

Designing, Conducting & Sustaining an ICU Rehab Program

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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

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)**

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
 - Allow more time & keep multidisciplinary for success
 - ii. **Rally against common external threats**

JAGS 52:1875-1882, 2004 THE COMMONWEALTH FUND JULY 2004 Crit Care Clin 23 (2007) 81-96

Creating Culture Change in the ICU

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"*

Bailey P et al. (2009). *Crit Care Med*, 37(10):S429-S435.

*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

Bassett RD et al. *Intensive and Critical Care Nursing* (2012). 28, 88-97

“Too sedated/delirious”

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

Schwiebert WD et al. (2009, May). *Lancet*. 30;373(9678):1874-82
Needham DM et al. (2010, Apr). *Arch Phys Med Rehabil*, 91(4):536-42

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

Damirji et al. *J Crit Care*. 2013; in press
Bailey P et al. *Crit Care Med*. Jan 2007;35(1):139-145
Perme, C et al. *JACPT*. Spring 2011, Vol 2(1)
Turner DA et al. *Crit Care Med*. 2011 Dec; 39(12):2593-2598

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*

Bailey P et al. *Critical Care Medicine*. 2009;37(10):S429-S435

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

Hopkins RO et al. *Crit Care Clin* 23 (2007), 81-96

Care Process Model

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

Hopkins RO et al. *Crit Care Clin* 23 (2007), 81-96

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

Team Approach

■ 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

Bassett RD et al. *Intensive and Critical Care Nursing* (2012). 28, 88-97

Multi-disciplinary Collaboration

- Teams integrated early mobility safely & in shorter time using a multi-D evidenced-based guide % team collaboration
- Individualized assessments of each ICU's unique culture, barriers, and challenges

Bassett RD et al. *Intensive and Critical Care Nursing* (2012). 28, 88-97

"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)
 - a) **Communicate results** to influence staff, leader & budget folks
-- Meetings, bulletin board, newsletters
 - b) Measure at **baseline** & during QI (otherwise can't show improvement)
If you don't measure it, you can't improve it

JAGS 52:1875-1882, 2004 THE COMMONWEALTH FUND JULY 2004 Crit Care Clin 23 (2007) 81-96

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
a) Maintain enthusiasm & pride (DOM Chair & Finance, JHH COO)
4. **Push for further innovation** and improvement
5. **Adapt**, as needed, to survive

JAGS 52:1875-1882, 2004 THE COMMONWEALTH FUND JULY 2004 Crit Care Clin 23 (2007) 81-96

Making the Business Case

Dale M. Needham, FCPA, MD, PhD

(Acknowledgement for slides: Mr. Robert Lord)

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
Crit Care Clin 23 (2007) 81-96
 - 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

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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...

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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

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1. Costs of Program Implementation

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

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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?

Morris, et al CCM 2008; 36:2238-2243
 Needham, et al Arch Phys Med Rehabil 2010; 91:536-542
 Hopkins, et al Crit Care Clin 2007; 23:81-96
 Malkoc, et al Int J Rehabil Res 2009; 32:85-88
 Schweickert, et al Lancet 2009; 373:1874-1882

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3. Per-Day Cost Savings

Cost Savings Attributable to Reductions in Intensive Care Unit Length of Stay for Mechanically Ventilated Patients

Medical Care • Volume 46, Number 12, December 2008
 Jeremy M. Kahn, MD, MSc,*†; Gordon D. Rubenfeld, MD, MSc;‡ Jeffery Rubruck, MSN,† and Barry D. Fuchs, MD*

- **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

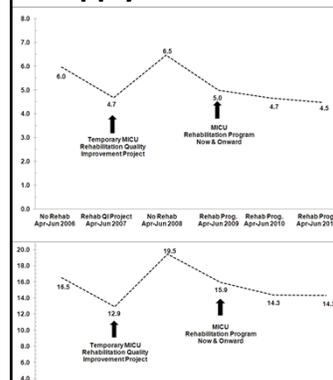
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4. Number of Admissions

- 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

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Apply Model to Sample Case (JHH MICU)



- 4 three-month periods (Apr-Jun): 2006, 2007, 2008 2009
- 22% decr ICU LOS
- 19% decr ward LOS
- LOS sustained(2010 & 2011)

Needham et al., Arch PM&R Vol 91, Apr 2010

Lord et al., Crit Care Med, March 2013

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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

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More Details

ICU Early Physical Rehabilitation Programs: Financial Modeling of Cost Savings*

Robert K. Lord, AB¹; Christopher R. Mayhew, BS²; Radha Korupolu, MBBS, MS³; Earl C. Manthey, BA⁴; Michael A. Friedman, PT, MBA⁵; Jeffrey B. Palmer, MD⁶; Dale M. Needham, FCA, MD, PhD^{1,6*}

(*Crit Care Med* 2013; 41:717–724)

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

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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

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Thanks!

For more info, check both websites below

www.hopkinsmedicine.org/OACIS

www.mobilization-network.org

Questions?