 mg/m3 during silo unloading. Working in confined spaces or enclosed locations can increase dust concentrations. Various settings pose specific risks - see population at risk.

C. Population at Risk

ODTS is a fairly common illness affecting agricultural workers. An estimated 30% to 40% of workers exposed to organic dusts from grain or in enclosed livestock facilities develop the disease. Common at risk groups include farm workers harvesting and unloading grain, especially grain that appears to be heavily contaminated with bacteria or molds; workers in hog barns or facilities, especially those using wood shavings for bedding; workers exposed to moldy straw or wood chips in other settings; poultry workers; and workers that handle compost, sort garbage, or process cotton. Exposure to endotoxin is a factor common to these otherwise diverse occupations.

Despite its common occurrence among agricultural workers, ODTS is not a widely recognized illness because only serious cases or clusters of cases are likely to come to a physician's attention. Because many agricultural workers find it difficult to seek medical attention (or choose not to seek care) and because many physicians fall to recognize occupational respiratory diseases, ODTS is probably much more common than documented.

Organic dust exposures are a complex problem. Of agricultural workers working with grain or in enclosed livestock facilities, 20 to 30 percent have been found to have significant changes in pulmonary function and increased respiratory symptoms. Further research is being done at places such as the High Plains Intermountain Center for Agricultural Health and Safety (HICAHS) and the Great Plains Center for Agricultural Health (GPCAH) to develop a better understanding of the causes, risks, and prevention strategies needed to protect workers.

D. Diagnosis, Treatment, and Prognosis

Listening to the chest usually reveals normal breathing sounds, and chest X-rays are usually normal. Pulmonary function may be impaired, and an increase in the number of white blood cells is common. Antibodies commonly associated with certain allergic lung diseases such as farmer's lung are usually not present.

No specific therapy is needed to treat ODTS. However, the syndrome may often be misdiagnosed as acute bronchitis, influenza, or farmer's lung disease, which may lead to unnecessary therapy with antibiotics or anti-inflammatory medication. It shares many clinical features with acute Farmer's Lung and other forms of hypersensitivity pneumonitis. However, ODTS differs from acute hypersensitivity pneumonitis in several respects: the chest X-ray does not show infiltrates, severe hypoxemia does not occur, prior sensitization to antigens in organic dust is not required and there are no known sequelae of physiological significance, such as the pulmonary fibrosis seen with chronic hypersensitivity pneumonitis.

ODTS usually disappears within 24 hours to a few days after the worker is removed from exposure. Repeated episodes of ODTS can occur after re-exposure to contaminated organic dusts. No deaths from ODTS have been reported, although it can be a serious threat for persons with underlying health problems.

Acute episodes do not generally require treatment apart from removal from the contaminated environment and antipyretics. If symptoms persist, evaluation may be required to rule out infection, hypersensitivity pneumonitis, or other conditions. Biologic sampling to detect airborne microbials in the work environment can be costly and time consuming but is sometimes necessary to document the source of contaminated air. Inhalational fevers of all types are usually prevented by good maintenance of ventilation systems.

E. Prevention of Exposure

Minimizing Risk

Agricultural workers and employers should minimize the risk of exposure to organic dusts by taking the following precautions:

- Be aware of the health effects of breathing organic dust. Symptoms of ODTS occur 4 to 12 hours after exposure and may include fever, weakness, headache, chills, body aches, cough, and shortness of breath.
- Inform your doctor about recent dust exposures when seeking treatment for respiratory illness.
- Carefully harvest and store agricultural products to minimize spoilage.
- Use automated or mechanized equipment to move decayed materials.
- Use local exhaust ventilation and wet methods of dust suppression to minimize exposure to organic dusts. For example, adding a quart of water to the cut side of bedding hay or straw before chopping is an effective method for reducing dust levels (but avoid overusing water).
- Use appropriate respirators approved by National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) when exposure to organic dust cannot be avoided. For respirator guidance specific to ODTS, see "Request for Assistance in Preventing Organic Dust Toxic Syndrome", NIOSH Publication No. 94-102. Online at www.cdc.gov/niosh/docs/94-102/pdfs/94-102.pdf. Additional general respirator information can be found at the NIOSH Respirator website: www.cdc.gov/niosh/topics/respirators/.
- Do not wear contaminated work clothes inside the home. Prevent exposure of family members to dusts and other toxic materials by removing contaminated clothes outside.

In addition, use the following engineering controls to reduce dust exposure for silo unloaders:

- Design the silo to provide for product turnover and to provide unfavorable conditions for microbial growth.
- Design the conveyor to prevent spills of material and to ventilate dust effectively.
- Use ventilated loading spouts when filling trucks and railroad cars with silage.

2. Reporting Criteria

A. Disease Reporting

Although ODTS is not hypersensitivity pneumonitis, reporting of all cases is required under the broad definition found in the current version of the Iowa Administrative Code 641—1.1(139A) Definitions: *"Hypersensitivity pneumonitis" includes but is not limited to farmer's lung, silo filler's disease, and toxic organic dust syndrome."* Primary responsibility for reporting falls to the physician or other health practitioner attending the patient when medical treatment is provided.

Mandatory Reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp or call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours.

B. References

National Institute of Occupational Health and Safety (NIOSH): Request for Assistance in Preventing Organic Dust Toxic Syndrome. NIOSH Publication No. 94-102. Publication date: April, 1994. Accessed online March 2011 at www.cdc.gov/niosh/docs/94-102/pdfs/94-102.pdf.

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Dusts From Decayed Grain, Hay, and Silage. Pennsylvania State University. National Ag Safety Database. Accessed online March 2011 at nasdonline.org/document/1630/d001504/dusts-from-decayed-grain-hay-and-silage.html

PESTICIDE POISONING

1. The Disease Definition

A. Clinical Description

Pesticides are toxic. The health risk to people depends on the toxicity of the pesticide and the amount of exposure. Exposure to pesticides can produce a range of symptoms, depending on the method and length of exposure and type of pesticide. The method of pesticide application also influences the exposure. Applying chemicals in enclosed areas, such as grain bins, barns, and livestock facilities, may subject a person to higher levels of exposure than applying pesticides outdoors.

Pesticides may enter the human body through contact with the skin (dermal exposure) and through the mouth, lungs, and eyes. Different formulations of pesticides affect the body in different ways.

Dermatitis, inflammation of the skin, is generally accepted as the most commonly reported effect of pesticide exposure. Irritation caused by a single exposure to a pesticide is usually primary irritant dermatitis (PID). Symptoms range from a slight redness of the skin to blisters or ulcerated lesions. The severity of the irritation is influenced by the chemical properties of the substance, duration and method of exposure, condition of the skin, temperature and humidity, and location of the contact on the body.

A second type of dermatitis is called allergic contact dermatitis. The symptoms are similar to PID; however, allergic contact dermatitis occurs after repeated chronic exposure to a chemical, when the allergenic substance contacts previously sensitized skin. An applicator may be exposed to the chemical allergen for years before becoming sensitized and showing dermatitis symptoms.

Other acute symptoms of pesticide poisoning vary based on the class of pesticide. Symptoms of acute pesticide poisoning are described below for organophosphates, carbamates, pyretrhins and pyrethroids, arsenicals, fumigants, anti-coagulants, and bipyridilium.

Organophosphates (Examples: Thimet, Lorsban, Malathion, Di-Syston, Counter, Penncap-M, Guthion, Mocap, Dimethonate.) Symptoms of mild poisoning include fatigue, headache, dizziness, blurred vision, excessive sweating and salivation, nausea and vomiting, and stomach cramps or diarrhea. Symptoms of moderate poisoning include inability to walk, weakness, chest discomfort, muscle twitches, and constriction of the pupil of the eye. In addition, mild poisoning symptoms become more severe. Symptoms of severe poisoning include unconsciousness, severe constriction of the pupil of the eye, muscle twitches, secretions from mouth and nose, breathing difficulty, and if not treated, death. Illness may occur quickly or be delayed a few hours. However, if signs or symptoms start more than 12 hours after exposure to the pesticide, it is probably some other illness.

Carbamates (Examples: Temik, Lannate, Nudrin, Baygon, Sevin.) Carbamates act similarly to organophosphates, producing the same signs and symptoms. Carbamates also inhibit cholinesterase; however, their action is quickly reversed by the body. The illness caused by carbamates is usually not as severe or as long lasting as that caused by organophosphates.

Pyrethrins and pyrethroids (Examples: Ambush, Pounce, Pydrin, Warrior, Asana.) Pyrethrin is extracted from the flowers of certain chrysanthemum plants. Pyrethroids are chemically similar to pyrethrins and are manufactured in pesticide laboratories. Both are highly toxic to insects and fish but less toxic to humans than most insecticides. Pyrethrins and pyrethroids affect the central nervous system, and extremely high exposure results in convulsions and lack of coordination. However, because of their low level of toxicity, pyrethrins and pyrethroids usually cause respiratory concerns (for example, asthma) and irritation to the skin and eyes.

Arsenicals (Examples: CCA, Chemonite, Paris Green, DSMA.) Ingestion is the most common cause of most acute poisoning by the arsenicals. Stomach pain, vomiting, and diarrhea are the primary symptoms of acute poisoning. Symptoms are sometimes delayed for hours. A garlic odor to the breath and feces helps to identify the poisoning agent. Low-level exposure causes symptoms of poisoning, including chronic headache, stomach pain, and low-grade fever.

Fumigants (Examples: cyanide, methyl bromide, phostoxin.) Fumigants are among the fastest-acting poisons. Massive doses result in unconsciousness and death without warning. Smaller doses may result in the odor of bitter almonds on the breath, salivation, nausea, anxiety, confusion, and dizziness. Illness may last one or more hours, terminating with unconsciousness, convulsions, and death from respiratory failure.

Anticoagulants (Examples: Warfarin, Rodex.) The injurious effects of anticoagulants are due to bleeding, mainly into the body tissues. For example, the initial symptoms in chronic Warfarin poisoning are back pain and abdominal pain due to blood buildup in these tissues.

Bipyridilium (Example: Gramoxone.) Bipyridilium herbicides may be harmful if inhaled or absorbed through the skin, and may be fatal if swallowed. Severe irreversible lung damage can develop if they are swallowed or inhaled, and the symptoms of injury may be delayed. Prolonged skin contact generally causes severe irritation.

Unlike acute poisoning, symptoms of chronic poisoning may not become evident for weeks, months, or even years. When the symptoms finally develop, it may be difficult to prove a direct link between the symptoms and the earlier exposure. The symptoms of chronic toxicity may occur as a slowly progressive condition, such as increased breathing difficulty or skin sensitization (allergy) after repeated use of a pesticide. Sometimes, chronic toxicity may result in a disease such as cancer. The effects of chronic pesticide poisoning include oncogenicity, carcinogenicity, mutagenicity, neurotoxicity, and reproductive effects.

B. Sources of Exposure

Pesticide exposure can occur through ingestion, dermal absorption, inhalation, and absorption through the eyes. Exposure through ingestion is usually due to carelessness. If pesticides were always stored and disposed of correctly, children would never have access to them. The most frequent cases of accidental ingestion occur when pesticides are taken from the original labeled container and put into an unlabeled bottle or food container. At least one-half of the accidental pesticide deaths in this country involve children under 10. Inhalation, dermal absorption, and absorption through the eyes usually result when pesticide applicators fail to wear the proper protective equipment.

C. Population at Risk

Workers involved in the manufacture of chemicals, and applicators exposed to high levels of pesticides over many years, run the greatest risk of developing any chronic effects. Applicators who do not follow label directions and fail to wear protective equipment increase their risk of developing chronic effects. Children are at the highest risk of accidental ingestion.

D. Diagnosis, Treatment, and Prognosis

Supervisors, applicators, and co-workers should receive training to help them recognize symptoms of pesticide poisoning. With quick recognition, a pesticide applicator or co-worker can act to decrease exposure and facilitate treatment sooner. A pesticide applicator should seed medical advice immediately if unusual or unexplained symptoms appear at work or later the same day. A person who may have been poisoned should not be left alone. There should be no delay in calling a physician or taking a pesticide-exposed person to a hospital. It is better to be too cautious than too late. A clean container (or the label) of the pesticide should be taken to the physician. Under the Worker Protection Standard, it is the responsibility of the agricultural employer to provide emergency assistance if there is a reason to believe that an employee has been poisoned or injured by a pesticide. Different classes of pesticides have distinct poisoning symptoms. Applicators should always be aware of the class of pesticide being used and of the symptoms that may result from exposure.

Treatment of dermatitis involves removing contaminated clothing, washing the skin, and avoiding contact with the offending allergen. For treatment of other exposures, read the directions in the "Statement of Practical Treatment" in the "Precautionary Statements" on each pesticide label. These instructions can save the life of someone who has been exposed to a pesticide.

If a pesticide contacts the skin, quick action should be taken to remove all contaminated clothing, wash contaminated skin with water, wash hair and fingernails, and remove solutions of pesticides in petroleum oil or other solvents with soap or detergent.

If a pesticide gets in the eyes, eyelids should be held open and eyes washed immediately with a large amount clean, warm water. Medical personnel should be called for advice on further treatments.

If a pesticide is inhaled, the affected person should be moved to fresh air right away and tight clothing loosened. Medical treatment should be sought immediately, and artificial respiration used if breathing has stopped or if the victim's skin is blue. However, people should never attempt to rescue a victim from an enclosed area without proper protective equipment. If equipment is unavailable, emergency personnel should be called.

If a pesticide is swallowed, the mouth should be rinsed with plenty of water and medical assistance sought immediately. Label directions should be followed, and patients should not be allowed to lie on their backs if they are vomiting because the vomitus could enter the lungs and do additional damage.

Organophosphate pesticides cause more cases of occupational poisoning and death than any other single group of pesticides. Therefore, pesticide applicators using carbamate and organophosphate pesticides on a regular basis should consider having their blood tested to find their normal or base levels of cholinesterase. Applicators should have their normal or base levels of cholinesterase established during the "off season" before applying or handling organophosphate or carbamate insecticides.

People have wide differences in blood cholinesterase levels. Once a pesticide applicator's base cholinesterase level has been determined by a doctor, a blood test after pesticide handling or application determines whether there has been overexposure to either an organophosphate or carbamate pesticide. If so, further contact with these pesticides should be avoided until the cholinesterase level has returned to normal. In severe cases, antidotes must be given. In the absence of additional exposure, blood cholinesterase enzyme regenerates in about 120 days from very low to normal levels for organophosphate poisoning and more rapidly for carbamate poisoning. Cholinesterase testing must be done immediately after exposure to carbamate insecticides to be of value.

By law, highly toxic pesticides must have instructions for the physician on the label in case of a pesticide poisoning. Instructions include information on medical antidotes, if available. Remember that medical antidotes can be very dangerous if misused. They should never be used as a preventive treatment and should be prescribed and given only by a qualified physician. If instructions for a physician are not on the label, contact the Iowa State Poison Center at 800-222-1222.

The prognosis varies based on the toxicity of the chemical and the amount, duration, and method of exposure.

E. Prevention of Exposure

Accidental poisonings can be prevented by:

- Always storing a pesticide in its original labeled container.
- Never use the mouth to clear a spray line or nozzle, or to begin siphoning a pesticide.
- Never eating, drinking, or smoking until after leaving the work area and washing thoroughly.
- Always keeping pesticides in a locked storage area.

Approximately one percent of the population has abnormally low levels of cholinesterase. People with this abnormality are at extreme risk when applying certain pesticides. For safety's sake, applicators should have their base cholinesterase level determined before applying any organophosphate or carbamate insecticides.

Applicators and workers involved in the manufacture of chemicals should follow label directions and wear protective equipment

2. Reporting Criteria

A. Disease Reporting

Pesticide poisoning means any acute or subacute systemic, ophthalmologic, or dermatologic illness or injury resulting from or suspected of resulting from inhalation or ingestion of, dermal exposure to, or ocular contact with a pesticide. Laboratory confirmation is not required. These conditions must all be reported to IDPH.

Pesticide poisoning should be reported by calling the Division of Environmental Health at 800-972-2026. Besides patient information, the reporter should provide the product name and the U.S. Environmental Protection Agency registration number for the product. To report via fax or mail, please use the Environmental and Occupational Report Form available in the Epi Manual and online at www.idph.state.ia.us/eh/reportable_diseases.asp

How to report to the Division of Environmental Health (Non IDSS Users)	
Phone (Mon-Fri 8 am-4:30 pm):	800-972-2026
Fax:	515-281-4529
Address:	Iowa Department of Public Health Division of Environmental Health Lucas State Office Building 321 E. 12th Street Des Moines, Iowa 50319-0075
24-hour Disease Reporting Hotline:	800-362-2736

B. References

Recognition and Management of Pesticide Poisonings, *Fifth Edition, 1999*
Iowa State Poison Control Center 1-800-222-1222

Pesticides: Health and Safety, Environmental Protection Agency.
www.epa.gov/pesticides/health/emergency.htm

The National Pesticides Information Center, Pesticides Emergency Center.
npic.orst.edu/emerg.htm

SEVERE SKIN DISORDER

1. The Disease Definition

Severe skin disorder means those occupationally related dermatoses, burns, and other severe skin disorders which result in death or which require hospitalization or other multiple courses of medical therapy.

A. Clinical Description

Absolute irritants include an extensive list of strong acids and bases, and reactive chemical compounds. These agents produce severe inflammation on the first exposure. The response may vary from redness to necrosis. Their potential hazard is usually recognized and skin problems arise most often as accidents or as a result of basic unfamiliarity or ignorance.

B. Sources of Exposure

Some of the more common chemical irritants are: sulfuric acid, nitric acid, hydrofluoric acid, hydrochloric acid, phosphoric acid, acetic acid, formic acid, chloroacetic acids, sodium and potassium hydroxides, calcium hydroxide, sodium and calcium hypochlorites, calcium oxides, ammonia, phosphates, silicates, sodium carbonate, and lithium hydride.

B. Population at Risk

The population at risk is people who use these chemicals at their workplace.

D. Diagnosis, Treatment, and Prognosis

Clinical signs and symptoms vary depending on the route of exposure and the particular substances involved. Due to the variety of presentations, the emergency physician must be prepared to handle all possibilities. Some exposures, such as hydrofluoric acid, may present without immediate pain and should be considered in patients with complaints of slow onset deep pain occurring after exposure to an appropriate product.

Obtain a patient history, including the concentration, physical form, and pH of the chemical agent; route, volume, and time of exposure, and the possibility of coexisting injury. Evaluate the dermal exposure by its size, depth, location, and the presence of circumferential burns.

Pre-hospital care should consist of wound irrigation immediately after exposure, preventing the contaminated irrigation solution from running onto unaffected skin, and removing contaminated clothing. Emergency-room care should consist of thoroughly removing the chemical agent. After this, the physician should assess the full extent of the injury and treat the patient as a typical burn patient. Based on the degree of injury, ensure adequate fluid resuscitation and take precautions for complications (e.g., hypothermia, infection, rhabdomyolysis).

Hydrofluoric acid burns require special consideration. They should initially be treated as any other burn, with thorough irrigation. However, due to the penetrating power of the fluoride ion, specific neutralization procedures are indicated. Fluoride can be neutralized by either calcium or magnesium. For small superficial burns, topical calcium or magnesium gels can be applied. Deeper burns usually require subcutaneous injections of calcium gluconate. Hand burns can be difficult to manage. These can be treated with subcutaneous injections of calcium, intra-arterial calcium infusions, or a Bier-type calcium infusion. There are no objective comparative studies on these different treatments. Studies on animals demonstrated that IV magnesium is as effective or more effective than subcutaneous injections of calcium for local hydrofluoric burns. In situations in which local treatment of hydrofluoric burns is not possible, this treatment is safe and should be considered. Keeping the extremity warm and treating pain maximizes blood flow and delivery of the body's intrinsic calcium and magnesium.

Other medications have a limited role in the treatment of most chemical burns. Topical antibiotic therapy is usually recommended for dermal burns. Pain medications are important for subsequent burn care. After

decontamination is performed on patients with chemical burns affecting a significant portion of the body, administer standard IV fluid and narcotic therapy as used for thermal burns.

The prognosis depends entirely on the extent of tissue injury. Small dermal lesions heal well. Larger dermal burns can produce significant scarring. Hydrofluoric acid burns can cause progressive tissue injury and may result in loss of digits.

E. Prevention of Exposure

Engineering controls, personal protective measures, proper work practices, and administrative controls that minimize skin contact with potential irritants can prevent occupational dermatoses.

2. Reporting Criteria

A. Disease Reporting

Occupationally related severe skin disorder must be reported to the Iowa Department of Public Health by the physician or health practitioner attending any person with the disorder and by laboratories performing tests identifying reportable diseases. This disease should be reported by calling the Division of Environmental Health at 800-972-2026.

B. Reference

MedLinePlus
National Institute of Occupational Safety and Health (NIOSH)
Occupational Safety and Health Administration (OSHA)
eMedicine

SILICOSIS

Responsibilities:

Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the IDPH Division of Environmental Health:

Iowa Department of Public Health
Division of Environmental Health
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1. The Disease Definition

A. Clinical Description

Silicosis is an irreversible but preventable disease, and is the illness most closely associated with occupational exposure to silica dust. Overexposure to dust that contains microscopic particles of crystalline silica can cause scar tissue to form in the lungs, which reduces the lungs ability to extract oxygen from the air we breathe. Occupational exposures to respirable crystalline silica are associated with the development of silicosis, lung cancer, pulmonary tuberculosis, and airways diseases. These exposures may also be related to the development of autoimmune disorders, chronic renal disease, and other adverse health effects.

The symptoms of silicosis are a cough, with or without sputum, chest tightness, and shortness of breath, particularly on exertion. Pure silica dust can lead to widespread scarring of the lungs and can be extremely disabling. Additional information is provided under the prognosis section of this document.

B. Sources of Exposure

Silicosis results from exposure to free crystalline silica. Silica is the second most common mineral in the earth's crust and is a major component of sand, rock and mineral ores. Virtually any process that involves movement of earth or disturbance of silica-containing products such as masonry and concrete may expose a worker to silica. Silica dust is often found in heavy construction involving concrete or masonry, mines, foundries, blasting operations, and in stone, clay, and glass manufacturing. Sand mining, hauling, and use in some hydraulic fracturing (fracking) operations have been identified as potential silica health hazard risks. Typical sand found at the beach does not pose a silicosis threat.

C. Population at Risk

At least 1.7 million U.S. workers are exposed to respirable crystalline silica in a variety of industries and occupations, including construction, sandblasting, and mining. Almost 60,000 workers are expected to suffer

from some degree of silicosis. In addition, an undetermined portion of the greater than 3 million U.S. agricultural workers may be exposed to dust containing a significant percentage of respirable crystalline silica.

Every year, 200 to 300 workers in the United States die with silicosis. Between 1979 and 1995, 2,594 U.S. deaths were attributed to silicosis. The construction industry has one of the highest rates of deaths due to the disease.

Workers in the following occupations are at risk for developing silicosis:

- Highway and bridge construction and repair
- Building construction, demolition, and repair
- Abrasive blasting
- Masonry work
- Concrete finishing
- Drywall finishing
- Rock drilling
- Mining
- Sand and gravel screening
- Rock crushing (for road base)

More than 100,000 workers in the United States encounter high-risk, silica exposures through sandblasting, rock drilling and mining. Workers who remove paint and rust from buildings, bridges, tanks and other surfaces; clean foundry castings; work with stone or clay; etch or frost glass; and work in construction are at risk of overexposure to crystalline silica. Coal miners are at risk of mixed silicosis and coal workers' pneumoconiosis. Examples of the industries and activities that pose the greatest potential risk for worker exposure:

- Construction (sandblasting, rock drilling, masonry work, jack hammering, tunneling)
- Hydraulic fracturing (fracking) and support operations (sand/silica transportation delivery)
- Mining (cutting or drilling through sandstone and granite)
- Foundry work (grinding, moldings, shakeout, core room)
- Ceramics, clay, and pottery
- Stone cutting (sawing, abrasive blasting, chipping, grinding)
- Glass manufacturing
- Agriculture
- Shipyards (abrasive blasting)
- Railroad (setting and laying track)
- Manufacturing and use of abrasives
- Manufacturing of soaps and detergents

Surveillance of exposed workers with respiratory questionnaires, spirometry, and chest x-rays is recommended. Frequency of surveillance depends to some degree on the expected intensity of the exposure. As part of its National Emphasis Program on Silica, OSHA recommends that employers medically monitor all workers who may be exposed to silica dust levels at or above one-half the PEL. Recommended medical tests include:

- A medical exam that focuses on the respiratory system and includes a work and medical history.
- A chest X-ray, evaluated by a qualified professional as described in Directive CPL 03-00-007.

OSHA recommends that these tests be repeated every three years if the employee has less than 15 years of silica exposure, every two years if the employee has 15 to 20 years of exposure, and every year if the employee has 20 or more years of exposure.

D. Diagnosis, Treatment, and Prognosis

Diagnosis

Diagnosis of the disease is based on a combination of occupational history of silica exposure, chest CT or chest x-ray, and possible tissue biopsy for confirmation. Additional testing may be needed to distinguish silicosis from other disorders, and for determining the level of impairment to lung function.

Silicosis is usually recognized on the basis of chest x-ray or CT appearance in patients with a history of exposure. CT is more sensitive than x-ray. In most cases, chest CT is preferable because it is more sensitive for detecting silicosis as well as the transition from simple to conglomerate silicosis. Chest CT also can better distinguish asbestosis from silicosis, although this differentiation can usually be made on the basis of chest x-ray and exposure history. If the patient worked in coal mines, silicosis may be present along with coal workers' pneumoconiosis. Patients who have never worked in coal mines, but have worked as sandblasters or in other silica-dust areas have characteristic findings on their chest x-rays of widespread scarring in the upper parts of the lungs.

If diagnosis or screening is being done for a worker covered by the Coal Workers' X-Ray Surveillance Program as mandated by the Federal Mine Safety and Health Act of 1977, regulations mandate that all physicians who participate in the examination and/or classify chest radiographs under the Act must utilize the ILO System and Standard Films. This may also apply for asbestos-exposed workers covered by U.S. Department of Labor regulations, or for other medical screening, surveillance, research, or compensation programs. B Reader approval is granted to physicians with a valid U.S. state medical license who demonstrate proficiency in the classification of chest radiographs for the pneumoconioses using the International Labour Office (ILO) Classification System. Additional information about the B Reader program can be found at www.cdc.gov/niosh/topics/chestradiography/breader-info.html.

Additional tests

Tuberculin skin testing, sputum culture and cytology, PET scan, and bronchoscopy all may assist in distinguishing silicosis from disseminated TB or cancer.

Pulmonary function tests and measures of gas exchange (diffusing capacity for carbon monoxide (DLCO], ABG) are not diagnostic but help monitor progression. Early chronic silicosis may manifest with reduced lung volumes that are at the lower end of the predicted range and with normal functional residual capacity and residual volume. In conglomerate silicosis, pulmonary function tests reveal decreased lung volumes, decreased DLCO, and airway obstruction. ABGs show hypoxemia usually without CO_2 retention. Measurement of gas exchange during exercise, using pulse oximetry or preferably indwelling arterial catheter, is one of the most sensitive measures of pulmonary impairment.

Antinuclear antibodies and elevated rheumatoid factor are detectable in some patients and are suggestive but not diagnostic of a coexisting connective tissue disorder (e.g., scleroderma, rheumatoid arthritis).

The National Institute of Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) released new guidance and educational documents in 2011 for spirometry screening tests: OSHA-NIOSH Info Sheet: Maximize Your Spirometry Screening and Surveillance Resources: www.cdc.gov/niosh/docs/2011-133/pdfs/2011-133.pdf and OSHA-NIOSH Worker Info: Protect Yourself – Spirometry Breathing Test: www.cdc.gov/niosh/docs/2011-132/pdfs/2011-132.pdf.

Treatment

Although early treatment is generally supportive care, additional treatment options may be used to aid patient comfort and improve quality of life.

Patients with airway obstruction may be treated empirically with bronchodilators and inhaled corticosteroids. Patients should be monitored and treated for hypoxemia to forestall pulmonary hypertension. Pulmonary rehabilitation may help patients carry out activities of daily living. Workers who develop silicosis should be removed from further exposure when possible.

Occasionally whole lung lavage and oral corticosteroids are used. Whole lung lavage may be useful in some cases of acute silicosis. Whole lung lavage can reduce the total mineral dust load in the lungs of patients with chronic silicosis. Some studies have shown short-term reduction in symptoms after lavage, but controlled trials have not been done. Anecdotal evidence supports the use of oral corticosteroids in acute and accelerated silicosis. Lung transplantation is a last-resort.

Management of tuberculosis is the same as for other patients with tuberculosis except that longer courses of drug therapy are usually recommended because relapse is more common in patients with silicotuberculosis.

Prognosis

Silicosis is an irreversible, progressive disease, especially if further ongoing exposure to respirable crystalline silica is not eliminated.

Chronic silicosis is the most common form of the disorder and generally develops only after exposure over decades. Chronic silicosis is often asymptomatic, but many patients eventually develop dyspnea on exertion that progresses to dyspnea at rest. Productive cough, when present, may be due to silicosis, coexisting chronic occupational (industrial) bronchitis, or smoking. Breath sounds diminish as the disorder progresses, and pulmonary consolidation, pulmonary hypertension, and respiratory failure with or without right ventricular failure may develop in advanced disease.

Acute silicosis and the rarer **accelerated silicosis** are caused by intense silica dust exposure over short periods (several months or years). Acute silicosis patients experience rapid progression of dyspnea, weight loss, and fatigue with diffuse bilateral crackles. Respiratory failure often develops within 2 yr. Patients with accelerated silicosis experience the same symptoms as those with chronic silicosis, but symptoms develop over a shorter period.

Conglomerate (complicated) silicosis is the advanced form of chronic or accelerated silicosis and is characterized by widespread masses of fibrosis, typically in the upper lung zones. Conglomerate silicosis causes severe, chronic respiratory symptoms.

Complications

Patients with silicosis are at risk for other disorders:

- Tuberculosis
- Lung cancer
- Progressive systemic sclerosis (scleroderma)
- Rheumatoid arthritis
-

All patients with silicosis are at about a 30-fold increased risk of pulmonary tuberculosis or nontubercular mycobacterial disease and are more likely to develop both pulmonary and extrapulmonary manifestations. Increased risk may be from impaired macrophage function and an increased risk of activation of latent infection. People exposed to silica but without silicosis have 3 times the risk of developing tuberculosis compared with the nonexposed general population.

Other complications include spontaneous pneumothorax, broncholithiasis, and tracheobronchial obstruction. Emphysema is a common finding in areas immediately peripheral to conglomerate nodules and in areas of progressive massive fibrosis.

E. Prevention of Exposure

The limited value of treatment for conditions associated with silica exposure lends urgency to their prevention. The most effective preventive interventions occur at an industrial rather than clinical level and include dust suppression, process isolation, ventilation, and use of non–silica-containing abrasives. Respiratory masks provide imperfect protection and, although helpful, are not adequate solutions.

Other preventive measures include smoking cessation and pneumococcal and influenza vaccination. Physicians must be alert to the risk of TB and nontuberculous mycobacterial infections in silica-exposed patients, especially miners. People exposed to silica should have annual tuberculin testing. Those with a positive skin test should have sputum culture for TB. In some cases, CT and bronchoscopy may be needed to confirm TB. Patients with a positive tuberculin test and negative TB cultures should be given isoniazid chemoprophylaxis in keeping with standard guidelines for tuberculin reactors – ask for consultation by IDPH as needed.

Worker and employer education should include information emphasizing the role of primary prevention, which includes engineering controls, personal protective equipment and methods to avoid home contamination with

work place dusts. Materials have been developed by a number of national programs, including NIOSH, MSHA, and OSHA – see references.

2. Reporting Criteria

A. Disease Reporting

All cases of disease caused by exposure to silica are reportable in Iowa as a sub-section of the non-communicable respiratory disease surveillance program, under the definition found in the Iowa Administrative Code [641] Chapter 1: *"Noncommunicable respiratory illnesses"* means an illness indicating prolonged exposure or overexposure to asbestos, silica, silicates, aluminum, graphite, bauxite, beryllium, cotton dust or other textile material, or coal dust. "Noncommunicable respiratory illnesses" includes, but is not limited to asbestosis, coal worker's pneumoconiosis, and silicosis."

Mandatory reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident. Primary responsibility for reporting falls to the physician or other health practitioner attending the patient and to laboratories performing tests identifying the disease, including tissue biopsy testing that is diagnostic of the disease.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp. Call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours if you have questions.

B. References

National Institute for Occupational Safety and Health (NIOSH)

- NIOSH SILICA home page www.cdc.gov/niosh/topics/silica/#recs
- NIOSH/MSHA: A guide for working safely with silica – if its silica, it's not just dust. www.cdc.gov/niosh/pdfs/silicax.pdf
- NIOSH Publication No. 2004-108: Silicosis: Learn the Facts! www.cdc.gov/niosh/docs/2004-108/#e
- OSHA NIOSH Hazard Alert: Worker Exposure to Silica During Hydraulic Fracturing DHHS (NIOSH) Publication No. 2012-166 (2012) www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.pdf
- NIOSH HAZARD REVIEW Health Effects of Occupational Exposure to Respirable Crystalline Silica www.cdc.gov/niosh/docs/2002-129/

US Department of Labor Occupational Safety and Health Administration (OSHA)

- OSHA Silica safety and health topics page: www.osha.gov/dsg/topics/silicacrystalline/index.html
- OSHA Silica etool: www.osha.gov/dsg/etools/silica/index.html

US Department of Labor Mine Safety and Health Administration (MSHA)

- MSHA Silicosis website: www.msha.gov/S&HINFO/SILICO/SILICO.HTM
- MSHA Silica Exposure of Underground Coal Miners www.msha.gov/illness_prevention/healthtopics/HHICC02.HTM

Merck online Medial Manuals, 2008. Silicosis. www.merckmanuals.com/professional/sec05/ch057/ch057i.html and www.merckmanuals.com/home/sec04/ch049/ch049i.html
American Lung Association: www.lungusa.org/lung-disease/silicosis/
Michigan State University
University of Iowa Virtual Hospital
University of Missouri
Pennsylvania State University
eMedicine
MedLine

SILO FILLER'S DISEASE

Responsibilities:
Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the IDPH Division of Environmental Health:

Iowa Department of Public Health
Division of Environmental Health
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1. The Disease Definition

Silo filler's disease (SFD) is an occupational pulmonary disease resulting from exposure to oxides of nitrogen.

A. Clinical Description

Inhalation of oxides of nitrogen (NO_x) can cause sudden death, pulmonary edema, and/or bronchiolitis obliterans. Significant exposure can also result in methemoglobinemia. Nitrogen dioxide binds to hemoglobin with great affinity, forming nitrosyl hemoglobin, which is readily oxidized to methemoglobin. Methemoglobin results in a leftward shift of the oxygen disassociation curve, which impairs the oxygen delivery and compounds the already present hypoxia.

Low concentrations of nitrogen dioxide cause cough, dyspnea, fatigue, and upper airway and ocular irritation. With an increase in concentration and duration, the exposed person additionally may experience cyanosis, vomiting, vertigo, and a loss of consciousness. More severe exposure can result in laryngeal spasm, bronchiolar spasm, reflex respiratory arrest, or asphyxia, leading to death. Most symptomatic exposures are mild and self-limiting; however, some cause sudden death from asphyxiation, pulmonary edema, or weeks later, bronchiolitis obliterans.

B. Sources of Exposure

Nitrogen dioxide is a reddish-brown gas that emits an odor similar to that of household bleach. It forms rapidly in farm silos that are filled with fresh organic material (e.g., corn, grains). Hours after the organic material is stored, toxic and lethal levels of nitrogen dioxide, which is heavier than air, develop on top of the silage. When farm workers enter the silo or are near its open hatches during the first 10 days after filling (without proper precautions), they may experience various degrees of silo filler's disease. The first recorded incidence of a death from SFD was in 1914. This occurred when three men fell into a silo and were asphyxiated by a gas that was unknown at that time. The term, "silo filler's disease," was established in 1956.

C. Population at Risk

Although probably not common, the true scope of exposure to NO_x is thought to be underestimated. An unpublished survey in the late 1960's revealed that 4.2 percent of Wisconsin farm operators had developed symptoms of NO_x inhalation when working in or near freshly filled silos. Other statistics on the frequency of agricultural NO_x exposure are not available, but a number of deaths have been documented through the years. The severity of the hazard rests partially in the high case fatality rate: 29 percent of cases cited in medical literature have been fatal.

D. Diagnosis, Treatment, and Prognosis

Patients in the acute stages of silo filler's disease will present with moderate to severe respiratory distress. Systemic hypotension and evidence of severe hemoconcentration may be present, as may methemoglobinemia and severe metabolic acidosis. Leukocytosis is typical. Pulmonary function tests show a reduced vital capacity, increased airways resistance, impaired gas transfer, and hypoxemia.
Because the initial illness may be mild, patients may present to a physician for the first time during a relapse, two to six weeks after exposure to NO_x. At this time, cough, tachypnea, dyspnea, fever, tachycardia, cyanosis, or other symptoms of respiratory distress are due to bronchiolitis obliterans. Small, discrete nodules, with or without confluence, will be evident on the chest radiograph.

Silo filler's disease may be confused with a number of illnesses, including hypersensitivity pneumonitis or toxic organic dust syndrome, which result from exposure to moldy hay or grain. When working around a silo, exposure to mold typically occurs while uncapping the silo and removing moldy silage from the top silo layers well after the harvest season. Thus, the timing is different than it would be for silo filler's disease. The chest radiograph of bronchiolitis obliterans may resemble miliary tuberculosis among other diseases; an accurate occupational history and negative sputum smears for acid-fast bacillus will help avoid confusion. A detailed medical and occupational history is crucial to correct diagnosis. In addition to noting exposure to a recently filled silo, most commonly in late summer or early fall, a patient may recall seeing signs of NO_x near the silo or experiencing the transient symptoms described previously. Since exposure to silo gas may have occurred from hours to weeks prior to onset of severe respiratory symptoms, the patient may not associate symptoms with exposure to silo gas. Prompt diagnosis and treatment of patients with acute symptoms are vital to prevent possible death and, in the case of initial illness, to lessen the probability of relapse.

Any symptomatic patient who has been exposed to NO_x should be monitored closely by a physician for 48 hours because of the possibility of sudden pulmonary edema. Typically, these patients are hospitalized. In certain cases, patients could remain at home, but should be warned to report immediately to the physician upon development of respiratory distress. Persons developing pulmonary edema or respiratory embarrassment must be placed on steroids for a minimum of eight weeks, to decrease the probability of bronchiolitis obliterans. Persons presenting for the first time with bronchiolitis obliterans also should receive steroid treatment. Patients may require intensive supportive therapy, including oxygen, bronchodilators, or assisted ventilation. Antibiotics may be required for secondary respiratory infection.

Reactions to NO_x depend on the concentration of gas inhaled and the length of exposure. Relatively mild exposure to NO_x produces ocular irritation and a transient upper respiratory tract syndrome manifest as cough, possibly with dyspnea, fatigue, nausea, cyanosis, vomiting, vertigo, or somnolence. Symptoms may be severe enough to induce workers to leave the silo. However, when reactions to NO_x are minimal, workers may stay in the silo and increase the probability of a more severe reaction. Although symptoms may persist one to two weeks, chest films, pulmonary function tests, and blood gases are normal, and recovery is complete.

Very high concentrations of NO_x induce immediate distress, resulting in collapse and death within minutes. The mechanism of this reaction is not completely understood: death may be due to airway spasm or laryngospasm, reflex respiratory arrest, or simple asphyxiation due to low ambient oxygen concentrations. People who collapse in silos and are rescued immediately, may survive only to experience the respiratory responses described below.

At somewhat lower concentrations, NO_x induces pulmonary edema (normally within 30 hours following exposure), bronchiolitis obliterans (within days to weeks), or both. These reactions are commonly called "silo

filler's disease." At the time of exposure, patients may have had no or minimal symptoms, or they may have experienced those symptoms associated with mild exposures listed previously. However, a slowly evolving and progressive inflammation of the lungs results in massive pulmonary edema most commonly from 6 to 12 hours later. Death from asphyxiation may occur within hours, but the majority of patients recover completely with appropriate therapy within days or weeks.

In a small percentage of cases, recovery from this first phase of illness may appear to be complete, including clearing of chest films, only to be followed by a relapse characterized by bronchiolitis obliterans, typically two to four weeks following exposure. This fibrocellular obliteration of the bronchioles also may be the initial clinical manifestation. Relapse may lead to death or to slow recovery over a period of weeks to months. Most patients who survive the pulmonary edema, bronchiolitis obliterans, or both do not develop significant respiratory impairment, although subclinical small airways obstruction may persist. Bronchiolitis obliterans responds to steroids. However, occasionally a patient may experience persistent pulmonary dysfunction of variable severity.

E. Prevention of Exposure

Silo filler's disease is a preventable occupational hazard that can be eliminated by proper work practices. Farmers need to thoroughly understand the hazards associated with newly filled silos. Once filled, no one should enter the silo for at least two weeks. If entrance is imperative during the filling process, the blower should be run for 30 minutes prior to entering the silo and kept running while anyone is inside. All silo doors should be kept closed during and after filling to prevent NOx from flowing down the chute. The door between the silo room and barn should be kept closed. Children and animals should be kept away from the silo and adjacent feed room during filling and for two weeks afterward. A few days before the silo is entered for the first time, the filler opening should be pulled open from the ground (not from the chute) with a rope. The blower should be operated for at least one-half hour prior to entrance, and other means of ventilation should be maximized. Detector tubes (also called colorimetric tubes) that measure the concentration of NO_2 are reasonably priced and reliable if properly used.

2. Reporting Criteria

A. Disease Reporting

Although silo filler's disease is not hypersensitivity pneumonitis, reporting of all cases is required under the definition found in the current version of the Iowa Administrative Code 641—1.1(139A) Definitions: *"Hypersensitivity pneumonitis" includes but is not limited to farmer's lung, silo filler's disease, and toxic organic dust syndrome.* Primary responsibility for reporting falls to the physician or other health practitioner attending the patient when medical treatment is provided.

Mandatory reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp or call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours.

B. References

Diagnosing Silo-Filler's Disease. National Agricultural Safety Database/Michigan State University Extension. Accessed online March 2011 at nasdonline.org/document/1037/d000831/diagnosing-silo-filler-039-s-disease.html

Center for Disease Control MMWR **July 23, 1982 / 31(28);389-91:** Epidemiologic Notes and Reports Silo-Filler's Disease in Rural New York www.cdc.gov/mmwr/preview/mmwrhtml/00001135.htm

Silo Filler's Disease. Medscape article by Kamangar, N., Chen, L. Updated: Sept. 17, 2009. Accessed March 2011. emedicine.medscape.com/article/302133-overview

National Institute of Occupational Health and Safety (NIOSH)
University of Iowa Virtual Hospital
University of Missouri
American Lung Association
Pennsylvania State University
eMedicine
MedLine

TOXIC HEPATITIS

Also known as: Chemical Hepatitis

Responsibilities:

Hospital: Report by phone, fax, or mail
Lab: Report by phone, fax, or mail
Physician/Health care providers: Report by phone, fax, or mail
Medical Examiners: Report by phone, fax, or mail
Poison Control Centers: Report by phone, fax, or mail
Occupational Nurses: Report by phone, fax, or mail
Local Public Health Agency (LPHA): No follow-up required, unless outbreak occurrence

Report to the Iowa Department of Public Health:

Iowa Department of Public Health
Bureau of Environmental Health Services
Lucas State Office Building
321 E. 12th Street
Des Moines, Iowa 50319-0075
Phone (Mon-Fri 8 am - 4:30 pm): 800-972-2026
Fax: 515-281-4529
24-hour Disease Reporting Hotline: (For use outside of EH office hours) 800-362-2736
Web: www.idph.state.ia.us/eh/reportable_diseases.asp
Report Form: Environmental & Occupational Report Form

1. The Disease Definition

The liver processes everything a person consumes. Among many complex functions, the liver cleanses the blood, regulates the supply of body fuel, and manufactures many essential body proteins, including clotting factors. The liver is susceptible to injury by chemicals because it plays a fundamental role in chemical metabolism. It has the unique job of processing almost all chemicals and drugs that enter the blood stream and removing the chemicals that are difficult to excrete. The liver turns these chemicals into products that can be eliminated from the body through bile or urine. However, during this chemical process, unstable, highly toxic products, which can attack and injure the liver, are sometimes produced.

A. Clinical Description

Toxic hepatitis is any acute or sub-acute necrosis of the liver or other unspecified chemical hepatitis caused by exposure to non-medicinal toxic agents other than ethyl alcohol, including, but not limited to, carbon tetrachloride, chloroform, tetrachloroethane, trichloroethylene, phosphorus, TNT, chloronapthalenes, methylenedianilines, ethylene dibromide, and organic solvents. This includes ICD-9 codes 572.2 and 573.3 or ICD-10 codes K71.0 to K71.9.

Clinically, toxic hepatitis can resemble any form of acute or chronic liver disease, such as viral hepatitis or bile-duct obstruction. Symptoms such as nausea, vomiting, fever, jaundice, enlarged liver and right upper quadrant abdominal tenderness are often identical to viral hepatitis. Elevated liver enzymes, other liver blood tests, and liver biopsy findings may also be identical to viral hepatities. Liver function tests are often used in occupational medicine surveillance programs for people who are exposed to toxic chemicals in the workplace. In chronic exposure cases, the first signs or symptoms may be a progressive elevation of liver function tests.

B. Sources of Exposure

In an occupational setting, toxic hepatitis can occur when workers are exposed to industrial chemicals capable of causing liver damage. Chemical spills, improper ventilation, confined spaces, or the lack of adequate skin and respiratory protective measures may increase the risk of exposure above safe limits. Underlying health problems, age, the use of alcohol, and some types of pain relievers, prescription medications, herbal supplements or other over-the-counter products can also increase a worker's risk of developing liver damage when exposed to industrial chemicals.

There are lists of chemicals known to cause illness or death due to acute hepatic injury after occupational exposure. Workers who improperly handle these chemicals could suffer liver damage as the principal toxic effect of the substance. Refer to The National Library of Medicine Haz-Map website for disease information, a list of chemicals, and a searchable database. The NIOSH Pocket Guide to Chemical Hazards is another reference useful to determining exposure risks and preventive measures. Reference links are listed at the end of this document.

C. Population at Risk

Most statistics on toxic hepatitis combine the numbers for toxic hepatitis caused by drugs and toxic hepatitis caused by exposure to chemicals. One source lists the incidence as 8 out of 10,000 people. Another source says toxic hepatitis is implicated in the United States in 2 to 5 percent of hospitalizations for jaundice, an estimated 15 to 30 percent of fulminant liver failure cases, and approximately 40 percent of acute hepatitis cases in people over 50 years.

The National Library of Medicine Haz-Map website lists 23 primary hepatotoxins and over 600 secondary hepatotoxins, increasing the risk of disease for workers in occupations or industries using these chemicals. Hazardous response workers, first responders, and people who work in confined spaces are other high risk groups for possible exposure.

D. Diagnosis, Treatment, and Prognosis

Diagnosis of toxic hepatitis caused by chemical exposure requires a thorough assessment of the patient, including clinical signs and symptoms, laboratory testing, an exposure history, and possible liver imaging and biopsy. Some of these tests are used to rule out other types of hepatitis. The medical provider must pay close attention to the environmental and occupational exposures to chemicals of each patient as well as all drugs used (prescribed or over the counter ones, including herbal remedies). Some forms of chemical liver injury will occur within hours, days, or weeks of exposure; however, sometimes it takes months of regular exposure to a chemical or ingestion of a drug before liver injury becomes apparent. Workers known to have regular exposure to potentially damaging chemicals should be routinely screened.

If a person is suspected of having, or has been diagnosed with toxic hepatitis, exposure to the chemical or drug(s) identified as the possible causative agent should be immediately discontinued. Rest is indicated if symptoms are severe. If nausea and vomiting are significant, hospitalization and intravenous fluids may be advised. People with acute hepatitis should avoid physical exertion, alcohol, and any hepatotoxic substances. Consultation with a medical toxicologist should be considered.

Liver inflammation usually subsides within days or weeks after exposure to the chemical or drug is stopped. In severe cases, liver failure can occur. The overall mortality rate for drug-induced liver injury is around 5 percent.

E. Prevention of Exposure

People who work with or use hazardous chemicals should be trained regarding the risks, and should take all necessary precautions to protect themselves from exposure. Safety Data Sheets (SDS – formerly called Material Safety Data Sheets or MSDS) can provide information about personal protective equipment (PPE) requirements, first aid, and exposure risks. If workers do come in contact with a harmful substance, they should follow the guidelines established in their workplace, and call the local emergency services or poison control center for help as needed.

The National Institute of Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards (http://www.cdc.gov/niosh/npg/default.html) is intended as a source of general industrial hygiene information on several hundred chemicals/classes for workers, employers, and occupational health professionals. The NPG does not contain an analysis of all pertinent data; rather it presents key information and data in abbreviated or tabular form for chemicals or substance groupings (e.g. cyanides, fluorides, manganese compounds) that are found in the work environment. The information found in the NPG should help users recognize and control occupational chemical hazards.

- Chemical names, synonyms, trade names, CAS, RTECS, and DOT ID and Guide numbers
- Chemical structure/formula, conversion factors
- NIOSH Recommended Exposure Limits (RELs)
- Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs)
- NIOSH Immediately Dangerous to Life and Health values (IDLHs)
- Physical description and chemical and physical properties of agents
- Measurement methods
- Personal protection and sanitation recommendations
- Respirator selection recommendations
- Incompatibilities and reactivities of agents
- Exposure routes, symptoms, target organs, and first aid information

2. Reporting Criteria

A. Disease Reporting

All cases diagnosed as chemical hepatitis or toxic hepatitis are required to be reported, including prolonged or possible overexposure to non-medicinal toxic agents other than ethyl alcohol, including, but not limited to, carbon tetrachloride, chloroform, tetrachloroethane, trichloroethylene, phosphorus, TNT, chloronapthalenes, methylenedianilines, ethylene dibromide, and organic solvents (this includes ICD-9 codes 572.2 and 573.3 or ICD-10 codes K71.0 to K71.9). Reporting is also required in cases in which there are any abnormal liver tissue biopsy findings that would be attributable to such exposure.

Mandatory Reporting is required of health care providers, clinics, hospitals, clinical laboratories, and other health care facilities; school nurses or school officials; poison control and information centers; medical examiners; occupational nurses. Hospitals, health care providers, and clinical laboratories outside the state of Iowa for confirmed or suspect cases in an Iowa resident.

Additional information and reporting forms can be found in the Iowa Administrative Code [641] Chapter 1, which can be accessed through a link on the IDPH EH Division Web page at www.idph.state.ia.us/eh/reportable_diseases.asp or call the IDPH Environmental Health hotline at 800-972-2026 during regular business hours.

B. References

National Library of Medicine Haz-Map: http://hazmap.nlm.nih.gov/ or http://hazmap.nlm.nih.gov/category-details?id=82&table=tbldiseases
Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov/
NIOSH Chemical Safety www.cdc.gov/niosh/topics/chemical-safety/
The NIOSH Pocket Guide to Chemical Hazards www.cdc.gov/niosh/npg/default.html

Appendices A

Acronyms

ACIP
Advisory Committee on Immunization Practices
ACPHP
Academic Center for Public Health Preparedness
AIDS
Acquired Immune Deficiency Syndrome
AIIR
Airborne infection isolation room
ALT
Alanine amiontransferase
AMA
American Medical Association
APHL
Association of Public Health Laboratories
ASPH
Association of Schools of Public Health
AST
Aspartate transaminase
AVA
Anthrax Vaccine Adsorbed
AVRP
Anthrax Vaccine Research Program
ASPH
Association of Schools of Public Health
ASTHO
Association of State and Territorial Health Officials
ATSDR
Agency for Toxic Substances and Disease Registry
CADE
Center for Acute Disease Epidemiology
CBRN
Chemical, Biological, Radiological/Nuclear
CDC
Centers for Disease Control and Prevention
CDOR
Center for Disaster Operations and Response
CHI
Consolidated Health Informatics
CIA
Central Intelligence Agency
CIO
Centers, Institutes and Office
CISM
Critical Incident Stress Management
CLIA
Clinical Laboratory Improvements Act
CPHP
Centers for Public Health Preparedness
COOP
Continuity of Operations Plan
CSTE
Council of State and Territorial Epidemiologists
DEEDS
Division of Epidemiology, EMS, and Disaster Operations
DNA
Deoxyribonucleic Acid
DHHS
Department of Health and Human Services
DHS
Department of Homeland Security
DOE
Department of Energy
ECS
Emergency Communication System
EOC
Emergency Operations Center
EPA
Environmental Protection Agency
Epi-X
Epidemic Information Exchange
EIS
Epidemic Intelligence Service
EISO
Epidemic Intelligence Service Officer
ELISA
Enzyme Linked Immunosorbent Assay
ELR
Electronic Laboratory-Based Reporting
EPO
Epidemiology Program Office
ERT
Emergency Response Team
FBI
Federal Bureau of Investigation
FEMA
Federal Emergency Management Agency
FMO
Financial Management Office
FDA
Food and Drug Administration
FRP
Federal Response Plan
FRERP
Federal Radiological Emergency Response Plan
FTE
Full Time Equivalent

GIS
Geographic Information System
GMP
Good Manufacturing Practices
GPRA
Government Performance and Results Act of 1993
HACCP
Hazard Analysis Critical Control Point
HAN
Health Alert Network
HICPAC
Healthcare Infection Control Practices Advisory Committee
HIPAA
Health Insurance Portability and Accountability Act
HPP
Hospital Preparedness Program
HIV
Human Immunodeficiency Virus
ICRC
Injury Control Research Center
ICS
Incident Command System
IDSS
Iowa Disease Surveillance System
IDPH
Iowa Department of Public Health
IM
Intramuscular
IMS
Incident Management System
IOM
Institute of Medicine
IT
Information Technology
IV
Intravenous
LPHA
Local Public Health Agency
LRN
Laboratory Response Network
ME
Medical examiner
MSEHPA
Model State Emergency Health Powers Act
NACCHO
National Association for City and County Health Officials
NCBDDD
National Center for Birth Defects and Developmental Disease
NCCDPHP
National Center for Chronic Disease Prevention and Health Promotion
NCEH
National Center for Environmental Health
NCHS
National Center for Health Statistics
NCHSTP
National Center for HIV, STD and TB Prevention
NCID
National Center for Infectious Disease
NCIPC
National Center for Injury Prevention and Control
NEDSS
National Electronic Disease Surveillance System
NGO
Non-Governmental Organization
NHSN
National Healthcare Safety Network
NIP
National Immunization Program
NIOSH
National Institute for Occupational Safety and Health
NIH
National Institutes of Health
NLTN
National Laboratory Training Network
NPHIC
National Public Health Information Coalition
NPPTL
National Personal Protective Technology Laboratory
NPS
National Pharmaceutical Stockpile
NYCDOH
New York City Department of Health
OC
Office of Communication
OHS
Office of Health and Safety
OTPER
Office of Terrorism Preparedness and Emergency Response
OD
Office of the Director
OSEP
Office of Security and Emergency Preparedness

PPE
Personal Protective Equipment
PCP
Pneumocystis Carinii Pneumonia
PCR
Polymerase Chain Reaction
PFGE
Pulse Field Gel Electrophoresis
PHA
Public Health Advisor
PH
Public Health
PHEP
Public Health Emergency Preparedness
PHER
Public Health Emergency Response
PHIN
Public Health Information Network
PHPPO
Public Health Practice Program Office
PMR
Preventive Medicine Resident
PVS
Pre-Event Vaccination System
SAP
Select Agent Program
SARS
Severe Acute Respiratory Syndrome
SCBA
Self Contained Breathing Apparatus
SLPP
State and Local Preparedness Program
SME
State Medical Examiner
SNS
Strategic National Stockpile
SVP
Smallpox Vaccination Program
SWOC
Strengths, Weaknesses, Opportunities and Challenges
TARU
Technical Advisory Response Unit
TED
Training, Education and Demonstration Package
TOPOFF
Top Officials
TRPLT
Terrorism Response and Preparation Leadership Team
US
United States
USDA
United States Department of Agriculture
VAERS
Vaccine Adverse Effects Reporting System
VFC
Vaccines for Children
VIG
Vaccinia Immune Globulin
VMI
Vendor Managed Inventory
WaterCAD
Water Computer Aided Design
WHO
World Health Organization
XML
Extensible Markup Language
24x7
Twenty four hours a day, seven days a week

Glossary

Antigen - That part of an agent (bacteria, virus, etc.) capable of stimulating the production of specific antibodies.

Antibody - An immunoglobulin found in tissue fluids and blood serum that is produced in response to the stimulus of a specific antigen and is capable of combining with that antigen to neutralize or destroy it.

Airborne precautions - Precautions that apply to patients known or suspected to be infected with epidemiologically important pathogens that can be transmitted widely by air currents and may become inhaled by or deposited on a susceptible host within the same room or, depending on environmental factors, over a longer distance from the source patient. These precautions are designed to reduce the risk of such airborne transmission of infectious agents through personal protection devices, such as N95 masks, and special air handling and ventilation systems, such as airborne infection isolation rooms. (Adapted from CDC/HICPAC guidelines.)

Airborne infection isolation room (AIIR) - A single patient room in which environmental factors are controlled to minimize the transmission of infectious agents that can be transmitted by the airborne route. These rooms have specific requirements for controlled ventilation, negative pressure, and air filtration and monitoring that are detailed in Guideline for Environmental Infection Control in Health-Care Facilities, 2003.

Arthralgia - Pain in a joint without objective signs (see arthritis).

Arthritis - Swelling, redness, tenderness, or other specific signs of inflammation in a joint.

Aseptic - Absence of infectious microorganisms; free from infection; sterile. (Sometimes used to mean absence of bacteria, example; aseptic meningitis may be caused by virus).

Asymptomatic - Without objective evidence of disease or condition.

Attack Rate - A measure of the frequency of cases of a disease in a narrowly defined population during a specific interval of time, as in epidemics (# of cases/# of people exposed x 100). Usually expressed as a percent.

Bacteria - Unicellular microorganism. There are three principal forms: spherical or ovoid forms called cocci; rod-shaped forms called bacilli or vibrios; and spiral forms called spirilla or spirochetes.

Bioemergency - A situation in which a pathogen poses an immediate and severe threat to the lives or health of people in Iowa, to the extent that day-to-day operations of public health authorities are insufficient to address this threat.

Carrier - A person or animal that harbors a specific infectious agent (but manifests no discernible clinical disease) and is a potential source of

infection for man or animals. The carrier state can occur in an individual after an infection (which was either asymptomatic or symptomatic and resolved).

Case - An infected or diseased person or animal having specific clinical, laboratory, or epidemiologic characteristics.

Case Definition - A set of standard criteria for deciding whether a person has a particular disease or health-related condition, by specifying clinical criteria and limitations on time, place, and person (Retrieved from CDC at www.cdc.gov/osels/ph_surveillance/nndss/casedef/index.htm on 3/15/11).

Case Fatality Rate - A measure of the likelihood that an ill person (i.e., one who exhibits symptoms) will die as a result of that illness (adapted from Gordis, 2000:44); can be expressed by the ratio:

$$\frac{\text{number who die within a specified time after disease onset or diagnosis}}{\text{number ill}}$$

Chemoprophylaxis - The administration of a medicine, including antibiotics, to prevent the development of an infection or prevent the progression of an infection to clinical disease. Example: Rifampin for exposure to meningococcal disease.

Cohort - Any defined group of persons selected for a special purpose or study. (From the Latin cohors, warriors, the tenth part of a legion).

Cohorting - Method to isolate separate infectious persons from susceptible ones by grouping persons with the same infection together. Cohorting of staff is to assign specific staff to a group of patients and not have them do care on the unaffected clients.

Colonization - Propagation of a microorganism on or within a host without causing cellular injury or infection. A colonized host can serve as a source of infection. Carriers are often said to be colonized with a pathogen.

Communicable Disease - An illness which is caused by a specific infectious agent or its toxic products, and which arises through transmission of that agent or its products from a reservoir to a susceptible host.

Complement - A chemical in the immune system which can provoke the disintegration of bacteria. It is present in all sera. Complement is not an antibody but may work with antibodies to destroy bacteria.

Contact - A person or animal that has been in such association with an infected person or animal, or a contaminated environment, as to have had an opportunity to acquire the etiologic agent.

Contact Precautions - Precautions that apply to patients known or suspected to be infected or colonized with epidemiologically important microorganisms that can be transmitted by direct or indirect contact. Direct-contact transmission involves skin-to-skin contact and physical transfer of microorganisms to a susceptible host from an infected or colonized person, while indirect-contact transmission involves contact of a susceptible host with a contaminated intermediate object. (Adapted from CDC/HICPAC guidelines.)

Culture - The growth of microorganisms on or in substances (especially laboratory media prepared for this purpose).

Droplets - Liquid particles expelled into the air during the act of talking, spitting, singing, coughing, or sneezing. Droplets are formed through aerosolization of secretions present in the mouth, nasopharynx and bronchi. They can contain infectious microorganisms.

Droplet Nuclei - The dried residues of droplets which may contain one or more infectious microorganisms. In contrast to droplets, droplet nuclei can remain suspended in the air for long periods.

Droplet Precautions - Precautions that apply to any patient known or suspected to be infected with epidemiologically important pathogens that can be transmitted by infectious droplets generated from the source person during coughing, sneezing, or talking or during the performance of certain procedures such as suctioning or bronchoscopy. Unlike airborne precautions, because droplets travel only short distances ($\leq$ 3 ft.) and do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission. (Adapted from CDC/HICPAC guidelines.)

Ecchymosis - A large, irregularly formed hemorrhagic area of skin. Like a large bruise the color is blue-black changing to a greenish-brown or yellow. May occur with a large bruise.

Epidemic - The occurrence of cases of a disease in human populations in a particular geographic area clearly in excess of the usual incidence.

Common-source epidemic - An epidemic in which one human or one animal or specific vehicle (e.g., food or water) is responsible for transmitting the agent to the case/s identified.

Point-source epidemic - like a common source but limited to a short time period (e.g., a meal).

Propagated-source epidemic - An epidemic in which infections are transmitted from person to person or animal to animal in such a fashion that identified cases cannot be attributed to a single source.

Epidemiologist - A person who applies epidemiologic principles and methods to the prevention and control of disease.

Epidemiology - The study of the distribution and causes/risk factors of disease in human populations.

Epidemiologically linked case - A case in which a) the patient has had contact with one or more persons who either have/had the disease or have been exposed to a point source of infection (i.e., a single source of infection, such as an event leading to a foodborne-disease outbreak, to which all confirmed case-patients were exposed) and b) transmission of the agent by the usual modes of transmission is plausible. A case may be considered epidemiologically linked to a laboratory-confirmed case if at least one case in the chain of transmission is laboratory confirmed.

Erythema - Redness of the skin due to capillary dilatation.

Etiology - The study or theory of the causes of disease. An etiologic agent is that which causes disease.

Exposure - The opportunity of a susceptible host to acquire an infection by either a direct or indirect mode of transmission. Example: being bitten by an ill skunk is a potential exposure to rabies.

Fomites - Inanimate objects, such as toys or articles of clothing, which can become contaminated and, therefore, be a vehicle for transmission.

Fungi - Simple, dependent plants including molds, rusts, mushrooms, toadstools, lichens and yeasts. Some forms are pathogenic to animals. Example: vaginal "yeast infections".

Hand Hygiene - A general term that applies to hand washing, antiseptic handwash, antiseptic hand rub, or surgical hand antisepsis. (CDC)

Health Care Provider - A person who is trained and licensed to give health care. Also, a place licensed to give health care. Doctors, nurses, hospitals, skilled nursing facilities, some assisted living facilities and certain kinds of home health agencies are examples of health care providers. (From the Medicare web site.)

Host - Organisms, including humans, that are capable of being infected by a specific agent.

Hypothesis - An unproven assertion or statement based on available information, which commonly deals with the identity of an etiologic agent, the source of infection and the mode of transmission. Its role is to provide a rational basis for further investigation.

Illness - A subjective state, or experience, characterized by the impairment of normal physiological function and affecting part or all of an organism

(Last, 2001:90 and Princeton University, retrieved 3/10/04).

Immune Globulin - A sterile solution of proteins made up of antibodies that are present in adult human blood. Example: RIG - rabies immune globulin.

Immunoglobulin - A protein that functions as an antigen receptor.

Immunity - Immunity is often used to refer to antibody status.

Passive immunity refers to antibodies acquired from an outside source either naturally (by maternal transfer) or artificially (by inoculation of specific protective antibodies -- convalescent or immune serum, or immune globulin). Passive immunity is of brief duration (days or months).

Active immunity lasts years, and is acquired either naturally (by actual infection), or artificially (by inoculation with a vaccine).

Immunodeficient - Lacking in the ability to mount an immune response in response to an antigen.

Incidence - Number of new cases of a disease occurring within a particular population during a specified period of time.

Index Case - The first case among a number of similar cases which are epidemiologically related. Index cases are often identified as a source of contamination or infection.

Induration - Extremely hard or firm tissue (e.g. what is measured in a reactive Tuberculin skin test)

Infection - The entry and multiplication of an infectious agent in body tissues of man or animal, resulting in cellular injury.

Infectious Agent - An organism, usually a microorganism but including larger parasites (such as worms), that is capable of producing infection or infectious disease.

Infectious Disease - A disease of man or animal resulting from an invasion of the body by pathogenic agents and the reaction of the tissues to these agents and/or the toxins they produce.

Infection Control Precautions - Measures used for decreasing the risk of transmission of microorganisms, particularly in health care facilities or when otherwise providing medical care. These fall into standard, contact, droplet, and airborne categories, which are also defined in this section. (Adapted from CDC/HICPAC guidelines)

Infectivity - A measure of the likelihood that a person exposed to a pathogen will become infected (i.e., the agent enters, multiplies, and survives within the host) (adapted from Nelson, 2001:27); can be expressed by the ratio:

$$\frac{\text{number infected}}{\text{number exposed}}$$

Infestation - The lodgment, development, and reproduction of arthropods (e.g., scabies, lice on the body or in the clothing.)

Inflammation - Normal tissue response to cellular injury or foreign material, characterized by dilation of small blood vessels (capillaries) that usually cause erythema (redness) and warmth and mobilization of defense cells (blood and tissue white blood cells that form pus).

Isolation - The separation, for the period of communicability, of infected persons or animals from those that are not infected, in such places and under such conditions as will prevent the direct or indirect transmission of the infectious agent from those infected to those who may be susceptible or who may spread the agent to others.

Mean - Called "the average" in arithmetic. The mean is calculated by adding together all the observed values and dividing by the number of observations.

Monospot - Agglutination test to detect the Epstein-Barr virus (the cause of mononucleosis).

Morbidity - Any departure from a state of well-being.

Myalgias - Tenderness or pain in the muscles.

Nanometer - One billionth of a meter.

Nosocomial Infection - An infection resulting from exposure to a source within a health-care facility. The term is applied to such infections transmitted between inpatients, visitors, and hospital personnel.

Nosocomial - A term used to denote a new disease or condition acquired within a healthcare setting, for example a hospital-acquired infection.

Outbreak - The occurrence of two or more cases of a disease which are epidemiologically related.

Pandemic - An epidemic disease affecting people in several countries or continents. Example: In 1919, there was an influenza pandemic.

Parasite - An organism (often microbial) which lives in or on another organism, at their expense. Parasites are not necessarily harmful to their host.

Pathogen - An agent capable of causing disease.

Pathogenicity - The ability of an agent to cause disease in a susceptible host.

Permucosal - By means of a mucous membrane. Example: Permucosal spread of hepatitis B can occur, especially in health care settings.

Personal Protective Equipment - The equipment and clothing required to mitigate the risk of injury from or exposure to hazardous conditions encountered during the performance of duty. (From the National Oceanographic and Atmospheric Association)

Petechiae - Small, purplish, hemorrhagic spots on the skin, mucous membranes, or serous surfaces. These are small areas under the skin, which may be due to an abnormality of blood clotting mechanism.

Phagocyte - A cell which engulfs and destroys foreign particles or microorganisms by digestion.

Primary Case - The person who first introduces a disease into a defined group, such as a family, and therefore the means by which members of this group may contract the disease. Compare with the definition for index case (adapted from Last, 2001:142 and Gordis, 2000:22).

Prodromal Period - The prodromal period is that lapse of time between the first vague symptom of disease and the full clinical syndrome upon which a diagnosis can be based.

Prophylaxis - Measures taken to prevent the development or spread of disease.

Protozoa - A unicellular animal which usually reproduces asexually by fission.

Public Health Disaster - Defined in Iowa Code section 135.140 as "a state of disaster emergency proclaimed by the governor in consultation with the department [i.e., IDPH] pursuant to section 29C.6 for a disaster which specifically involves an imminent threat of an illness or health condition that meets any of the following conditions of paragraphs I and II:

I. *Is reasonably believed to be caused by any of the following:*

a. Bioterrorism or other act of terrorism. The appearance of a novel or previously controlled or eradicated infectious agent or biological toxin. A chemical attack or accidental release.

b. An intentional or accidental release of radioactive material.

c. A nuclear or radiological attack or accident.

II. Poses *a high probability of any of the following:*

a. A large number of deaths in the affected population. A large number of serious or long-term disabilities in the affected population.

b. Widespread exposure to an infectious or toxic agent that poses a significant risk of substantial future harm to a large number of the affected population."

Although this statutory definition includes the conditions for a "bio-emergency," as defined earlier in this section, it also encompasses conditions that are not addressed in this plan, including chemical, radioactive, radiological, and nuclear incidents. Also, not every set of conditions that may be considered a bio-emergency by IPDH officials will result in the proclamation of a public health disaster.

Purpura - A small hemorrhage in the skin, mucous membrane or serosal (serous membrane) surface which can have various manifestations. Hemorrhage into the skin becomes red, then darkens into purple, then brownish-yellow and finally disappears in 2-3 weeks. Areas of discoloration do not disappear under fingertip pressure.

Quarantine - The limitation of freedom of movement of persons or animals that have been exposed to a communicable disease, within specified limits marked by placards, for a period of time equal to the longest usual incubation period of the disease.

Ratio - A measure of the frequency of one group of events (e.g., the number of males having a specified disease) relative to the frequency of a different group of events (e.g., the number of females having the specified disease). Example: The male to female ratio for legionellosis is 2.5/1.

Resistance - The sum total of host mechanisms which interpose barriers to invasion or multiplication of infectious agents, or that prevent damage by the agent's toxic products.

Reservoir - The habitat where the etiologic agent of a disease normally thrives, grows, and replicates. A reservoir may be human (anthroponotic), animal (zoonotic), or a nonliving environment, such as soil or water (sapronotic). A characteristic feature of most diseases with non-human reservoirs is that once transmitted to humans, the epidemic chain is usually aborted, although the clinical course might be sometimes quite severe, even fatal. (Hubálek:403).

Rickettsia - A class of bacteria, which like viruses, can only multiply inside other cells.

Risk - The likelihood that a person having specified characteristics (e.g., age, sex, immune status) will acquire a specified disease.

Secondary Attack Rate - The frequency of new disease cases among close contacts of known cases. Secondary attack rates are usually calculated for household contacts. Example: The household secondary attack rate for Shigella can be over 50%.

Sepsis - When a symptomatic person is found to have pathogenic microorganisms or their toxins in the blood.

Serotyping - The characterization of different strains of a microorganism by the reaction of different stocks of sera with that organism.

Sign - Objective (can be detected by others) evidence of a disease.

Sporadic Case - A case with no known epidemiological relationship to any other case(s).

Standard Precautions - Precautions designed for the care of all patients in health care facilities regardless of their diagnosis or presumed infection status and intended to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection. The main focus is on hand hygiene, the use of protective barriers, and the proper handling of clinical waste. The precautions apply to (1) blood; (2) all body fluids, secretions, and excretions (except sweat), regardless of whether or not they contain visible blood; (3) non-intact skin; and, (4) mucous membranes. (Adapted from CDC/HICPAC guidelines.)

Surveillance of Disease - The continuing scrutiny of the aspects of the occurrence and spread of a disease that are pertinent to effective control.

Susceptible - A person or animal lacking sufficient resistance to a particular pathogenic agent to prevent disease if exposed.

Symptom - Subjective (cannot be detected by others) evidence of a disease.

Syndrome - The set of signs and symptoms which typify a particular disease.

Toxin - Proteins or conjugated protein substances which can cause disease. They are produced by some higher plants, certain animals, and pathogenic bacteria.

Toxoid - A preparation containing detoxified toxin. Toxoids are used to induce specific active immunity to the related toxin.

Transmission Mode - The means by which disease organisms are spread. For the purposes of this plan, the term applies to how they are spread to humans.

Travel Advisory - A recommendation against nonessential travel to the area(s) for which it is issued. Travel advisories are issued when the health risk for travelers is thought to be high, and are intended to reduce the number of travelers to high-risk areas and the risk for spreading disease to other areas. (Adapted from CDC guidance).

Travel Alert - A lower-level notice than a travel advisory that provides information about the disease outbreak and informs travelers how to reduce their risk of acquiring the infection. An alert does not include a recommendation against nonessential travel to the area. (Adapted from CDC guidance).

Triage - The process for sorting ill or injured people into groups based on their need for or expected benefit from medical treatment. The purpose is to provide for the efficient use of medical and nursing staff and associated facilities.

Vaccine - A preparation containing killed or living whole microorganisms or a fraction of the organisms having antigenic properties. Vaccine is employed to induce, in the recipient, a specific active immunity to an infectious agent (usually an antibody response).

Vector - An insect (e.g., tick) or any living carrier that transports an infectious agent from a source of infection to a susceptible host.

Vehicle - An object or substance that can carry microorganism to a new host.

Virus - Minute organisms not visible with ordinary light microscopy. They can reproduce only inside of a host cell.

Virulence - The amount of power and the degree of pathogenicity possessed by organisms.

Zoonosis - An infection or an infectious disease transmissible under natural conditions between animals and man.