



# The Results of Care Bundle Promotion to Reduce Catheter-Associated Urinary Tract Infections in Taiwan

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## Objectives

The elements of care bundle to prevent catheter-associated urinary tract infection (CAUTI) have been established internationally by clinical evidence-based studies. A previous study in Taiwan (Sheng WH, et al. J Hosp Infect 2005;59:205-14) showed patients diagnosed with CAUTIs can cause an increased hospital stay of 17.5 days and increased medical expenses of USD\$3,725 in medical centers; or an increased hospital stay of 20.7 days and increased medical expenses of USD\$2,832 in regional hospitals. From 2015 to 2017, the Joint Commission of Taiwan and the Taiwan Centers for Disease Control (CDC) promoted the adoption of CAUTI care bundle to reduce the incidence of CAUTIs and reduce medical expenses.

## Methods

Fifty-two hospitals participated in the nationwide program to promote CAUTI care bundles. The care bundle emphasized to insert catheter using aseptic techniques and the maintenance bundle focused on daily Foley care (Fig. 1). Before the initiation of the program, only 16 hospitals regularly audits the practices of catheter insertion and daily care, along with the progression of program, the number of hospitals with regular audit mechanism expanded to 50. Based on the data that regularly provided by the hospitals, we analyzed the infection density and catheter utilization rate of 248 participating units and used Poisson regression analysis to verify if the rates of pre-intervention period (January 2014 to June 2015) were significantly different from those of post-intervention period (July 2015 to September 2017). We also estimated the hospitalization days and medical care cost reduced by CAUTI cases prevented after program implementation, according to the data published in literature.

## Results

The results showed that catheter utilization and infection density of the 52 participating hospitals (248 participating units) declined from 2014 to 2017 (Fig. 2). Infection density was 3.10‰ before the intervention and 2.53‰ after the intervention ( $P < 0.01$ ). A statistically significant difference was observed. In medical centers, approximately 4,830 hospital days were reduced, and USD\$1.02 million in medical expenses were saved. In regional and community hospitals, approximately 10,019 hospital days were reduced, and USD\$1.37 million in related medical expenses were saved.

## Conclusion

The results show that promotion of CAUTI bundle, through the establishment of a comprehensive mechanism for regular auditing the practices of catheter insertion and daily care, enhancing compliance of CAUTI bundle elements, can effectively reduce CAUTIs. Participating hospitals achieved a total reduction in the length of hospital stay by approximately 14,849 days and in medical expenses by USD\$2.39 million. It provides supporting evidence that the hospitals ought to promote CAUTI bundle continuously to enhance patient safety and medical care quality in Taiwan.

## Acknowledgement

This research was supported by Taiwan Centers for Disease Control, under Tender Project(s) "To build project management center of improving Invasive medical treatment quality program". (No. CB104002-1, No. CB104058-1, No. JK105035-1)

**Keywords:** Care bundle, Catheter-Associated Urinary Tract Infections

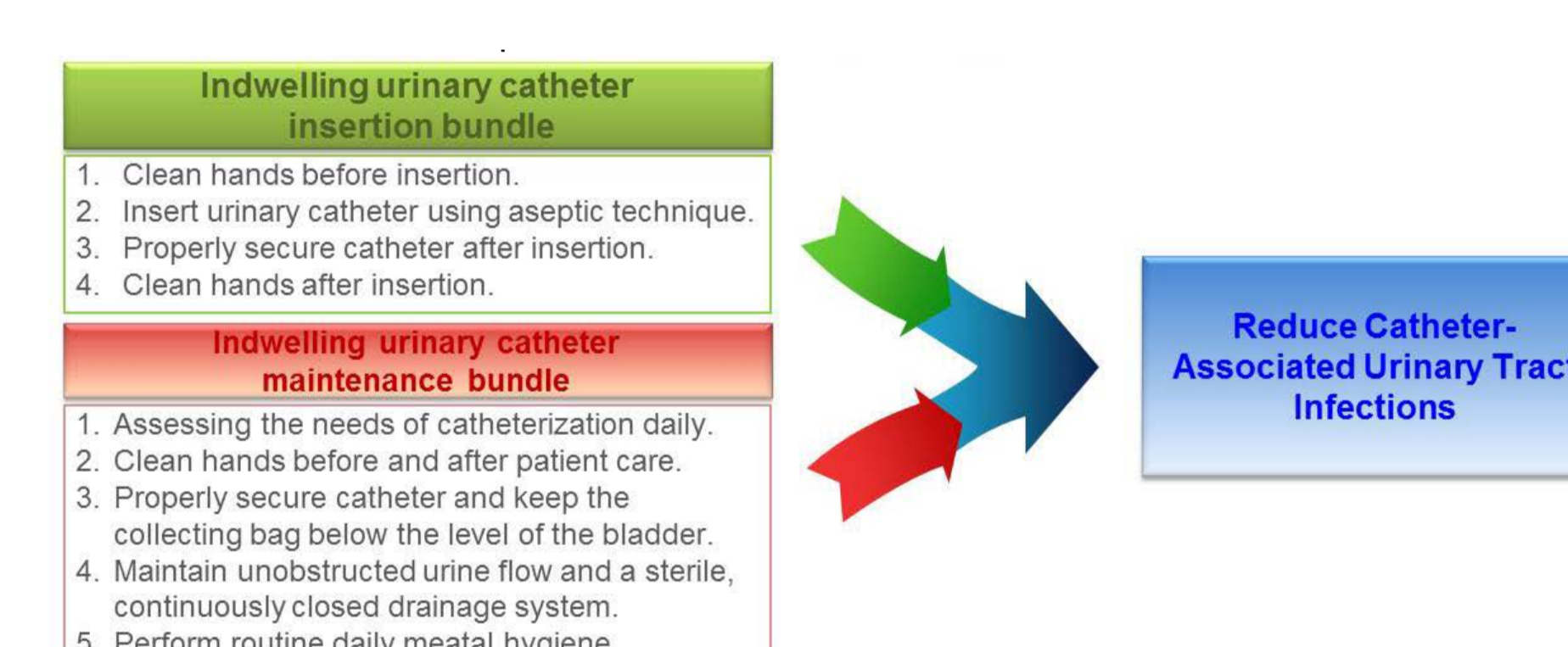


Figure 1. Elements of CAUTI bundle

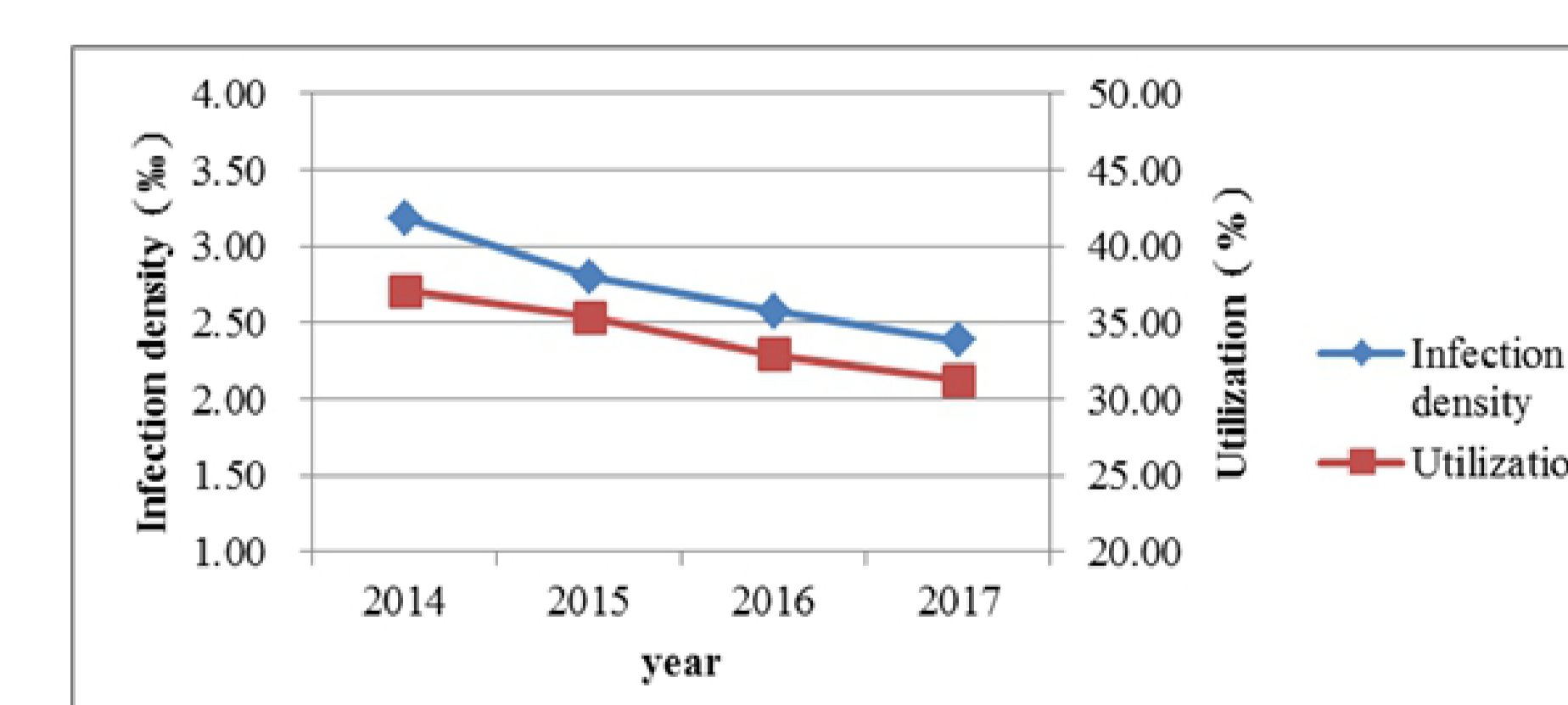


Figure 2. Infection density and catheter utilization of participating hospitals