



Improving Infection Prevention and Sepsis Care by Implementing a Hospital-wide Initiative

Single-center interventional study in a 770-bed urban hospital in Texas, US, Facilitated by Delivery System Reform

WHAT WAS INVESTIGATED?

- The effects of a hospital-wide initiative to improve infection prevention and sepsis care
- Multimodal interventions were initiated between 2013 and 2017 and included:
 - central line-associated bloodstream infections (CLABSI)
 - catheter-associated urinary tract infections (CAUTI)
 - surgical site infections (SSI)
 - sepsis mortality
- Components of the intervention:
 - awareness campaign
 - engagement of clinicians
 - implementation of bundles for HAI and sepsis
 - education and training of methods for quality improvement
 - clinical decision support using an electronic medical record

WHAT WAS THE RESULT?

Main Result: Rates of HAI (healthcare-associated infections) were significantly reduced from 2013 to 2017:

- CLABSI -52 %
- CAUTI -73 %
- SSI -62 %
- sepsis mortality -69 %

Adherence to care bundles and hand hygiene improved throughout the study. An improvement of patient safety climate was observed.

HAI and sepsis mortality can be reduced significantly and sustainably by implementing a hospital-wide initiative incentivised by a federally funded program.





BACKGROUND

HAI and sepsis mortality are major public health issues. It has been demonstrated before that implementation of strategies to reduce HAIs can be successful. In the USA, a delivery system reform encourages hospitals to introduce such strategies with the aim of reducing HAI as well as sepsis mortality.

GOAL

Investigating the effect of a 5-year hospital-wide initiative consisting of multimodal interventions to reduce HAI and sepsis mortality.

DESIGN AND METHODS

The prospective observational quality improvement study was performed in a 770-bed public academic hospital in Texas, US, and took place between 2013 and 2017. By participating in a federally funded program – the Delivery System Reform Incentive Payment (DSRIP) – the hospital was able to implement a predefined set of interventions.

Taken together, the main implemented interventions were:

- awareness campaign (e.g. newsletter, screen saver, distribution of surveillance data)
- engagement of clinicians (e.g. lunch and learn sessions, focus group meetings)
- implementation of HAI and sepsis bundles
- education of clinical personnel on bundles
- training of leadership and personnel in quality improvement methods
- clinical decision support using an electronic medical record

During the study period of 5 years, CLABSI, CAUTI, SSI and Sepsis mortality were defined as primary outcome measures. Many processes were regularly monitored, such as bundle compliance, hand hygiene, and culture of safety

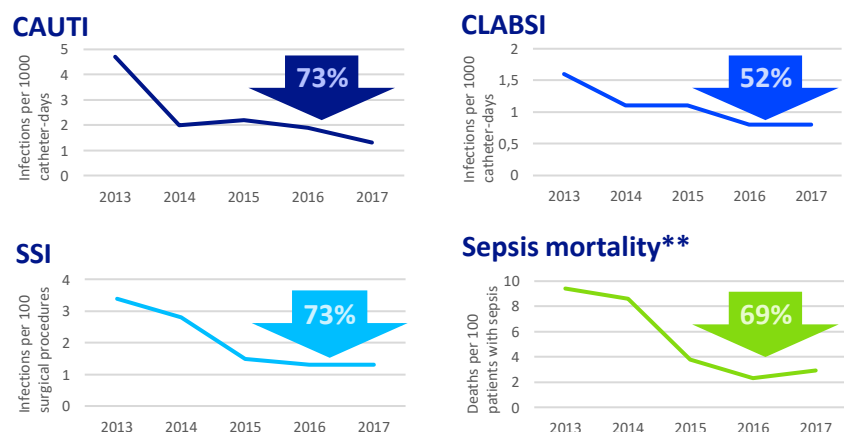
RESULTS

Overall infection rates reduced by 73 % for CAUTI, 52 % for CLABSI, and 62 % for SSI. Unadjusted mortality rate reduced among patients with suspected sepsis by 69 %. The main results are shown in figure 1. All improvements are statistically significant.

Hand hygiene compliance improved over time of study. The average monthly volume of used hand sanitizer increased from 703 L before survey, to a plateau of 2917 L during study period and 3631 L in subsequent years.

The direct costs of the initiative was \$1.16 million, whereas the cost avoided because of HAI prevention is estimated over \$17 million.

Figure 1: Reduction of HAI and Sepsis mortality between 2013 and 2017



CONCLUSION

Combining several types of interventions and improving hand hygiene as well as safety culture are effective measures to improve HAI rates and sepsis mortality.

* modified from Sreeramaju *et al.* 2021
 **unadjusted mortality rate reduced among patients with suspected sepsis