Six Years of fighting against Catheter Associated Bloodstream Infection – the Central Venous Catheter Care Bundle in Intensive Care Unit

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Introduction
The use of central venous catheters (CVC) is an essential part of modern critical care medicine. However, studies have shown that catheter associated bloodstream infections (CABSI) can independently increase hospital cost and length of stay 1, 2. To reduce the incidence of this significant nosocomial infection, a CVC care bundle in conjunction with a standardized surveillance definition was introduced in the USA3 and was quickly followed in Hong Kong. Following Hospital Authority's initiatives, the CABSI bundle was introduced in QEH Adult Intensive Care Units (AICU) since 2008. With the recent revision of international guideline4, it is a good time to review our current practice.

Objectives
This is a retrospectively analysis of incidence of CABSI before and after implementing CVC care bundle in the AICU of Queen Elizabeth Hospital.

Methodology
CABSI surveillance has been conducted since Q3/2008. After the first six months of baseline period, the CVC care bundles including hand hygiene, maximal barrier precautions, skin antisepsis, optimal catheter site selection and daily assessment have been implemented. We prospectively collected clinical and laboratory data on all AICU admissions with central lines. All positive cultures were identified and the total number of catheter days was calculated. We followed the HA surveillance case definitions5 to identify CABSI and compared the incidence rates following implementation of CVC care bundle. The device utilization ratio was calculated by dividing the number of device-days by number of patients-days.
**Result**

We established our baseline CABSI rate at 1.05 per 1,000 catheter days. After HA CVC care bundle was implemented, the CABSI rates have been below 0.60 per 1,000 catheter days for five consecutive years (between 1Q09 and 2Q14). The overall CABSI rate across all HA ICUs during the same period was 0.48 per 1,000 catheter days. But this is not a direct comparison as the case-mix between HA ICUs differs significantly. When comparing with international data, the pooled mean CABSI for the critical care centers in the USA ranged from 0.9 – 3.4 in 20126. The device utilization ratio was 0.90 in QEH ICU. The overall HA figure was 0.59, while the mean pooled device utilization ratio was 0.05 – 0.72 for critical care centers in the USA6. Finally, the compliance rate to CVC insertion bundle reporting was 100%.