

Use of a Real-Time Syndromic Surveillance System to Improve Influenza Like Illness Screening and Documentation in Emergency Departments during the H1N1 Pandemic

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Objective

Screening for Influenza Like Illness (ILI) is an important infection control activity within emergency departments (ED). When ILI screening is routinely completed in the ED it becomes clinically useful in isolating potentially infectious persons and protecting others from exposure to disease. When routinely collected, ILI screening in an electronic clinical application, with real time reporting, can be useful in Public Health surveillance activities and can support resource allocation decisions e.g. increasing decontamination cleaning. However, the reliability of documentation is unproven. Efforts to support the adoption of ILI screening documentation in a computer application, without mandatory field support, can lead to long term success and increased adherence.

Methods

We evaluated the impact of efforts to improve ILI screening documentation adherence in an electronic ED information system (EDIS) during wave 2 of the September-November 2009 H1N1 pandemic. ILI screening documentation rates were calculated across the 8 sites in Edmonton Zone of Alberta Health Services and subsequently correlated to interventions. Five interventions were evaluated: real-time verbal reminders (one-to-one nurse reminders), delayed email reminders (with the ILI screening documentation rates), meetings (strategize to improve documentation rate), media (visual media broadcasts) and clinic awareness (opening and operation of the influenza assessment clinic). A logistic regression model was used to derive odds ratios (OR) and 95% confidence intervals (CI) for correlation between the interventions and the screening rate change.

Results

The ILI screening not-documented (N/D) rate on September 27, 2009, was 75% (N/D = 781; ED visits = 1039). By November 25, the N/D rate had fallen to 11% and remained below 20% into July 2010. October 18, 2009 marked the first day that the daily positive (POS) ILI screen rate was at or above 10% of patient visits with a rate of 12% (POS = 139; ED visits = 1164). The POS rate sustained values >10% until November 25(peaking at 40% on October 28, 2009) re-

flecting influenza activity and informing public health and other decision makers. When all site screening rates were aggregated and compared to the intervention variables – e-mail reminders (OR = 2.176; 95% CI: 2.078-2.279), meetings (OR = 2.286; 95% CI: 2.089-2.501), media (OR = 4.894; 95% CI: 4.219-5.677), clinic awareness (OR = 1.145; 95% CI: 0.998-1.313) were positively associated with increased adherence. Where one-to-one reminders to document ILI screening were provided at one site, the ILI documentation increased (OR = 2.663; 95% CI: 2.260-3.138). E-mail reminders (OR = 0.852; 95% CI: 0.732-0.992) and meetings (OR = 0.696; 95% CI: 0.505-0.960) had less influence on ILI documentation when the single site was analyzed.

Conclusions

A variety of interventions successfully improved ILI screening documentation. The greatest impact was associated with e-mail reminders for recording ILI screening results, meetings on how to improve adherence and media broadcasts associated with the circulating pandemic influenza. The strongest reported effect size was seen in one site following one-to-one nurse reminders to record the ILI screening results. These results suggest that ILI documentation adherence can be successfully increased using a variety of interventions. Implementing and monitoring the effect of the interventions was made possible by the syndromic surveillance system, which at the same time, contributed to improved data used for infection prevention and control and public health purposes.

Keywords

decision support; Influenza Like Illness; screening; documentation; adherence

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