57.010

Indexing infectious disease information into a relational database for useful queries on the World Wide Web

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Background: In the twenty-first century, we now have new tools for indexing infectious disease information (the relational database) and for disseminating that information worldwide (the Internet). A book such as the ''Control of Communicable Diseases Manual'' has a helpful index, but it does not have an electronic index that can provide the powerful queries of a relational database, and it cannot be accessed by the millions of computer-users around the world.

Methods: All pertinent infectious disease information was envisioned as a knowledge domain that could be mapped into a relational database using indexes that are structured and unambiguous. The database would be designed to provide queries that return useful differential diagnoses, e.g., all diseases matching the syndrome ''Rash and Fever.'' The database would contain a table of Diseases and related tables of Findings (signs and symptoms), Jobs, Risk Factors, and Syndromes.

Results: The author has designed three different databases that use queries to find all infectious diseases that match one or more search criteria. One of the databases covers 275 communicable diseases and contains 119 signs & symptoms, 39 epidemiological factors, and 16 regions of the world. An example of a query is to search for all diseases that match the job ''Veterinarian'' and the syndrome ''Acute Neurological and Fever.'' The search criteria are the indexes that were built into the tables at the beginning of the project, not the ambiguous and unsystematized indexes that are added at the end of a book. Each disease profile shows initial symptoms, incubation period, common findings, endemic areas, laboratory diagnostics, and epidemiological factors. Epidemiological factors include entry (e.g., ingestion), source (e.g., soil), vector (e.g., ticks), and reservoir (e.g., cats). These factors are displayed for each disease, and they are also used as search criteria. Haz-Map is the earliest demonstration of this tool, and it is available for free searching on the National Library of Medicine website.

Conclusion: All useful infectious disease information can be collected and indexed into a web-based relational database to help practitioners quickly build accurate, up-to-date differential diagnoses and find detailed information.
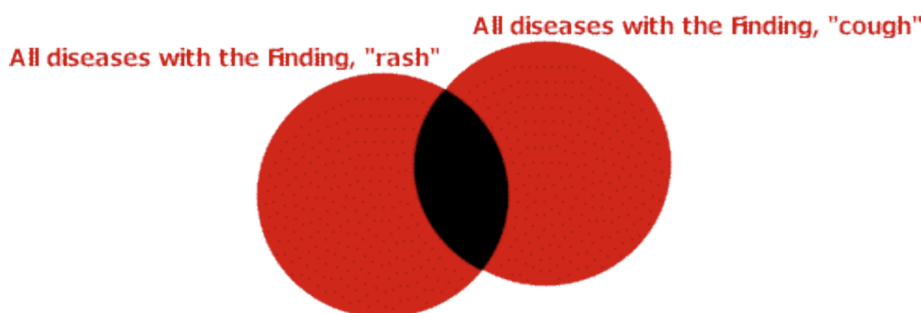

All diseases with the Finding, "rash"

All diseases with the Finding, "cough"

57.011

Respiratory disease surveillance aboard Peruvian Navy Ships: Detection of a pandemic influenza A (pH1N1) outbreak

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Background: Living conditions aboard navy ships provide an ideal environment for respiratory disease transmission and place military personnel in these settings at higher risk for outbreaks of viral respiratory diseases. We sought to determine the incidence rates and etiologies of Febrile Acute Respiratory Infections (FARI) on deployed Peruvian Navy ships by implementing an onboard respiratory disease surveillance system. Notably, the system allowed for detection of an outbreak of pH1N1 in the first study ship.

Methods: The onboard surveillance system was designed to include all Peruvian navy ships deployed on sea missions from May 2009-2011. Prior to deployment, onboard health personnel were trained to maintain daily counts of crewmembers who presented to sick call with FARI symptoms (fever > 100.5 °F and either cough or sore throat). Trained personnel completed a case report form for each person meeting the case definition and obtained respiratory samples for both rapid Quick Vue® Influenza and real-time reverse transcriptase polymerase chain reaction (rRT-PCR) testing.

Results: From June 25 to July 17, 2009, 85 of 355 crewmembers from the first Peruvian navy study ship presented to sick call with FARI symptoms. Of those, 52 tested positive for influenza A with the rapid test (attack rate 14.6%), and 78 tested positive for pH1N1 with rRTPCR (attack rate 21.7%) [See Figure]. Descriptive analysis of cases showed that 9% were female; mean age was 25.5 ± 8.4 years; mean temperature was 38.6 ± 0.5 °C; and that the mean number of days between onset of symptoms and presentation to sick call was 1.6 ± 0.8 days. The most frequent symptoms, other than fever, included cough and headache (both 75%), malaise (74%), nasal congestion (73%), and sore throat (55%). A majority (99%) of the cases had been vac-

cinated against seasonal Influenza (Agrippal® S-1) before deployment. Approximately 8% were asthmatic and 43.6% had past history of tobacco use. No complications or fatal outcomes were observed among confirmed cases. Presentation of FARI cases to sick call aboard a Peruvian Navy Ship, June — July, 2009.
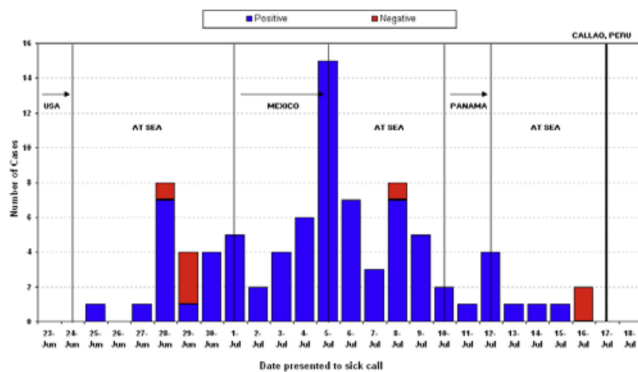
Conclusion: Our findings highlight the importance of the implementation of robust respiratory surveillance systems aboard military ships for timely detection and control of respiratory disease outbreaks, ultimately preventing potential dissemination back to their country of origin.

57.012

Population-based seroprevalence of hepatitis C virus infection in the South and Southeast regions of Brazil

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Background: In Brazil, few studies describe HCV prevalence in general population and it is estimated from 0.4 to 3.0% in distinct regions of the country. The objective of this study was to estimate the seroprevalence of hepatitis C in the South and Southeast regions of Brazil.

Methods: A population-based survey was carried out in the South and Southeast regions of Brazil (2007/2008), as part of a national survey conducted in all five regions of Brazil. The sample was representative of the 7 state capitals in these regions and people from 10 to 69 years old were considered. In each capital census tracts and, then, blocks were drawn with probability proportional to size; subsequently a systematic sample of households was drawn and their residents selected. The study was approved by regional and national ethical committees and signed informed consent was obtained. Hepatitis C antibodies (anti-HCV) was screened by automated ELISA (Axsym™ — ABBOTT Laboratories) and confirmed by manual test (DiaSorin™). It was considered as positive serum samples with reagent results by both tests.

Results: A total of 7,835 individuals were investigated from both regions. Anti-HCV prevalence was 0.056% (95%-CI: 0.000-0.167) in the age group 10-19 and 1.1% (95%- CI:0.581-1.633) in the age group 20 to 69 from South region. From Southeast region Anti- HCV prevalence was 0.112% (95%-CI:0.000-0.268) in the age group 10-19 and 0.76% (95%-CI:0.389-1.130) in the group 20-69.

Conclusion: Our data show low HCV prevalence in these Brazilian regions. The occurrence of HCV in children, despite the fact of low proportion, means that HCV prevention measures must be improved. Sponsors: Brazilian Ministry of Health, Pan-American Health Organization.

57.013

The European Centre for Disease Prevention and Control strengthening MedISys as a tool to accelerate detection of threats to human health from communicable diseases in the EU

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Background: MedISys is an automated, web-based news aggregator developed at the European Commission Joint Research Center (EC-JRC) that uses weighted keywords and keywords combinations to collect articles of public health interest in 42 languages. The European Center for Disease Prevention and Control (ECDC) is mandated to detect and assess health threats from communicable diseases and to strengthen Epidemic Intelligence (EI) within the EU. In 2008, an internal analysis indicated that although MedISys was rarely used to detect threats, it issued alerts faster than human-mediated sources. Considering that real-time screening is crucial for early threat detection, ECDC is exploiting Medisys potential as eearly detection tool.

Methods: ECDC performed a descriptive study of MedISys, identifying search strategies, sources, web interface and user capacity as targets for improvement. To reduce the