Infection Control Platform: Optimizing MDRO Infectious Disease Surveillance, Outbreak Prevention and Control in One Mobile Platform

Ms. Amanda LAW[1], Mr. Edwin WONG[1], Dr. Anna TONG[1], Dr. NT CHEUNG[1], Dr. Kristine LUK[2], Mr. Ricky SIU[3], Mr. Ivan LEUNG[3], Mr. Chi Chung WU[3], Mr. Sam YEUNG[3], Mr. Paul TANG[3], Mr. Jackie CHAN[3], Ms. Vicky FUNG[1], Mr. John MOK[1], Mr. Ping Chong HO[1]

[1](1) Health Informatics Department, Information Technology and Health Informatics Division, Head Office, Hospital Authority, HKSAR, Hong Kong, [2](3) Department of Pathology, Prince Margret Hospital & Yan Chai Hospital, HKSAR, Hong Kong, [3](2) Information Technology Department, Information Technology and Health Informatics Division, Head Office, Hospital Authority, HKSAR, Hong Kong

Background

The spread of multidrug-resistant organism (MDRO) infections is associated with higher healthcare cost, prolonged hospitalization and mortality. In the Hospital Authority (HA), the MDRO disease surveillance and reporting are mainly performed via paper records that creates additional manual processing and hence affects efficiency in early notification and prevention on patient-to-patient transmissions. IT solutions are pursued in order to optimize disease surveillance, outbreak prevention and control.

Objectives

1. To develop an Infection Control Platform MDRO Surveillance System that can be operated in both mobile device and desktop for supporting the MDRO patient identification and outbreak management

2. To integrate the MRDO Surveillance System across all HA hospitals

Material & Methods

A pilot project of MDRO Surveillance System for Carbapenamase Producing Enterobacteriaceae (CPE) was conducted in 10 HA hospitals nominated from 7 Clusters during August 2018 to October 2018. The functionalities of the System include but not limit to the followings:

1. Positive MDRO identifications on screening and clinical tests performed by both the HA and the Department of Health (DH) are incorporated to generate a positive patient list.
2. Essential patient-specific clinical information such as current location, antibiotics uses and patient movement etc are retrieved at the time of information need.
3. Documentation for the case information, risk factors identification and site visits can be accommodated in one record.
4. All the recorded information as well as the patient-specific information can be downloaded and sharable within the same Cluster to support disease surveillance

Results

After three months' pilot, an average of 77% usage was noted from the 10 hospitals. Among them, 4 hospitals achieved 100% utilization indicating the System has been successfully integrated to their CPE management workflow. The post-pilot user survey revealed that the System provided not only the timely identification of positive cases but

also the effective notifications of colonized patients comparing to the conventional reporting.   Comments on workload impact were also received. Data transcription from paper to the System was required because of the unavailability of mobile devices during site visit.   As a result, further roll out of the System was tied in with the another program that could ensure the device availability to the infection control teams. The System was launched in Jan 2019 across all hospitals.

Conclusion

MDRO Surveillance System not only support infection control on resistant pathogens but also the disease surveillance in HA hospitals for better MDRO disease outbreak and management.