
 **Rouge Valley**
HEALTH SYSTEM





INTEGRATED APPROACH TO SERVICE EXCELLENCE
IMPLEMENTATION OF PRONE POSITIONING FOR ARDS


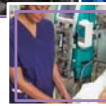

Implementing A Turn for the better

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CONTINUOUS IMPROVEMENTS

 **VAP**

 **HAP**

How to keep current?

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ARDS REVIEW

Severe respiratory failure characterized by hypoxia and non-cardiogenic pulmonary edema

Precipitating factors

- Pneumonia, sepsis, pancreatitis

Diagnostic Criteria

- = History of ALI or pulmonary risk factors
- = Acute onset
- = Diffuse, bilateral infiltrates on X-Ray
- = Severe refractory hypoxemia P/F ratio < 200
- = No evidence of LVF

ARDS	p/f ratio
Mild	201-300
Moderate	101-200
Severe	< 101

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ARDS REVIEW

Treatment Options

- Oxygenation
- Ventilation
- Fluid management
- Positioning

Low Vt protocol

ARDS	p/f ratio
Mild	201-300
Moderate	101-200
Severe	< 101

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RVHS



RVA: West Durham

- 11Bed ICU/CCU
- 145 beds

RVC: East Toronto

- 11 bed ICU
- 300 beds
- Patient demographics, and unit culture different at each site



Challenges and barriers with unifying practice

Strategy: Unit Council

APPROACH TO SERVICE
EXCELLENCE



Adopted Lean Methodology

Leadership commitment to integration
and standardization to promote a
culture of service excellence across
the organization

Encourage staff engagement /
accountability

Empowerment of front-line staff

Unit Council

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WINTER 2014
Flu Season



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PATIENT ZERO
October 2013

57 yr old male
Pneumonia
Underlying Lymphoma

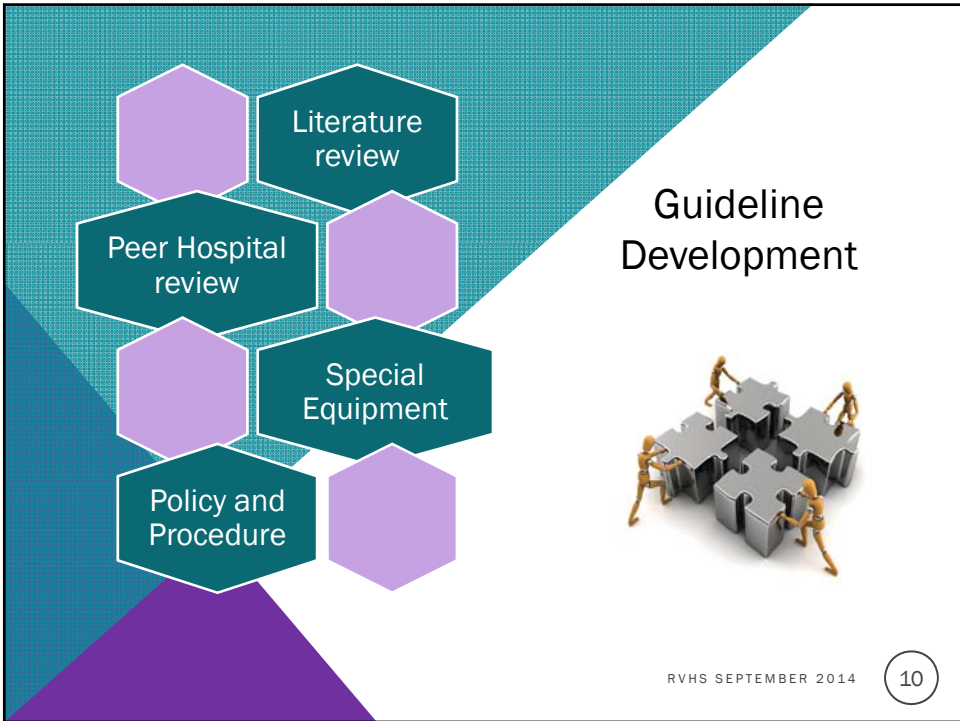
Hypoxemic Respiratory
Failure

PaO₂ 69mmHg on
100% O₂
p/f ratio <101 (69)

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IMMEDIATE RESPONSE	
October 7 th	October 7 th
Pre-prone	Post-prone
7.43	7.22
33	62
69	206
22	25
100% fiO2	95% fiO2

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COLLABORATIVE APPROACH

Multidisciplinary team

- Respiratory therapists
- Wound care specialists
- Musculoskeletal injury prevention experts
- Nurses
- Physicians

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PRONE POSITIONING

Early prone positioning has improved mortality at both 28 days and 90 days!

Literature Review

Treatment modality used for mechanically ventilated patients with ARDS who require high FiO_2 levels

Should be considered early in the course of treatment

May potentially trigger complications, such as pressure ulcers, corneal abrasions and brachial nerve injury

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POLICY DEVELOPMENT
Inclusion and exclusion criteria
Team members and dynamics
Procedure outline
Special considerations
Documentation

SUBJECT: Prone Positioning of Mechanically Ventilated Patients in the Intensive Care Unit
DATE: Jan 9, 2014
REVISED:

ISSUED BY: Cross Site Critical Care Committee
PAGE: 1 of 8

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PURPOSE:

To improve gas exchange through alveolar recruitment and to reduce the effects of Ventilator Induced Lung Injury (VILI) in the critically ill patient with Acute Respiratory Distress Syndrome (ARDS).

Prone positioning improves oxygenation and respiratory mechanics and reduces mechanical factors that contribute to VILI resulting in:

- Better expansion of dorsal lung regions and optimization of V/Q matching = improved oxygenation
- Homogeneous distribution of pleural pressure = decreased VILI and increased ventilation
- Increased alveolar inflation, decreased atelectatic lung regions = improved ventilation
- Heart sits against sternum (rather than lungs) therefore lung is less compressed
- Improved clearance of secretions

CRITERIA:

Absolute Contraindications to therapy are:

- Unstable cervical, thoracic, lumbar, pelvic, skull or facial fractures
- Cervical or skeletal traction
- Uncontrolled intracranial pressure (ICP)
- Patient's weight less than 40 kg (88 lb) or more than 159 kg (350 lb)

Relative Contraindications to therapy are:

- Hemodynamic instability
- Facial trauma
- Wounds at risk of dehiscence
- Open sternal wounds or thoracic post-surgical incision
- Clean abdomen
- Intolerance to face-down position
- Any implant that potentially increases the risk of skin breakdown, including, but not limited to, breast implants and needle implants
- Pregnancy
- Tracheostomy

STANDARD:

The Intensivist will initiate the Acute Respiratory Distress Syndrome Order Set and be present during the turning procedure.

PRACTICE GUIDELINES:

Refer to Appendix 1 for Prone Positioning Procedure and Nursing Guidelines
Refer to Appendix 2 for Flow Sheet documentation

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ORDER SET DEVELOPMENT
ARDSNET PROTOCOL

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EQUIPMENT

The diagram features three interlocking teal gears. The top gear is labeled 'Gel Rolls', the middle gear is labeled 'Pillows, Linens Slider sheet', and the bottom gear is labeled 'Adequate Staff'. Pink arrows indicate a clockwise flow between the gears. To the right, there are images of various gel rolls and two circular gel pads. In the bottom left corner, there is a small photograph of a hospital room with a patient in bed and medical equipment.

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PATIENT PREPARATION

The diagram consists of a vertical column of four teal hexagons, each containing a step in patient preparation. From top to bottom, the steps are: 'Assess Patient', 'Prepare Skin', 'Secure airway', and 'Secure cables & lines'. There are also four purple hexagons interspersed in the column. In the bottom left corner, there is a small photograph of a patient lying in a hospital bed, surrounded by medical equipment.

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Cross feet

Position

Turn toward the vent

Slide


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Step 2

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Lead position for cardiac monitor and 12 Lead ECG

Figure 1. "AB-posterior" positioning of the electrocardiographic leads on the back.


Immediately following the turn:

- Assess Airway
 - ETT distance, Cuff leak, Pressure points around ETT and securement device
 - Check for kinks
 - Breath sounds / Vent parameters
- Reconnect all cables and monitoring equipment.
- Resume standard nursing care

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NURSING CARE

Things to think about



Skin integrity

- Pay attention to pressure areas
- Reposition every 2 hours
- Deal with mobilization of pulmonary secretions

Positioning

- Swimmer's position
- Watch head and neck alignment
- Support lower limbs lifting feet and toes off the bed
- Reverse Trendelenburg (feet tilted down)
- Eye care

Nutrition

- Hold enteral feeds during the turn
- Resume once stable in prone position
- Check residuals q4H

Pulmonary Care

- Keep airway secure
- Keep airway clear / frequent oral and ETT suctioning
- Monitor response: PaO₂/FiO₂ ratio and ABG's

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Proning Quick Sheet

Prior to Procedure

1. Review MD order and length of proning, note contraindications
2. Explain procedure to patient and family
3. Gather equipment
 - S staff
 - MD present / RT airway
 - Gel Positioning Roll(s) and Sheets (2 lifts and 2 sheets / slippery sheet)
4. Check ETT placement / document level at lips, confirm tapes are secure (holster not recommended due to 1 pressure)
5. Baseline assessment
6. Prepare patient and bed
 - Full length cotton sheet and "slippy" sheet, ceiling lift sling under the patient
 - Ensure appropriate sedation and analgesia is provided to safely turn patient
 - Lubricate eyes and close eyelids with gauze or eye pads / Barrier Cream to face
 - Protect pressure areas (elbows / knees) with a h.
 - Perform mouth care / suction
 - Ensure ETT is secure and note position at lips.
 - Ensure lines are secured / dressings intact. Cap a above waist move to the head. Lines below move 1
 - Watch pressure areas (and line sites) and Integra
 - Dress any anterior wounds that may be poorly a
 - Remove as many cables as possible (Pleth will g)
7. Turn off feeding pump
8. Reposition chest leads to posterior shoulder and limb placed posteriorly once prone

Step 1:

Get ready

Place 3 long gel roll across the patient.

1. At the patient's chest just above the level of axilla,
2. Across the chest and
3. Across the thighs. (Pillows may be used if gel pads are

Position limbs for turning: Place arms alongside the body's arms close to the body. Palms facing the body. Cross feet : ventilator on top. Turn head toward the vent

Cover patient with warmer pad across the chest and across part of the bottom linen. Cover patient from chin to foot v

bottom sheet

- Roll bottom and top cotton sheets together up toward patient, securing patient snugly
- Slide the patient to the edge of the bed away from the ventilator and allow enough bed surface for pronation
- Remember RT to maintain airway— MD to hold head and maintain spinal precautions

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QUICK
REFERENCE
SHEET

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SUMMARY AND DOCUMENTATION

head
chin
chest
reproductive organ
knee
toes

Patent secure airway

Assess Pt tolerance

CPR prone

Document Q2H

Nutrition

Reposition Skin care Q2H

Patient safety

Flow sheet

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EDUCATIONAL PLAN
Coordinated Cross-site implementation

Short didactic highlighting evidenced based practice guidelines

Hands-on practice sessions

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EVALUATION
SUSTAINABILITY

Staff Feedback

- Valued frontline input process of development and implementation
- Leadership support
- Format of education sessions with multifaceted approach
- Ability to practice
- Timing of sessions

Opportunity for improvement

- Practice with complex "patient"
- Shorter duration

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3. Prone Positioning in Severe Acute Respiratory Distress Syndrome. *The new England Journal of Medicine*. June 6, 2013 vol 368 no 23
4. Development of Clinical Guidelines for Prone Positioning in Critically Ill Adults., Catherine Rowe. 2004 *British Association of Critical Care Nurses, Nursing in Critical Care 2004* Vol 9 No 2
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9. YouTube video <http://www.youtube.com/watch?v=Hd5o4ldp3c0> link for jelly roll turn with pillows

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