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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

Foodborne illnesses remain an important public health challenge in the United States causing an estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths per year. Restaurants are frequent settings for foodborne illness transmission. Public health surveillance – the continual, systematic collection, analysis, and interpretation of reports of health data to prevent and control illness – is a prerequisite for an effective food control system. While restaurant inspection data are routinely collected, these data are not regularly aggregated like traditional surveillance data. However, there is evidence that these data are a valuable tool for understanding foodborne illness outbreaks and threats to food safety. This article discusses the challenges and opportunities for incorporating routine restaurant inspection data as a surveillance tool for monitoring and improving foodborne illness prevention activities. The three main challenges are: 1) the need for a national framework; 2) lack of data standards and interoperability; and 3) limited access to restaurant inspection data. Tapping into the power of public health informatics represents an opportunity to address these challenges. Overall, improving restaurant inspection information systems and making restaurant inspection data available to support decision-making represents an opportunity to practice smarter food safety.

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

Abstract

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

Abstract

Bluetooth exposure notification tools for mobile phones have emerged as one way to support public health contact tracing and mitigate the spread of COVID-19. Many states have launched their own versions of these tools. Washington State"s exposure notification tool, WA Notify, became available on November 30, 2020, following a one-month Seattle campus pilot at the University of Washington. By the end of April 2021, 25% of the state"s population had activated WA Notify, one of the highest adoption rates in the country. Washington State"s formation of an Exposure Notification Advisory Committee, early pilot testing, and use of the EN Express system framework were all important factors in its adoption. Continuous monitoring and willingness to make early adjustments such as switching to automated texting of verification codes have also been important for improving the tool’s value. Evaluation work is ongoing to determine and quantify WA Notify’s effectiveness, timeliness, and accessibility.

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

Abstract

Objective- India has seen a rapid rise in COVID-19 cases. Examine spatiotemporal variation of COVID-19 burden Tracker across Indian states and union territories using SMAART RAPID Tracker. Method: We used SMAART RAPID Tracker to visually display COVID-19 spread in space and time across various states and UTs of India. Data is gathered from publicly available government information sources. Data analysis on COVID-19 has been conducted from March 1 2020 to October 1 2020. Variables recorded include COVID-19 cases and fatality, 7-day average change, recovery rate, labs and tests. Spatial and temporal trends of COVID-19 spread across Indian states and UTs is presented. Result: The total number of COVID-19 cases were 63, 12,584 and total fatality was 86,821 (October 1 2020). More than 85,000 new cases of COVID-19 were reported. There were 1,867 total COVID-19 labs throughout India. More than half of them were Government labs. The total number of COVID-19 tests was 76,717,728 and total recovered COVID-19 cases was 5,273,201. Results show an overall decline in the 7-day average change of new COVID-19 cases and new COVID-19 fatality. States such as Maharashtra, Chandigarh, Puducherry, Goa, Karnataka and Andhra Pradesh continue to have high COVID-19 infectivity rate. Discussion: Findings highlight need for both national guidelines combined with a state specific recommendations to help manage the spread of COVD-19. Conclusion: India's great diversity along with its vast population would help decide further actions to contain the spread of the disease, and can be crucial for the specific states only.

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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 the COVID-19 pandemic continues to unfold and states experience the impacts of reopened economies, it is critical to efficiently manage new outbreaks through widespread testing and monitoring of both new and possible cases. Existing labor-intensive public health workflows may benefit from information collection directly from individuals through patient-reported outcomes (PROs) systems. Our objective was to develop a reusable, mobile-friendly application for collecting PROs and experiences to support COVID-19 symptom self-monitoring and data sharing with appropriate public health agencies, using Fast Healthcare Interoperability Resources (FHIR) for interoperability. We conducted a needs assessment and designed and developed StayHome, a mobile PRO administration tool. FHIR serves as the primary data model and driver of business logic. Keycloak, AWS, Docker, and other technologies were used for deployment. Several FHIR modules were used to create a novel "FHIR-native" application design. By leveraging FHIR to shape not only the interface strategy but also the information architecture of the application, StayHome enables the consistent standards-based representation of data and reduces the barrier to integration with public health information systems. FHIR supported rapid application development by providing a domain-appropriate data model and tooling. FHIR modules and implementation guides were referenced in design and implementation. However, there are gaps in the FHIR specification which must be recognized and addressed appropriately. StayHome is live and accessible to the public at https://stayhome.app. The code and resources required to build and deploy the application are available from https://github.com/uwcirg/stayhome-project.

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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 rapid pace of technological advancements, public health professions require a core set of informatics skills. The objective of the study is to integrate informatics competencies and job analysis to guide development of an evidence-based curriculum framework and apply it towards creation of a population health informatics program. We conducted content analysis of the Population Health Informatics related job postings in the state of New York between June and July 2019 using the Indeed job board. The search terms included “health informatics” and “population health informatics.” The initial search yielded 496 job postings. After removal of duplicates, inactive postings and that did not include details of the positions’ responsibilities resulted in 306 jobs. Information recorded from the publicly available job postings included job categories, type of hiring organization, educational degree preferred and required, work experience preferred and required, salary information, job type, job location, associated knowledge, skills and expertise and software skills. Most common job titles were characterized as analyst (21%, n=65). More than one-third of the hiring organizations for these jobs were health systems (35%, n=106). Almost 100% (n=291) of the jobs were fulltime. Nearly half of the jobs were based in New York (47%, n=143). Data/statistical analysis (68%, n=207), working in multidisciplinary teams (35%, n=108), and biomedical/clinical experience (30%, n=93) were common skills needed. Structured query language (SQL), Python, and R language were common programming language skills. The proposed framework guides development of a 39-credit fully online population health informatics curriculum in a rapidly changing technological environment.

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

Abstract

How might clinicians collect the vitals needed for effective scheduled video visits for older adults? This challenge was presented by AARP to graduate students in a Digital Health course at Tufts University School of Medicine. The design thinking process was used to create a product that would meet this need, keeping the needs and constraints of older adults, especially those with chronic conditions or other barriers to health, central to the solution. The initial steps involved understanding and empathizing with the target audience through interviews and by developing personas and scenarios that identified barriers and opportunities. The later steps were to ideate potential solutions, design a prototype, and define product success. The design thinking process led to the design of Home Health Hub, a remote patient monitoring (RPM) platform designed to meet the unique needs of older adults. Additionally, Home Health Hub can conceivably benefit all users of telehealth, regardless of health status—an important need during the COVID-19 pandemic, and in general due to increased use of virtual visits. Home Health Hub is one example of what can be achieved with the dedicated use of design thinking. The design thinking process can benefit public health practice as a whole by encouraging practitioners to delve into a problem to find the root causes and empathize with the needs and constraints of stakeholders to design innovative, human-centered solutions.

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

Abstract

Objective: To develop a conceptual model and novel, comprehensive framework that encompass the myriad ways informatics and technology can support public health response to a pandemic. Method: The conceptual model and framework categorize informatics solutions that could be used by stakeholders (e.g., government, academic institutions, healthcare providers and payers, life science companies, employers, citizens) to address public health challenges across the prepare, respond, and recover phases of a pandemic, building on existing models for public health operations and response. Results: Mapping existing solutions, technology assets, and ideas to the framework helped identify public health informatics solution requirements and gaps in responding to COVID-19 in areas such as applied science, epidemiology, communications, and business continuity. Two examples of technologies used in COVID-19 illustrate novel applications of informatics encompassed by the framework. First, we examine a hub from The Weather Channel, which provides COVID-19 data via interactive maps, trend graphs, and details on case data to individuals and businesses. Second, we examine IBM Watson Assistant for Citizens, an AI-powered virtual agent implemented by healthcare providers and payers, government agencies, and employers to provide information about COVID-19 via digital and telephone-based interaction. Discussion: Early results from these novel informatics solutions have been positive, showing high levels of engagement and added value across stakeholders. Conclusion: The framework supports development, application, and evaluation of informatics approaches and technologies in support of public health preparedness, response, and recovery during a pandemic. Effective solutions are critical to success in recovery from COVID-19 and future pandemics.

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

Abstract

Considering the potential for widespread adoption of social vulnerability indices (SVI) to prioritize COVID-19 vaccinations, there is a need to carefully assess them, particularly for correspondence with outcomes (such as loss of life) in the context of the COVID-19 pandemic. The University of Illinois at Chicago School of Public Health Public Health GIS team developed a methodology for assessing and deriving vulnerability indices based on the premise that these indices are, in the final analysis, classifiers. Application of this methodology to several Midwestern states with a commonly used SVI indicates that by using only the SVI rankings there is risk of assigning a high priority to locations with the lowest mortality rates and low priority to locations with the highest mortality rates. Based on the findings, we propose using a two-dimensional approach to rationalize the distribution of vaccinations. This approach has the potential to account for areas with high vulnerability characteristics as well as to incorporate the areas that were hard hit by the pandemic.

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Abstract

Where there is limited access to COVID-19 tests, or where the results of such tests have been delayed or even invalidated (e.g., California and Utah), there is a need for scalable alternative approaches—such as a heuristic model or “pregnancy test for COVID-19” that can factor in the time denominator (i.e., duration of symptoms). This paper asks whether infection among these public health and safety agencies is a \"canary in the coal mine,\" litmus test, or microcosm (pick your analogy) for the communities in which they operate. Can COVID-19 infection counts and rates be seen “moving around” communities by examining the virus’s effect on emergency responders themselves? The troubling question of emergency responders becoming “human indicator values” is relevant to maintaining the health of Mobile Medicine (EMS and Fire) personnel, as well as Police, who are an under-attended population, because without them our collective resiliency would crash. It has further implications for policies regarding, and investments, in exposure tracking and contact tracing, PPE acquisition, and mental and physical wellness. Design: We aggregated data from four (4) different EMS documentation systems across twelve (12) states using the MEDIVIEW BEACON Prehospital Health Information Exchange. We then outputted lists of charts containing critical ICD-10 values that had been identified by the WHO, the CDC, and the Los Angeles County Fire Dept. as inclusion criteria for possible signs, symptoms, and clinical impressions of COVID-19. Results: Three important results emergency from this study: (1) a demonstration of frequent exposure to possible COVID-19 infection among Mobile Medical (EMS & Fire) care providers in the states whose data were included; (2) a demonstration of the nervousness of the general population, given that calls for help due to possible COVID-19 based on symptomology exceeded the number of responses with a correlating “provider impression” after an informed clinical assessment; and (3) that this study was empowered by a public-private partnerships between a technology startup and numerous public health and public safety agencies, offers a template for success in rapidly implementing research and development collaborations. Limitations: This study incorporates data from only (a) twelve (12) states, and (b) four (4) Mobile Medical documentation systems. We sought to combat these limitations by ensuring that our sample crosses agencies types, geographies, population demographics, and municipal environments (i.e., rural vs. urban). Conclusions: Other studies have noted that EMS agencies are tasked with transporting the “sickest of the sick.” We found that PPE is particularly essential where the frequency of encounters between potentially—or actually—infected patients is high, because from Los Angeles County to rural Texas, without sufficient protection, public health and public safety agencies have become microcosms of the communities they are meant to protect. Indeed, data from the first six months of the pandemic in the U.S.A. show that intra-departmental spread is one of (if not the) riskiest sources of infection among Mobile Medical professionals.

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