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Author(s): Dalen, Philip van

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OUTBREAKS OF DISEASE: CURRENT EUROPEAN REPORTING[†]

by Philip van Dalen*

Introduction

1. Biological warfare is the deliberate use of disease as a weapon of war to attack humans, animals or plants; this is totally prohibited by the Biological and Toxin Weapons Convention. If a biological weapon is successfully used, its manifestation will be an outbreak of disease. It follows that outbreaks of disease can raise concerns about whether an outbreak has resulted from an event which is in violation of the Convention, such as the use of biological agents as weapons, or an accidental release of a biological agent during conduct of activity prohibited under the Convention.

2. The Special Conference¹ in September 1994 in agreeing on the mandate for the Ad Hoc Group (AHG) to consider appropriate measures, including possible verification measures, to strengthen the effectiveness and improve the implementation of the BTWC stated that the regime would include “*measures for the investigation of alleged use.*” Consequently the AHG has given consideration in its negotiations to such measures.

3. The July 1999 version² of the draft Protocol provides in *Article III Compliance Measures G. Investigation* for investigations of disease outbreaks (brackets indicate alternative wording or wording that does not yet enjoy consensus support):

"[(a) Investigations to be conducted in geographic areas where the [release of, or] exposure of humans, animals or plants to microbial or other biological agents and/or toxins has given rise to a concern about possible [non-compliance with Article I of the Convention] [use of biological weapons], hereinafter referred to as "field investigations".]" (Article III, Section G, part (A), para 3 (a))

As there are concerns³ that such investigations should not be triggered solely by an outbreak of disease, but rather by ones that are associated with specific compliance concerns, the text continues:

[†] Thanks are given to Marja Esveld, Policy Officer at the Ministry of Health, Welfare and Sports, Directorate for Public Health, Division Health Promotion and Prevention, for stimulating discussions and for reading the manuscript of this Briefing Paper.

* Philip van Dalen, TNO Prevention and Health, Division of Immunological and Infectious Diseases, Zernike Dreef 9, P.O.Box. 2215, 2301 CE Leiden, The Netherlands. This Briefing Paper is based on material presented to the NATO Advanced Research Workshop entitled "BTWC Security Implications of Human, Animal and Plant Epidemiology" held at the Cantacuzino Institute, Bucharest on 3 to 5 June 1999.

¹United Nations, *Special Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*, Final Report, BWC/SPCONF/1, 19 - 30 September 1994, Geneva.

²United Nations, *Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, BWC/AD HOC GROUP/46, 30 July 1999, Geneva.

³Group of NAM and Other Countries, *Investigations: Exclusion of All Natural Outbreaks of Disease*, BWC/AD HOC GROUP/WP.262, 23 January 1998. China, Cuba, India, Indonesia and Pakistan, *Working Paper*, BWC/AD HOC GROUP/WP.339, 6 January 1999. Group of NAM and Other States, *Investigation of Disease Outbreaks*, BWC/AD HOC GROUP/WP.369, 29 June 1999.

"[Investigation of disease outbreaks]

6. *If a State Party has a concern that an outbreak of disease is directly related to activities prohibited by the Convention, it shall provide in its request for an investigation detailed information, reasons and evidence to demonstrate why, in its view, it considers the disease not to be naturally occurring and directly related to activities prohibited by the Convention.*

and goes on to state:

[Unusual outbreaks of disease]

8. *The diseases which are endemic in the region and present the expected epidemiological features shall not be considered as an unusual outbreak of disease. An outbreak of disease which appears to be unusual, shall be investigated by the affected State Party, as per guidelines set out in Annex D, Section V, and concluded as soon as possible.]"* (Article III, Section G, part (B), para 8)

Annex D, Section V contains a list of 12 reasons for an unusual outbreak of disease.

4. The draft Protocol also has a transparency provision, not yet enjoying consensus support, that States Parties should report information on outbreaks of disease:

"[Notifications]

[(L) Outbreaks of Disease]

[33. Each State Party shall provide to the Organization within... days information, in accordance with Appendix [relevant to the Convention][and not endemic in the region] occurring on its territory.

32. If all of the required information has been submitted by a State Party to a competent international body, such as the WHO, and this international body has supplied the information to the Organization, such provision of information shall satisfy a State Party's obligation under paragraph 31 of this section.]" (Article III, Section D. Declarations (L) Outbreaks of Disease)

5. It is evident that an appreciation of current reporting requirements for outbreaks of disease would facilitate the consideration by the Ad Hoc Group of those aspects of the Protocol relating to outbreaks of disease relevant to the Convention. Briefing Paper No 21⁴ provided such information primarily on global systems for the official reporting of disease. It considered first the reporting of disease under the Confidence-Building Measures agreed at the Second Review Conference and augmented at the Third Review Conference before going on to address the reporting of diseases to WHO, PAHO, FAO and OIE. This Briefing Paper complements Briefing Paper No 21 by addressing the reporting of human diseases within Europe. It starts by considering the system within the Netherlands before considering European systems both at the countries level and at the European Community level. It is based on material presented to the NATO Advanced Research Workshop entitled "BTWC

⁴Mark Wheelis, *Outbreaks of Disease: Current Official Reporting*, Briefing Paper No 21, University of Bradford, April 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

Security Implications of Human, Animal and Plant Epidemiology" held at the Cantacuzino Institute, Bucharest on 3 to 5 June 1999⁵.

Notification and Surveillance in The Netherlands

6. Information on the occurrence of infectious diseases is important for maintaining public health. In the Netherlands, two systems exist which complement each other in the information they generate. First a statutory reporting notification system generates information on the notifiable diseases. In this obligatory system a balance has to be struck between the severity of the disease, the threat to public health and the privacy of the patients. This system from a surveillance point of view is therefore inherently limited. Statutory reporting is thus directly related to control of disease and is not solely to obtain information. In addition to this system, there is a non-statutory surveillance system, which, on a voluntary basis, complements the information of the statutory system. Both systems are addressed in turn.

Notification in the Netherlands

7. On 1 April 1999, a new Infectious Diseases law⁶ came into force. This law requires that information on the occurrence of particular infectious diseases be notified promptly to the Municipal Public Health Department which then can take timely action to protect public health. The law includes provisions for the measures that the Municipal Public Health Department can take to protect public health. These measures to limit the spreading of the disease include, for diseases in groups A and B, isolation of the cases, medical examination (which can, if need be, be forced) and source investigation. Intervention of the Municipal Public Health Authority is only taken when the disease poses a real risk to the public health and when there are no other means to protect the public. In taking such measures, a balance has to be struck between the interest of the sick individual and the interest of the public that needs protection.

8. The new Infectious Diseases law introduces a notification system for 32 specific infectious diseases which are allocated to three groups, A, B, or C with different notification timelines and requirements. The three groups have been identified based on the International Health Regulations and on diseases which are under WHO surveillance. As the notification of these specific listed diseases is obligatory, a penalty of ca. US \$ 100 exists should the disease not be notified.

9. The three groups A, B and C each require the notification of different information with a decreasing level of intrusiveness in the requirement for patients' personal details, dependent on the public health importance of the disease. Group A, comprising of one single disease, poliomyelitis, which is extremely rare in the Netherlands, requires immediate notification by telephone by the general practitioner (GP) to the Municipal Public Health Department. Detailed information, including name, address, sex and medical details, of the patient is to be submitted in suspected or confirmed cases of the disease. For Group B diseases, which are rare in the Netherlands:

bacillary dysentery

measles

⁵A personal assessment of this Advanced Research Workshop was presented in Graham S. Pearson, *BTWC Security Implications of Human, Animal and Plant Epidemiology*, Briefing Paper No 23, University of Bradford, July 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

⁶Infectious Diseases law, *Infectieziektenwet*, 11-06-98, Stb. 394.

botulism
typhoid fever
cholera
diphtheria
relapsing fevers
hepatitis A, B, C
rabies
whooping cough

meningococcal infection
paratyphoid fever A, B, C
plague
tuberculosis
viral haemorrhagic fever
louse-borne typhus fever
food-poisoning/food-infection

the General Practitioner (GP) is required after confirmation of the diagnosis to notify the Municipal Public Health Authority within 24 hours by post. The same detailed information as for Group A is required on the patient. In addition, for both Group A and B, other required information is the disease, first day of illness, vaccination status, chemoprophylaxis used, source of infection, first day of suspicion/ confirmation, and the confirmation technique. An important item of required information is whether or not the patient or his/her acquaintances are involved in treatment of food or in the treatment, nursing or care of other persons.

10. The Group C diseases are characterised by the fact that normally no measures need to be taken with the general public to prevent spread of disease. They are rare diseases in the Netherlands that are unlikely to be notified by the General Practitioner. They are:

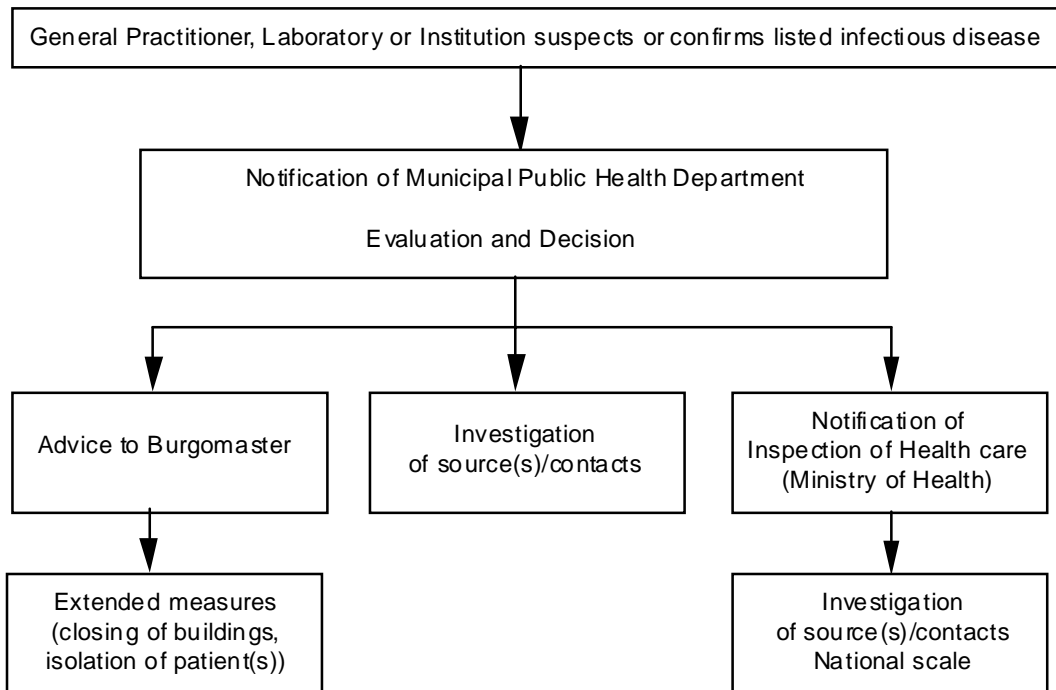
brucellosis	orhithosis
yellow fever	psittacosis
legionellosis	q-fever
leptospirosis	rubella
malaria	trichinosis
anthrax	

However, to prevent spread of disease, it is necessary to identify the source of the infection. Consequently, for these diseases, clinical laboratories have an obligation to notify the Municipal Public Health Department . The information to be provided to the Municipal Public Health Department includes the type of the sample, sampling and receiving date, name and residence of the requesting General Practitioner, the report and conclusions of the identification or typing. Additional information can only be obtained from the patient's GP with the consent of the patient.

12. In addition, there are notification requirements for institutions. These are obliged to notify the Municipal Public Health Department of unusual numbers of patients/occupants that show symptoms of diarrhoea, hepatitis, dermal diseases or other possible infectious diseases. Such institutions includes places where children, elderly or patients come or live together, like homes, day-care centres, hospitals, institutions for mentally handicapped etc.. The head of the institution is obliged to notify the disease to the Municipal Public Health Department and the symptoms have therefore been chosen so that they can easily be recognised by non-medical skilled personnel.

13. The system for notification of these particular infectious diseases is shown schematically in the figure below.

Figure 1: Schematic overview of dataflow resulting from the new Netherlands Infectious Diseases law.



The aim is to provide a coherent system to enable timely decisions to be made where there is a serious threat to public health. It is too early to evaluate the effectiveness of the new law⁷ as it only came into force in April 1999. However, it is expected that the new law will be more effective compared to the old law⁸ as it contains shorter lists of diseases which are more likely to be recognized, together with the addition of obligatory notification by clinical laboratories and institutions which will enhance notification. In addition, efforts are being made to include notification data into a single electronic system. A pilot study linking five clinical microbiological laboratories is currently underway in a project called Infectieziekten Surveillance Infomatie Systeem (ISIS)⁹.

Surveillance in the Netherlands

14. In addition to the legally enforced notification system described above, voluntary surveillance systems are in place in the Netherlands. The operation of these systems and the collection of data are major tasks of the National Institute of Public Health (RIVM). The main topics are surveillance of influenza, sexually transmittable diseases, *Salmonella*, HIV/AIDS with the main task of the Netherlands Reference Laboratory for Bacterial Meningitis (RBM) being the surveillance of bacterial meningitis. Besides this a number of more complicated systems exist, for instance Laboratory Surveillance of Infectious diseases (mainly bacterial like *Bordetella*, *Legionella*, *Listeria*, *Yersinia*, *Streptococcus* Group A, *E. coli* O157 e.o.), virological surveillance and surveillance of paediatric infectious diseases. Although many of these systems face drawbacks like under reporting and delayed reporting, most generate highly useful information.

⁷Infectious Diseases law, Infectieziektenwet, 11-06-98, Stb. 394.

⁸Control of Infectious Diseases and Investigations of Causes of Diseases Act, Wet bestrijding infectieziekten en opsporing ziekteoorzaken, 1928.

⁹Infectieziekten Surveillance Infomatie Systeem, RIVM, National Institute of Public Health and the Environment. Available at <http://www.isis.rivm.nl/main.html>

Notification and Surveillance in Europe

15. In Europe, two tiers of notification and surveillance systems can be recognised. First, all countries have, like the Netherlands, their own national systems and legislation. Secondly, several laboratories from different countries participate on a voluntary basis in EU funded surveillance programmes. The two tiers are considered in turn before considering a new EU initiative based on the "Maastricht Treaty".

National Notification and Surveillance Systems.

16. All EU countries have their own systems for reporting of infectious diseases within their borders. Not all legislation is recent. The years in which the national infectious disease laws were last changed range in different countries from 1950 to 1999.

17. Although there are differences in the number of notifiable diseases -- for example, France has a list of 22 diseases, whilst Finland has a list of 80 diseases -- there are, as might be expected, marked similarities between the lists. An overview is given of the occurrence of the agents listed in the draft Protocol¹⁰ on lists of EU countries (and of Norway and Switzerland), as declared by the countries in a surveillance study funded by the EU¹¹. As expected, many pathogens are notifiable in many of the EU countries although there are also some surprising "white spots" where some pathogens are only notified in a few countries. However, due to suspected under reporting in this study, it is possible that not all notifiable pathogens were reported and some may thus be absent from the table.

Table 1: Summary by European country of nationally notifiable diseases which appear in the list of human diseases in the draft BTWC Protocol¹².

Disease	A		B		DK	FIN	F	D	GR	IRL	I	L	N	P	E	S	CH	NL	UK		
	Fl	Fr	E/W	NI															S		
<i>Chlamydia psittachi</i>	+	+			+	+		+				+			+	+					
Tularemia	+		+			+		+			+	+	+			+	+				
Rickettsioses	+		+		+						+			+			+				
<i>Yellow fever</i>	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Anthrax	+	+				+		+	+	+			+	+	+	+	+	+	+	+	+
Plague	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Smallpox	+						+			+										+	+
Brucellosis	+	+	+			+	+	+	+	+	+	+	+	+	+		+	+			

¹⁰United Nations, *Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, BWC/AD HOC GROUP/46, 30 July 1999, Geneva.

¹¹Inventory of Communicable Disease Control in the European Union, Norway and Switzerland. Stefania Salmaso, editor. European Commission DGV. 1998

¹²United Nations, *Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, BWC/AD HOC GROUP/46, 30 July 1999, Geneva.

Disease	A	B		DK	FIN	F	D	GR	IRL	I	L	N	P	E	S	CH	NL	UK		
		Fl	Fr															E/W	N I	S
Glanders	+						+													
Q-fever		+			+		+									+	+			
<i>Hantaan virus</i>		+										+		+						
<i>Clostridium botulinum</i>		+	+	+		+	+			+		+	+	+	+	+	+			
Tetanus		+	+	+		+	+		+	+	+		+	+	+	+		+	+	+
Shigellosis		+		+	+		+					+	+	+	+	+				
(Tick borne) encephalitis	+	+			+		+		+	+	+	+				+		+	+	
Viral haemorrhagic fever	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+

Key: A: Austria, B: Belgium (Fl: Flemish part, Fr: French part), DK: Denmark, FIN: Finland, F: France, D: Germany, Gr: Greece, IRL: Ireland, I: Italy, L: Luxembourg, N: Norway, P: Portugal, E: Spain, S: Sweden, CH: Switzerland, NL: Netherlands, UK: United Kingdom (E/W: England/Wales, N I: Northern Ireland, S: Scotland)

Source: Inventory on Communicable Diseases Control in the European Union¹³

12 out of 17 countries utilise, up to as many as, seven classes of pathogens in their notification systems -- like the A, B and C categories in the Netherlands system. Criteria for including diseases in the classes include *inter alia* relevance for public health, level of first notifier (general practitioner, laboratory) or level of certainty of diagnosis (suspected, confirmed).

18. In the most countries the report notifying the disease included the name of the patient. In all EU countries, cumulative printed lists of the data are publicly available. Eight countries provide their data on the Internet as well.

19. In five countries the first notifier receives a financial bonus for reporting the disease. There is no information as to whether this reward system is successful in reducing the under reporting of the occurrence of disease. The problem of under reporting is a major drawback of all notification and surveillance systems. Although it is probable that most, if not all, countries will have a national, regional or global overview of the occurrence and epidemiology of notifiable diseases, which will allow trend analysis to be carried out, it is not possible to obtain reliable numerical data in this way. A further drawback is that most of these national systems do not communicate on an EU level as the data is primarily intended for and used to monitor and maintain national public health at the local level.

EU Surveillance Systems.

20. There has long been a desire to obtain reliable numerical data at an EU level. This has resulted in EU funded surveillance systems that collect and analyse epidemiological data at the EU level. These projects are generally run by a co-ordinating laboratory that invites other

¹³Inventory of Communicable Disease Control in the European Union, Norway and Switzerland. Stefania Salmaso, editor. European Commission DGV. 1998

relevant laboratories to participate. In most cases the scope of these surveillance systems is limited to one (group of) diseases or bacteria. Currently there are more than ten such projects. As an example, some of the principal programs are outlined below. Table 2 provides the information available on most of the current projects and the participating countries. Many projects include a number of participating countries from outside the EU.

Table 2: Participating European countries in the major EU funded surveillance projects

European Network	A	B		DK	FIN	F	D	GR	IRL	I	L	N	P	E	S	CH	NL	UK		
		Fl	Fr															E/W	N I	S
EuroTB	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
EWGLI	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
EuroCJD	+					+	+			+				+	+	+	+	+	+	+
EuroHIV	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
ENTER-NET	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
EMGM	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
ENARE/Sentry		+	+				+	+		+			+	+			+	+		
EISS		+	+			+	+			+			+	+		+	+	+	+	+
EARSS	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
ENIVD		+	+	+	+	+	+	+		+			+	+	+		+	+		

21. **Creutzfeldt-Jacob Diseases.** A collaborative study of Creutzfeldt-Jacob Diseases¹⁴ (EUROCJD) commenced in 1993 and was extended in 1997. The primary goals of this project are:

- a. to document the incidence of new variant CJD (nvCJD) in the EU and to analyse potential risk factors for this condition;
- b. to assess whether nvCJD is present in countries such as Switzerland where the incidence of BSE is low to Canada and Australia where the exposure to BSE is likely to be minimal;
- c. to evaluate new diagnostic tests for CJD including CSF markers;
- d. to provide material, including tissue samples, from well documented cases of CJD for other research projects in the EU, eg, markers of infection in prion disease and transmission studies;

¹⁴The European and Allied Countries Collaborative Study Group of CJD (EURO CJD). Available at <http://www.eurocjd.ed.ac.uk/index.htm>

- e. to develop educational material for relatives of patients and to provide information to the general public;
- f. to look for trends in the incidence of CJD across and within countries by the co-ordination of national registries of CJD in the EU;
- g. to assess putative risk factors for CJD including past medical history, occupation and diet;
- h. to study the clinicopathological variants of CJD with reference to the influence of genetic and environmental factors on disease phenotype;
- i. to study the molecular biology of CJD with specific reference to genetic factors that influence susceptibility to disease.

22. **European tuberculosis.** The objectives of the¹⁵ European tuberculosis (EuroTB) programme are to collect, analyse and publish epidemiological information on tuberculosis in Europe, with the aim of improving tuberculosis control. The programme started in 1996. Tuberculosis surveillance has local, national, and international functions. At the international level, the objectives are to monitor the epidemiology of the disease in the entire European region, including trends over time and inter-country comparisons, and to identify high incidence population groups which may be common to several countries with a view to co-ordinating efforts in tuberculosis control at an international level. Surveillance data obtained in EuroTB are regularly analysed, interpreted, and published on an annual basis.

23. **HIV/AIDS.** The surveillance of HIV/AIDS in Europe¹⁶ (EuroHIV) consists of the collection, analysis and dissemination of epidemiological data with the objectives of describing and better understanding the HIV epidemic and improving prevention and control. Surveillance of HIV/AIDS at European level started in 1984 with 11 countries providing data on reported AIDS cases. Currently, 48 countries (of 51) of the WHO European Region participate in the European HIV/AIDS surveillance system. Data collected are included in three main databases:

- a. the European Non Aggregate AIDS Data Set (ENAADS) contains anonymous data on all AIDS cases reported in the WHO European Region since the beginning of the epidemic;
- b. the European HIV Prevalence Database contains aggregated data on HIV prevalence in specific population groups (e.g., pregnant women, injecting drug users);
- c. reporting of HIV infections at European level (pilot started in 1999).

24. **Enteric Infections.** The International Surveillance Network for the enteric infections - *Salmonella* and VTEC O157¹⁷ (Enter-net) carries out international surveillance of salmonellosis and verocytotoxin producing *Escherichia coli* (VTEC) O157, including

¹⁵Surveillance of Tuberculosis in Europe. Available at <http://www.ceses.org/eurotb/etb2-1.htm>

¹⁶EuroHIV, European Centre for the Epidemiological Monitoring of AIDS. Available at <http://www.ceses.org/aidssurv/about.htm>

¹⁷ENTER-NET. International Surveillance Network for the enteric infections - Salmonella and VTEC O157. Available at <http://www2.phls.co.uk/index.html>

antimicrobial resistance. It was started as a continuation of Salm-Net in 1997. The overall aim of the Enter-net project is to improve understanding of the extent and evolution of antimicrobial resistance in *Salmonella* isolates and of the distribution of VTEC O157 infections within the EU. The main objectives are:

- a. to collect standardised data on the anti-microbial resistance patterns of salmonellas isolated;
- b. to facilitate the study of resistance mechanisms and their genetic control by arranging the collection of representative strains of MDR-salmonellas and co-ordinating the required research work between specialised centres, and where available compare the resistances' of animal isolates;
- c. to extend the typing of VTEC for surveillance purposes by:
 - i. extending the availability of phage-typing for *E. coli* O157,
 - ii. using poly- and mono-valent anti-sera to identify common non-O157 serogroups;
- d. to pilot an international quality assessment scheme for laboratory methods used in the identification/typing of VTEC;
- e. to establish a core set of data items to accompany, where possible, each laboratory typed VTEC isolate;
- f. to create an international database of VTEC isolates which is updated regularly and is readily available to each participating team;
- g. to detect clusters of VTEC isolate types in time, place and person and to bring such clusters to the attention of collaborators rapidly;
- h. to support the above objectives by continuing the existing Salm-Net surveillance system consisting of regular, frequent data exchange on salmonellas.

Feeding back information to participants in various ways completes the surveillance loop. A public domain version of the quarterly report is made available on the world-wide web. Reports of the investigation of international outbreaks of food-borne infections are circulated within the network and are published regularly in scientific journals so that the wider public health audience is made aware of these outbreaks.

25. Influenza. The European Influenza Surveillance Scheme¹⁸ (EISS) has the following aims:

- a. to facilitate rapid exchange of information on influenza activity, obtained from general practice and virological laboratories;
- b. to combine clinical and virological data from the same population;

¹⁸The European Influenza Surveillance Scheme. Available at <http://www.eiss.org/public/present.htm>

- c. to provide health authorities and national administrations with timely information;
- d. to assist the decision on the composition of the vaccine;
- e. to provide standardised information of high quality.

During the season, data on influenza activity of the previous week are sent each Tuesday to a national co-ordination centre where data processing and analysis occur, followed by assessment and comment of national experts and finally on Friday of the same week, dissemination of the information to EU countries, the World Health Organisation (WHO) and the Centers for Disease Control (CDC - US) takes place. The weekly electronic data transmission as well as the presentations of the results are currently undertaken by an Internet application. This application has been developed from recognition of scientific work concerning quality of the data, the need for comparability of national data and experience with earlier computer based applications. During the 1998/9 season pages for public access will be added and these will include a mapped overview of the situation in Europe as well as graphs of the clinical and virological data of each country, together with national comments.

26. Antimicrobial Resistance. The European antimicrobial resistance surveillance system¹⁹ (EARSS) is an international network of national surveillance systems, which aims to aggregate comparable and reliable antimicrobial resistance data for public health purposes. Objectives of EARSS are:

- a. to contribute to reduction of antimicrobial resistance;
- b. to establish an early warning system;
- c. to facilitate evidence based guidelines;
- d. to validate susceptibility testing;
- e. to co-operate with current systems;
- f. to identify risk factors.

EARSS will provide the participants and participating laboratories with regular (quarterly) feedback by Informative letters, Newsletters, Internet and Scientific publications.

27. "Imported" Viral Diseases. The European network for the diagnosis of "imported" viral diseases²⁰ (ENIVD) produced a manifest summarizing the objectives of the network:

- a. to build a network of European laboratories working on diagnostics of "imported", rare and emerging viral infections. Provide mutual help in the exchange of diagnostic samples, i.e. sera, viruses, methods, and information in order to improve diagnostics;

¹⁹European Anti-Microbial Resistance Surveillance System EARSS. Available at <http://www.earss.rivm.nl/FRAMESET/BEGIN.HTM>

²⁰European Network for Diagnostics of "Imported" Viral Diseases (ENIVD). Available at <http://www2.rki.de/INFEKT/ENIVD/MANIFEST.HTM>

- b. to identify those viral infections more likely to be imported and co-ordinate the objectives and identify the laboratories, capable and willing to perform the rapid diagnostics (<24h) of an acute case, suspected to be infected with a viral haemorrhagic fever;
- c. to work out recommendations for standardization and quality control in laboratories involved in the diagnostics of such diseases;
- d. to identify and operate standard assays according to defined quality control criteria;
- e. to optimise limited resources by exchanging reagents, methodologies, and expertise;
- f. to encourage regular contact within the network through meetings, exchange and training of laboratory personnel;
- g. to open the network for members of other European laboratories;
- h. to organise and co-ordinate international activities with the "Surveillance network group", the "Task force on vaccines and viral diseases", or other national organisations like Centers for Disease Control and Prevention or international organisations like WHO and Pan American Health Organization.

28. Antimicrobial Resistance and Epidemiology. The European Network for Antimicrobial Resistance and Epidemiology²¹ (ENARE) was devoted to addressing the problems of antimicrobial resistance on a European level, and to developing strategies to fight this major threat to public health. The ultimate aim was to establish a structural network that monitors and surveys the occurrence of multi-resistant organisms across Europe and help formulate coherent and effective antibiotic policies at local and national levels. Since the beginning of 1997 ENARE became part of SENTRY²², a global surveillance network which is currently operating in North and South America and in Europe as is expanding around the world. It is able to detect trends in antimicrobial resistance and, through being a modular system, it can be implemented by reference centres worldwide. Consecutive bacterial isolates from infections associated with blood, skin and soft tissues, urine, pneumonia and the lower respiratory tract are referred to reference centres, banked and susceptibility tested against a comprehensive list of antimicrobials, including developmental compounds.

29. Legionellosis. The European Working Group for *Legionella* Infections²³ (EWGLI) was set up in 1986 and introduced the European Surveillance Scheme for Travel Associated Legionnaires' Disease in 1987. It was recognised that by exchanging information it would be more likely that outbreaks of legionnaires' disease would be identified at an earlier stage. In line with this, the scheme's objectives are to identify clusters of cases of legionnaires' disease that may indicate the occurrence of a common source of an outbreak, to quickly disseminate cluster alerts to collaborating centres, and to maintain and continually develop a European

²¹ENARE European Network for Antimicrobial Resistance and Epidemiology. Available at <http://www.accu.nl/ewi-enare/enare/index.html>

²²SENTRY Antimicrobial Surveillance Program. Available at http://www.fightinfection.com/id/z_mutate.htm

²³E. J. Hutchinson, C. A. Joseph and C.R. Bartlett, *EWGLI: A European surveillance scheme for travel associated legionnaires' disease*, Euroroundup, Vol.1, No. 5, November 1996. Available at <http://www.b3e.jussieu.fr/ceses/EuroSurv/n5/en5-223.html>

surveillance database. Cases of travel-associated legionnaires' disease are nationally reported on a standard form by the named EWGLI collaborator for the country of residence of the case, by fax or e-mail (using encryption). The co-ordinator enters new cases onto the central database, which is then searched for any other cases associated with the same accommodation. The country where infection is presumed to have been acquired is informed about single cases, and all collaborators, WHO, and the ministry of health in the presumed country of infection are informed of clusters and linked cases. The updated European data set is sent to all collaborators each month on floppy disk.

European Epidemiological Reporting.

30. The EU, through Directorate General V²⁴, funds two different periodicals that cover the epidemiological data in Europe:

a. Eurosurveillance Weekly²⁵ publishes news of infectious disease incidents and surveillance data as they are released, at least once a week, reporting on outbreaks as they happen. It gathers news from the network of public health centres in the EU and beyond. Eurosurveillance Weekly is available to everyone free. The website includes archives from 1 May 1997, which can be searched by topic/author/date, and also provides links to related sites.

b. Eurosurveillance Monthly²⁶ publishes original articles that analyse data from national and European programmes on infectious disease surveillance, compare national public health policies, and draw international lessons from the results of outbreak investigations. Current titles of reports from the national bulletins of EU member states are indexed. The monthly bulletin is available free on the internet in five languages and in print in two languages. It is distributed to over 12,000 targeted public health professionals in Europe. The website includes archives that date back to 1995, which can be searched by topic/author/date, and also provides links to related sites.

EU Training Programme.

31. The European Programme for Intervention Epidemiology Training²⁷ (EPIET) is a fellowship programme that provides training and practical experience in intervention epidemiology at the national centres for surveillance and control of communicable diseases in the EU. The programme is funded by the European Commission and by each institute hosting an EPIET fellow. Its objectives are:

a. to strengthen the practices of public health, in particular in the field of surveillance of infectious diseases and clusters of public health importance in EU member states;

b. to develop a European network of public health epidemiologists with an EU perspective, common objectives and common methods;

²⁴European Commission, DG V, Health. Available at http://europa.eu.int/comm/dg05/index_en.htm

²⁵Eurosurveillance Weekly. Available at <http://www.eurosurv.org/jhp/>

²⁶Eurosurveillance Monthly. Available at <http://www.ceses.org/eurosurv/eurosurv.htm>

²⁷EPIET European Programme for Intervention Epidemiology Training. Available at http://www.rnsp-sante.fr/epiet/_vti_bin/shtml.exe/index.html/map

- c. to develop a common European response capacity to challenges in the area of public health through enhanced epidemiological research capabilities in the field;
- d. to contribute to networking of national institutions involved in the surveillance of communicable diseases;
- e. to contribute to the development of a true European surveillance system with a cross-border or even European-wide response capacity for infectious disease threats in the EC; this would also allow the development of European expertise ready to assist or perform, under specific request, international epidemiological investigation on communicable diseases.

EU Network for the epidemiological surveillance and control of communicable diseases

32. Although it is apparent that many systems that aim for more insight in European epidemiology exist, it is obvious that a truly comprehensive European epidemiological overview will not be achieved using a multiplicity of different systems that do not communicate to each other. However, the EU has a strong desire to play an important role in public health in the Member States and the Union as a whole. This originates from the Treaty on the European Union, known as the "Maastricht Treaty", which in its Article 129²⁸ includes provisions regarding public health:

a. The Community shall contribute towards ensuring a high level of human health protection by encouraging co-operation between the Member States and, if necessary, lending support to their action.

Community action shall be directed towards the prevention of diseases, in particular the major health scourges, including drug dependence, by promoting research into their causes and their transmission, as well as health information and education.

Health protection requirements shall form a constituent part of the Community's other policies.

b. Member States shall, in liaison with the Commission, co-ordinated among themselves their policies and programmes in the areas referred to in paragraph 1. The Commission may, in close contact with the Member States, take any useful initiative to promote such co-ordination.

c. The Community and the Member States shall foster co-operation with third countries and the competent international organisations in the sphere of public health.

d. In order to contribute to the achievement of the objectives referred to in this Article, the Council:

- i. acting in accordance with the procedure referred to in article 189b, after consulting the Economic and Social Committee and the Committee of the*

²⁸Article 129 of the Treaty on European Union. Available at <http://europa.eu.int/comm/dg05/phealth/art129.htm>

regions, shall adopt incentive measures, excluding any harmonization of the laws and regulations of the Member States;

ii. acting by a qualified majority on a proposal from the Commission, shall adopt recommendations.

33. Following the Treaty of Amsterdam signed on 2 October 1997, the new Article 152 of the EC Treaty²⁹ has a wider scope than the previous Article 129. This in its first paragraph states that:

1. A high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities.

Community action, which shall complement national policies, shall be directed towards improving public health, preventing human illness and diseases, and obviating sources of danger to human health. Such action shall cover the fight against the major health scourges, by promoting research into their causes, their transmission and their prevention, as well as health information and education.

It is thus apparent that the areas of co-operation between member states in the new Article includes not only diseases and major health scourges but also, more generally, all causes of danger to human health, as well as the general objective of improving health.

34. As a first step in realizing this goal, a “Communication from the Commission...on the development of public health policy in the European Community”³⁰ was produced on 15 April 1998. This presented a new policy orientation based on three strands of action:

- a. improving information for the development of public health;
- b. reacting rapidly to health threats;
- c. tackling health determinants through health promotion and disease prevention.

The last action resulted in a decision of the European Parliament and of the Council setting up a **Network for the epidemiological surveillance and control of communicable diseases** in the Community³¹. The date of entry into force is 3 January 1999.

35. The objective of this network is to improve the prevention and control of a number of serious communicable diseases, which necessitate the introduction of measures to protect the general public. This will be achieved by establishing a system of close co-operation and effective co-ordination between Member States and the Commission in the field of surveillance and control, both routine and emergency. The network will be used for the epidemiological surveillance of communicable diseases, and as an early warning and

²⁹*Consolidated Version of the Treaty Establishing the European Community*. Available at <http://www.europa.eu.int/eur-lex/en/treaties/index.html>

³⁰*Communication on the development of Public Health policy in the European Community, COM (98) 230 final, 15 April 1998*. Available at <http://europa.eu.int/comm/dg05/phealth/general/phpolicy.htm>

³¹*Decision No 2119/98/EC of the European Parliament and of the Council of 24 September 1998 setting up a network for the epidemiological surveillance and control of communicable diseases in the Community*. Document 398D2119. Available at http://www.europa.eu.int/eur-lex/en/lif/dat/1998/en_398D2119.html

response system for the prevention and control of communicable diseases. Effectively, the network will build on the current existing EU programmes as far as they cover the corresponding diseases or pathogens and integrate them at a Community level. The decision³² states in Article 1 that:

Article 1:

”As regards epidemiological surveillance, the network shall be established by bringing into permanent communication with one another, through all appropriate technical means, the Commission and those structures and/or authorities which, at the level of each Member State and under the responsibility of that Member State, are competent at national level and are charged with collecting information relating to the epidemiological surveillance of communicable diseases, and by establishing procedures for the dissemination of the relevant surveillance data at Community level.”

For data-exchange, the network will use the Interchange of Data between Administrations (IDA)³³ - European public health information network (Euphin) system, which facilitates the Health Surveillance System for Communicable Diseases (HSSCD)³⁴.

36. To achieve the goal of the decision, a workplan has been established which is defined in Article 3 of the decisions as follows:

“...the following shall be determined:

- a) the communicable diseases to be progressively covered by the Community network;*
- b) the criteria for selection of these diseases, having regard to the categories set out in the Annex and the existing collaborative networks for diseases surveillance that can be built on;*
- c) case definitions, in particular clinical and microbiological characteristics;*
- d) the nature and type of data and information to be collected and transmitted by the structures and/or authorities referred to in the second paragraph of Article 1 in the field of epidemiological surveillance and the ways in which such data are to be made comparable and compatible;*
- e) epidemiological and microbiological surveillance methods;*

³²Decision No 2119/98/EC of the European Parliament and of the Council of 24 September 1998 setting up a network for the epidemiological surveillance and control of communicable diseases in the Community. Document 398D2119. Available at http://www.europa.eu.int/eur-lex/en/lif/dat/1998/en_398D2119.html

³³European Commission, Interchange of Data between Administrations (IDA). Available at <http://www.ispo.cec.be/ida/ida.html>

³⁴European Commission, Interchange of Data between Administrations (IDA) - EUPHIN. Health Surveillance System for Communicable Diseases. Available at <http://hsscd.euphin.org/>

- f) *guidelines on the protective measures to be taken, in particular at external frontiers of the Member States, notably in emergency situations;*
- g) *guidelines on information and guides to good practice for the public;*
- h) *the appropriate technical means and the procedures by which the data will be disseminated and analysed at Community level.*

37. As of August 1999, two meetings of the committee have taken place. These meetings mainly focused on items a) and b) of the workplan and resulted in a working document. In this document, the committee agreed that it is not feasible to establish a network addressing all the intended diseases at once. It will have to grow from a starting point. The committee consequently proposed the following priority list:

- a. Diseases that show a significant morbidity and/or mortality in the Community, especially when the prevention of these diseases requires a co-ordinated approach;
- b. Diseases for which an exchange of information can result in an early warning of the threat for public health;
- c. Rare and serious diseases which would not be recognised at a national level and for which joint data could generate hypotheses based on a more elaborated knowledge;
- d. Diseases for which effective preventive measures that lead to an improved public health are available;
- e. Diseases for which a comparing evaluation of the national programmes leads to better national and communal standards.

It was agreed that these priorities could change according to changes in the epidemiological situation in the Community.

38. Diseases identified using the above criteria include:

- a. Food- and water-borne infections and foodpoisoning:
 - i *Salmonella*- infection
 - ii Campylobacteriosis
 - iii Infection with *E. coli* O157
 - iv Listeriosis
- b. Communicable spongiform encephalopathies;
- c. Severe imported communicable diseases:
 - i Malaria
 - ii Yellow Fever
 - iii Cholera
 - iv Plaque
 - v Viral haemorrhagic fevers

- d. Legionellosis;
- e. Antibiotic resistance:
 - i Meticilline-resistant *Staphylococcus aureus* (MRSA)
 - ii Vancomycine-resistant enterococci (VRE)
 - iii Resistant pneumococci
 - iv Multi-resistant *Salmonella typhimurium* DT104
- f. Tuberculosis;
- g. Invasive meningococcal diseases:
 - i (including septicaemia, meningitis, arthritis)
- h. Vaccine preventable diseases:
 - i Morbilli
 - ii Parotitis
 - iii Rubella
 - iv Polio
 - v Diphtheria
 - vi Kinkhoest
 - vii *Haemophilus influenzae* group B
 - viii Hepatitis B
 - ix Influenza
 - x Invasive *Streptococcus pneumoniae*
- i. HIV-infection
- j. Nosocomial infections

This list is an elaboration of the short *list indicating categories of communicable diseases* that was included as an Annex to the Decision³⁵.

39. The Decision also defines the information which the national structure is required to communicate to the network as follows:

- a. Information on communicable diseases and control measures in line with the Decision;
- b. Any relevant information concerning the progression of epidemic situations in the Member State concerned;
- c. Information on unusual epidemic phenomena or new communicable diseases of unknown origin;

³⁵Decision No 2119/98/EC of the European Parliament and of the Council of 24 September 1998 setting up a network for the epidemiological surveillance and control of communicable diseases in the Community. Document 398D2119. Available at http://www.europa.eu.int/eur-lex/en/lif/dat/1998/en_398D2119.html

d. Information concerning existing and proposed mechanisms and procedures for the prevention and control of communicable diseases, in particular in emergency situations;

e. Any evaluation element which will aid co-operation between Member States for the purpose of preventing and controlling communicable diseases.

40. The current epidemiological programmes outlined above will form the basis for the new network. This new network should be considered in the light of the ongoing effort to develop a world-wide system for early warning and a network for communicable diseases. A Task Force of European and American experts is presently investigating the feasibility of this goal.

Concluding Remarks

41. This Briefing Paper has provided information on current notification and surveillance of human disease in The Netherlands and within Europe both at the country level and at the European Commission level. It is also evident that even in Europe there are national differences in reporting on outbreaks of human disease. Nevertheless, increasing amounts of information on outbreaks of human disease are being made available to the public either through the internet or in other ways.

42. Insofar as the Protocol is concerned, this Briefing Paper has shown that the importance of reporting of outbreaks of human disease to maintain public health is recognised both nationally and regionally within Europe. At the regional (EC) level, the importance of an integrated network for epidemiological surveillance and control of communicable diseases has been recognised and is being introduced. There are immense potential benefits, such as lower costs, improved overviews, and earlier warning of diseases over a larger area, to be gained by all States through improved national, regional and international surveillance and reporting of disease outbreaks and the benefits from Article X measures to achieve this are evident. It is also apparent that unnecessary duplication of national, regional and international reporting systems should be avoided, as should the potential dangers of dual reporting channels in finalising the provisions in the Protocol relating to mandatory declarations.