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EVALUATION

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Comparison of perceptions and barriers to mobilization in critical care: A comparison of nursing staff and physiotherapists—A single-site service evaluation

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Abstract

Introduction: Mobilization is a key component in the recovery of those admitted to critical care. However, previous research has demonstrated challenges in the implementation of mobilization within critical care, including staff knowledge, attitudes, and behaviours. The aim of the current study was to explore the perceived barriers and limitations to mobilization from the perspective of nursing staff, and to compare these with physiotherapists.

Methods: Single-site service evaluation utilizing the patient mobilizations attitudes and beliefs survey for ICU and locally developed barriers to rehabilitation questionnaire.

Results: About 135 participants (126 nurses and 9 physiotherapists) were invited to anonymously complete the questionnaires (either paper or electronic), with a response rate of 73.0% (n = 92) for nursing staff and 100% for physiotherapists. Nursing staff reported significantly higher perceived barriers to rehabilitation on both questionnaires when compared with physiotherapy staff, which was not associated with years of experience within critical care. Behavioural barriers were most frequent in both professions which included items such as time availability and presence of perceived contra-indications to mobilization.

Conclusion: Nursing staff reported greater perceived barriers to rehabilitation when compared with physiotherapists. Further quality improvement projects are now required to reduce these barriers and assist the implementation of mobilization as part of the rehabilitation process.

KEYWORDS
barriers, critical care, perceptions, rehabilitation, service evaluation

1 | INTRODUCTION

Profound disability is a feature of critical illness that many critical care "survivors" report after discharge from hospital.[1] The National Institute for Health and Care Excellence emphasized the extent of this problem in their guideline "Rehabilitation after critical illness"[2] and is supported by a number of studies examining the role of rehabilitation starting within critical care.[3-5] Mobilization is a key component of any rehabilitation program and follows common themes, with "sitting on the edge of the bed (SOEOB)" a key milestone within any mobilisation programme.[6,7]

Despite the recognition that providing mobilization as soon as possible within the recovery continuum is an important part of patient

recovery, guidance is limited on the decision-making process on appropriateness for completing mobilisation within critical care. Clearly, some barriers to mobilization may be patient related. Stiller and Phillips[8] outlined a series of safety considerations based on a wide range of physiological factors. These included analysis of past medical history, cardio-vascular reserve (resting heart rate, blood pressure, ECG), respiratory reserve (oxygen saturations, respiratory pattern and PaO_2/FiO_2) as well as 15 haematological and orthopaedic considerations. Additionally, Hodgson et al[9] provided expert consensus and recommendations on safety criteria for rehabilitation within critical care by utilising a traffic light system for appropriateness. In similarity to Stiller and Phillips,[8] the expert consensus detailed a significant number of physiological factors which may impact on a person's ability to undergo rehabilitation.

In addition to these patient-related barriers, the perceptions and attitudes of the staff caring for those patients will also influence the occurrence of mobilization, as will institutional/unit cultures. Dubb et al[10] identified 18 unique barriers to early mobility. While 50% of barriers were indeed patient related, the remaining 50% was formed of structural (18%), unit cultural (18%), and process-related barriers (14%). Notably research has also suggested that barriers be more or less present depending on the clinician's profession and may be affected by an individual's years of experience of working within critical care.[11-13] Utilizing a validated questionnaire, Goodson and colleagues[11] explored the barriers to mobility in a North American medical ICU. While overall relatively low perceived barriers to patient mobility were identified, behavioural factors such as capacity and concerns around injury (both to staff and patient) were reported most frequently, with nursing staff the most likely to report such barriers.

Within the United Kingdom, several studies have identified that routine involvement of physiotherapists in directing rehabilitation may promote mobilization of critically ill patients,[5,14] however, the reasons for this are not fully understood. Clearly implementing mobilization is key to ensuring return of physical performance. However, gaining knowledge about the barriers and facilitators is key to ensuring the implementation of the existing evidence base.

Within the researchers host organization, patient-related barriers to mobilization from the perspective of physiotherapy staff has previously been explored.[14] Similarly, unpublished service evaluations within the host organization have demonstrated that the vast majority (>96%) of mobilization sessions were completed by physiotherapy staff rather than nursing. However, a detailed exploration of non-patient related barriers has not previously been completed either locally or elsewhere within the United Kingdom from either the perspective of nursing or physiotherapy staff. Clearly other members of the multi-disciplinary team, for example, physicians and occupational therapists may influence the implementation of mobilization. However, previous local service evaluations did not consider these additional stakeholders to have significant impact on the occurrence of rehabilitation, nor should influence the differences between the occurrence of mobilization by either nursing staff or physiotherapy staff.

What is known about this topic

- Providing mobilization as soon as possible within the recovery continuum is an important part of patient recovery
- Barriers exist for implementation of mobilization, including patient related barriers, perceptions, and attitudes of the staff caring for those patients, as will institutional/unit cultures

What this paper adds

- A greater understanding of existing barriers, and difference between barriers in nursing and physiotherapy with regards mobilization of patients in critical care
- Provides a framework to develop future quality improvement projects to reduce the incidence and impact of these barriers

Based on the above, the aim of the current study was to explore the perceived barriers and limitations to mobilization from the perspective of nursing staff, and to compare these with physiotherapists. These barriers may be patient related or because of staff knowledge, attitudes, or behaviours. By gaining an understanding of existing barriers, and difference between barriers in nursing and physiotherapy will aid the implementation of vital mobilization or will identify areas for further exploration to reduce/eliminate existing barriers and limitations.

2 | METHODOLOGY

2.1 | Design

This single-site project used paper questionnaires based on previous research.[11,14] The questionnaires consisted of quantitative-based questions using a Likert scale, with opportunity for free-text comments and suggestions.

2.2 | Participants, centres, and eligibility procedure

All participants were recruited from the Critical Care Unit within a tertiary critical care unit in South Wales. To be eligible for the study, participants must have been registered nursing staff (excluding agency staff) or physiotherapy staff working within the host Critical Care Unit at the time of the study. Physiotherapy staff were only eligible if critical care was their primary place of work at the time of completion.

2.3 | Questionnaire development

This project used two questionnaires. The first questionnaire was the John Hopkins Medicine Healthcare Solutions "Patient Mobilizations Attitudes & Beliefs Survey for ICU" (freely available from http://www.johnshopkinssolutions.com/solution/amp/activity-mobility-promotion-amp-icu/). The 26-item questionnaire allowed responses using a 5-point Likert scale (0 = not appropriate; 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; and 5 = strongly agree). Free text comments were also possible. As per previous research,[11,13] scores were calculated for the overall barrier scale (eg, all 26-items) and the 3-subscales (knowledge, attitude, and behaviour). Each of the scales ranged from 0 to 100, and the higher scores indicating greater perceived barriers. Goodson and colleagues[11] have previously demonstrated the survey to have acceptable discriminant validity and acceptable internal consistency for the overall scale (Cronbach α: 0.82, 95% confidence interval: 0.76-0.85), with weaker internal consistency for all subscales (Cronbach α: 0.62-0.69).[11] Due to creative commons licencing no modifications were made to this questionnaire prior to use.

The second questionnaire, "Cardiff and Vale UHB barriers to rehabilitation" (Table A2), was based on previous research[5,14] and explored patient-specific barriers to rehabilitation, for example, physiological and clinical observational barriers. This was a non-validated questionnaire and was piloted prior to use. The questionnaire consisted of 26-items and was answered using the same 5-point Likert scale as the previous questionnaire, with the option for free text comments as required. All of the scores for each barrier were combined to provide an overall barrier score ranging from 0 to 100, with higher scores suggesting more perceived barriers. The pilot process involved physiotherapists and practice educator nurses within the host organization. Following the pilot, no modifications were required.

For the purposes of this study, mobilization referred to either sitting the patient on the edge of the bed or getting the patient out of bed with or without mechanical aids.

2.4 | Procedure

Following approval from the host critical care unit's service/quality improvement lead, participants were invited to complete the questionnaires electronically via posters within the host critical care unit, private social media accounts, and by word of mouth. Additionally, paper copies of the questionnaires were distributed to staff working within the host unit during a 2-week period in January 2020. An introductory paragraph outlined the project and provided all necessary participant information. The questionnaires were made available in both electronic and paper format and took no longer than 10 minutes to complete. Paper questionnaires were returned via envelopes located within staff rooms and in a centralized location within the critical care units. As the questionnaires were anonymous it was not possible to send reminders for completion or to identify any staff yet to complete the questionnaire.

3 | ANALYSIS

Demographic data were collected for profession and years of experience within critical care, as well as response rates. For the PMAB-ICU overall barrier scores and subscales were calculated in accordance with previous literature.[11,12] The overall and subscale score distributions were assessed by discipline using medians (95% confidence intervals), and between profession differences were tested using the Independent-Samples Mann-Whitney *U* Test. For the nursing staff participants, overall barrier scores and years of experience were compared using Pearson's correlation. All *P* values are two-sided with values ≤.05 indicating statistical significance. The same process was utilized to analyse the findings of the "Cardiff and Vale UHB barriers to rehabilitation" survey. Data entry and analysis was performed using Microsoft Excel™ and SPSS v25 statistical software (SPSS, Chicago, Illinois).

3.1 | Ethics

This project met the definition of a service evaluation under the NHS Health research authority guidelines. As such ethical approval was not required. Consent for involvement was assumed by completion of the questionnaires.

4 | RESULTS

4.1 | Demographics

Electronic versions of the questionnaires were completed by 24 nursing staff, with further 102 questionnaires distributed to nursing staff and 9 physiotherapists who were working within the 2-week completion period. Of the 102 paper questionnaires distributed to nursing staff, a total of 68 were returned (combined paper and electronic response rate of 73%) and all nine questionnaires provided for physiotherapists were returned (100% response rate). The average number of years of critical care nursing experience (n = 92, 90.2%) was 6.0 (SD 7.0) years compared with physiotherapists (n = 9, 8.8%) with 3.6 (3.2) years of experience.

4.2 | Patient mobilizations attitudes and beliefs survey for ICU

The median (confidence interval [CI]) overall barrier score for nursing staff was 31.5 (30.0-33.8), which was significantly higher than the 20.8 (15.4-26.2) reported by physiotherapists (*P* = .007) (see Table 1). Significant differences between nursing and physiotherapy staff were also recorded for each of the subscales of knowledge (*P* = .039), and behaviour (*P* = .045). Attitude scores were non-significantly different between the nursing and physiotherapy staff (0.088). Average scores for all barrier items are demonstrated in Table A1. For the nursing staff, the higher rated barriers included "increasing mobilisations of patients will result in more work for nursing staff" and "nurse to patient staffing is adequate

TABLE 1 Overall and subscale scores by clinical role, for the patient mobilization attitudes and beliefs survey for the ICU (PMABS-ICU)[a]

Scale	Nurse (n = 92)	Physiotherapist (n = 9)
Knowledge subscale	30.0 (25.0-30.0)[b]	5.0 (0.0-10.0)
Attitude subscale	28.9 (26.7-33.0)	15.6 (4.4-20.0)
Behaviour subscale	35.4 (32.3-38.5)[b]	27.7 (26.2-30.8)
Overall scale	31.5 (30.0-33.8)[b]	20.8 (15.4-26.2)

[a]Data presented as median (CI).
[b]*P* value for independent-samples Mann-Whitney *U* test <.05.

TABLE 2 Overall scores by clinical role, for the Cardiff and Vale UHB barriers to rehabilitation questionnaire[a]

Scale	Nurse (n = 92)	Physiotherapist (n = 9)
Overall scale	53.1 (50.8-53.8)[b]	45.4 (40.0-48.5)

[a]Data presented as median (CI).
[b]*P* value for independent-samples Mann-Whitney *U* test <.05.

to mobilise patient on my unit." Conversely, there was strong agreement that staff "believed that my patients who are mobilised at least one daily will have better outcomes" and that "leadership is very supportive of patient mobilisations." Physiotherapy staff reported lower perceived barriers but recognized that "patients often have contra-indications to mobilization." No comments were made by any participants and therefore no qualitative analysis was required.

For the nursing staff, no correlation was observed between perceived barriers and increasing experience of working within critical care (*P* = .663). Due to the small sample size, the correlation for physiotherapy staff and years of experience was not calculated.

4.3 | Cardiff and Vale UHB barriers to rehabilitation questionnaire

Overall barrier scores for nursing staff and physiotherapy staff were 53.1 and 45.4, respectively, suggesting an increase in perceived barriers by nursing staff (*P* = .024). Individual barrier scores for each profession are shown in Table A2. As with the previous questionnaire, nursing staff tending to score higher for each barrier, however, differences between the professions were less. Of the 26 items, nursing staff and physiotherapy scored the same on 11 occasions, with no average perceived barrier having a greater than 1-point median difference. Of note, weaning/sprinting was perceived as a low barrier as was the presence of an endotracheal tube (ETT), whereas advanced modes of ventilation (APRV and HFOV) were perceived as much greater barriers. As with the PMABs questionnaire, no comments were made by any participants and therefore no qualitative analysis was required (Table 2).

Within in the nursing cohort, there was no correlation between experience of working in critical care and perceived barriers (*P* = .607) suggesting no difference in perceived barriers with increasing experience.

5 | DISCUSSION

In this single-site evaluation, utilizing previously developed surveys, nursing staff reported significantly higher perceived barriers to rehabilitation when compared with physiotherapists. These barriers included knowledge, attitudes, behaviours, and patient-specific factors. Within the nursing staff cohort, there was no correlation between years of experience and perceived barriers. The two surveys were completed by 101 healthcare workers from either nursing or physiotherapy professions.

5.1 | Patient mobilizations attitudes and beliefs survey for ICU (PMABS-ICU): Survey

In the current service evaluation, the PMABS-ICU survey, demonstrated significant differences between the perceived barriers for nursing staff and physiotherapists. These differences were apparent in all three domains of knowledge, attitudes, and behaviour, as well as in the overall scoring. The greatest difference between the professional groups occurred for knowledge (four questions) which highlighted awareness for appropriate referrals to physiotherapy, occupational therapy, and knowledge of how to mobilize patient's safety. The difference was lowest for behaviours (13 questions) which focused more on perceived time availability, leadership, and adequate staffing. These is more likely a reflection of the culture of the unit towards mobilization that an individual's own perceptions, and as such scores tending to be more consistent between participants. Years of clinical experience appeared to have no impact on the perceived barriers.

Our results are in keeping with published studies.[11-13] The PMABS-ICU was developed and first utilized in John Hopkins Medical Centre, United States. As part of their quality improvement project, and like the current study, nursing staff reported the highest perceived barriers to rehabilitation. Of note, the reported barriers were higher within the US study across all professions (including nursing staff, physical therapy and medical staff) and all subscales. For nursing staff, the overall median barrier score was 31.5 (30.0-33.8) compared with 37 (31.0-34.0) within the US paper. Notably, the UK-based physiotherapists reported the lowest barrier score across both studies (20.8%). The reasons behind this lower perceived barrier are unclear. These findings may be a result of the limited sample size and single-site nature of the evaluation, or may reflect different training programmes, scope of professional practice, and professional expectations.

For the nursing staff cohort, the current study reported no effect of years of clinical experience on perceived barriers, whereas the previous work demonstrated lower barrier scores with each additional year of work experience during the first 10 years.[11] It could be hypothesized that with increased experience the perceived barriers may reduce but it could also be argued that those working in critical care for longer may be more impacted by historical perceptions of rehabilitation and institutional barriers.

5.2 | Cardiff and Vale UHB barriers to rehabilitation questionnaire

Nursing staff also reported significantly higher perceived barriers to rehabilitation compared with physiotherapists when completing the Cardiff and Vale UHB barriers questionnaire. This questionnaire was more situation-specific questioning direct contra-indications to rehabilitation (eg, use of neuromuscular blockade). Nursing staff reported overall barriers of 53.1% compared with 45.4% for physiotherapists. Median scores for each scale item were relatively similar with few tasks showing clear difference of opinions between the staffing groups.

Previous local service evaluations exploring barriers to rehabilitation suggested that sedation was the key barrier to active rehabilitation, followed by invasive neurological management (Intra-cranial pressure monitoring and external ventricular drains) and unstable spinal injuries.[13] Similarly, McWilliams et al[5] identified 11 key barriers to rehabilitation including use of vasoactive agents, high fractions of inspired oxygen or positive end expiratory pressure. These key barriers were also apparent in the current survey with median barrier scores of 4 or 5 out of 5. Of note, only active bleeding, high-frequency oscillatory ventilation and unstable spine had agreement between nursing staff and physiotherapy staff as a complete contra-indication to rehabilitation. Those factors appearing to be less of a barrier included ongoing weaning plans, presence of endotracheal tube, and palliative care.

As with PMABS-ICU, there was very little relationship between perceived barriers for rehabilitation and years of critical care nurse experience. Indeed, there appeared to be a slight increase in perceived barriers with increasing experience, however, caution must be taken with any interpretation due to the limited number of staff completing the survey with greater experience (majority of staff involved had less than 5 years' experience). Additionally, as discussed for PMABS-ICU, there is potential that those with greater years of experience may be influenced by historical and institutional cultural factors.

5.3 | Overall

For both surveys, significant differences were observed between nursing staff and physiotherapist perceptions of barriers and limitations to rehabilitation. These findings are supported by the literature. Jolley and colleagues[15] explored clinician attitudes and perceived barriers towards early mobilization of critically ill patients. In this cross-sectional survey, the authors reported that most multi-disciplinary clinicians are knowledgeable regarding the potential benefits of early mobilisation, but significant barriers remain including concerns around risk to the patient and time considerations. As with the current study, nursing staff reported higher frequencies of perceived barriers including risk of self-injury (71% compared with 41% for physical therapists) and excess work stress (65% and 41% for nursing and physical therapy respectively). Additionally, and in similarity with the current survey, the authors reported no differences with increasing experience of the clinicians involved. This therefore suggests that pre-existing professional or unit culture barriers remain no matter the experience of the clinician.

Anekwe et al[16] also identified differences between different professional groups in terms of perceptions of when to start mobilizations. In their study "interprofessional survey of perceived barriers and facilitators to early mobilisation of critically ill patients in Montreal, Canada," the authors concluded that safety concerns by nursing was rated as a big barrier to early mobilization despite the evidence suggesting that early mobilization is safe and feasible in this patient group. Interestingly, the authors also suggested that this perception may lead to late initiation of mobilization as most other members of the multi-disciplinary team believe that the nurse should be the first to identify when a patient is ready. This likely contrasts with UK practice where therapy staff (eg, physiotherapists) working in conjunction with the rest of the team will make decisions on readiness to start mobilizations.

5.4 | Limitations

There were potential limitations to this survey. Firstly, is the use of the non-validated Cardiff and Vale UHB barriers to rehabilitation questionnaire for exploration of potential barriers. While used in previous research, it is acknowledged that the internal consistency and validity of this questionnaire has not been explored. Similarly, while validated in previous research14, it is acknowledged that the internal consistency of the PMAB-ICU was lower in the subscale analysis compared with the overall result. Additionally, the current survey did not collect detailed demographic information regarding the participants and only explored experience of working in critical care. It is likely that the staff completing the questionnaires had considerably more experience than listed but this may have been in other clinical areas. These experiences may have influenced their perceptions of barriers. The method of distributing the questionnaires may also have influenced the findings. Electronic questionnaires were advertised although uptake was relatively low, with far greater paper-based questionnaires completed. These paper versions were distributed and completed by staff on shift. Due to staff time pressures, this may have resulted in questionnaires being completed "as quickly as possible" or the responses being influenced by the pressures of the shift. Additionally, this method of distribution will have contributed to the response rate especially if staff did not have capacity to complete the questionnaires due to clinical time pressures.

The single-site nature of the evaluation limits the generalizability of the results and would need comparison to further critical care units before any more robust conclusions are drawn. Similarly, while the unequal sampling of the two groups (nursing and physiotherapy) reflects the size of the workforce (within host organisation 250-260 nurses compared with 16 physiotherapists), this may impact on the analysis of between group differences and the interpretation of results. However, balancing these sample sizes will also have the effect of giving unequal representation of the available staff population.

6 | IMPLICATIONS FOR CLINICAL PRACTICE

This study and previous research have identified that barriers exist for mobilization of patients within critical care.[11,13,15-17] These barriers are both patient-related (eg, cardiovascular status) and clinical-related. Furthermore, these clinician-related barriers appear to be affected by the profession of the clinician, and less effected by the clinician's experience of working in critical care. Frequently time and workload are reported as key barriers to mobilizing critically ill patients as well as concerns around risk of injury to staff. In a Delphi review of barriers to rehabilitation, Cuthbertson et al[17] also reported critical care unit culture and sedation practices as positional factors which appear to outweigh the known benefits of mobilisation.

The challenge for clinical practice is to overcome these barriers and provide a clinical environment in which clinicians feel empowered to mobilize their patients, with the known benefits on patient outcomes. Cuthbertson and colleagues recognized the significant gap between the strength of the available evidence, the actual implementation of mobilization into practice, and the perceived outcomes of this intervention.[17] This understanding of the implementation science should allow identification of appropriate strategies to enhance the provision of mobilization treatments. These strategies may include multi-disciplinary education for knowledge acquisition, development of relevant guidance documents, or greater focus on patient outcome.

7 | CONCLUSION

Within this single-site study, nursing staff reported significant higher perceived barriers to rehabilitation when compared with physiotherapists. However, these perceived barriers occurred less frequently than in previously reported research and the barriers did not appear to be influenced by years of experience. Further work is now required to explore improvement projects to reduce these potential barriers both at an individual and critical care unit level. These projects must be multi-disciplinary in nature, focused on increasing staff knowledge and confidence in the implementation of mobilization. This further work should in turn alter the unit wide culture towards mobilization, and enhance in the provision of rehabilitation.

DATA AVAILABILITY STATEMENT

Raw data available by direct request to the corresponding author.

ETHICS STATEMENT

This study constituted an improvement in the standard care delivery with no randomization and thus met the definition of a service evaluation under the NHS Health research authority guidelines. As such ethical approval was not required. Consent for involvement was assumed by completion of the questionnaires.

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REFERENCES

1. Desai SV, Law TJ, Needham DM. Long-term complications of critical care. *Crit Care Med*. 2011;39(2):371-379.
2. National Institute for Health and Clinical Excellence (NICE) guidelines. Rehabilitation after critical illness; 2009. http://www.NICE.org.uk. Accessed March 1, 2020.
3. Morris PE, Goad A, Thompson C, et al. Early intensive care unit mobility therapy in the treatment of acute respiratory failure. *Crit Care*. 2000;36(8):2238-2243.
4. Hodgson C, Bellomo R, Berney S, et al. Early mobilisation and recovery in mechanically ventilated patients in the ICU: a bi-national, multicentre, prospective cohort study (TEAM study investigation). *Crit Care*. 2015;19:81.
5. McWilliams D, Weblin J, Atkins G. Enhancing rehabilitation of mechanically ventilated patients. *J Crit Care*. 2015;30(1):13-18.
6. Stiller K, Phillips A, Lambert P. The safety of mobilisation and its effect on haemodynamic and respiratory status of intensive care patients. *Physiother Theory Pract*. 2004;20(3):175-185.
7. Zafiropoulos B, Allison JA, McCarren B. Physiological responses to the early mobilisation of the intubated, ventilated abdominal surgery patient. *Aust J Physiother*. 2004;50:95-100.
8. Stiller K, Phillips A. Safety aspects of mobilising acutely ill inpatients. *Physiother Theory Pract*. 2003;19:239-257.
9. Hodgson CL, Stiller K, Needham DM, et al. Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults. *Crit Care*. 2014;18:658.
10. Dubb R, Nydahl P, Hermes C, et al. Barriers and strategies for early mobilization of patients in intensive care units. *Ann Am Thorac Soc*. 2016;13(5):724-730.
11. Goodson C, Friedman L, Mantheiy E, et al. Perceived barriers to mobility in a medical ICU: the patient mobilization attitudes & beliefs survey for the ICU. *J Intensive Care Med*. 2020;35(10):1026-1031.
12. Garzon-Serrano J, Ryan C, Waak K, et al. Early mobilization in critically ill patients: patients' mobilization level depends on health care provider's profession. *Am Acad Phys Med Rehabil*. 2011;3:307-313.
13. Hoyer E, Brotman D, Chan K, et al. Barriers to early mobility of hospitalized general medicine patients: survey development and results. *Am J Phys Med Rehabil*. 2014;94(4):304-312.
14. Twose P, Jones C. A service evaluation exploring limitations to rehabilitation within critical care. *J Assoc Chart Physiother Respirat Care*. 2015;47:14-26.
15. Jolley S, Regan-Baggs J, Dickson RP, Hough CL. Medical intensive care unit clinician attitudes and perceived barriers towards early mobilisation of critically ill patients: a cross-sectional survey study. *Anethesiology*. 2014;14(84):1-9.
16. Anekwe DE, Kin-Yue Koo K, de Marchie M, et al. Interprofessional survey of perceived barriers and facilitators to early mobilisation of critically ill patients in Montreal, Canada. *J Intensive Care Med*. 2019;34(3):218-222.
17. Cuthbertson BH, Goddard SL, Lorencatto F, et al. Barriers and facilitators to early rehabilitation in the ICU: a theory driven Delphi study. *Crit Care Med*. 2020;48(12):e1171-e1178.

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APPENDIX

TABLE A1 Score for each barrier item by clinical role of survey participant for Patient Mobilization Attitudes & Beliefs Survey for the ICU (PMABS-ICU)[a]

	Nurse (n = 92)	Physiotherapist (n = 9)
Knowledge		
2. I have received training on how to safely mobilize my patients.	4 (3-4)	4.5 (4-5)
5. I understand which patients are appropriate to refer to physiotherapy.	4 (4-4)	5 (5-5)
6. I understand which patients are appropriate to refer to Occupational Therapy.	3 (3-4)	5 (4-5)
25. Unless there is a contraindication, I educate my patients to exercise or increase their physical activity while on my hospital unit.	4 (4-4)	4 (4-5)
Attitudes		
1. My patients are too sick to be mobilized.	3 (2-3)	2 (1-3)
3. Increasing mobilisation of my patients will be harmful to them (eg, falls, IV line removal)	2 (2-3)	1 (1-2)
4. A physiotherapist should be the primary care provider to mobilize my patients.	2 (2-3)	2 (2-4)
12. Increasing mobilisation of my patients will be more work for Nurses.	4 (4-4)	2 (2-3)
13. Increasing mobilisation of my patients will be more work for Physio and/or Occupational Therapists.	4 (3-4)	2 (1-3)
18. I believe that my patients who are mobilized at least once daily (if there is no contraindication) will have better outcomes.	5 (4-5)	5 (5-5)
19. I am not sure when it is safe to mobilize my patients.	2 (2-3)	2 (1.5-2)
21. I do not feel confident in my ability to mobilize my patients.	2 (2-2)	2 (1.5-2)
26. My patients have time during their day to be mobilized at least once daily.	4 (3-4)	4.5 (4-5)
Behaviours		
7. We do not have the proper equipment and/or furnishings to mobilize my patients.	3 (2-3)	2.5 (2-3)
8. The physical functioning of my patients is regularly discussed between the patient's healthcare providers (nurses, physicians, physiotherapists, occupational therapists).	4 (4-4)	4 (3-4)
9. Nurse-to-patient staffing is adequate to mobilize patients on my unit.	2 (2-3)	3.5 (2-4)
10. My patients often have contraindications to be mobilized.	4 (4-4)	4 (3-4)
11. Unless there is a contraindication, my patients are mobilized at least once daily by Nurses.	3.5 (3-4)	2 (2-3)
14. My leadership is very supportive of patient mobilisation.	4 (4-4)	5 (5-5)
15. Increasing the frequency of mobilising my patients increases my risk for injury.	2 (2-2)	2 (1-2)
16. Patients who can be mobilized usually have appropriate physician orders to do so.	3 (3-4)	3 (3-4)
17. My patients are resistant to being mobilized.	3 (3-3)	3 (3-4)
20. Family members of my patients are frequently interested to help mobilize them.	3 (2-3)	3 (2-4)
22. I document the physical functioning status of my patients during my shift/workday.	4 (4-4)	4 (4-5)
23. I do not have time to mobilize my patients during my shift/workday.	3 (3-3)	1 (1-2)
24. Unless there is a contraindication, I mobilize my patients at least once during my shift/workday.	4 (4-4)	4.5 (3-5)

[a]Median (CI) score for each survey item by clinical role, rated pm 1-5 scale where: 1 = strongly disagree and 5 = strongly agree.

TABLE A2 Score for each barrier item by clinical role of survey participant for Cardiff and Vale UHB barriers to rehabilitation questionnaire[a]

	Nurse (n = 92)	Physiotherapist (n = 9)
Too sedated/reduced GCS	5.0	4.0
Neuro-muscular blocking agents	5.0	4.0
EVD in situ	4.0	3.0
Raised intra-cranial pressure	5.0	4.0
Use of Noradrenaline	4.0	3.0
Unstable cardiac rhythm	4.0	4.0
PEEP >10	4.0	4.0
SIMV mode of ventilation	3.0	2.0
APRV mode of ventilation	3.0	2.0
Use of nitric oxide	4.0	5.0
Use of high frequency oscillatory ventilation	5.0	5.0
Weaning/ sprinting	2.0	3.0
Presence of ETT	3.0	2.0
Open abdomen or high risk for dehiscence	4.0	3.0
Haemofiltration via femoral line	4.0	3.0
Haemofiltration via jugular or Subclavian line	3.0	2.0
Unstable spinal fracture	5.0	5.0
Stable spinal fracture	3.0	2.0
Extremity fractures, for example, femur or tibia	3.0	3.0
Pain	3.0	3.0
Increased BMI	2.0	2.0
Patient fatigue	3.0	3.0
Hyperactive delirium	3.0	3.0
Hypoactive delirium	3.0	3.0
Active bleeding process	5.0	5.0
Palliative care	3.5	2.0

[a]Median (CI) score for each survey item by clinical role, rated pm 1-5 scale where: 1 = strongly disagree and 5 = strongly agree. For consistency, all scores were reversed before the statistic was calculated.