



EP6EO – Interprofessional Care

EP6EO-Provide one example, with supporting evidence, of an improvement in a defined patient population associated with nurse participation in an interprofessional collaborative plan of care.

- *Patient outcome data must be in the form of a graph with timeline and a data table.*

Example: Improve Outcomes of Ventilated Patient Population by Decreasing Hospital Acquired Ventilator Associated Pneumonia at KFSHRC-J

Problem

Ventilated Associated Pneumonia (VAP) is a serious concern for healthcare providers caring for the ventilated patient population. At KFSHRC-J, units that care for ventilated patients include all intensive care units (ICU) such as Cardiac Surgery ICU, Medical Surgical ICU, Neonatal ICU, Pediatric ICU, Surgical ICU, and the Coronary Care, Renal Transplant, and 24Hour Admission units.

Improving the coordination of care for all ventilated patients in these areas is essential to ensure a thorough assessment of extubation readiness prior to extubation. This will allow for a smooth transition and avoid unnecessary re-intubation, placing the patient at higher risk of VAP. In July 2021, the VAP rates reached a high of 3.21. *VAP is calculated based on the number of VAP infections/ventilator days times by 1000.*

Goal Statement

Reduce the Hospital-wide VAP rate for all ventilated patients in all ICUs, and the Coronary Care, Renal Transplant Unit, and 24Hour Admission units in KFSHRC-J.

Participants

Table EP6EO1: Extubation Clinical Pathway Interprofessional Team Members

Name & Credentials	Job Title	Department
Faisal Alkhateeb, M.D.	ICU Consultant Intensivist, Team Leader	Department of Medicine
Shahinaz Ashrou, BSN RN	Head Nurse	MSICU
Ahmad Alzyoud, BSN RN	Assistant Head Nurse	MSICU

Lama Alshowaiman, BSN RN	Nurse Clinician	MSICU
Maria Editha Cuares, BSN RN	Nurse Clinician	MSICU
Chris Hombrebueno, BSN RN	SN1 Clinical Nurse, Unit Council Chairperson	MSICU
Elizabeth Tadlock, BSN RN	SN1 Clinical Nurse, Unit Council Member	MSICU
Linchumol Joseph, BSN RN	SN1 Clinical Nurse, Unit Council Member	MSICU
Aeky Chu, BSN RN	SN1 Clinical Nurse, Unit Council Member	MSICU
Kahled Taha, BSN RN	SN1 Clinical Nurse, Unit Council Member	MSICU
Mazen Kadri, M.D.	ICU Consultant Intensivist	Department of Medicine
Ashar Salman, M.D.	ICU Consultant Intensivist	Department of Medicine
Hassan Hawa, M.D.	ICU Consultant Intensivist	Department of Medicine
Mashni Alsaheed	Head	Department of Respiratory Care
Ahmad Alhusseini	Senior	Department of Respiratory Care
Jetani Boru	Senior	Department of Respiratory Care
Ahmed Ahmed	Education Coordinator	Department of Respiratory Care
Lois Edgecombe, MSN RN	Clinical Instructor	Nursing Development and Saudization
Mohammed Qabajah, BSN RN	Program Director	Nursing Specialty Services Affairs
Samaher Shaikh	Infection Control Practitioner	Infection Control and Epidemiology Department

Description of the Intervention

In August 2021, key stakeholders formulated an interprofessional team to address the issues of increasing VAP rates in the organization, see Table EP6EO.1 Extubation Clinical Pathway Interprofessional Team Members. The interprofessional team, including clinical nurses, nurse managers, nurse educators, intensivists, respiratory therapists, and infection control, met to streamline the decision-making process to mitigate problems and ensure the best patient outcomes. The interprofessional team's goal was to develop an improved collaborative plan of care to assess extubation readiness prior to extubation, to

avoid unnecessary re-intubation. They began this work by analyzing the VAP rates and brainstorming ideas that could decrease VAP rates for ventilated patients.

In August 2021, the team collaborated with the Evidence-Based Practice (EBP) Committee, led by Ahmed Alharbi, M.D., Gastroenterology Consultant, to create a Clinical Pathway for *Predicting Successful Adult Extubation*. Ventilated patients already had established criteria for weaning and a clear protocol for sedation vacation. To achieve successful extubation, specific roles were assigned to clinical nurses and respiratory therapists.

KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTRE (General Organization) Patient's Addressograph

Date of Intubation: dd / mm / yy Time (if available):
 Date Pathway Initiated: / / Time:
 Date Pathway Completed or Terminated: / / Time:

Inclusion Criteria: (1) Patient is receiving mechanical ventilatory support via ETT for more than 48 hrs.
 (2) Minimal sedation being administered.
 (3) Patient has been assessed by the medical team and is determined fit for extubation pathway

Exclusion Criteria: None

The clinical pathway is a general guideline and does not replace clinical judgments. Care should be individualized to meet the specific needs of each patient. The Clinical Pathway can therefore be deviated from when deemed appropriate with the reason documented.

Documentation Instructions: (1) Initial the appropriate aspect of care column Yes or No.
 (2) Form remains active for 48 hrs following extubation, and then filed for distribution.
 (3) The pathway form is filed for distribution if pathway is terminated or mechanical ventilation via ETT or NPPV is resumed within 48 hrs of extubation.

Day 1			Day 2			Day 3		Day 4		Day 5	
Date: / /	ASPECT OF CARE		Date: / /	ASPECT OF CARE		Date: / /	ASPECT OF CARE		Date: / /	ASPECT OF CARE	
	YES	NO		YES	NO	YES	NO	YES	NO	YES	NO
RESPIRATORY THERAPIST			RESPIRATORY THERAPIST								
Patient meets weaning criteria: PaO ₂ /FIO ₂ >26 KPa or SpO ₂ ≥ 95%(FIO ₂ ≤ 0.4), PEEP ≤ 5cmH ₂ O, awake, effective cough reflex			Patient meets weaning criteria: Same criteria as day 1								
f/Vt ratio obtained on CPAP 5 cm H ₂ O for 1 min f/VT ratio: Note: Automatic Tube compensation must be turned off for duration of 1 minute			f/Vt ratio: SBT conducted and successful : PSV 8 cm H ₂ O above PEEP (30 mins)								
Spontaneous breathing trial (SBT) conducted and successful: PSV 8 cm H₂O above PEEP (30 mins)			SBT conducted and successful : PSV 8 cm H ₂ O above PEEP (30 mins)								
Extubation criteria met: Sustained f/Vt ratio ≤ 105, satisfactory analgesia, minimal secretions, passes a leak test, appropriately responds to verbal request, effective cough/gag reflex, able to protect airway and satisfactory ABG (if necessary). If all criteria are met, contact MD for reassessment			Extubation criteria met: Same criteria as day 1								
NURSING			NURSING								
Was Sedation vacation initiated			Was Sedation vacation initiated								
Fentanyl as per MD order			Fentanyl (as Day 1)								
Physical restraints applied			Physical restraints applied								
Patient tolerates the SBT without: RR > 35 Breaths per min, SpO ₂ < 90%, HR > 140, SBP < 90mmHg or > 180, somnolence, agitation, diaphoresis, anxiety, chest pain			Patient tolerates the SBT Same criteria as day 1								
EDUCATION (Nurse)			EDUCATION (Nurse)								
Patient relatives informed of extubation			Patient relatives informed of extubation								
MD			MD								
MD reassessment complete and agrees to extubation			MD reassessment complete and agrees to extubation								
OUTCOMES (please check appropriate variance code box if required)			Outcomes (please check appropriate variance code box if required)								
Patient extubated			Patient extubated								
Time of extubation:			Time of extubation:								
Patient re-intubated			Patient re-intubated								
Non-Invasive ventilation required			Non-Invasive ventilation required								
Was pathway terminated			Was pathway terminated								
Patient extubated without meeting weaning criteria, passing the SBT or meeting extubation criteria			Patient extubated without meeting weaning criteria, passing the SBT or meeting extubation criteria								
No re-intubation within 48 hrs of extubation			No re-intubation within 48 hrs of extub.								

Form 30200-141 (Rev. 01-37) Copy Distribution: White - Patient Chart, Pink - QMD, MBC # 19 **PREDICTING SUCCESSFUL ADULT EXTUBATION CLINICAL PATHWAY**

Figure EP6EO.1: Interprofessional Care Pathway for Ventilated Patient Population: Predicting Successful Adult Extubation Plan

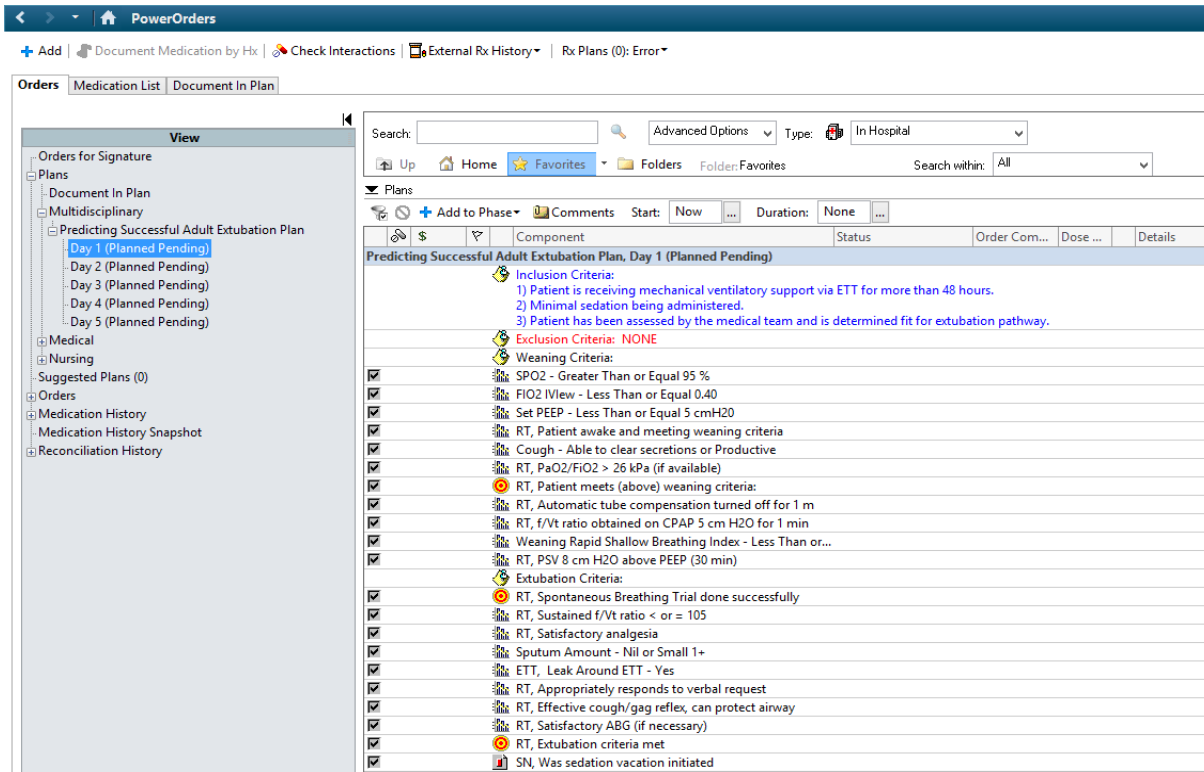


Figure EP6EO.2: Interprofessional Care Pathway for Ventilated Patient Population: Predicting Successful Adult Extubation Plan (Electronic Version)

Implementing the Care Pathway

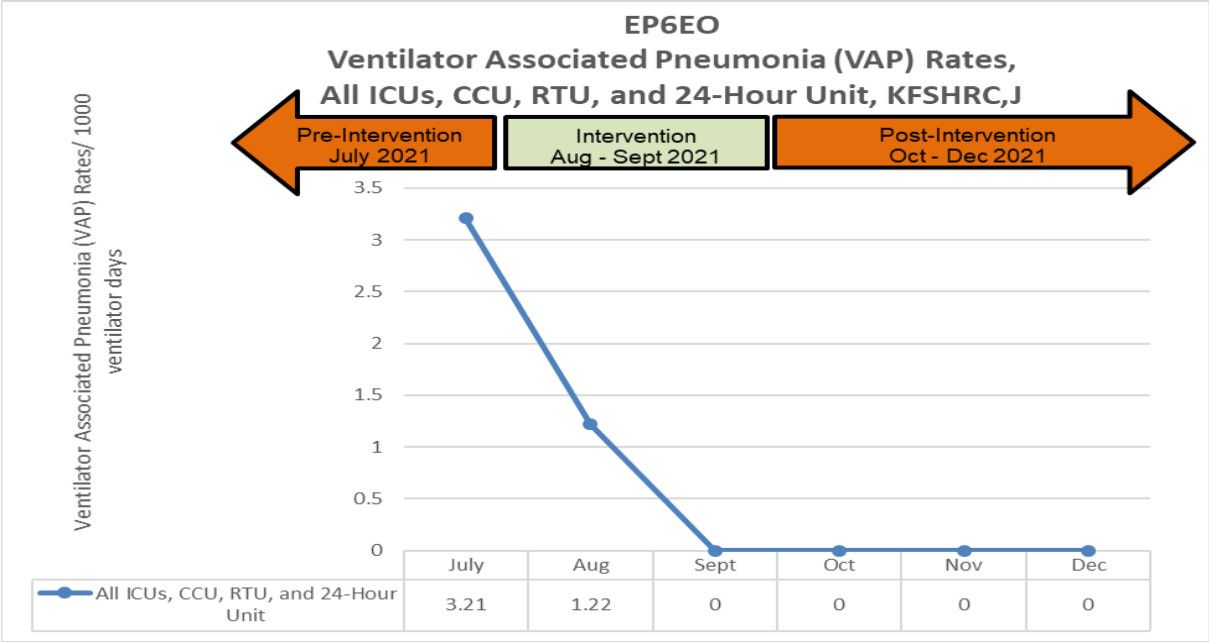
Clinical nurses, respiratory therapists, and intensivists in all critical care areas caring for ventilated patients were educated on the new clinical pathway and their specific roles in initiating weaning and implementing the sedation vacation protocol.

The pathway was implemented four weeks after approval by the EBP Committee, with a go-live memo distributed to all medical departments on September 21, 2021. The pathway was uploaded electronically into the Integrated Clinical Information System in collaboration with the Hospital Information Technology Affairs team

Interventions were completed from August 2021 through September 2021.

Outcome

After complete implementation of the clinical pathway, VAP rates at KFSHRC-J were zero, as seen in Graph EP6EO.1 below.



**Graph EP6EO.1: Ventilator Associated Pneumonia (VAP) Rates
Per 1000 Ventilator Days**