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Quality Improvement Article

Patient mobilisation in the intensive care unit and evaluation of a multifaceted intervention including Facebook groups: A quasi-experimental study

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ABSTRACT

Aims: To describe prevalence and time to mobilisation in intensive care unit patients defined as a minimum sitting in an upright position in bed, and evaluate the impact of a multifaceted quality improvement campaign on likelihood of patients being mobilised.
Research methodology/design: Quality improvement project using a quasi-experimental study design, comparing patient cohorts before (Before) and after (Intervention) a campaign including educational sessions, audit and feedback of intensive care unit quality indicators via closed Facebook-groups and e-mail and local opinion leaders. Secondary analysis of mobilisation data from adult intensive care patient stays extracted from electronical medical charts. Likelihood of being mobilised was analysed with Multivariate Cox-regression model and reported as Sub-hazard Ratio (SHR).
Setting: Four intensive care units in a university hospital.
Main outcome measures: Prevalence and time to first documented mobilisation, defined as at least "sitting in bed" during the intensive care unit stay.
Results: Overall, 929 patients were analysed, of whom 710 (76 %) were mobilised; 73 % (356/ 489) in Before vs 81 % (354/ 440) in Intervention (p = 0.007). Median time to mobilisation was 69.9 (IQR: 30.0, 149.8) hours; 71.7 (33.9, 157.9) in Before and 66.0 (27.1, 140.3) in Intervention (p = 0.104). Higher SAPS II-scores were associated with lower likelihood (SHR 0.98, 95 % CI 0.97–0.99), whereas admissions due to gastroenterological failure (SHR 2.1, 95 % CI 1.4–3.0), neurological failure (SHR 1.5, 95 % CI 1.0–2.2) and other causes (intoxication, postoperative care, haematological-, and kidney failure) (SHR 1.7, 95 % CI 1.13–2.6) were associated with higher likelihood of mobilisation vs respiratory failure.
Conclusion: A quality improvement campaign including use of Facebook groups is feasible and may improve mobilisation in intensive care unit patients. Most patients were mobilised within 72 hours following intensive care unit admission, and SAPS II scores and causes for intensive care unit admission were both associated with likelihood of being mobilised.

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Implications for clinical practice

- Social Media, as part of a multifaceted intervention campaign, focusing on early mobilisation is feasible and may improve the quality of care in intensive care unit patients.
- The impact of Social Media on mobilisation in intensive care unit patients shows unclear results and should be further explored in quality improvement intervention studies.
- Social Media may have potential in achieving a higher level of interprofessional interest in mobilisation of intensive care unit patients.

Introduction

Traditionally, critically ill intensive care unit (ICU) patients have been treated with deep sedation, mechanical ventilation and bedrest, resulting in deconditioning and loss of muscle strength (Hodgson et al., 2014). After ICU discharge, 25–50 % of patients reported loss of muscle strength (Langerud et al., 2018). Muscle weakness is associated with shorter long-term survival, reduced physical function and quality of life in discharged ICU patients (Herridge et al., 2011; Van Aerde et al., 2021). ICU treatment is, however, constantly evolving and improving. More patients are discharged alive (Buanes et al., 2020), and focus on early mobilisation and rehabilitation, physical and psychological function and quality of life increases (McWilliams et al., 2019).

The impact of implementing early mobilisation in ICU patients has not only been shown to be feasible and safe, but also improve outcomes during and after ICU stays (Ding et al., 2019; Hodgson et al., 2014; Zhang et al., 2019). Early mobilisation is listed as the best way to prevent and treat loss of muscle strength and reduce incidence of ICU-acquired weakness (Hodgson et al., 2021; Parry et al., 2018). In addition, early mobilisation further contributes to better pain- and sedation control, sleep quality, decreased incidence of delirium, reduction in days with mechanical ventilation and ICU length of stay and better contact with relatives, and therefore included in clinical guidelines for ICU treatment (Devlin et al., 2018; Wang et al., 2021). Mobilisation as an intervention in the ICU is associated with low (<1–4 %) incidence of reported adverse events (Ding et al., 2019; Hodgson et al., 2014; Nydahl et al., 2017).

Absolute contraindications to mobilisation are described as severe respiratory- or circulatory failure, labile neurological status or unsecured fractures (Hodgson et al., 2014). Reported barriers for mobilisation can be patient-, structural-, procedural- and cultural related, and do not necessarily correspond with contraindications for mobilisation (Dubb et al., 2016; Hodgson et al., 2021; Hodgson et al., 2014). This indicates that more ICU patients could have been mobilised. In addition, we are lacking larger studies describing prevalence and time to mobilisation among ICU patients.

We have recently shown that a quality improvement initiative through a multifaceted intervention including feedback of quality indicators via closed Facebook-groups, was associated with improved guideline adherence of pain, agitation/sedation and delirium (PAD) assessments in the ICUs (Petosic et al., 2021). Early mobilisation (within 72 hours) was also an integrated part of this improvement initiative.

Thus, the primary aims were to describe prevalence of and time to first documented mobilisation, defined as at least "sitting in bed" or more during the ICU stay, and to evaluate the impact of a multifaceted quality improvement campaign on likelihood of patients being mobilised. Secondary aim was to investigate which of the selected demographic and clinical variables were associated with likelihood of being mobilised during the ICU stay.

Methods

Study design

This study represents a secondary analysis from a quasi-experimental study in four ICUs at Oslo University Hospital (OUH). The four ICUs are located at two different geographical locations at OUH, and each ICU has specialised ICU nurses and physicians including 8–12 actual, and 6–10 staffed beds. Physiotherapists are employed in separate departments within the hospital, and each patient needs to be referred to physiotherapy by physicians.

Aim of the main study was to compare the period prior to (Before) and after (Intervention) intervention on the documented assessment of PAD, where also the study design in detail is presented (Petosic et al., 2021). In addition to PAD, the other critical care topics included in the intervention campaign were multi-professional ward rounds, early enteral nutrition, pressure ulcer prevention and early mobilisation. The present study focuses on early mobilisation, again comparing Before vs Intervention. Interventions were directed towards all nurses and physicians at the four ICUs including educational events, audit and feedback of quality indicators via closed Facebook-groups and e-mails and involvement of local opinion leaders (Figure in Appendix 1).

In short, definitions of quality indicators, the different critical care topics and explanation of feedback of baseline performance of the quality indicators were presented at local educational events (September-October 2017). Thereafter, audit and feedback of quality indicators were weekly provided via different Facebook-posts in the ICUs closed Facebook-groups for a six-month period (November 2017-April 2018) (Appendix 2), in addition to monthly e-mails (December'17-April'18) to department heads and local opinion leaders (Appendix 3). Feedback included quality indicator-levels compared to previous levels within each ICU and to the other participating ICUs.

All four ICUs had pre-existing Facebook-groups mainly used for social purposes and shift swapping. In a survey among ICU nurses and physician performed prior to initiation of the campaign, we documented that 87 % of ICU nurses and physicians had a Facebook-profile; 89 % of the nurses and 81 % of the physicians. Most (98 %) of the nurses with a Facebook-profile were members of their ICUs closed Facebook-groups, whereas only some (31 %) of the physicians having a Facebook profile were members of one of the four closed Facebook-groups (Petosic et al., 2019). The physiotherapists were not included in the survey, and just a few of them were members in the closed Facebook-groups.

In total, 26 Facebook-posts were posted simultaneously in the four Facebook-groups, of which seven were related to early mobilisation. Three posts included graphs/tables with presentation of all quality indicator-levels, two posts included one-minute videos where a local physician and physiotherapist were interviewed about the importance of, contraindications and barriers to mobilisation, and two posts included an image/ illustration. To increase distribution, visibility and interest, the Facebook-posts included emojis, questions and a call to action to gain comments and/or 'likes', including offering gifts to one of those who "liked" or commented. Many of the group members had "seen" the posts (70 %) 24 h from posting, but few liked (6.2 %) and commented (2.3 %) (Petosic et al., 2021). The local opinion leaders were included throughout the study and the importance of their engagement was emphasised.

Participants

Consecutively admitted ICU patient stays were included in a predefined time period (January 1th 2017 - May 31th 2018). Patients admitted prior to June 12th 2017 were included retrospectively, and

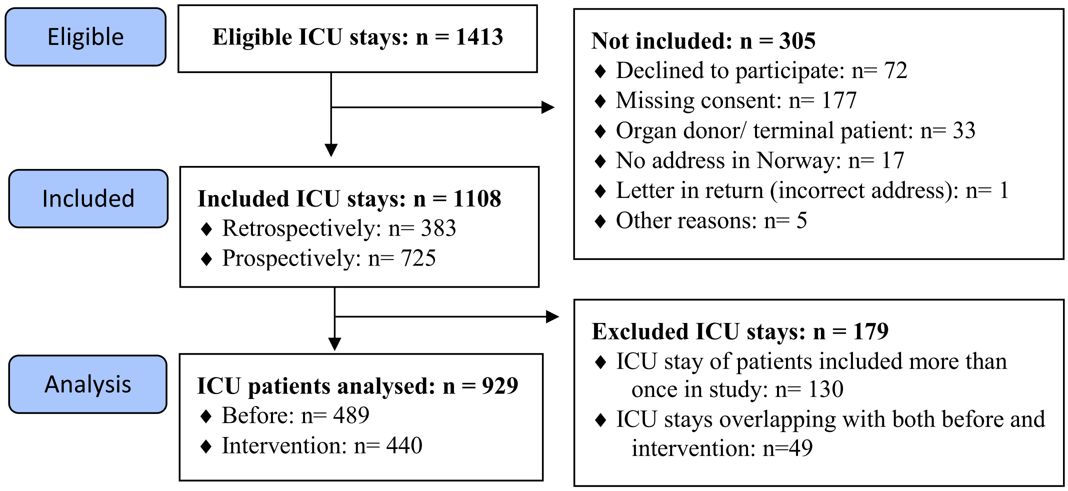

Fig. 1. Flow diagram, inclusion, exclusion of Intensive Care Unit (ICU) stays and analysis of ICU patients.

thereafter prospectively. Inclusion criteria were ICU patient stays from adult (>18 years) patients with a minimum ICU length of stay (ICU-LOS) of 48 h at one of the four ICUs. Only the first ICU stay for each individual patient was included in the data analysis for patients admitted morethan once during the study period.

Data collection

Mobilisation data were retrieved from the electronical patient chart system (MetaVision™, iMDsoft, Israel). Demographic data, primary cause for ICU admission, Simplified Acute Physiology Score II (SAPS II), ICU treatment provided during the ICU stay (e.g. mechanical ventilation), Nursing Activities Scores (NAS), ICU-LOS, time on invasive mechanical ventilation and ICU mortality, were retrieved from the Norwegian Intensive Care Registry (NIR).

Variables

Outcome variables; Mobilisation was defined as a documented mobilisation to one of the six levels of mobilisation used in the electronic medical chart MetaVision™ from category 1–6: *"sitting in bed"* (sitting in an upright position), *"sitting on edge of bed"*, *"sitting in chair"*, *"standing"*, *"standing bed"* (a bed that may be tilted into a standing position) and *"walking"*. Time to mobilisation (hours) was calculated from time of ICU admission to time of first mobilisation documented in MetaVision™. This could be either one of the levels listed, whichever level came first. Follow up was defined from time of ICU admission to mobilisation, death or discharge, whatever came first.

Predictive (independent) variables were; SAPS II, transferred from another ICU, ICU admitted to, primary cause for ICU admission, bodyweight, and gender. SAPS II is a validated tool used to measure disease severity during the first 24 h of admission (Le Gall et al., 1993). Primary causes for ICU admission were defined categories from NIR; respiratory-, circulatory-, gastroenterological-, and neurological failure, injury/ trauma, sepsis and other (intoxications, general postoperative care, haematological-, and kidney failure). Bodyweight is a continuous variable collected from MetaVision™ and represents the patients' bodyweight during the ICU stay.

Statistical analyses

Continuous variables were described with median and interquartile range (IQR), and categorical variables as counts and percentages. Pairs of categorical variables were compared using chi-square test. Crude differences between groups for continuous variables were assessed by non-parametric independent samples Mann-Whitney *U* test.

Multivariate Cox-regression model was used to analyse likelihood of being mobilised in Before vs Intervention and the predictive (independent) variables, with mortality as a competing risk, and ICU discharge as censured. Results were presented with Kaplan Meier plots and expressed as Sub-hazard Ratio (SHR) with 95 % Confidence Intervals (CI). Analyses were considered exploratory, thus without correction for multiple testing and p-values < 0.05 were considered statistically significant. Analyses were performed with the statistics program IBM SPSS version 23 (IBM Corp., Armonk NY) and Stata/MP 17 (Stata Corp LLC).

Ethics

The study was approved by Regional Committees for Medical and Health Research Ethics (2016/2281/REK South-East A), the local data protection officer at the hospital and department management. In all parts of the study the Helsinki declaration was followed (World Medical Association, 2013). Prospectively included patients were recruited with written, informed consent from the patient or their respective caregiver during the ICU stay by a study nurse not actively involved in patient care. Consent for the retrospectively included sample of patients was achieved by a posted information letter to their home address with a request to use a defined set of their ICU data, and with an open possibility to withdraw their study participation at any timepoint.

Results

Of 1413 eligible ICU patient stays, 1108 (78 %) from 978 different patients were included. In total, data from 929 ICU patients were analysed; 489 in Before and 440 in Intervention (Fig. 1). Patient characteristics are presented in Table 1. There were more males (66 %), and the most frequent causes for ICU admission were injury/ trauma (28 %) and gastrointestinal failure (20 %), with no differences between the two periods. ICU mortality was 10 % in Before vs 6 % in Intervention (p = 0.031). More patients were on invasive mechanical ventilation, had vasoactive infusion and a lower NAS per ICU day in Before. SAPS II were comparable between the two time periods (Table 1).

Among the 929 patients, 710 (76 %) were mobilised during the ICU stay; 73 % (356/ 489) in Before vs 81 % (354/440) in Intervention (p = 0.007). Median time to mobilisation was 69.9 (IQR 30.0, 149.8) hours from ICU admission; 71.7 (33.9, 157.9) hours in Before and 66.0 (27.1, 140.3) hours in Intervention (p = 0.104) (Table 1). The majority of first mobilisations documented in both groups were "sitting in bed" and "sitting on edge of the bed" (Appendix 4).

Fig. 2 displays the cumulative incidence of mobilisation and death

Table 1
Characteristics of included ICU patients (n = 929).

Characteristics	Total n= 929	Before n= 489	Intervention n= 440	Difference Before/ Intervention
Age, years, Median (IQR)	58.1 (43.7, 68.3)	57.9 (45.6, 68.6)	58.3 (42.8, 67.8)	0.733
Sex, Male, n (%)	611 (65.8)	316 (64.6)	295 (67.0)	0.447
Body weight [a] (kg), Median (IQR)	80.0 (69.0, 92.0)	80.0 (70.0, 95.0)	79.0 (68.0, 91.0)	0.066
SAPS II, Points, Median (IQR)	36.0 (26.0, 50.0)	38.0 (26.5, 50.0)	35.0 (25.25, 50.0)	0.252
Primary cause for ICU admission, n (%)				0.380
Respiratory failure	94 (10.1)	49 (10.0)	45 (10.2)	
Circulatory/ cardiovascular failure	78 (8.4)	44 (9.0)	34 (7.7)	
Gastroenterological failure	185 (19.9)	88 (18.0)	97 (22.0)	
Neurological failure	146 (15.7)	82 (16.8)	64 (14.5)	
Sepsis	34 (3.7)	23 (4.7)	11 (2.5)	
Injury/ Trauma	260 (28.0)	133 (27.2)	127 (28.9)	
Other [b]	132 (14.2)	70 (14.3)	62 (14.1)	
Transferred from another ICU, n (%)	330 (35.5)	187 (38.2)	143 (32.5)	0.074
ICU admitted to, n (%)				**0.025**
ICU 1	323 (34.8)	154 (31.5)	169 (38.4)	
ICU 2	152 (16.4)	73 (14.9)	79 (18.0)	
ICU 3	300 (32.3)	175 (35.8)	125 (28.4)	
ICU 4	154 (16.6)	87 (17.8)	67 (15.2)	
ICU Treatment during the ICU stay, n (%)				
Invasive mechanical ventilation	778 (79.6)	415 (84.9)	321 (73.0)	**<0.001**
Tracheostomy	249 (26.8)	141 (28.8)	108 (24.5)	0.159
Intracranial Pressure monitoring	135 (14.5)	71 (14.5)	64 (14.5)	1.000
Vasoactive infusion > 6h	795 (85.6)	435 (89.0)	360 (81.8)	**0.002**
Extended haemodynamic monitoring [c]	115 (12.4)	57 (11.7)	58 (13.2)	0.487
Targeted temperature management	39 (4.2)	20 (4.1)	19 (4.3)	0.871
Haemodynamic support [d]	23 (2.5)	10 (2.0)	13 (3.0)	0.404
Renal replacement therapy (continuous)	136 (14.6)	76 (15.5)	60 (13.6)	0.457
NAS per ICU day, Points, Median (IQR)	144.2 (128.4, 159.2)	142.0 (126.4, 158.1)	145.7 (131.4, 160.7)	**0.008**
Mobilized during ICU stay, n (%)	710 (76.4)	356 (72.8)	354 (80.5)	**0.007**
Time to first mobilization, Hours, Median (IQR)	69.9 (30.0, 149.8)	71.7 (33.9, 157.9)	66.0 (27.1, 140.3)	0.104
Time on invasive mechanical ventilation [e], Days, Median (IQR)	5.0 (2.0, 10.8)	5.0 (2.0, 11.0)	4.9 (2.0, 10.7)	0.549
ICU-LOS, Days, Median (IQR)	6.6 (3.7, 11.8)	6.8 (3.7, 12.9)	6.1 (3.7, 10.7)	0.363
ICU mortality, n (%)	77 (8.3)	50 (10.2)	27 (6.1)	**0.031**

Abbreviations: ICU; Intensive care unit, IQR; Interquartile range with 25 and 75 percentiles, n; number, SAPS II; Simplified Acute Physiology Score II, LOS; Length of stay, NAS; Nursing Activities Score.
[a]Due to missing data for Bodyweight; n = 832, Before: n = 457, Intervention n = 375.
[b]Other includes: intoxication, haematological failure, kidney failure, postoperative care.
[c]Extended hemodynamic monitoring includes: SwanGanz and/or PiCCO.
[d]Haemodynamic support includes: ECMO, IABP, and/ or Impella.
[e]Patients on invasive mechanical ventilation included; n = 778 Before: n = 417, Intervention n = 321.

from time of ICU admission. In a crude analysis, the patients in Intervention were significantly more likely to be mobilised compared to Before (SHR 1.21, 95 % CI 1.04–1.41, p = 0.012). However, when adjusted for selected covariates, patients in Intervention had a 16 % higher likelihood of being mobilised vs Before, but this was not statistically significant (SHR 1.16, 95 % CI 0.99–1.37, p = 0.068) (Table 2).

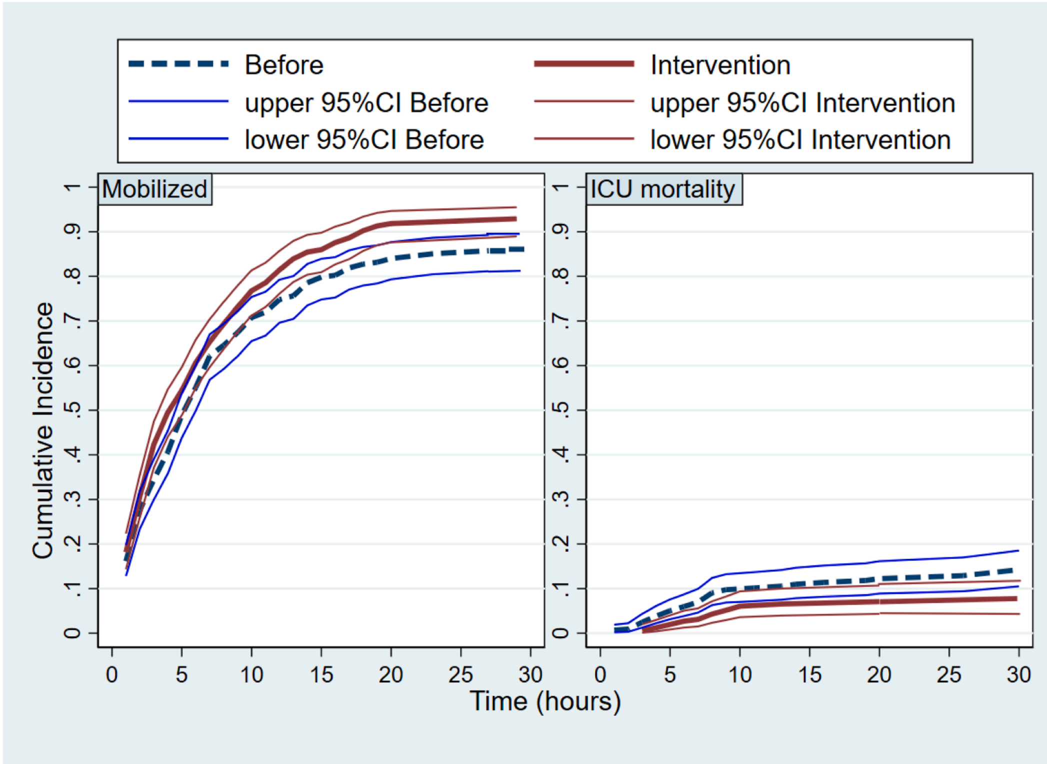

Fig. 2. Cumulative incidence of mobilization and ICU mortality in Before and Intervention.

In multivariate analyses adjusted for covariates, higher SAPS II was associated with significantly lower likelihood of being mobilised (SHR 0.98, 95 % CI 0.97–0.99, p=<0.001). The ICU admission causes gastroenterological failure (SHR 2.1, 95 % CI 1.4–3.0, p=<0.001), neurological failure (SHR 1.5, 95 % CI 1.0, 2.2, p = 0.042) and other (SHR 1.7, 95 % CI 1.13–2.6, p = 0.011) were associated with significantly higher likelihood of being mobilised vs respiratory failure (Table 2).

Discussion

The majority of ICU patients (76 %) were mobilised at least once during their ICU stay, with overall median time from admission to mobilisation of 69.9 hours. More patients were mobilised in Intervention vs Before, however when adjusted for relevant covariates the likelihood of being mobilised was no longer statistically significant in Intervention vs Before. Furthermore, it should be noted that there were more mechanically ventilated patients in Before, but the SAPS II were comparable. A higher SAPS II was associated with significantly lower likelihood of being mobilised, whereas the primary causes of ICU admissions gastroenterological failure, neurological failure and other (intoxications, postoperative care, haematological-, and kidney failure) were associated with significantly higher likelihood of being mobilised vs respiratory failure.

The prevalence of patients being mobilised during the ICU stay of 76 % is relatively high compared to findings from previous studies (Jolley et al., 2017; Krupp et al., 2018; Leditschke et al., 2012; McWilliams et al., 2019; Nydahl et al., 2014; Sibilla et al., 2017). In a systematic review, 18 to 33 % of ICU patients were reported being mobilised (Krupp et al., 2018), and in individual studies the incidence varies between 24 and 92 % (Jolley et al., 2017; Leditschke et al., 2012; McWilliams et al., 2019; Nydahl et al., 2014; Sibilla et al., 2017). Indeed, comprehensions and comparison of mobilisation rates in ICU patients is challenging, due to different study designs, data collection methods and patient selections. For example, our inclusion of both mechanically ventilated patients and patients without breathing assistance, may have increased the prevalence of mobilisation compared to studies that only included mechanically ventilated patients. On the other hand, other factors may have adversely affected the prevalence of mobilisation. First, patients where mobilisation was contraindicated were not excluded from the study, and we included patients with severe disease/ heavily injured from ICUs with advanced level of care and thereby delayed mobilisation. The definition of mobilisation using the six categories from MetaVision™ where strictly followed, i.e. patients may have participated in several sessions with physiotherapy with active exercises in bed, however still not counting as mobilisation.

The median time to mobilisation of 69.9 hours was within the timeframe that can be classified as early mobilisation (within 72 hours) (Bein et al., 2015; Ding et al., 2019; Hodgson et al., 2014; Hruska, 2016). However, the term early mobilisation is not absolutely defined; in some studies, it varies between 48 and 72 hours (Hodgson et al., 2014; Hruska, 2016), whereas others emphasise that ICU patients should be mobilised to highest tolerated level of mobilisation as early as possible (Kress & Hall, 2014; Krupp et al., 2018). It is not possible to assess whether median time to initiation of mobilisation represents the earliest possible and recommended time for each individual patient.

The multifaceted intervention showed in a previous study to increase documented assessment of PAD (Petosic et al., 2021). Documentation of PAD is however mostly affected by ICU nurses' process of care, and not influenced by patient factors as much as mobilisation. Mobilisation is, as previously stated, not only affected by process of care in the ICU but also by several contraindications due to the patients' medical conditions (e.g. severe respiratory- or circulatory failure, labile neurological status or unsecured fractures) (Hodgson et al., 2014; Krupp et al., 2018). Data on contraindications were not collected and patients with contraindications were thus not possible to exclude from the analysis. It is therefore difficult to estimate the exact impact of the multifaceted intervention on mobilisation practices, or whether the patients were not mobilised due to contraindications or structural, procedural or cultural barriers, which possibly can be improved by quality improvement

Table 2
Likelihood of being mobilised (n = 929).

	SHR	95% CI	p-value
Intervention (Before[1]) UNADJUSTED	1.21	1.04 – 1.41	**0.012**
Intervention (Before[1])	1.16	0.99 – 1.37	0.068
SAPS II Score	0.98	0.97 – 0.98	**<0.001**
Transferred from another ICU (Not transferred[1])	0.89	0.73 - 1.07	0.204
ICU (ICU 1[1])			
ICU 2	1.10	0.89 - 1.38	0.372
ICU 3	0.78	0.60 - 1.03	0.082
ICU 4	0.80	0.58 - 1.09	0.153
Primary cause for ICU-admission (Respiratory failure[1])			
Circulatory/ cardiovascular failure	1.13	0.65 - 2.00	0.651
Gastroenterological failure	2.06	1.39 – 3.03	**<0.001**
Neurological failure	1.48	1.01 – 2.15	**0.042**
Sepsis	1.40	0.80 – 2.45	0.245
Injury/ Trauma	1.35	0.90 – 2.03	0.147
Other**	1.72	1.13 – 2.62	**0.011**
Bodyweight	1.00	0.99 – 1.00	0.549
Patient gender Female (Male[1])	1.11	0.93 - 1.33	0.259

[1]Reference value. Abbreviations: SHR; Sub-hazard Ratio, CI; Confidence Interval, SAPS II; Simplified Acute Physiology Score II, ICU; Intensive Care Unit.

projects (McWilliams et al., 2019). Quality improvement processes have previously been proven to be effective in implementing and optimising mobilisation (Hodgson et al., 2021).

According to international recommendations, the level of mobilisation should be determined by the individual patient's strength and endurance, and the safety criteria. The team of physicians, nurses and physiotherapists must be trained and aware of safety criteria and contraindications (Hodgson et al., 2014). One reason for the missing clear effect from the multifaceted intervention on mobilisation, could be the few Facebook-posts focusing on early mobilisation targeting ICU nurses and physicians. A more direct focus on safety criteria and different local barriers to mobilisation by more actively including physiotherapists could perhaps have been more effective. Previous positive quality improvement studies on mobilisation (McWilliams et al., 2019), have actively involved physiotherapists with more tailored goals and plans for the individual patient. In addition, in contrast to our study, patients with contraindications to mobilisation (neurologic- or orthopaedic injuries) were excluded in other studies (Mcwilliams, et al., 2019; Mcwilliams et al., 2015; Morris et al., 2016; Schaller et al., 2016; Schweickert and Kress, 2011).

Strengths and limitations

The study data are some years old (from 2017 to 2018) due to the study being a secondary analysis of a large quasi-experimental study with extensive data-collection that took longer time than expected to collect, organise and analyse. The Covid-19 pandemic certainly also contributed to a delay. However, to our knowledge, this is still the first quality improvement campaign using social media to optimise mobilisation in the ICU, and to evaluate impact of quality improvement on mobilisation with time to event analysis. Furthermore, use of social media to communicate about ICU topics may be even more important in times of social distancing with difficulties in gathering multiprofessional teams.

This non-randomised, unblinded study has several limitations. The generalisability of the study results to other patient populations is limited. By collecting data retrospectively based on documentation, patients may have been mobilised without this being documented and captured in the data collection. The true impact of the multifaceted intervention on mobilisation is difficult to comprehend due to several factors related to the study design. The Hawthorne effect, with improvements merely due to personnel being aware of the ongoing study (McCambridge et al., 2014), may be present in addition to the presence of improving documentation practices of mobilisation during the Intervention phase instead of actual mobilisation of patients. In before vs after studies other factors may have affected the results; however, we are not aware of alterations in clinical practice during the study period. An interrupted times series design may have revealed more effects of the intervention but adjusting for potential confounders would not have been possible. Whether other covariates should have been adjusted for in this study than the chosen ones, is unclear.

ICU patients where mobilisation was contraindicated were not excluded, nor did we identify whether mobilisation was prescribed or not. Unfortunately, dosage (frequency, duration and intensity) of mobilisation was not assessed. Due to the relatively high median SAPS II, low median age and treatment options offered by the included ICUs, it is reasonable to assume that in some of the ICU patients, mobilisation was contraindicated for parts or the whole ICU stay. Finally, variables such as sedation level, delirium, invasive mechanical ventilation and other medical technical equipment and use of vasopressors or other vasoactive drugs representing barriers to mobilisation (Adler & Malone, 2012), were not possible to collect and relate to the mobilisation data.

Conclusion

A quality improvement campaign including use of Facebook groups is feasible and may improve mobilisation in ICU patients. Most patients were mobilised within 72 hours following ICU admission, and SAPS II scores and causes for ICU admission were both associated with likelihood of being mobilised.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.iccn.2022.103315.

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