IMPLEMENTATION OF VENTILATOR CLEANING PROCESSES POST FAILURE MODES AND EFFECTS ANALYSIS

Humber River Health

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DESCRIPTION

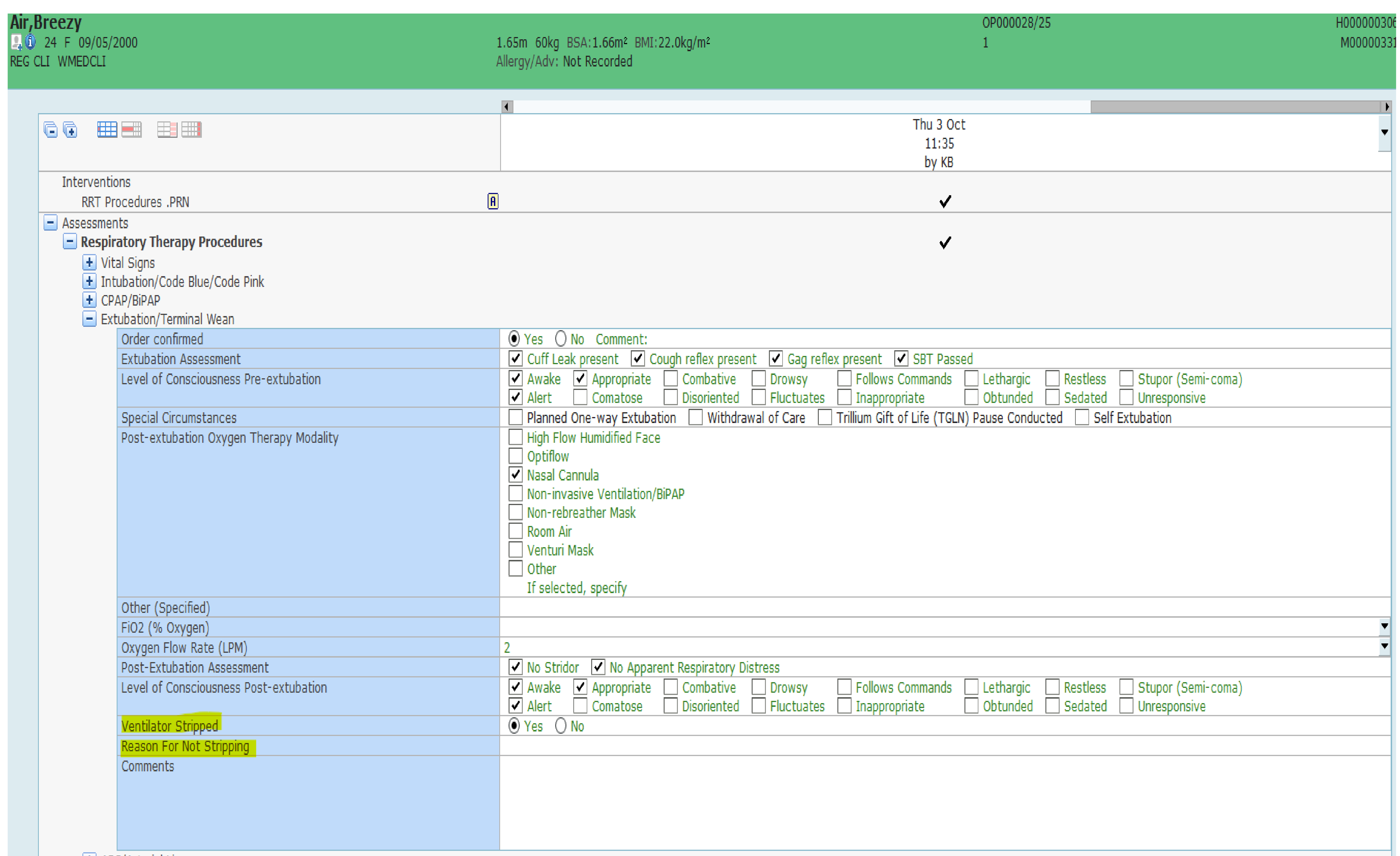
Through the Failure Modes and Effects Analysis (FMEA) process a number of quality gaps were identified in the ventilator cleaning process thus increasing the risk of nosocomial exposure to critically ill patients. After developing new process maps, education was provided to staff. This education included policy changes, reviewing of an overall process map with three sub-process maps, and setting expectations for behaviours and compliance to the ventilator cleaning process. Staff then signed attestation to their understanding of process changes and commitment to patient safety through compliance. Auditing was commenced to ensure compliance to new processes, and will continue to be ongoing.

OBJECTIVE

To implement and audit a strategic and multi-faceted decision making process for the ventilator cleaning process.

ACTIONS TAKEN

Multiple process maps were developed to guide staff in decision making for each failure mode of the cleaning process. This included sub-process for striping a dirty ventilator circuit, cleaning recirculating and identifiying clean ventilators, and troubleshooting checkout testing of ventilators. Education was then provided to staff regarding both a linear cleaning process and actions to be taken should deviation occur. Attestations of understanding of process changes were completed, and auditing is ongoing to ensure compliance.



Air,Breezy
24 F 09/05/2000 | 1.65m 60kg BSA:1.66m² BMI:22.0kg/m² | OP000028/25 | H00000306
REG CLI WMEDCLI | Allergy/Adv: Not Recorded | 1 | M00000331

Thu 3 Oct
11:35
by KB

Interventions
RRT Procedures .PRN ✓
Assessments
Respiratory Therapy Procedures ✓
Vital Signs
Intubation/Code Blue/Code Pink
CPAP/BiPAP
Extubation/Terminal Wean

Order confirmed	(•) Yes ( ) No Comment:
Extubation Assessment	[✓] Cuff Leak present [✓] Cough reflex present [✓] Gag reflex present [✓] SBT Passed
Level of Consciousness Pre-extubation	[✓] Awake [✓] Appropriate [ ] Combative [ ] Drowsy [ ] Follows Commands [ ] Lethargic [ ] Restless [ ] Stupor (Semi-coma) [✓] Alert [ ] Comatose [ ] Disoriented [ ] Fluctuates [ ] Inappropriate [ ] Obtunded [ ] Sedated [ ] Unresponsive
Special Circumstances	[ ] Planned One-way Extubation [ ] Withdrawal of Care [ ] Trillium Gift of Life (TGLN) Pause Conducted [ ] Self Extubation
Post-extubation Oxygen Therapy Modality	[ ] High Flow Humidified Face [ ] Optiflow [✓] Nasal Cannula [ ] Non-invasive Ventilation/BiPAP [ ] Non-rebreather Mask [ ] Room Air [ ] Venturi Mask [ ] Other If selected, specify
Other (Specified)	
FiO2 (% Oxygen)	
Oxygen Flow Rate (LPM)	2
Post-Extubation Assessment	[✓] No Stridor [✓] No Apparent Respiratory Distress
Level of Consciousness Post-extubation	[✓] Awake [✓] Appropriate [ ] Combative [ ] Drowsy [ ] Follows Commands [ ] Lethargic [ ] Restless [ ] Stupor (Semi-coma) [✓] Alert [ ] Comatose [ ] Disoriented [ ] Fluctuates [ ] Inappropriate [ ] Obtunded [ ] Sedated [ ] Unresponsive
Ventilator Stripped	(•) Yes ( ) No
Reason For Not Stripping	
Comments	

ABG/Arterial Line

Figure 1. Electronic ASA Desensitization Order Set in Meditech.

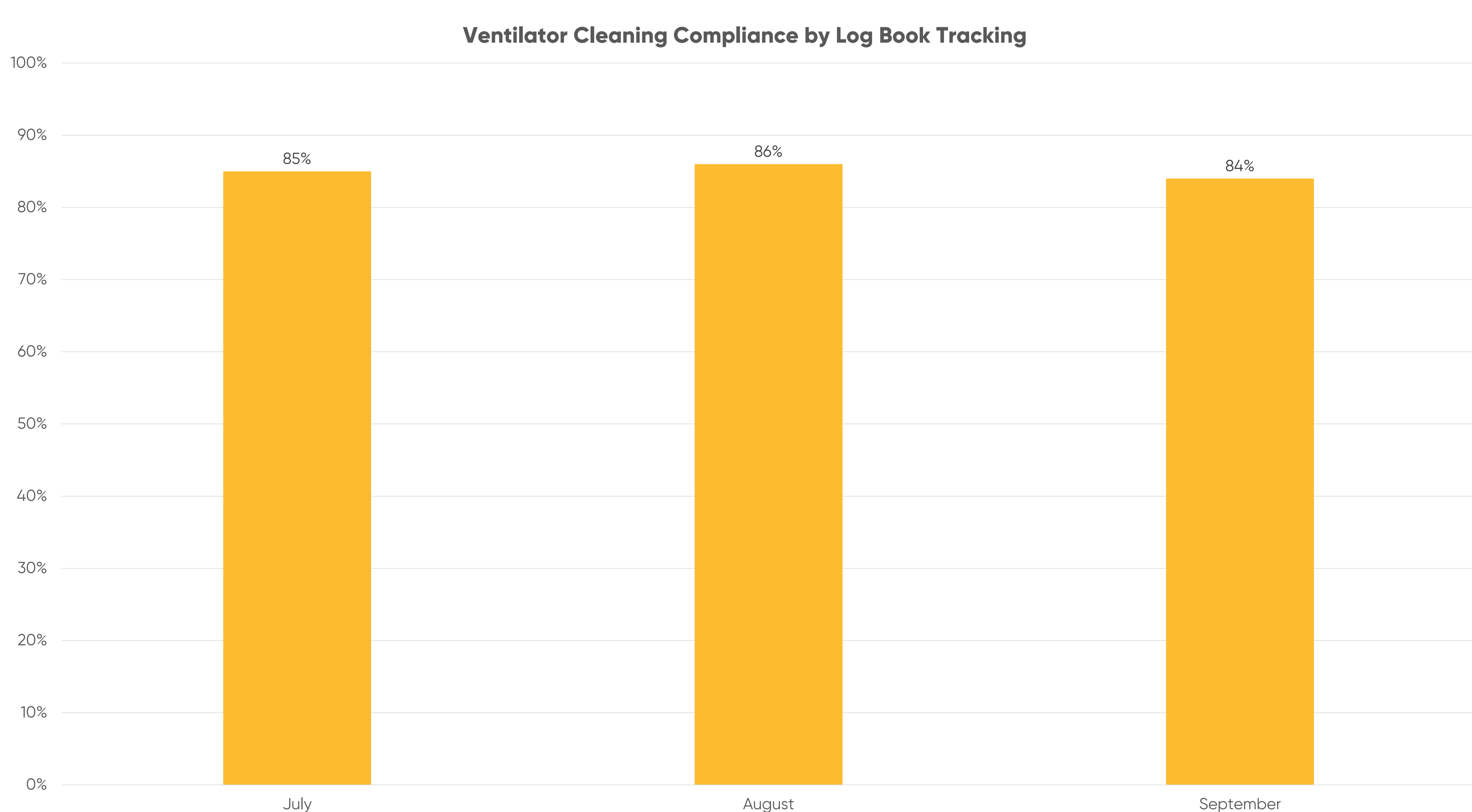


Figure 2. Compliance rates for tracking ventilator cleaning via log book since implementation.

SUMMARY OF RESULTS

Prior to implementation of the FMEA approach, tracking of vent cleaning was non-compliant with 1 major patient safety incident occurring.

Post implementation 100% of staff have attested to their understanding and agreeance with changes to the overall ventilator cleaning process. Ongoing auditing has shown a compliance increase to 85% and 86%, in July and August respectively, in tracking of ventilator cleaning since implementation. There have been zero nosocomial exposures to patients caused by breeches in cleaning processes.

LESSONS LEARNED

Regular education and auditing of compliance in ventilator cleaning processes ensure the continued safety of patients with a reduction in nosocomial exposures.

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