57.028
Comparison of three time series models for predicting campylobacteriosis risk in Georgia, Minnesota and Oregon
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Background: Three time series models (regression, decomposition, and Box-Jenkins Autoregressive Integrated Moving Averages) were applied to national surveillance data for campylobacteriosis with the goal of disease forecasting in three U.S. states.

Methods: Data sets spanned 1998 to 2007 for Minnesota and Oregon, 1999 to 2007 for Georgia. Year 2008 was used to validate model results. Mean absolute percent error, mean square error and coefficient of determination (R^2) were the evaluation fit statistics.

Results: Results showed that decomposition best captured the temporal patterns in disease risk. Training dataset R^2 values were 72.2, 76.3 and 89.9% and validation year R^2 values were 66.2, 52.6 and 79.9% respectively for Georgia, Oregon and Minnesota. All three techniques could be utilized to predict monthly risk of infection for Campylobacter sp. However, the decomposition model provided the fastest, most accurate, user-friendly method.

Conclusion: Use of this model can assist public health personnel in predicting epidemics and developing disease intervention strategies.

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57.029
Anticipating the species jump: Surveillance for emerging viral threats
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Emerging infectious diseases (EID) may pose new international security threats because of their potential to inflict harm upon humans, crops, livestock, health infrastructure, and economies. Some viruses pose unique challenges because of their high mutation rates, which enable them to evade host immunity, persist in the environment, and infect new host species. For example, influenza and human immunodeficiency viruses originally infected animals, but subsequent mutations enabled these viruses to "jump" to new human hosts. Current disease surveillance efforts rely upon data from clinical specimens — that is, from individuals who are already sick. As a result, little is known about the abundance of viruses that exist in nature but do not (yet) cause human disease. Human populations could be preemptively protected if researchers can learn what events lead to viral species jumping. If researchers can discover common genetic and ecological determinants that precede species jumping, then these determinants may be used to detect viruses teetering on the threshold of human pathogenicity. Knowledge of such determinants may ultimately prove useful to threat analysts and others charged with anticipating the genetically engineered viruses of the future, be they natural or man-made. This paper will report the findings of a thought leaders workshop convened to debate the feasibility of identifying determinants and hypothesize what information and technologies might be needed to make such surveillance possible.

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57.030
The making of a world atlas of infectious diseases
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Background: Many infectious diseases are restricted in their geographical range due to climatic conditions, presence of vectors or specific reservoir hosts, local food customs, hygiene, antibiotic use, among others. Currently there is no comprehensive illustrated overview of the geographic spread of infectious diseases and their determinants. Such a compendium of world infectious disease maps is crucial for teaching, research and creating awareness of risk.

Methods: With the collaboration of experts from around the globe we are collecting and making updated maps of more than 100 infectious diseases and their preferred conditions. We do extensive data searches to arrive at the best geospatial data available. Each map will be accompanied by an explanatory text. All our maps are sent out for independent peer review to ensure their quality and accuracy.

Results: The atlas will be published by Wiley-Blackwell, and at a later stage the maps will be updated and made available online under open access.

Conclusion: The printed atlas will be followed up with a web-portal for global infectious disease mapping activities, where all the data will be bundled, visualised and made available to anyone interested, and updated regularly.

Streptococcus suis, Human Cases and Pig Density

Streptococcus suis, Human Cases and Pig Density

Conclusion: The printed atlas will be followed up with a web-portal for global infectious disease mapping activities, where all the data will be bundled, visualised and made available to anyone interested, and updated regularly.
Pertussis in Latin America: Developing the tools to face the challenge ahead
F. Coronado, M. Griffith, M.L. Tondella, M. Bonkosky, M. Landaverde, T. Clark

Background: Pertussis surveillance worldwide is limited by reduced clinical recognition of disease, suboptimal confirmatory testing, and poor reporting, yet adequate understanding of pertussis in necessary for implementation and evaluation of prevention and control measures. We describe the current status of pertussis and vaccination coverage in Latin America (LA) and a process to achieve enhanced pertussis surveillance.

Methods: We reviewed publicly available pertussis surveillance and vaccination coverage data for LA and calculated incidence rates by region and country. Field evaluations of surveillance capacity are being conducted in selected LA countries, followed by development and implementation of locally-responsive capacity building at selected sentinel sites to strengthen recognition, confirmation and reporting of pertussis.

Results: From 1990 to 2008, >160,000 cases of pertussis were reported in LA. Cases decreased from 25,409 in 1990 to 7,827 in 2007, with the lowest number (3,595) in 2002. The rate also decreased from 1990 (5.8 cases/100,000 pop.) to 2002 (0.68 cases/100,000 pop.), but then increased to 1.4 cases/100,000 pop. in 2007. Reported three-dose childhood diphtheria-pertussis-tetanus vaccine coverage has steadily increased from 39% in 1980 to 91% in 2008. Collaborative efforts among LA Ministries of Health and international stakeholders are now focusing on evaluating current surveillance systems for pertussis, with implementation of capacity building and enhanced surveillance activities beginning 3rd quarter 2010.

Conclusion: Although vaccination efforts in LA have reduced pertussis morbidity, trends indicate that incidence may be increasing again. Efforts to prevent pertussis have focused on childhood vaccination; however, burden of disease does not strictly correlate with vaccine coverage. Additionally, limitations of reported data imply that the true burden of pertussis remains uncertain. Enhanced sentinel site pertussis surveillance, endorsed by the WHO’s Strategic Advisory Group of Experts on immunization, may prove an efficient method to improve pertussis surveillance and support evolving vaccination policy.

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57.031

Establishing the tuberculosis monitoring system at Brazil’s, Paraguay’s and Argentina’s frontier
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Background: Brazil shares frontiers with 10 South American countries. From 2001 to 2009, in Brazil, it was registered and treated 225 TB cases among non residents. There is no surveillance system among South American countries to detect TB cases and its contacts. Our objective was describe the proposals and activities (2008-2009) whose main goal was establishing a “Surveillance System of TB Cases at the frontier among Brazil, Paraguay and Argentina”.

Methods: There were organized eighteen meetings with the presence of TB sector decision makers from the three countries. There was a meeting with the coordinators of the National TB Programs and the Brazilian Representation of the Pan-American Health Organization. There were two technical training courses: one about the DOT Strategy and another one about the epidemiology at the Bi-national Hydroelectric in Foz do Iguacu (Brazil).

Results: At the end, a total of 139 professionals were involved in the creation of the Surveillance System, and 77 technicians from different management levels of the three countries were trained. The coordinators meeting established responsibilities and identified the necessity of creating a bilingual TB notification report, a bi-national information, standards for laboratorial diagnosis, forms of identifying circulating strains, standards for the treatment at the country of origin. During the DOT Strategy course, it was introduced a methodology, activities and a proposal to standardize country actions. At the applied epidemiology course, it was discussed fundamental concepts of epidemiology surveillance and integration among countries. The municipal technicians involved have informed and have referred patients in treatment at the frontiers municipalities. It is in course the creation of a bi-national card for the identification of Tb cases and the establishing of primary care common protocols.

Conclusion: The Surveillance System will allow the diagnostic of the TB magnitude in the regions of frontiers, identifying the non residents’ cases, widening the treatment