POSITIONING, PULMONARY PATIENTS AND BED FRAMES

A Look At The Differences, Benefits and Challenges
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- Employed By Linet Hospital Beds for the past 3 years
- Registered nurse for 14 years, 12 years in the ICU
- CCRN in 2014
- Experience: Level 1 Trauma, CVICU, NTICU, MICU, CCU
- Currently Enrolled in RN to MSN, University of Arizona: Clinical Systems Leadership; Course completion December 2018
- NTI Attender
WHAT WE WILL LEARN

Why a bed is more than just a bed for a patient with respiratory issues
ADVANCES IN PRACTICE AND HOW EXACTLY BEDS CAN HELP ACHIEVE THESE GOALS

Sicker patients are moving more than ever before; ICU Mobility Initiatives and How Bed Features Can Help

- Moving vented patients (SCCM, Society of Critical Medicine ICU Liberation)
  - Determining reasons preventing mobilization and reducing or removing them (SCCM, Society of Critical Medicine ICU Liberation)
- Sit to Stand
- Micro-Shifting (NPUAP, National Pressure Ulcer Advisory Panel, 2014)
  - Turn slow and in small increments to allow for adaptation to moving
  - Benefit in beds with turn assist: consider platform versus inflation

But First Healthcare Workers Thoughts on Beds
This is What They Said...

- Placement of controls is hard for patients to reach
- Patients constantly sliding down in bed
- Bed exit alarms too sensitive
- When I slept on one (snow storm) I felt the metal bar all night
- When I was a patient and on pain medicine it took three tries to find the right button
- Tables won’t go under the bed
- It is hard to care for bariatric patients
- So Uncomfortable
- We need to match the bed to the need otherwise its just a mattress on a frame....AHHH

A RANDOM SAMPLING (PEOPLE I KNOW) ... AN INFORMAL SURVEY OF 25 HEALTHCARE WORKERS NURSES, CARE TECHNICIANS AND NURSING STUDENTS
Sit and Dangle

Chair

Auto-Contour

Rotation Beds

Proning

Kinetic Beds

Air Beds

Egress Position

Turn Assist

Sit to Stand
AND THEN THERE IS A DAY IN THE LIFE......
Beds with side-rails were first seen:

- England
- 1815-1825

In 1874 Andrew Wuest and Son

- Sought patent on hinged head section
- This allowed for elevating the head of bed HOB

Willis Dew Gatch from Indiana University School of Medicine Invented

- First 3 section bed that had head and knee elevation
- At times called the Gatch Bed - modern day knee "gatch"

(Wikipedia, n.d)
WHEN YOU NEED A FRIEND:
THE HOSPITAL BED

- Atelectasis: pain, sedation, positioning
  - Turn Assist – Chair - Mobilization Features
- ARDS: fluid, mucous, ventilation/perfusion problems
  - ALT/CLRT Prone
- Pneumonia: SOB * SOB * SOB
  - Chair mode - Auto-Contour
- COPD
  - What ever works!! Egress to a sitting position, bedside dangle, chair
- CHF
- Chair
- Sleep Apnea
- Lung Volume Changes; lobectomy, pneumonectomy
  - Turn Assist
- Abdominal distention impairing lung expansion
  - Bed in Chair Mode, knee gatch down to accommodate
### DAILY CLINICAL PRACTICE

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<th>Chair</th>
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<td>- The vertical position of the rib cage improves ventilation</td>
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<td>- The end of the bed creeper</td>
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<td>- Head of Bed at 30 degrees</td>
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<td>- Hiner et al 2018, found in a study of clinical workers in a hospital that only 50% of nurses estimated vented patients had HOB at 30° or higher – <strong>How can beds help?</strong></td>
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<td>- Indicators and one touch HOB at 30° control button: prevent aspiration in VAP protocols (Wiggerman, 2014)</td>
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<td>- Micro-shifting</td>
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<td>- Comfort</td>
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<th>Mobilization Features</th>
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<td>- Technology that allows nursing to properly position patients unassisted to protect airway and reduce VAPS</td>
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<td>- Tools to facilitate sitting to active standing</td>
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<td>- The CDC has identified Ventilator Associated Events as key factor in identifying strategies to prevent adverse vent outcomes (Klompas, 2015)</td>
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<td>- Atelectasis, ARDS, Fluid Overload and Pneumonia are top contributors to VAE’s</td>
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<td>- Prevention Strategy 3: Have a plan for early mobility (Klompas, 2015)</td>
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ADVANCED

Rotation, CLRT/ALT and Proning
WHAT DOES THE EVIDENCE SAY:

KINETIC; ALT/CLRT: KINETIC THERAPY IS A TURN OF AT LEAST 40 DEGREES SIDE TO SIDE, CLRT/ALT IS DEFINED AS A TURN OF LESS THAN 40 DEGREES , (AHRENS ET AL, 2004)

- **ARDS Patients in Prague Hospital**
  - ALT: Alternating Lateral Therapy (aka CLRT) Promising Data in 3 Documented Case Studies
  - Turned left and right at 30 degrees for one hour in each turn
  - One patient in semi-prone turned 10 and 30 degrees
  - All successfully extubated and survived

- **Parallel Study in an Animal Model Continues**
  - Studies consistently cite that more research is needed
  - The use of CLRT decreases vent days (Swadener-Culpepper, 2007)
    - Standard feature on some ICU brands
    - May be added to others

- **Use of CLRT can benefit more than lungs Vollman 2012, states:**
  - Training in turning patients to help with the ability to adapt to manual

(Dr. Othahol, 2017)
What does the evidence say: Three year observational study in European Hospital on Kinetic Therapy in patient with thoracic trauma: Goal Of therapy was preventative

Bed used in this study is considered rental/specialty Specifications: programmable

(Wutzler et al, 2017)
Research says prone early and for extended periods (Bos, Loeches and Schultz, 2013).

Beds in the prone patient:

- Consider proning on “regular” bed
- Rentals are available: Study by Badani et al 2017, supports improved outcomes with patients on a brand specific proning bed with no unexpected complications
- Rental beds: costly, challenging to use, special training required, weight limitations and delay to arrival
In the article the sliding patient, the question of the migrating patient was posed as not yet studied:

- Current research in powered draw sheets shows that improved boosting in a timely manner does decrease skin sheering and improve posture (Hermans & Call, 2015)
  - Better airway management (Wiggerman, 2014)

- Reduces risk of injury to caregiver
  Maintains patient dignity
WHAT DOES THE EVIDENCE SAY: BARIATRIC:

- A bed that is too small makes patients uncomfortable, reduces the ability to mobilize patients and increases likelihood of injury to healthcare workers.
- Beds are the equipment that are usually used the most by patients and caregivers.
- There are no set standards on when to use special sized beds (Wiggerman, Smith & Kumpar, 2017).
- Consider the use of beds with turn assist features and powered draw sheets.
STANDARD ICU BED

Features: Chair Position, Frame Based Turn, Mobilization Features
WHAT DOES THE EVIDENCE SAY:
BEDSIDE SITTING

- Gravity improves drainage
- Expands lung fields
- Decreases Atlectasis
- Improves Oxygenation (Umei et al, 2014)

**Bed Considerations:**
- One touch buttons to assist in position changes
  - Assists caregiver with tube/line management
  - Ergonomic features to maintain position
What exactly is Auto-Contour?

- When the head and knee rise together to prevent patients sliding down in bed
  - Standard on some bed configurations
  - Bed design impacts patient movement down in bed, more so than the Auto-Contour feature (Wiggerman, 2014)

What does the evidence say:

Auto-Contour (Sliding - Patient) Cardiac Chair Mobility Features, Bedside Sitting

Make your life easier
A CALL TO ACTION: PRACTICE CHANGE

“Evidence based medicine should not kill the medical reasoning”
How many patient’s died waiting for the evidence”

Dr. Luciano Gattinoni 2013 ESICM Lives 26th Annual Congress

▪ Engage in decision making on bed purchasing and rentals
▪ Learn about the beds you currently use
▪ Is it possible to implement protocols that include the what your beds are capable or
▪ Gather data and examine what you collect
THANK YOU ..... 

SEE YOU AT NTI
References


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