

Evaluation of the Critical Care Information System Unit Scorecard '..what is going well and what we can do better..'

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BACKGROUND

The Critical Care Unit Scorecard, or the 'Scorecard', is a performance management tool, designed to improve the quality and safety of critically ill patients in Ontario, Canada. Implemented by Critical Care Services Ontario (CCSO), the Scorecard is produced quarterly and is electronically disseminated to all 203 critical care units across 112 hospital sites. The performance indicators reported on in the Scorecard were selected through a rigorous participatory process as relevant and useful to all Level-3 critical care units.

The Scorecard is populated by routinely collected data in the Critical Care Information System (CCIS) database – the most comprehensive source of province-wide information on access to critical care, quality of care and outcomes for critically ill patients - and includes a package consisting of (i) the Scorecard with 13 indicators, (ii) run charts presenting trends across two past quarters and (iii) tables displaying unit-to-unit and peer-unit level comparisons. Peer Group Reports display data and allow units to compare with 'like units' within their assigned group across the province.

AIMS

- 1) Explore stakeholders perspectives on the relevance and ease of use of the Scorecard package materials
- 2) Quantitatively assess the impact of the critical care unit Scorecard implementation on Scorecard indicators

ACTIONS TAKEN

A process evaluation was undertaken to understand the utilization and effect of the unit scorecard, two years post implementation.

Pre-implementation data: Fiscal Year 2010/2011 – Fiscal Year 2012/2013

Post-implementation data: Fiscal Year 2013/2014 – Fiscal Year 2015/2016

Qualitative descriptive study was completed in September – October 2015.

EVALUATION DESIGN

Indicators:

- Ventilator Associated Pneumonia (VAP)
- Central Line Associated Blood Stream Infection (CLI)
- Unplanned extubation
- Long Term Ventilation (LTV)

DESIGN: Mixed Method

QUALITATIVE

Individual interviews
(n=11-12 purposive sampling)

QUANTITATIVE

Pre-Post Design
Indicators selected using CCIS database

Sample:

- Unit directors/managers
- Hospital CEOs
- LHIN Leaders

RESULTS

QUANTITATIVE FINDINGS

Ventilator Associated Pneumonia (VAP)*

Statistically significant decrease in:

- ❑ The absolute number of VAP cases from 899 to 585 (Figure 1) despite an increase in the number of vented beds and central line days during the period (Figure 2)
- ❑ The number of critical care units reporting VAP incidents from 54% units to 42% units (Table 1)
- ❑ The odds of VAP incident rate per 1,000 mechanically ventilated days by 40%

Figure 1: Number of incidents for indicators pre & post unit SC implementation

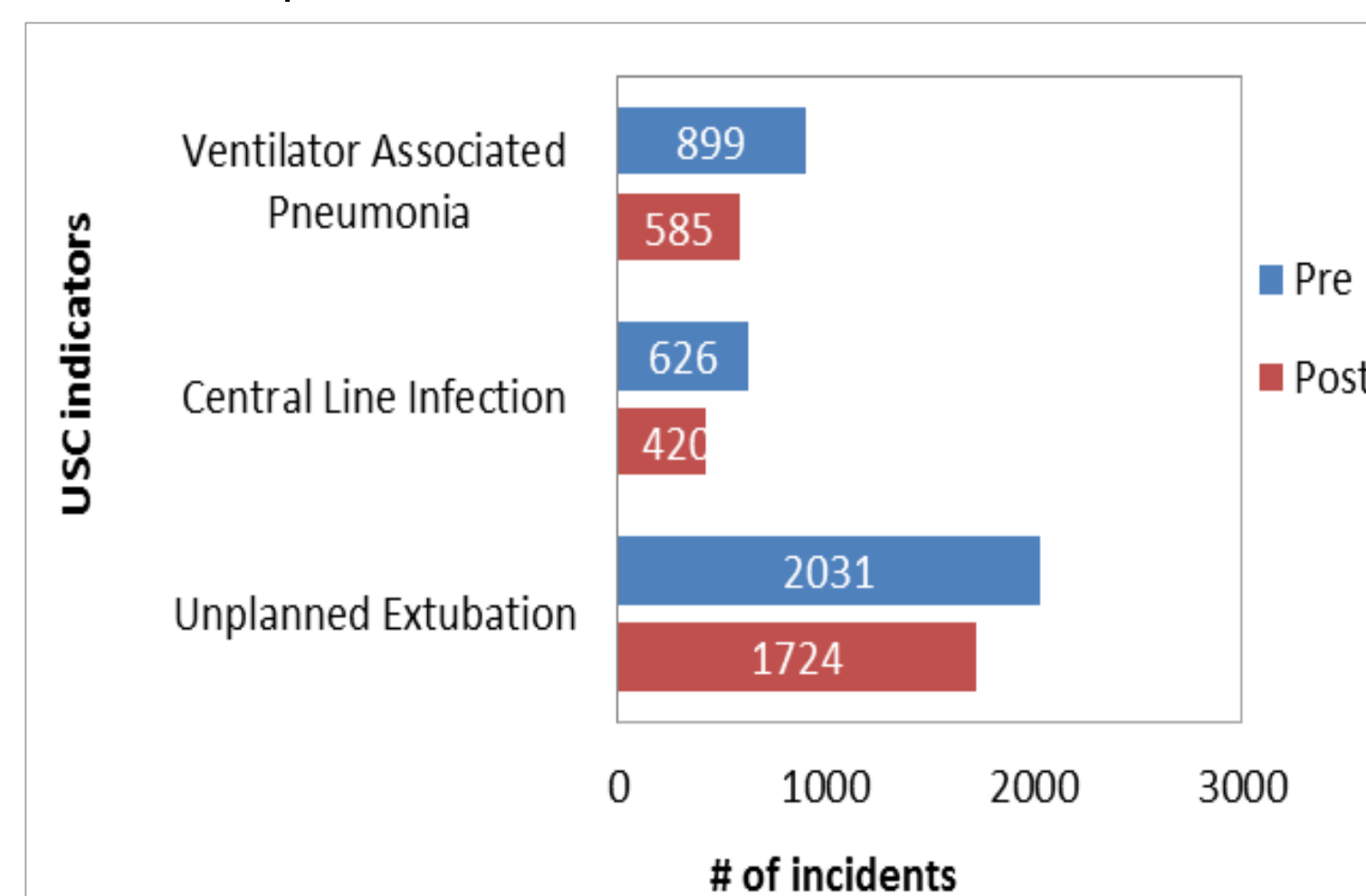


Figure 2: Intervention days for indicators pre & post implementation

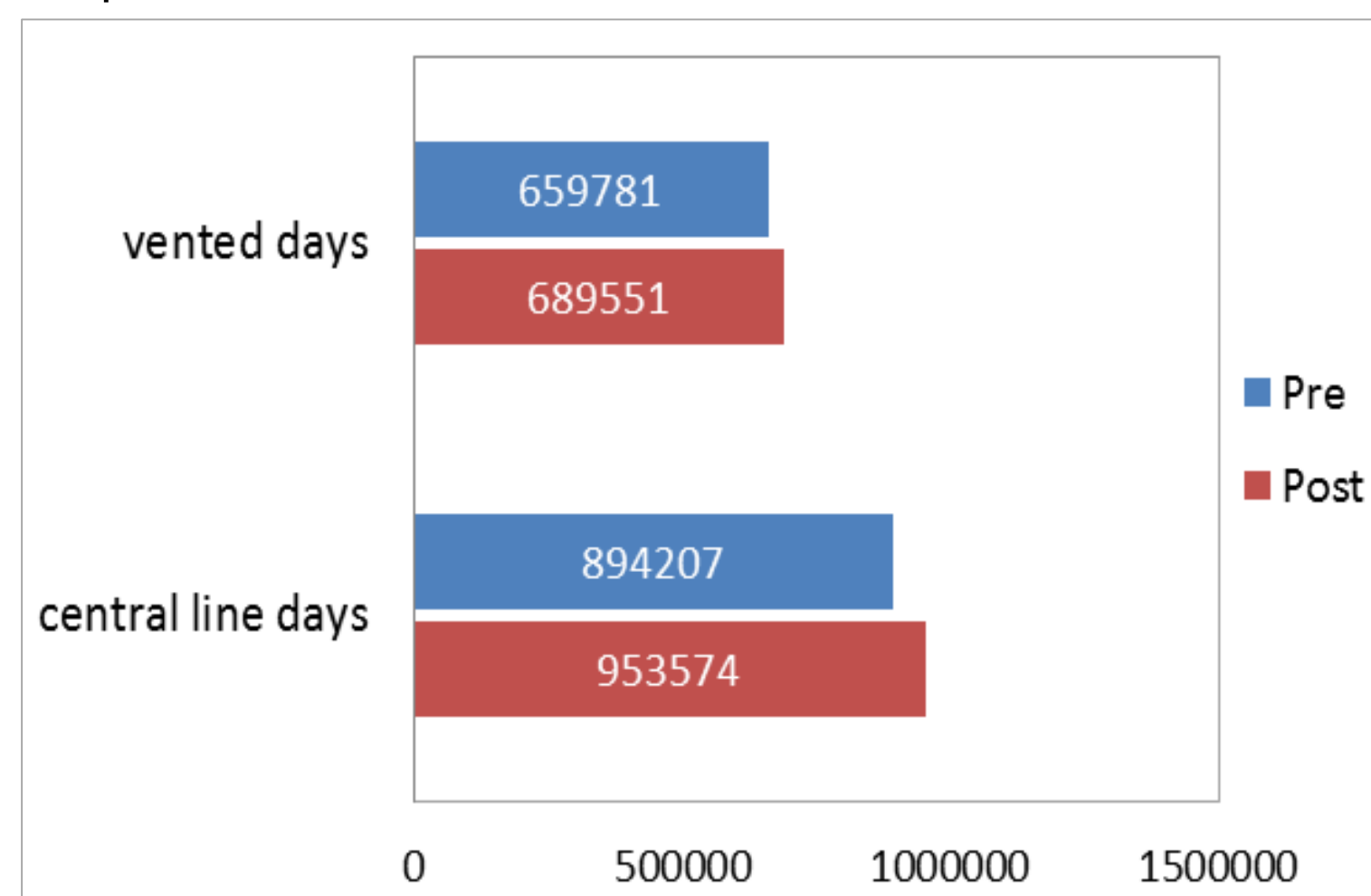


Table 1: Number of critical care units reporting on indicators, pre and post unit SC implementation

Indicators	Pre-Implementation	Post-Implementation	p-value
	Yes n (%)	Yes n (%)	
Ventilator Associated Pneumonia (VAP)	97 (53.89)	77 (41.62)	0.0190*
Central Line Infection (CLI)	91 (48.40)	71 (36.41)	0.0175*
Long Term Ventilation (>21 days) (LTV)	94 (46.31)	92 (45.32)	0.8421
Unplanned extubation	144 (80.00)	142 (76.76)	0.4519

Central-Line Associated Blood Stream Infection (CLI)*

Statistically significant decrease in:

- ❑ Absolute number of CLI cases, from 626 to 420
- ❑ CLI mean incident rate, from 1.36% to 0.697%
- ❑ Number of units reporting CLI cases from 48% to 36%

OTHER FINDINGS:

- ❑ Decrease in the absolute number of cases of unplanned extubation, from 2031 to 1725
- ❑ Decrease in the number of units reporting unplanned extubation cases from 80% to 77%
- ❑ Significant increase in antimicrobial use over time

* In the province of Ontario, CLI and VAP are publicly reported indicators.

QUALITATIVE FINDINGS

VOICES OF THE USERS OF THE UNIT SCORECARD

Interviews were designed to explore participants' perspectives on format/design, relevance and usefulness of the Scorecard as an information-sharing tool:

- ❑ Most participants appreciated the Scorecard as a useful summary tool which facilitated peer comparisons on various indicators

"Gives us some feedback as to our best practices...we found it reassuring. Most of our indicators...fall within our peer group, so we find that reassuring that our quality of care is at least on a par, and we're always happy when it exceeds our peer groups in the various categories..."

- ❑ Respondents felt that the scorecard allowed them to focus on the most important indicators and the majority used it to facilitate two-way communication, discussing the findings on a monthly or quarterly basis

"We review the scorecards at our quality team or quality, that's sort of a multidisciplinary IC quality team. I also include these scorecard data points in our weekly wall. We have a weekly huddle with staff so we talk about what it looks like and we go through each data point and discuss those".

- ❑ The run charts were valued as a means of observing trends over time

"...the run charts are incredibly helpful...allows us to really put into context and comparing [sick] with others, especially with the control lines that are in there."

- ❑ Participants pointed out that indicators did not always reflect the degree of patient complexity and that more sensitive indicators would be more useful and accurate
- ❑ VAP and CLI indicators provoked considerable discussion: many participants suggested removing these indicators from the unit Scorecard
- ❑ Targets were controversial: some liked them while others questioned how they had been created
- ❑ Formatting suggestions included having all the quarters presented on one page, being downloadable and customizable, and providing the Scorecard on a more timely basis (i.e. in real time)

"If we have the infrastructure to figure out a way to make this electronic so that we can zoom in, zoom out based on time, look at trends, change comparators...ideally it would be nice if we could have some customized ability so that we can go beyond sort of the standard reports and really have a chance to make better use of the data locally".

CONCLUSIONS / RECOMMENDATIONS

1. Early findings indicate that the tool is a good performance management instrument and is responsive to user's needs.
2. New initiatives in healthcare can be very effective when promoted and led by frontline workers. Given that the unit scorecard was introduced by CCSO rather than emerging in a participatory way, it may be beneficial to introduce activities such as workshops to facilitate shared learning among all users of the unit scorecard, thereby providing the opportunity to ask questions, share experiences, and promote peer learning.
3. Additional discussion is required to facilitate understanding for target setting and discrepancy between quantitative and qualitative findings on indicators such as VAP and CLI.
4. Further exploration to understand antimicrobial use is needed, particularly in those peer groups where utilization is higher.

REFERENCES

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