

Evaluation of the Influenza Sentinel Surveillance System in Singapore 2011-2012

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Objective

We evaluated the Singapore Ministry of Health's sentinel surveillance system for influenza virus, which included the monitoring of virological samples from patients with influenza-like illness (ILI) seen at government primary care clinics and private general practitioner clinics in 2011-12.

Introduction

MOH's national sentinel surveillance programme for influenza is part of the WHO international laboratory-based surveillance network to detect the emergence and spread of new antigenic variants of influenza viruses. Virological sample collection is on-going and is carried out during both outbreak and non-outbreak periods. In 2011 and 2012, the sentinel surveillance programme involved a total of 169 sites (18 government primary care clinics and 151 private/general practitioner [GP] clinics).

Methods

Using a systematic approach, we analysed weekly data collected for the full two year period from 2011-12. Virological samples were accompanied by surveillance forms which included essential fields for identifiers (name/ identification number), onset date and symptoms. Criteria applied for evaluation were based on the US Centers for Disease Control's Guidelines for Evaluating Public Health Surveillance Systems, and included: Data Quality, Acceptability and Representativeness.

Results

(1) Quality of Data – We received 3,429 virological samples in 2011 and 2,637 in 2012, with 87-88% of the accompanying surveillance forms completed. Based on symptoms indicated, only 80.3% (2011) and 76.1% (2012) of the submitted samples were ILI samples. The monthly distribution of influenza A and B virus types among ILI samples collected from the sentinel surveillance was similar to the distribution of influenza virus types among samples collected from severely ill patients in 2012.

(2) Acceptability - In 2011, 94.4% of primary care clinics (n=18) and 35.1% of GP clinics (n=169) contributed at least one sample while in 2012, it was down to 88.9% and 26.4%, respectively. Weekly sample numbers have showed a general decreasing trend between 2011 and 2012 with a range of 18 to 154 samples in 2011 (mean 66; 95% C.I. 57.3 – 74.7) and 21 to 104 in 2012 (mean 51; 95% C.I. 46.4 – 55.6).

(3) Representativeness – In both years, coverage of clinics was found to be skewed towards the eastern half of Singapore, with some reduced coverage in the north-western and south-western regions. The weekly trend of ILI samples received followed a similar trend of increase and decrease for most weeks when compared with the trend for primary care clinic attendances for ILI in 2011 and 2012, with the stark exception of weeks 15-17 in both 2011 and 2012.

Conclusions

The current surveillance system could be enhanced by focusing on strategies to improve the acceptability and representativeness of the system. The quality of data submitted is satisfactory, but could also be

enhanced further through engagement and information sharing with stakeholders involved.

Proposed strategies/ measures for enhancements include:

- Regular communication with the relevant stakeholders on the ground who are involved in the contribution of samples.
- Regular review of the sentinel sites.
- Information sharing with all stakeholders.

Keywords

Surveillance; Influenza; Evaluation

References

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