Improvement project to enhance the communication among healthcare worker in Accident and Emergency Department in handling of infectious patients

Helen Yuk Yee Leung[1], Billy Wai Man Wong[2], Sik Ngai Lee[3], Chui Ying Chan[4]

1 Accident and Emergency Department, Pok Oi Hospital, Yuen Long, Hong Kong, leungyyh@ha.org.hk
2 Accident and Emergency Department, Pok Oi Hospital, Yuen Long, Hong Kong, wongwmb@ha.org.hk
3 Accident and Emergency Department, Pok Oi Hospital, Yuen Long, Hong Kong, lsn328@ha.org.hk
4 Accident and Emergency Department, Pok Oi Hospital, Yuen Long, Hong Kong, ccy132@ha.org.hk

Background
Ebola Virus Disease (EVD) has become the top global healthcare priority since September 2014. Hospital Authority (HA) implemented a serial of preparation works to hospitals. Accident and Emergency Department (AED) was identified as one of the high risk areas. HA has mandated that all AEDs should be ready to handle Ebola or and should periodically conduct exercises for the preparedness to the EVD threat. To in-line with HA strategies, Pok Oi Hospital (POH) AED performed EVD drill in October 2014.

Introduction
It was found that the communication on message transmission among medical and nursing staff in the drill exercise were not effective when the staff were shrouded from head to toe in a barrier gown, hood and mask, and peered through a visor. It was found that healthcare workers including doctors and nurses could not hear clearly each other speaking when they were wearing N95 masks. In the message transmission among two separated regions in the clinical area, it might likely to cause cross-contamination in using mobile phones or walkie-talkie when staff were putting on full personal protective equipment (PPE). Moreover, staff could not easily perform care and physical examination with one hand engaged by communication device.

Objective
To develop an appliance for effective communication among the healthcare workers of Accident and Emergency Department during management of infectious patient with compliance to infection control standard

Method
1. A team consisting of medical and nursing staff was set up to identify the problems. It focused on patient and staff safety developed from the potential risk raised in case of communication breakdown.
2. A staff team of intelligence explored the devices available in market for clear voice transmission and could be operated easily in clinical area without risk of staff contamination.
3. An innovative communication system was brought up including neck adjustable throat microphone with ear-bud, clip on finer Press to Talk (PTT) button and walkie-talkie on waist as microphone.
4. Several trials were conducted and demonstrated among staff for feedback. Two hands can be free to work and possibility of contamination is highly reduced.
5. Infection control officer was consulted and the application of the device was accepted to meet infection control standard.

Result
The application of the developed appliance can successfully achieve the service demand and ensure clinical safety. With the financial support from executives, four sets of the devices were purchased and ready to use.

Conclusion
This innovative appliance to employ the combination of throat microphone and walkie-talkie allows clear and effective communication in noisy environment. The system is operated under the cover of PPE without direct contact by staff. It can deliver high quality audio and protect staff from contamination. This excellent device can be utilized in many other episodes for clinical use, for example, in the management of radiation and Hazard material contamination.