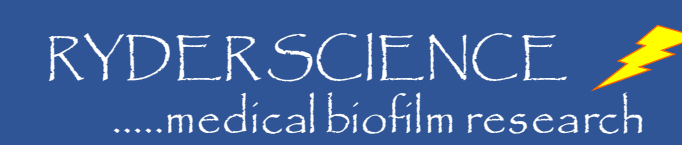


Evaluation of national CLABSI database demonstrates a reduction in Relative Risk of CLABSI associated with Clave needleless connectors



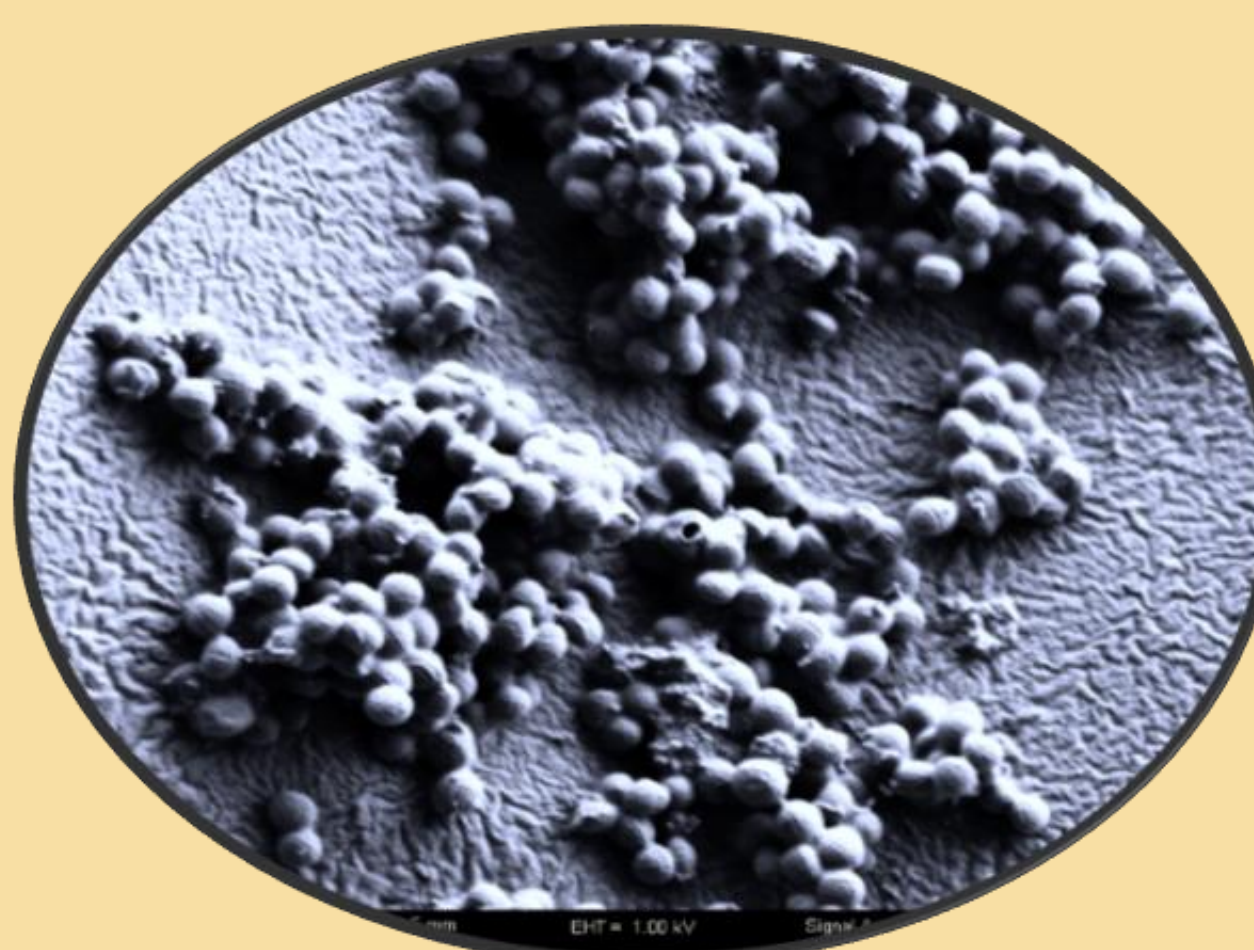
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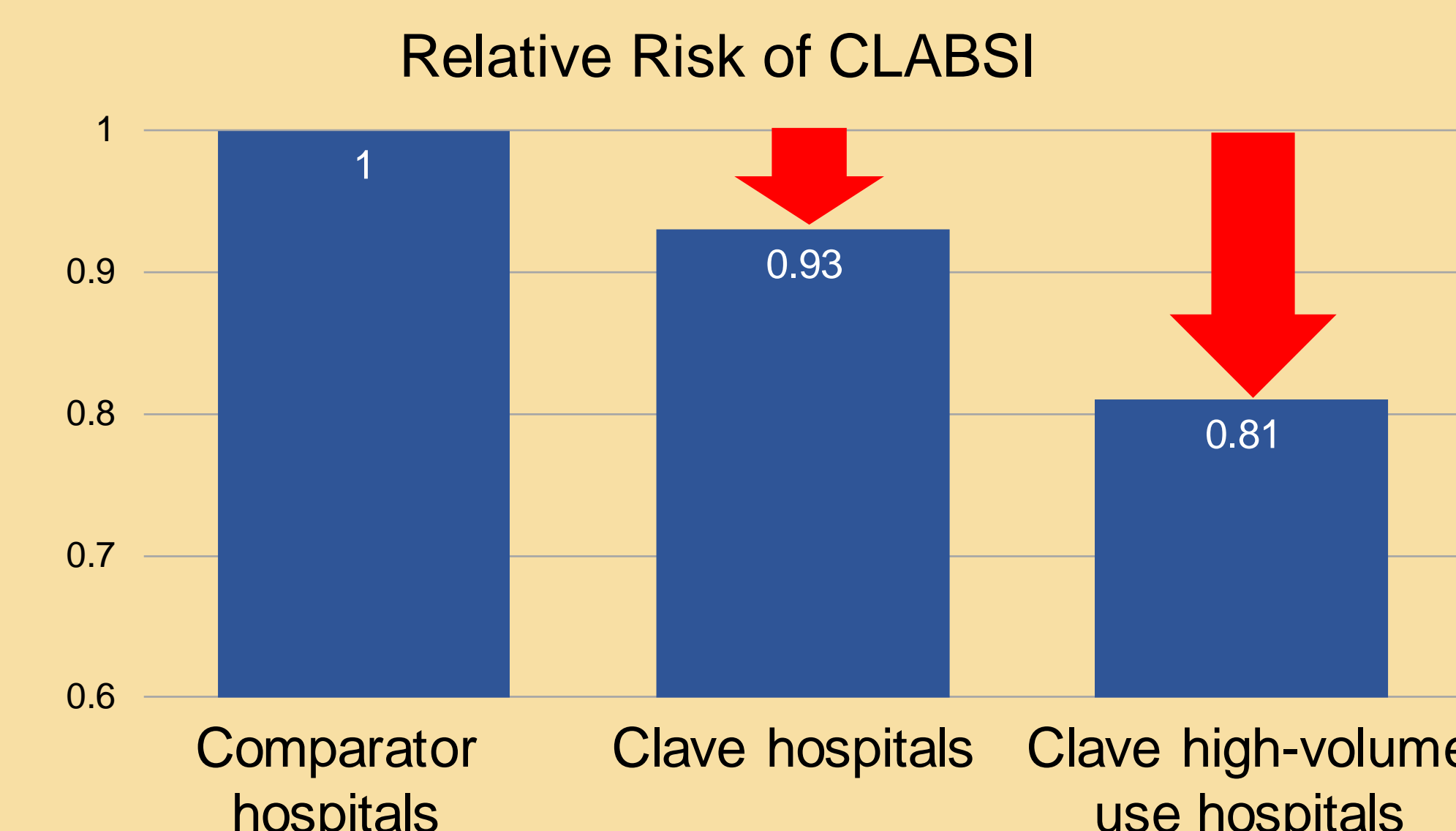
Analyze CLABSI risk of hospitals utilizing Clave needleless connectors (NC)



Compare Relative Risk of CLABSI Clave NC hospitals to Non-Clave NC hospitals



7% and 19% decrease in CLABSI Relative Risk



Introduction

- CLABSI rates in the USA increased by 47% over the COVID-19 pandemic years.¹
- Technology assessment is encouraged to evaluate cost effective strategies for CLABSI risk reduction.
- Needleless connectors vary in design features, configurations, and materials.
- The effect of various design features on infection risk remains controversial.

Purpose

- The purpose of this study is to compare the risk of CLABSI between hospitals using Clave needleless connectors and non-Clave needleless connectors.
- Further analysis evaluates CLABSI risk among Clave hospitals, Clave high-volume use hospitals and hospitals using NCs other than Clave.

Methods and Materials

- A publicly available database² was analyzed to calculate the CLABSI rate of Clave hospitals^A, Clave high-volume use hospitals^B, and comparator non-Clave hospitals for the year 2019.
- Clave technologies included in the Clave hospital groups are: Clave, MicroClave, MicroClave Clear, NanoClave, and Neutron.
- The standardized infection ratio (SIR) is calculated as the observed number of CLABSI divided by predicted number of CLABSI.
- The Relative Risk (RR) is calculated as a comparison of the SIRs and adjusted for heterogeneity, among the hospitals.
- The realized cost savings was calculated utilizing the decrease in risk of CLABSI for Clave and Clave high-volume use hospital groups.

Results

- For the Clave hospitals, the RR of CLABSI was 0.93 ($p=0.04$), representing a 7% decrease. For Clave high-volume use hospitals, the RR of CLABSI was 0.81 ($p=0.04$), representing a 19% decrease in Relative Risk of CLABSI.
- The SIR for Clave hospitals is 0.68 (95% CI 0.66-0.69) and for Clave high volume use hospitals, the SIR is 0.61 (95% CI 0.54-0.67).
- In comparison, the non-Clave hospital's SIR was 0.70 (95% CI 0.68-0.72).
- The realized cost savings for Clave and Clave high-volume use hospitals was determined to be \$23,738,671 and \$3,356,560, respectively³.

Discussion

- The MicroClave and Neutron connectors demonstrated the lowest bacterial transfer rate compared to all other connectors in *in vitro* testing⁴ suggesting a potential relative risk reduction in clinical use.
- In this study, 17,452,575 central venous catheter line days and 11,814 CLABSI events were evaluated to determine associated risk of Clave NCs to all others used in comparator hospitals.
- The results indicate that the probability of CLABSI occurring in hospitals using Clave technology is statistically significantly less than non-Clave NCs.
- The SIR measures indicate that the occurrence of CLABSI using Clave technology is statistically significantly less than both national and competitor hospital CLABSI occurrence.

Conclusions

- Implementation of the Clave NC technologies may significantly decrease the risk of CLABSI.
- Implementation of the Clave NC technologies may result in significant cost savings.
- While CLABSI prevention requires a combination of evidence based strategies, this data demonstrates that the use of the Clave NC technology, in and of itself, is a critical component of reducing the risk of CLABSI

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Disclosures

Marcia Ryder is receiving an honorarium from ICU Medical for this presentation.

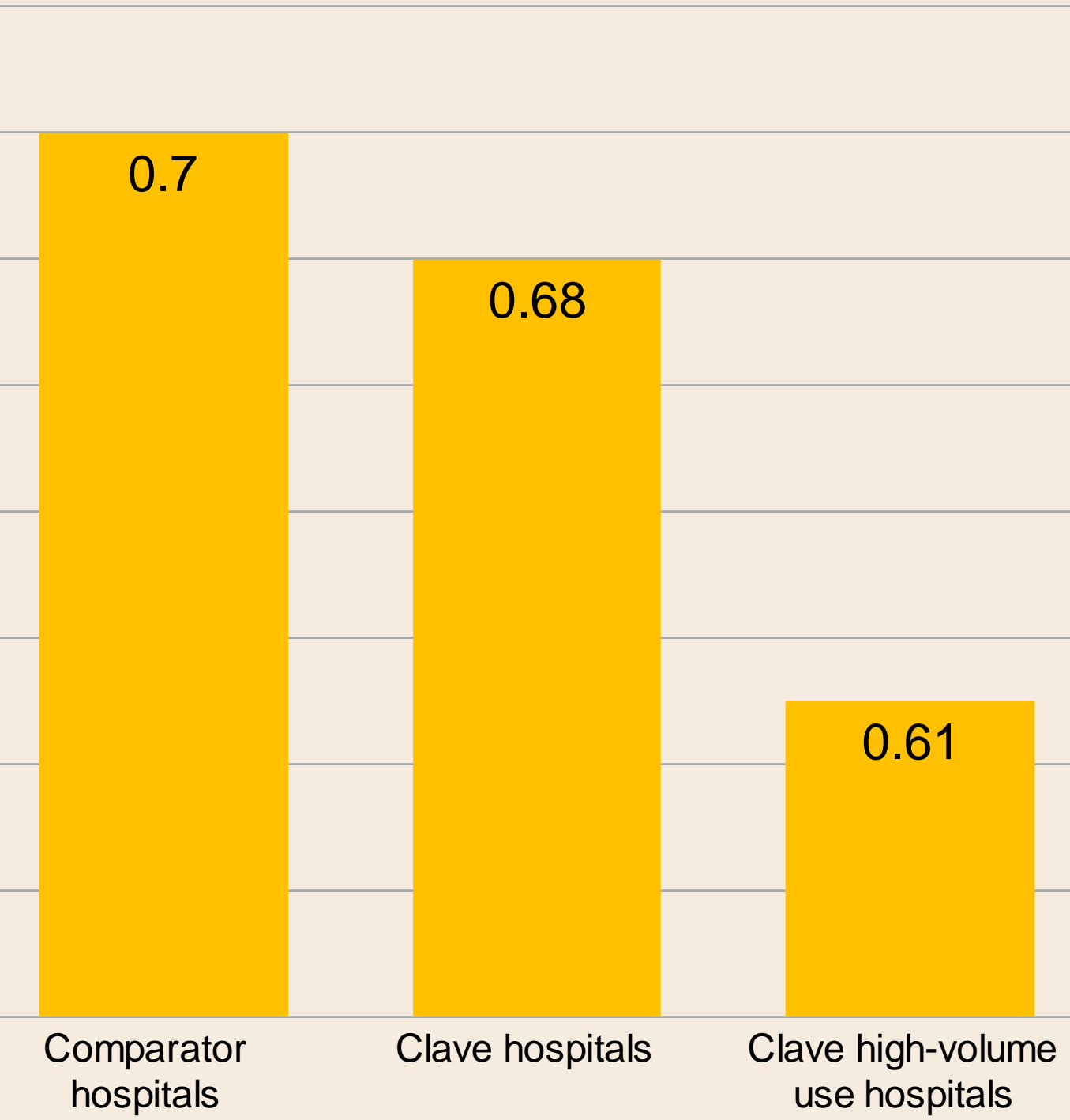
Xiaowu Sun is an employee of CVS Health, and receiving an honorarium from ICU Medical for this presentation.

Jason Battle is an employee of ICU Medical

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Variables	Central Line Days	Observed CLABSI, n	Observed CLABSI Rate /1000 Central Line Days	SIR (95% CI) P-value; Comparator, Clave, and Clave High Volume use hospitals all P<0.05. Reference standard for SIR = 1.	Relative Risk (95% CI)	P Value - Relative Risk
Study NC (two Groups) vs Comparator Hospitals						
Comparator Hospitals	6,858,662	4,537	0.66	0.70 (0.68, 0.72)	reference	
Clave Hospitals ¹	10,108,038	6,983	0.69	0.68 (0.66, 0.69)	0.93 (0.87, 0.997)	0.0411
Clave high-volume use Hospitals ²	485,875	294	0.61	0.61 (0.54, 0.67)	0.81 (0.66, 0.99)	0.0412

Standardized Infection Ratio



^AClave hospital — facilities that ordered the study NCs during the comparison time frame (FY 2019) (excluding Clave High-Volume use Hospitals)

^BClave High-Volume use Hospital — Hospitals that utilize Clave NCs at high volume based upon their order to bed ratio

Relative Risk of CLABSI

