

## **Abstract**

**Title:** Degree of compliance of health care workers on central catheter care bundle and its effect on central line associated blood stream infection (CLABSI) at medical intensive care unit (MICU) at the National Hospital of Sri Lanka (NHSL).

### **Introduction**

Central line associated blood stream infections (CLABSI) is one of the commonest causes of hospital acquired bacteremia and septicemia. It is evident that adherence to central line (CL) bundle care practice is associated with a significant reduction in the CLABSI rate.

This study aims to identify the CLABSI rate and the degree of compliance of healthcare workers on CL bundle care components, assess the effect of the CL bundle care compliance on the rate of CLABSI and the common causative pathogens, their antibiotic susceptibility pattern at MICU in NHSL.

### **Method**

A descriptive cross sectional study was conducted recruiting patients with CL, which was inserted only at MICU and kept for more than 48 hours after insertion. The CLABSI data were collected using same methodology introduced by the CDC and NHSN. Both insertion and maintenance bundle care checklists were prepared according to the CDC/NHSN guidelines and were used to observe the compliance of CL bundle care. Blood cultures and CL tip cultures were processed using BACTEC and BD phoenix<sup>TM</sup> automated ID/AST systems. A total of 69 patients were included over four months from December 2017 to March 2018.

### **Results**

Central line insertion bundle compliance rate of hand hygiene, wearing a sterile gloves and gown were 100% and least compliance (53.6%) was observed with the covering the patient head to toe using sterile drape. Maintenance bundle compliance rate for all

components were 100% throughout the study. Overall CLABSI rate at MICU was 23.66/1000 CL days. It is observed that with the improvement of CL bundle compliance from 30% to 86.6% there was reduction of the CLABSI rate from 30/1000 CL days, reaching zero/1000 CL days at the end of the study and had strong correlation ( $r = -0.953$ ) and P value was 0.047. A total 8 CLABSI episodes, 75% were Gram negative bacilli and 25% were Gram positive organisms, 37.5% *Elizabethkingia meningoseptica* 25% *Acinetobacter baumannii*. Most of the isolated organisms were multi drug resistant.

### **Conclusion**

Higher CL bundle compliance rate is associated with lower CLABSI rate. Regular training programs and audits should be conducted to continue the higher compliance rate.

**Key words:** BSI (blood stream infections), CL (central line), 1000 CL days.

CLABSI (central line associated blood stream infections),

HAI (Health care associated infections), IHI (Institute of health care improvement).