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Navigate the future - realise sustainability in ICU

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ABSTRACTS

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PLE01

ICU movement for sustainability

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The planetary health crisis significantly damages public health, meaning climate change and other ecological issues are increasingly important to all healthcare professionals, including intensive care nurses. Firstly, healthcare system adaptation is needed to become more resilient to the impact of air pollution, extreme weather events and food and water insecurity on intensive care admissions, care delivery and environmental, financial and social resource availability. Secondly, mitigation is required to lower healthcare's ecological footprint, which is 4.4% of greenhouse gas emissions globally. If rated as a country, the healthcare sector would be the 5th most significant contributor to emissions.

The nursing profession comprises a large proportion of a hospital's workforce, offering an excellent opportunity for intensive care nurses to collectively improve their hospital's resilience and sustainability. ICU Green Teams also have great potential to address the environmental impact of intensive care's large consumption of medicines, single-use plastics and energy by promoting a circular economy to reduce, reuse and recycle where possible, leading to more sustainable procurement, product utilisation and waste management. Furthermore, sustainability requires ethical procurement by considering labour rights and fair-trade principles to ensure that producing intensive care products is not exploitative or harmful for those in the healthcare supply chain.

This keynote talk will explore the role of intensive care nurses in urgently adapting to the impact of planetary health issues on healthcare and in providing nursing care that is environmentally sustainable, financially affordable, and socially responsible. Sustainability implications for intensive care nursing clinical practice, management, research, quality improvement and education will be discussed.

PLE02

Artificial Intelligence in the ICU, how can it help us?

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Background: Artificial Intelligence (AI) has the potential to revolutionize the way we deliver ICU care. The sheer volume, granularity and continuity of data collected in ICU allows for detailed analysis of clinical trajectories over time, identifying new trends and patterns. These data are generated through monitoring, life support technologies, and documentation in the electronic medical record by the ICU team and other specialties.

Aim: The aim of this presentation is to discuss ways in which AI may revolutionize ICU care, the current evidence base, and challenges of incorporating AI into routine practice.

Discussion: Given its ability to analyze vast amounts of routinely collected data, one key role of AI is predictive analytics with techniques including machine learning and natural language processing. AI-generated predictive models have been developed for numerous use cases including outcome prediction (sepsis, pneumonia, pressure ulcers), and need for therapies such as mechanical ventilation. Generative AI and use of large language models can evaluate text in the electronic medical record to generate nursing and medical summaries in a fraction of the time humans take. AI-driven decision support systems can produce real-time and personalized recommendations based on best evidence and individualized patient data. Ambient AI can be used to facilitate decision support using sensors and video. AI can also be used to automate routine tasks.

Yet there are numerous challenges associated with using AI in critical care and implementation is currently limited. These challenges include data quality, need for clinical validation, trust and transparency, need for data standardization, as well as regulatory and ethical challenges.

Conclusion: AI holds immense potential to transform critical care practice by enhancing predictive capabilities, improving decision support, improving diagnostics and increasing efficiencies. There is an imperative to address associated challenges to ensure that the integration of AI is both ethical and effective.

PLE0301

Reevaluating Oral Care Practices: The Impact of Tooth Brushing and Antiseptic Use in Clinical Settings

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Oral care is a critical component of overall health, with significant implications for both oral and systemic well-being. Despite its importance, oral health is often underemphasized in clinical practice, particularly in nursing, where standardized oral care protocols are frequently inadequate. Oral health assessment is essential for identifying early signs of oral disease and potential risks, enabling timely interventions that can prevent complications and improve patient outcomes. Recent literature has shifted the perspective on the use of antiseptic mouthwashes, particularly chlorhexidine. It has been shown that chlorhexidine can disrupt the nitrate-nitrite-nitric oxide (NO) pathway, which is vital for vascular and immune health (Blot 2010). This disruption occurs as chlorhexidine eliminates bacteria necessary for converting nitrates into nitrites and NO, potentially increasing the risk of sepsis, organ failure, and ischemic events. In light of this, tooth brushing has become recognized as a more effective method for maintaining oral hygiene, especially in high-risk patients.

A significant trial by Dale et al. (2021) demonstrated that removing chlorhexidine from ICU protocols improved oral health outcomes without affecting mortality rates. This suggests that alternatives such as tooth brushing may be more effective in preventing oral infections while maintaining oral health. Additionally, the use of moisturizers plays an important role in preserving oral mucosal integrity, particularly in patients suffering from xerostomia or those at risk of mucosal damage due to medication or prolonged ventilation.

Implementing evidence-based oral care protocols, which include regular oral health assessments, tooth brushing, and careful consideration of antiseptic mouthwashes, offers substantial benefits. These practices can enhance oral hygiene, reduce the risks of healthcare-associated infections, aspiration pneumonia, and other complications, ultimately improving patient outcomes in critical care settings.

PLE0302

New Algorithms for Airway Management

Ida di Giacinto, MD

Airway management can present critical issues, often unforeseen, that can put the patient's safety at risk in the operating room, intensive care unit, during intra-hospital and extra-hospital emergencies.

The evolution of evidence in the literature and technological innovation requires continuous training updates on the use of algorithms, new devices and techniques: these concepts apply to all medical and nursing staff, each for their own area of expertise. Oxygenation and hemodynamic stability are paramount in patients with a physiologically difficult airway.

The wide range of newly introduced and marketed devices, despite having expanded the number of equipment intended to solve difficult cases, does not always meet expectations and guarantee the safety of the result; moreover, the analysis of their effectiveness is not always easy on the basis of literature alone. The acquisition of decision-making skills, based on knowledge and technical and non-technical skills are the cornerstones to optimize patient safety in an ever-increasing complexity of care and increasingly critical and fragile patients.

The literature agrees in demonstrating that mortality linked to airway management is still mainly due to organizational deficiencies, insufficient communication between team members and inadequate strategy, especially in terms of prediction of difficulty.

PLE04

Creating a clinical research environment to sustain excellence

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Clinical research activity is widely recognised as bringing benefits to the clinical environment, specifically to the patient, staff and the organisation. Patient benefits include improved patient and carer experiences, better quality of information and care and lower patient mortality. Staff benefits include improved work variety and interest and diversity in work roles, while organisational benefits include improvements in service provision and cost-savings and efficiencies.

A multi-dimensional programme of strategies may be employed to enable a positive clinical research environment – adaption of different strategies to different settings and contexts is an important consideration. Core to these strategies is a vibrant and effective clinical research team. Such a clinical research environment creates potential for sustained practice change, improved patient outcomes and increased staff satisfaction with both the opportunity to be involved and the reward of seeing the benefits achieved.

PLE05

International exchange - The path towards new knowledge and improvement of practice

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Sharing knowledge and expertise had always significant impact on the nurses' personal awareness, professional development and competence development. Meeting people in unfamiliar situations over a period in different cultural settings also helped to strengthen their cultural competence.

European federation of Critical Care Nursing associations long time ago realised and embedded such kind of learning in its pillars by developing exchange programme. From the beginning of early 2000, Council of Representatives formed committee who have started preparations for the implementation of the program by collecting data from hospitals in Europe that were willing to participate and receive nurses from other countries. Exact plan and guidelines were created according to which the exchange is carried out and everything was well structured and thought out so that each candidate gets the best out of their visit to another hospital.

One of the most crucial benefits from doing exchange is discovering what the nurse profession means globally. After all, nurses' methods, practices, beliefs, and values differ depending on where you live and for which cultural background you are coming. Nursing abroad allows us to share the skills and knowledge from our country and culture with equally dedicated people abroad. Also, if we keep an open mind, we can gather knowledge and techniques which we can implement and use in our country. There are many benefits if we use the possibility of exchange, and this paper presents experience of nurses who have gone through the programme. The best examples came from personal experience and provides the most realistic representation of international exchange program quality.

PLE06

How to Prepare Patients and Family

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The burden on patients and families in the intensive care units (ICUs) is high. Family- and person-centered care, designed to support these individuals, often presents a challenge for patients and families. This is especially the case for particularly vulnerable relatives such as children and adolescents, the elderly, socioeconomically disadvantaged individuals, ethnic minorities and people with chronic or special medical needs. In addition, experiencing one's family in a new role is a significant situation for a patient. Concrete, vulnerability-reducing approaches to family- and person-centered care are needed. This presentation will discuss strategies that view both patients and families as integral parts of the treatment team in the ICU.

OP0101

Evaluating the Impact of Safety Fact bulletins on Blood Administration Practices in ICU

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Introduction: While safety fact bulletins are commonly used in healthcare settings, limited evidence exists regarding their effectiveness in improving patient safety outcomes.

Since the publication of "To Err is Human" in 1996, patient safety has become a central focus in healthcare.

In ICUs the frequency of blood type and crossmatch procedures is notably high, which can lead to near-miss bulletins events in blood administration. These events are often mitigated by laboratory intervention. Despite existing protocols, errors in blood type identification persist, posing significant risks.

Aim: This study aimed to assess the effectiveness of distributing safety information bulletins, providing detailed case study of a real incident describing a failure in blood type and cross-matching, in reducing near-miss events in blood administration.

Setting & Participants: ICU staff who routinely handle blood type and crossmatch procedures were the study participants.

Methods: A mixed-methods approach was employed. Information bulletins, based on a real-life near-miss event, were distributed among staff, emphasizing the correct sequence of actions in blood cross-matching. Data collection included quantitative measures of near-miss incident reports both before and after the introduction of the bulletins. Staff perceptions of the case study and its relevance to their daily practice were also assessed via qualitative surveys. Ethical approval was obtained for all aspects of the study.

Results: Preliminary data indicate a positive reception to the information sheets, with staff expressing high levels of identification with the described case. Final results regarding the long-term impact on error rates will be published following a quarterly follow-up.

Conclusion: The use of safety information bulletins in ICUs has the potential to reduce errors in blood administration. This intervention promotes adherence to correct procedures, offering a practical, low-cost strategy for enhancing patient safety in critical care settings.

OP0102

Documentation and risk assessment of pressure injuries in Swedish Intensive Care Units

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Introduction: Patients in the intensive care unit (ICU) are prone to develop pressure injuries (PI) due to risk factors as respiratory and circulatory instability, decreased perfusion to the skin, immobilisation, and malnutrition. Occurrence of PI increases both ICU-, hospital length of stay and mortality. There is a lack of data reporting documentation, risk assessment and prevention of PI from Swedish ICUs.

Aim: The aim of this study was to investigate documentation of risk assessment, occurrence, and prevention of pressure injuries in patients admitted to the ICU.

Setting and participants: A retrospective patient record review was conducted. An observation protocol was designed and tested in a pilot study of 130 patient records. The total sample consisted of 234 patient records in three different ICUs.

Methods: Data was analysed with descriptive and analytical statistics.

Results: For the total sample, risk assessments were documented in 23%, according to the Norton scale. More than half of them had a high risk of developing PI. Risk assessed patients had longer length of stay in ICU than non-risk assessed patients. Prevalence of PIs was 9% upon discharged from ICU, and 4% of all patients developed PI during their stay in ICU. Most patients had developed PI of category I, located in the sacral area. In total 55 % of the patients had documented pressure relieving treatment such as pressure relieving mattress, mobilisation and pressure relieving dressing.

Conclusions: Documentation of preventive measures and risk assessments of PI is inconsistent and there is a need for improvement to achieve patient safety care. A more thorough and structured documentation may lead to identifying patients at risk of developing PI and can therefore prevent pressure injuries in the ICU. Finally, improvement in this area can decrease the length of stay, patient suffering, and hospital costs.

OP0103

Implementation of a medical device alert management strategy in the intensive care units to prevent Alarm Fatigue

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Background: Intensive care units (ICU) are notoriously noisy places. The main source of noise is tone alerts from medical devices. The number of daily tone alerts in the ICU ranges from 700 to 2000, 72–99% require no clinical intervention.

An environment with constant noise may lead to alarm fatigue, which means staff may disregard or even silence the alarms. Approximately 17% of avoidable deaths in the ICU are caused by alarm fatigue. Reducing noise and the number of false/ non-actionable alerts should diminish alarm fatigue.

Purpose: Increase attention to actionable alerts by reducing the number of non-actionable alerts (false alarms) in the ICU.

Methods: All alarms were recorded during 25 hours of observations. Alerts were then divided into two: those that required action and those that did not. 30% of alerts were false or non-actionable.

The noise measured at the time was 72.8 dBs, which is nearly the maximum level allowed by occupational safety regulations.

Interventions: Implementation of an alert management strategy specifying the rules for setting and adjusting parameters and prioritization of alerts.

Team training on alert types, implications, handling and correlation to clinical conditions.

Results: Following the implementation of interventions, noise levels dropped by 11%, from 72.8 to 64.8 dBs

Non-actionable tone alarms dropped from 30% to 17%.

Conclusions: Reducing unnecessary alerts is possible and may contribute to improving the safety and quality of care.

The study will continue with the development of an artificial intelligence algorithm for individual customization of patient alerts.

OP0104

Identifying dysphagia in the Intensive Care Unit: Adaptation and validation of the Gugging Swallowing Screen into Swedish

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Introduction: Post-extubation dysphagia is common among ICU patients. Early identification through dysphagia screening would possibly reduce the risk of aspiration.

Aim: To cross-culturally validate the Swedish version of the Gugging Swallowing Screen – Intensive Care Unit (GUSS-ICU).

Setting & participants: A prospective multicenter study of 56 adult ICU patients with endotracheal intubation exceeding 48 hours at three hospitals in Sweden.

Methods: The GUSS-ICU was translated into Swedish and used to screen all prolonged intubated patients (>48 hours) once extubated. The GUSS-ICU screen was conducted by ICU nursing staff and then compared with a gold standard Flexible Endoscopic Evaluation of Swallowing (FEES), within two hours of the screen. Sensitivity and specificity were calculated, as was the Area Under the receiver operating characteristic Curves (AUC) with 95% confidence intervals (CI).

Results: Among the 56 patients, 38 (67.9%) were identified as dysphagic via the GUSS-ICU screen. Whereas with FEES, 42 of 51 patients (82.4%) were diagnosed with dysphagia. Of these, 16 (31.4%) were classified as aspirating. Compared to FEES, the GUSS-ICU showed high sensitivity and specificity values (81% and 89% respectively) with an AUC of 0.85 (95% CI: 0.71 – 0.95). For patients with tracheostomy, the sensitivity and specificity were 100%. The inter-rater reliability showed moderate agreement (Cohen's kappa $\kappa = 0.501$, $P = 0.006$).

Conclusions: This study indicates that the Swedish GUSS-ICU is a valid and reliable screen to identify dysphagic ICU patients. Given the negative impact of dysphagia on short and long-term patient outcomes, the Swedish GUSS-ICU is recommended as an essential first step to be used by nursing staff for early identification of dysphagia for further diagnostics and subsequent optimal patient management.

OP02 PEDIATRIC ICU CARE

OP0201

The foundation of partnership in the PICU -parents experience

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Background: The Convention on the Rights of the Child became law in Sweden in 2020, and the child intensive care unit needs to take measures to include the child in its care regarding the child's cognitive

ability, which has proven to be a challenge in person- and family-centred care. Child-centred care is a relatively new emerging concept that is not yet clearly defined. Partnerships must be based on respect and understanding starting from the *child's perspective*, where the goal is to work together with the child and parents towards a common care plan.

Purpose: The purpose is to describe parents' experience of partnership with the child and the care team in a paediatric intensive care unit, for further development of the concept of child-centered care.

Method: Qualitative descriptive design with an inductive approach. Data collection took place in a paediatric intensive care clinic through narrative interviews with 20 parents. Manifest data was analysed using inductive content analysis according to Elo and Kyngäs.

Results: Data analysis generated three categories that highlighted important elements for fostering parents' partnership at BIVA; Convey information, collaboration in the healthcare team and partnership challenges. A pattern was identified which was that security is a central component in fostering partnerships. This security and trust enabled caregiver, parent and child to become a team and a partnership to emerge.

Conclusion: When parents experienced a feeling of safety in the care, a partnership between care staff, children and parents can be achieved. A feeling of safety arises from individual information and continuity among healthcare staff in an inviting environment. To achieve a partnership at BIVA, the concept of child-centred care should be further developed and implemented.

Key words: Child-centred care, Paediatric intensive care, Parental experience, Partnership, Qualitative

OP0202

NURSING WORKLOAD IN PEDIATRIC PATIENTS MANAGED IN AN ITALIAN GENERAL ADULT INTENSIVE CARE UNIT

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Introduction: Few intensive care units in Italy are structured to manage both adult and paediatric patients.

Objective: To analyse the nursing workload related to paediatric patients in an adult intensive care unit using the Nursing Activities Score (NAS) and determine which nursing interventions had the greatest impact on the critical care burden.

Methods: This was a retrospective, observational, single-centre study. Patients admitted from June 2006 to June 2023, aged < 18 years, with an ICU stay > 72 h, were enrolled in the final sample. The NAS has been used daily for each admitted patient since June 2006.

Results: During the study period, NAS was recorded in 6734 patients. A total of 443 patients were aged <18 years. 345 paediatric patients with a length of ICU stay of < 72 hours were excluded. Data from a final sample of 98 paediatric patients were analysed. The median age was 12 years (IQR:5-15), median LOS was 9 (6-13) and 81 (84%) patients were alive at ICU discharge. The overall median NAS score was 89 (77-100), corresponding to an ideal nursing-patient relationship of 0.89. Statistical analysis showed a significant increase in the NAS during the study period (p=0.018). Multivariate analysis showed a statistical correlation between NAS and the use of vasoactive drugs (β : 3.045 [95%: 0.05- 6.04] – p=0.04) and Continuous Renal Replacement Therapy (β : 5.597 [95%: 0.42- 10.77] – p=0.03). No statistical correlation was observed between NAS and the use of Extracorporeal Membrane Oxygenation (p=0.671) or the prone position (p=0.184).

Conclusions: The admission of paediatric patients to adult ICU correlates with an elevated nursing workload. Notably, the care demands for these paediatric cases are not solely attributed to sophisticated medical procedures, and no considerable age-related disparities were identified. Furthermore, the NAS exhibited an ascending pattern over the course of time.

OP0203

Nursing Practices and Collaboration in ECMO Care: Preliminary Results from Pediatric ICU Nurses in Israel

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Introduction: In June 2021, the Nursing Administration in Israel issued the first director's circular outlining the role and scope of RNs in treating ECMO-supported patients (SP).

Aim: To investigate how frequently pediatric ICU (PICU) nurses in Israel perform the actions outlined in the nursing practices on ECMO circular and how perceived PICU staff support, and perceived cooperation between RNs and perfusionists were linked to nurses' implementation of ECMO practices in the PICU.

Setting and participants: This ongoing cross-sectional study includes a preliminary sample of 31 registered PICU nurses (mean age 32.0±4.05; 84% female) from four tertiary medical centers.

Methods: The questionnaire consists of three scales: nursing activities in the care of ECMO-SP (20 items, $\alpha=0.8$), perceived PICU staff support (8 items, $\alpha=0.7$), and perceived cooperation between RNs and perfusionists (6 items, $\alpha=0.94$). Descriptive statistics and Pearson's correlations were used.

Results: The nursing activities in the care of ECMO-SP scale contained four subscales on the range 1 (never) to 5 (almost always) with the following mean \pm SD and median (Md) scores: Factor 1. Nursing care of ECMO-SP not related to the ECMO device (7 items, $\alpha=0.7$), $M\pm SD=4.67\pm 0.44$, $Md=5.0$; Factor 2. Activities on ECMO device in emergency (5 items, $\alpha=0.90$), $M\pm SD=2.34\pm 1.1$, $Md=2.20$; Factor 3. ECMO device calibrating and monitoring (4 items, $\alpha=0.74$), $M\pm SD=3.43\pm 0.97$, $Md=3.38$; and Factor 4. Medication and blood administration through ECMO device (4 items, $\alpha=0.73$), $M\pm SD=2.83\pm 1.1$, $Md=2.63$. Perceived PICU staff support and cooperation between RNs and perfusionists were positively associated with Factor 2, Activities on ECMO device in emergency ($r=0.55$, $p<0.01$ and $r=0.37$, $p<0.05$, respectively).

Conclusion: PICU nurses most frequently performed non-ECMO-device-related nursing activities, while emergency activities involving the ECMO device were performed less often. Nurses who reported feeling supported by PICU staff and experienced cooperation with perfusionists were more likely to perform procedures on ECMO-supported patients during emergencies.

OP0204

Estimation of hospitalization costs in PICUs using the Pediatric Nursing Activities Score (P-NAS)

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Introduction: Estimating nursing workload is an essential strategy for ICU management, helping to ensure quality of care and to manage the cost of care; however, it is unclear if the nursing workload scales can predict the cost of care for patients admitted to the Pediatric Intensive Care Unit (PICU).

Aim: To investigate the relationship between nursing workload and hospitalization costs in PICUs, and to calculate the average cost of hospitalization per patient and per P-NAS score point.

Setting & Participants: The sample consisted of 180 patients, aged 28 days to 18 years, who were consecutively admitted to three Greek PICUs over a 6-month period in each unit from January 1st to December 31st, 2021.

Methods: This was a prospective cohort study. Nursing workload for each PICU patient was measured using the P-NAS. All ethical principles were followed. Direct health costs were estimated using the bottom-up micro-costing method. Analyses were performed using SPSS with a significance level of $p < 0.05$.

Results: The average total cost of hospitalization per PICU patient was €9,449.19 (95% CI: €6,672.13 - €12,226.25), with an average daily cost €1,339.92 (95% CI: €1,272.91 – €1,406.93). Over the study, the mean total P-NAS score was 93,837.70 points, indicating that each P-NAS point corresponded to €18.24. There was a statistically significant positive linear correlation between the total hospital cost per patient and the admission P-NAS score ($r = 0.315$, $p < 0.001$). A one-point increase in the P-NAS score at admission was associated with a statistically significant increase of €328.10 in the total hospitalization cost per patient.

Conclusions: The P-NAS is a useful tool for predicting hospitalization costs for PICU patients, enabling cost comparisons among PICU settings worldwide.

OP03 LEADERSHIP

OP0301

The paradox of workplace violence in the intensive care unit

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Introduction: Conflicts with patients and relatives occur frequently in intensive care units (ICUs), driven by factors intensified by critical illness and its treatments. A majority of ICU healthcare professionals have experienced verbal or physical violence. Existing studies have focused on quantifying the prevalence of workplace violence, characterising perpetrators and victims or identifying conflict-management strategies. As yet, relatively few studies have been designed to understand the problem.

Aim: To explore and describe how healthcare professionals in ICUs experience and manage workplace violence.

Setting and participants: The study included 34 ICU healthcare professionals (14 nurses, 6 physicians, and 14 allied healthcare staff) from four hospitals in Sweden.

Methods: A qualitative descriptive analysis of semi-structured focus-group interviews.

Results: The overarching theme: “The paradox of violence in healthcare” illustrated a normalisation of violence in ICU care and indicated a complex association between healthcare professionals regarding violence as an integral aspect of caregiving, while simultaneously identifying themselves as victims of this violence. The healthcare professionals described being poorly prepared and lacking appropriate tools to manage violent situations. The management of violence was therefore mostly based on self-taught skills.

Conclusions: This study contributes to understanding the normalisation of violence in ICU care and gives a possible explanation for its origins. The paradox involves a multifaceted approach that acknowledges and confronts the structural and cultural dimensions of violence in healthcare. Such an approach will lay the foundations for a more sustainable healthcare system.

OP0302

The experiences of clinical mentors for new nursing graduates in critical care, qualifying for admission to a specialist master's program

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Introduction: The preparation of intensive care nurses differs between countries according to admission criteria, academic level, and duration of a specialist program. In Norway, change is ongoing from national criteria requiring two years of clinical experience before specialization, to admission at the teaching institution's discretion. Clinical requirements are strong in tradition but have a limited research base. This was part of a feasibility study to focus and shorten the career track of intensive care, where a hospital hired 12 newly qualified nurses for one year of critical care experience to meet admission criteria for specialist studies at a collaborating university college, and to support critical care capacity.

Aim: To describe and interpret the experiences of clinical mentors for newly qualified nurses.

Setting & participants: Nine clinical mentors from diverse critical care units at a department of critical care employing 600 nurses.

Methods: Qualitative design with focus group interview at eight months duration of new graduates' clinical experience. Qualitative content analysis supported by a didactic relationships model.

Results: The main theme was taking part in Something completely new, demanding adaptation. In a demanding role, with limited guidance and dealing with dilemmas of concurrency, mentors adapted content and teaching strategies to a new group of mentees in transition from bachelor student to licensed practitioner. Transition included the acquisition of clinical skills needed for new graduates to progress from an observant and assistive role to a more collegial role at four to eight months of experience.

Conclusion: To support the role of mentors during changes in clinical education, strategic management may consider additional investment at the individual or unit level to move beyond coping with change and aim to facilitate professional development and job satisfaction for mentors.

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OP0303

Simulation-based learning during clinical training for post-graduated nursing students in anesthesia and intensive care

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Introduction: Specialist nurse education for students in anesthesia or intensive care introduces a new professional role in a challenging environment. Clinical training plays a central role in students' development of clinical skills, while their backgrounds and experiences vary. Simulation-based learning

has proven to be safe, readily available, and establish a bridge between students theoretical and practical training. Reflection is described as a significant component in students learning during simulation.

Aim: The aim of this study was to explore students' learning through reflection capacity and experiences during simulation in connection with clinical training.

Setting and Participants: A didactic model was developed and integrated simulation with clinical learning activities before, during, and after periods of clinical training. Simulation was based upon the university curriculum for specialist nurses and performed in total two separate weeks lead by clinical nurse-instructors and university teachers.

Method: A questionnaire measuring reflective capacity were used to evaluate students learning progress through reflection capacity before and after the simulation. In-depth interviews were also conducted with students to capture their experiences and analyzed thematically.

Results: In total 78 students responded to the survey, and 14 students participated in the interviews. The survey indicated progress in reflective ability: with others, in action, on action, and in self-reflection. Interviews resulted in two themes describing students: (1) Experiences of opportunities; and (2) Obstacles to learning.

Conclusion: Students found simulation to be highly valuable and experienced conditions that supported a more equitable education, enabling them to develop skills and abilities with greater independence in both common and rare situations. Simulation enhanced the conditions for students' reflective abilities, both in collaboration with others and through self-reflection. However, the outcomes of simulation-based learning were influenced by students' difficulties in accepting the simulation environment and their perception of unrealistic elements

OP0304

Rationing of Nursing Care in Intensive Care Units: The Role of Teamwork, Safety Climate, and Healthy Work Environment

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Introduction: Rationing nursing care, which refers to various aspects of the required patient care that are omitted or their performance is delayed, has implications for patient outcomes and experience.

Aim: This study aimed to identify the extent of rationing of nursing care in intensive care units (ICUs) in different types of hospitals and assess the quality of nursing care, and the level of job satisfaction and its correlation with an assessment of the climate of work safety, teamwork, and a healthy work environment.

Setting & Participants: The sample comprised 226 nurses working in ICUs in North-East Poland.

Methods: A cross-sectional correlational study was carried out with 226 nurses working in the ICU. The research utilized three different tools: the Perceived Implicit Rationing of Nursing Care (PRINCA) questionnaire, which measured the rationing of nursing care, patient care quality, and job satisfaction; the American Association of Critical-Care Nurses Healthy Work Environment Assessment Tool (HWEAT); and the Safe Attitudes and Behaviours Questionnaire (BePoZa), focusing on teamwork and safety climate.

Results: Most participants were female (89.82%), with an average age of 42.47 years. The overall average score for nursing care rationing was 0.58. The mean score for the Healthy Work Environment Assessment Tool (HWEAT) was 2.7, while the BePoZa questionnaire had an average score of 3.72. The HWEAT and BePoZa scores negatively correlated with nursing care rationing, with correlation coefficients of -0.36 and -0.45, respectively. All correlations were statistically significant, with p-values below 0.05.

Conclusion: Monitoring workplace safety, teamwork climate, and maintaining a healthy work environment in ICUs is crucial in reducing the risk of rationing nursing care. Improving the key elements of a healthy work environment, teamwork climate and work safety is important in improving the quality of nursing care and job satisfaction.

OP04 DIGITAL INNOVATIONS IN ICU CARE

OP0401

Mobile Health Technology in Critical Care: Improving Patient Assessment and Outcomes

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Introduction: The increasing demands regarding quality of care, costs, and expertise impose significant professional challenges on nurses. In intensive care units, nurses are responsible for assessing patients' conditions using various medical scales, which necessitates direct bedside observation. To facilitate this, nurses require mobile tools with applications encompassing all necessary medical scales. The absence of such tools can lead to inaccurate and delayed patient assessments, thereby adversely affecting treatment outcomes.

Aim: The primary objective of developing the MedScales application was to enhance the quality of care and simplify nurses' workflow.

Setting & Participants: Recognizing the absence of a similar application in Poland, the MedScales application was developed in December 2022.

Results: Although initially designed for nurses, MedScales has become a valuable resource for doctors, paramedics, and students as well. It is a user-friendly application that includes the most commonly used scales in nursing, with a particular focus on anesthesiology and intensive care. The application is free and available on Google Play and the App Store. Developed by practitioners, it aims to facilitate nurses' daily tasks by automatically calculating results and providing accurate interpretations. Each scale is accompanied by its source to ensure reliability. The application's result calculations are validated through automated tests to minimize errors. MedScales has been recognized for its innovation with an award from the Polish Society of Anesthesiology and Intensive Care Nurses.

Conclusion: Healthcare professionals require access to essential information and robust IT support to streamline their daily tasks and ensure the delivery of high-quality and safe patient care.

OP0402

Connect My Care App: A feasibility Study of a Person-Centred Online Mobile Application for Family Communication in Critical Care

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Introduction: This study explored the feasibility of “Connect My Care,” a web-based mobile phone application (an m-health tool), as a family communication adjunct in critical care. We aimed to explore how families could be better involved in shared care planning (even when away from the Intensive Care Unit [ICU]) by using a mobile application (App), establishing interactive two-way communication with families and ICU teams.

Aim: To explore family members' and nurses' perceptions of the feasibility, acceptability and usability and experiences of a m-health tool (App).

Setting and participants: This was a single site study at a District General Hospital ICU involving family members of adult patients admitted to ICU with anticipated length of stay >48hrs, and nurses who used the App.

Methods/Design: We conducted a feasibility study with quantitative data from participants who tested the App using the Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM) alongside analysis on App content and in-depth qualitative interviews with families/professionals.

Quantitative data was analysed and reported using descriptive statistics. Qualitative data were audio-recorded, transcribed, and analysed using Thematic Analysis.

Results: We recruited 16 family members and 1 nurse. Communication content centred on patient condition and general enquiries. Family questions focused on medications, treatment, and planned treatment schedules. 100% of those completing questionnaires reported liking Connect my Care; 88% found it appealing (AIM); 100% found the intervention appropriate (IAM), however only 71% found it easy to use (FIM).

Interview themes included: *communication facilitation; response characteristics; technical issues; and value of content*. Participants suggested more instantaneous responses would make it more proactive and maximise family benefits.

Conclusion: Families found the CMC app to be acceptable, appropriate, and feasible. Future challenges centre on maximising staff engagement the Connect My Care m-health App, thereby incorporating it into routine care.

OP0403

A speech recognition application as a communication aid for acute and critical care patients with tracheostomies

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Introduction: Patients with tracheostomies often face distress due to voicelessness, and current communication strategies are limited. Speech Recognition Application for the Voice Impaired (SRAVI) is a new lip-reading app that tracks lip movements and identifies phrases being mouthed.

Aim: To assess the feasibility and acceptability of SRAVI for acute and critical care patients with tracheostomies who cannot communicate verbally.

Setting & Participants: One acute and three critical care units in Northern Ireland, including adults with new tracheostomies who could move their lips and communicate in English.

Methods: This prospective cohort study assessed SRAVI's feasibility by evaluating its performance accuracy and usability. Two versions were tested: Version 1 used a predefined phrase list, and Version 2 allowed free speech. Acceptability was evaluated through interviews with patients, relatives, and staff, guided by the Theoretical Framework of Acceptability (TFA). Three-month patient follow-up measured quality of life and psychological outcomes. Ethics approval was granted from the Office for Research Ethics Committee Northern Ireland.

Results: 29/31 patients (median age 61, IQR 48-67) contributed data for assessing accuracy. 468 videos were recorded: 233 (49.8%) with 24 critical care patients and 235 (50.2%) with five acute care patients. SRAVI accuracy was 21.8% (Version 1) and 34.6% (Version 2). 1,338 uses of other communication aids were recorded, with 48.8% unaided methods. 13/22 participants (59.1%) completed follow-up, with none reporting 'no problems' across all five health-related quality of life dimensions. 29 interviews with 35 healthcare professionals, nine patients, and five relatives identified key TFA constructs, noting positive attitudes tempered by challenges like patient acuity and Wi-Fi issues. Suggested improvements included optimising SRAVI for smaller devices and refining Version 2.

Conclusion: A larger trial appears unfeasible due to low accuracy and clinical challenges. Although iterative refinement may improve usability, the severity of critical illness may limit SRAVI's practical impact.

OP0404

Recovery through support and engagement; development process of a digital application

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Introduction: The healing process from critical illness and the impact of admission to an intensive care unit (ICU) can be long and difficult; 30-50% of survivors and 30% of relatives face mental health declines with symptoms of anxiety, posttraumatic stress, and depression. Recovery support is insufficiently accessible in a place and time to preference of survivors and relatives due to rising healthcare costs and limited human capacity in ICU follow-up services. Therefore, easy accessible digital programs in the mental health domain need to be implemented.

Aim: To develop and evaluate a digital application in the mental health domain for ICU survivors and relatives.

Quality improvement: The CeHRes roadmap served as an evidence-based development approach for e-health applications incorporating both a person-centered design and a business modelling focus. In joined forces with all stakeholders (ICU survivors, their relatives, ICU follow-up nurses, intensivists, a general practitioner, and relevant multidisciplinary representatives), a roadmap of predefined steps was followed to guide the development of a digital application in ICU follow-up service.

Findings: We have developed 'IC-HerstelWijzer' [ICU-RecoveryPointer] and 'IC-NaastenCoach' [ICU-RelativesCoach] for Dutch ICU survivors and their relatives respectively. First, needs and priorities for digital support were evaluated with an online survey (n=227). Thereafter, the perspectives of the users (n=21 ICU survivors, n=4 relatives, and n=35 professionals) on key steps in the patient journey and prototypical versions of the digital application were explored empirically in an iterative method during online meetings. Finally, pre-testing was conducted both online (n=12 survivors) and in-person (n=5 relatives). All participants were satisfied with their first impressions of the digital application, and experienced support and engagement that they had missed previously.

Conclusion(s): IC-HerstelWijzer and IC-NaastenCoach can bridge the gap in integrated ICU follow-up services through offering valid information, screening of symptoms, and providing psychoeducation to ICU survivors and their relatives.

OP0501**ICU mobility and functional disabilities in ICU survivors: A preliminary analysis**

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Introduction: It is recommended to start early rehabilitation in the ICU: however, its effect on functional disabilities after hospitalisation remains unclear.

Aim: This study aimed to describe the association between levels of ICU mobility within the first seven days in the ICU and functional disabilities in ICU survivors three months after admission. The association between ICU mobility and ICU delirium, mechanical ventilation (MV) duration and ICU length of stay (LOS) were also explored.

Settings and participants: Adult ICU patients were recruited from six ICUs in two Norwegian hospitals.

Methods: This prospective cohort study assessed functional disabilities using the Katz Personal Activities of Daily Living (P-ADL) index and the Lawton Instrumental Activities of Daily Living (I-ADL) scale. Multivariate models were fitted using backward logistic and linear regressions adjusting for sex, comorbidity index, simplified acute physiologic score II (SAPS II) and pre-ICU functional status.

Results: Out of 452 ICU survivors, 280 (62%) responded to the three-month follow-up questionnaire. The median age was 60 years and 63% were males. The median SAPS II score was 40, and 195 (70%) patients received MV. After adjusting for covariates, higher ICU mobility levels during the first 7 days in the ICU were associated with lower odds of P-ADL disability at three months (OR: 0.82, [95% CI: 0.67–0.99]), lower odds of ICU delirium (OR: 0.81, [95% CI (0.67–0.97)]), fewer days on MV (B: -1.31, [95% CI: -1.77–-0.84]) and shorter ICU LOS (B: -0.61, [95% CI: -0.95 – -0.26]). No statistically significant association was found between ICU mobility and I-ADL at three months.

Conclusion: Higher levels of ICU mobility was associated with no P-ADL disabilities at three months, lower odds of having ICU delirium, shorter MV duration and shorter ICU LOS. Our study emphasises the importance of early rehabilitation to potentially improve patient outcomes.

OP0502**Rehabilitation interventions as an integrated part of care in Scandinavian intensive care units. An online survey**

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Introduction: Research on preventive strategies to mitigate adverse outcomes after critical illness is growing; however, ICU healthcare professionals' rehabilitation approaches remain poorly defined.

Aim: This study aimed to identify and describe early rehabilitation practices in Scandinavian ICUs facilitated by nurses and other healthcare professionals.

Setting & participants: We included healthcare professionals actively involved in ICU patient care in Norway, Sweden, and Denmark.

Methods: This was a cross-sectional, multi-centre online survey using a self-administered questionnaire. The survey collected data on participant demographics, ICU-specific characteristics, timing of rehabilitation activities, types of rehabilitative measures (cognitive, sensory, physical, personal hygiene, and social stimulation), and access to post-ICU rehabilitation services.

Results: In total, 518 healthcare professionals from the three countries completed the survey (Sweden n=217, Denmark n=182, and Norway n=119). Among the 518 participants, 471 (90.9%) were employed as nursing staff, 19 (3.7%) as physiotherapists, 11 (2.1%) as doctors, 6 (1.2%) as occupational therapists and 11 (2.1%) in other positions. The participants' median ICU experience was 12 years (IQR 5;20). Respiratory treatment was provided by 98.1% (508/518) of the participants in their units. Participants reported dedicating about 40% of their working time to rehabilitation, with physical activities (e.g., sitting on the edge of the bed or in a chair) and personal hygiene assistance (e.g., washing faces, brushing teeth) as the most common interventions. Social stimulation primarily involved family visits, while cognitive and nutritional support were less commonly provided. Approximately 62.4% of respondents indicated that rehabilitative follow-up services were available post-ICU.

Conclusions: Rehabilitation practices in Scandinavian ICUs involve a range of interventions, mainly emphasizing physical activities but also integrating social and cognitive components. These activities are relevant for over 90% of ICU patients and occupy about 40% of healthcare professionals' time. Future research should explore the most effective interventions and optimal timing for implementation.

OP0503

Prediction of Intensive Care Unit (ICU)-Acquired Weakness during first week on ICU stay: multicenter external validation study

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Introduction: To avoid a diagnostic delay of ICU-AW, we previously developed a prediction model, based on multicenter data from 642 patients (development cohort), to predict ICU-AW at days 3 at 5 of ICU admission.

Aim: To investigate the external validity of the original prediction model in a new multicenter cohort and update the model with frailty as a new predictor.

Setting & participants: ICU patients with stay>48 hours

Methods: Predictors were prospectively recorded, and the outcome ICU-AW was defined by a Medical Research Council (MRC) score<48. In the validation cohort, consisting of 411 patients, we analyzed performance of the original prediction model by assessment of calibration and discrimination. Additionally, we updated the model in this validation cohort adding frailty assessment measured with FRAIL and Clinical Frailty Scale (CFS).

Results: Of 351 patients with MRC assessment feasible in the validation cohort, 195 (55.5%) developed ICU-AW. Model calibration and discrimination of the original model was good with these patients (Calibration in the large (CITL) was 0.17 (CI 95% [-0.07;0.40]), Slope 0.93 (CI 95% [0.66;1.21]), Under the Receiver Operating Characteristic Curve (AUC-ROC 0.723 (CI 95% [0.67; 0.78])). On the other hand,

when the model is validated by including patients without MRC assessment because they are unconscious, there is a tendency to underestimate ICU-AW. Model updating methods did not improve calibration and discrimination (Net reclassification improvement (NRI) was -0.2% with CFS and -0.3% with FRAIL).

Conclusions: The previously developed prediction model for ICU-AW showed good performance in a new independent multicenter validation cohort. It is confirmed that the predictor variables of ICUAW for the first 5 days of ICU stay are older age, being female, not being consciousness for MRC assessment and receiving renal replacement therapy. Protective factors are active mobility and developing hyperactive delirium. Frailty does not add value to the predictive model.

OP06 WORK FORCE AND WORK ENGAGEMENT

OP0601

Integration of care assistants in the intensive care unit nursing team; a quantitative study exploring the skill mix

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Introduction: Shortage of nursing staff in intensive care units (ICUs) is well-documented. New care models, involving differentiated nursing practice among specialized nurses and care assistants, could reduce workload and potentially improve quality of care.

Aim: To explore experiences of ICU nurses and care assistants working in an integrated team.

Setting & participants: ICU nurses and care assistants of two adult ICUs in the Netherlands.

Methods: The quantitative design included self-developed cross-sectional surveys at two time points. Outcomes assessed skill mix, perceived quality of care, job satisfaction, clinical leadership, and autonomy. Data were analysed using descriptive statistics.

Results: The response rate for the pre- and post-measurement among ICU nurses was 79.8% (n=95) and 48.7% (n=58), respectively. The majority (n=68, 71.6%) was positive about the involvement of carers within the team. However, 53.7% (n=51) expressed concerns about maintaining the quality of care, and 49 (51.6%) were concerned that patient safety might be compromised. Although the workload of the ICU nurses did not increase, 82.8% (n=48) reported no additional time gained for patient care. The response rate for care assistants was 84.6% (n=11). Care assistants (n=6, 54.5%) experienced working in the ICU as an enjoyable challenge, whereas a minority (n=2, 18.2%) found it too stressful. Regarding the alignment between the work in the ICU and their knowledge and skills, 82% (n=9) indicated that the work did not match their knowledge and skills.

Conclusion(s): A care model with integrated team of ICU nurses and care assistants encountered positive engagement initially. However, this enthusiasm was tempered by practical challenges, including concerns about the maintenance of care quality and potential mismatches between the competencies of carers and the demands of an ICU environment. These challenges may hinder ICU nurses' professional leadership, further threatening sustainability of the nursing workforce.

OP0602

Comparative Analysis of Burnout Levels Among Critical Care Nurses in Croatia and Poland During the COVID-19 Pandemic

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Introduction: The COVID-19 pandemic has significantly worsened working conditions in the healthcare sector, particularly among critical care nurses. Burnout syndrome has been recognized as a serious issue, with its occurrence linked to emotional exhaustion, depersonalization, and reduced personal accomplishment, which are key factors contributing to job stress.

Aim: To compare the levels of burnout among critical care nurses in Croatia and Poland using the Maslach Burnout Inventory.

Methods: The study was conducted among 346 critical care nurses in intensive care units in Croatia and Poland, including 163 respondents from Croatia and 183 from Poland. The Maslach Burnout Inventory, which assesses emotional exhaustion, depersonalization, and personal accomplishment, was used as the research instrument. Data were analyzed using the SPSS statistical program, employing the non-parametric Mann-Whitney test and the Chi-square test for group comparisons.

Results: The study revealed significant differences between Croatia and Poland in the levels of depersonalization and emotional exhaustion among critical care nurses. In Poland, more nurses had high depersonalization scores compared to Croatia ($\chi^2=7.370$, $df=2$, $p=0.025$). Furthermore, a higher number of respondents in Poland experienced high emotional exhaustion (38.8%) than in Croatia (27.2%) ($\chi^2=8.928$, $df=2$, $p=0.012$). Depersonalization was also more prevalent in Poland ($\chi^2=8.217$, $df=2$, $p=0.016$), while there was no statistically significant difference in personal accomplishment ($p>0.05$). Education level in Croatia was identified as a significant predictor of high burnout (OR=0.320, CI: 0.125-0.824, $p=0.018$), with bachelor's degree nurses having a 68% lower chance of experiencing high burnout compared to those with a master's degree.

Conclusion: This study identified significantly higher levels of burnout among nurses in Poland compared to Croatia, particularly in the dimensions of emotional exhaustion and depersonalization. These findings highlight the need for targeted interventions and improved working conditions to reduce burnout and ensure the long-term well-being of nurses in both countries.

OP0603

Nursing Activities Score (NAS) can better predict the outcome of patients in PICUs compared to other nursing workload scales

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Introduction: Nursing workload scales are considered very useful tools in daily ICU clinical practice; however the performance of nursing workload scoring systems to predict mortality risk in patients admitted to PICU has not been investigated yet.

Aim: To assess and compare the performance of Nursing activities score (NAS), Nine Equivalents of Nursing Manpower use Score (NEMS), and Therapeutic Intervention Scoring System 28 (TISS-28) in predicting the outcome (mortality and length of stay) of hospitalized children in PICUs.

Setting & Participants: The sample consisted of 180 patients aged 28 days to 18 years, hospitalized in two Greek PICUs (January 1st-December 31, 2021).

Methods: This was a prospective cross-sectional observational study. All ethical principles were adopted. Patients' nursing workload was assessed on the first day of hospitalization using NAS, NEMS and TISS-28. Areas under the ROC (AUC) curves were used to evaluate discrimination of the three scales and discrimination of the four predictive models. The Hosmer-Lemeshow (HL) goodness-of-fit test and calibration curves assessed applicability of the models to individual cases. Calibration was assessed with the Hosmer-Lemeshow goodness-of-fit χ^2 estimates by grouping cases into deciles of risk. All analyses were performed using STATA13.0 ($p < 0.05$).

Results: The crude mortality was 8.3%. The AUC-ROC (95% CI) of NAS, NEMS, TISS-28, for predicting mortality in critically ill children were 0.871 (0.794–0.948), 0.787 (0.684–0.890) and 0.843 (0.758–0.927), respectively. 18.9% had a hospital stay > 7 days. ROC curve analysis showed that the AUCs (95% CI) of NAS, NEMS, TISS-28 for predicting length of stay in PICU were 0.773 (0.691–0.854), 0.744 (0.659–0.828) and 0.734 (0.648–0.821), respectively. The Hosmer-Lemeshow goodness-of-fit test revealed good calibration ($p > 0.05$) for all the models, except the models with NEMS and length of stay.

Conclusions: NAS has better performance in predicting mortality and length of stay among critically ill children, compared to NEMS and TISS-28.

OP0604

Predicting the Unpredictable: Using the Nursing Activities Score (NAS) for Shift-to-Shift Resource Planning and Team Capacity Adjustment

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Introduction: A balanced workload and staffing in postoperative and intensive care are vital for patient safety, nurse wellbeing, and hospital economy. When determining whether the staffing for the next shift is adequate, professional knowledge and experience are utilized. Postoperative and intensive care units globally use the Nursing Activities Score (NAS) for high-level unit planning. However, can the NAS, as an objective tool, assist bedside nurses in the decision-making process in staff planning on a shift-to-shift basis?

Aim: The purpose of this study was to explore the extent to which the workload, as measured by the NAS on one shift, could predict the workload for the next shift.

Setting & participants: The study took place in a postoperative and intensive care unit at a local, nonprofit corporation hospital in Norway. A total of 2,695 patients and 5,916 NAS-scores were included.

Methods: This retrospective observational exploratory study used a cross-sectional design. Ethical standards and regulations were followed. Data were obtained from the hospital's internal database from January 1st to June 30th, 2016. Multiple linear regression analysis was used to investigate the extent to which the NAS on one shift could predict the NAS on the next.

Results: The model could predict a 55.1% to 66.9% variation in NAS for the next shift. When the number of patients was incorporated, the model explained up to 80% of the variation.

Conclusion(s): The NAS can be utilized to predict nursing workload from one shift to the next and serve as a tool for managers to adjust staffing requirements. In terms of practical implications. Postoperative and intensive care units can easily assess workload using the NAS, ensuring resource availability and promoting patient safety.

OP0605

Time to take the temperature of perceived workload, normal or high temperature? A national observational study

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Aim: This study aimed to examine the workload of nurses in Intensive Care Units (ICUs) and to analyze the staffing levels across various shifts.

Design: An observational study of patients, and related to workload of critical care nurses. Both the ICUs and nursing staff participated on a voluntary basis.

Methods: The Nursing Activities Score (NAS) and the NASA-Task Load Index (NASA-TLX) were used to evaluate the workload. Data was gathered from patients' medical records, and a survey was distributed to all on-duty nurses for 14 consecutive days in each ICU. The study was conducted in Norway from November 2023 to May 2024. Descriptive and correlational statistics were analyzed using Excel and SPSS.

Results: Data from 1,007 patients across 12 ICUs - both local and university hospitals were included. The median NAS per patient and ICU ranged from 49.7% to 147%. The mean patient age varied between 52 and 67.9 years, with a median length of stay ranging from 0.9 to 25.3 hours. The survey received 3,484 responses from nursing staff, with all shifts represented and unit response rates ranging from 62% to 99%. The median NASA-TLX per ICU varied from 35 to 60.1 (scale of 0-100). Although many days exhibited normal "temperatures", two units reported high "temperatures" for more than half of the days and shifts.

Conclusion: This study found significant "high temperatures" in ICUs and nurses' workload. These findings serve as a wake-up call for nursing leaders and department heads and should be considered a cause for concern regarding the future.

OP07 CLINICAL PRACTICE; PAIN, AGITATION, DELIRIUM

OP0701

Pain assessment in patients with acquired brain injury and disorders of consciousness

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Introduction: The validation of the Behavioural Indicators of Pain Scale-Brain Injury(ESCID-DC) has allowed us to approach the pain experience of neurocritical patients.

Objective: To determine the discriminatory ability of ESCID-DC in critically ill patients with acquired brain injury and disorders of consciousness as a function of the patient's level of sedation.

Setting-and-participants: 17 hospitals of the Spanish-National-Health-System participated. Patients with acquired brain injury, disorders of consciousness, and an artificial airway were included. Patients with previous cognitive injury/impairment; and under conditions that limited/abolished the behavioral response were excluded.

Methods: Prospective observational study. Pain was assessed at three time points: 5-minutes before/during/15-minutes after the application of painful procedures (tracheal suction, right/left nail pressure) and a non-painful procedure(gauze rubbing). Measurements were performed under two sedation conditions: deep/light-moderate sedation. The study complied with ethical research standards and consent was obtained from the participants. Discrimination ability was assessed using ROC-curves with covariates.

Results: Pain was assessed in 418 patients, 68% were men with mean age of 56.2(SD=16.3) years. According to the level of deep vs moderate-light sedation Glasgow-Coma-Scale(GCS) had a median score of 6(IQR=4-7) vs 8.5(IQR=7-9). Under deep sedation, the median ESCID-DC during suction was 3(IQR=2-5) and during pressure procedures was 0(IQR=0-2). Under moderate-light sedation it was 6(IQR=4-7) during suction and 3(IQR=1-4) vs 3(IQR=1-5) during right/left pressure. The non-painful procedure had a score of 0. The discriminatory ability of ESCID-DC under moderate-light sedation was adequate(AUC>0.7) for all three procedures, regardless of GCS value. Under deep sedation, ESCID-DC discriminated well with the suction procedure, however for pressure procedures and GCS values<8 it did not discriminate adequately(AUC<0.7).

Conclusions: ESCID-DC discrimination ability is conditioned by the degree of sedation, the level of consciousness and the type of procedure. Under deep sedation, the ability to detect pain/no-pain decreases in patients with low level of consciousness during the pressure procedure.

OP0702

Live music in the ICU - A mixed-methods pilot study exploring the experience and impact of live music

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Background: Evidence for music's beneficial effect on physical and mental disorders is mounting. Intensive care unit patients experience multiple uncomfortable symptoms, which may be alleviated using a music-based intervention. Few studies have examined the experience and the physical impact of patient-tailored live music offered by trained health musicians in an adult intensive care unit.

Aims: To explore the experience of live music for adult patients admitted to an intensive care unit, focusing on its effects on relaxation, stress and pain.

Study design: A pilot study with a convergent mixed-methods design. A total of 27 intensive care patients at a Danish University Hospital were offered patient-tailored live music by trained musicians in a single session design. We performed participant observation and conducted patient interviews using an observational and semi-structured interview guide. These data were supported by quantitative pre-post measurements of heart rate, respiration rate, mean arterial blood pressure, subjective pain experience and heart rate variability. The study was conducted from February 2020 to December 2021.

Findings: Using a Ricoeur-inspired analysis of observations and interviews, we elicited four themes: '*A break where you can swim away and relax*', '*The living presence makes the play unique*', '*Happy memories of the past and longing for home*' and '*An intense and meaningful experience*'. The quantitative analysis showed a significant decrease in heart rate (4.33 bpm, $p < 0.02$), respiration rate (2.93, $p < 0.001$) and blood pressure (3.30, $p < 0.05$) and a significant increase in heart rate variation (-0.22, $p < 0.01$). Seven patients reported pain reduction after the music intervention, corresponding to a 24% reduction.

Conclusion: Live music contributes to meaningful moments by bringing elements of everyday life into the intensive care unit. Our findings indicate that live music is a non-pharmacological nursing intervention that may promote relaxation and reduce stress and pain.

OP0703

Incidence of delirium during ICU stay and physical recovery 12 months after ICU discharge: a retrospective single centre study

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Introduction: "Post Intensive Care Syndrome" (PICS) describes physical, cognitive and/or psychological impairments that may arise or worsen after an intensive care unit (ICU) admission and persist beyond hospital discharge. Delirium is one of the risk factors for PICS.

Aim: recognize patients who have had delirium during ICU stay by investigating whether its development can lead to a worsening of quality of life and monitor neuromuscular recovery 12 months after discharge.

Setting & participants: patients admitted for at least 3 days at the general ICU of the IRCCS San Gerardo dei Tintori in Monza in the period between 3/1/2020 and 10/31/2022 and enrolled in the follow-up program.

Methods: a retrospective observational study was conducted. The ICDSC scale was used to detect delirium during ICU stay. In the follow-up visit 12 months after discharge, the scales used to evaluate the psychological, cognitive and quality of life dimensions are: SF-36, MoCa, HADS, PCL-5, ISI, EQ5D-5L. For the physical evaluation the scales are: FAC, MRC, 6 Minutes Walking Test, EQ Mobility and Dynamometry.

Results: 91 patients were enrolled. The median age is 63 (54-70) years and the median stay in ICU is 17 (10-28) days. All patients were sedated, 80% curarized. 60% were placed prone. 20% developed delirium.

At the 12-month follow-up, 57% (n=52) of the sample resumed their usual pre-ICU activity. The median MRC values were 60 (59-60), the right dynamometry 29 (13-39) kg, the left 26 (19-37) kg, the 6MWT 440 (380-480) meters and the FAC scale 5 (4-5).

Regarding quality of life, there are no differences between patients who developed delirium and those who did not.

Conclusion(s): physical recovery is good although some patients have deficits. The development of delirium during ICU stay does not seem to determine a worsening of living conditions 12 months after discharge.

OP0704

The level of knowledge in nursing care of patients with EVD: comparison between Neurosurgical ICU and General ICU nurses

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Introduction: An EVD is a catheter inserted into lateral ventricle of the brain for monitoring intracranial pressure/draining CSF. Nursing care of patient with an EVD is complex, multidimensional; requires broad and evidence-based knowledge. These patients usually hospitalized in General or Neurosurgical ICU. Sub optimal level of knowledge among intensive care nurses may lead to poor quality of care, complications and less favorable outcomes.

Aim: Compare the level of knowledge on EVD usage between nurses in General and Neurosurgical ICU's.

Participants: Target population is ICU nurses, who care for patients with EVD. The sample is a convenience sample, nurses from both: General/Neurosurgical ICU.

Methods: A questionnaire surveyed the level of knowledge in nursing care for a patient with EVD. Descriptive statistics performed on general information. T test was performed to compare independent samples. We used Pearson correlations, ANOVA, T test to check other correlations.

Results: 154 nurses participated. 8 medical centers, divided equally between both types of ICU. Most of nurses were female (71.4%), age ranged between 23-65 years (av. 38.8 yo). Level of knowledge in care of patient with an EVD was sufficient among the Neurosurgical ICU nurses (av. 16.9 (3.22)). In comparison to the General ICU nurses, which was found insufficient (av. 14.07 (3.71)). The difference was found statistically significant ($p=0.0000$, $t(154)$) in average and in each of the three categories.

Conclusions: The finding of the study show that the knowledge in nursing care for a patient with an EVD is higher in the Neurosurgical ICU nurses in comparison to the General ICU nurses. It is recommended to enlist the general ICU nurses to participate in an educational course to enhance level of knowledge. Other knowledge enhancing strategies, can also be implemented to reduce the gap in knowledge and improve the quality of care in patients with an EVD.

OP08 GUIDELINES

OP0801

An evidence based guideline for intra-hospital transport of intensive care patients

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Introduction: Patients receiving intensive care are often transported out of the Intensive care Unit (ICU) due to the need for diagnostic radiology, procedures or transfer to other ICU's. Intra-hospital transport (IHT) of patients needing intensive care represents increased risk of adverse events. The risk of adverse events may be reduced by developing clinical guidelines for safe patient transfer. The guideline and a checklist was initially developed in 2005 at an ICU at Oslo University Hospital (OUH) Ullevaal. Important items in the checklist are preparation, monitoring during and after transport. The checklist is considered as useful and may promote patient safety. Research and feedback from staff suggest that the checklist should be designed in a better way.

Aim: To update an existing clinical guideline and a checklist for intra-hospital transport of critical ill patients.

Quality Improvement: OUH Ullevaal has four ICU's, all units performs IHT's daily. The hospital is a major trauma center in Southeast in Norway. A group of four critical care nurses and an anesthesiologist was established to work with the updating of the guideline. The updating followed the steps in the AGREE II (appraisal of guidelines research and evaluation) instrument.

Findings: The guideline has been updated according to international guidelines and research. The updated guideline recommends that the transport team should consist of intensive care nurses, an anesthesiologist and a porter. The team apply the identification, situation, background and assessment (ISBAR) tool before transporting the patient. Further, the guideline now recommends continuous CO2 monitoring during transport. Items related to systematic patient assessment and check of medical equipment, has been added to the locally adapted checklist.

Conclusion(s): Combining a literature review with clinical experience from intra-hospital transports may enhance patient safety. Feedback from staff who perform IHT's and evaluation of the checklist, is important in improving clinical practice.

OP0802

Guidelines and Current Practice in ICU Patients' Mobility - Is there a gap between practice and behavior?

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Introduction: Early mobilization has become a central part of ICU guidelines practice. The added value of mobility to common practice in critical care settings has been studied and shown an improvement in muscle weakness muscle metabolism, quality of sleep, and delirium. However, studies have not discussed the relationship between practice behavior guidelines and factors that hinder the actual practice.

Aim: The purpose of the current study was to describe the ICU mobility clinical practice behaviors and the factors associated with these behaviors

Method: This study was a multi-center descriptive retrospective one-day point prevalence study conducted in 6 medical centers in 2022. Data on ICU patient mobilization clinical behaviors and the barriers to mobilization were retrospectively collected for each patient. A year later, the study was repeated in one center after an intervention to raise nurses' awareness.

Results: The study included 210 patients, in 20 ICUs. About half (46%) were intubated and 31% were hemodynamically unstable. Position change was most frequently reported as the maximum mobility level. Charlson Comorbidity Index (CCI) and BMI were not related to the level of mobility. Only intubation was a significant predictor of mobility level ($R^2 = 0.52$, $p < 0.001$) in a multiple regression model.

A repeated study a year later in one center resulted in similar results, mechanical ventilation ($R^2 = 0.215$, $p < 0.001$) was a significant barrier to predicting early mobilization.

Conclusion: There is a gap between clinical practice guidelines and actual practice behavior. Subjective norms or common practices could be a barrier that explains the gap. To bridge the gap and for clinical implementation promoting a change in clinical practice behavior with proactive leadership, increasing awareness, and changing mobilization policies could potentially improve patient outcomes.

OP0803

A core outcome set for adult general ICU patients

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Introduction: Randomised clinical trials should ideally use harmonised outcomes that are important to patients. Core outcome sets for specific subsets of ICU patients exist, e.g., respiratory failure, delirium, and COVID-19, but not for ICU patients in general.

Aim: We aimed to develop a core outcome set for adult general ICU patients.

Settings & participants: Five Danish research panels contributed to the design, methods, result interpretation, and consensus meetings. An international validation of the core outcome set involved 22 research panels from 14 countries across Europe, Australia, and India. Participants included ICU survivors, family members, clinicians, and researchers in the research panels, while those participating in the survey and interviews were not part of these panels.

Methods: We developed a core outcome set in Denmark following the Core Outcome Measures in Effectiveness Trials (COMET) Handbook. We used a modified Delphi consensus process with multiple methods design, including literature review, survey, semi-structured interviews, and discussions with initially five Danish research panels, involving adult ICU survivors, family members, clinicians, and researchers. The core outcome set was also internationally validated and revised accordingly.

Results: We identified 329 published outcomes from the literature review with 50 outcomes included in the Delphi survey (n=264). No additional outcomes were added after the first survey round and the 82 interviews. The first survey round was completed by 249 (94%) participants, and 202 (82%) contributed to the final third round. The initial core outcome set comprised six core outcomes. International validation involved 217 research panel members and resulted in the final core outcome set, i.e.; survival, free of life support, free of delirium, out of hospital, health-related quality of life, and cognitive function.

Conclusions: We developed and internationally validated a core outcome set with six core outcomes to improve research, specifically clinical trials involving adult general ICU patients.

OP0804

Clinical practice guideline for follow-up of critically ill adults

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Introduction: Follow-up after critical illness and intensive care stay is recommended, for early identification of patients at risk for impaired physical, neurocognitive, and mental function. Referral to experts for identified problems are central for efficient recovery. However, sparse information is available on how this follow-up can be achieved and consensus regarding patient selection, time point, and content remains to be determined.

Aim: To describe and discuss the development of recommendations on how to organise and define the content of follow-up clinics after intensive care.

Quality improvement: A literature search was balanced against the values and preferences of clinicians, clinical experts, former patients, professional organisations, and registries. Literature was obtained from: PubMed, MEDLINE, Cochrane Library, Scopus and Psych INFO. The literature search was limited to reviews from 2007 to 2022. Workshops with clinical experts and focus group discussions with patient representatives complemented the dataset.

Findings: The guideline recommends that all patients with an ICU length of stay >2 days should be included in an ICU follow-up programme. The first follow-up visit should take place within the first week of ICU-discharge, followed by an invitation to follow-up clinics 2-3 months later. These should include recapitulation of the ICU stays and treatments, screening and identification of post-intensive care syndrome problems and referral to appropriate instances for adequate help.

Conclusion: This guideline supports the clinic to construct structured, uniform, and multi-professional activities to secure early identification and support of post-intensive care symptoms. The knowledge from patient follow-up could form the basis for improving intensive care.

OP0805

Establishing consensus on patient- and family-centered care in adult intensive care units: A Delphi survey

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Introduction: Patient- and family-centered care (PFCC) is gaining increased awareness and has been proposed to improve care and clinical outcomes. The Institute for Patient- and Family-Centered Care outlines four core concepts: dignity and respect, information sharing, participation, and collaboration. However, evidence for multicomponent PFCC in adult ICUs that incorporate all concepts of PFCC remains limited. An interdisciplinary approach incorporating PFCC concepts into daily ICU practice with concrete, context-specific actions is needed.

Aim: To establish consensus between intensive care unit (ICU) experts on concrete patient- and family-centered care statements for adult patients and relatives in the ICU.

Setting & Participants: A panel of ICU healthcare professionals from 23 ICUs in Denmark.

Methods: We did a three-round Delphi survey. In round 1, participants answered 20 open-ended questions, based on existing evidence. Analysis of their responses generated close-ended statements, which participants primarily rated on a five-point-Likert-scale, from very important to not important at all. In rounds 2 and 3, consensus was predefined as $\geq 75\%$ of participants rating a statement important.

Results: Sixty-nine participated: 38 nurses, 24 physicians, and four occupational and physiotherapists. In total 96%, 90% and 72% answered the first, second, and third rounds, respectively. In round 1, participants' answers resulted in >3000 statements that were analyzed into 82 condensed statements. After participants rated the statements in round 2 and 3, 47 statements reached consensus as important.

Conclusions: The 47 statements rated to be important included interdisciplinary approaches to systematic information sharing and consultations with patients and family-members, with the aim being to accommodate patients and family-members' individual needs throughout the ICU stay.

OP0806

Consensus Statements on Airway Clearance Interventions in Intubated Critically Ill Patients — a Delphi study

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Introduction: Intubated critically ill patients are susceptible to secretion accumulation because of compromised airway clearance. To address this, various interventions—such as endotracheal suctioning, humidification, nebulization, oscillatory-, and cough techniques—are employed. However, practice of these interventions varies widely with different criteria to initiate or cease, and some of them are used routinely in all patients, without a clear clinical indication. While potentially beneficial, some interventions may have adverse effects, may cause pain or discomfort, and contribute to medical waste. High-quality recommendations are lacking and available guidelines are largely based on clinical expertise combined with low level evidence. There is no international consensus concerning the practice of airway clearance interventions.

Aim: To generate consensus and identify dissensus on statements regarding the use of airway clearance interventions in invasively ventilated ICU patients. The study focuses on evaluating indications, contraindications, safety and effectiveness.

Setting & Participants: A diverse interprofessional panel of experts with clinical experience in invasively ventilated ICU patients and authorship in airway care research.

Methods: a Delphi method in two parts covering: (1) Humidification and Nebulization, and (2) Suctioning and Mucus Mobilization Techniques. Statements were developed from a comprehensive literature review. Iterative rounds with multiple-choice questions or 7-point Likert-scale statements were conducted until stable agreement or disagreement was reached.

Results: A diverse panel of 33 (17 female) experts from 5 continents participated. There is a variability of responses by experts. The Delphi summarizes consensus and dissensus on the use of airway clearance interventions.

Conclusions: These findings underscore variability in expert consensus and dissensus with regard to airway clearance interventions. Future studies should focus on evidence in relation to the statements for which dissensus was found.

OP09 FAMILY CENTRED CARE

OP0901

The patient experience of a nurse-written ICU-diary intervention: a cross-sectional survey

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Introduction: A diary written for ICU-patients might help fill in memory gaps and promote psychological recovery. In Norway ICU diaries are mainly authored by nurses and national recommendations ensure a systematic approach to the intervention. There was a knowledge gap regarding diaries written exclusively by healthcare professionals within a frame of detailed guidelines and studies describing the patient experience of nurse-written ICU diaries were needed.

Aim: To investigate patient experience of receiving and reading a nurse-written diary.

Setting and participants: A questionnaire was developed and distributed among 100 adult ICU-survivors recruited from seven ICUs in Norway.

Methods: This was a cross-sectional multicenter study. Data were collected from December 2020 to June 2023. Descriptive statistics were used to analyze the data.

Results: Among the 88 patients completing the survey, 90% were satisfied with the diary handover process. As many as 88% of the respondents agreed that the diary demonstrated good care, helped them realize how critically ill they were and understand why recovery takes time (76%), and made them grateful for surviving (74%). A third of the respondents (30%) reported that the diary saddened them, 6% reported that the diary reminded them of a time in their lives they would rather forget, while 17% reported that critical events were missing in the diary. However, nearly all patients were in favour of continuing the diary intervention (98%).

Conclusion: ICU survivors who received a nurse-written diary were generally satisfied with both the experience of receiving and reading the diary and recommended the intervention to be sustained. Regarding implications for practice, the handover of the diary should be more individualized both in timing and manner to suit the individual ICU survivors' preferences. For further improvement, nurses should be encouraged to keep writing throughout the whole ICU trajectory and avoid leaving out critical events.

OP0902

Intensive care nurses' attitudes about the importance of family involvement in adult intensive care: a multicentre cross-sectional study

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Introduction: Admission to the intensive care unit (ICU) is stressful for family members and families. Involving family members in nursing care is expected to be beneficial for patients and families. Nurses are identified as key professionals to offer support for family members and who can involve family members in care activities.

Aim: To examine the attitude of ICU nurses towards involving family members in nursing care and to investigate the association of demographic and professional characteristics of ICU nurses and ICU organisational features with these attitudes.

Setting & participants: The survey was distributed to ICU nurses in ten hospitals across the Netherlands.

Methods: The study used a cross-sectional design and distributed via email the survey Families Importance to Nursing Care (FINC-NA) scale. Data were analysed using descriptive statistics and multivariable linear regression analyses to identify independent predictors.

Results: The FINC-NA questionnaire was completed by a total of 583 ICU nurses, with a response rate of 42%. The mean (SD) attitude of ICU nurses was 73.3 (8.78) on a scale of 22–110. ICU nurses were less positive towards actively inviting family members in nursing care and perceiving families as burdensome. ICU nurses working more clinical hours per week and ICU nurses working in an academic hospital compared to a teaching hospital were significantly associated with a less positive attitude towards family involvement. Analyses of subscales showed comparable results.

Conclusion: In general, ICU nurses showed a less positive attitude towards involving families in care. This study demonstrates that education on family involvement should be emphasized during ICU specialty training as well as in clinical practice. Further research is needed to identify how ICU nurses, especially the ones who work more clinical hours and in an academic hospital, can reach acceptance of involving family members in care activities.

OP0903

THE FAMILY MEMBERS' RECOLLECTIONS OF THE JOURNEY OF A PATIENT RETRIEVED ON ECMO: A QUALITATIVE STUDY

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Background: Retrieving and transporting patients from peripheral hospitals to high-volume extracorporeal membrane oxygenation (ECMO) centres aim to minimise complications and enhance survival rates.

Aim: To describe the experiences of family members when their loved ones are transferred from a general to a specialised hospital by a Mobile ECMO team.

Study design: Semi-structured phone interviews with thematic analysis. Family members of “ECMO-patients” discharged from an Italian general intensive care unit were recruited for the study. The data analysis followed the principles of thematic synthesis.

Findings: We conducted six phone calls from family members eligible for the study. Three main items and nine subthemes were generated from their interview data:

1-The “Wait” (subthemes: *Fear, despair, and anguish; Disbelief; Confusion and disorientation; Daily clinical news*),

2- The “Trust” (*Trust in healthcare professionals, Hope and optimism, Technology*), and

3- The “Gratitude” (*Fortune and awareness; Commitment, humanity, and to take care of*).

Each relative's experience was unique; however, several common behaviours and emotional patterns emerged during the interviews. The journey of patients on ECMO was experienced as a relationship among patients, family members, and healthcare professionals.

Conclusions: The family members’ experience with ECMO patients indicates that ECMO is perceived as a crisis-focused intervention that provides last-minute hope. Despite the dire circumstances, the narratives shared by the interviewees provided the ability to reflect on their experiences in the ICU.

Relevance to Clinical Practice: Incorporating the perspectives of patients’ families in future qualitative research and follow-up programs for ICU survivors may offer additional insights on how the journey of a patient on ECMO is experienced by family members. Involving family members is crucial when providing care for critically ill patients.

OP0904

Participation in the ICU from relatives’ point of view

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Introduction: The intensive care environment in combination with the patient’s severe illness can lead to existential questions and is challenging when it comes to participation for both patients and their relatives. There are still lacking reports of the phenomenon of the overall meaning of participation during intensive care from the relatives’ point of view.

Aim: To explore the meaning of participation in the ICU from the close relative’s perspective.

Setting & participants: The ICU where the study was conducted is part of a moderately large hospital in southern Sweden that cares for patients of different ages with various diagnoses. A strategic sampling of close relatives from the post ICU follow-up were included. For this study, a relative is defined as a person with close relationship (i.e partner and or child) with someone who was treated at an ICU.

Methods: A qualitative study design was used. Data was collected through individual interviews and analysed using a thematic analysis.

Results: Twelve persons agreed to take part in the study, nine females and three men. The analysis resulted in a theme: Participation from the relative’s perspective is conditional with three subthemes; Being at the center of the event, being accepted as a person and being informed.

Conclusion(s): The participation of relatives in intensive care is often described as a conditional process, dependent on various contextual factors such as the caregivers' initiatives, the physical presence of the family, and access to information. While caregivers play a crucial role in facilitating relatives' participation and can take many forms, each with its own set of challenges and opportunities. Implications for daily ICU practice: strengthen communication structures, promote continuity in care relationships, utilize technology to enhance remote participation and focus on a relational care foundation.

OP0905

The impact of a digital intensive care unit diary on mental well-being and satisfaction of Patients' Relatives

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Introduction: Relatives of ICU patients often experience significant psychological stress, affecting their mental health. ICU diaries have been shown to help families cope, but the impact of digital ICU diaries has not yet been explored.

Aim: To evaluate the impact of a digital ICU diary on the mental well-being and satisfaction of ICU survivors' relatives.

Setting & Participants: Two groups of ICU survivors' relatives were studied, one with and one without digital ICU diary use. Relatives were assessed one-month post-ICU admission across four Dutch ICUs between April 2023 and September 2024.

Methods: This quantitative multi-center pilot study assessed post-traumatic stress disorder (PTSD) symptoms using the Impact of Event Scale-Revised (IES-R; range 0-88; cutoff >22) and anxiety and depression symptoms using the Hospital Anxiety and Depression Scale (HADS; range 0-21; subscale cutoff >8). Satisfaction with nursing communication and support for relatives was rated on a 0-10 scale. Group comparisons were made using χ^2 tests for dichotomous variables and Mann-Whitney U-tests for satisfaction scores ($p < 0.05$).

Results: A total of 34 relatives with a digital ICU diary and 67 without were included. The median age was 52 [IQR 38-62] in the diary group and 58 [IQR 48-70] in the no-diary group. Spouses comprised the majority in both groups (55.9% versus 65.7%). PTSD symptoms were reported by 32.4% in the digital diary group and 34.3% in the no-diary group ($p = 0.513$). Similarly, no differences were found in anxiety or depression. However, nursing communication (median 9 [IQR 9-10] versus 8 [IQR 7-9]) and support for relatives (median 9, [IQR 8-10] versus 8, [IQR 6-9]) were rated significantly higher in the digital diary group ($p < 0.001$).

Conclusion: While the digital ICU diary did not reduce PTSD, anxiety, or depression symptoms, it improved satisfaction with nursing communication and support for relatives, suggesting benefits for family-centered care.

OP1001

The association between V-A ECMO flow strategy and weaning success in patients with severe cardiogenic shock

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Introduction: Recovery of a severely failing heart may be impeded by the retrograde blood flow imposed by veno-arterial extracorporeal membrane oxygenation (V-A ECMO). A gradual lowering of V-A ECMO flow over time (*gradual weaning strategy*), versus maintaining a consistently high flow (*sustained high flow strategy*), could potentially augment cardiac recovery.

Aim: To investigate whether a gradual weaning strategy, versus a sustained flow strategy, is associated with higher probability for V-A ECMO weaning.

Setting and participants: Patients supported with V-A ECMO for refractory cardiogenic shock (CS) from six intensive care units in the Netherlands.

Methods: Patients were categorized into the gradual weaning strategy group when the temporal change in indexed V-A ECMO flow (last known flow – baseline) during therapy was $\geq 0.5\text{L}/\text{min}/\text{m}^2$ or sustained flow strategy if this difference was $< 0.5\text{L}/\text{min}/\text{m}^2$. The effects of ECMO flow strategy on weaning success and one-year mortality were studied by univariable and multivariable logistic regression.

Results: 233 patients (mean age 57.0 (SD 14.6), 70.4% male) with severe CS after cardiac surgery (42.4%), ECPR (21.5%), and myocardial infarction (13.7%) were included. Of these, 69 patients (29.6%) were classified as gradual weaning strategy, had a higher rate of weaning success (65.2% vs. 40.9%, $p < 0.001$) and a lower one-year mortality rate (30.4% vs. 57.9%, $p < 0.001$). Gradual weaning strategy was associated with improved weaning success (adjusted OR = 2.28, 95%-CI [1.27–4.53]), and lower one-year mortality (adjusted OR = 0.33, 95%-CI [0.17–0.64]).

Conclusion(s): A gradual V-A ECMO weaning strategy was associated with higher weaning success rates and lower mortality in refractory CS patients. Further research is needed to determine the optimal timing for flow reduction, considering daily flow changes and time-dependent confounders. If gradual weaning strategy is found to be superior, this could translate into protocols where nurses taper V-A ECMO flow according to study-based criteria.

OP1002

Cannulation-related wound complications in extra corporeal life support patients: incidence and risk factors

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Introduction: Extracorporeal life support (ECLS) is a high-risk therapy for acute cardiac or respiratory failure. After weaning, wound healing at the cannulation site is often disrupted, leading to delayed recovery, increased nursing workload, and higher costs. Available data on this issue is limited.

Aim: This study describes the incidence and characteristics of cannulation-related wound complications (CRWCs) in ECLS patients, defined as disturbed wound healing at the cannulation site >72 hours after decannulation.

Setting & participants: A retrospective, single-center cohort study in Intensive Care Unit patients at St. Antonius Hospital, Netherlands. Between 2018 and 2023, successfully weaned ECLS patients treated with veno-venous (VV) or veno-arterial (VA) ECLS >24 hours were included.

Methods: Descriptive statistics were used to describe the incidence and characteristics of CRWCs. Risk factors for CRWCs were assessed using univariate logistic regression analysis.

Results: A total of 73 patients were included, of whom 33 (45%) had 37 CRWCs. CRWCs were characterized by fluid leaks (90%), wound dehiscence (70%), tissue necrosis (76%) and/or wound infection (57%). The first signs of a CRWC appeared at median day seven (IQR 5-9 days) after decannulation, primarily in the groin (97%). Compared to patients without CRWCs, patients with CRWC were older (65.0 vs 54.0 y, $p=0.024$) and had lower nadir serum albumin concentration (16.8 \pm 5.3 vs 20.1 \pm 5.3 g/L, $p=0.009$). VA cannulation (OR 4.50, 95% CI 1.60 - 14.22, $p=0.006$) and blood leaks at the cannulation site (OR 4.27, 95% CI 1.63 - 11.87, $p=0.04$) increased the odds for a CRWC. Wound healing was still incomplete in 17 patients at hospital discharge.

Conclusion(s): CRWCs occur in nearly half of all successfully weaned ECLS patients, mostly in the groin. Risk factors include older age, lower albumin concentration, VA cannulation and blood leaks during ECLS-run. It is important to identify at-risk patients and manage potential CRWCs.

OP1003

SIMULATED HAEMODYNAMIC PARAMETERS AND DIFFERENT INFUSION SET-UP AFFECT DRUG DELIVERY DURING SYRINGE PUMP CHANGE OVER: A BENCH-TOP STUDY

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Background: Infusion therapy is widely used in clinical settings, particularly in intensive care units. Syringe infusion pumps are commonly used for precise continuous intravenous drug delivery. Syringe pump changeover can be a challenging procedure.

Aim: to explore different variables that may impact on "bolus" or "backflow" events during syringe pump changeover by keeping a constant flow which simulates a constant cardiac output.

Methods: bench-top study in a laboratory setting. An extracorporeal circuit with a centrifugal pump was used to simulate a cardiac output of 5 l/min. The following variables were investigated: three levels of vertical position of the syringe pump (-50 cm, 0,+50 cm), three levels of Central Venous Pressure (CVP) (-5, 10, 15 mmHg), presence/absence of carrier infusion (5 ml/h), and presence/absence of a needle-free connector between the syringe and the extension line.

Results: A total of 108 syringe pump changes were performed with different combinations of the investigated variables. The mean time for syringe pump changeover was equal to 9.48 ± 2.45 seconds and the overall fluid displacement was 8 ± 40 μ L (microlitres) (range, -262 - 156 μ L). The CVP level and vertical position of the pump significantly affected the overall fluid displacement during syringe pump changeover. When a second infusion with an equal velocity rate to that of a syringe pump infusion was present within the same lumen, the presence of a needle-free device reduced the overall volume of displacement.

Conclusions: Syringe pump changeover can be critical for patients undergoing vasoactive drug administration.

Implications for clinical practice: In a simulated environment with a cardiac output of 5 L/min, the CVP level and vertical position of the syringe pump generated bolus or backflow events during syringe pump changeover. The application of carrier infusion appeared to intensify these phenomena. Employing a neutral, needle-free system may limit the delivery of boluses or backflows.

OP1004

Complications associated with intra-aortic balloon pump in critically ill patients: A systematic review

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Introduction: In recent decades, intra-aortic balloon pump (IABP) technology has made significant progress in reducing complications and increasing patient support. Nonetheless, IABP-related complications are still frequent and are associated with a poor prognosis.

Aim: The aim of this systematic review was to identify complications associated with IABP treatment in critically ill patients with a compromised cardiac function.

Setting & participants: Studies focusing on complications of IABP treatment were included.

Methods: A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines based on searches in CINAHL, Medline and Embase from January 2012 to April 2023. In total 12,854 publications were identified. Quantitative studies were included if they reported as their primary outcome(s) complications of IABP in adult patients because of cardiovascular conditions. Study selection, methodological quality assessment and data extraction were performed independently by two authors. The results were synthesized narratively.

Results: A total of nine studies were included in the review, of which eight were retrospective. Bleeding was the most frequently occurring complication, followed by limb ischaemia, stroke, infection, IABP malfunction, haematoma and other vascular complications. In addition, a correlation between IABP duration and vascular complications was found in three out of nine studies. Lastly, the incidence rate of stroke was higher in patients with axillary IABP than in those with femoral IABP.

Conclusions: This systematic review revealed that bleeding and limb ischaemia were the two most frequent complications associated with IABP therapy. We identified a correlation between (a) IABP support time and the development of vascular complications and (b) stroke and implantation of IABP catheter in the axillary artery. Further studies are needed to explore these findings directly. Increasing critical care nurses' knowledge regarding complications related to IABP support could lead to early identification, potentially lowering the incidence rate of complications.

OP1005

The effect of vasopressor agents on pressure injury development in intensive care patients

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Introduction: Vasopressors are life-saving agents that increase mean arterial pressure. The pharmacodynamic features of these agents and previous studies suggest that vasopressors may be an essential risk factor in developing pressure injuries.

Aim: This study aimed to examine the effect of vasopressors in medical-surgical intensive care patients on pressure injury development.

Setting and Participants: This retrospective and correlational study was conducted between March 2021- May 2022. The electronic patient data were obtained from 148 surgical and medical patients exposed to vasopressor agents in the intensive care unit.

Method: Data on patients' demographic and clinical characteristics were evaluated using descriptive statistical methods (number, percentage, mean, standard deviation). Logistic regression modelling was used to assess independent relationships with pressure injury risk; results are reported as odds ratios (OR) and 95% confidence intervals (CI).

Results: All patients were given norepinephrine agents, and dopamine infusion secondary to norepinephrine was found in only 28.3 % of patients (n = 42). Pressure injury incidence was 43.2 % (n = 64). Duration of norepinephrine infusion was recognized as an independent risk factor for ICU-acquired pressure injury development (OR 1.22, 95 % CI 1.11–1.35), while a medical admission diagnosis (instead of surgical) was protective against pressure injury risk (OR 0.24, 95 % CI 0.10–0.59).

Conclusion: This study provides an important clue about norepinephrine, a statistically significant risk factor for pressure injury development. Therefore, the goal should be to transform evidence into concrete information that healthcare providers can incorporate into daily practice.

OP11 PATIENT COMFORT

OP1101

Understanding the Impact of Intensive Care on Relatives of COVID-19 Survivors: A Psychosocial Perspective

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Introduction: Previous studies have shown that the presence of relatives in the intensive care unit is important for recovery both for patients and relatives. During the pandemic, visiting restrictions were implemented, which have negatively impacted patient outcomes and quality of care, which subsequently also affected relatives. Despite this, there has been a lack of research on the well-being of relatives and how they have experienced the psychosocial support from healthcare.

Aim: to explore experiences of care, psychosocial support, and psychosocial well-being among relatives of COVID-19 survivors treated in ICU.

Setting and participants: 15 relatives to Covid-19 survivors treated in ICU at Karolinska University hospital was included.

Method: A qualitative method with an inductive approach was conducted, involving interviews using a semi-structured interview guide. The digital interviews were analyzed using content analysis.

Results: Three categories were formed – a disrupted foundation, the importance of support, and being secured by information. Relatives encountered challenges related to visiting restrictions, which contributed to their sense of disconnection from their loved ones. Consequently, the need for emotional support became increasingly pronounced, with many individuals deriving comfort in interactions with other family members. Telephone communications from the ICU became a lifeline for the relatives, providing them with valuable information. However, they still faced significant emotional turmoil due to uncertainty surrounding the illness and prognosis.

Conclusions: A substantial burden of responsibility was placed on relatives to serve as the first point of contact, a role for which they were unprepared. This dynamic created a significant demand for psychosocial support that the healthcare system sometimes was unable to adequately provide.

Additionally, the phone calls functioned as a delicate balancing act; while relatives valued and found comfort in these communications, they simultaneously endured considerable stress and anxiety related to the anticipation of calls and the potential for adverse news.

OP1102

Collaboration with patients and family members improves care in the intensive care unit

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Introduction: Patients and family members play an important role in improving healthcare quality in the intensive care unit (ICU) since they have unique insights into needs, values, and experiences. Many organisational leaders recognise the value of such partnerships but are unsure how to initiate the collaboration.

Aim: To describe how a patient and family member collaboration was organised and managed in an ICU in Sweden.

Setting & Participants: In 2022, five former patients and one family member were recruited from two ICUs in two regional hospitals in Stockholm, Sweden. Two ICU nurses and one physician formed the group together with the patients and the family members.

Methods: From January 2023, regular meetings have been held four times yearly. Meeting notes are taken, and decisions are discussed with the ICU management.

Results: The collaboration has resulted in a publication in a popular science magazine highlighting the needs of ICU survivors and their families after hospital discharge. Research projects have been discussed to include a more patient- and family-focused perspective. The collaboration has also contributed to developing information folders about survivorship after critical illness and national conference arrangements for patients, their families, ICU clinicians, and researchers. All group members highly value the collaboration.

Conclusions: Patient and family collaboration is essential for developing patient-relevant changes in the ICU, and we suggest that the initiative be a permanent solution supported by policymakers and hospital management.

OP1103

Thirst in adult patients in the intensive care unit: a scoping review

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Introduction: Thirst is one of the most intense symptoms reported by intensive care unit (ICU) patients. There has been an increased focus in the literature on the subject, stressing the importance of improving the quality of thirst care, but a systematically executed exploration of literature was still lacking.

Aim: To review the literature on thirst in ICU patients and report potential causes, risk factors, diagnosis and measurement tools, as well as potential co-occurrence with other distressing symptoms, and the management of thirst in the ICU.

Design: A scoping review employing the Joanna Briggs Institute methodology.

Methods: PubMed, MEDLINE, EMBASE and CINAHL were searched from inception to April 2024. Any type of empirical study reporting thirst or associated xerostomia in adult patients (≥18 years) admitted to an ICU or high dependency unit for more than 24 hours were included.

Results: The search yielded 907 unique records, and after evaluating 65 full-text publications, 21 studies were included. Thirst intensity was addressed most often (eleven studies), whereas the experience (or quality) of thirst and the validation of a measurement instrument, were addressed in only one study. Although co-occurrence of symptoms was addressed in four studies, only one pilot study looked into the interaction of thirst with other symptoms. Intervention studies have been focussing primarily on mouth-care interventions.

Conclusion: Thirst is a distressing symptom in the ICU, with reported high prevalence and intensity. Knowledge about its causes, interventions that incorporate minimizing its risk, occurrence and intensity are limited.

Health care providers should acknowledge thirst as a prominent symptom for ICU patients. They should possess knowledge on the factors that potentially evoke or aggravate thirst. Regular and timely relief of thirst by oral care with cold swabs and the application of menthol can be regarded as a first choice of intervention.

OP1104

“Minor things of major importance” – nurses’ experience of using the “Comfort bundle” when caring for critically ill patients

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Introduction: Patients in intensive care units (ICU) experience both pain and other discomforts. There is need for structured assessments and evidence-based initiatives to improve patients’ experiences during intensive care. We developed a “Comfort bundle” presented as an illustrated wall-hung bedside whiteboard aiming to display individualized comfort measures and matters important to the patient. On the back of the board, knowledge-based interventions are listed to inspire and remind nurses to systematically plan and promote comfort to the ICU patient.

Aim: To investigate nurses’ experience of using the newly developed “Comfort bundle” for critically ill patients.

Setting and participants: Eighteen nurses employed in three Norwegian adult ICUs where the “Comfort bundle” had been implemented.

Methods: A qualitative study using focus group interviews to collect data. Thematic analysis was used.

Results: The overarching theme “Minor things of major importance” was abstracted from the following main themes resulting from the analysis; “Satisfaction in nursing through person-centered care”, “Acknowledging the importance of next-of-kin through involvement” and “Balancing content to target patients’ actual needs”. The nurses descriptions of using the “Comfort bundle” correlated well with the intentions of contributing to a more systematic and individualized nursing care, inspired the nurses’ work, and enhanced family involvement and communication about patient needs. Although the participants considered the nursing care to become more structured and person-centered, they expressed concerns about the lack of continuous evaluation of the bundle content and hence updated and relevant information.

Conclusion: The nurses experience of the “Comfort Bundle” as contributing to an increased focus on comfort and more personalized care, as well as enhanced family involvement, justifies recommending its use in other ICUs. Yet, attention should be paid to the need for more continuous evaluation and update of the individual bundle. Research on patients' and family members' experiences regarding the “Comfort bundle” is needed.

OP1105

From Personalized Care to Appropriate ICU Care – Improving Outcomes for Patients undergoing Cardiac Surgery

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Introduction: Worldwide, patients are admitted to the ICU following elective cardiac surgery. Due to improved prevention strategies, such patients are older and increasingly frail, often resulting in high-complex care that ultimately does not yield the expected benefits in terms of survival and quality of life. In order to prevent inappropriate procedures and consequently unwanted ICU care, the need for a comprehensive assessment and a shared decision-making process is of great importance.

Aim: The goal of our quality project was to provide more appropriate, personalized care to frail elderly patients who are candidates for cardiac surgery.

Improvement: We established a novel outpatient clinic led by nurses with expertise in critical care. The concept was developed in collaboration with geriatricians, cardiothoracic surgeons, nurses, and quality improvement staff. During a 60-minute outpatient clinic visit, various topics were discussed, including an analysis of treatment options and an exploration of the patient's expectations, personal preferences, and goals. In addition, cognitive and physical tests were performed to assess the patient's frailty. The nurses then presented the findings of the outpatient clinic in a multidisciplinary team meeting, after which a joint decision was made on the most appropriate treatment for the patient in question.

Results: More than 100 patients visited the outpatient clinic and experienced it as an enrichment of care, as it focused on their personal situation. Additionally, an important advantage of the clinic was the rapid assessment of the frailty of the patient, which helps in selecting the most suitable, personalized treatment plan.

Conclusions: In today's healthcare, there is an increasing emphasis on appropriate, person-centred care. Nurse-led outpatient clinics, such as the one we have developed, serve as an example of this approach, ultimately leading to quality improvement and a reduction in inappropriate care in the ICU and in general.

OP1106

Patients' comfort in ICU: Italian translation and cultural adaptation of IPREA questionnaire

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Introduction: Critically ill patients often experience discomfort during their stay in the intensive care unit (ICU). This discomfort may stem from environmental factors, the organization of care, or specific therapies and treatments. Gaining insights into patients' experiences and the sources of their discomfort can help clinicians in developing strategies to improve the environment, quality of care, and communication with patients. The IPREA questionnaire, which assesses patients' self-reported discomforts in the ICU, is currently available only in French and English.

Aim: This study aims to translate and adapt the 18-item IPREA questionnaire to the Italian context.

Quality Improvement: Linguistic validation of the instrument followed the steps outlined in the Mapi Research Trust guidelines: conducting a content and concept analysis of the IPREA questionnaire 18 domains, performing forward and backward translations, reviewing the final Italian translation with two clinical experts and performing cognitive interviews to a sample of patients.

Findings: An Italian translation of the 18-item IPREA questionnaire has been approved by Mapi Research Trust and is now available for clinical and research use in Italy.

A study protocol has been created and proposed to Italian ICUs.

Conclusion: The Italian version of the IPREA questionnaire enables the assessment of discomfort sources as recalled by critically ill patients. The 18 domains of discomfort in the instrument should be integrated into daily ICU practices to guide healthcare professionals in creating a more human-centered care environment in Italian ICUs.

OP12 CLINICAL PRACTICE; RESPIRATORY

OP1201

Effects of different set-up used for endotracheal suctioning on airway parameters in a bench model of protective ventilation

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Introduction: The American Association of Respiratory Care 2022 endotracheal suctioning guidelines recommend that suction catheters should occlude < 70% of the ETT lumen in adults with no indications when procedures are performed in patients with ARDS with or without extracorporeal membrane oxygenation. Recent ESICM guidelines for ARDS patients recommend a tidal volume of ≤ 6 ml/Kg ideal body weight during mechanical ventilation.

Aim: To investigate how this recommendation affects the PEEP level, plateau level, and tidal volume when different mechanical ventilator setups are used during endotracheal suctioning performed with a closed system.

Methods: A benchtop study was conducted using the ASL 5000® Lung Simulator and EVITA V800 ventilator set for volume control. We evaluated three different endotracheal suctioning procedures for every combination of the following parameters: respiratory rate: 10,16,24, Tidal Volume. 420 and 280 ml; PEEP level, 5 and 10 cmH₂O, simulated lung compliance, 30 and 50 ml/cmH₂O, endotracheal tube diameter, 7 and 8; endotracheal closed suctioning catheter diameter, 12 and 14 Fr.

Results: The mean difference with respect to the baseline value recorded during the 576 simulated endotracheal suctioning procedures was equal to -4.43 (± 6.46) cmH₂O for the PEEP level, -8.55 (± 7.51) for the plateau pressure, and -154 (± 105) ml for the tidal volume.

A statistical difference with respect to the baseline value was observed when the ratio between the closed suction catheter and diameter of the endotracheal tube was $> \frac{1}{2}$. The highest value of reduction of the investigated parameters was observed when the respiratory rate was equal to 10 with a tidal volume of 280 ml.

Conclusions: The recommendation with respect to the ratio of $\frac{1}{2}$ between the closed suction catheter and the diameter of the endotracheal tube, present in the previous AARC guidelines (2010), seems to be safer for preventing lung derecruitment in a simulated environment.

OP1202

An investigation of the barriers to care of adults' patients with a temporary tracheostomy in hospital: a qualitative secondary analysis

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Introduction: An investigation of barriers to care for adult patients with a temporary tracheostomy in a hospital setting is essential to ensure that these patients receive the highest quality of care and to identify areas where improvements can be made.

Aim: To investigate intensive care nurses and registered nurses' perceived barriers and to providing optimal nursing for adult patients with a temporary tracheostomy in intensive care and general wards.

Design: This paper was based on a secondary qualitative analysis of two primary qualitative studies, including narrative interviews and maximum variation sampling.

Methods: The analysis as based on interview data collected from six intensive care nurses and six registered nurses from two university teaching Hospitals in Norway. The interviews were audio-recorded and transcribed. Data was analyzed by the qualitative data analysis suggested by Graneheim & Lundman.

Results: Four main themes were identified: encountering ambivalence, inadequate Staffing levels, lack of patient continuity of caring, and lack of systematic follow-up.

Conclusion: Understanding of barriers to care was crucial for hospital and healthcare organizations to develop targeted interventions and educational programs to address these barriers, as well as improve the care provided to adult patients with tracheostomies in hospital settings.

Clinical Implication: Understanding and addressing barriers to care for adult patients with tracheostomies in a hospital setting could have a profound impact on the quality of care, patient safety, and the overall healthcare experience for these patients, by identifying and mitigating these barriers, healthcare organizations could enhance their ability to provide safe, effective, and patient-centered care to vulnerable population.

OP1203

Do filters impact humidity level within helmet-CPAP powered by Venturi system? Insights from a bench top study

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Introduction: Helmet-CPAP (Continuous Positive Airway Pressure) is a commonly used non-invasive respiratory support for hypoxemic respiratory failure. Filters are placed within the circuit to reduce noise generated by high gas flow and to improve patient tolerance. We aim to evaluate the effects of different filters added to a helmet CPAP circuit using a Venturi system on changes of flow, FiO₂, and Absolute Humidity (AH) inside the helmet-CPAP.

Materials and methods: We set a bench study using a helmet-CPAP powered by a VENTURI system with seven types of filters (5 HEPA and 2 HME). We evaluated flow, FiO₂ e AH inside the helmet at three different conditions: without filters; with one filter positioned downstream the flowmeter; and with two filters of which one downstream the flowmeter and another upstream of the helmet port. Three different FiO₂ levels (35%, 55%, 75%) were used for each measurement. A flow of 60L /min and a PEEP of 10 cmH₂O was maintained throughout the study.

Results: The presence of filters led to FiO₂ increase (p= 0.0015) and to airflow (p=0.003) and AH decrease (p=0.0005). These findings were larger in the presence of both filters. At each step, the higher the FiO₂ (35%, 55%, and 75%) the lower the AH (p=0.0468, p=0.0001, p=0.001, respectively).

Discussion: The presence of filters decrease airflow and increases FiO₂ levels, accordingly. At FiO₂ settings of 35% and 55% the AH is close to the target of 10 mgH₂O/L even with dual filtration. FiO₂ setting of 75% led to a AH decrease below the AH safety threshold, suggesting the need of an humidification. In conclusion, an FiO₂ setting above 55% during helmet CPAP powered by a Venturi system does not allow to target safe humidity level, while lower FiO₂ levels allow safe humidity levels.

OP1204

ICU nurses' acceptance of INTELLiVENT-ASV, an automated mechanical ventilation mode, compared to conventional ventilation in critically ill patients

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Introduction: Automated ventilation is becoming increasingly common in recent years. INTELLiVENT-ASV (iASV) one such mode, automatically adjusts ventilator settings using algorithms and real-time physiological input from the patient, based on the lowest work- and force of breathing. These automated adjustments alter the role of the ICU nurse, particularly in managing ventilator settings.

Aim: The aim of this study was to compare the user-acceptance and System Usability Score (SUS) of iASV versus conventional ventilation among ICU nurses. We hypothesized that iASV results in a higher user-acceptance score and SUS.

Setting & Participants: This study was conducted over a two-month period at the ICU of the Amsterdam UMC, the Netherlands. Twenty-five patients were included, and the ICU nurses responsible for their care were asked to participate by completing a questionnaire.

Methods: A questionnaire consisting of twenty-six questions, based on the Technology Acceptance Model 2 and the SUS, was completed by ICU nurses following their shift. The questionnaire allowed for the calculation of both a user-acceptance score and a SUS. Additionally, in-depth interviews were conducted to gather qualitative insights on the perceived benefits and drawbacks of iASV and conventional ventilation.

Results: A total of 57 ICU nurses participated in the study, completing 118 questionnaires. The user-acceptance score for iASV was 7.69 (SD 1.59) compared to 8.08 (SD 0.96) for conventional ventilation (P=0.034). Similarly, the SUS for iASV was significantly lower at 68 (SD 12.84) compared to 76.14 (SD

9.28) for conventional ventilation (P=0.001). Interviews with eight ICU nurses revealed that the need for external sensors and a thorough understanding of the algorithm were perceived as drawbacks of iASV. Perceived benefits were automated fine-tuning of ventilatory settings and seamless switching between supportive and controlled ventilation modes.

Conclusion: ICU nurses scored a lower user acceptance and usability for iASV compared to conventional ventilation.

OP13 ENVIRONMENTAL SUSTAINABILITY

OP1301

“In ICU I Don't Have Time To Sort Waste Or Implement Sustainable Behaviors”: A Qualitative Content Analysis

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Introduction: Climate change poses an unprecedented threat to human health and healthcare delivery worldwide. Projections predict that by 2030 the direct costs of health deriving from climate change effects may reach 2 to 4 billion U.S. dollars per year. Intensive Care Units (ICUs) are the primary producers of greenhouse gas emissions within hospitals. Nurses represent a large portion of the healthcare workforce and can be pivotal in promoting sustainability practices. It is necessary to study the ecological thinking and phenomena of nurses, as environmental sustainability is becoming a crucial element for the WHO, and it is also necessary to develop an eco-centric nursing culture.

Aim: Is to investigate the concept of environmental sustainability through the lived experiences of ICU nurses.

Setting & participants: The sample was enrolled in the ICUs of two hospitals in central Italy. All participants were informed and gave consent for participation of the study

Methods: A qualitative content analysis was conducted using 27 ICU nurses' in-depth interviews, each of which included an open-ended question. A group of researchers who worked independently then examined and categorized the transcripts that had been gathered. The extrapolated notions were analyzed using the Neem M. (2022) methodology. A grant from the Center of Excellence for Nursing Scholarship, Rome, July 2024, is funding this research.

Results: Time to know, define critical issues and improve in the direction of green health care practice is the conceptualization of sustainable behaviors experienced by ICU nurses.

Conclusions: It is the responsibility of ICU managers to encourage teams to practice environmentally conscious behaviors so that these practices become accepted practices in the critical care unit and are not limited to the actions of a few mindful nurses. Enforcing the green nursing mindset in the ICU required careful consideration of the major concerns and definition of sustainable behaviors.

OP1302

A mountain of waste created daily: Postgraduate intensive care nursing students' experiences of environmental sustainability

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Introduction: The healthcare sector has a negative ecological impact, and intensive care is one of the most resource-consuming areas. Nurses have a duty to contribute to climate change reduction, design climate-resilient healthcare systems, and support individuals and communities in adapting to the effects of the planetary health crisis. It is essential to incorporate environmental sustainability into nursing education so that nurses can advocate for conscientious and ethically sustainable healthcare that benefits both patients and the planet.

Aim: To explore postgraduate intensive care nursing student experiences of environmental sustainability in clinical practice at intensive care units. .

Setting & participants: The participants were 24 registered nurses studying postgraduate, specialist intensive care nursing courses at four universities in the south and west regions of Sweden.

Methods: This study obtained approval at the participating universities and followed the guidelines of the Declaration of Helsinki. Data were collected using a qualitative questionnaire, and the data were analysed using inductive thematic analysis.

Results: Intensive care is a challenging context in terms of sustainability, where saving lives is the number one priority. There were good and bad sustainability habits among the staff, and awareness was key to improving. Clinical supplies come in unsustainable packages, and the participants wished for better alternatives, and they wanted more knowledge and education on sustainable practices. The findings also emphasized the importance of a holistic perspective throughout each patient's pathway.

Conclusion(s): Sustainability in intensive care units is somewhat unrecognised today, although intensive care nurses want that to change. The context where saving lives is prioritized makes implementing ecologically responsible practices a challenge. However, environmental sustainability in intensive care is feasible, with education needed for nurses to take on the responsibility of making improvements. Hospital management prioritizing sustainability is important to support clinicians in implementing sustainable practices in intensive care units

OP1303

Open Versus Closed Suctioning in Invasively Ventilated Critically Ill Patients for Sustainability of ICU Care: A Life-Cycle Assessment Comparison

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Introduction: Care for critically ill patients relies heavily on disposables and generates a large amount of waste. For example, invasively ventilated ICU-patients receive various airway care interventions to clear secretions from the upper and/or lower airways. Endotracheal suctioning is most commonly used, up to 8-17 times per day. Endotracheal suctioning can be performed in two ways: closed suctioning (designed for multiple uses within 1-3 days), and open suctioning (a single-use catheter).

This study analyzed the environmental impact of two such methods to guide healthcare workers in environmentally friendly and sustainable choices.

Aim: To determine the environmental impact of open and closed suctioning systems. We hypothesized that a closed system is more environmentally sustainable than an open system.

Setting & participants: A single-center observational pilot study was conducted in an adult mixed medical-surgical ICU. No patient data were collected; the focus was exclusively on the medical products and their environmental impact determined by life-cycle assessment.

Methods: A life-cycle assessment compared the closed suction system 'TrachSeal' by Intersurgical, \$13.73 each and requiring replacement every 72 hours, with the open suction system by Bicakcilar, \$0.27 each. The assessment covered the entire life cycle, from raw material extraction to disposal. Environmental impact was analyzed across 18 categories (e.g. global warming, toxicity), with end-point analyses summarizing the impact in an aggregated category such as damage on human health, expressed in disability-adjusted life-years.

Results: The environmental impact of the closed suction system was significantly higher compared to the open suction system. However, since one closed suctioning system can be used for several days, the use of 6 or more open systems within 72 hours in one patient has more impact.

Conclusion(s): When open suctioning is performed more than 6 times within 72 hours in one patient, the use of a closed suctioning catheter is more sustainable.

OP14 HOT TOPICS SESSION

OP1401

Lessons from the SuDDICU trial: implications for nursing practice

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No abstract could be submitted due to unpublished trial data.

OP1402

Patients' experiences of cognitive impairment during and following critical illness in the intensive care unit

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Introduction: Worldwide, millions of patients survive critical illness in the intensive care unit (ICU) owing to advanced technologies and treatments. However, many patients are affected by post-intensive care syndrome, especially cognitive impairments.

Aim: To explore how patients' experience cognitive impairments during and after critical illness in the ICU.

Setting & participants: A multi-centre study conducted in Denmark with 20 ICU patients.

Method: Qualitative studies utilising participant observation and single and dyadic semi-structured interviews in the ICU and three and six months after the ICU discharge. A phenomenological-hermeneutic approach was adopted using a text interpretation method inspired by Paul Ricoeur.

Results: Patients experienced multiple cognitive impairments during and following the ICU. In the ICU, they experienced having a foggy brain, memory problems, and speaking problems, which caused frustrations. Patients also felt that their body and mind were separate entities. They experienced a loss of coordination and concentration along with a sense of degradation. Following the ICU, patients' cognitive impairments affected their everyday life regarding family, work and social life. Having cognitive impairments turned their lives upside down, which felt like living in a parallel world. Also, they lost control in life and felt vulnerable.

None of the participants experienced receiving any rehabilitation specifically targeting their cognitive impairments, and therefore had to engage in self-invented activities and strategies.

Conclusion: Patients experienced multiple cognitive impairments due to critical illness during and after the ICU. These cognitive impairments comprised deficits in memory, language, attention and concentration, executive function, mental processing and visuospatial ability. The impairments affected patients' well-being, QoL and adaption to everyday life.

OP15 END-OF-LIFE CARE

OP1501

Critical care nurses' experiences of participation in decisions to withdraw and withhold treatment in ICU

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Introduction: If life-sustaining treatment in the ICU is no longer considered beneficial for the patient, and the likelihood of returning to a life with a reasonable quality is deemed negligible, a decision may be made to limit treatment. Decisions whether to withhold or withdraw treatment are made by the physician, nevertheless, critical care nurses play a significant role in the process, as they support patients and families in everyday clinical practice.

Aim: To describe critical care nurses' experiences of participation in decisions to withdraw or withhold treatment from patients in ICU.

Setting and Participants: Critical care nurses with at least two years of experience working in ICUs were recruited from two intensive care units.

Methods: A qualitative approach was used. Data was collected by interviews with ICU nurses using critical incident technique to capture their experiences and analysed thematical content analysis.

Results: In total twelve nurses participated, and four themes emerged: (1) the complexity of the care situation; (2) the importance of communication within the team; (3) facing obstacles and challenges; and (4) balancing the patient's dignity with their suffering. Participants described every situation as unique, shaped by the individuals involved. They emphasised the importance of maintaining communication between team members and the family. Problems in care environment or stressful situations were important to address, as was prioritising in the best interests of patients and families. Decisions to limit treatment could clarify care-related challenges and make it easier to manage patient suffering.

Conclusions: Decisions to withdraw or withhold treatment in the ICU present a complex situation, shaped by the individuals involved. Critical care nurses faced organisational obstacles and emotional challenges, particularly when interacting with patients and their families. Through experience, ICU nurses developed a broader perspective, which enhances their ability to navigate these difficult situations effectively.

OP1502

End-of-life care during Covid-19 pandemic: The expression of piloting and watch over in intensive care

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Introduction: Piloting and watch over are two essential concepts for nursing care at the end of life in the ICU, in which family member involvement are crucial parts. During the COVID-19 pandemic, ICUs were under heavy pressure, hospitals introduced restrictions and families could not visit their ill and dying family members. Intensive care nurses were left to protect and meet patients' need for loving care in a vulnerable situation at the end of life.

Aim: To explore how piloting and watch over were revealed in the end-of-life care for patients with Covid-19 in intensive care units during the pandemic.

Setting & Participants: Eleven intensive care nurses at four ICUs at three Swedish hospitals participated in the study.

Methods: A qualitative interview study with an abductive approach was conducted. Data were collected via semi-structured interviews. The four critical phases of piloting: presence, protection, preparation, termination, and the concept of watch over were used as predetermined domains in the analysis. World Medical Association Declaration of Helsinki has guided ethical considerations throughout the study.

Results: The findings are presented in four categories: The road to the decision, End-of-life care, Farewell of close family members and Closure. The heavy workload led to reduced quality of care, risking dehumanization of the patient. Visiting restrictions hindered supporting family members through the various piloting phases and forced the ICU nurses to take on the role of the relative in watching over the patient.

Conclusions: Workload and organization of care directly affect the quality of care given, the acceptance of privacy and the possibility of dignified end-of-life care. The results can be used to develop a framework to provide person-centred care, together with family members during the process of end-of-life care. It is pivotal for both family and patients to say goodbye without restrictions, regardless of the circumstances.

OP1503

Symptoms experienced in intensive care units after attempted suicide

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Introduction: All Intensive Care Unit (ICU) patients experience symptoms such as pain, thirst, hunger, anxiety, confusion, shortness of breath, tiredness, restlessness, sadness, and fear. We aimed to study whether this applies to suicide attempt patients as well.

Aim: To investigate the prevalence and intensity of ten common ICU symptoms in patients after medically serious suicide attempts, including both self-poisonings and violent methods. Comparisons between patients admitted for self-poisonings and violent methods were done.

Methods: A symptom questionnaire was used to describe the prevalence and intensity of symptoms post-suicide attempt during ICU admission. Each symptom was coded zero if the patient did not experience it, and intensity was rated 1-10. Symptoms were categorized as high (6-10) or moderate (1-5). The Beck Suicide Intent Scale (SSI) measured suicide intent, with higher scores indicating greater intent. Descriptive statistics were used for analysis. Ethical approval is obtained.

Setting and participants: In this prospective cohort study, 86 ICU patients (56% females, n=45) were included over two years. Inclusion criteria: age ≥ 18, suicide attempt, ICU stay ≥ 12 hours. Exclusion criteria: inability to understand Norwegian or provide consent.

Results: One third of patients (33%, n=28) used violent methods (VM), while 63% (n=53) used self-poisoning (SP). Overall, 46% (n=40) reported high pain levels, and 51% reported high anxiety levels. Other symptoms included high levels of confusion, fatigue, and sadness. Among VM patients, 65% reported severe pain versus 21% in SP. High anxiety was reported by 67% of VM patients and 46% of SP patients.

Conclusion: Findings show that unrelieved symptoms are common in ICU patients after suicide attempts, especially after using violent methods. Symptom assessment for patients admitted for suicide attempt could enable more targeted interventions to reduce suffering.

OP1504

Nurses' knowledge, attitudes, and self-efficacy towards palliative care in Intensive Care Units

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Introduction: Palliative care in Intensive Care Units (ICUs) is essential for enhancing patient outcomes; however, significant knowledge gaps and variable attitudes among ICU nurses may impact care quality. This study examined the relevance of these factors and aimed to identify predictors of self-efficacy in palliative care among ICU nurses in Palestinian hospitals.

Aim: To assess knowledge, attitudes, and self-efficacy regarding palliative care among ICU nurses in Palestine and identify predictors of self-efficacy.

Setting & participants: The study was conducted in governmental hospitals across Palestine, involving 260 Intensive Care Units nurses.

Methods: A cross-sectional, descriptive study design was utilized. Data were collected from January to July 2024 using self-administered questionnaires, including the Palliative Care Quiz for Nurses (PCQN) for knowledge, the Frommelt Attitudes Towards Care of the Dying (FATCOD) scale for attitudes, and the Palliative Care Self-Efficacy Scale (PCSES) for self-efficacy. Descriptive statistics summarized demographic data and scores, while multiple linear regression identified significant predictors of self-efficacy, with a significance threshold of $p < 0.05$.

Results: The mean knowledge score was 6.6 ± 2.6 out of 20 on the PCQN, indicating low knowledge levels. Attitudes were generally negative, with an average score of 62.7 ± 2.9 on the FATCOD scale. Self-efficacy was moderate, averaging 23.0 ± 8.1 out of 48 on the PCSES. Significant predictors of self-efficacy included recent ICU experience and marital status, with higher self-efficacy among married nurses ($p < 0.01$).

Conclusion(s): The results highlight the need for targeted educational programs to improve palliative care knowledge and attitudes among ICU nurses in Palestine. Enhancing self-efficacy through such interventions could foster better palliative care delivery in resource-limited settings, ultimately improving patients.