

Implementation of the Ventilator-Associated Pneumonia and Central Line Associated Infection Prevention Bundles in the Critical Care Unit of a Community Medical Center

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Problem: Ventilator Associated Pneumonia (VAP) and Central Line Related Infections (CLI) in adult Critical Care patients. These targets were embraced because of the strong evidence associating them with a high rate of mortality and added expense.

Evidence: Recommendations of the IHI-100,000 Lives Project were developed based on a vast amount of data and were most notably supported by the Centers for Disease Control. In the production of their Guidelines, the authors reviewed over 1053 and 293 journal articles respectively, making their subsequent recommendations irrefutable.

Strategy: Interdisciplinary collaboration of the care team and the daily multidisciplinary rounds process through which our changes were implemented.

Practice Change: Practice changes were initially limited to elements of the bundles recommended by IHI, however we later added "oral care every 4 hours" for ventilated patients due to the abundant literature supporting this practice as a means of further reducing our ventilator associated pneumonia rate.

All participants were informed and educated. Appropriate physicians were sent letters from the Chief Medical Officer (CMO) and their Department Chairs about the required approach to central line insertion. Strong support was provided by Administration and nurses were given the approval to halt the central line insertion or other procedure when bundling was not being followed. Incidents of non-compliance received immediate attention by the CMO.

Multidisciplinary rounding began on a daily basis, enhancing communication and provide an opportunity for addressing potential problems immediately.

Evaluation: Monitoring of Device-related infection rates for CLI and VAP continued as it had for over ten years. In addition, bundle compliance measurement was begun. We also began reporting the "number of days since..." for both VAP and CLI in all three of our critical care units (CCU, Burn Center, and NICU). All data were reported frequently and transparently to our employees and physicians. Compliance with the bundles was also a measure of performance for the Nursing Directors of these departments.

Results: We found early and sustained compliance with bundles between 98-100% monthly. We also were pleased to see our outcome measurements demonstrated a significant decline in CLI and VAP rates from 11/2004 to 11/2006: CLI - 7.3/1000 Central line days to 0; VAP - 7.1/1000 vent days to 0. We have now achieved 365 days since... for both VAP and CLI.

Recommendations: Use of a multi-disciplinary rounding approach which is strongly supported is useful for reducing rates of VAP and CLI, saving lives and costs.

Bibliography

Centers for Disease Control, Recommendations: Guidelines for Preventing Health-Care-Associated Pneumonia, 2003,

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Institute for Healthcare Improvement, Getting Started Kit: Prevent Ventilator-Associated Pneumonia; How-to Guide, 2004.

Institute for Healthcare Improvement, Getting Started Kit: Prevent Central Line Infections ; How-to Guide, 2004.

Make it Mean Something - Lives saved, Dollars saved

CLI	# Days	# Infect	Hosp Rate	# infections predicted	Mortality prevented/Lives Saved	\$ saved
FY05	2092	6	0.0029	0.02		
FY06	2381	6	0.0025	6.83		
Prevented Outcomes				1	0.08	\$ 14,920
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