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Contents

Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The International Society for Disease Surveillance held its eleventh annual conference in San Diego on December 4th and 5th, 2012, under the theme Expanding Collaborations to Chart a New Course in Public Health Surveillance. During these two days, practitioners and researchers across many disciplines gathered to share best practices, lessons learned and cutting edge approaches to timely disease surveillance. A record number of abstracts were received, reviewed and presented – the schedule included 99 orals, 4 panels, 94 posters, 5 roundtables and 12 system demonstrations. Presenters represented 24 different countries from Africa, North and South America, Europe, and Asia . Topics covered included, but were not limited to, statistical methods for outbreak detection, border health, data quality, evaluation of novel data streams, influenza surveillance, best practices and policies for information sharing, social network analysis, data mining techniques, surveillance during weather events and mass gatherings, syndrome development, and novel uses of syndromic surveillance data. There were also discussions on the impact of regulations and standards development on disease surveillance, including Meaningful Use and the International Health Regulations. The 2012 Conference was also host to several exciting keynote and plenary talks, including those given by James Fowler, Professor of Medical Genetics and Political Science at the University of California, San Diego and Bill Davenhall, Global manager of Esri's Health and Human Service Solutions Group. Plenary speakers Steve Waterman, Centers for Disease Control and Prevention (CDC); Simon Hay, University of Oxford; and Brian McCloskey, Health Protection Agency in London, reflected on the importance of effective collaborations in their respective topics of migrant and border health, malaria disease epidemiology and mass gathering health. National and international representatives from the CDC, the World Health Organization and the Department of Homeland Security also discussed their respective strategic plans for disease surveillance. In addition, the 2012 Data Visualization Event enabled conference attendees to collaborate and gain knowledge of visualization tools and techniques applied to a rich, de-identified set of ambulatory electronic health record (EHR) data. Participants developed visualizations of chronic disease events using this common data set and presented their work during the evening poster session. The goals for this event were to demonstrate and share visualization tools and techniques that attendees could learn to apply to their own data and also to provide exposure to data elements available in ambulatory EHR systems and highlight their potential for surveillance and research. My hope is that attendees of the 2012 ISDS Conference strengthened existing collaborations and fostered new ones, and returned to their places of work or study energized with new ideas and approaches to disease surveillance. The challenge for all of us is to sustain this new energy throughout the coming year and to leverage the tools available to us to share best practices and reach out for assistance when needed. We all want to improve the health of our populations, and collaborations will enable us to achieve that goal. A. Ising Carolina Center for Health Informatics, Department of Emergency Medicine, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; 2012 ISDS Scientific Program Committee Chair

(*Online J Public Health Inform* 2013;5(1):e4604) doi:[10.5210/ojphi.v5i1.4604](https://doi.org/10.5210/ojphi.v5i1.4604)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Since March 2007 the ISDS Research Committee (RC) has been identifying high-quality literature related to disease surveillance. These articles are made available to committee members and selected articles are discussed on bimonthly literature review calls. These calls have been a rich opportunity for participants to stay up-to-date on literature and collaborate with colleagues from diverse fields. However, the process for capturing relevant articles was not always the most efficient or inclusive. In response, ISDS RC has updated its Literature Review process, which has resulted in more articles being captured from a wider range of disciplines.

(*Online J Public Health Inform* 2013;5(1):e4375) doi:[10.5210/ojphi.v5i1.4375](https://doi.org/10.5210/ojphi.v5i1.4375)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

A literature review of data quality issues highlights how the quality of health data has been discussed in the biosurveillance literature and frames it in relation to the broader data quality (DQ) field. Results of the literature review include: completeness as the most commonly measured dimension of DQ; methods for regular DQ monitoring and occasional evaluation; various methods of improving data quality; and communication with the data entry personnel as the most common preventative step. The results suggest that developing a DQ program could facilitate understanding the sources of poor DQ; recognizing DQ problems; and improving DQ for improved efficiency and effectiveness of biosurveillance systems.

(*Online J Public Health Inform* 2013;5(1):e4376) doi:[10.5210/ojphi.v5i1.4376](https://doi.org/10.5210/ojphi.v5i1.4376)

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Abstract

This study compared prescription sales data from a large retail pharmacy chain in the United States with Google Flu trends and US Outpatient ILI Surveillance Network data for 2007 by Centers for Disease Control and Prevention as a flu activity indicator. For Google trends the correlation coefficient (Pearson 'r') for five years aggregate data (2007-2011) was 0.92 (95% CI, 0.90-0.94, P = 0.05) and for each of the five years between 2007 and 2011 were 0.85, 0.92, 0.91, 0.88, and 0.87 respectively. For CDC data the same was 0.97 (95% CI, 0.95-0.98, P = 0.05).

(*Online J Public Health Inform* 2013;5(1):e4377) doi:[10.5210/ojphi.v5i1.4377](https://doi.org/10.5210/ojphi.v5i1.4377)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In this work, Spatio-Temporal Data Mining of disease surveillance data is done, to describe the underlying patterns in disease occurrences across populations and to identify possible causes that could explain them; for better disease core prediction, detection and management. MiSTIC algorithm is used to determine spatial spread of disease core regions (scale of disease prevalence), and the frequency & regularity of occurrence of different locations in space as disease cores. The results show good correlation between the etiologic factors of Salmonellosis and the detected core locations, in addition to the significant observation of highly localized nature of disease prevalence.

(*Online J Public Health Inform* 2013;5(1):e4379) doi:[10.5210/ojphi.v5i1.4379](https://doi.org/10.5210/ojphi.v5i1.4379)

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Abstract

We present a disease mapping method that accounts for spatially uncertain data by informatively weighting the locations of interest. This method is applied to programmatic tuberculosis data collected over three years in Lima, Peru, with the goal of identifying potential hotspots of drug-resistance transmission. The flexibility of this method, which accommodates any general weighting scheme, allows us to examine the affects of different assumptions regarding the uncertainty present in the data.

(*Online J Public Health Inform* 2013;5(1):e4380) doi:[10.5210/ojphi.v5i1.4380](https://doi.org/10.5210/ojphi.v5i1.4380)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Snake envenomations can lead to complex disease progression in humans. Health care providers often use the Missouri Poison Center (MoPC) to assist with treatment protocols. Missouri ESSENCE, a syndromic surveillance system, and Toxicallâ, the data system used by the MoPC, were used to compare the frequencies of snake bite cases in Missouri for the past 5 years. The total number of snake bite visits recorded by ESSENCE was 1763, compared to 324 cases from MoPC data. These results suggest that the MoPC should increase awareness of their resources to hospitals in certain regions in Missouri.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This project aimed to document and assess the variation in state legislation relating to foodborne disease surveillance and outbreak response for all 50 states and the District of Columbia by creating a database and appendix of laws and regulations that will be made available to researchers and policymakers. Through compilation of the state laws and regulations and analysis of previous multistate outbreaks, we are able to present trends, variations, and gaps in the legislation that directly impacts the ability of public health officials to conduct foodborne outbreak investigations.

(*Online J Public Health Inform* 2013;5(1):e4385) doi:[10.5210/ojphi.v5i1.4385](https://doi.org/10.5210/ojphi.v5i1.4385)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The New York State Veterinary Diagnostic Laboratory (NYSVDL) adopted a new general submission form in 2011, which includes a check list of syndromes as part of the clinical history. This form allows for clinician selected syndromes to be monitored. We found monitoring syndromes, in addition to test requests, to be useful and necessary for accuracy and completeness. The syndromes \"Sudden Death\" and \"Fever\" were found to always provide additional information and should be monitored. Other syndromes that provide new information should be investigated in various clinical scenarios.

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Abstract

For the purpose of developing a national system of outbreak surveillance, we compared local outbreak signals in three sources of syndromic data: telephone triage of acute gastroenteritis, web queries about symptoms of gastrointestinal illness, and OTC pharmacy sales of anti-diarrhea medication. The sensitivity and specificity were highest for telephone triage data. It provided the most promising source of syndromic data for surveillance of point-source outbreaks. Currently, a project has been initialized to develop and implement a national system in Sweden for daily syndromic surveillance based on 1177 Health Care Direct, supporting regional and local outbreak detection and investigation.

(*Online J Public Health Inform* 2013;5(1):e4387) doi:[10.5210/ojphi.v5i1.4387](https://doi.org/10.5210/ojphi.v5i1.4387)

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Abstract

To analyze the associated burden of mental illness and medical comorbidity using BioSense data 2008-2011. Understanding the relationship between mental illness and medical comorbidity is an important aspect of public health surveillance.

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Abstract

Telephone triage (TT) is a potential data source for biosurveillance. An analysis of Veterans Affairs (VA) TT and visit data for influenza and influenza-like-illness (ILI) was performed for 2010-2011 and 2011-2012 seasons. There were 7,044 influenza-coded calls, 564 hospitalizations, 1,849 emergency/urgent visits, and 416,613 ILI-coded outpatient visits. Spearman correlation coefficients were calculated for influenza-coded calls with hospitalizations (0.77); emergency/urgent visits (0.85); and ILI-outpatient visits (0.88), respectively. For 2011-2012, TT alerted increased influenza activity before other settings. Peak activity was similar across settings for both seasons. TT correlates well with VA healthcare utilization and may provide earlier alerts of influenza activity.

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Abstract

A survey of state and local agencies characterizes relationships with health information exchange organizations. Few agencies are engaged in HIE, except where CDC has made strategic investments.

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Abstract

Multidimensional Subset Scan (MD-Scan) is a new method for early outbreak detection and characterization using multivariate case data from individuals in a population. MD-Scan extends previous work on multivariate event detection by identifying the characteristics of the affected subpopulation (e.g. affected gender(s), age groups, and behavioral risk factors), and enables more timely and more accurate detection while maintaining computational tractability.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This work presents our first steps in developing a Global Real-time Infectious Disease Surveillance System (GRIDDS) employing robust and novel infectious disease epidemiology models with real-time inference and pre/exercise planning capabilities for Lahore, Pakistan. The objective of this work is to address the infectious disease surveillance challenges (specific to developing countries such as Pakistan) and develop a collaborative capability for monitoring and managing outbreaks of natural or manmade infectious diseases in Pakistan.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

To characterize the use of standardized vocabularies in real-world electronic laboratory reporting (ELR) messages sent to public health agencies for notifiable disease surveillance, ELR messages from two states were analyzed. Less than 20% of incoming messages contained any form of standardized vocabulary, indicating that semantic interoperability remains a challenge.

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Abstract

Outbreak detection systems for use with very large multiple surveillance databases must be suited both to the data available and to the requirements of full automation. We analysed twenty years' data from a large laboratory surveillance database used for outbreak detection in England and Wales. Our aim is to inform the development of more effective outbreak detection algorithms. We describe the diversity of seasonal patterns, trends, artefacts and extra-Poisson variability that an effective multiple laboratory-based outbreak detection system must cope with. We provide empirical information to guide the selection of simple statistical models for automated surveillance of multiple organisms.

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Abstract

This study was to elucidate the spatio-temporal correlations between the mild and severe enterovirus cases through integrating enterovirus-related three surveillance systems, including the sentinel physician, national notifiable diseases and laboratory surveillance systems in Taiwan. With these fully understanding epidemiological characteristics, hopefully, we can develop better measures and indicators from mild cases to provide early warning signals and thus minimizing subsequent numbers of severe cases. Taiwan's surveillance data indicate that public health professionals can monitor the trends in the numbers of mild EV cases in community to provide early warning signals for local residents to prevent the severity of future waves.

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Abstract

Electronic Integrated Disease Surveillance System (EIDSS) was used to applied epi-analysis and prediction capabilities for situation in CCHF foci in Kazakhstan. Three indicators were used: population density in the CCHF-disadvantaged area; tick infection rate; human incidence rate. Maps generated in EIDSS allowed visualizing information and conducting a multi-factor epi-analysis. The CCHF outbreaks risk areas were identified. EIDSS software is easy to use, available for practical epidemiologists and can be used for analysis and prediction of vector-borne virus infections foci. EIDSS can serve as a basic working tool for field epidemiologists and the basis for managerial decision-making by the concerned ministries.

(*Online J Public Health Inform* 2013;5(1):e4398) doi:[10.5210/ojphi.v5i1.4398](https://doi.org/10.5210/ojphi.v5i1.4398)

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Abstract

This study aims to develop and test the method of control bar matrix for outbreak detection in a syndromic surveillance system (ISSC) of rural China. From the ISSC database, we extracted the historical daily number of outpatients with fever symptom reported in a township hospital surveillance unit from August 1st to December 31st as baseline data. Six different control bar algorithms (the matrix) were simultaneously run among baseline data to simulate the real-time detection. Findings showed that control bar matrix could label the alarms into hierarchical warning levels, which facilitated the signal verification and decision making in syndromic surveillance system.

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Abstract

The choice of outbreak detection algorithm and its configuration result in variations in the performance of public health surveillance systems. The ability of predicting the performance of detection algorithms under different circumstances will guide the method selection and algorithm configuration. Our work characterizes the dependence of the detection performance on the type and severity of outbreak. We examined the influence of determinants on the performance of C-algorithms and W-algorithms. We used Bayesian Networks to model relationships between determinants and the performance. The results on a sophisticated simulated data set show that algorithm performance can be predicted well using this methodology.

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Abstract

Living in a closely connected and highly mobile world presents many new mechanisms for rapid disease spread and in recent years, global disease surveillance has become a high priority. In addition, much like the contribution of non-traditional medicine to curing diseases, non-traditional data streams are being considered of value in disease surveillance. Los Alamos National Laboratory is determining the relevance of various data streams through the use of defined metrics and methodologies. An overview of this project will be presented, together with results of data stream evaluation.

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Abstract

In Nigeria, anecdotal reports of poultry disease with high mortality began in December 2005. H5N1 was first confirmed on February 8, 2006 among poultry from a commercial farm in Kaduna state in northern Nigeria. This was the first confirmation of the presence of H5N1 virus in Africa. Shortly after H5N1 infection in birds was confirmed in Nigeria, national and local authorities initiated culling of birds at farms with laboratory confirmed and probable out breaks of H5N. On January 17, 2007, Nigeria recorded the first human fatal case of avian influenza in a 22year old lady.

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Abstract

To aid in developing a global biosurveillance program, it is critical to develop a framework to capture and understand the myriad of data streams and evaluate them in context of surveillance goals. Toward this goal, Los Alamos National Laboratory has developed a new method of evaluating the effectiveness of data stream types through the use of a novel concept called the surveillance window, a technique that integrates operational systems analysis, surveillance system analysis and epidemiological analysis. In this presentation application of this methodology to Foot and Mouth Disease, Ebola and Influenza and E.coli related gastrointestinal disease surveillance will be demonstrated.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This abstract describes a study that examined whether Twitter data extracts could be used effectively as a surrogate data source for dengue fever for electronic disease surveillance. Tweets containing a medically-relevant reference to fever were compared to fever and dengue fever incidence data as identified by local and national health authorities and found to be statistically significantly correlated with both incidence data sets. The results suggest that Twitter extracts may provide a valid and timely surrogate data source to monitor dengue fever. Further study is warranted.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

As a result of antigenic drift of the influenza viruses, the composition of the influenza vaccine is updated yearly to match circulating strains. Consequently, there is need to assess the effectiveness of the influenza vaccine (VE). We aimed to measure VE among US military dependents and US-Mexico Border populations during the 2011-12 influenza season. A total of 155 influenza positive cases and 429 influenza negative controls were included in the analysis. Overall adjusted VE against laboratory-confirmed influenza was 46% (95% CI, 19, ∞ $\sqrt{\tilde{\sigma}}$ \sqrt{i} 64%); unadjusted was 39% (95% CI, 11, ∞ $\sqrt{\tilde{\sigma}}$ \sqrt{i} 58%). Seasonal vaccination was moderately protective against influenza in this population.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Using the chief complaint field from our established syndromic ED system, we developed definitions for potentially preventable oral health visits (OHV) and examined patterns in 2009-2011 data. Under the widest definition, OHV comprised about 1% of ED visits. Adults ages 18 to 29 had markedly higher OHV than other ages, as did certain neighborhoods/EDs. We found more than half of OHV occurred during daytime hours, suggesting opportunities for targeted outreach and education. With some caveats, syndromic ED data provide a useful complement to other oral health surveillance strategies.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

COPD is a prevalent chronic disease among older adults, responsible for substantial healthcare utilization. We used the NC DETECT surveillance system to investigate patterns of hospitalizations and short-term return visits resulting from COPD-related ED visits. We found a high prevalence of hospital admissions and return ED visits, including many repeat hospitalizations. We also provide new information about the impact of age, sex, and insurance status on these short-term outcomes.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The New York City (NYC) Department of Health and Mental Hygiene (DOHMH) routinely collects daily emergency department (ED) data from 49 of NYC's 52 EDs. Very little information regarding ED-specific coding practices, procedures or health information systems was available to the DOHMH. With the goal of gaining more information about ED-specific coding practices, members of the DOHMH interviewed ED personnel at all 49 EDs. The information from these surveys is to be used to improve the DOHMH's ability to categorize ED visits into syndrome groupings.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The purpose of this project was to develop an English-Russian Epidemiology Dictionary, which is needed for improved international collaboration in public health surveillance. Epidemiologic concepts and definitions significantly differed in the former Soviet Union (FSU) and Western literature. To improve biosurveillance and international collaboration, recognition of these differences must occur. Detailed analysis of epidemiology terminology differences will be discussed in the presentation and paper. Major limitations of the work were scarcity of prior research on the subject and lack of bilingual epidemiologists with the good understanding of FSU and Western approaches. A bilingual reference in the form of a dictionary will greatly improve mutual comprehension and collaboration in the areas of biosurveillance and public health practice.

(*Online J Public Health Inform* 2013;5(1):e4410) doi:[10.5210/ojphi.v5i1.4410](https://doi.org/10.5210/ojphi.v5i1.4410)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We compared detection performance of univariate alerting methods on real and simulated events in different types of biosurveillance data. Both kinds of detection performance analysis showed the method based on Holt-Winters exponential smoothing superior on non-sparse time series with day-of-week effects. The adaptive CUSUM and Shewhart methods proved optimal on sparse data and data without weekly patterns.

(*Online J Public Health Inform* 2013;5(1):e4411) doi:[10.5210/ojphi.v5i1.4411](https://doi.org/10.5210/ojphi.v5i1.4411)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In a syndromic dual use application, North Carolina emergency department (ED) visits for oral health-related problems were studied using BioSense patient records stratified by age group, patient residence county, and payment method. After a case definition process using both chief complaints and diagnosis codes, the study obtained population-based visit rates and revealed age- and county-specific problems consistent over three full years ending 30Jun2011 and worsening in selected counties. The state total ED burden for oral health problems was ~2% (0.2% - 9.7% by county).

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The project was to refine a prototype population-based Bayes Network module for live implementation in the U.S. Department of Defense ESSENCE system to combine syndromic and clinical evidence sources to monitor health at hundreds of military care facilities. Evidence types included outpatient data records, laboratory tests, and filled prescription records. The multi-level approach included expanded data queries, data-sensitive algorithm selection, improved transformation of algorithm outputs to alert states, and hierarchical Bayesian Network training. Algorithmic and network thresholds were adjusted with stochastic optimization using 24 documented outbreak datasets.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The study investigated combining Department of Defense (DoD) and Veterans Administration (VA) outpatient datasets for disease cluster detection. Results of retrospective scan statistics over 4 years were compared using both separate and joined data. Combining data sources increased the background alert rate by a manageable 1-10% across run sets. Clustering evidence of known outbreaks found in separate DoD and VA runs persisted when data sets were combined. Some clusters found only when the data were combined persisted over several days and may have indicated small events not reported in either system.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Estimates of influenza based on influenza like illness (ILI) may not capture the full spectrum of illness or result in early warning. We tested a syndromic surveillance method using hospital staff influenza like absence (ILA) to potentially enhance ILI. Rates of ILA were compared to regional surveillance data on ILI and confirmed positive influenza A test results (PITR) in hospitalised patients. ILA demonstrated accurate seasonal trends in influenza as defined by ILI, but provided more realistic estimates of the relative burden of pH1N1, and potentially earlier warning than ILI and PITR, which is likely to improve accuracy of influenza monitoring.

(*Online J Public Health Inform* 2013;5(1):e4415) doi:[10.5210/ojphi.v5i1.4415](https://doi.org/10.5210/ojphi.v5i1.4415)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Canadian First Nation (FN) populations were disproportionately effected by the 2009 H1N1 influenza pandemic. We investigate the odds of hospitalization and ICU admissions for cases of H1N1 among FN living in Manitoba, Canada, to assess if location of residency had an effect on access to healthcare services. We use logistic regression to calculate the odds of hospitalization adjusting for age, reservation residency, rurality, and disease wave. We find that FN individuals living on-reserve experienced higher odds of hospitalization than those living elsewhere, even controlling for rurality.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Outbreaks of gastrointestinal disease occur with some frequency in North America, resulting in considerably morbidity, mortality, and cost. Outbreak detection can be improved by using simulated outbreak data to build, validate, and evaluate models that aim to improve accuracy and timeliness of outbreak detection. We have constructed a microsimulation model that depicts reasonable outbreak scenarios in space and time, and explore the use of a hidden Markov model along with supervised learning algorithms to find unique space-time outbreak signatures useful for outbreak classification.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Multiple data sources are essential to provide more reliable information regarding the emergence of potential health threats, compared to single source methods. However, only ad hoc procedures have been devised to address the problem of locating, among the many potential solutions, which is the most likely cluster, and determining its significance. We incorporate information from multiple data streams of disease surveillance to achieve more coherent spatial cluster detection by using statistical tools from multi-criteria analysis. Our approach defines in an optimal way, how spatial disease clusters found by the spatial scan statistic can be interpreted in terms of their significance.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Absenteeism has great advantages in promoting the early detection of epidemics. Distribution of the data generally are asymmetry, zero inflation, truncation and non-independence. In order to handle these encumbrances, we should apply the Zero-inflated Mixed Model (ZIMM).

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The goal of this project is to enhance surveillance for Arboviruses by establish a baseline for the emerging threat of Dengue fever the border region of Arizona. This will be accomplished by: enhancement and exchange of dengue laboratory testing techniques, a seroprevalence sentinel-hospital site study of symptomatic patients, and mapping techniques to better understand the presence of mosquito vectors.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Over the past five years, the potential for web search volume to provide insight into the present has become increasingly apparent. To date, much of these methods have focused on syndromic keywords and are not directly suitable for surveillance of less common or highly variable diseases. The more unique mapping between drug therapy had disease provides a potential workout this problem. We demonstrate the high degree of correlation between search volume and drug utilization and apply this method of keyword generation to modeling drug utilization, patent expirations and TB incidence in the US.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

There appears to be a growing number of prioritization exercises, for example of diseases, in health related settings. Here we review trends in such prioritization exercises and focus on prioritization methodologies and their sound application. Our review shows that mistakes commonly reported in the social sciences are also prevalent in public and animal health settings. We finish with a review of the tool used by the World Organization for Animal Health (OIE) to qualitatively assess performance of veterinary services and prioritize interventions, and propose a framework for extending the OIE tool to a fully quantifiable decision support system.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This study described the distribution of the infectious related symptoms (10 categories) collected by staffs in the healthcare surveillance units of an internet-based syndromic surveillance system in rural Jiangxi Province of China, from 1st August to 31st December 2011. Cough, fever and sore throat were identified as the most common symptoms in surveillance system. Our finding suggested that respiratory infectious diseases had more chance to be reported in syndromic surveillance system in rural Jiangxi Province, and it is urgent to enhance training on respiratory infectious diseases control for village health workers in rural China.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The presentation describes the design and the main functionalities of the SurSaUD® software developed to support the data management and data analysis of the French syndromic surveillance system.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This study aimed to assess the structure and capacity of Chinese infectious disease surveillance system, and to provide baseline information for developing syndromic surveillance system in rural China. Findings showed the current case report system has established a solid basis for developing syndromic surveillance system. However, the lack of computerized patient registration in village and township health care facilities, incomplete internet coverage in rural area and relatively low quality of human resource in village level pose challenges for the establishment of syndromic surveillance system in rural China.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This presentation reviews the experiences of a meteorology-inspired infectious disease forecast station operating within a rural community. The forecast station promoted routine communication of a broader array of infectious disease activity than that monitored by public health; facilitated proactive, cost effective healthcare; and enabled recognition of unusual, disruptive infectious activity with enough time to enable mitigation of clinical, infrastructure, and financial impact to the community. Routine communication of comprehensive infectious disease forecast and situational awareness information promoted community adaptive fitness to a wide variety of infectious hazards.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We present results from a collaborative pilot project designed to assess the accuracy of Internet panel surveys for behavioral health surveillance. Data were collected using three sampling methods that differ with respect to recruitment strategy, sample selection and sample matching to the US adult population in four states and Metropolitan Statistical Areas. We present comparative analyses that assess the advantages and disadvantages of these methods with respect to cost, geography, timeliness, usability, and ease of use for technology transfer to states and local communities. Recommendations for future efforts in behavioral health surveillance are given based on these results.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We sought to describe the epidemiology of emergency department (ED) visits for skin and soft tissue infections (SSTI) in an urban area with diverse neighborhood populations using syndromic surveillance system data for the time period from 2007-2011. Our aims were three-fold: to demonstrate a proof of concept using syndromic surveillance for SSTI surveillance in the absence of laboratory data, to estimate the burden of ED visits associated with SSTI, and to determine potential geographic hotspots for these infections. Using our SSTI syndrome definition, we estimated unique SSTI visits represented 3.29 % (n= 45,252) of all visits within Boston, Massachusetts ten EDs during the study period with a seasonal pattern peaking during the summer months. A disproportionate number of SSTI visits (43%) were among Black patients when compared to both the overall Boston population (22% Black) and to the racial distribution of all ED visits (39% Black). The geographic neighborhood distribution of SSTI visits ranged from a low of 2.69% to a high of 4.11% of all neighborhood-specific ED visits. A local syndromic surveillance system has the potential to provide public health authorities and ED clinicians near real-time monitoring of trends in severity and demographic risk factors, and may provide an alternative to tracking the severity of illness where no laboratory data are readily available.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) partnered with the Florida Department of Health (FDOH), Bureau of Epidemiology, to implement a new process for the unidirectional exchange of electronic medical record (EMR) data when ASPR clinical assets are operational in the state following a disaster or other response event. ASPR and FDOH successfully automated the exchange of data from the ASPR electronic medical record system EMR-S into the FDOH Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE-FL) system during the 2012 Republican National Convention (RNC).

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Preliminary analysis was completed to define, identify, and track the trends of drug overdoses (OD), both intentional and unintentional, from emergency department (ED) and urgent care (UC) chief complaint data. Using Chief complaint data to quickly track changes in the geographical distribution, demographics, and volume of ODs may aid public health efforts to decrease the number of associated deaths. A specific classifier was created to define all potential ED visits related to drug ODs. Further study of post-diagnostic ED/UC data to confirm preliminary trends is warranted.

(*Online J Public Health Inform* 2013;5(1):e4432) doi:[10.5210/ojphi.v5i1.4432](https://doi.org/10.5210/ojphi.v5i1.4432)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Academic health departments present a paradigm for local health authorities as they struggle to serve amidst calls for quality in public health service delivery and dwindling resource allocations to the sector. Duval County Health Department, Florida, presents a novel community based model of an academic health department. This approach to interagency collaboration yields dividends in increasing the capacity of the health department to deliver core public health services, impacts positively on chronic disease surveillance, population health and health services research and positions the department to seize opportunities for further capacity building as they arise.

(*Online J Public Health Inform* 2013;5(1):e4433) doi:[10.5210/ojphi.v5i1.4433](https://doi.org/10.5210/ojphi.v5i1.4433)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This paper describes the refactoring of INDICATOR to make it more scalable and suitable for One Health monitoring with human, veterinary, and environmental data. We define the new systems architecture and a common data submission structure that can be used by all of our healthcare partners independent of type of facility or species served.

(*Online J Public Health Inform* 2013;5(1):e4434) doi:[10.5210/ojphi.v5i1.4434](https://doi.org/10.5210/ojphi.v5i1.4434)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The application of syndromic surveillance systems has expanded beyond early event detection to include long-term disease trend monitoring. To address this wider set of priorities, we propose using a general linear mixed model (GLMM) for examining syndrome trends spatially and over time. With the GLMM, we found that New York City asthma rates varied by ZIP code and fluctuated seasonally, but that annual citywide rates did not change from 2007 to 2012. The GLMM estimated rates at multiple spatial and temporal levels, adjusted for clustering with random effects, and integrated covariate demographic data to reduce bias.

(*Online J Public Health Inform* 2013;5(1):e4435) doi:[10.5210/ojphi.v5i1.4435](https://doi.org/10.5210/ojphi.v5i1.4435)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Cold weather exposure-related injuries are preventable causes of mortality and morbidity. We conducted a retrospective analysis to compare hypothermia and cold-injury case characteristics, and temporal and meteorological correlates, between 2008-2010 cold season syndromic surveillance and hospital discharge data. Poisson regression models were fit to estimate the relation of daily case counts with temperature, snow depth, and other weather conditions. There were no meaningful differences in relationships with weather variables across data sources. Daily mean minimum temperature and snow depth are potentially useful in determining timing of analyses. Syndromic surveillance could provide useful information to guide cold-related injury prevention.

(*Online J Public Health Inform* 2013;5(1):e4437) doi:[10.5210/ojphi.v5i1.4437](https://doi.org/10.5210/ojphi.v5i1.4437)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The NJ Department of Health, $\text{Ä}\infty\sqrt{\delta}\text{-TM}$ s syndromic surveillance system developed an algorithm to categorize heat-related illness (HRI) based on a patient, $\text{Ä}\infty\sqrt{\delta}\text{-TM}$ s chief complaint during an emergency room visit, then matched these data with subsequent Uniform Billing (UB) diagnosis data. The overall sensitivity of the algorithm was 16% and the positive predictive value was 40%. Evaluation of a major heat event found both the sensitivity and positive predictive value increased to about 23% and 60%, respectively. While the HRI algorithm was relatively insensitive, sensitivity improved during major heat events and all excursions in HRI were identified using chief complaint data.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The REACH Trial is a 4-year randomized controlled trial to systematically compare the effectiveness of mobile (SMS) and traditional (email, FAX) communication strategies for sending public health messages to health care providers. The objective is to identify the most effective modality for public health agencies to communicate time-sensitive information and improve emergency preparedness and response. We will share preliminary results of intent-to-treat analyses regarding rate of recall of study alert message content, perceived trustworthiness and credibility of message and message source by providers, and frequency of accessing online alert information between traditional and mobile delivery groups.

(*Online J Public Health Inform* 2013;5(1):e4439) doi:[10.5210/ojphi.v5i1.4439](https://doi.org/10.5210/ojphi.v5i1.4439)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

NYC emergency departments (ED) visits were categorized into NYC residential, NYC PO Box or commercial building, commuters into NYC, and out-of-town visitors by patient reported ZIP code. Spatial and temporal trends in total ED visits by home ZIP code type were analyzed to describe patterns in each group, and determine how such information might inform daily syndromic surveillance activities. Of the approximately 4 million ED visits in NYC during 2011, the number of visits by commuters and out-of-town visitors were 125,236 (3.1%) and 45,158 (1.1%) respectively. Out-of town visitors were found to mostly go to hospitals in Manhattan rather than the outer boroughs. While the seasonal trends and day-of-week patterns for the NYC residents and the commuters appear to be fairly similar, temporal trends for NYC residents and out-of-town visitors were found to be different. Out-of-town visitors represents a unique subset of the ED population and our results suggest that including a separate analyses of total ED and syndromic visits by out-of-town visitors might provide additional information that could prove useful to daily syndromic surveillance activities.

(*Online J Public Health Inform* 2013;5(1):e4440) doi:[10.5210/ojphi.v5i1.4440](https://doi.org/10.5210/ojphi.v5i1.4440)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The NJ Department of Health's syndromic surveillance system developed an algorithm to categorize heat-related illness (HRI) based on a patient's chief complaint during an emergency room visit, then matched these data with subsequent Uniform Billing (UB) diagnosis data. The overall sensitivity of the algorithm was 16% and the positive predictive value was 40%. Evaluation of a major heat event found both the sensitivity and positive predictive value increased to about 23% and 60%, respectively. While the HRI algorithm was relatively insensitive, sensitivity improved during major heat events and all excursions in HRI were identified using chief complaint data.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Social media presents publicly available and accessible information about individual, real-time activity that can be leveraged to detect, monitor, and respond to events. We are developing a cloud-based Open Source Health Intelligence (OSHINT) system that uses open source media outlets to characterize foodborne illness events in real-time. OSHINT forecasts response requirements for efficient use of resources. OSHINT currently characterizes number of victims ill, hospitalized, and dead due to foodborne illness events and was used to characterize the national 2012 Salmonella event related to cantaloupes. The OSHINT team is continually developing and refining characterization and forecasting algorithms.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Use GIS to illustrate and understand the association between environmental factors and spread of infectious diseases. Our case studies like analyzing the association between meteorological factors and Lyme disease risk in humans in Texas, elucidating factors that contribute to contamination of produce at preharvest level and identifying disease clusters in a fungal zoonotic disease like Valley fever, examine the relationship between environmental conditions, such as climate and location, and vector distribution and abundance. The above studies show spatial epidemiology being an invaluable field in the research and surveillance of infectious disease.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Electronic event-based biosurveillance systems (EEBS"s) are an increasingly important source of epidemiologic intelligence. We assessed 17 published evaluations on 10 EEBS"s using 17 key variables from CDC guidelines for surveillance system evaluations. The median number of key variables assessed per EEBS was 6 (range, 3-12). Very few evaluations were quantitative, and no evaluations examined system usefulness by identifying specific public health decisions, actions, or outcomes resulting from early event detection. Future EEBS evaluations should quantitatively examine these critical indicators of utility, assess novel aspects of EEBS"s, and consider the effects of combining EEBS"s into super systems.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We evaluated sensitivity, specificity, and predictive values of the ICD-9 coding system for surveillance of chronic hepatitis B virus infection (HBV) using data from an observational cohort study. All HBV cases were validated by chart review. Of 1,652,055 adult patients, 2,202 (0.1%) were included in the cohort based upon laboratory data or hepatitis B ICD-9 codes. Use of one ICD-9 code had a sensitivity of 83.9%, positive predictive value of 61.0%, and specificity and negative predictive values > 99%. Our findings suggest that use of one or two hepatitis B ICD 9 codes can identify cases with chronic HBV infection.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Information available in ED reports has the potential to improve detection of syndromic diseases. Our goal is to provide a machine-learning model characterized by improved predictive accuracy of influenza syndrome. Seven machine-learning algorithms (K2-BN, NB, EBMC, SVM, LR, ANN, RF) for the construction of models were used. Our dataset correspond to 40853 ED cases (67% training, 33% testing). The measurements used were AUROC, calibration and statistical significance testing. The results show high AUROCs with no significant difference between the algorithms and the expert model. EBMC is the most general algorithms.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Electronic Laboratory Reporting (ELR) has the potential to be more accurate, timely, and cost-effective. However, the continuing use of non-standard, local codes to represent laboratory test results complicates the use of ELR data in public health practice. Use of structured and standardized coding system(s) to support the concepts represented by local codes improves the computational characteristics of ELR data. We examined the use of LOINC and SNOMED CT codes for coding laboratory tests in hospital laboratory reports. We found that the hospitals more frequently used LOINC codes than SNOMED CT in reporting test results.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Join us as we explore the impact of ONC's Standards & Interoperability Framework Public Health Reporting Initiative (PHRI). PHRI is working to simplify public health reporting and ensure that EHRs are interoperable with public health information systems. PHRI hopes to create a new public health Meaningful Use Stage 3 objective that is common across all program objectives - laying the ground work for public health reporting in the future. This panel will outline progress, challenges, and next steps of PHRI and describe how PHRI may affect the future of a standard language for biosurveillance.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

There is increasing demand for ways to use syndromic surveillance data for population health surveillance. The authors developed a nontraumatic oral health classification that could provide timely burden estimates of oral health-related visits to North Carolina (NC) emergency departments (EDs) using BioSense syndromic data. A combination of literature review, input by subject matter experts, and analysis of syndromic data was employed to create a classification that used select chief complaint text and ICD-9-CM codes for visit inclusion and exclusion criteria. Visit estimates created using this classification could contribute to policy decisions aimed at reducing this unnecessary burden on NC EDs.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In the spirit of strengthening the International presence of ISDS, this round table will explore how ISDS can support surveillance practitioners and researchers in Canada and similar countries as they work to advance surveillance in their own political and practice contexts. Results from a survey circulated to Canadian ISDS members and affiliates will guide this discussion, which will focus on delineating specific needs, actions, and ways ISDS might be able to support Canadian members.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Veterans accessing Veterans Affairs (VA) health care have more characteristics associated with suicide risk compared with the general U.S. population. Telephone triage is a national telephone-based system used to assess Veterans with acute medical or mental health complaints. We used a biosurveillance application to characterize Veterans who call telephone triage because of suicidal ideation or depression. >2,000 Veterans called during January-June 2012. Suicide prevention training should be prioritized for operators working during off-hours and weekends. Standard notification of clinical staff regarding calls to prevent loss to follow-up and investigation into increased call burden in identified geographic areas is recommended.

(*Online J Public Health Inform* 2013;5(1):e4454) doi:[10.5210/ojphi.v5i1.4454](https://doi.org/10.5210/ojphi.v5i1.4454)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In order to simultaneously learn about influenza activity and epidemiology across the nation, we harnessed the Internet and volunteers from around the nation to develop a participatory system for monitoring influenza-like-illness, called Flu Near You. Building on the work of participatory systems in other countries, we created a platform for weekly collection of the prevalence of 10 symptoms from volunteers. A freely available website provides an illustration of the distribution of users and their symptoms, by week. After a year of operation and with user feedback, we are able to evaluate design of the platform. Subsequent years will focus on expanding the system and detailed analysis of the data.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The U.S. Environmental Protection Agency (EPA) designed a program to pilot multi-component contamination warning systems (CWSs), known as the Water Security initiative. The goal of the EPA's Water Security initiative is to demonstrate the feasibility and benefits of implementing a CWS, both for detecting contamination incidents as well as improving the day-to-day operation (USEPA WaterSentinel System Architecture, 2005). The Cincinnati pilot has been fully operational since January 2008, and an additional four pilot utilities are in the process of testing and evaluating their own CWSs which have been designed and implemented in Philadelphia, New York City, Dallas, and San Francisco. To ensure long-term sustainability of the PHS component, it is important to understand lessons learned from use of tools, along with communication challenges between public health and the local water utility.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

New Hampshire's ED high utilizer surveillance pilot is a novel approach to target patients with high healthcare utilization, and monitor their treatment improvement with the added benefit of reducing medical health costs over time. Although in its infancy, it has great potential for public health informatics and clinical partner collaboration for state-wide healthcare improvement. Not only is this approach manageable but scalable with respect to available resources.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This paper explored the development and implementation of the Global Positioning System/ Geographic Information System (GPS/GIS) enabled mobile-based disease surveillance system as a feasible and effective way to support and strengthen preparedness for H1N1 Influenza A during the 2009 Hajj. It demonstrates mobile computing technology can provide rapid and accurate data collection for public health decision-making during mass gatherings. The GIS-based interactive mapping tool provided a pioneering example of the power of a geographically based internet-accessible surveillance system with real-time data visualization. The technical challenges in the process of implementation and in the field were also identified.

(*Online J Public Health Inform* 2013;5(1):e4459) doi:[10.5210/ojphi.v5i1.4459](https://doi.org/10.5210/ojphi.v5i1.4459)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Evaluation of Integrated Disease Surveillance and Response (IDSR) using Bacillary Dysentery as a Priority Disease, Tanzania, 2012 We conducted a study between November 2011 to February 2012 to evaluate IDSR system in Tanzania. It included health workers and other stakeholders from Ministry of health and social welfare in which document review and questionnaires were used to collect data. Only one hospital Laboratory was conducting laboratory diagnosis for bacillary dysentery and reporting. The predictive positive value (PVP) of the system was 0.625%. IDSR in Tanzania generally is not performing well. However the system is flexible and representative.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This study compared weekly percent of influenza-like illness (ILI) in Early Notification of Community-based Epidemics (ESSENCE) to weekly counts of laboratory confirmed influenza cases and evaluated the early warning potential of the ESSENCE weekly ILI percent for five consecutive influenza seasons (2006-11) in Missouri. ESSENCE weekly ILI percent was significantly correlated with weekly counts of laboratory-confirmed influenza cases. Use of the ESSENCE percent ILI baseline provided two weeks of advanced warning for seasonal influenza activity. These findings justify the use of ESSENCE for influenza surveillance.

(*Online J Public Health Inform* 2013;5(1):e4461) doi:[10.5210/ojphi.v5i1.4461](https://doi.org/10.5210/ojphi.v5i1.4461)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

NHRC, in collaboration with the CDC and local public health officials, conducted ILI and SARI surveillance along the US-Mexico border in California and Arizona. In 2011-12, 295 ILI specimens and 335 SARI specimens were collected and tested. influenza A was the most common pathogen identified in the ILI (outpatient) specimens and RSV was the most common pathogen identified in the SARI (hospital) specimens.

(*Online J Public Health Inform* 2013;5(1):e4462) doi:[10.5210/ojphi.v5i1.4462](https://doi.org/10.5210/ojphi.v5i1.4462)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The advent of social media tools creates new opportunities for public health surveillance that go beyond disease detection. We introduce a framework illuminating where the real value of social media may lie by characterizing different instances where public health officials can leverage their surveillance activities through social media. In this framework, we identify five categories of social media use: (1) a secondary data stream, (2) disseminating information, (3) monitoring communal responses to new information, (4) utilizing as an intervention and, (5) monitoring intervention responses.

(*Online J Public Health Inform* 2013;5(1):e4463) doi:[10.5210/ojphi.v5i1.4463](https://doi.org/10.5210/ojphi.v5i1.4463)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

During 2011 Connecticut was impacted by two major weather events. The Hospital Emergency Department Syndromic Surveillance System (HEDSS) was utilized to provide real-time situational awareness during the response and recovery phases of both storm events. Increased emergency department utilization for carbon monoxide exposure, asthma, and hypothermia were observed. HEDSS data were likely an underestimation of true disease/injury in the community following the storm events. HEDSS should continue to be used, in conjunction with other existing surveillance systems, for near real-time situational monitoring during public health emergencies.

(*Online J Public Health Inform* 2013;5(1):e4464) doi:[10.5210/ojphi.v5i1.4464](https://doi.org/10.5210/ojphi.v5i1.4464)

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doi:[10.5210/ojphi.v5i1.4464](https://doi.org/10.5210/ojphi.v5i1.4464)

Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

There are several barriers prohibiting the sharing of public health applications, primarily driven by complexity and cost. This poster describes an approach which leverages grid technology for the epidemiological analyses of public health data. Through a virtual environment, users, particularly those unfamiliar with the application [R], can easily perform on-demand statistical analyses. As a proof of concept, an example of mortality-based analysis taken from the literature was reproduced using the grid version of R. Developing prototypes can provide insight on how a public health grid infrastructure could be developed as a dynamically evolving ecosystem of grid enabled applications.

(*Online J Public Health Inform* 2013;5(1):e4465) doi:[10.5210/ojphi.v5i1.4465](https://doi.org/10.5210/ojphi.v5i1.4465)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Efforts to describe and improve quality in public health are closely tied to disease surveillance systems and capabilities. This roundtable will engage participants around how a new national framework for public health quality relates to their work in surveillance. The audience will be invited to provide examples, from their experience, of feasible and practical variables to measure the priority public health aims; data sources; and gaps that are impeding progress in quality improvement. This roundtable will inform a new initiative to develop measures that resonate with the roles of public health at the local, state, federal and global levels.

(*Online J Public Health Inform* 2013;5(1):e4467) doi:[10.5210/ojphi.v5i1.4467](https://doi.org/10.5210/ojphi.v5i1.4467)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Health care information is a fundamental source of data for biosurveillance, configuring electronic health records to report relevant data to health departments is technically challenging, labor intensive, and often requires custom solutions for each installation. Public health agencies wishing to deliver alerts to clinicians also must engage in an endless array of one-off systems integrations. SMART provides a common platform supporting an "app store for biosurveillance" as an approach to enabling one stop shopping for public health departments to create an app once, and distribute it everywhere.

(*Online J Public Health Inform* 2013;5(1):e4468) doi:[10.5210/ojphi.v5i1.4468](https://doi.org/10.5210/ojphi.v5i1.4468)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We sought to develop a practical influenza forecast model, based on real-time, geographically focused, and easy to access data, to provide individual medical centers with advanced warning of the number of influenza cases, thus allowing sufficient time to implement an intervention. Secondly, we evaluated how the addition of a real-time influenza surveillance system, Google Flu Trends, would impact the forecasting capabilities of this model. The final model selection demonstrated that autoregression of influenza cases provides a strong base forecast model, which is enhanced by the addition of Google Flu Trends confirming the predictive capabilities of search query based syndromic surveillance.

(*Online J Public Health Inform* 2013;5(1):e4470) doi:[10.5210/ojphi.v5i1.4470](https://doi.org/10.5210/ojphi.v5i1.4470)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The PHIN syndromic surveillance messaging guide was published for eligible hospitals to submit Emergency Department Admit Discharge Transfer messages data to public health agencies as one of public health objectives released by the Centers for Medicare and Medicaid Services Meaningful Use stage 1 final rules. New York is working with certified EHR vendors and hospitals to evaluate the readiness, timeliness, availability of data elements, and accuracy of data contents from hospitals submitting ED data for MU. The learning experience in implementing syndromic surveillance for MU will help EHR vendors and public health preparing for Stage 2.

(*Online J Public Health Inform* 2013;5(1):e4471) doi:[10.5210/ojphi.v5i1.4471](https://doi.org/10.5210/ojphi.v5i1.4471)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The Defense Threat Reduction Agency Chemical and Biological Technologies Directorate (DTRA CB) is funding the development of the Biosurveillance Ecosystem (BSVE). Biosurveillance operational capability gaps were analyzed through work process discussions with several disease surveillance organizations. Two meta-workflows were evident. In the first type, epidemiologists identify and characterize health-impacting events to enable community-level responses to the event. The second type is more focused on informing leadership and response in the form of policy modification. Analysts described features of a future biosurveillance environment that they wish were available in various categories: data, enhanced search, verification, analytics, collaboration and communication, and archival.

(*Online J Public Health Inform* 2013;5(1):e4472) doi:[10.5210/ojphi.v5i1.4472](https://doi.org/10.5210/ojphi.v5i1.4472)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Establishing automated syndromic surveillance in rural China was improper due to lack of required hardware facilities. Thus, more convenient syndromic surveillance method is needed. Before establishing system, ten targeted symptoms (i.e, fever, cough, sore throat, diarrhea, nausea/vomiting, headache, rash, mucocutaneous hemorrhage, convulsion and disturbance of consciousness) were determined under surveillance after epidemiological analysis on historical data of infectious diseases, literature review, expert consultation meeting, workshop and field investigation. This abstract describes the process of selecting the targeted symptoms, which may provide methods and evidences for other resource poor settings to construct similar surveillance system.

(*Online J Public Health Inform* 2013;5(1):e4473) doi:[10.5210/ojphi.v5i1.4473](https://doi.org/10.5210/ojphi.v5i1.4473)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Medical administrative and EHR data sources offer the potential to ascertain disease and health risk behavior prevalence and incidence, and monitor changes related to public health interventions. This project analyzed several large public and commercial healthcare data sources for their ability to augment public health surveillance by developing indicators of healthcare utilization and preventive services. We also evaluated each data source against important epidemiologic criteria of a surveillance system, such as representativeness, stability, flexibility and timeliness. Our results are discussed in context of the 2009 Health Reform legislation and its impact on healthcare access and utilization.

(*Online J Public Health Inform* 2013;5(1):e4474) doi:[10.5210/ojphi.v5i1.4474](https://doi.org/10.5210/ojphi.v5i1.4474)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In order to assess the utility and effectiveness of different data streams for global disease surveillance, a comprehensive survey of current human, animal, plant, and marine surveillance systems and data streams was undertaken. A relational database has been developed to allow for detailed analyses and searches of data streams and surveillance systems. A need for a biosurveillance one-stop shop has been increasingly called for to help in evaluating what data streams and systems are available and relevant for many different biosurveillance needs and goals. The prototype Biosurveillance Resource Directory is a searchable, dynamic database for biosurveillance system and source information.

(*Online J Public Health Inform* 2013;5(1):e4475) doi:[10.5210/ojphi.v5i1.4475](https://doi.org/10.5210/ojphi.v5i1.4475)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The National Collaborative for Bio-Preparedness (NCB-Prepared) is a public-private partnership to develop, test and implement an advanced biosurveillance system. It is a collaborative effort of academic, government and industry leaders focused on developing a local, bottom-up approach to situational awareness and emergency preparedness.

(*Online J Public Health Inform* 2013;5(1):e4476) doi:[10.5210/ojphi.v5i1.4476](https://doi.org/10.5210/ojphi.v5i1.4476)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This presentation will review the process and the details of the recommendations developed by the multi-stakeholder ISDS Meaningful Use Workgroup to develop guidelines for conducting syndromic surveillance using electronic health record (EHR) data from hospital inpatient and ambulatory clinical care settings. The Recommendations outline priority uses for these data and the data elements specified to support those uses. This work will facilitate the adoption of the Stage 2 and Stage 3 Meaningful Use rules for exchanging health information between clinical settings and public health authorities for the purpose of improving patient and population health.

(*Online J Public Health Inform* 2013;5(1):e4477) doi:[10.5210/ojphi.v5i1.4477](https://doi.org/10.5210/ojphi.v5i1.4477)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The panel will seek consensus for a plan to establish standards for technical analysis of biosurveillance data. The scope of a conventions group could include specification of practical problems, statistical monitoring and follow-up methods, and alternative use applications such as clinical decision support. A primary goal is removal of obstacles to relevant, replicable research and to direct collaboration between public health practitioners and the academic community.

(*Online J Public Health Inform* 2013;5(1):e4478) doi:[10.5210/ojphi.v5i1.4478](https://doi.org/10.5210/ojphi.v5i1.4478)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

HealthMap's MoH+ feed (healthmap.org/mohplus) collects surveillance data published globally by official government sources, including ministries of health, government affiliated research organizations, and international governing bodies. Using this integrated, automated, and real-time tool, timeliness of outbreak reporting between official and unofficial sources are compared.

(*Online J Public Health Inform* 2013;5(1):e4479) doi:[10.5210/ojphi.v5i1.4479](https://doi.org/10.5210/ojphi.v5i1.4479)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Electronic Integrated Disease Surveillance System (EIDSS) improves one-health surveillance in medical, veterinary and environmental sectors by providing a capability to rapidly collect disseminate and analyze data on infectious diseases. In this showcase the system is demonstrated on CCHF research example from Kazakhstan. It covers all steps of the process including a data gathering on human cases on the district levels using handhelds, web access or desktop applications, conducting vector surveillance campaigns for ticks investigations, linking laboratory results, sharing the data across organizations and a one-click integrated analysis of epidemiological situation with CCHF for epidemiologists on national and regional level.

(*Online J Public Health Inform* 2013;5(1):e4480) doi:[10.5210/ojphi.v5i1.4480](https://doi.org/10.5210/ojphi.v5i1.4480)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We aimed to determine the association of FSWs typology with condom use among HIV high risk groups in Sindh, Pakistan the data was extracted from Second Generation Surveillance, Integrated behavioral and biological survey, Round IV for HIV infection in 2011. A cross sectional survey for high risk groups including FSWs from Sindh Pakistan. Considering typology, they were categorized as mobile or facility based. 1127 were identified as FSWs. Most of them were facility based (72.8%) and 81.3% used condoms. Typology, age, education, duration of involvement, number of client per day, number of paid oral sex per month, knowledge about STI and knowledge about drop in center were significantly associated with condom use among HIV high risk groups. Majority of facility based FSWs use condoms to prevent HIV infection.

(*Online J Public Health Inform* 2013;5(1):e4481) doi:[10.5210/ojphi.v5i1.4481](https://doi.org/10.5210/ojphi.v5i1.4481)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

During a severe heat wave in Michigan in 2012, heat-related Emergency Department cases were identified using the Michigan Emergency Department (ED) Syndromic Surveillance System. Heat-related ED visits were analyzed by patient age, gender, and chief complaint. These ad hoc enhanced analyses were performed by Michigan Department of Community Health epidemiologists and provided to public health partners for situational awareness and to guide their responses to the heat event. Significant differences in the patterns of heat-related illnesses were observed during the heat-wave period compared to a reference period.

(*Online J Public Health Inform* 2013;5(1):e4483) doi:[10.5210/ojphi.v5i1.4483](https://doi.org/10.5210/ojphi.v5i1.4483)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Interventions introduced to increase ILI screening documentation exhibited a correlation with an improved documentation rate. Aggregated data across sites demonstrate that the greatest impact is associated with email reminders for recording ILI screening results, meetings on how to improve adherence and media broadcasts associated with the circulating pandemic influenza. When one site reliably reported a period of one-to-one nurse reminders to record the ILI screening result was analyzed, one of the strongest correlations to increased adherence was demonstrated. While the results suggest more direct interventions have a significant impact, further research to isolate which interventions had the greatest impact is warranted.

(*Online J Public Health Inform* 2013;5(1):e4484) doi:[10.5210/ojphi.v5i1.4484](https://doi.org/10.5210/ojphi.v5i1.4484)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Practice Fusion is a free, web-based electronic health record system with over 150,000 medical professional users treating over 50 million patients. Its large user base, with representation in all 50 states, makes it an ideal system for public health surveillance. The company's Research Division has undertaken pilot studies to demonstrate the viability of surveillance for acute diseases, like influenza-like illness, chronic diseases, like diabetes, and risk factors, like hypertension. Comparisons to the CDC have proved the data to be a reliable foundation for public health surveillance.

(*Online J Public Health Inform* 2013;5(1):e4485) doi:[10.5210/ojphi.v5i1.4485](https://doi.org/10.5210/ojphi.v5i1.4485)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

To assess the functionalities of NEDSS-compatible systems, we utilized the development of cultural models which is part of a technique called contextual inquiry. We obtained several cultural models, each restricted to data sources and interviews of CDC programs (users of NND data) and public health jurisdictions (reports NND data). The models highlighted factors that otherwise would be difficult to capture or represent yet still has an operational impact on the system user. This approach may be adapted for other evaluation efforts.

(*Online J Public Health Inform* 2013;5(1):e4486) doi:[10.5210/ojphi.v5i1.4486](https://doi.org/10.5210/ojphi.v5i1.4486)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

By combining information gathered from several agencies concerned with maintaining the health of Tulsa County residents. West Nile clusters were able to be located. Once the areas were located, key player agencies were identified to aid in the response, recommendations and evaluations for future action.

(*Online J Public Health Inform* 2013;5(1):e4487) doi:[10.5210/ojphi.v5i1.4487](https://doi.org/10.5210/ojphi.v5i1.4487)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Discusses the current state of syndromic surveillance using inpatient and ambulatory clinical data in the United States and the potential utility of the data. The Meaningful Use Stages 2 and 3 regulations incentivize the use of these data sources. Existing systems effectively perform a range of activities from influenza-like illness surveillance to heart disease risk factor surveillance. With further development, ambulatory and inpatient data could become an integral part of syndromic surveillance practice.

(*Online J Public Health Inform* 2013;5(1):e4488) doi:[10.5210/ojphi.v5i1.4488](https://doi.org/10.5210/ojphi.v5i1.4488)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We determined the utility and effective methodology for combining patient record information from the Departments of Veterans Affairs (VA) and Defense (DoD). The surveillance systems are complementary with evident benefits when merged. The VA system patient volume roughly doubles the DoD system, and provides better geographic coverage in lower population densities; however, the DoD includes younger populations, better coverage in strategic metro areas, and more pre-diagnostic ILI coding. From analysis of influenza outbreaks, relative timeliness could be improved in 92% of regions with access to both systems, with more information provided in areas where only one type of facility exists.

(*Online J Public Health Inform* 2013;5(1):e4489) doi:[10.5210/ojphi.v5i1.4489](https://doi.org/10.5210/ojphi.v5i1.4489)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Drug sales data in syndromic surveillance has attracted particular interest in recent years, however few studies were conducted in resource-poor settings. This study is to establish a syndromic surveillance system using medications sales from retail pharmacies in rural China. 123 drugs were selected under surveillance including antibiotics, antidiarrheal medications, antipyretics, compound cold medicine, and cough suppressants. During the beginning phase of the implementation, the reporting timeliness and completeness are satisfying, however further validation of the data will be required. Reporting mistakes were mainly due to system bugs, data provider unfamiliar with the system, and pharmacies reluctant to share data amongst others.

(*Online J Public Health Inform* 2013;5(1):e4490) doi:[10.5210/ojphi.v5i1.4490](https://doi.org/10.5210/ojphi.v5i1.4490)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The International Health Regulations (IHR) 2005, provides a framework that supports efforts to improve global health security and as such, there is an expectation that member states will take necessary steps to develop and strengthen systems and capacity for disease surveillance and detection and response to public health threats. To this end, a collaborative project was set up in 2010 to contribute to training a cadre of future trainers in a manner that sustainably supports ongoing efforts to improve the capability and capacity to undertake disease surveillance and Emergency Preparedness and Response (EPR) activities in India.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We constructed the School Absenteeism Surveillance System (SASSy) and the Nursery School Absenteeism Surveillance System (NSASSy), and proved that these are quite useful for monitoring of influenza outbreak in schools and it will be gold standard of surveillance for school children in Japan. This study also showed incidence rate of influenza in children at schools, kindergartens, and nursery schools, and proved the highest incidence was in the first grade of the elementary school. This is the first finding using such the huge number of subjects, which is more than 2 million.

(*Online J Public Health Inform* 2013;5(1):e4492) doi:[10.5210/ojphi.v5i1.4492](https://doi.org/10.5210/ojphi.v5i1.4492)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Deaths tend to lag extreme heat and mortality data is generally not available for timely surveillance during heat waves. We analyzed daily weather, emergency medical system (EMS) calls flagged as heat-related, emergency department (ED) visits classified as heat-related, and natural cause deaths. We observed a 10% (95% CI: 4-16) mortality increase associated with one-day lagged heat-related EMS calls and a 5% mortality increase with one-day lagged ED visits (95% CI: 2-8). We conclude heat-related illness can be tracked during heat waves using EMS and ED data which are indicators of heat associated excess natural cause mortality.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Extreme temperatures are consistently shown to have an effect on CVD-related mortality. The association between weather and CVD-related morbidity is less clear. We analyzed daily weather, ED visits classified as CVD-related based on chief complaint text, hospitalizations, and natural cause deaths that occurred in New York City. We observed lower risk of CVD-related ED visits and hospitalizations during cold and hot temperatures. The effects of extreme temperatures on CVD-related morbidity may be explained by behavioral patterns, as people are more likely to stay indoors on the coldest and hottest days.

(*Online J Public Health Inform* 2013;5(1):e4494) doi:[10.5210/ojphi.v5i1.4494](https://doi.org/10.5210/ojphi.v5i1.4494)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Cholera outbreaks are frequent in Nigeria. In July, 2012 we conducted surveillance system evaluation for cholera and other diarrheal disease in a Nigerian state (Niger State) to assess objectives, performance and attributes of the system. We used CDC guidelines on surveillance system evaluation and also analyzed 2007-2012 surveillance data. We found that the system was meeting its objectives, simple, flexible, sensitive with poor data quality, low PPV, average laboratory performance and moderate timeliness. Full electronic and internet-based reporting was recommended to improve completeness, timeliness and data quality; and also provision of laboratory consumables.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The Suite for Automated Global Electronic bioSurveillance (SAGES) is a collection of modular, flexible, open source software tools for electronic disease surveillance in resource-limited settings. SAGES software development, funded by the US Armed Forces Health Surveillance Center, continues as we add new international collaborators.

(*Online J Public Health Inform* 2013;5(1):e4496) doi:[10.5210/ojphi.v5i1.4496](https://doi.org/10.5210/ojphi.v5i1.4496)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

A large scale multiple statistical surveillance system for infectious disease outbreaks has been in operation in England and Wales for nearly two decades. This system uses a robust quasi-Poisson regression algorithm to identify aberrances in weekly counts of isolates reported to the Health Protection Agency. We review the performance of the system to reduce the number of false reports, while retaining good power to detect genuine outbreaks. Several improvements are suggested relating to the treatment of trends, seasonality, reweighting of baselines and error structure. The new system greatly reduces the numbers of alarms while maintaining good overall performance.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Epidemiological models that simulate the spread of Foot-and-Mouth Disease within a herd are the foundation of decision support tools used by governments to help advise and inform strategy to combat outbreaks. Contact transmission data used to parameterize these models, contrary to assumption, contain a significant amount of variability and uncertainty. The implications of this finding suggest that the resultant model output might not accurately simulate the spread of an outbreak. If this is true, the potential impact due to uncertainty inherent to the decision support tools used by governments might be significant.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Vietnam's location in South East Asia (where there is a marked risk for emerging diseases) and its history with recurrent zoonotic disease outbreaks, makes it a critical location for monitoring infectious disease events. HealthMap, a global disease surveillance and mapping system, has developed a system which utilizes freely available, online Vietnamese news media, to detect, categorize and map disease events occurring in Vietnam. The resulting feed provides rich data on disease outbreaks with precise location mapping and substantive case counts which is more timely and comprehensive than traditional English language media sources.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Electronic public health surveillance serves an important function during mass events. The use of the cloud instance of ESSENCE for situational awareness during the 2012 NATO Summit in Chicago, IL will be discussed. This presentation will highlight improved functionality obtained via the cloud-based version of ESSENCE, as well as provide a real-life example of utilization of syndromic surveillance data during an event.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We have created a web-based data registry for CRE infections in the U.S. called CaseFinder. Populated by EIN survey responses, the registry already has a collection of 283 data points--69 cases of CRE and 214 reports indicating the absence of cases. It can serve as a de facto national surveillance system for CRE infections and can be expanded to map and track other emerging infections seen by infectious diseases physicians.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The analysis of rabies morbidity of dogs in Ukraine showed that only 12,9 % dogs were stray, others 87,1 % had owners, but didn't get necessary protective rabies vaccination. It was determined that the level of rabies population immunity in dogs is 9,1-36,6 % in Ukrainian villages and towns.

(*Online J Public Health Inform* 2013;5(1):e4502) doi:[10.5210/ojphi.v5i1.4502](https://doi.org/10.5210/ojphi.v5i1.4502)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Syndromic surveillance can be a useful tool for the early detection outbreak. Mayotte Island is a French overseas department located in the North of Mozambique Channel in the Indian Ocean. Due to its geographical and socio-demographical situation, the population of this island is widely exposed to infectious diseases. The implementation of a syndromic surveillance system allowed to detect several unusual events as an outbreak of conjunctivitis in March 2012.

(*Online J Public Health Inform* 2013;5(1):e4503) doi:[10.5210/ojphi.v5i1.4503](https://doi.org/10.5210/ojphi.v5i1.4503)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

With the intensification of malaria efforts in Uganda, accurate and timely data are needed to monitor impact and guide control program planning. We present trends in malaria burden from six health facilities; Aduku (community received IRS), Nagongera and Kamwezi (ITNs distributed), Walukuba, Kasambya and Kihihi (no major intervention). Between 2008 and 2011, the proportion of the P testing positive for malaria significantly decreased in Aduku (66% to 34%), Nagongera (61% to 41%), and Kamwezi (54% to 24%). Significant increases were seen in Kasambya (41% to 51%) and Kihihi (28% to 44%), while TPR remained stable at Walukuba (41% to 45%).

(*Online J Public Health Inform* 2013;5(1):e4504) doi:[10.5210/ojphi.v5i1.4504](https://doi.org/10.5210/ojphi.v5i1.4504)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

During the NATO summit, the local health department was charged with collecting and analyzing syndromic surveillance data from emergency department (ED) visits that may indicate a man-made or naturally occurring infectious disease threat. GUARDIAN, an automated surveillance system, was programmed to conduct ED syndromic surveillance during the NATO summit. The automated GUARDIAN surveillance reports not only provided timely counts of potentially positive cases for each syndrome but also provided trend analysis with baseline measures.

(*Online J Public Health Inform* 2013;5(1):e4505) doi:[10.5210/ojphi.v5i1.4505](https://doi.org/10.5210/ojphi.v5i1.4505)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Since 2008, poisoning became the leading cause of injury-related death in the US. Though most poison center (PC) and public health (PH) officials agree that PCs play an important role in PH practice, collaboration has been hindered by challenges. The Poison Center and Public Health Collaborations Community of Practice was created to share experiences, identify best practices, and facilitate relationships among PH agencies and PCs. This panel discussion aims to describe the use of PC data from the poison center, local, state, and federal public health perspectives and to generate meaningful discussion of how to address the challenges to collaboration.

(*Online J Public Health Inform* 2013;5(1):e4507) doi:[10.5210/ojphi.v5i1.4507](https://doi.org/10.5210/ojphi.v5i1.4507)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Multi-Criteria Decision Analysis (MCDA) provides a methodology to approach the problem of biosurveillance system component evaluation. Los Alamos National Laboratory has developed a robust evaluation framework in which we use MCDA to assist in the evaluation of data streams for use in an integrated global biosurveillance system. We identified several potentially useful data streams through this technique and propose that MCDA may be a valuable tool, provided a robust evaluation framework is available.

(*Online J Public Health Inform* 2013;5(1):e4508) doi:[10.5210/ojphi.v5i1.4508](https://doi.org/10.5210/ojphi.v5i1.4508)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Measles is a significant cause of childhood morbidity and mortality in Nigeria. We described the epidemiologic pattern of measles infection and the performance of the surveillance. The measles surveillance data for Lagos between 1st January and 31st December was reviewed. A total of 615 suspected measles cases were seen. Cases investigated within 48 hours was 222 (36%) (target % less than 80%). Under 1year attack rate (8.33/100,000) was higher than 1- 4 years attack rate (3.48/100,000) ($p=0.01$). Proportion of unvaccinated cases was 36%. The surveillance needs to be strengthened. Proportion of unvaccinated cases is high suggesting low vaccine coverage among susceptible.

(*Online J Public Health Inform* 2013;5(1):e4509) doi:[10.5210/ojphi.v5i1.4509](https://doi.org/10.5210/ojphi.v5i1.4509)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

During the past years, syndromic surveillance based on emergency visits allowed to monitor seasonal epidemics in Reunion Island and to measure their health impact. Nevertheless, its ability to detect minor unusual events still had to be demonstrated. Between 2011 and 2012, several small scale unusual health events were detected (autochthonous cases of measles, family foodborne illness etc.), leading to health alerts and requiring immediate control measures.

(*Online J Public Health Inform* 2013;5(1):e4510) doi:[10.5210/ojphi.v5i1.4510](https://doi.org/10.5210/ojphi.v5i1.4510)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

As syndromic surveillance systems continue to evolve, they are being tailored for a broader set of users. In North Carolina, changes designed to facilitate efficient access for small public health agencies have been implemented to the syndromic surveillance system NC DETECT. We will describe these changes and use of syndromic surveillance information at local health departments in North Carolina prior to and following changes to North Carolina's syndromic surveillance system.

(*Online J Public Health Inform* 2013;5(1):e4511) doi:[10.5210/ojphi.v5i1.4511](https://doi.org/10.5210/ojphi.v5i1.4511)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This abstract describes a collaboration with the Johns Hopkins Applied Physics Laboratory, the North Carolina Division of Public Health, and the UNC Department of Emergency Medicine Carolina Center for Health Informatics to implement time-of-arrival analysis for hospital emergency department (ED) data in NC DETECT to identify clusters of ED visits for which there is no pre-defined syndrome or sub-syndrome.

(*Online J Public Health Inform* 2013;5(1):e4512) doi:[10.5210/ojphi.v5i1.4512](https://doi.org/10.5210/ojphi.v5i1.4512)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This presentation describes how syndromic surveillance information was combined with fire emission and spatio-temporal fire data to model and forecast climate change impacts on future fire scenarios. During 2003 and 2007, wildfires ravaged San Diego County. Various data were used to evaluate, model and predict future fire events. Several findings came out of this work. One result suggests that during the next three decades, San Diego County will experience approximately two extreme fire seasons in each decade by 2040. This study demonstrates utility of syndromic data for collaborative work resulting in better understanding of environmental interactions on human health.

(*Online J Public Health Inform* 2013;5(1):e4513) doi:[10.5210/ojphi.v5i1.4513](https://doi.org/10.5210/ojphi.v5i1.4513)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Syndrome definitions for rarely occurring but potentially harmful diseases were developed by researchers for the Geographic Utilization of Artificial Intelligence in Real-Time for Disease Identification and Alert Notification (GUARDIAN) surveillance system. The main steps for validation of the syndrome definitions are described.

(*Online J Public Health Inform* 2013;5(1):e4514) doi:[10.5210/ojphi.v5i1.4514](https://doi.org/10.5210/ojphi.v5i1.4514)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Whether antiviral or antibacterial prescriptions correlate with influenza coded encounters is unknown. Oseltamivir, zanamivir and azithromycin outpatient prescriptions from VA Corporate Data Warehouse and respiratory syndrome, influenza-like-illness (ILI) and influenza-specific ICD-9-CM coded visits from outpatient ESSENCE were analyzed for the 2010-2012 influenza seasons in all VA medical centers and outpatient clinics. Significantly more ILI and respiratory syndrome encounters occurred compared to antiviral prescriptions dispensed with marginal temporal correlation between visits and antiviral prescriptions. Azithromycin prescriptions tracked closely with the onset and peaks of the influenza season. Surprisingly, antiviral prescription data provided minimal additional information for influenza trend monitoring in VA.

(*Online J Public Health Inform* 2013;5(1):e4515) doi:[10.5210/ojphi.v5i1.4515](https://doi.org/10.5210/ojphi.v5i1.4515)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We describe Los Angeles County's (LAC's) usage of electronic emergency department (ED) and 911 emergency dispatch center (EDC) call data during heat waves for situational awareness. We assess the correlation between these indicators as well as with temperatures to conclude that total ED volume is not an adequate indicator for assessing the impact of heat on emergency service utilization. Heat-specific ED visits and EDC calls, however, provide more meaningful measures of heat-related illnesses in LAC.

(*Online J Public Health Inform* 2013;5(1):e4516) doi:[10.5210/ojphi.v5i1.4516](https://doi.org/10.5210/ojphi.v5i1.4516)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The results of determination of rabies vaccines activity against genetic variants of street rabies virus isolates. First investigated the degree of protection of commercial rabies vaccines which are used for the prevention of rabies in human medicine, against regional (Ukrainian) street rabies virus isolates.

(*Online J Public Health Inform* 2013;5(1):e4517) doi:[10.5210/ojphi.v5i1.4517](https://doi.org/10.5210/ojphi.v5i1.4517)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In 2011, Hong Kong, being so close geographically to Taiwan, had encountered an outbreak of scarlet fever. In response, Taiwan Centers for Disease Control developed a timely integrated syndromic surveillance system using daily updated data from National Health Insurance (scarlet fever ICD-9-CM code 034.1) and death certifications (cause of death text mining with keywords \"scarlet fever\", \"group A streptococcus\" or \"toxic shock syndrome\") since July 2011. Interagency collaborations add values to existing health data in the government and have strengthened the capacity of disease surveillance in Taiwan.

(*Online J Public Health Inform* 2013;5(1):e4518) doi:[10.5210/ojphi.v5i1.4518](https://doi.org/10.5210/ojphi.v5i1.4518)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Existing synergies between human and animal health syndromic surveillance (SyS) in Europe and proposal to enhance this collaboration are presented based on the outputs of the European Triple-S project. For the time being, collaborations are limited to regular meetings to discuss outputs of the human and animal health systems. Two reasons for enhancing synergies were highlighted. First, experts on both sides face common statistical and epidemiological issues when dealing with SyS and could thus share their experiences. Second, animal and human SyS systems can target similar health threats. Triple-S guidelines for implementation of SyS systems will aim at promoting synergy.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Fusion Analytics is the data integration system developed by the Fusion Cell at the U.S. Department of Health and Human Services (HHS), Office of the Assistant Secretary for Preparedness and Response (ASPR). Fusion Analytics meaningfully augments traditional public health surveillance and reporting by providing web-based data analysis and visualization tools using an off-the-shelf product and with limited development funding. It also provides the unique example of a public health information system that combines patient data with manpower and resource data to provide overall decision support for federal public health and medical disaster response operations.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

For over six months the Tarrant County Public Health Department has been sending data through the BioSense 2.0 application to a pilot version of ESSENCE on the Amazon GovCloud. This project has demonstrated the ability for local hospitals to send meaningful use syndromic surveillance data to the Internet cloud and provide public health officials tools to analyze the data both using BioSense 2.0 and ESSENCE. The presentation will describe the tools and techniques used to accomplish this, an evaluation of how the system has performed, and lessons learned for future health departments attempting similar projects.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This presentation will detail the technical hurdles with reading a meaningful use syndromic surveillance data feed containing multiple sources, deriving a common meaning from the varying uses of the standard and writing data out to a meaningful use HL7 2.5 format that can be exported to other tools, such as BioSense 2.0. The presentation will also describe the technologies employed for facilitating this, such as Mirth, and will discuss how other systems could utilize these tools to also support processing meaningful use syndromic surveillance data.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The objective of this project was to develop visualizations and tools for public health users to determine the quality of their surveillance data. A series of data quality visualizations were developed and implemented in the Florida Department of Health's version of ESSENCE. The data quality portal has been active the Florida ESSENCE system since March 31st, 2012. Between that time and August the portal has been accessed over 1300 times. The presentation will include additional statistics about which specific features were most used and those features that users have found the most useful.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The advent of universal health care coverage in the United States and electronic health records could make the medical record a valuable disease surveillance tool. The object of this project was to identify an algorithm that accurately categorizes acute coronary and heart failure events exclusively with electronic health record data so that the medical record can be used for surveillance without manual record review. Agreement (Cohen - Kappa) between manual review and an algorithm that uses IMO statements, troponin levels and echocardiographic data is 0.99 (95% CI 0.98-1.00). We conclude that surveillance based on electronic data alone is feasible.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The objective of this project is to provide a technical mechanism for information to be easily and securely shared between public health ESSENCE users and non-public health partners; specifically, emergency management, law enforcement, and the first responder community. Officials from across the National Capital Region (NCR) in Maryland, Virginia, and the District of Columbia worked with the ESSENCE team to determine the best way for information to be securely posted, tagged, and searched in an easily navigable site.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Spatial Scan Statistics usually assume Poisson or Binomial distributed data, which is not realistic in many disease surveillance scenarios. We propose a statistical model for disease cluster detection, through a modification of the spatial scan statistic to account for inflated zeros and overdispersion simultaneously. A computer program is implemented using the Expectation-Maximization algorithm to solve the latent variables. Numerical simulations are shown to assess the effectiveness of the method. We present results for Hanseniasis surveillance in the Brazilian Amazon using this technique, compared with other models.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The National Biosurveillance Integration Center (NBIC) Strategic Plan and innovative biosurveillance projects begun by the NBIC will be presented. The Strategic Plan defines a new approach to realizing the mission and vision of the NBIC, identifying core disciplines of biosurveillance integration as well as the goals and objectives of the center. The plan explains the Center's approach to integrating national biosurveillance information to provide relevant and timely information that effectively supports decision making. Innovative biosurveillance investigative projects underway involving emergency medical system data, changes to poison control center data collection, and social media analyses will also be discussed.

(*Online J Public Health Inform* 2013;5(1):e4530) doi:[10.5210/ojphi.v5i1.4530](https://doi.org/10.5210/ojphi.v5i1.4530)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Washington State Department of Health and Public Health Seattle King County sought to evaluate the utility of electronic ambulatory data for monitoring influenza-like illness (ILI). A definition of ILI that was previously validated using emergency department data was applied to ambulatory care records. During August 2007 through August 2012, the proportion of ILI visits strongly correlated with the number and percentage of positive influenza tests reported by the network laboratory. The results will aid in formulating guidance for ambulatory care providers who wish to utilize electronic medical record systems for weekly ILINet reporting.

(*Online J Public Health Inform* 2013;5(1):e4533) doi:[10.5210/ojphi.v5i1.4533](https://doi.org/10.5210/ojphi.v5i1.4533)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

One Border One Health is the first initiative of its kind along the U.S.-Mexico border. It is a binational, multidisciplinary, cross-sectoral initiative reconfiguring traditional species-specific approaches to surveillance for emerging and re-emerging pathogens in the California/Baja California region. Recognizing the diverse animal, human, and environmental geographies in the region and the health risks posed by these animal-human-environmental interfaces, the Early Warning Infectious Disease Surveillance Program (EWIDS) founded One Border One Health in 2011 to address disease emergence using a comprehensive One Health paradigm for surveillance, informatics, and education and outreach.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Apart from the traditional structured data elements used for surveillance, the free text of the medical note provides a rich source of epidemiological information. Many electronic notes use boiler-plate templates from EMR pull-downs to document information on the patient in the form of checklists, check boxes, yes/no and free text responses to questions. There is a dearth of literature on the use of natural language processing in extracting data from templates in the EMR. This study was undertaken to highlight the challenges and opportunities of addressing templates while developing NLP algorithms for surveillance using the free text of electronic notes.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The most effective target for automated influenza surveillance systems is not known. In this work, we simulated a prospective surveillance system operating on authentic historical series of daily casecounts. We determined how long the system would take to detect an injected outbreak of synthetic cases. For influenza epidemics where $\geq 5\%$ of cases develop pneumonia, we found shorter outbreak detection delays when surveillance targeted only patients with pneumonia rather than all patients with acute respiratory infections.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Laboratory biosafety -- a component of biosecurity -- has elements that comprise a facility's capability to protect employees and the surrounding public and environment. Six logic models comprising a laboratory biosafety program (LPBs) were established: laboratory biosafety, biosurety, procedural, biocontainment, information security, and training. And 161 indicators were mapped to the logic model elements. These formed a toolset to monitor and evaluate LBPs. While evaluation of cost-impacts provides business intelligence for resource planning, this integrated approach also provides information about LBPs gaps.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This demonstration describes the cross-border collaborative process used by the One Border One Health (OBOH) Surveillance Committee for the development of a transparent methodology to identify and prioritize high-risk zoonotic infectious disease agents along the California-Baja California border.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The explosive use of social media sites presents a unique opportunity for developing alternative methods for understanding the health of the public. The emerging field of "digital epidemiology" has been shown to detect outbreaks of influenza-like illness 1-2 weeks in advance of traditional surveillance methods. However, behaviors that lead to increased risk for disease have not yet been studied in this manner. We present a surveillance methodology to help sift through the vast volumes of social media data to detect behaviors and determinants of health contributing to both disease transmission and chronic illness.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We developed an interactive and comprehensive toolset useful to WHO member states to assess progress toward implementation of the surveillance core capacity under the IHR (2005). The tool will provide data to track progress in achieving effective and efficient public health surveillance. Further, the tool will enable decision makers to allocate resources so as to prioritize needs and assess ROI.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

As we enter the "big medical data" era, a new core competency is to continuously monitor quality of data collected from electronic sources, including population surveillance data sources. We describe how entropy, a fundamental information measure, can help monitor the characteristics of chief complaints in an operational surveillance system.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Syndromic surveillance (SS) data has predominantly been used for surveillance of infectious disease and for broad symptom types that could be associated with bioterrorism. This work evaluates several non-infectious disease related syndromes, such as asthma, oral health and hypothermia, by comparing daily syndrome counts and annual hospital syndrome counts based on emergency department (ED) SS data vs. New York Statewide Planning and Research Cooperative System (SPARCS) data. SPARCS data are based on clinical diagnoses providing a means for evaluating how well non-infectious disease trends are captured by ED SS chief complaint data.

(*Online J Public Health Inform* 2013;5(1):e4544) doi:[10.5210/ojphi.v5i1.4544](https://doi.org/10.5210/ojphi.v5i1.4544)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This presentation is a literature review of the origins and evolution of the field of syndromic surveillance since the 1950s. The goals and objectives of public health disease surveillance and syndromic surveillance will be assessed from a local perspective.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This paper constructs an authorship-linked collection or corpus of anonymous, sex-seeking ads found on the classified ad website Craigslist. This corpus is then used to validate an authorship attribution approach based on identifying near duplicate text within ad clusters, providing insight into how often anonymous individuals post sex-seeking ads and where they meet for encounters. We find that while a near duplicate detection approach fails to identify all ads written by a single author, it does identify subsets of a single author's ads with high precision, meaning the system is capable of measuring the posting behavior of real Craigslist users.

(*Online J Public Health Inform* 2013;5(1):e4546) doi:[10.5210/ojphi.v5i1.4546](https://doi.org/10.5210/ojphi.v5i1.4546)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In light of recent outbreaks of pertussis, the ability of Florida Department of Health's (FDOH) Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE-FL) to detect emergent disease outbreaks was examined. Florida's syndromic surveillance system, ESSENCE-FL, has the capacity to monitor reportable disease case data from Merlin, the Bureau of Epidemiology's secure web-based reporting and epidemiologic analysis system. In this study we determine the utility of ESSENCE-FL system generated disease alerts originally designed for use with emergency department chief complaint data to reportable disease data to assist in timely detection of outbreaks to promote appropriate response measures.

(*Online J Public Health Inform* 2013;5(1):e4547) doi:[10.5210/ojphi.v5i1.4547](https://doi.org/10.5210/ojphi.v5i1.4547)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We present the results of a content analysis of tweets related to respiratory syndrome. An annotation scheme was developed to differentiate between true positive and false positive tweets, and to quantify more fine-grained information about the content of the tweets. This annotation scheme is general, and as such can be used to aid in surveillance of different syndromes. In addition to finding good separation between true and false positive tweets, results showed that users referencing respiratory syndrome were more likely to discuss their own, current experience than they were to reference another person's symptoms or symptoms not currently being experienced, that expressed sentiment was largely negative, and that there was significant use of expressions of aspiration or hyperbole.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We describe a novel graph-based event detection approach which can accurately identify and track dynamic outbreaks (where the affected region changes over time). Our approach enforces soft constraints on temporal consistency, allowing detected regions to grow, shrink, or move while penalizing implausible region dynamics. Using simulated contaminant plumes diffusing through a water distribution system, we demonstrate that our method improves both detection time and spatial-temporal accuracy when tracking dynamic water-borne outbreaks.

(*Online J Public Health Inform* 2013;5(1):e4549) doi:[10.5210/ojphi.v5i1.4549](https://doi.org/10.5210/ojphi.v5i1.4549)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The Florida Department of Health partnered with the U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response to improve surveillance methods in post disaster or response events. A new process for conducting surveillance to monitor injury and illness for those presenting for care to Disaster Medical Assistance Teams was implemented. The purpose was to field test and document the operational experience of the newly implemented ASPR data module in ESSENCE-FL (syndromic surveillance system) to receive near real-time automated data feeds when ASPR assets were deployed in Florida during the 2012 Republican National Convention.

(*Online J Public Health Inform* 2013;5(1):e4550) doi:[10.5210/ojphi.v5i1.4550](https://doi.org/10.5210/ojphi.v5i1.4550)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Situational awareness(SA) is now a frequently used term in public health. As a rationale for syndromic surveillance, SA is rarely defined or described in clear operational terms: What is it? How is it measured? What are its outcomes? How can it be evaluated? This roundtable is intended to serve as a discussion forum on the meaning of SA in public health. The roundtable participants will work towards a consensus definition, measureable public health outcomes, and metrics for evaluation of syndromic surveillance for public health SA.

(*Online J Public Health Inform* 2013;5(1):e4552) doi:[10.5210/ojphi.v5i1.4552](https://doi.org/10.5210/ojphi.v5i1.4552)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This paper describes a system for detection of nosocomial infections in a large multi-location institution. The system monitors multiple data streams, containing discrete and text based information, combines it intelligently in order to be able to process complex syndrome definitions. It produces bed-day level alerts which are pushed to the respective location automatically. This helps in standardizing definitions for hospital acquired infections across institutions and allows to compare the infection statistics across institutions.

(*Online J Public Health Inform* 2013;5(1):e4553) doi:[10.5210/ojphi.v5i1.4553](https://doi.org/10.5210/ojphi.v5i1.4553)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This work proposes a cluster detection method that adapts the traditional circular scan method, in the sense the proposed method uses the flow of people as a measure of proximity, interaction between regions of a map to identify a set of regions with a high risk of occurrence of some specific event. The flow of people between two regions is estimated by the gravitational method as proportional to the product of their gross domestic product and inversely proportional to the square of the distance between them. The performance of the proposed method was compared with the traditional circular scan simulating clusters from a database of real cases of homicides and also analyzing the real picture. In all simulated cases the proposed techniques overcame the circular scan with better results of detection power, sensibility and positive predictive value, except for regular shaped simulated clusters. When applied to the real situation of homicides cases the spatial flow scan algorithm presented results quite similar to original spatial scan since the detected cluster was regular. In conclusion we consider that the proposed method is a good alternative for detection of irregular and or non-connected clusters.

(*Online J Public Health Inform* 2013;5(1):e4554) doi:[10.5210/ojphi.v5i1.4554](https://doi.org/10.5210/ojphi.v5i1.4554)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Pertussis (i.e., whooping cough) is on the rise in the US. To implement effective prevention and treatment strategies, it is critical to conduct timely contact tracing and evaluate people who may have been exposed to pertussis. We describe a collaborative effort between epidemiologists and public health informaticists at the Utah Department of Health (UDOH) to determine the feasibility and value of a network-analytic approach to pertussis outbreak management and contact tracing.

(*Online J Public Health Inform* 2013;5(1):e4555) doi:[10.5210/ojphi.v5i1.4555](https://doi.org/10.5210/ojphi.v5i1.4555)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

BioSense 2.0 protects the health of the American people by providing timely insight into the health of communities, regions, and the nation by offering a variety of features to improve data collection, standardization, storage, analysis, and collaboration. Using the latest technology, BioSense 2.0 integrates current health data shared by health departments from a variety of sources to provide insight on the health of communities and the country. The demonstration will include a basic overview of the application and the functionality available to public health departments and their data providers, as well as a real-world example of the system.

(*Online J Public Health Inform* 2013;5(1):e4556) doi:[10.5210/ojphi.v5i1.4556](https://doi.org/10.5210/ojphi.v5i1.4556)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

One of the factors affecting the quality of health data is the variation in public health practitioners' perceived value of the information. To better understand this variation, we asked four local public health practitioners" to evaluate the fields they use for four communicable diseases. We assessed their perceived value of these fields to initiate or complete communicable disease case reports and the variability in their responses.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This presentation will describe disease surveillance utilized during the 2012 Republican National Convention (RNC) held August 26-30, 2012 in Tampa, FL. While the Tampa Bay Area has hosted other high profile events that required heightened disease surveillance previously, the 2012 RNC marked the first national special security event (NSSE) held in Florida. In addition to the existing surveillance systems, the HCHD Epidemiology Program implemented additional systems designed to rapidly detect individual cases and outbreaks of public health importance. The short duration of RNC, coupled with the large number of visitors to our area, provided additional surveillance challenges.

(*Online J Public Health Inform* 2013;5(1):e4558) doi:[10.5210/ojphi.v5i1.4558](https://doi.org/10.5210/ojphi.v5i1.4558)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

A sudden surge in hospital admissions in public hospital during influenza peak season has been a challenge to the healthcare and manpower planning. In this study we explore the potential use of multiple routinely collected syndromic data in the forecast of hospital admissions. The derived influenza activity based on multiple surveillance data have higher correlations with respiratory disease and P&I admission and may potentially useful to forecast surge.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Pyrolizidine Alkaloid Induced Liver Disease has been an emerging public health problem in the Tigray region in Ethiopia since 2002, with 1033 cases, including 314 deaths, detected as of September 2011. Disease surveillance started in 2009 to determine the magnitude and distribution of the disease, to detect and manage cases, and to inform officials for resource allocation. Despite limited resources and logistical challenges, the system operated at a high standard and met its original objectives. Maintenance of this high level of operation will be an ongoing challenge but will be critical to ensure continual disease monitoring through this system.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Adults at low risk for Group A streptococcal (GAS) pharyngitis should neither be tested nor treated, yet millions annually seek care. We derive and validate a "home score" to estimate a patient's GAS risk based on history and real-time local biosurveillance, and compare its accuracy to traditional models. Data included 110,208 patients seen at a national retail health chain. Using a 0.10 home score cutoff extrapolates to 230,000 saved visits annually and 8500 additional missed cases (0.20: 2.9M visits saved, 320,000 additional missed). A patient-centric approach could save millions of visits annually by identifying low-risk patients in the pre-visit setting.

(*Online J Public Health Inform* 2013;5(1):e4561) doi:[10.5210/ojphi.v5i1.4561](https://doi.org/10.5210/ojphi.v5i1.4561)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Researchers at the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) analyzed trends in chief complaint (CC) word count from NYC emergency department (ED) data from 2008 - 2011 using change point analysis (CPA). CPA results were compared to known changes across the EDs. When CPA detected a significant change in CC word count, trends in syndrome count and syndrome breakdown into constituent symptoms were examined. A significant shift in CC word count may be indicative of a systematic change within an ED, which could affect the DOHMH's ability to categorize ED visits into syndromes.

(*Online J Public Health Inform* 2013;5(1):e4562) doi:[10.5210/ojphi.v5i1.4562](https://doi.org/10.5210/ojphi.v5i1.4562)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

An erysipelas outbreak in U.S. swine was successfully detected early through an enhanced passive surveillance (EPS) program involving Federal and industry partnership. The concept for EPS involves gathering syndromic and observational data from multiple animal health surveillance sources, including private practitioners, livestock markets, livestock harvest facilities, and veterinary diagnostic laboratories. In early 2012, signals indicating increased erysipelas activity in swine in Iowa occurred in both harvest facilities and private practitioner surveillance streams. Corroboration and validation between the two data streams assisted the swine industry in making the decision to enhance disease prevention activities and mitigate the outbreak.

(*Online J Public Health Inform* 2013;5(1):e4563) doi:[10.5210/ojphi.v5i1.4563](https://doi.org/10.5210/ojphi.v5i1.4563)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Surveillance systems to monitor the safety of drugs and vaccinations have limited ability to monitor safety of medical countermeasures (MCM). To examine the potential for using BioSense data to monitor and rapidly assess the safety of MCM, the authors reviewed literature and characteristics of BioSense data and consulted experts. Use of BioSense data for this purpose has potential, but a number of issues need further evaluation.

(*Online J Public Health Inform* 2013;5(1):e4564) doi:[10.5210/ojphi.v5i1.4564](https://doi.org/10.5210/ojphi.v5i1.4564)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Norovirus (NV) infection results in considerable morbidity each year in the United States. The relationship between gastrointestinal (GI) syndrome data and reported NV outbreaks in Virginia was assessed from May 2008- May 2012 with the purpose of developing an early warning tool for NV outbreak activity. GI syndrome visits were highly correlated with NV outbreaks and an increase in GI syndrome visits occurred on average 1.25 weeks prior to the initiation of high NV outbreak activity. The use of syndromic surveillance data as an early warning indicator of NV outbreak activity shows promise as a trigger for public health action.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Although public health practitioners had previously enjoyed a period of rapid deployment of advanced surveillance systems, many agencies are struggling to maintain comprehensive flu surveillance programs in the face of funding cutbacks. This workshop is organized to facilitate discussions on whether successful novel flu surveillance can still be conducted by jurisdictions with limited resources. The discussions will focus on gathering opinions regarding the best combination of surveillance systems to quickly and efficiently identify the presence of H3N2v and other novel influenza A viruses.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

To develop a statistical tool for characterizing multiple influenza surveillance data for situational awareness, we used Bayesian statistical model incorporating factors such as disease transmission, behavior patterns in healthcare seeking and provision, biases and errors embedded in the reporting process, with the observed data from Hong Kong. The patterns in the ratios of paired data streams help to characterize influenza surveillance systems. To better interpret influenza surveillance data, behavior data related to healthcare resources utilization need to be collected in real-time.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The objective of this study is to evaluate whether trends in online restaurant table reservations can be used as an early indicator for a disease outbreak. We monitored table availability using OpenTable; an online restaurant table reservation site for cities in the USA and Mexico. We searched for available tables for lunch between 12-3:30pm and dinner between 6-10:30pm. Using time series analysis methods, we elucidated and compared the time series data of table availabilities to data collected for various disease outbreaks.

(*Online J Public Health Inform* 2013;5(1):e4568) doi:[10.5210/ojphi.v5i1.4568](https://doi.org/10.5210/ojphi.v5i1.4568)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The aim of our study was to identify possible natural reservoirs of Salmonella Enteritidis among wild birds. Salmonella Enteritidis is dangerous for human due the reason of toxicoinfection. These pathogen demonstrate high virulence for small children and people with chronic pathologies and can causes people die. The main source of infection to humans is birds (poultry and wild). The study was conducted in populations of wild birds in National Park "Askania Nova" and peninsula "Arabat arrow" (the Azov Sea coast). From bird selected samples of blood serum and egg yolks for research in serum plate agglutination test (SPA) and litter samples for bacteriological research. The serological monitoring in populations of wild waterfowl in National Park "Askania Nova" (Ichthyaetus relictus, Sterna nilotica, Sterna herundo, Casarca ferruginea) has shown the presence of seropozitive individuals in adult birds (average 18%) and egg yolks (avarrage 12%). The bacteriological investigations confirmed circulation of Salmonella in this group of birds. 32.3% of all bacterial pathogens was Salmonella and more then half of them was the reprezentatives of serovar Salmonella Enteritidis.

(*Online J Public Health Inform* 2013;5(1):e4569) doi:[10.5210/ojphi.v5i1.4569](https://doi.org/10.5210/ojphi.v5i1.4569)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We study sequential Bayesian inference in continuous-time stochastic compartmental models with latent factors. A motivating application of our methods is to modeling of seasonal infectious disease outbreaks, notably influenza. Assuming continuous observation of all the epidemiological transitions, our focus is on joint inference of the unknown transition rates and the dynamic latent states, modeled as a hidden Markov factor. Using insights from nonlinear filtering of jump Markov processes we develop a novel sequential Monte Carlo algorithm for this purpose. Our approach applies the ideas of particle learning to minimize particle degeneracy and exploit the analytical jump Markov structure. We demonstrate inference in such models with several numerical illustrations and also discuss predictive analysis of epidemic countermeasures using sequential Bayes estimates.

(*Online J Public Health Inform* 2013;5(1):e4570) doi:[10.5210/ojphi.v5i1.4570](https://doi.org/10.5210/ojphi.v5i1.4570)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Current outbreak detection algorithms monitoring single data stream may be prone to false alarms due to baseline shifts that could be caused by large local events such as festivals or super bowl games. In this paper, we propose a Multinomial-Generalized-Dirichlet (MGD) model to improve a previously developed spatial clustering algorithm, MRSC, by modeling baseline shifts. Our study results show that MGD had better ROC and AMOC curves when baseline shifts were introduced. We conclude that MGD can be added to outbreak detection systems to reduce false alarms due to baseline shifts.

(*Online J Public Health Inform* 2013;5(1):e4571) doi:[10.5210/ojphi.v5i1.4571](https://doi.org/10.5210/ojphi.v5i1.4571)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

North Carolina's statewide syndromic surveillance system, NC DETECT, was enhanced to provide streamlined surveillance during the Democratic National Convention. New dashboards were created that allowed epidemiologists to monitor ED visits and calls to the poison center in the Charlotte area, the greater Cities Readiness Initiative region and the entire state for infectious disease signs and symptoms, injuries and any mention of bioterrorism agents.

(*Online J Public Health Inform* 2013;5(1):e4573) doi:[10.5210/ojphi.v5i1.4573](https://doi.org/10.5210/ojphi.v5i1.4573)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The purpose of our work is to develop a system for automatic contact tracing with the goal of identifying individuals who are most likely infected, even if we do not have direct diagnostic information on their health status. We developed a dynamic Bayesian network to process the sensors information from users' cellphones to track the spreading of the pandemic in the population. Our Bayesian data analysis algorithms track the real-time proximity contacts in the population and provide the public health agencies, the probabilistic likelihood for each individual of being infected by the novel virus.

(*Online J Public Health Inform* 2013;5(1):e4574) doi:[10.5210/ojphi.v5i1.4574](https://doi.org/10.5210/ojphi.v5i1.4574)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Development of effective policy interventions to stem disease outbreaks requires knowledge of the current state of affairs, e.g. how many individuals are currently infected, a strain's virulence, etc, as well as our uncertainty of these values. A Bayesian inferential approach provides this information, but at a computational expense. We develop a sequential Bayesian approach based on an epidemiological compartment model and noisy count observations of the transitions between compartments.

(*Online J Public Health Inform* 2013;5(1):e4575) doi:[10.5210/ojphi.v5i1.4575](https://doi.org/10.5210/ojphi.v5i1.4575)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This roundtable provided a forum for a diverse set of representatives from the local, state, federal and international public health care sectors to share tools, resources, experiences, and promising practices regarding the potential impact of the transition on their surveillance activities. This forum will promote the sharing of lessons learned, foster collaborations, and facilitate the reuse of existing resources without having to "reinvent the wheel." It is hope that this roundtable will lay the ground-work for a more formal, collaborative, and sustainable venue within ISDS to aid in preparing the public health surveillance community for the coming ICD-9/10 CM transition.

(*Online J Public Health Inform* 2013;5(1):e4576) doi:[10.5210/ojphi.v5i1.4576](https://doi.org/10.5210/ojphi.v5i1.4576)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

A primary care (PC) syndrome was developed to estimate the number of primary care-related visits to emergency departments (EDs) in New York City and explore predictors of these visits. The PC syndrome included referrals, screenings, wound care, or medication refills. A hierarchical model with a hospital-level random intercept was used to explore patient characteristics - duplicate visit, patient gender and age, and time of visit - associated with PC syndrome visits. In NYC, 7.5% of ED visits in 2011 were PC syndrome visits. Despite undercounting, the relationships between our predictors and PC syndrome visits were consistent with published literature.

(*Online J Public Health Inform* 2013;5(1):e4577) doi:[10.5210/ojphi.v5i1.4577](https://doi.org/10.5210/ojphi.v5i1.4577)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

HIV infection is one of the leading cause of death in India. Surveillance of risky behaviors as well as of HIV infection and its manifest diseases has provided a better understanding of the complex nature of the HIV epidemic in India, identifying multiple sub-epidemics unfolding at different rates in different populations. However, there is a scarcity of studies in Indian context which evaluates various surveillance activities in context of India. Present study aimed to analyze the HIV surveillance activities carried out in India till today.

(*Online J Public Health Inform* 2013;5(1):e4578) doi:[10.5210/ojphi.v5i1.4578](https://doi.org/10.5210/ojphi.v5i1.4578)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Non-communicable diseases are a major and growing morbidity and mortality burden globally. This roundtable session will discuss key terms and definitions, formulate a rationale for the surveillance of non-communicable diseases and attempt to elicit participant's experiences in the surveillance of these conditions. It will discuss where and how existing surveillance efforts may be exploited in non-communicable disease surveillance and where unique surveillance methods may be needed to establish cost-effective and sustainable methods for longitudinal tracking of non-communicable diseases.

(*Online J Public Health Inform* 2013;5(1):e4579) doi:[10.5210/ojphi.v5i1.4579](https://doi.org/10.5210/ojphi.v5i1.4579)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This was one component of an evaluation study of the Maine syndromic surveillance system. A survey was administered to hospitals that currently participate and receive summary data to assess their acceptability of the system and how useful they find the system.

(*Online J Public Health Inform* 2013;5(1):e4580) doi:[10.5210/ojphi.v5i1.4580](https://doi.org/10.5210/ojphi.v5i1.4580)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Data of the Integrated Biological & Behavioral Surveillance, 2011, showed that 91.85% of 442 direct FSWs of the Jayapura Municipality and Jayawijaya District (Papua, Indonesia) have sex with partners who did not use condoms. Of these 406 FSWs 14.78% were HIV positive and 56.89% were STD positive. Condom utilization campaigns ought to include: (a) continuous reminders about condom use by customers or FSWs and about where to go for HIV/STD testing and treatment; and, (b) supply of good quality condoms by local managers and local vendors.

(*Online J Public Health Inform* 2013;5(1):e4581) doi:[10.5210/ojphi.v5i1.4581](https://doi.org/10.5210/ojphi.v5i1.4581)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The state of Maryland has incorporated 100% of its public school systems (1,424 schools) into a statewide syndromic surveillance system. This session will discuss the process, challenges, and best practices for expanding the ESSENCE system to include school absenteeism data as part of disease surveillance.

(*Online J Public Health Inform* 2013;5(1):e4582) doi:[10.5210/ojphi.v5i1.4582](https://doi.org/10.5210/ojphi.v5i1.4582)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The Biological Threat Reduction Program (BTRP), of the U.S. Defense Threat Reduction Agency, has led to the enhancement of surveillance activities against a list of especially dangerous pathogens in the Republic of Uzbekistan. BTRP, in partnership with the Ministry of Health of Uzbekistan, has delivered surveillance capability in the form of a network of diagnostic laboratories and epidemiological support units, trainings to surveillance personnel and research projects. The implementation of BTRP within the health care system of the Republic of Uzbekistan has contributed to the stable and sustainable wellbeing of the Uzbek population.

(*Online J Public Health Inform* 2013;5(1):e4583) doi:[10.5210/ojphi.v5i1.4583](https://doi.org/10.5210/ojphi.v5i1.4583)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The incidence of dengue fever (DF) has increased 30 fold between 1960 and 2011. The literature suggests that temperature plays a major role in the life cycle of the mosquito vector and in turn, the timing of DF outbreaks. We use real-time data from GDT and real-time temperature estimates from NASA Earth observing systems to examine the relationship between dengue and climate in 17 Mexican states from 2003-2011. For the majority of states, we predict that a warming climate will increase the number of days the minimum temperature is within the risk range for dengue.

(*Online J Public Health Inform* 2013;5(1):e4584) doi:[10.5210/ojphi.v5i1.4584](https://doi.org/10.5210/ojphi.v5i1.4584)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This abstract describes multiagent model of the hepatitis B epidemic process. All parameters, expressed in the model were estimated using sero-surveys data and data of epidemiological surveillance of Kharkiv region sanitary-epidemiological station. The simulation results allow predicting of the dynamics of the epidemic process in time in a particular area, taking into account specific epidemic situation; and testing the effectiveness of various preventive measures. Using the present model in the practice of Public Health suggests improving of the epidemiological diagnostics of HBV infection and improvement of the quality of management decisions about epidemiological surveillance.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Given the prospect of a dramatic increase in anticipated electronic laboratory reporting volume due to Stage 2 meaningful use criteria, we calculated a rough estimate based on prior volumes in a large population.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This study examined how cigarette smoking, alcohol consumption, obesity, and physical activity are associated with the risk and severity of arthritis among adults living in Delaware. Data from the 2009 Delaware Behavioral Risk Factor Surveillance System (BRFSS) were analyzed using weighted percentages, Rao-Scott chi-squared test, and logistic regression. The results indicate that cigarette smoking, alcohol consumption, obesity, and physical activity are all associated with the prevalence and severity of arthritis. It is possible that smoking and obesity have a negative impact on the risk and severity of arthritis, whereas alcohol consumption and physical activity may reduce its risk and severity.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

A rich field of infectious disease modeling has emerged and advanced our understanding of population- and individual-level disease transmission dynamics. One of the primary goals of this research was to characterize the viability of biosurveillance models to provide operationally relevant information to decision makers. We searched commercial and government databases and harvested Google search results for eligible models utilizing terms/phrases provided by public health analysts relating to biosurveillance, remote sensing, risk assessments, spatial epidemiology, and ecological niche-modeling. The vast majority of models studied were verified or validated.

(*Online J Public Health Inform* 2013;5(1):e4589) doi:[10.5210/ojphi.v5i1.4589](https://doi.org/10.5210/ojphi.v5i1.4589)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

There are several reports of low zinc concentration in children with diarrhea. We have studied zinc concentration in children from different regions with acute diarrhea. There was significant difference in zinc levels in children from different regions. The less favorable environmental conditions the lower zinc level observed. Zinc concentration and should be considered for the correction and treatment of AD in children. The further study required for excluding confounding factors contributing such zinc level difference.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We present the results of a Content Analysis of Asthma-related Tweets, which were manually annotated for a number of different content categories, including Experiencer (Self vs. Other vs. Finer-grained distinctions), Medication, Symptoms, Non-English, Information and Triggers, among other things. We used this annotated corpus of Tweets to train machine learning classifiers on unigram and bigram models of the text in order to automatically categorize Tweets according to the annotation scheme. We find that the unigram model best predicts Tweets' categorization. We suggest that Twitter combined with NLP may provide a valuable tool in monitoring chronic conditions such as Asthma.

(*Online J Public Health Inform* 2013;5(1):e4591) doi:[10.5210/ojphi.v5i1.4591](https://doi.org/10.5210/ojphi.v5i1.4591)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

This abstract presents challenges and opportunities encountered when performing routine time series analysis of surveillance data when introduction of automated processes. We launched a project to enable descriptive and routine TSA without the need for complex programming using a stata dialog box. This method was applied to several European surveillance datasets including VTEC and Legionellosis. Using the Stata TSA dialogue box saves time when performing rapid exploratory TSA of epidemiological data, but this does not replace multi-disciplinary approach, knowledge and application of a methodological approach to TSA to produce meaningful results that can inform public health decision making.

(*Online J Public Health Inform* 2013;5(1):e4592) doi:[10.5210/ojphi.v5i1.4592](https://doi.org/10.5210/ojphi.v5i1.4592)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Prostate cancer (PC) is the most common invasive cancer among males, with most cases organ-confined at diagnosis. External beam radiation (RAD) and prostatectomy (SURG) represent the most common treatments for organ-confined PC, with RAD exposing the rectum to high-dose ionizing radiation. Using the California population for 1988-2009, we identified men treated with RAD and SURG for organ-confined PC and assessed the hazards ratio for rectal cancer five or more years following PC treatment. The adjusted Cox proportional hazards ratio was 39% higher for rectal cancer in the RAD cohort. Further analyses seek to distinguish roles of RAD dose and delivery.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

In response to the 2009 H1N1 pandemic, the Early Warning Infectious Disease Surveillance Program (EWIDS) from the Office of Binational Border Health California Department of Public Health, sought to strengthen outpatient ILI surveillance along the California/Baja California border region by creating a binational outpatient provider influenza surveillance network. Since the 2009-2010 influenza season the network monitors both syndromic and virologic influenza activity. The network serves as an example of a successful binational coordinated effort to establish an early warning system for enhancing situational awareness of influenza activity in a cross-border setting.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

A successful electronic disease surveillance system requires both organizational support and the active participation of data contributors. The U.S. Department of Defense (DoD) has established the Respiratory Disease Dashboard (RDD) to monitor respiratory pathogens since the 2009 pandemic influenza. A user satisfaction survey conducted within the DoD's global surveillance network reflected challenges ahead with the implementation of electronic surveillance data entry in various settings. It is only with vigilant and proactive users in ensuring timely and accurate data input that an electronic surveillance system, such as RDD, can become a useful tool for the basis of disease detection and response.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The Veterans Health Administration (VHA) of the Department of Veterans Affairs (VA) was responsible for administering healthcare to over 5 million patients in 2011. After the 2009 H1N1 influenza pandemic, VA preparedness leaders initiated development of the Subject Matter Expertise Center for Biological Events (SMEC-bio) as a mechanism for communication of timely VHA infectious diseases expertise for decision support. A Report template was designed and SMEC-bio has provided eight ad hoc Reports to leadership. This work reviews the Reports (e.g. reason for report, data sources, outcome) and the results of a gap analysis to inform a formalized, routine communication plan.

(*Online J Public Health Inform* 2013;5(1):e4596) doi:[10.5210/ojphi.v5i1.4596](https://doi.org/10.5210/ojphi.v5i1.4596)

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Introduction: Data consisting of counts or indicators aggregated from multiple sources pose particular problems for data quality monitoring when the users of the aggregate data are blind to the individual sources. This arises when agencies wish to share data but for privacy or contractual reasons are only able to share data at an aggregate level. If the aggregators of the data are unable to guarantee the quality of either the sources of the data or the aggregation process then the quality of the aggregate data may be compromised. This situation arose in the Distribute surveillance system (1). Distribute was a national emergency department syndromic surveillance project developed by the International Society for Disease Surveillance for influenza-like-illness (ILI) that integrated data from existing state and local public health department surveillance systems, and operated from 2006 until mid 2012. Distribute was designed to work solely with aggregated data, with sites providing data aggregated from sources within their jurisdiction, and for which detailed information on the un-aggregated 'raw' data was unavailable. Previous work (2) on Distribute data quality identified several issues caused in part by the nature of the system: transient problems due to inconsistent uploads, problems associated with transient or long-term changes in the source make up of the reporting sites and lack of data timeliness due to individual site data accruing over time rather than in batch. Data timeliness was addressed using prediction intervals to assess the reliability of the partially accrued data (3). The types of data quality issues present in the Distribute data are likely to appear to some extent in any aggregate data surveillance system where direct control over the quality of the source data is not possible. In this work we present methods for detecting both transient and long-term changes in the source data makeup.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Based on 8 years of continuous performance (2004-present), the TRACnet platform provides eIDSR national coverage, security and reliability. Based on six month usage in 252 health facilities in all regions of Rwanda, eIDSR is: increasing timeliness and completeness of disease reporting in Rwanda; facilitating feedback of lab results to districts and health facilities; and identifying potential outbreaks early and facilitating rapid investigation and response.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

The Early Warning Infectious Disease Surveillance Program (EWIDS), County of San Diego Department of Environmental Health, and Project Wildlife are evaluating raccoons as potential early warning sentinel species for West Nile Virus (WNV) surveillance. Research has indicated that raccoons shed WNV through oral and fecal routes, and that this may have important implications for public health and animal health. Raccoons are peridomestic animals; thus they may allow for better localization of WNV activity in communities and may serve as more effective early warning sentinels for WNV than traditional bird sentinels.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Estimates of contact rates and mixing patterns among school-aged children may be informative for acute respiratory infectious disease surveillance as well as prevention and control activities. We collected contact data from children at school and non-school settings using objective proximity sensors and self-report surveys and logs. Contact rates for school-aged children are variable across settings and among classrooms within schools. Quantifying this variability can be beneficial in better understanding transmission dynamics of acute respiratory diseases and lead to improved surveillance, as well as control and prevention strategies.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Describes the underlying business processes, activities, and roles used in transforming novel data sources, during the H1N1 response, into informative assets to support public health surveillance. By formally articulating and describing each of these steps, in a structured manner, we hope to contribute to the dialogue of developing useful practices for leveraging electronic health data to meet the public health surveillance challenges of the 21st century.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Information about disease severity could help with both detection and situational awareness during outbreaks of acute respiratory infections. In this work, we describe the methods by which automated text analyses of chest imaging reports can combine with structured EMR data to accurately identify outpatients with pneumonia (sensitivities of 58-75%, and PPV of 64-86%).

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Results of a content analysis of tobacco-related Twitter posts (tweets), with particular reference to e-cigarette and hookah related tweets. Descriptive results reveal more positive than negative sentiment toward tobacco among Twitter users, as well as several apparent disconnects between public perception and tobacco-related health research, presenting opportunities for improved outreach and education. Additionally, machine classification of tobacco-related posts shows a promising edge over strictly keyword-based approaches, paving the way for automated tobacco surveillance applications.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Avian influenza ("bird flu") is an infectious disease of birds caused by type A strains of the influenza virus. The infection is known to cross species barrier to infect humans. Between March 2006 and September 2007 Avian influenza (AI) outbreaks occurred in 99 poultry farms in Lagos State. The only human case of AI in Nigeria was detected at a health facility in Lagos in Jan 2007. The outbreak was curbed in the State by the end of year 2007. The collaboration between Veterinary, Health, and Information departments following the AI outbreaks aided the early control of the disease.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Next-generation software environments for biosurveillance will need to be adaptable over the years without high reengineering cost, and adaptable day-to-day to fit the unique needs of particular health events. BioAFTER is a software environment combining the ability to collaborate through sharing of data, analysis methods, and analysis results, the ability to search for data, methods and results fitting a user's interests, and the ability to create new analytics on the fly through a drag-and-drop interface that allows "Apps" to be pieced together as needed. This talk will discuss the rationale for the BioAFTER features and provide a demonstration.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

Analyses produced by epidemiologists and public health practitioners are susceptible to bias from a number of sources. It often requires a great deal of expertise to understand and apply the multitude of tests, corrections, and selection rules, that are available. To address this challenge, Aptima began development of CARRECT, the Collaborative Automation Reliably Remediating Erroneous Conclusion Threats system. When complete, CARRECT will provide an expert system that can be embedded in an analyst's workflow. CARRECT will support statistical bias reduction and improved analyses and decision making by engaging the user in a collaborative process in which the technology is transparent to the analyst.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

CDC and the American Association of Poison Control Centers have conducted ongoing surveillance for exposures to radioactive materials reported from all 57 US poison centers to NPDS, a national poison center reporting database and surveillance system. Of 419 exposures identified Sept 2010 to June 2012, 25 were associated with a radiation-related incident. Public health or hospital radiation safety staff were involved in each of these events. The capability to conduct surveillance of exposures to radioactive materials is available for local public health use with their regional PC and may improve public health capacity to identify and respond to radiological emergencies.

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Roles of Health Literacy in Relation to Social Determinants of Health and Recommendations for Informatics-Based Interventions: Systematic Review

Abstract

We extend Disjunctive Anomaly Detection (DAD) algorithm to handle various data distributions and models of cluster interactions. It enables efficient searching and explanation of multiple disease outbreaks occurring simultaneously. Detected clusters can span multiple values along multiple dimensions, and can impact any subset of dimensions in data. This type of search is known to be exponentially complex, so DAD uses approximations to enable fast processing of large data. We demonstrate DAD's ability to systematically outperform state-of-art alternatives including What's Strange About Recent Events (WSARE) and Large Average Submatrix (LAS) on data of scales and complexities typically encountered in biosurveillance applications.

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