

Analysis of Notifiable Diseases detected by Syndromic Surveillance in Taiwan

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OBJECTIVE

The paper outlined the major findings and statistical results of syndromic surveillance system in Taiwan since year 2000.

BACKGROUND

In the past decades, the threatening emerging disease and infectious disease were constantly emerged challenged our reporting mechanism which based on only disease reporting [1]. Once the physician do not know what is the most likely disease to report, the timelines and completeness will be harmed greatly. The notifiable reporting system although can enhance the correction rate of detecting pathogens, but it might be restricted to the origin of the disease type leading to inability of surveying disease with similar symptoms and the quality of specimen collecting and exam. In order to meet the preliminary goal of catching emerging infectious diseases at the earliest moment and participating in the global outbreak alert and response system, the syndromic reporting and surveillance system was then established in year 2000 and practiced in five medical centers at the early stage. The application to early detecting influenza-like illness and EV71 were describe previously [2,3] It was then constantly practiced nationally in Taiwan. Currently, there are 151 regional and above hospitals involving in this program. The system classified the syndromes into four categories including acute hemorrhagic syndrome (AHS), acute respiratory syndrome (ARS), acute neural syndrome (ANS) and acute jaundice syndrome (AJS).

METHODS

The reporting data was fully collected since 2002, thus a scheduled and designated by the reviewer panels of testing were performed for each cases of severe syndrome. Physicians reported information of symptoms and sign basic demographics, risk behaviors, travel history and past history through the online syndromic surveillance system from the cooperated medical centers and regional hospitals, and then connected to the central data warehouse. The system automatically logical checked each reported with reporting criteria. Each diagnosis result was periodically updated and reported to the central systematically and all the specimen from individuals will be preserved in case of any further requirement of analysis. Medical review and peer review were applied to exclude and make final diagnosis of each patient.

RESULTS

The demonstration below shows the data collected from 2002 up to 2007, the total reported severe syndromic cases are 3492. The overall accepted cases are 2785, 595, cases are excluded, and the rest are still at pending state. There were no significant differences among gender. Among the reporting cases, around 7.7%, 36.5%, 29.6% and 26.2% reported as AHS, ARS, ANS and AJS. The table below indicating the positive rate detected from the result of pathogen assay including notifiable diseases and other pathogens.

Table 1 – Table of notifiable diseases and reporting diseases detection rates in the syndromic surveillance system in Taiwan since 2000.

CONCLUSIONS

To sum up, the national syndromic surveillance system actually provides efficiency in a way of finding emerged infectious disease. For example, around 7.8% of Chlamydia pneumonia, 6.3% of scrub typhus and 5.4% of Japanese Encephalitis have been found among the reported ARS, AHS and ANS cases respectively, which normally the

ARS		ANS	
Item	(+) rate	Item	(+) rate
Legionellosis	2.58%	Enteroviruses	0.20%
Adenovirus	0.40%	Japanese Encephalitis	5.42%
Chlamydia pneumonia	7.75%		
AHS		AJS	
Item	(+) rate	Item	(+) rate
murine typhus	0.37%	Leptospirosis	1.52%
scrub typhus	6.30%	Viral hepatitis E	1.41%
dengue fever	1.11%		

causative agents for atypical pneumonia, severe neurological disorder and acute fever symptoms. The shortened time lag in diagnosis helped physicians to correct and early treatment. The system allows us to find the causative pathogens with unclear symptoms at early stage. The syndromic surveillance system provides an supporting surveillance of EIDs / REIDs and even bio-events for early prevention and control.

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