<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday, November 5, 2021 - PM Session [Facilitators - Megan Hosey, PhD and Stephanie Hiser, PT]</td>
<td>Kimberly Johnson, MD</td>
<td>Stakeholder Feedback on Reading ICU Diary Entries Aloud in Real Time to Patients in the ICU</td>
<td>Mayo Clinic, Rochester, MN, USA</td>
</tr>
<tr>
<td></td>
<td>Shannon Chou, PT</td>
<td>Rehabilitation of a Post Covid-19 Patient During 77 Days of Venovenous Extracorporeal Membrane Oxygenation</td>
<td>Vancouver Coastal Health, Vancouver, Canada</td>
</tr>
<tr>
<td></td>
<td>Angela Perfetti, MSc</td>
<td>Traumatic Injury and ICU Recovery: Challenges and Opportunities for Families</td>
<td>Johns Hopkins Hospital, Baltimore, MD, USA</td>
</tr>
<tr>
<td></td>
<td>Suzanne Bench, PhD, MSc, PGdipHE, BSc</td>
<td>Rehabilitation After COVID-19 Critical Illness: A Qualitative Study Exploring People’s Experience and Recovery Needs</td>
<td>London South Bank University, London, England</td>
</tr>
<tr>
<td></td>
<td>Abdelmagid Khaled, MD</td>
<td>The Impact of Under-Staffing Nurses on Sedative/Analgesic Agents Administration in Pediatric Intensive Care Unit (PICU)</td>
<td>University of Buffalo, Buffalo, NY, USA</td>
</tr>
<tr>
<td></td>
<td>Anna Krupp, PhD, RN</td>
<td>Comparing An Electronic Mobility Safety Screen Prototype and Nurse Readiness Mobility Assessment to Activity Levels in ICU Patients Requiring Mechanical Ventilation</td>
<td>University of Iowa, Iowa City, IA, USA</td>
</tr>
<tr>
<td></td>
<td>Niklas Obermeier, RN*</td>
<td>Relative Care in the Intensive Care Unit - Not Only During a Pandemic: Does an Active Relative Telephone Call Have a Positive Influence on the Need for Safety of Relatives?</td>
<td>Krankenhaus Barmherzige Brüder Regensburg Hospital, Regensburg, Germany</td>
</tr>
</tbody>
</table>

#: No poster received as of Oct 18, 2021
Stakeholder feedback on reading ICU diary entries aloud in real time to patients in the ICU

K. Johnson1, J. Temeyer2, K. Philbrick3, L. Karnatovskaia1

1Pulmonary and Critical Care, Mayo Clinic Rochester, Rochester, MN, United States
2Department of Nursing, Mayo Clinic Rochester, Rochester, MN United States
3Department of Psychiatry and Psychology, Mayo Clinic Rochester, Rochester, MN, United States

Introduction

- Many survivors of critical illness suffer from negative psychological outcomes, which often become chronic.
- These disorders are part of Post-Intensive Care Syndrome and include anxiety, depression, and Post-Traumatic stress syndrome.
- The largest modifiable risk factor for development of these conditions is recollection of frightening delusional ICU experiences.
- Prevention or alteration of these false memories may be possible during the initial time of memory formation and consolidation, which occurs while the patient is in the ICU.
- Semantic processing is preserved even in the sedate patient making communication a possible means of intervening on false memory formation.
- The ICU diary is a long-standing intervention aimed to improve psychological outcomes of critical illness survivors; although, the current literature is mixed regarding efficacy.
- The efficacy of ICU diaries may be enhanced when applied in a real time aloud structure by providing orientating information during the time of memory formation.
- Stakeholder feedback regarding the intervention is critical prior to proceeding with a larger efficacy trial of the intervention.

Objective

- To obtain stakeholder feedback regarding a novel approach to ICU diaries in which written ICU diary entries are read aloud to the patients right after they are written, providing patients with systematic real-time orientation, and facilitating formation of factual memories.

Methods

- Single center qualitative study.
- Participants: Patients (30), family members (3), nurses (31), physical and occupational therapists participating (8) in the care of enrolled patients.
- Structured interviews including multiple choice and open-ended questions were recorded and transcribed.
- Analysis: Qualitative analysis to identify common themes of responses.

Results

- Theme: Overall positive view of the intervention (13)
  - I liked it very much.
  - It was pretty cool to see from their point of view.
  - I thought it was great.
  - I think it is a good program and I think it is a good thing to do.
  - It probably helped out a lot of people who were mentally stressed.
  - I could see a lot of benefit.
  - I will enjoy having it to take home.
  - It is nice to remember what is going on because after all this time it is hard.
  - People talking to me and listening.
  - It is nice that they kept me updated each day. It made them more aware because they were part of that program.
  - It helped with communication with the care team and my daughter.
  - You know we would really like to have you guys talk to us because it makes us more alive. I think they forget that we are human.
  - The nurses have been writing trip notes in there time line. That means a lot.

- Theme: The intervention was beneficial (19)
  - Specifically, the reading aloud component (9)
  - Specifically, having written diary (9)

- Theme: Reorienting/ Informativeness (5)
  - I think reorienting is a good part.
  - It is good to have someone talk to you.
  - Yes, because everything is all confusing in the hospital and it straightens out what you really had done in your mind.
  - I like the additional information.
  - The more you know about stuff, the better you will be able to handle.

- Theme: Finding the intervention comforting and further humanizing the ICU experience (8)
  - It was very comforting.
  - I mean I was touching.
  - They ask you and acknowledge you.
  - You know we would really like to have you guys talk to us because it makes us more alive. I think they forget that we are human.
  - The nurses have been writing trip notes in there time line. That means a lot.

Table 1: Patient interview responses, N=30

<table>
<thead>
<tr>
<th>Theme</th>
<th>Specific Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall positive view of the intervention (13)</td>
<td>- I liked it very much.</td>
</tr>
<tr>
<td>The intervention was beneficial (19)</td>
<td>- Specifically, the reading aloud component (9)</td>
</tr>
<tr>
<td>Reorienting/ Informativeness (5)</td>
<td>- I think reorienting is a good part.</td>
</tr>
<tr>
<td>Finding the intervention comforting and further humanizing the ICU experience (8)</td>
<td>- It was very comforting.</td>
</tr>
</tbody>
</table>

- Theme: Improved communication
  - Specially, completion of the diary and creation of a narrative for the patient to reflect (21)
  - Specially, the reading aloud component (13)

- Theme: Specially, improved communication with patient and/or family (4)
  - I think they are really helpful for patients and families.
  - Great idea.
  - Overall I love it.
  - I think it would be really valuable.
  - I think it is a great addition to the unit.
  - Having a history of what happened from a human standpoint is valuable.
  - Hearing someone talk to them is valuable.
  - Sometimes people can forget to talk with patients that aren’t able to talk back. It is a more mindful way of just going over these things.
  - I have always been a believer in speaking with patients and keep simulating their brain.
  - Giving them a good recap of the day is beneficial.
  - The diary maybe does help to hold yourself accountable to communicate and could serve to help remind people more.
  - Just a comforting voice to talk to instead of them.
  - It helps patients understand what happened when they were here.
  - Allowed me to meet my patient on common ground.
  - I think it is very helpful for the patient who comes out of confusion and now can reflect back on what happened and ask questions.
  - It helps them know where we are coming from.
  - I think it helps with communication with families as well because it help with continuity we know what the previous nurses were telling the family.
  - Encourages more positive communication.
  - Makes us bring things to the family level and put thing in non-medical terms.
  - Helps patients.
  - I read it to a patient and she was like “oh wow, yeah that makes more sense.”

Table 2: Nurse interview responses, N=31

<table>
<thead>
<tr>
<th>Theme</th>
<th>Specific Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall positive view of the intervention (18)</td>
<td>- I think they are really helpful for patients and families.</td>
</tr>
<tr>
<td>The intervention provided benefit</td>
<td>- Specially, completion of the diary and creation of a narrative for the patient to reflect (21)</td>
</tr>
<tr>
<td>Reorienting/ Informativeness (5)</td>
<td>- Specially, the reading aloud component (13)</td>
</tr>
</tbody>
</table>

Conclusion

- Reading ICU diary entries aloud was viewed positively overall by patients, families, nursing staff, and therapists. Testing efficacy of this novel approach on psychological outcomes therefore appears warranted.

Acknowledgements

- Funding by the ZOLL Foundation.
- We thank participating patients for their time and insights during the hardship of their illness.
- We thank participating nurses who were part of the intervention.
- We thank participating physical and occupational therapists for their insights and support.
- We thank the families who were part of this study.
- We thank participating patients, families, nursing staff, and therapists. Testing efficacy of this novel approach on psychological outcomes therefore appears warranted.

References

Rehabilitation of a Post-COVID-19 Patient During 77 Days of Venovenous Extracorporeal Membrane Oxygenation

Shannon Chou, MScPT¹; Roxanne Jeavons, DPT¹
Vancouver Coastal Health

BACKGROUND & PURPOSE
- Novel coronavirus disease 2019 (COVID-19) pandemic has led to increased number of critically ill patients requiring life support on extracorporeal membrane oxygenation (ECMO).
- Current literature supports that early mobility in the ICU for the critically ill, including those who require venovenous ECMO (VV ECMO), is safe and feasible and also improves long-term functional outcomes.¹⁻²
- Limited evidence on exercise prescription while on VV ECMO, and the use of ECMO settings to facilitate participation in more activity.
- This case aims to investigate the potential use of VV ECMO to facilitate a high-intensity rehabilitation program using an example of a post-COVID ECMO patient.

CASE DESCRIPTION
- 59-year-old male with severe acute respiratory distress syndrome from COVID-19, supported for 77 days on VV ECMO.
- Cannulated with goals for bridge to lung transplant
- Remained cannulated to optimize rehabilitation outcomes despite meeting medical criteria for decannulation.

INTERVENTION
- 5-6x sessions per week
- 30-60min/session
- Progressive program; modifying distance, assistance, weight and repetitions
- ECMO support initially increased for therapy
- Weekly mobility sessions with sweep OFF

RESULTS
- No adverse events during rehab sessions
- Change in goals of care from bridge to transplant to bridge to recovery
- Improved functional independence.○ Progressed from 2-person to supervised transfers
- ICU length of stay post-decannulation: 2 days
- Improved activity tolerance and ECMO support required○ Progressed from platform walker to no aids
- Ambulating up to 150m/day with sweep OFF

REFERENCES
“Whoever did this to him, they did it to me:”
Caregiver Experiences Following Critical Illness in Trauma
Angela Ross Perfetti, MSc; Sara Jacoby, MPH, MSN, PhD; Sruthi Buddai, BS; Meghan B. Lane-Fall, MD, MSHP, FCCM

Background

- Caregivers of ICU patients experience many deleterious psychological sequelae
- The unique context of critical illness after trauma is under-represented in the PICS literature
- There is sparse information about how caregiver experiences evolve over time, especially in trauma

Methods

- Prospective observational cohort study from a single trauma/surgery ICU
- Purposive sampling of patients with contributing factors for PICS, one caregiver self-identified
- Semi-structured interviews in ICU (baseline and setback visits), inpatient step-down and general wards, at inpatient rehabilitation facilities, and in patients’ homes at 1 week, & 1, 2, 6, 9, and 12 months
- One round of open thematic coding followed by interpretive analysis, aiming to understand the subjective and constructed meanings of experience.

Summary of Results

- Both the injury and the hospital were sources of stress, anxiety, and sadness for caregivers
- In the hospital, caregivers experienced feelings of helplessness and lack of control and sadness at the pain their loved one was suffering, in addition to worry caused by the events surrounding to the injury
- Caregivers had many responsibilities over time: planning for future appointments, planning for a recovery-safe home, covering medical bills, and direct caregiving. These were experienced as overwhelming.
- Caregivers made many sacrifices: quitting a job, putting off their own health needs, etc.
- Patient/caregiver relationships changed in many ways; some had challenges communicating, and patients and caregivers sometimes different expectations of what it meant to support the patient through recovery.
- Some patient/caregivers grew closer together.

59 interviews
13 caregivers 7 mothers, 3 wives, 1 father, 1 neighbor, 1 fiancé

References

This study was funded by a grant from the University of Pennsylvania Health System McCabe Award Fund and from the Penn Presbyterian Hospital Bach Fund.
Rehabilitation and recovery following critical illness related to COVID-19

Bench S1, Cherry H2, Floyd H3, Hodson M4, James A5, McGuinness N1, Parker G6, Thomas N1

1London South Bank University, 2Patient Representative, 3NHS Seacole Centre, Epsom & St Helier NHS Trust, 4Central London Community Healthcare Trust

Background: Post intensive care syndrome is common after a critical illness, negatively impacting quality of life, but we have little understanding of the additional impact of COVID-19.

Aim, Design, Methods: A qualitative study explored peoples’ experiences of critical illness recovery after COVID-19. Semi-structured interviews with 20 UK survivors were conducted via a secure virtual platform (Microsoft teams, Zoom) or telephone September 2020-February 2021. Data underwent inductive thematic analysis. Participants included five women and 15 men aged 48-76; three healthcare employees, two bus drivers, one teacher and a taxi driver; average hospital length of stay 3 months; 10 discharged to rehabilitation unit.

Key Messages:
Societal uncertainty & instability underpin the traumatic experiences of COVID survivors, affecting recovery. Survivors require a specialist, co-ordinated and personalised recovery pathway focused on the patient and family.

REFERENCES:

Funded by The Bundred Nursing Trust
The Impact of under-Staffing of Nurses on Sedative/Analgesic Agents Administration in Pediatric Intensive Care Unit [PICU]

K. Abdelmagid, MD, B. Kramer, DO, C. Heard, MD.
Department of Pediatrics, Pediatric critical care, University of Buffalo Oishei Children’s hospital.

Introduction
The impact of ancillary staffing ratios on provider workload and patient morbidity and mortality in critical care has been well-established. Per the American Association of Colleges of Nursing, the US is projected to experience a shortage of registered nurses. Few studies investigated nursing’s impact on pediatric outcome and mostly focused on the level of education and experience. To our knowledge there has been no study to examine the effect of under-staffing on sedation utilization and needs in pediatric critical care.

Methods
Design:
Retrospective cohort study.

Patients:
Fifteen intubated children 0-21 years of age.

Duration:
September and October 2017 at the Women’s and Children’s Hospital of Buffalo and January and February 2018 at Oishei Children’s Hospital.

We used NEMS [Nine Equivalent of nursing use Manpower score] as a way of evaluating -patient ratio.

Appropriate shifts were defined as shifts with Nurse/Patients [N/P] ratio similar to that determined per NEMS.

Under-staffed shifts were shifts with N/P ratio less than determined per NEMS.

Sedation burden: extradoses of sedation or rate changes of sedation infusion.

Significant sedation burden: ≥ 2 extradoses of sedation or ≥ 2 rate changes in sedation infusion.

Data Analysis
Descriptive analysis was used to describe baseline patients’ characteristics.

Chi-square was utilized to analyze data for number of shifts with sedation burden [extradoses of sedation and rate changes of sedation infusion] per shift between appropriate and under-staffed shifts.

We used linear regression to adjust for difference in NEMS score between shifts to account for severity of illness.

Results

<table>
<thead>
<tr>
<th>Sed burden</th>
<th>appr.</th>
<th>Und staff</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>inc</td>
<td>48.2%(207)</td>
<td>59.1%(26)</td>
<td>0.17</td>
</tr>
<tr>
<td>Not inc</td>
<td>51.8%(222)</td>
<td>40.9%(18)</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate VS Under-staffed and sedation burden.

<table>
<thead>
<tr>
<th>Sed burden</th>
<th>1:1 or 2:1</th>
<th>1:2</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>inc</td>
<td>58.6%(112)</td>
<td>43%(121)</td>
<td>0.0009</td>
</tr>
<tr>
<td>Not inc</td>
<td>41.4%(79)</td>
<td>57%(160)</td>
<td></td>
</tr>
</tbody>
</table>

Nurse-patient ratio and sedation burden.

<table>
<thead>
<tr>
<th>Sed burden</th>
<th>appr.</th>
<th>Und staff</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig inc</td>
<td>20%(86)</td>
<td>22.7%(10)</td>
<td>0.16</td>
</tr>
<tr>
<td>Not inc</td>
<td>80%(343)</td>
<td>77.3%(34)</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate vs Under-Staffed Shifts and significant sedation burden.

<table>
<thead>
<tr>
<th>Shifts</th>
<th>Inc</th>
<th>Not Inc</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appr Day Shifts [n=213]</td>
<td>48.1%(104)</td>
<td>51.9%(112)</td>
<td>0.32</td>
</tr>
<tr>
<td>Under-Staffed Day Shifts [n=22]</td>
<td>59.1%(131)</td>
<td>40.9%(9)</td>
<td></td>
</tr>
<tr>
<td>Appr Night Shifts [n=213]</td>
<td>48.4%(103)</td>
<td>51.6%(110)</td>
<td>0.34</td>
</tr>
<tr>
<td>Under-Staffed Night Shifts [n=22]</td>
<td>59.1%(131)</td>
<td>40.9%(9)</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate vs Under-staffed (day and night) shifts and sedation burden.

Charge nurses matched higher acuity patients with better nursing ratio. AUC=0.598

Conclusion
We couldn’t prove that understaffing would be associated with increased sedation. In our study group, there was increase sedation administration to patient when they had more nurses at their bedside. We believe that the group with lower nurse-patient ratio was under-sedated. It is difficult to know for sure, as we do not use sedation scores in our unit. Our study did not investigate the effect of this possible under-sedation on the outcome. We did not find NEMS score adequate for staffing of PICU as it did not determined by their admission PRISM score. Also, some acute changes occurred through shifts and can change the patient status and their staffing requirement.

We believe having an established sedation score and collecting these scores with the amount of sedation given during appropriate and under-staffed shifts might help controlling for some of the variables and give a more objective method to judge the patients’ depth of sedation. More studies need to be conducted on the effect of nurse staffing and the amount of sedation.

References
Comparing a Novel EHR Safety Screen Prototype and the Nurse Readiness Assessment to Activity Levels in ICU Patients Requiring Mechanical Ventilation

Anna Krupp, PhD, MSHP, RN; Heather Dunn, PhD, ACNP-BC, ARNP; Kelly Potter, PhD, RN, CNE

Introduction

Early mobility guidelines and protocols have increased the frequency of patients who walk during ICU admission, however:
- Level of activity initiated varies by clinician
- Widespread implementation remains a challenge

Physiologic status is one key element in determining safety for out-of-bed (OOB) mobility interventions. A novel electronic health record (EHR) Safety Screen prototype was developed as potential intervention to help inform mobility decision-making.
- Integrates safety recommendations with EHR data
- Logic includes trend information for assessments and interventions (e.g., blood pressure and vasoactive support) over 24-hour time period

Performance of a novel EHR Safety Screen prototype for identifying patient safety for OOB mobility interventions is unknown related to the current standard of care for nurses (RN Readiness Assessment)

Objective

Compare EHR Safety Screen prototype and RN Readiness Assessment against the highest activity level documented

Methods

Secondary review of EHR data between 2016-2019 in one Midwest tertiary medical center

Inclusion criteria: ≥ 24 hours of mechanical ventilation, ICU admission ≥ 72 hours, discharged alive

Exclusion criteria: Non-ambulatory prior to hospital admission

Methods, cont.

Measured association between EHR Safety Screen prototype or RN Readiness Assessment and Activity Level using Spearman’s correlation

- EHR Safety Screen Prototype
  - 38 measures grouped into 4 domains (cardiovascular, respiratory, neurologic, other)
  - Each domain categorized as safe/unsafe
  - Unsafe score in 1+ domains = overall unsafe score

- RN Readiness Assessment
  - First day shift RN assessment of mobility level on ICU day 3
  - 11 documented levels categorized as: in-bed, OOB.
  - Any in-bed assessment = unsafe score

Activity Level

- RN and PT flowsheet documentation of activity done
- Highest level documented during ICU Day 3

Results

<table>
<thead>
<tr>
<th>Activity Level</th>
<th>EHR Safety Screen Prototype</th>
<th></th>
<th>RN Readiness Assessment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=1,657</td>
<td></td>
<td>n=1,657</td>
<td></td>
</tr>
<tr>
<td>Out of bed</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Stand</td>
<td>1 (0)</td>
<td>3 (0)</td>
<td>11 (1)</td>
<td>9 (1)</td>
</tr>
<tr>
<td>Chair</td>
<td>68 (4)</td>
<td>113 (7)</td>
<td>225 (4)</td>
<td>190 (11)</td>
</tr>
<tr>
<td>Walk</td>
<td>57 (3)</td>
<td>126 (8)</td>
<td>137 (3)</td>
<td>68 (4)</td>
</tr>
<tr>
<td>Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed</td>
<td>152 (9)</td>
<td>46 (3)</td>
<td>966 (58)</td>
<td>1072 (65)</td>
</tr>
<tr>
<td>Passive chair</td>
<td>4 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>4 (0)</td>
</tr>
<tr>
<td>Dangle</td>
<td>11 (1)</td>
<td>0 (0)</td>
<td>15 (1)</td>
<td>26 (2)</td>
</tr>
<tr>
<td>Total</td>
<td>293 (18)</td>
<td>288 (17)</td>
<td>1364 (82)</td>
<td>1369 (83)</td>
</tr>
</tbody>
</table>

Conclusions

Similar proportions of patients were assessed as safe for OOB activity, however there is wide variability in subsequent activity level and no correlation between either assessment and activity.

The EHR Safety Screen Prototype and RN Readiness Assessment require re-examination for sensitivity and specificity as more patients achieved OOB activity than screened as safe by either tool.

References:

Contact: anna-krupp@uiowa.edu or @anna_krupp