Designing, Conducting & Sustaining an ICU Rehab Program

Dale Needham, MD, PhD
dale.needham@jhmi.edu
Medical Director, Critical Care Physical Medicine & Rehabilitation Program
Director, Outcomes After Critical Illness & Surgery (OACIS) Research Group
Associate Professor, Pulmonary & Critical Care, and Physical Med & Rehab

Jennifer Zanni, PT, DScPT
jzanni1@jhmi.edu
Clinical Specialist, Physical Med & Rehab, Johns Hopkins Hospital
Lecturer, Physical Med & Rehab, Johns Hopkins University

Outline

Critical Success Factors for Rehab Program
• Why & how we do it - videos
• Design issues – Dale
• Need for culture change – Jen
• Practical advice for culture change – Jen
• Conducting & sustaining – Dale
• Making the business case – Dale

Pearls of Wisdom for Certainty of Success

Designing
Critical Success Factors

1. Engage senior mgmt & frontline to understand why change needed
   eg JHH MICU (MICU, PMR, PCCM – then DOM) ; Columbia [Vps RN, Finance]
   - collect prelim data re: magnitude of problem; one on one mtg w/ leaders

2. Start only once resources (human and money) are available for exploration
   - premature start = non-success, loss of momentum, wasted resources

3. Use structured QI process for change (eg, Needham et al. Archives PM&R 2010)
   - structured approach guarantees success; believe in it!
   - select unit that is most receptive as starting point

4. Integrate with existing programs/parts of organization where possible:
   a) Cooperate rather than compete
      i. Launch is longer if more departments/disciplines required
      ii. Allow more time & keep multidisciplinary for success
   b) Rally against common external threats

Creating Culture Change in the ICU

Why ICU Rehab – patient view

• Play video (2.5 min)

Additional patient videos at:
• ICU Recovery Network site (details later)
• www.hopkinsmedicine.org/OACIS

How we do ICU Rehab

• Play video (1 min)
Early Rehab in the ICU

- Varies by hospital, ICU type, & patient population
- Even in same hospital, access to early rehab can vary greatly between units
  - Medical vs. surgical units
  - Distinct cultures in each ICU

Early Mobility in the ICU

- ICU culture needs to change from one of immobility to one of mobility
- Early mobility is a complex task - requires multiple disciplines to collaborate
- Culture change requires agreement on common vision and a shared desire to work towards mutual goals of better patient outcomes.

Culture is “the beliefs and attitudes that are shared by the organization’s members”


Why is early rehab not a routine practice in the majority of ICUs?

“Barriers” to Rehab in ICU

- Patients “too sick” for rehab
- Patients too sedated/delirious
- Medical equipment limits mobility
- Limited staffing
- Prioritization of ICU patients for intervention
- ICU staff limited knowledge regarding rehab

“Too Sick”

- Perceived vs. real?
  - Guidelines for medical stability useful
  - “Could this patient do something?”
- Staff/pt/family perceptions and fears
  - Safety/comfort level
  - Cultural expectations re: healing and rest

“Too sedated/delirious”

- What is the sedation practice? Can it be improved?
- Delirium
  Preventative strategies
  Early rehab and mobility improve delirium

Equipment limitations

- Perceived vs. real?
  Mobility rarely limited by equipment alone
  Literature: can safely mobilizing pts on MV with ETT/trach, femoral line, and ECMO
  Creativity and teamwork needed

Limited Staffing

- Team members learn to work interdependently to distribute workload
  Cross-training in job-roles as allowed by practice acts
- Use of techs when possible
- Dale will talk about Business case

Prioritization of patients

- Rehab resources available for follow up after consultation may be limited
- Change in focus on the high need for early rehab in ICU based on known long-term outcomes

Knowledge Limitations

- Staff unsure what PM&R can provide to ICU patients
- Rehab staff need to knowledge of ICU equipment, hemodynamic monitoring, mechanical ventilation, etc.
  Need for competency training

Modifiable Barriers

- Deep sedation
- Sleep
- Delirium
- Lack of orders for PT/OT/SLP consults
- Knowledge and training
- Communication and teamwork
Additional Challenges

- Healthcare delivery in the ICU can be fragmented due to PT/OT/SLP being a “consult” service.
- Fragmentation can create poor communication, confusion, and inhibit progress with improving patient outcomes.

Practical Advice for Changing ICU Culture

1. Care Process Model

- Creating a sense of urgency
  - Staff need to understand long-term outcomes and link this to potential changes to current practice
  - Create concrete goals and deadlines
- Gathering “champions” from each discipline.
  - QI & Management involvement (RN mgr, MD director)
- Creating a vision


Care Process Model

- Communicating the vision
- Empowering others to act on the vision
- Planning for short-term victories and celebrate them


2. Building a Team Approach

Team Approach

- Physicians
  - Understand what PT, OT & SLP do and when appropriate to consult
  - Daily addressing issues interfering with rehab (eg, sedation, delirium, vent, lines)
  - Add these items to daily rounding sheets
Team Approach

- **Nurses**
  - Coordinate optimal Tx scheduling w/ rehab
  - Optimize pt condition for rehab (eg, pain meds, discontinuing lines/tubes as able, sleep)
  - Provide current info to rehab on pt condition
  - RNs or techs may be “2nd set of hands” to assist with mobility

- **Respiratory therapists**
  - Changes in vent settings for optimal oxygenation & ventilation during rehab
  - Use of portable ventilators or ambu bag

- **Everyone has a role!**

---

**Early mobility does not always need a PT consult**

---

Multi-disciplinary Collaboration

- Multi-center project to help ICU teams promote early mobility into daily care.
- Used evidenced-based progressive mobility tool
- Bi-monthly multi-D team meetings
- Expert clinical and strategy coaching


---

“**The difference between immobility and mobility of ICU patients is strongly linked to culture of ICU and clinical care providers**”

Hopkins RO and Spuhler VJ. AACN. Vol 20(3), 277-289
**Conducting a QI Project: Success Factors**

1. Start with **pilot test** of single unit
   - refine from pilot before expanding

2. Create **credible & persuasive data** to evaluate change
   (next slide)
   - Communicate results to influence staff, leader & budget folks
     - Meetings, bulletin board, newsletters
   - Measure at **baseline** & during QI (otherwise can't show improvement)
     *If you don't measure it, you can't improve it*

---

**Evaluating a QI Project (Routine Care)**

- **Source of data:** PT log book
- **Outcomes measured:**
  - % of ICU days with PT
  - Reason for no physical therapy
  - % days sitting at edge of bed or greater
  - # of critical events

---

**Sustaining a QI Project: Critical Success Factors**

Plan for sustainability from start: what must happen to keep it going?

1. **Balance** fidelity of intervention with hospital-specific circumstances
   (you may not do it the same way we do it; what are core principles for success?)

2. **Institutionalize** changes to consolidate improvements (eg, staffing, orientation, training)

3. **Nurture relationships** w/ budget, opinion leaders & team members
   - Maintain enthusiasm & pride (DOM Chair & Finance, JHH COO)

4. **Push for further innovation** and improvement

5. **Adapt**, as needed, to survive

---

**Making the Business Case**

Dale M. Needham, **FCPA, MD, PhD**

(Acknowledgement for slides: Mr. Robert Lord)

---

**Overcoming Financial Barrier**

- **The qualitative arguments:**
  - Improved patient care and outcomes
    - Anecdotes can change minds
      - Patient stories, photos, & videos
  - Inequity in care/not meeting the standard
  - Everyone else (name “rival” hospital) is doing it

- **The quantitative arguments:**
  - Finances: a financial model to help you...

---

**Barriers to Implementation**

- Financial issues common barrier to start program
- Few cost analyses done:
  - Hopkins et al. (breaking even or possible cost savings)
    - Transforming ICU Culture to Facilitate Early Mobility
  - Morris et al. (lower cost, incl. mobility team cost - probably due to LOS reduction)
    - Early intensive care unit mobility therapy in the treatment of acute respiratory failure
    - Crit Care Med 2008 Vol. 36, No. 8
Creation of Financial Model

- Based on:
  1. Costs of implementing program
  2. Reduction in LOS achieved
  3. Per-day costs savings from decreased LOS
  4. Annual number of ICU admissions

1. Costs of Program Implementation

- Personnel, which may include
  - PTs/OTs
  - Rehabilitation aide
  - Program coordinator
  - Physician leader
- Training
- Equipment

2. LOS Reductions

- Reductions achieved in ICU: 20% to 38%
- Reductions achieved in ward: 10% to 25%
- Need to find a way to quantify these LOS savings
  - How do we determine a per-day cost savings?

3. Per-Day Cost Savings

- Direct-Variable: supply costs for specific services (lab, blood bank, respiratory, etc.)
- Most conservative and accurate
  - No overhead or salaries (short-term savings only)
  - Considers earlier days more costly than later days
  - Decrease LOS results in reduction of LATER days

4. Number of Admissions

- Number of admissions affects:
  - Cost of program implementation
    - More admissions → additional resources needed
  - Total cost savings for an ICU
    - [cost savings for typical pt.] * [total # of admissions]
- We model ICUs of various sizes:
  - 200, 600, 900 and 2000 admissions

Apply Model to Sample Case (JHH MICU)

- 22% decr ICU LOS
- 19% decr ward LOS
- LOS sustained (2010 & 2011)

References:
Limitations

• May need structured QI to achieve LOS decrease

• Conservative:
  – no additional revenue or long-term savings from empty beds due to decreased LOS
  – no explicit consideration of benefit to patient

More Details

ICU Early Physical Rehabilitation Programs: Financial Modeling of Cost Savings
Robert K. Lord, MB (Christopher H. Mathers, MD, Rahul Konerda, MBBS, MV; Earl C. Mandlett, BSc; Michael A. Friedman, PT, MBSc; Jeffrey H. Plumer, MD; Darryl M. Needham, FCA, MSc, PhD).
(Crit Care Med 2013; 41:717–724)

Excel template for calculations & Users’ Guide:
ICU Recovery Network site (next slide…)

Join the ICU Recovery Network (IRN)
(created via MedConcert)

• To access & contribute to a growing body of ICU Rehab content:
  – videos, documents, website links, and event information

• To interact w/ other ICU Rehab clinicians from around world

• Joining is simple (< 5 min.) – see below

Thanks!
For more info, check both websites below

www.hopkinsmedicine.org/OACIS
www.mobilization-network.org

Questions?