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PANDA: Development and evaluation of a nursing competence team of respiratory therapists and advanced practice nurses to optimize the weaning process

Protocol of a two-phase feasibility study

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Background

Mechanical ventilation (MV) of critically ill people has been a challenge [22] in intensive care unit (ICU) care for over 50 years [3]. Weaning patients on MV to independent breathing without mechanical support is a complex process that involves nurses [19] as well as other medical staff and therapists including physiotherapy and speech therapy services [7]. The current German S2k guideline on prolonged weaning defines "prolonged weaning" as a status where time required for weaning is significantly extended [2]. Around 20% of all ventilation cases are prolonged [2]. In this context, negative effects on the duration of treatment, costs incurred, readmission rates, mortality and secondary diseases such as posttraumatic stress have been reported [41].

Respiratory therapists (RT) with appropriate further training and advanced practice nurses (APN) with a master's degree in nursing have been applied in the context of weaning in Anglo-American countries for over 30 years [9, 35] and the tasks of both professional groups differ. Among other things, RTs primarily take on the practical part of weaning [10], but also provide support in the context of studies through, e.g., daily screening of patients with MV [7] or implementation processes, e.g., of weaning protocols [9]. APNs, for example, take on the monitoring and bundling of daily routine data with reporting to further professional groups, the implementation of clinical treatment pathways in practice, and/or the management and coordination of studies [35]. RTs as part of the professional team have been shown to positively contribute to the weaning process. These include shortened weaning [18], shorter hospital stays [22], and associated reductions in costs [11], delirium [26] and mortality [22]. Further activities of RTs, such as ultrasound examinations of the pleura or performing bronchoscopies [22], can

Supplementary Information

The online version of this article (https://doi.org/10.1007/s00063-025-01343-z) includes the SPIRIT 2013 Checklist.

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Supplementary material online – scan QR code

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Abstract

Background: Weaning critically ill patients from mechanical ventilation (MV) is an important challenge of intensive care unit (ICU) management. Internationally, MV is often supported by respiratory therapists (RT) as specially trained nurses and advanced practice nurses (APN) with a master's degree, all functioning within an interdisciplinary treatment team. Currently, there is limited research focusing on the process and effectiveness of collaboration between RT and APN as a nursing competence team (NCT) in the context of the weaning process in MV.
Aim: To identify factors that promote and inhibit the feasibility of an NCT team to improve the MV weaning process in ICUs and to assess the feasibility of a future confirmatory study applying patient- and nursing-sensitive outcomes.
Methods: A single-center, mixed methods, two-phase feasibility study will be carried out on two ICUs with 48 beds at the Clinic for Thoracic and Cardiovascular Surgery in a university hospital. In study phase I, six focus-group interviews (FGs) will be conducted with nurses, physicians, and physiotherapists at three measuring points (t_0: before implementation; t_1 and t_2: 6 and 12 months, respectively, after implementation of the NCT). Three separate FGs will be conducted with the NCT team at the same measuring points. Data will be analyzed using Kuckartz's content analysis method. Study phase II will be carried out as a before-and-after study over 12 months by, e.g., assessing patients' duration of MV, delirium, pain, anxiety, and mobilization. Retrospective patient data for the period 2022–2023 will be used from the hospital documentation system. In the after-study, data will be prospectively collected.
Expected results: Our two-phase feasibility study will generate important information on the feasibility of an NCT focusing on the implementation process and weaning outcomes in patients with MV, providing an important basis for future studies.

Keywords
Delirium · Intensive care units · Mechanical ventilation · Nursing · Nurse specialists

relieve the burden of physicians and also patients can be treated more quickly. However, these effects are not solely due to the deployment of RT, but are usually the result of the interaction of RT with the interdisciplinary treatment team [9, 22].

From the internationally described tasks and scientific findings [10], it can be concluded that RT and APN should work together as a combined "nursing competence team" (NCT). In Germany, RT training is curriculum-based and available for, e.g., nurses or physiotherapists [15, 32]. According to German legislation, the management of MV is the responsibility of physicians, but can be partially delegated in part, for example, to RTs [28]. The training only includes the basics of scientific work [32], whereas this can be a focus of APN master's degree programs [13, 38]. This might include, for example, evidence-based practice components, e.g., a literature search in scientific databases with a critical assessment and summary of the results, as well as the implementation of research findings and projects. Overall, the education and competencies of both groups differ. For example, RT also learn how to perform a bronchoscopy in practice, whereas this is only theoretically taught in APN study programs in the context of airway management [13, 14, 22, 32]. In Germany, not all RTs currently perform bronchoscopies [28, 30].

Abbreviations

AB	Advisory board
APN	Advance practice nurse
CAM-ICU	Confusion Assessment Method for Intensive Care Units
CPOT	Critical Care Pain Observation Tool
HDZ NRW	Heart and Diabetes Center NRW, University Hospital of the Ruhr University Bochum
ICU	Intensive care unit
MRC Framework	Medical Research Council guidance
MV	Mechanical ventilation
NCT	Nursing competence team
NRS	Numeric rating scale
PDMS	Patient data management system
PN	Primary nurse/nursing
PPI	Patient and public involvement
RT	Respiratory therapy/therapist
VAP	Ventilator-associated pneumonia

Both patients and the interdisciplinary treatment team with nurses, physicians, physiotherapists, and speech therapist might benefit in many ways from an NCT consisting of RT and APN. According to German legislation, physicians can—regarding MV—delegate tasks to the NCT. The practical focus of the RT qualification can be combined with the scientific and practical focus of APN. In this way, evidence-based care for patients with MV can be optimized. The implementation of an NCT can, therefore, be a sensible and necessary step towards improving patient care. A combined approach in the context of weaning has not yet been reported in Germany. Accordingly, evaluation results are not available for the German nursing care context. For this reason, an NCT will be developed, implemented, piloted, and evaluated in two surgical intensive care units (ICU) of the Heart and Diabetes Center NRW, University Hospital of the Ruhr University Bochum (HDZ NRW), using a feasibility study with a process evaluation. The study acronym PANDA refers to "Develo*p*ment and evaluation of a nursing competence team of respir*a*tory therapists *a*nd a*d*vanced pr*a*ctice nurses to optimize the weaning process".

Aims

The study consists of two phases (**Fig. 1**), addressing the feasibility and contributing factors of the NCT in interdisciplinary practice in phase I, followed by phase II, a before–after study to assess intervention feasibility and first effects on patients and the interdisciplinary team.

Methods

Study design and setting

The report of the study protocol follows the recommendations for reporting study protocols of clinical intervention studies (Standard Protocol Items: Recommendations for Interventional Trials, SPIRIT [8]). The SPIRIT 2013 Checklist is included as Supplementary information 1.

This is a monocentric mixed methods two-phase feasibility study. The entire research project follows the recommendations of the Medical Research Council

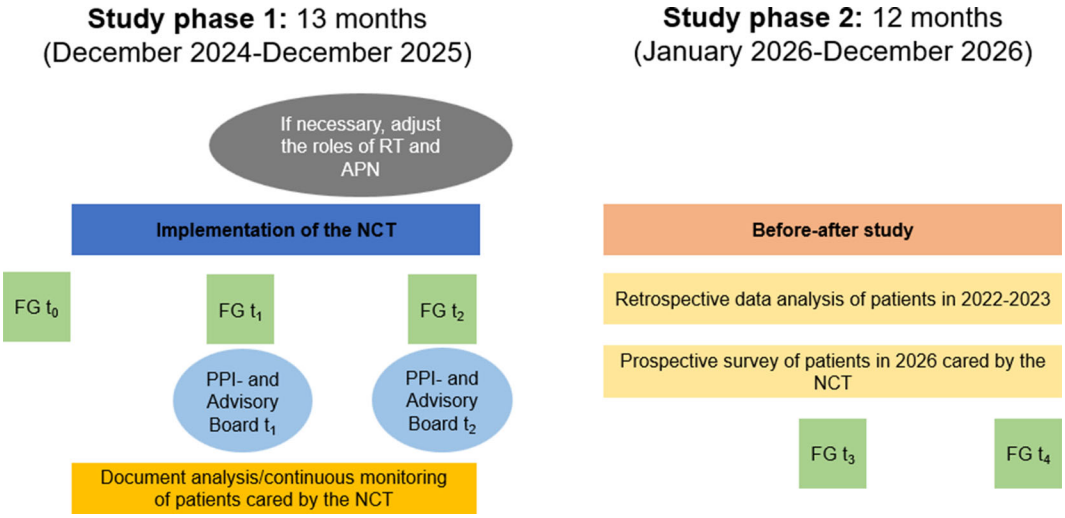


Fig. 1 ◀ Course of the study. *APN* advanced practice nurse; *FG* focus-group interviews; *NCT* nursing competence team; *PPI* patient and public involvement; *RT* respiratory therapist

guidance [34] primarily addressing the development and feasibility stages.

Our study will be carried out at the HDZ NRW, Germany, on two surgical ICUs with 23 and 25 beds. The ICUs are in different parts of the building and both belong to the Clinic for Thoracic and Cardiovascular Surgery. The nurse-to-patient ratio is at least 1:2 and the nurses deployed are at least registered nurses. Some nurses also have an additional German state-approved training course in intensive and anesthesia nursing care (ICU education), and/or a bachelor's or master's degree in nursing. A primary nursing care model was implemented in both ICUs. Primary nurses assume responsibility for the nursing process from the third day of the patient's stay in the ICU [24]. There is also a shared governance nursing management structure in both ICUs, with three foci on nursing management, nursing science, and nursing education [33].

Study phase I

In study phase I, the primary aim is to test the feasibility of a NCT. In this context we will identify factors that promote or inhibit the implementation of a NCT to improve the weaning process of MV on a thoracic and cardiovascular surgery ICU. Secondary aims are the examination and further development of the task profile of the NCT, as well as an overview of the group of patients cared for.

In parallel, the establishment of a patient and public involvement (PPI) and advisory board (AB) is planned. We aim to discuss the proposed task profiles of RT and APN in the NCT, and to adapt it if necessary.

Study phase II

The primary aim of study phase II is to test the feasibility of a future confirmatory study. Secondary aims are evaluation of the implementation of the NCT and the assessment of preliminary effects on the multidisciplinary team.

Primary outcomes are the percentage of recruited patients of all patients potentially approached (recruitment rate), and the percentage of included patients who received care by NCT (delivery rate). Secondary outcomes of patients are the duration of invasive and noninvasive MV, length of stay in ICU and HDZ NRW, mortality, frequency and duration of mobilization measures, incidence and duration of delirium, pain, anxiety, and incidence of ventilator-associated pneumonia (VAP), and other complications related to mechanical ventilation. Also intervention costs, effects on the interdisciplinary team, and process outcomes, e.g., factors that promote or inhibit the implementation of an NCT, will be assessed.

Ethical considerations

For participation in our study, all participants or their legal representatives need to give written and informed consent. The local data protection regulations will be observed. The ethics committee of the medical faculty of the Ruhr University Bochum, based in East Westphalia, has approved the study (file number 2024-1271). Furthermore, the study has been registered with the German register of clinical trials (study ID: DRKS00035320). The process of the study is shown in ◘ **Fig. 1**.

Participants

Medical staff

Overall based on the recommendations for process evaluation in the Medical Research Council guidance (MRC Framework) [34], 15 focus-group interviews will be conducted throughout the entire study period, with three focus-group interviews and a total of 16 participants at each of five timepoints: before start of the implementation phase (t_0) as well as after 6 (t_1), 12 (t_2), 18 (t_3), and 24 (t_4) months (◘ **Fig. 1**). A total of 6 participants of the included ICUs (4 nurses, 1 physician, and 1 physiotherapist) will be included for two of three focus-group interviews at each timepoint. A third focus-group is planned separately at the same time points with the NCT ($n = 4$), consisting of RT ($n = 2$) and APN ($n = 2$). To be eligible for participation in focus-group interviews, participants have to be at least 18 years of age, located in the participating ICUs, and have provided their informed written consent.

Patients

Approximately 600 eligible patients are expected to be included over the entire study period. In study phase I patients will be included if they are 18 years or older and

receive documented and practical specialist care by the NCT.

In study phase II: patients are eligible for participation if they (i) underwent elective cardiovascular and/or thoracic surgery in the HDZ NRW, (ii) are 18 years or older, (iii) are familiar with the German language, (iv) receive documented and practical specialist care by the NCT, (v) have a postoperative stay in an intensive care unit for ≥ 3 days and mechanical ventilation, and (vi) give their informed consent.

Patients with a detected severe acute respiratory syndrome coronavirus 2 (SARS-CoV 2) infection are not eligible.

Routine data analyses

In study phase I, data of all patients (approximately $n = 300$) hospitalized between December 2024 and December 2025 in the HDZ NRW, and cared for by the NCT, will be analyzed to assess the task profile in NCT practice, while in phase II data of patients hospitalized between 2022 and 2023 and meeting the inclusion criteria will be assessed as a retrospective control group.

Prospective data collection

In phase II, all patients (approximately $n = 300$) hospitalized between January and December 2026 and meeting the inclusion criteria will be assessed as the intervention group.

Recruitment

The medical staff (nurses, physicians, and physiotherapists) will be personally invited by the study leaders to take part in the study. Their written and informed consent will be obtained before the focus-group interviews. Participation in the focus-group interviews is generally voluntary and is considered as working time by management.

Study phase I

For study phase I, all patients meeting the inclusion criteria between December 2024 and December 2025 will be considered. The data will be read from the digital patient data management system (PDMS) and analyzed anonymously.

For the PPI and AB, former patients with MV, as well as RT, APN, nurse scientists, and representatives of professional associations including the nursing council in NRW, will participate in online meetings. Possible participants will be personally invited and informed by the study leaders. Their written and informed consent will be obtained before the meeting starts.

Study phase II

For the retrospective routine data analysis in study phase II, documented patient cases meeting the inclusion criteria are taken into account and data will be retrieved from the PDMS for the years 2022 and 2023, and evaluated anonymously.

For the prospective part of study phase II, all eligible patients as a random sample will be invited to participate in the study as part of their elective admission to the HDZ NRW. Trained medical staff (nurses, medical assistants, or physicians) will inform the patients between January and December 2026 and ask for informed consent.

Intervention: NCT

The NCT consists of a total of two RT and two APN. RTs are registered nurses who have completed an ICU education. Furthermore, they have completed a certificate training in accordance with a standardized curriculum for RT in Germany [15, 28, 32]. APN have completed a bachelor's degree in nursing and a master's degree in APN. The internal job description for the NCT provides for 50% of the working hours in direct patient care (primarily early and late shifts with occasional night shift) in the two surgical ICUs and 50% for the respective roles/tasks as RTs or APNs. The NCT reports to the Care Development Unit of the care directorate. In disciplinary terms, the NCT is subordinate in its NCT role function to the care directorate and in direct patient care to the respective intensive care unit manager [33].

The task profiles of APN and RT were developed based on the results of the evaluation of international studies, and further literature and will be critically examined and expanded in study phase 1 with the results of the focus-group interviews as well as PPI and AB.

The tasks of the RTs include adjustment of MV settings based on individual patient needs according to the weaning protocol and based on blood gas analyses including documentation. Also, they will adjust MV in the context of guidelines and current evidence together with the physicians, plan and control secretion management and inhalation therapy, and initiate and conduct noninvasive and high-flow ventilation. APNs are responsible for the creation of internal nursing standard operating procedures (SOP), the initiation of research projects in the field of weaning in cooperation with the nursing development unit [33], and supporting the RT in joint implementation of evidence-based secretion management, inhalation therapy, and noninvasive or high-flow ventilation. The members of the NCT should collaborate closely and learn from—and with—each other in parallel. In daily practice, all tasks and measures carried out by the NCT are closely communicated and coordinated with the responsible primary nurses, physicians, physiotherapists, and further professional groups of the medical staff. Short daily case discussions take place between the NCT and the senior physician for all patients with MV. The RT and APN then coordinate the day's tasks. Ideally, both participate in the medical rounds. The detailed task profile will be specified in study phase I.

Blinding

In this open-label study, blinding is not possible. Nurses and patients cannot be blinded to the care which is provided by the NCT. Patient- and nursing-related outcomes will be assessed by the ward teams as part of routine documentation. The statistician will blinded to the data collection.

Statistical methods

In study phase I, data of included patients will be analyzed descriptively and presented as absolute and relative numbers. Ordinal and metric data are checked for normal distribution and shown as median (interquartile range [IQR]) and mean (standard deviation [SD]).

Data in study phase II will also be analyzed descriptively and presented as absolute and relative frequencies as in study phase I. Differences of the two measure-

ment points will be assessed using a t-test, Mann–Whitney U test, Pearson's chi-square test or Fisher's exact test, depending on the data level. In line with the methodology of a pilot study, no formal hypotheses were formulated. Results will be presented as absolute and relative frequencies. Adjustment of results concerning potentially important factors as, for example, severity of illness, age, comorbidities, and other factors will be considered. Results will be adjusted for severity of illness, age, comorbidities, and other factors for having comparable groups.

Instruments/data collection

Study phase I

Study phase I is carried out for 13 months. Overall, three focus-group interviews in a quiet separate meeting room at each time of data recording (t_0–t_2; **Fig. 1**) will be carried out to ensure an undisturbed discussion atmosphere with the help of a pretested interview guide. The main categories are

- Thoughts and attitudes of the interdisciplinary team for the current situation,
- Promoting factors for the nursing competence team,
- Barriers for the nursing competence team,
- Interdisciplinary collaboration,
- Wishes and thoughts of participants, and
- Further topics in context of the nursing competence team.

Data will be recorded with a digital data recorder. After transcription the recording will be deleted and data will be anonymized. Kuckart's content analysis will be used to identify findings [25]. First, an initial text working of the transcribed data will be determined deductively using main categories of the used interview guide. Afterwards, all text passages will be coded with the same main category, and an inductive determination of subcategories will be practiced [25]. The process will be carried out by researchers with at least a master's degree in nursing science and initial experience in qualitative research (FW, LK) and, if necessary, accompanied by nurses who are currently studying nursing science. If necessary, the analysis process will be supervised by an expert in qualitative research (SK). The focus group interviews will be analyzed for each time of data recording. The results of different time points will then be compared descriptively in order to highlight developments and optimization potential.

The task profile of, and the tasks conducted by, the NCT will be documented by continuous monitoring. Moreover, characteristics of the patients cared for by the NCT will be analyzed using routine data from the PDMS, e.g., age, gender, diagnosis, treatment, and length of stay in ICU. In addition, a documentation analysis of patients cared for by the NCT will be conducted.

Study phase II

Study phase II is carried out as a before-and-after study over 12 months. In the before-study, retrospectively anonymized data from 2022–2023 before the implementation of the NCT aggregated from the PDMS will be read out for the prior analysis. The procedure is pseudonymized and the data will be anonymized for processing and further calculations.

Data collection of the second part of study phase II will be carried out by using a random sample of patients in the participating ICUs. First, the initial data recording of delirium, pain, and anxiety (**Table 1**) will be conducted for patients electively admitted to the HDZ NRW. Subsequent data collection will be performed beginning with ICU admission and ending after discharge from ICU. Data of patients will be saved pseudonymized. References to patients will, thus, be replaced by a numerical code in all files used in the study evaluation. Recruitment and delivery rate will be calculated by final data. Further endpoints are listed in **Table 1**.

Incidence and duration of delirium

The incidence and duration of delirium will be recorded once per shift in a three-shift system, by using the Confusion Assessment Method for Intensive Care Units (CAM-ICU) [4, 17] as a validated assessment. In addition to the interdisciplinary team, in our clinic all nurses are continuously trained for delirium assessment and nonpharmacological prevention and treatment strategies [23, 27]. The duration of delirium will be reported in blocks of 8 h. The end of delirium is determined when three consecutive data recordings with the CAM-ICU are negative, and thus no more delirium has been detected for a total of 24 h [29]. The first survey will take place upon admission to the HDZ NRW. Follow-up surveys for this study only count in the ICU.

Pain

The intensity of pain will be recorded once per shift in a three-shift system with the 10-point numeric rating scale (NRS; 0 = no pain; 10 = maximum pain) [20] or, if the use of NRS is not possible, the Critical Care Pain Observation Tool (CPOT) [21]. The first survey will take place upon admission to the HDZ NRW.

Anxiety

Anxiety will be assessed by using the NRS [5, 20] if the patient is able to use it (0 = no anxiety; 10 = maximum anxiety). The first survey will take place upon admission to the HDZ NRW by specially trained nurses. Further surveys take place once per shift after admission to the ICU. If data cannot be recorded, e.g., due to deep analgosedation, this will be documented as "not collectable".

Discussion

Our two-phase feasibility study aims to develop and evaluate the implementation of an NCT of RT and APN, aiming in turn to improve the weaning process on two ICUs. Furthermore, the feasibility of a future confirmatory study with patient- and nursing-related outcomes will be assessed. The risks for patients can be estimated as low. Professional patient care is guaranteed at all times by nurses and physicians, while the NCT represents an additional element of interdisciplinary care. Moreover, the task profile of the NCT provides a 50% presence in the role so that at least one person is always present. In the other 50%, the NCT works in direct patient care, so that a contact person is always on site,

Table 1 Endpoints, sources, and responsibilities of study phase II (after-study)

Endpoint	Source	Recording time	Responsibility for data recording
Recruitment rate	PDMS	Admission and retrospective data analysis	Study leader, medical staff (nurses, medical assistants or physicians)
Delivery rate	PDMS	Admission and retrospective data analysis	Study leader, medical staff (nurses, medical assistants or physicians)
Duration of mechanical invasive and noninvasive ventilation	PDMS	Continuously during ICU stay	Automatically generated
Length of stay in ICU and HDZ NRW	PDMS	Continuously during hospital stay	Automatically generated
Mortality	PDMS	Continuously during hospital stay	Automatically generated
Frequency and duration of mobilization measures	PDMS	Continuously during ICU stay	Nurses and physiotherapists
Incidence and duration of delirium*	CAM-ICU, PDMS	Admission and 3 times per day in 8 h-blocks during ICU stay	Nurses
Pain*	NRS or CPOT, PDMS	Admission and 3 times per day in 8 h-blocks during ICU stay	Nurses
Anxiety*	NRS, PDMS	Admission and 3 times per day in 8 h-blocks during ICU stay	Nurses
Incidence of VAP	PDMS, coded pneumonia, as well as C-reactive protein and leukocytes	Continuously during ICU stay, blood samples once a day during ICU stay	Physicians
Complications in the context of MV like re-intubation or accidental extubation	PDMS	Continuously during ICU stay	Nurses, physicians
Intervention costs of the NCT	Duty roster	Continuously during ICU stay	ICU nursing manager, study leader
Effects of the NCT on the interdisciplinary team#	Focus-group interviews	2 times (t_3–t_4)	Study leader
Inhibiting and promoting factors for implementation of the NCT#	Focus-group interviews	2 times (t_3–t_4)	Study leader

CAM-ICU Confusion Assessment Method for Intensive Care Units; *CPOT* Critical Care Pain Observation Tool; *HDZ NRW* Heart and Diabetes Center NRW, university hospital of the Ruhr University Bochum; *ICU* Intensive Care Unit; *MV* Mechanical Ventilation; Numeric Rating Scale (NRS); *NCT* Nursing Competence Team; *PDMS* Patient Data Management System; *VAP* Ventilator-Associated Pneumonia
*Method of assessment is explained in detail
#Data recording and analysis is similar to study phase 1

also during public holidays and weekends. Gershengorn et al. [16] indicated in median two RT (IQR 1–2) per ICU in the USA. In night shifts and weekends there was one RT (IQR 1–2) available [16].

The risk for medical staff by participating in focus group interviews can be estimated as very low. With the help of a PPI and AB we aim to optimize the process with a specific focus on the important role identification [39] of the NCT from different perspectives. In this way, role profiles can be specified within the NCT. Responsibilities are defined through close coordination with the physicians and nurses. In particular, common interdisciplinary visits and daily goals [36, 37] should play a key role here.

We could not find any further research projects with a comparable intervention. For example, Mart et al. [26] described the RT as an important part of the interdisciplinary team on ICU in context of the ABCDEF (assessing pain, both spontaneous awakening and breathing trials, choice of drugs/sedation, delirium monitoring/management, early mobility/exercise, and family engagement/empowerment) bundle on daily practice. Nevertheless, there are also barriers to the integration of RT into practice [31]. Therefore, tailored training and support are required during this process [31]. The use of RT [12, 15, 28, 30, 32] and APN [12] in the context of weaning has been reported frequently in Germany, but not combining the two roles as an NCT.

The chosen clinical patient and nursing outcomes are recommended for the target group [6, 40] and data recording is guaranteed in daily practice with the help of validated assessments by trained staff. We have chosen the design of a feasibility study in both study phases to make sure that we can calculate, if possible and reasonable, the power needed for a further confirmatory randomized controlled trial.

Strengths and limitations

A strength of our study is that we developed a NCT to use the competencies of different forms of education in nursing practice. Furthermore, our study investigates a research gap, since we could not identify any further study in the context of RT and APN as an NCT. We use a mixed methods design with suitable research methods to achieve the study objectives. By conducting focus-group interviews with different health professionals and installing a PPI and AB, we can consider different perspectives in the implementation process. We will follow the first three steps of the MRC Framework [34] to account for the challenges of a complex intervention, and

also apply international recommendations to assess patient-sensitive outcomes such as delirium [1].

Our study also has some limitations. We will conduct a monocentric study, although a multicenter study would be more informative. Due to a lack of research funding, this is difficult to perform, however, and should be conducted later using the information generated by this study. Further professional medical groups, like speech therapists, perfusionists, or psychologists were not considered for participation in our focus-group interviews. We have chosen nurses, physicians, and physiotherapists because they are involved daily in direct patient care in the context of mechanical ventilation.

Conclusion

This is the first study to investigate factors that promote and inhibit the implementation and feasibility of an NCT of RT and APN. Moreover, we aim to assess the effects of the NCT on the weaning process of MV with patient and nursing sensitive outcomes. The results can make an important contribution to further research and clinical practice.

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Data Availability. The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Conflict of interest. L. Krüger, F. Wefer, T. Mannebach, E. Mertins, C. Siegling, T. Kirschning, N. Weinrautner, J. Gummert and S. Köpke declare that they have no competing interests.

For this study all investigations on humans described will be carried out with the approval of the responsible ethics committee, in accordance with national law and the declaration of Helsinki in 1975 (in the current, revised version). This study is registered at the German register of clinical trials (study ID: DRKS00035320).

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Zusammenfassung

PANDA: Entwicklung und Evaluation eines pflegerischen Kompetenzteams aus Atmungstherapeut:innen und Advanced Practice Nurses zur Optimierung des Weaningprozesses. Protokoll einer zweiphasigen Machbarkeitsstudie

Hintergrund: Das Weaning von der mechanischen Beatmung (MB) kritisch kranker Patient:innen ist herausfordernd bei der Versorgung auf Intensivstationen (ITS). International wird die MB häufig von Atmungstherapeut:innen (AT) als weitergebildeten Pflegefachpersonen und Advanced Practice Nurses (APN) mit einem Masterabschluss im interdisziplinären Behandlungsteam unterstützt. Derzeit fehlen Forschungsergebnisse zu den Prozessen und zur Wirksamkeit der Zusammenarbeit von AT und APN als pflegerisches Kompetenzteam (PK) im Zusammenhang mit dem Weaning von der MB.
Ziel: Identifizierung von Faktoren, welche die Machbarkeit eines PK zur Verbesserung des Weaningprozesses von der MB auf ITS fördern oder behindern sowie Prüfung der Durchführbarkeit einer konfirmatorischen Studie unter Anwendung von patient:innen- und pflegesensitiven Outcomes.
Methoden: Dazu wird eine monozentrische Mixed-Methods-Machbarkeitsstudie in 2 Phasen auf 2 thorax- und kardiovaskularchirurgischen ITS eines Universitätsklinikums mit 48 Betten durchgeführt. Studienphase I beinhaltet insgesamt 6 Fokusgruppeninterviews (FG) mit Pflegefachpersonen, Ärzt:innen und Physiotherapeut:innen zu 3 Messzeitpunkten (t_0: vor; t_1: 6 und t_2: 12 Monate nach Implementierung des PK). Mit dem PK werden 3 FG zu den gleichen Messzeitpunkten durchgeführt. Die Daten werden inhaltsanalytisch nach Kuckartz ausgewertet. Studienphase II erfolgt als Vorher-Nachher-Studie über 12 Monate. Es werden u. a. die Dauer der MB, Delirium, Schmerzen, Angstzustände und Mobilisierung der Patient:innen erfasst. Retrospektiv werden Patient:innendaten aus den Jahren 2022–2023 aus dem Krankenhausdokumentationssystem verwendet. In der Nachher-Studie werden die Daten prospektiv erhoben.
Erwartete Ergebnisse: Unsere zweiphasige Machbarkeitsstudie wird wichtige Informationen über die Durchführbarkeit eines PK generieren, wobei der Schwerpunkt auf dem Implementierungsprozess und dem Weaningprozes der MB liegt. Dadurch wird eine wichtige Grundlage für zukünftige Studien geschaffen.

Schlüsselwörter
Delir · Intensivstation · Maschinelle Beatmung · Pflege · Pflegeexperten