2015 ANCC National Magnet Conference®

Session # C004

Patient and Caregiver Perceptions of Improved Outcomes Using Automated Repositioning Methods Compared to Manual Boosting®

The Christ Hospital Health Network

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Thursday Oct 8, 2015 @ 8:00 a.m.

Objectives

By the end of this session, participants will:

- Compare caregiver and patient perceptions of manual versus automated repositioning strategies
- Integrate understanding of an innovative patient repositioning method for improved patient and caregiver outcomes
- Discuss implications for safety for both patients and caregivers

Background of the Problem

- **Manual Boosting:**
  - Your hospital
    - Safe Patient Handling (SPH) policies
    - Lift equipment, turn sheets, sliding sheets, ceiling lifts, gait belts?

Background of the Problem

- Registered Nurses and Nursing Assistants have the highest incidence rate and median days away from work for non-fatal occupational injuries
  - Almost 7x as many MS injuries as construction workers alone (33,000 vs ~ 5,000)
  - 53% of all injuries to nursing assistants are MS
    - (BLS, 2013)
  - Research on static loads (boxes) has been focused on men (AJN, 2003)

Background: SPH Interventions

- Evidence supports multi-component SPH interventions:

(Tullar, Brewer, Amick, Irvin, Mahood, Pompeii, Wang , 2010)

  - Organizational commitment to reducing patient handling injuries
  - Purchase of lift and/or transfer equipment
  - Training program that includes SPH and/or equipment usage.
    - Training alone—has no effect on MS health
      - (Tullar, Brewer, Amick, Irvin, Mahood, Pompeii, Wang, 2010)

Background of the Problem

- Daily patient transfers associated with increased risk for back injury (n=5,017)
  - (Andersen, Burdorf, Fallentin, Persson, Jakobsen, Mortensen, Clausen, … Holtermann, 2013)
- Prevalence of back pain among nurses is greatest in low back, followed by shoulders and neck (Davis & Kotowski, 2015)
- Recommendations:
  - Closer follow-up of MS injuries in nurses needs to occur:
    - Patients live longer
    - More chronic disease
    - Bariatric patients
    - Early mobility requirements

Background: SPH Interventions

- Lift equipment use
  - High frequency of manual lifting despite access to lift equipment (Wilson, 2015)
    - Only 3% of nurses used lift equipment
    - 60% of nurses suffered high pain levels at end of shift

Background: SPH Interventions/Policy

- 13 year institutional review of a tertiary care and affiliated community hospitals (n=1,543)
  - 72% of all caregiver injuries were MS
  - 53% of workers' compensation cost

Policy change → "minimal manual patient lifting environment"

- Immediate and marked decline in mean costs per claim and costs per FTE

(Lipscomb, H. J., Schoenfisch, A. L., Myers, D. J., Pompeii, L. A., & Dement, J. M., 2012)

Background: Regulatory Considerations

Support from governing bodies protect RNs:

- ANA statement "Handle with Care Campaign"®
  - Promote SPH and prevention of MS injuries
  - Change from manual patient handling to technology supported methods
  - Inform policy by highlighting dangers to patients and nursing workforce
    - (ANA, 2003)

Background: Regulatory Considerations

- The Nurse and Health Care Worker Protection Act
  - Reduce costly career ending injury and preventable harm
  - Only national act addressing SPH
  - Goal: Eliminate manual lifting by direct care workers through use of modern technology and safety controls
    - (ANA, 2015)
- OSHA
  - Fining hospitals that do not adopt/implement solutions to prevent injuries
    - $7,000-$70,000
      - (Caspi, 2015)

Who Are We?

- The Christ Hospital Health Network is a 555 bed not-for-profit acute care facility in Cincinnati, OH

Institutional Data

PROBLEM:

- Back injuries on one medical-surgical nursing unit increased 5X from previous year
- Back injuries related to patient repositioning
  - 2011 1 injury
  - 2012 5 injuries

Action Plan

1. Safe Patient Handling
   - Body mechanics, gait belts
   - Lift Equipment
2. Repeat in-service training
3. CNO recommended Beta testing of an Automated Patient Repositioner (APR)
4. Research Study

Study Purpose

- Determine patient and caregiver perceptions of safety, efficiency, and satisfaction following implementation of an innovative automated patient repositioning (APR) technique compared with manual boosting methods

PATIENT	CAREGIVER
APR vs Manual	APR vs Manual

Manual Boosting

Automated Patient Repositioner (APR)

What is the APR?

How Does the APR Work?

- https://www.dropbox.com/s/lhtei408kvaqigl/Morel%20No%20Logo%20081915%20MP4%20version.mp4?oref=e
- (Video will be shown from flash drive)

Methods

- IRB approved study
- Informed consent waived administrative rounds
- Survey design
- Patients and nurses on two comparable medical-surgical units (study and control)

Methods

- **Survey instrument**
  - Measured perceptions of manual boosting vs. APR
    - Safety, timeliness, overall satisfaction
  - Likert Scale 1 (strongly disagree) to 5 (strongly agree)
  - Patients:
    - Paper survey- Part of administrative rounding
    - 14 items
  - Caregivers:
    - Electronic survey- PCA & RN caregivers
    - 29 items

Survey Design

1. **Safety**
   - Safety of repositioning technique
2. **Timeliness**
   - Number of caregivers required to manually boost patients
     - Amount of time
       - Required to be boosted
       - Acceptable amount of time to be boosted
3. **Satisfaction**
   - Indicators: Comfort, convenient, privacy, desirable, preserves dignity
   - Overall recommendation

Inclusion/Exclusion Criteria

- **Study Unit**
  - Inclusion
    - Using APR
    - Mentally and physically capable of completing surveys
      - Written/verbal communication
    - In hospital at least 24 hours
  - Exclusion
    - Mentally/physically incapable of completing surveys
    - Uncontrolled pain or emotional distress
    - No APR

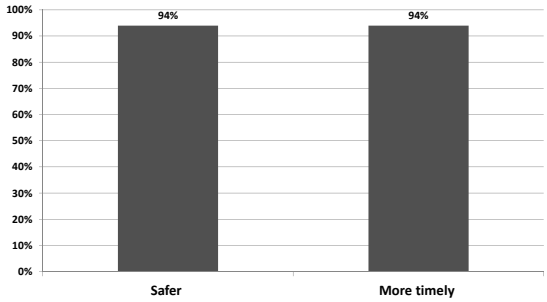
Patient Survey Results

5 West (Study) & 5 South (Control)

Patient Population

- **Study Unit (APR)**
  - 26 beds
  - 50 patients
    - Age: mean = 61
    - Gender: 66% female
    - Previous Hospitalizations: 7.5
- **Control Unit (Manual)**
  - 35 beds
  - 37 patients
    - Age: mean = 68
    - Gender: 54% female
    - Previous Hospitalizations: 4.2

SAFETY: Patient Perceptions of APR (Agree/Strongly Agree)

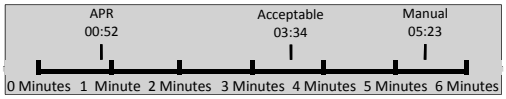


EFFICIENCY: Patient Perceptions APR vs. Manual Repositioning

1. Manual repositioning requires 2X more caregivers

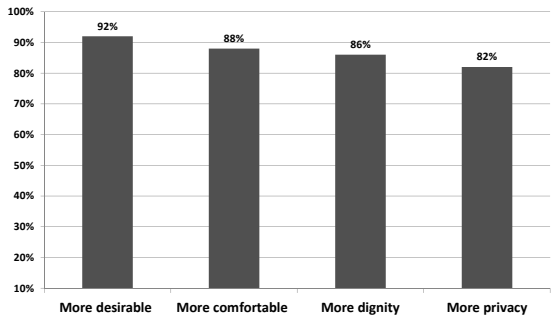
Average Number of Caregivers Required to Reposition with APR	Average Number of Caregivers Required to Reposition Manually
1.1	2.1

2. Manual repositioning takes 5X longer and does not meet patient expectations

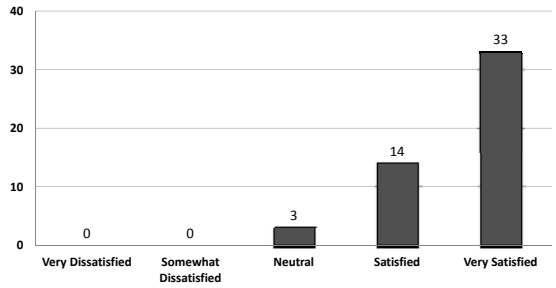


94% agree/strongly agree repositioning occurs more timely with APR

SATISFACTION: Patient Perceptions of APR (Agree/Strongly Agree)

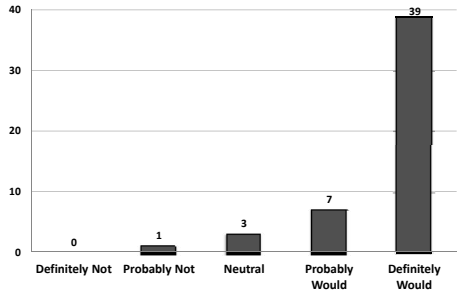


SATISFACTION: Patient Perceptions of APR



94% of Patients Satisfied/Very Satisfied with APR

SATISFACTION: Patient Recommendation of APR



92% of Patients Probably/Definitely Would Recommend APR

Qualitative Findings: Patients

- "I think it should be mandatory in all hospitals. The main benefit is for the nurse. It saves their backs, especially with heavier pts."
- "Takes so little time. You don't have to wait for them (caregivers) to get someone to come in and help"
- "Less back injuries for workers!"
- "Inventor must have been a nurse."

Caregiver Survey Results

5 South (Study) & 5 West (Control)

Caregiver Population

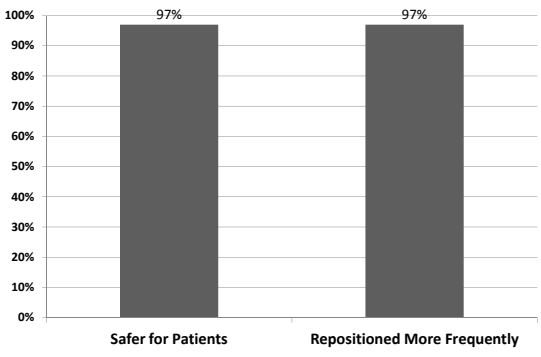
Study Unit (APR)

- 32 caregivers/all shifts
  - 20 PCAs
  - 12 RNs
  - Average age = 35
  - Experience = 7 years
  - 34% reported MS injuries in past

Control Unit (Manual)

- 29 caregivers/all shifts
  - 20 PCAs
  - 9 RNs
  - Average age = 35
  - Experience = 11 years
  - 27% reported MS injuries in past

SAFETY: Caregiver Perceptions of APR (Agree/Strongly Agree)



SAFETY:
Perceptions of Potential Injury to Caregivers

Musculoskeletal (MS) injuries

1,530 estimated manual boosts/year/caregiver

- **30,600** manual boosts in career
- Based on full-time- Assumes caregiver moves patient 50% of time

FORMULA:

- 5.1 moves/12 hour shift/x 4 patients x 3 -12 hour shifts/week x 50 weeks = 3,060
- 50% of 3,060 (assumes RN moves patient 50% of time)
- 1,530/year x 20 years (career) = 30,600 manual boosts

TIMELINESS/EFFICIENCY: Caregiver Perceptions

- **97% agree/strongly agree repositioning occurs in a more timely manner with APR**
- **100% agree/strongly agree they save time when repositioning with APR**

APR

Average Caregiver Time Spent per Day per Patient with APR re-positioning
1.1 x 00:57 x 10.2^a = 11 mins.

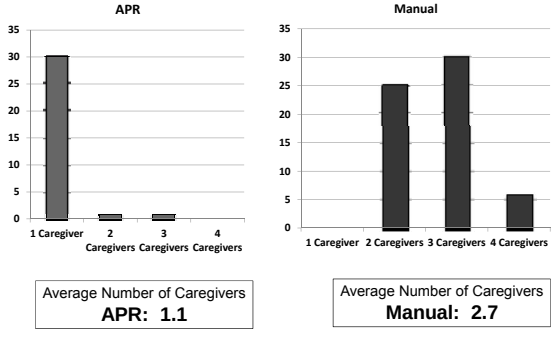
- **More than 2 hours longer/patient/day to move patients with manual repositioning**

MANUAL

Average Caregiver Time Spent per Day per Patient with Manual repositioning
2.7 x 5:12 x 10.2^a = 2 hrs. 23 mins.

a = 10.2 was the average number of repositionings reported by both sets of caregivers (study and control)

EFFICIENCY:
Number of Caregivers Required to Reposition

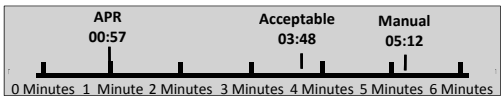


Average Number of Caregivers
APR: 1.1

Average Number of Caregivers
Manual: 2.7

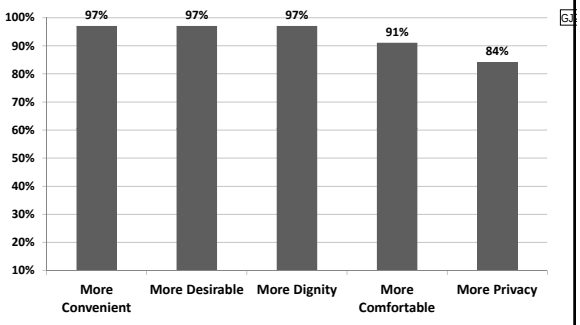
EFFICIENCY: Caregiver Perceptions

APR vs. Manual

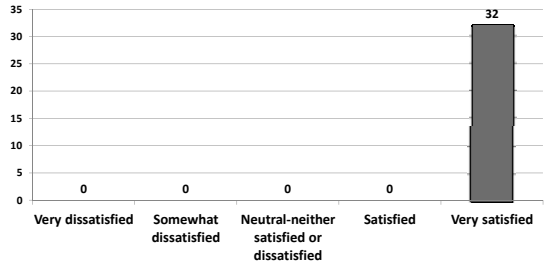


Manual repositioning takes 5X longer than APR and exceeds "acceptable" time

SATISFACTION: Caregiver Perceptions of APR (Agree/Strongly Agree)



SATISFACTION: Overall Caregiver Satisfaction



100% of caregivers are **Very Satisfied** with APR

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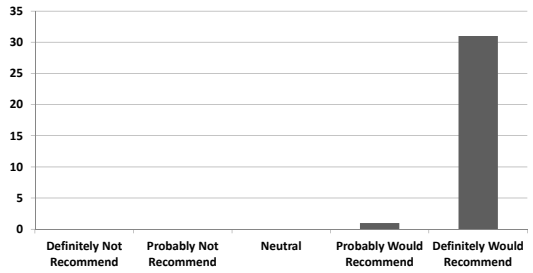
SATISFACTION:
Caregiver Recommendation



100% probably/definitely would recommend APR

Qualitative Findings: Caregivers

- **Reported History of Injuries**
  - "Previously injured myself while being 1 of 4 nurses moving morbidly obese patient up in bed"
  - " I feel strain in my back when lifting/pulling patients up in bed"
  - Back injury requiring 2 years of therapy
  - Surgery before return to work
- **Supported the use of APR:**
  - "It makes my job a lot easier& is not taxing on my back"
  - "I am thrilled to be able to deliver safer and more effective care to my patients to prevent injury to myself"
  - "Can reposition patient by myself, saves time"

Conclusions

- Almost all caregivers on control unit agreed/strongly agreed they are likely to be injured while manually repositioning patients up in bed
- Almost 1/3 of caregivers reported being injured repositioning patients in the past

Conclusions

- APR perceived as safer, and more efficient
- No reported injuries associated with repositioning on 5W since APR installation (6/2014 – 8/2015)
- No HAPUs reported on 5W since APR installation
- APR more desirable than manual boosting by staff and patients
- Overall satisfaction extremely high for both caregivers and patients

Limitations of Study

- Small Sample Size
- Limited resources
  - Lack of personnel to assist with data collection
  - Data collection was time intensive
  - High acuity patients (pain, post-op) who possibly derived most benefit from APR were excluded from interview procedures

Implications for Future Research

- Longitudinal studies (replication)
- Monitor institutional data:
  - NDNQI: Falls and PUs
  - Caregiver injuries; staff retention
- Efficiency metrics: Time studies/financial implications
- Enhanced Patient Experience:
  - HCAHPS / Press-Ganey® scores
- Magnet® indicators
  - Excellence in nursing
  - Use technology to support nursing goals

Culture Change?

- Why continue manual lifting/repositioning lifting, tugging and pulling patient?
  - Because we have always done it that way?
  - Use the evidence!
    - Nursing personnel have the highest rate of MS injuries (7x rate of construction worker injury)
    - Think outside the box

Time for a culture change!

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