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Spotlight on Rehabilitation: A national update:

Dr David McWilliams
Associate Clinical Professor – Physiotherapy

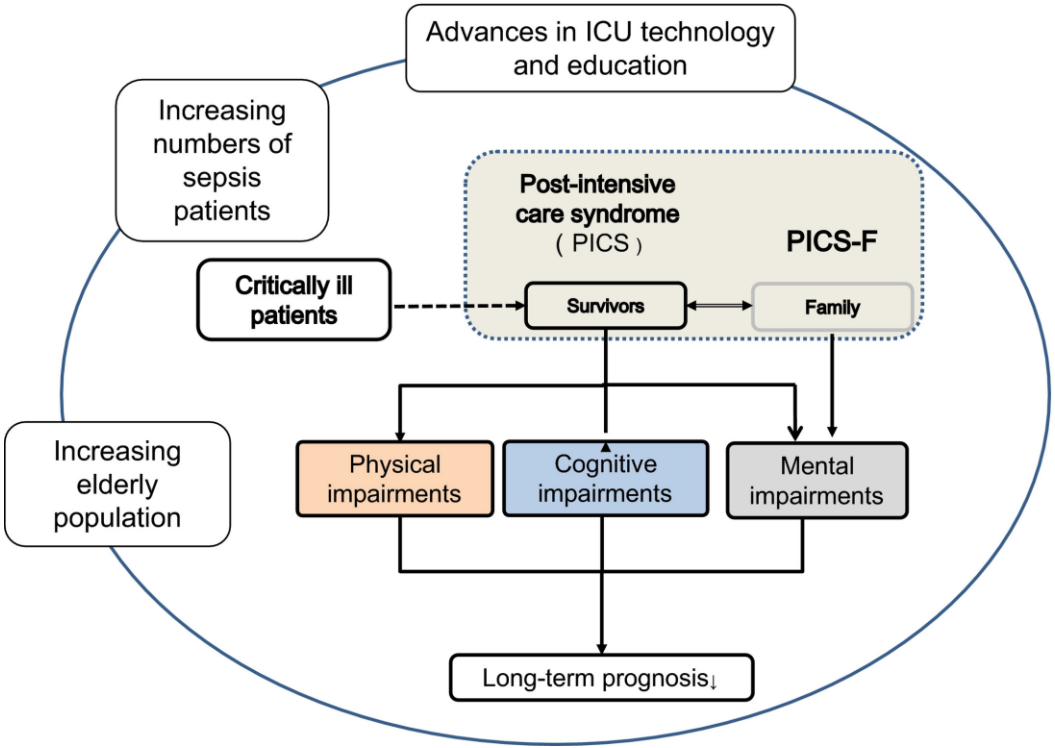
Background

- Advances in critical care have resulted in improved critical care mortality - Increased focus on long term survivorship

- Significant and rapid muscle loss associated with critical illness and ICU stay

- A strong correlation between muscular weakness and prolonged mechanical ventilation has been observed

Post Intensive Care Syndrome (PICS)



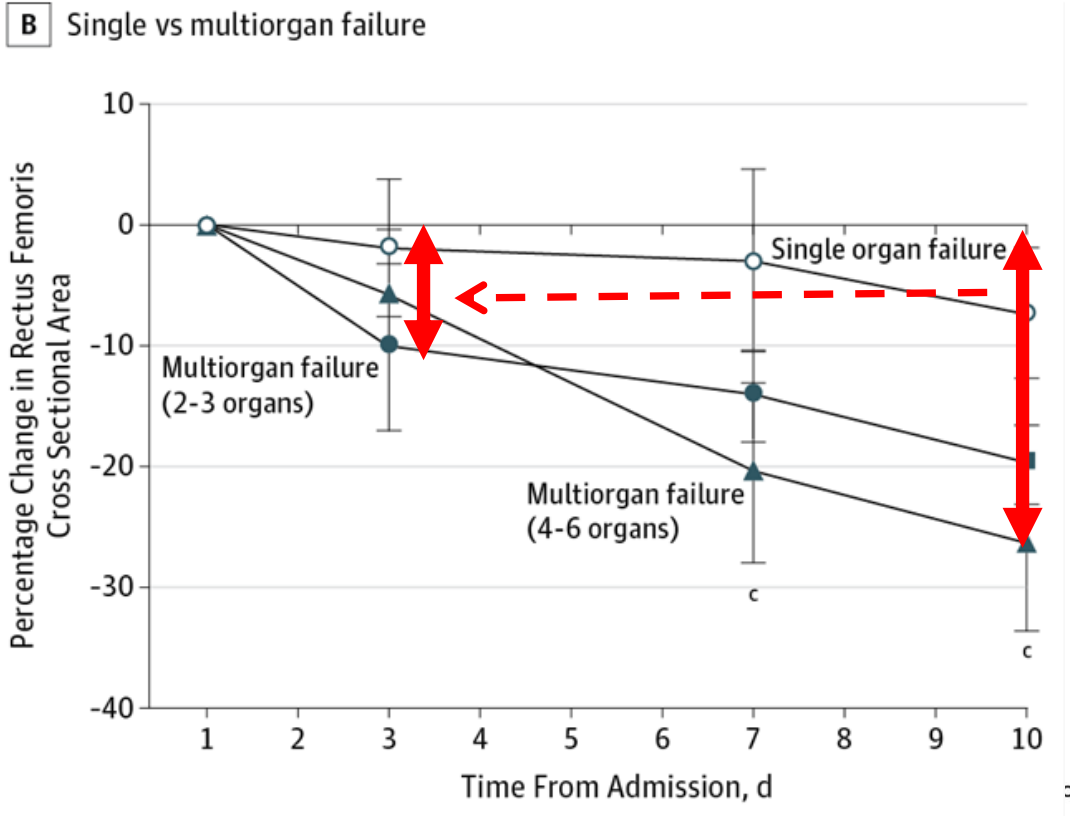
At 1 year

- 1/3 still require help with ADL's
- Only 40% of patients back at work
- Up to 50% readmitted to hospital

- 1/3 patients cognitive dysfunction
- 1/3 anxiety +/- depression
- 1/5 PTSD

- Up to 30% of family / caregivers experience stress, anxiety, depression and complicated grief

The concept of early rehabilitation



Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults

Carol L Hodgson[1,2*], Kathy Stiller[3], Dale M Needham[4], Claire J Tipping[2], Megan Harrold[5], Claire E Baldwin[6,7], Scott Bradley[2], Sue Berney[8], Lawrence R Caruana[9], Doug Elliott[10], Margot Green[11], Kimberley Haines[8,12],

	Low risk of an adverse event. Proceed as usual according to each ICU's protocols and procedures.
	Potential risk and consequences of an adverse event are higher than green, but may be outweighed by the potential benefits of mobilization. The precautions or contraindications should be clarified prior to any mobilization episode. If mobilized, consideration should be given to doing so gradually and cautiously.
	Significant potential risk or consequences of an adverse event. Active mobilization should not occur unless specifically authorized by the treating intensive care specialist in consultation with the senior physical therapist and senior nursing staff.

Safety of Patient Mobilization and Rehabilitation in the Intensive Care Unit

Systematic Review with Meta-Analysis

Peter Nydahl[1]*, Thiti Sricharoenchai[2]*, Saurabh Chandra[3], Firuzan Sari Kundt[4], Minxuan Huang[5], Magdalena Fischill[6], and Dale M. Needham[7]

Potential Safety Event	Total	Mobility Sessions	Frequency	# Studies Reporting
Fall	11	16,342	0.07%	27
Endotracheal Tube Removal	2	17,148	0.01%	28
Intravascular Catheter Event	35	16,397	0.2%	31
Other Catheter/tube Removal	15	15,761	0.09%	25
Desaturation	126	16,487	0.03%	33
Hemodynamic Changes	78	18,083	0.5%	33
Cardiac Arrest	4	5,830	0.0007%	26
Other	312	17,132	1.8%	32

2.6% potential safety events, 0.6% actual

The Evidence for early rehabilitation

- Decreased weaning times
- Decreased length of stay
- Reduced delirium
- Improved muscle strength and functional outcomes
- Greater walking distance at hospital discharge

National Guidelines

NHS
National Institute for
Health and Clinical Excellence

Issue date: March 2009

Rehabilitation after critical illness

NICE clinical guideline 83
Developed by the Centre for Clinical Practice at NICE

NICE National Institute for Health and Care Excellence

NICE quality standard

Rehabilitation after critical illness in adults

Quality standard
Published: 7 September 2017
www.nice.org.uk/guidance/qs158

The Faculty of Intensive Care Medicine

Intensive Care Society

GUIDELINES FOR THE PROVISION OF INTENSIVE CARE SERVICES

Version 2.1
June 2022

So where are we?

Country	ICU/patients	Mobilised out of bed (≥ sitting edge of bed)	
		Spontaneously	Mech. Vent.
Australia/NZ[1]	38/498	60%	3%
Germany[2]	116/775	-	24%
USA[3]	42/770	56%	16%
United Kingdom[4]	12/704	65%	20%
Switzerland[5]	35/161	-	33%
Brazil[6]	11/140	-	10%

1 Berney 2013, 2 Nydahl 2014, 3 Jolley 2016, 4 McWilliams 2016, 5 Sibilla 2017, 6 Fontela 2018

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Switzerland[5]	35/161	-	33%
Brazil[6]	11/140	-	10%
Worldwide 	**135/1229**	-	7% (9%)


EARLY
LATE

Question: What is ‘early’ mobilisation?

A. Mobilisation before 10am

B. Mobilisation within < 24 hours of ICU admission

C. Mobilisation within < 72 hours of ICU admission

D. Mobilisation dependent on patient status irrespective of days

Author	Setting	Design	Key Findings	1st day out of bed
Morris 2008 **CCM**	Medical ICU n =330	Mobility protocol led by mobility team, initiated within 48 hours	More physiotherapy received, Patients sat out of bed earlier Reduced ICU and hospital LOS Reduced duration of MV	5 days
Schweickert 2009 **Lancet**	2 x Medical ICU's n = 104	PT / OT initiated within 72 hours until discharge	Achieved mobility milestones earlier Improved function at hospital d/c Reduced incidence and duration of delirium Reduced duration of MV	1.7 days
McWilliams 2018 **J. Crit care**	Mixed ICU n=87	Enhanced rehabilitation team with individualised goals, initiated within 96 hours	Reduced time to first mobilise Greater proportion of active rehabilitation sessions Improved function at ICU discharge	8 days
Schaller 2016 **Lancet**	5 x Surgical ICU's n = 200	Coordinated progressive activity by nurse/therapist within 72hrs	Higher mobilisation levels in ICU Reduced ICU LOS Improved function at hospital d/c Reduced delirium	Not stated

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Early, Early, Early!!

ORIGINAL ARTICLE FREE PREVIEW

Early Active Mobilization during Mechanical Ventilation in the ICU

The TEAM Study Investigators and the ANZICS Clinical Trials Group*

- 750 pati
- Median
- No differ nes

But…

- ↑ Advers
- ↑ Mortal

Are we always talking the same language??



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Rehabilitation Levels in Patients with COVID-19 Admitted to Intensive Care Requiring Invasive Ventilation

An Observational Study

David McWilliams[1], Jonathan Weblin[1], James Hodson[2], Tonny Veenith[3], Tony Whitehouse[3], and Catherine Snelson[3];

- 90% paralysed (mean 7 days)
- 67% were proned (multiple times)
- Mean 13 days sedation
- Mean duration 19 days ventilation (77% had tracheostomy)

Rehabilitation

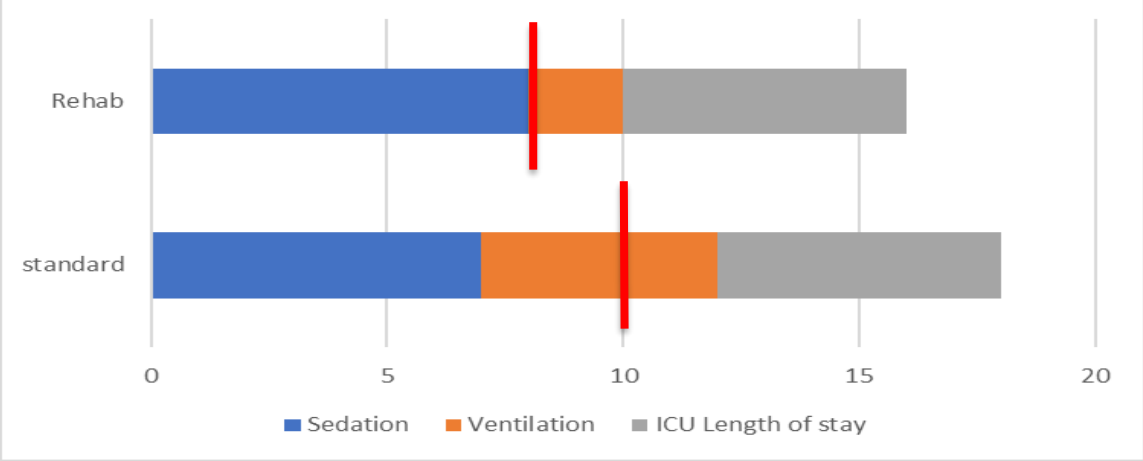
- 100% incidence of ICU-AW at awakening
- 14 days to first mobilisation (defined as sitting on edge of bed or higher)

Rehabilitation

- All patients mobilised prior to ICU discharge
- Mobilisation commenced < 24 hours after sedation stopped (5 days before weaned from MV)
- Mean MMS at ICU discharge = 5 (step transfers)

Earlier and enhanced rehabilitation of mechanically ventilated patients in critical care: A feasibility randomised controlled trial

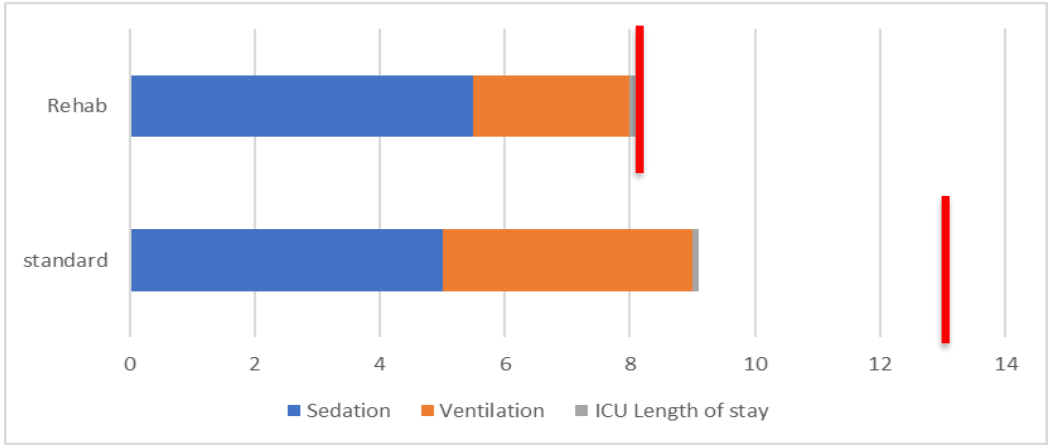
David McWilliams [a,*], Charlotte Jones [a], Gemma Atkins [a], James Hodson [b], Tony Whitehouse [c],



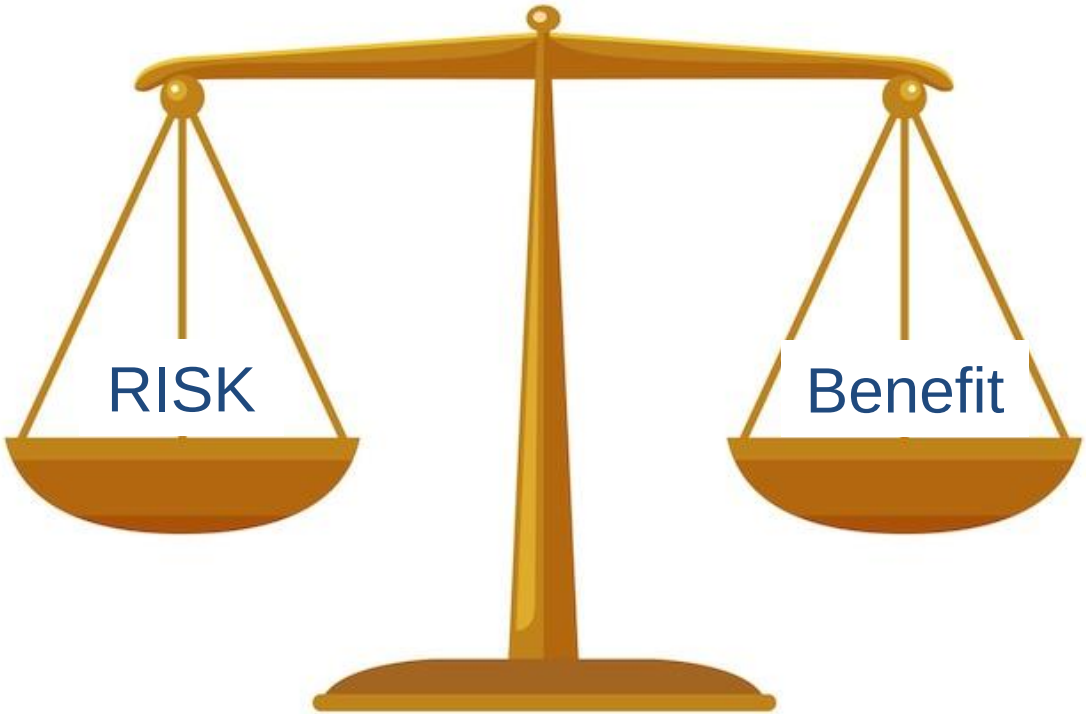
	Control (n = 43)	Enhanced (n = 44)	p
Time to 1st mobilisation (days)	10 (7–12)	8 (7–11)	**0.035**
SOFA at 1st mobilisation	4 (3–6)	6 (4–8.25)	**0.0278**
MMS at ICU discharge	5 (4–7)	7 (5–7)	**0.016**

Early intensive care unit mobility therapy in the treatment of acute respiratory failure

Peter E. Morris, MD; Amanda Goad, RN; Clifton Thompson, RN; Karen Taylor, MPT; Bethany Harry, MPT;



*Unadjusted figures


RISK
Benefit

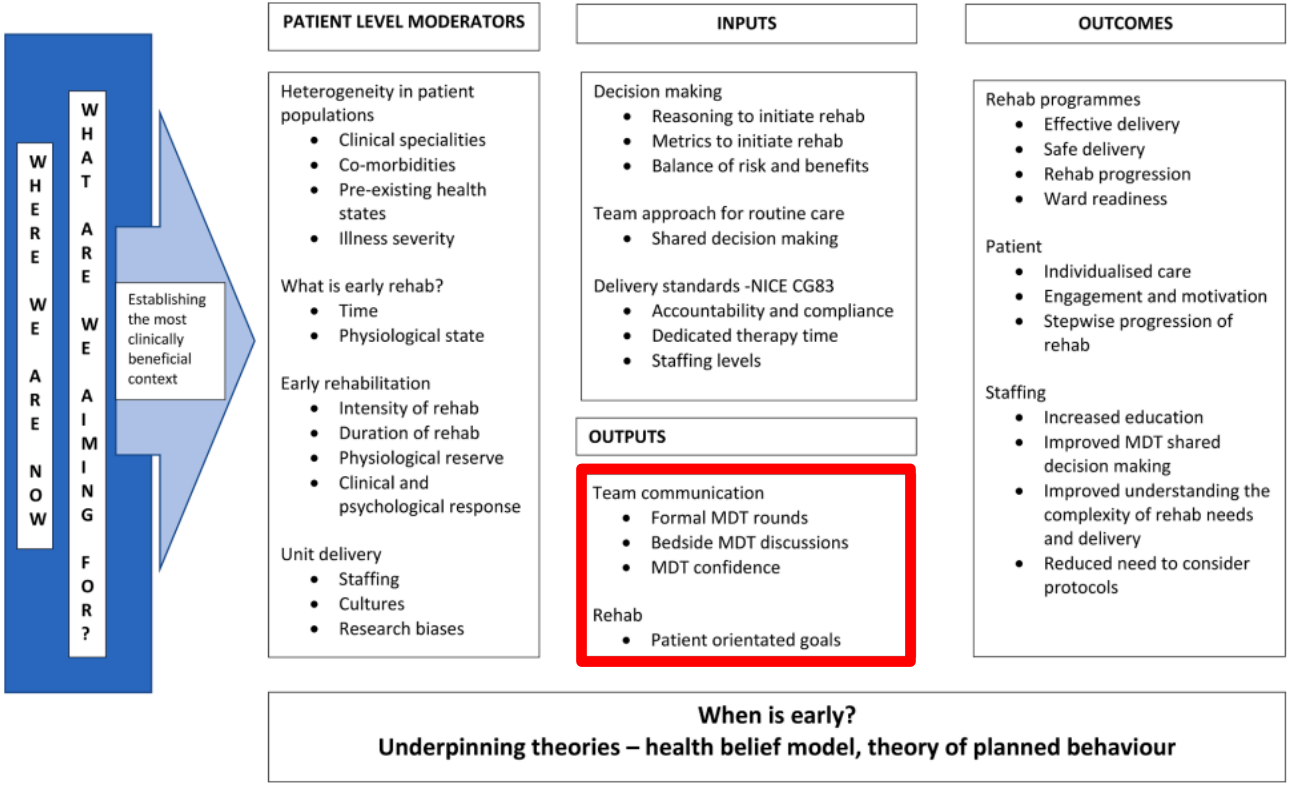


Fig. 1. Logic model for rehabilitation in the ICU.

Rehabilitation starts from day 1 (even if mobility doesn't)

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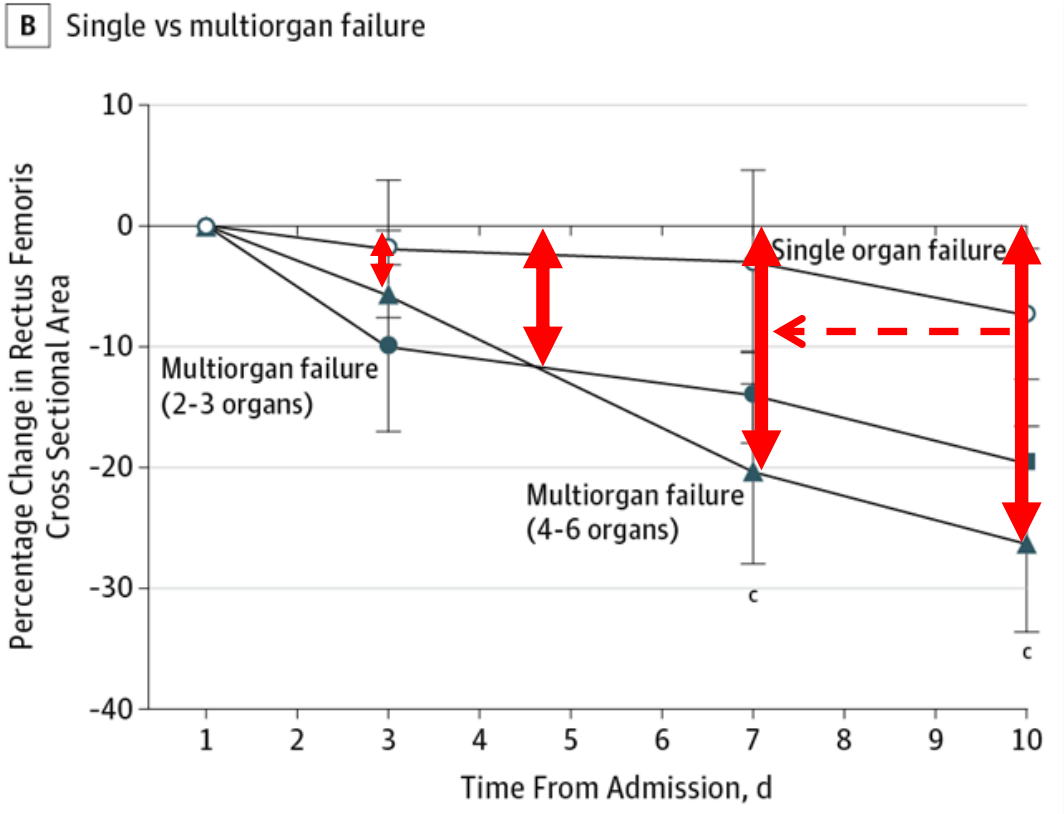
The concept of early rehabilitation



Rehab Gap

Conclusion

- Early = interventions that commence immediately after stabilization of physiologic derangements

- Key to success is
  - Teamwork and communication
  - Personalised rehabilitation
  - Clear safety parameters
  - Appropriate equipment

So where we want to be?

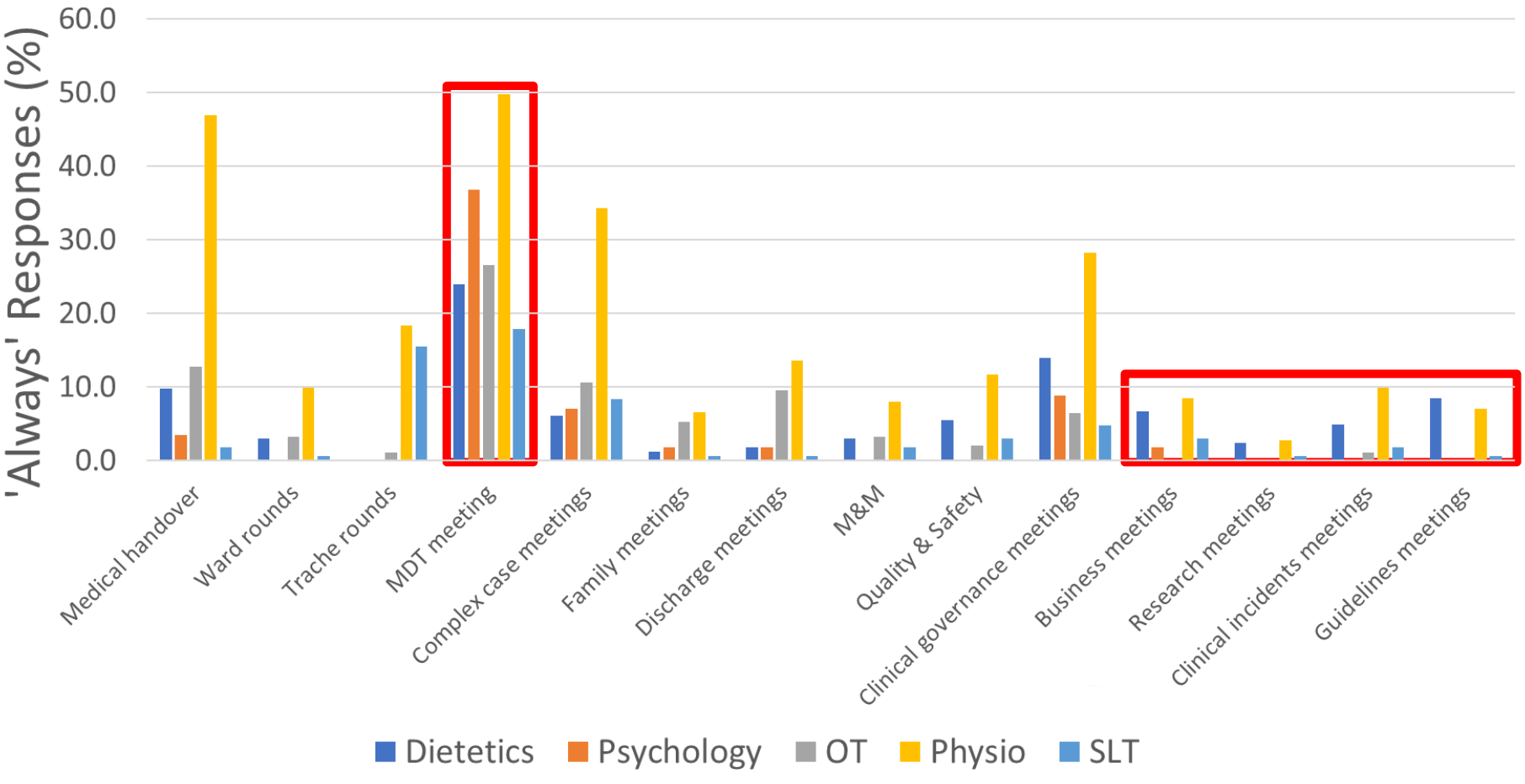
Therapy professionals in critical care: A UK wide workforce survey

Paul Twose [1], Ella Terblanche [2], Una Jones [4], James Bruce [4], Penelope Firshman [5], Julie

	Responses	Service Provided	Ring Fenced Service	7 Day Service
Dietetics	169	97%	56.7%	0%
OT	176	53%	36.2%	6%
Psychology	131	44%	64.9%	0%
Physio	213	99.5%	60.6%	97%**
SLT	173	97%	22.6%	6%

Impact on provision

	GPICS	Ring Fenced Service	Any Service
Dietetics	1 : 10	1 : 24.7	1 : 29.8
OT	1 : 10	1 : 37.2	1 : 179.1
Psychology*	1 : 10	1 : 41.5	1 : 90.1
Physio	1 : 4	1 : 6.8	1 : 17.3
SLT	1 : 10	1 : 30.0	1 : 157.6


'Always' Responses (%)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Medical handover
Ward rounds
Trache rounds
MDT meeting
Complex case meetings
Family meetings
Discharge meetings
M&M
Quality & Safety
Clinical governance meetings
Business meetings
Research meetings
Clinical incidents meetings
Guidelines meetings
Dietetics
Psychology
OT
Physio
SLT

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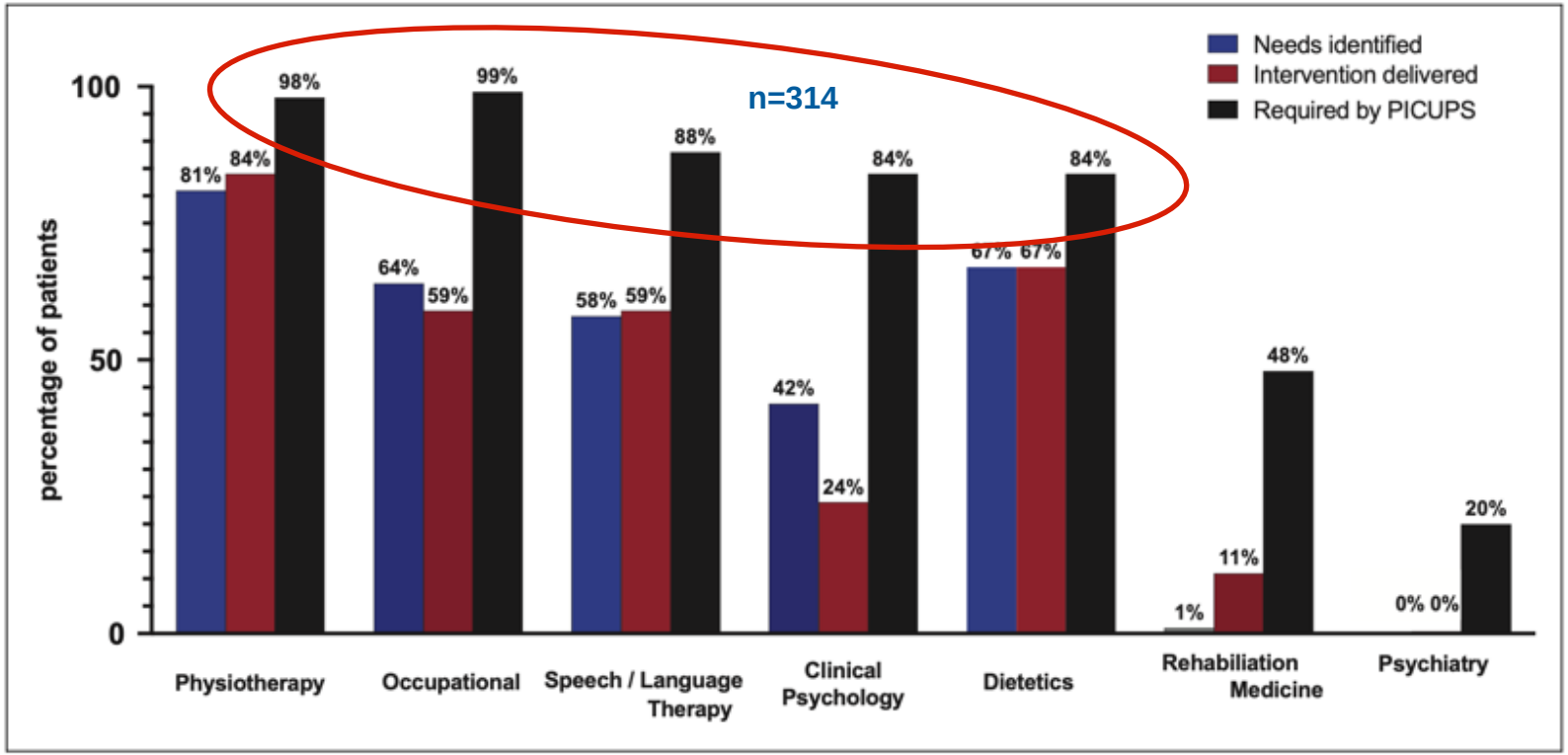
ICU discharge

The post-ICU presentation screen (PICUPS) and rehabilitation prescription (RP) for intensive care survivors part I: Development and preliminary clinimetric evaluation



A human factors analysis of missed mobilisation after discharge from intensive care: a competition for care?

O.D. Gustafson [a,*], S. Vollam [b], L. Morgan [c], P. Watkinson [b]

- Competing priorities for ward staff impact on consistency of rehab provision
- MDT provision and skill mix significantly impacted likelihood of mobilisation
- Those leaving most debilitated (MMS ≤ 5) most likely to be impacted

Implications

- >50% of patients show a decline in mobility on 1st ward day (Hopkins et al, 2012)
- Increased ward length of stay, readmissions or need for ongoing rehab

Problems in care and avoidability of death after discharge from intensive care: a multi-centre retrospective case record review study

- Multi-centre retrospective review of 250 consecutive post ICU deaths between Jan 2015 and March 2018
- 20 (8%) Avoidable and 65 (26%) some degree of avoidability

Common problems

- 67% Out of hours discharge
- 69% Suboptimal Rehabilitation
- 41% absent nutritional planning
- 33% incomplete sepsis management

Vollam et al, 2021

Ongoing challenges

- Early and structured rehabilitation is complex (not one size fits all)
- Structure and consistency are key to improve outcomes
- Staffing levels need to consider more than just patient contact
- There remains limited wider MDT availability / provision

After ICU

- Patients discharged to the wards with complex, multifactorial rehabilitation needs
- Lack of support and provision available due to competing priorities
- Lack of community rehabilitation / support post hospital discharge

The future….

NHSE Adult Critical Care CRG

- Audit of current provision against NICE CG83 and QS158 (completed July / August 2023)
- Development of quality indicators framework for reporting rehabilitation nationally
- A CQUIN proposal for 2024/25 related to rehabilitation

NCEPOD

To identify and explore avoidable and remediable factors in the process of care for rehabilitation of patients with and following critical illness

Intensive Care Society

Supporting letters received from the following organisations:

BDA The Association of UK Dietitians

ICS

ICUsteps

CHARTERED SOCIETY OF PHYSIOTHERAPY

The Faculty of Intensive Care Medicine

the british psychological society

British Society of Rehabilitation Medicine
Promoting quality through education and standards

ACP UK
ASSOCIATION OF CLINICAL PSYCHOLOGISTS

RCSLT

UK Critical Care Nursing Alliance

Royal College of Occupational Therapists

PINC-UK

National Tracheostomy Safety Project

RCGP Royal College of General Practitioners

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SAG Identified areas for review

1. Poor identification of rehabilitation needs

2. Failure to identify ongoing needs on ward stepdown

3. Inadequate access to rehabilitation

4. Poor coordination / lack of MDT communication

5. Lack of formal follow up

Data collection

- Organisational questionnaire (patient pathways, guidelines, procedures)
- Clinician questionnaire (direct care of the patient)
- Case note review by MDT group
- Standards assessed based on what would be ‘acceptable’ Identified as:
  - Good Clinical Practice
  - Room for improvement (Clinical, organisation, or both)
  - Less than satisfactory
- Due for publication in October 2024

How to support the study

- Support recruitment of case reviewers – opening shortly
- Advertise the surveys when active (currently in development)
- Encourage completion
- Disseminating reports

Any questions

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