Innovation and Quality Improvement
Current Awareness Bulletin
August 2021

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Title: The Effects of Virtual Reality on Anxiety and Self-Efficacy Among Patients With Cancer: A Pilot Study

Citation: Oncology Nursing Forum; Jul 2021; vol. 48 (no. 4); p. 431
Author(s): Birkhoff, Susan D, PhD RN; Waddington, Cynthia, MSN RN AOCN NE-BC; Williams, Jordan, BSN RN OCN; Verucci, Leslie, MSN CNS APN-BC; Dominelli, Maureen, RN BSN; Caplan, Richard, PhD

Objectives: To examine the impact of a nurse-led intervention on anxiety levels and perceived self-efficacy to cope in patients receiving first-time chemotherapy using a customized prechemotherapy educational virtual reality (VR) video.

Sample & setting: 35 patients with cancer receiving first-time chemotherapy participated in this study at a large suburban cancer center in Newark, Delaware.

Methods & variables: A single-group, quasi-experimental pilot study was conducted to examine the feasibility of a customized prechemotherapy educational VR video in patients receiving first-time chemotherapy. The State-Trait Anxiety Inventory, heart rate, and blood pressure were used to measure anxiety, and the Cancer Behavior Inventory-Brief Version measured perceived self-efficacy to cope with cancer. Measures were taken pre- and postintervention, and patient satisfaction was examined postintervention.

Results: Anxiety level, heart rate, and blood pressure significantly decreased from baseline to postintervention, and perceived self-efficacy to cope significantly increased from baseline to postintervention.

Implications for nursing: Personalized prechemotherapy educational VR videos could be further examined as an innovative nursing intervention to meet the health, emotional, and educational needs of diverse patient populations.

Title: Risking Human Dignity With Innovations: Artificial Intelligence and the Future of the Discipline of Nursing

Citation: Nursing Science Quarterly; Jul 2021; vol. 34 (no. 3); p. 244
Author(s): Milton, Constance L

Abstract: Computerized technologies and expanding digital information are evolving in a highly complex system where novel innovations and creations of artificial intelligence such as "care robots" entangle the interactions of machines with human beings. Its usage and the usage of other technologies potentially bring into question what it means to be a human being. Artificial intelligence and its products potentially transgress the core values of nursing and potentially risk human dignity. In this article, the author offers ethical (straight thinking) ethos and implications for the future of nursing as a discipline.

Title: Expanding Clinical Education During a Time of Crisis: Innovative Virtual Simulation.

Citation: Clinical Simulation in Nursing; Jul 2021; vol. 56; p. 117-120
Author(s): Kobeissi; Christopherson, Kala; Kearney, Kelly; Aggarwal, Seema S.
Abstract: Virtual simulation is a platform that can be used to measure clinical competency. Faculty role-played scenarios to simulate traditional clinical experiences. Virtual simulation can expand graduate clinical education. Nurse practitioner students have experienced restrictions on face-to-face clinical rotations to protect the health of students and communities during the COVID-19 pandemic. In response to clinical closures, graduate NP faculty created an innovative intraprofessional virtual simulation to supplement the loss of required clinical hours. Competency was successfully measured during the simulation for medical and psychiatric scenarios, which allowed for immediate feedback and debrief. The virtual simulation supported program rigor in a safe environment and may be applicable to other nurse practitioner programs looking for methods to expand learning experiences outside of the traditional clinical setting.

Title: Nurses and the acceptance of innovations in technology-intensive contexts: the need for tailored management strategies.

Citation: BMC health services research; Jul 2021; vol. 21 (no. 1); p. 639
Author(s): Barchielli, Chiara; Marullo, Cristina; Bonciani, Manila; Vainieri, Milena

Background: Several technological innovations have been introduced in healthcare over the years, and their implementation proved crucial in addressing challenges of modern health. Healthcare workers have frequently been called upon to become familiar with technological innovations that pervade every aspect of their profession, changing their working schedule, habits, and daily actions.

Purpose: An in-depth analysis of the paths towards the acceptance and use of technology may facilitate the crafting and adoption of specific personnel policies taking into consideration definite levers, which appear to be different in relation to the age of nurses.

Approach: The strength of this study is the application of UTAUT model to analyse the acceptance of innovations by nurses in technology-intensive healthcare contexts. Multidimensional Item Response Theory is applied to identify the main dimensions characterizing the UTAUT model. Paths are tested through two stage regression models and validated using a SEM covariance analysis.

Results: The age is a moderator for the social influence: social influence, or peer opinion, matters more for young nurse.

Conclusion: The use of MIRT to identify the most important items for each construct of UTAUT model and an in-depth path analysis helps to identify which factors should be considered a leverage to foster nurses' acceptance and intention to use new technologies (o technology-intensive devices).

Practical implications: Young nurses may benefit from the structuring of shifts with the most passionate colleagues (thus exploiting the social influence), the participation in ad hoc training courses (thus exploiting the facilitating conditions), while other nurses could benefit from policies that rely on the stressing of the perception of their expectations or the downsizing of their expectancy of the effort in using new technologies.

Title: Innovation and personal protective equipment (PPE) decontamination: Toward more sustainable infection prevention and control.

Citation: Infection control and hospital epidemiology; Jul 2021 ; p. 1-2
Author(s): Heymann, David L
Title: Enhanced Recovery After Surgery Patients are Prescribed Fewer Opioids at Discharge: A Propensity-Score Matched Analysis.

Citation: Annals of surgery, 2021 Jul 02
Author(s): Maurer LR; Moheb ME; Cavallo E; Antonelli DM; Linov P; Bird S; Faulkner HR; Del Carmen M; Qadan M; Ferrone CR; Kaafarani HMA; Sisodia R; Ellis DB

Objective: We aimed to compare discharge opioid prescriptions pre- and post-Enhanced Recovery After Surgery (ERAS) implementation.

Summary Background Data: ERAS programs decrease inpatient opioid use, but their relationship with post-discharge opioids remains unclear.

Methods: All patients undergoing hysterectomy between October 2016-November 2020 and pancreatectomy or hepatectomy between April 2017-November 2020 at one tertiary care center were included. For each procedure, ERAS was implemented during the study period. Propensity-score matching (PSM) was performed to compare pre- vs. post-ERAS patients on discharge opioids (number of pills and oral morphine equivalents [OME]). Patients were matched on age, gender, race, payor, American Society of Anesthesiologists score, prior opioid use, and procedure. Sensitivity analyses in open versus minimally invasive surgery (MIS) cohorts were performed.

Results: 3,983 patients were included (1929 pre-ERAS; 2054 post-ERAS). Post-ERAS patients were younger (56.0 vs. 58.4 years; p<0.001), more often female (95.8% vs. 78.1%; p<0.001), less often white (77.2% vs. 82.0%; p<0.001), less often had prior opioid use (20.1% vs. 28.1%; p<0.001), and more often underwent hysterectomy (91.1% vs. 55.7%; p<0.001). After PSM, there were no significant differences between cohorts in baseline characteristics. Matched post-ERAS patients were prescribed fewer opioid pills (17.4 pills vs. 22.0 pills; p<0.001) and lower OMEs (129.4 mg vs. 167.6 mg; p<0.001) than pre-ERAS patients. Sensitivity analyses confirmed these findings [Open (18.8 pills vs. 25.4 pills; p<0.001 | 138.9 mg vs. 198.7 mg; p<0.001); MIS (17.2 pills vs. 21.1 pills; p<0.001 | 127.1 mg vs. 160.1 mg; p<0.001).

Conclusions: Post-ERAS patients were prescribed significantly fewer opioids at discharge compared to matched pre-ERAS patients. Copyright © 2021 Wolters Kluwer Health, Inc. All rights reserved.

Title: Oncologic and long-term outcomes of enhanced recovery after surgery in cancer surgeries - a systematic review.

Citation: Pang Q; Duan L; Jiang Y; Liu H, Author(s): World journal of surgical oncology, 2021 Jun 29; Vol. 19 (1), pp. 191

Background: Clinical evidence has proved that enhanced recovery after surgery (ERAS) can improve short-term clinical outcomes after various types of surgeries, but the long-term benefits have not yet been examined, especially with respect to cancer surgeries. Therefore, a systematic review of the current evidence was conducted.

Methods: The Pubmed, Cochrane Library, Embase, and Web of Science databases were searched using the following key words as search terms: “ERAS” or “enhanced recovery” or “fast track”, “oncologic outcome”, “recurrence”, “metastasis”, “long-term outcomes”, “survival”, and “cancer surgery”. The articles were screened using the inclusion and exclusion criteria, and the data from the included studies were extracted and analyzed.
Results: A total of twenty-six articles were included in this review. Eighteen articles compared ERAS and conventional care, of which, 12 studies reported long-term overall survival (OS), and only 4 found the improvement by ERAS. Four studies reported disease-free survival (DFS), and only 1 found the improvement by ERAS. Five studies reported the outcomes of return to intended oncologic treatment after surgery (RIOT), and 4 found improvements in the ERAS group. Seven studies compared high adherence to ERAS with low adherence, of which, 6 reported the long-term OS, and 3 showed improvements by high adherence. One study reported high adherence could reduce the interval from surgery to RIOT. Four studies reported the effect of altering one single item within the ERAS protocol, but the results of 2 studies were controversial regarding the long-term OS between laparoscopic and open surgery, and 1 study showed improvements in OS with restrictive fluid therapy.

Conclusions: The use of ERAS in cancer surgeries can improve the on-time initiation and completion of adjuvant chemotherapy after surgery, and the high adherence to ERAS can lead to better outcomes than low adherence. Based on the current evidence, it is difficult to determine whether the ERAS protocol is associated with long-term overall survival or cancer-specific survival.

Title: Effect of home-based prehabilitation in an enhanced recovery after surgery program for patients undergoing colorectal cancer surgery during the COVID-19 pandemic.

Citation: Supportive care in cancer: official journal of the Multinational Association of Supportive Care in Cancer, 2021 Jun 24

Author(s): López-Rodríguez-Arias F; Sánchez-Guillén L; Aranaz-Ostáriz V; Triguero-Cánovas D; Lario-Pérez S; Barber-Valles X; Lacueva FJ; Ramirez JM; Arroyo A,

Background: Surgery remains the first curative treatment for colorectal cancer. Prehabilitation seems to attenuate the loss of lean mass in the early postoperative period. However, its long-term role has not been studied. Lockdown due to the COVID-19 pandemic has forced to carry out the prehabilitation program at home. This study aimed to assess the effect of home prehabilitation on body composition, complications, and hospital stay in patients undergoing oncological colorectal surgery.

Methods: A prospective and randomized clinical study was conducted in 20 patients operated of colorectal cancer during COVID-19 lockdown (13 March to 21 June 2020) in a single university clinical hospital. Patients were randomized into two study groups (10 per group): prehabilitation vs standard care. Changes in lean mass and fat mass at 45 and 90 days after surgery were measured using multifrequency bioelectrical impedance analysis.

Results: Prehabilitation managed to reduce hospital stay (4.8 vs 7.2 days, p = 0.052) and postoperative complications (20% vs 50%, p = 0.16). Forty-five days after surgery, the loss of lean mass decreased (1.7% vs 7.1%, p = 0.16). These differences in lean mass were attenuated at 90 days; however, the standard care group increased considerably their fat mass compared to the prehabilitation group (+ 8.72% vs - 8.16%).

Conclusions: Home prehabilitation has proven its effectiveness, achieving an attenuation of lean mass loss in the early postoperative period and a lower gain in fat mass in the late postoperative period. In addition, it has managed to reduce hospital stays and postoperative complications.

Registration Number: This article is part of an ongoing, randomized, and controlled clinical trial approved by the ethics committee of our hospital and registered in ClinicalTrials.gov in August 2018 with registration number NCT03618329.
Title: Surgery school-who, what, when, and how: results of a national survey of multidisciplinary teams delivering group preoperative education.

Citation: Perioperative medicine, 2021 Jun 15; Vol. 10 (1), pp. 20
Author(s): Fecher-Jones I; Grimmett C; Carter FJ; Conway DH; Levett DZH; Moore JA,

Background: Group education is increasing in popularity as a means of preparing patients for surgery. In recent years, these 'surgery schools' have evolved from primarily informing patients of what to expect before and after surgery, to providing support and encouragement for patients to 'prehabilitate' prior to surgery, through improving physical fitness, nutrition and emotional wellbeing.

Method: A survey aimed at clinicians delivering surgery schools was employed to capture a national overview of activity to establish research and practice priorities in this area. The survey was circulated online via the Enhanced Recovery after Surgery UK Society and the Centre for Perioperative Care mailing lists as well as social media.

Results: There were 80 responses describing 28 active and 4 planned surgery schools across the UK and Ireland. Schools were designed and delivered by multidisciplinary teams, contained broadly similar content and were well attended. Most were funded by the National Health Service. The majority included aspects of prehabilitation most commonly the importance of physical fitness. Seventy five percent of teams collected patient outcome data, but less than half collected data to establish the clinical effectiveness of the school. Few describe explicit inclusion of evidence-based behavior change techniques, but collaboration and partnerships with community teams, gyms and local charities were considered important in supporting patients to make changes in health behaviors prior to surgery.

Conclusion: It is recommended that teams work with patients when designing surgery schools and use evidence-based behavior change frameworks and techniques to inform their content. There is a need for high-quality research studies to determine the clinical effectiveness of this type of education intervention.

Title: COVID 19 and the challenges of the surgery backlog: the greatest healthcare innovation would be to do what we know.

Citation: British journal of anaesthesia, 2021 Jun 11
Author(s): Mythen MG,


Citation: Public Library of Science, 2021 May 20; Vol. 16 (5), pp.e0251476
Author(s): Shen W; Wu Z; Wang Y; Sun Y; Wu A, PloS one

Background: Acute kidney injury (AKI) is a common postoperative complication with an incidence of nearly 15%. Relatively balanced fluid management, flexible use of vasoactive drugs, multimodal analgesia containing non-steroidal anti-inflammatory drugs are fundamental to ERAS protocols. However, these basic tenants may lead to an increased incidence of postoperative AKI.

Methods: A search was done in the PubMed, Embase, Cochrane Library and reference lists to identify relevant studies from inception until May 2020 to be included in this study. Effects
were summarized using pooled risk ratios (RRs), mean differences (MDs) and corresponding 95% confidence intervals (CIs) with random effect model. Heterogeneity assessment, sensitivity analysis, and publication bias were performed.

Results: A systematic review of nineteen cohort studies covering 17,205 patients, comparing impact of ERAS with conventional care on postoperative AKI was performed. Notably, the ERAS regimen did not increase the incidence of postoperative AKI compared with standard care (RR: 1.21; 95% CI: 0.96 to 1.52; I² = 53%). Both goal-directed fluid therapy (RR: 1.26; 95% CI: 0.99-1.61; I² = 55%) and restrictive fluid management (RR: 1.06; 95% CI: 0.57-1.98; I² = 60%) had no significant effect on the incidence of postoperative AKI. There was no significant statistical difference between different AKI diagnostic criteria (P = 0.43; I² = 0%). ERAS group had significantly shorter hospital stay (MD: -1.54; 95% CI: -1.91 to -1.17; I² = 66%). There was no statistical difference in 30-day readmission rate (RR: 0.98; 95% CI: 0.80 to 1.20; I² = 42%), 30-day reoperation rate (RR: 0.98; 95% CI: 0.71 to 1.34; I² = 42%) and mortality (RR: 0.81; 95% CI: 0.59 to 1.11; I² = 0%) between the two groups.

Conclusions: This meta-analysis suggests that ERAS protocols do not increase readmission or reoperation rates and mortality while significantly reducing LOS. Most importantly, the ERAS protocol was shown to have no promoting effect on the incidence of postoperative AKI. Even GDFT and restrictive fluid management cannot avoid the occurrence of postoperative AKI, and the ERAS protocol is still worth recommending and its safety is further confirmed.

Title: Reducing hospital stay for colorectal surgery in ERAS setting by means of perioperative patient education of expected day of discharge.

Citation: Tweed TTT; Woortman C; Tummers S; Bakens MJAM; van Bastelaar J; Stoot JHMB,

Author(s): International journal of colorectal disease, 2021 May 11

Purpose: Despite the enhanced recovery after surgery (ERAS) protocol, length of stay (LOS) after colorectal surgery varies considerably. The majority of longer admissions is often not medically necessary. We aimed to investigate possible reduction of LOS by perioperative education with an expected discharge date (EDD).

Methods: This single-centre retrospective study included 578 patients who underwent surgery for colorectal cancer in 2016 with standard care (ERAS) and in 2018 with the addition of EDD education program (ERAS+). A comparison was made of a 1-year period prior to and following the implementation of EDD. The EDD was discussed at the outpatient clinic, preoperatively and during admission (with both the patient and family members daily). Standard EDD varied between 3 and 5 days depending on the resection type. Primary outcome was LOS; secondary outcomes were readmission, serious complications and 90-day mortality.

Results: Patients in ERAS+ (n = 242) had a shorter median LOS (4.0 vs. 5.0, p < 0.001) compared to patients in the regular ERAS group (n = 336). Fewer patients of ERAS+ experienced postoperative complications (71 (29.3%) vs. 198 (58.9%), p < 0.001). No difference was found in the number of readmissions (23 (9.5%) vs. 34 (10.1%), p = 0.807), reinterventions (25 (10.3%) vs. 30 (8.9%), p = 0.571) or mortality (5 (2.1%) vs. 9 (2.7%), p = 0.261) between the two groups.

Conclusion: It is possible to reduce LOS within the ERAS program, by better perioperative education and expectation management of patients with use of an EDD. This program ensures better understanding, faster discharge and lower costs for the hospital without added risk of readmissions or complications.
Title: Remote home monitoring (virtual wards) for confirmed or suspected COVID-19 patients: a rapid systematic review.

Citation: EClinicalMedicine; Jul 2021; vol. 37 ; p. 100965
Author(s): Vindrola-Padros, Cecilia; Singh, Kelly E; Sidhu, Manbinder S; Georgiou, Theo; Sherlaw-Johnson, Chris; Tomini, Sonila M; Inada-Kim, Matthew; Kirkham, Karen; Streetly, Allison; Cohen, Nathan; Fulop, Naomi J

Background: The aim of this review was to analyze the implementation and impact of remote home monitoring models (virtual wards) for confirmed or suspected COVID-19 patients, identifying their main components, processes of implementation, target patient populations, impact on outcomes, costs and lessons learnt.

Methods: We carried out a rapid systematic review on models led by primary and secondary care across seven countries (US, Australia, Canada, The Netherlands, Ireland, China, UK). The main outcomes included in the review were: impact of remote home monitoring on virtual length of stay, escalation, emergency department attendance/reattendance, admission/readmission and mortality. The search was updated on February 2021. We used the PRISMA statement and the review was registered on PROSPERO (CRD: 42020202888).

Findings: The review included 27 articles. The aim of the models was to maintain patients safe in the appropriate setting. Most models were led by secondary care and confirmation of COVID-19 was not required (in most cases). Monitoring was carried via online platforms, paper-based systems with telephone calls or (less frequently) through wearable sensors. Models based on phone calls were considered more inclusive. Patient/career training was identified as a determining factor of success. We could not reach substantive conclusions regarding patient safety and the identification of early deterioration due to lack of standardized reporting and missing data. Economic analysis was not reported for most of the models and did not go beyond reporting resources used and the amount spent per patient monitored.

Interpretation: Future research should focus on staff and patient experiences of care and inequalities in patients' access to care. Attention needs to be paid to the cost-effectiveness of the models and their sustainability, evaluation of their impact on patient outcomes by using comparators, and the use of risk-stratification tools.

Title: Developing an Innovative System of Open and Flexible, Patient-Family-Centered, Virtual Visiting in ICU During the COVID-19 Pandemic: A Collaboration of Staff, Patients, Families, and Technology Companies.

Citation: Journal of intensive care medicine; Jul 2021 ; p. 8850666211030845
Author(s): Thomas, Kathleen A S; O'Brien, Bernadine F; Fryday, Agatha T; Robinson, Ellen C; Hales, Marissa J L; Karipidis, Sofia; Chadwick, Aaron; Fleming, Kimberley J; Davey-Quinn, Alan P

Abstract: Few challenges of the COVID-19 pandemic strike at the very core of our humanity as the inability of family to sit at the bedside of their loved ones when battling for their lives in the ICU. Virtual visiting is one tool to help deal with this challenge. When introducing virtual visiting into our ICU, we identified 5 criteria for a sustainable system that aligned with patient-family-centered care: virtual visiting needed to (1) simulate open and flexible visiting; (2) be able to accommodate differences in family size, dynamics, and cultural practices; (3) utilize a video conferencing platform that is private and secure; (4) be easy to use and not
require special teams to facilitate meetings; and (5) not increase the workload of ICU staff. There is a growing body of literature demonstrating a global movement toward virtual visiting in ICU, however there are no publications that describe a system which meet all 5 of our criteria. Importantly, there are no papers describing systems of virtual visiting which mimic open and flexible family presence at the bedside. We were unable to find any off-the-shelf video conferencing platforms that met all our criteria. To come up with a solution, a multidisciplinary team of ICU staff partnered with healthcare technology adoption consultants and two technology companies to develop an innovative system called HowRU. HowRU uses the video conferencing platform Webex with the integration of some newly designed software that automates many of the laborious and complex processes. HowRU is a cloud based, supported, and simplified system that closely simulates open and flexible visiting while ensuring patient and family privacy, dignity, and security. We have demonstrated the transferability of HowRU by implanting it into a second ICU. HowRU is now commercially available internationally. We hope HowRU will improve patient-family-centered care in ICU.

Title: Postoperative innovative technology for ambulatory anesthesia and surgery.

Citation: Current opinion in anaesthesiology; Jul 2021

Author(s): Coppens, Marc; Van Caelenberg, Els; De Regge, Melissa

Purpose of review: To give an overview of the impact of different forms of telehealth that are currently used in ambulatory anesthesia and surgery. Telehealth is applicable during the early recovery and intermediate recovery period (e.g. monitoring of quality of recovery), and as a tool for postoperative check-up during the late recovery phase.

Recent findings: Postoperative follow-up after ambulatory surgery is still crucial to maintain quality of care as pain and postoperative nausea and vomiting remain common adverse events. There is a surge of telehealth applications from procedure-specific commercial smartphone apps (mHealth) to complete digital patient platforms instituted by the government. However, patient and healthcare provider engagement is not universal. Usability of these applications is mandatory as well as identifying and overcoming the barriers to its use.

Summary: Telehealth gives many opportunities for postoperative follow-up of ambulatory surgery patients. Clear evidence on the benefits of telehealth in ambulatory surgery is however still sparse. Future research should focus on telehealth for improving quality and safety of postoperative recovery, convincing policymakers for reimbursement encouraging healthcare providers and patients to engage in telehealth.

Sources Used:

A number of different databases and websites are used in the creation of this bulletin.

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