Application of the ALERT influenza Trigger for Enhanced Prevention Activities

Lisa Veach, MD, FACP, FIDSA, FSHEA; Julie Gibbons, BSN, RN, CIC; Katarina Smolka, BS; Veena Ramachandran, MD

ABSTRACT

Background: Accurate prediction of the onset of influenza activity can allow for optimal use of enhanced prevention activities in a healthcare setting. In the fall of 2015, UnityPoint Health-Des Moines utilized the ALERT Algorithm (Reich et al. 2015) to objectively direct preventative efforts.

Methods: Historical influenza data between 2011 and 2015 was analyzed using the ALERT method to identify a threshold number of diagnosed influenza cases per week to predict the start of the influenza season. The threshold was re-analyzed annually, adding the most recent year’s data. Our goal was to capture at least 80% of influenza cases within our “ALERT period,” without prolonging the duration of heightened prevention efforts.

Results: For the initial year (2015/16) the threshold was defined as seven cases of influenza in one week. Threshold for the subsequent two years was set at five cases. Compared to the three years prior, use of the ALERT method resulted in more accurate and consistent identification of the influenza season.

Conclusion: The ALERT method utilizes health system specific historical data to more precisely define the period of high influenza incidence allowing for focused utilization of enhanced measures to prevent transmission. This results in a safer environment, optimal use of resources and improved employee and patient satisfaction.

BACKGROUND

Accurate prediction of the onset of influenza activity in a healthcare setting can allow for optimal use of enhanced prevention activities. Examples of enhanced influenza prevention activities may include:

• additional respiratory hygiene stations at medical center entry points
• mask use by unvaccinated employees
• additional signage at key locations

UnityPoint Health-Des Moines (UPH-DM) is a three hospital, 800 bed system located in central Iowa with 120 critical care beds including a level three NICU and a level 1 Trauma Center. Average daily census is 556 (YTD 2018).

In 2009, an influenza prevention protocol was implemented. This included use of surgical masks by unvaccinated employees during the period of high influenza activity in the community. From 2009 to 2014, a subjective approach was used to define the onset of high activity each influenza season. Since 2015, the ALERT (Above Local Elevated Respiratory Illness Threshold) algorithm described by Reich, et al, has been utilized to define the onset of influenza season in our health system.

METHOD

The ALERT algorithm applies historical data of weekly case counts of laboratory-confirmed influenza A and B virus to set a trigger point of cases per week for real-time identification of the onset of influenza season. Historical data at UPH-DM from 2011 to 2014 was analyzed to set a threshold number of influenza cases diagnosed in a week to predict the start of the influenza season. Our goal was to capture at least 80% of influenza cases, yet minimize the duration of the defined period of heightened prevention efforts. Each following year the threshold was re-analyzed, adding the most recent data to the historical data set.

Baseline Data Analysis

A retrospective chart review of UPH-DM laboratory-confirmed influenza cases over the years 2011-2015 was performed and organized by number of cases per week. Calculations were performed to determine the metrics of interest (% of cases captured in each season and median duration of ALERT period) for various threshold values.

RESULTS

Results comparing the metrics of interest for the 3 seasons prior to the use of the ALERT trigger with the 3 subsequent influenza seasons are shown in Table 2 and Figure 2.

Implementation

The initial threshold value was set at seven cases of laboratory-confirmed influenza in a week. This was chosen to achieve the goal of capturing 80% of cases yet minimize the ALERT period. Each of the subsequent years, data was added to the database and a threshold value was chosen again to target the metrics of interest.

CONCLUSIONS

The ALERT algorithm:

• Provides health system specific data to objectively identify the onset of influenza season
• Allows for the health system to determine their target metrics (% cases captured, duration of ALERT period) based on their specific patient population and goals
• Allows for focused utilization of enhanced measures which should result in optimal use of resources and a safer environment

REFERENCE