NEW ZEALAND NURSES ORGANISATION | TŌPŪTANGA TAPUHI KAITIAKI O AOTEAROA

PERIOPERATIVE NURSES COLLEGE N.Z.N.O

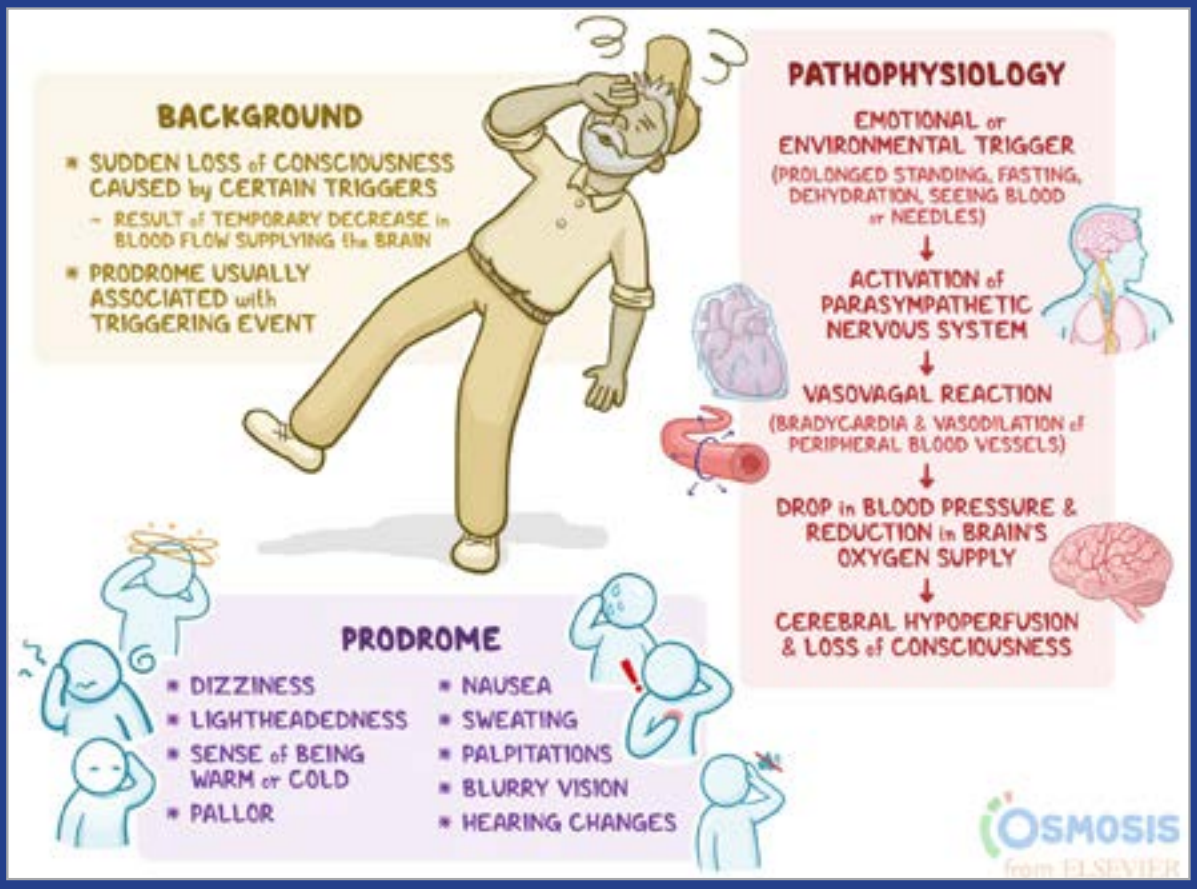
# The Dissector

## Journal of the Perioperative Nurses College of the New Zealand Nurses Organisation

September 2023, Volume 51, Number 2

# MEDICAL IMAGING

## Vasovagal syncope Prevention & Management




**PROFESSIONAL: PNC response to proposed changes to AT Scope of Practice**

**CLINICAL: Pre-op screening for delirium in PACU**

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*The Dissector*
The official Journal of the Perioperative Nurses College of the New Zealand Nurses Organisation (PNCNZNO).

September 2023, Volume 51, Number 2
http://www.nzno.org.nz/groups/colleges/perioperative_nurses_college

*The Dissector* is published quarterly (March, June, September, December) by Advantage Publishing Ltd.

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CIRCULATION
*The Dissector* is direct mailed to all members of PNC,[NZNO] as well as other interested subscribers, libraries and teaching institutions.

NON-MEMBER SUBSCRIPTIONS
Within New Zealand, $70 (inc. postage) per annum.
Overseas subscriptions (inc. airmail postage): Australia: $85; Canada: $88; China: $88; India: $95; Ireland: $88; Japan: $88; Korea: $88; Malaysia, $88; Pacific Islands: $88; Pakistan: $95; Singapore: $88; South Africa: $95; Thailand: $88; UAE: $95; UK: $88; USA: $88; Vietnam: $88;

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PNC,[NZNO] WEBSITE
http://www.nzno.org.nz/groups/colleges/perioperative_nurses_college

ISSN: 1174-7579



# Change is in the wind…

Tēnā koutou katoa. Welcome to the September issue of *The Dissector*. It's definitely spring here, and I'm enjoying the longer, warmer days, blossoming trees, daffodils and ducklings. It has been a particularly tough winter, and here in Auckland it feels like it's been raining all year! I'm looking forward to the promised change in weather patterns — hopefully we'll have a good long summer this year.

You may have noticed that the issue is late to arrive in your mailbox. The reason for this is that we simply did not have enough material to produce a journal, and the Editorial Committee have had to work extra hard to ensure we have sufficient content. If you enjoy reading *The Dissector*, please help us by either providing content, or shoulder-tapping your colleagues and suggesting they write an article. Don't worry if you've never been published before, we'll happily provide guidance and support. So if you have a special interest area, or have recently completed post-graduate study, we'd love to hear from you.

## Pre and Post-operative focus

This issue of *The Dissector* features a research report from novice author Helen Loader and her research supervisor Rachael Parke. Helen's study investigated the incidence and severity of post-discharge nausea and vomiting in patients undergoing day-stay otorhinolaryngological surgery. She found that up to a third of participants experienced post-discharge nausea and vomiting. Recommendations for future practice are provided, which will be of interest to PACU nurses caring for these patients.

Eby Eapen-Matthew has provided an article focussing on post-operative delirium. Eby explains diagnostic criteria for delirium and discusses screening tools and their importance in the PACU setting. In a partner article, Bron Taylor argues that the best prevention of post-operative delirium is pre-operative screening and identification of high-risk patients, allowing appropriate post-operative care planning. Bron refers to the cognition screening completed by the Nurse Specialist team at the anaesthetic pre-assessment clinic at Te Toka Tumai.

## Medical Imaging

Liying Duan has provided an article on vasovagal syncope prevention and management. Liying reviews the pathophysiology and management, with the intent of developing a staff education package. Liying argues that vasovagal reactions are common but often preventable with care and vigilance. Whilst the article is written from an outpatient radiology perspective, it contains information relevant to many practice settings.

## Proposed Changes to the Scope of Practice for ATs

There has been much discussion lately about the Medical Sciences Council's proposed changes to the scope of practice for anaesthetic technicians (ATs). The proposal indicates that ATs will be moving into current nursing roles within the perioperative environment, including PACU, scrub and circulating roles.

Cassandra Raj, the PNC Chair, has written an article to advise and inform members of the position that the PNC have regarding this, including feedback from membership, questions and concerns.

## Digital future

Last issue I mentioned we were exploring moving to publication via a digital format, due to rising costs and a reduction of advertising revenue. We have been very fortunate to be able to continue for so long in print format, however this is no longer sustainable.

We have been working with Advantage Publishing and PNC National Committee to explore options, and we hope to provide you with information on our preferred format as soon as we can. We are planning for our last print version to be the December 2023 issue, moving to a digital version in 2024.

It's our 50th anniversary next year and we will be celebrating the last half-century of publications throughout the year, so please send me your stories to dissector.editor@gmail.com.

I look forward to sharing your memories.

Noho ora mai.

*— Bron Taylor, Chief Editor*

# The Dissector



**INDEX TO ADVERTISERS**





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# Webinars, anaesthetic technicians, and the digital age…

The third quarter of the year has been a busy one for PNC, our Professional Nurse Advisors and National Committee representatives. It is really exciting to see PNC membership is rising and our website is getting an increase in visits and navigation throughout our webpages.

PNC social media also is increasing its membership which allows not just members of PNC but all perioperative nurses to utilise our site, engage in dialogue and be alerted to our educational opportunities.

There has been a flurry of professional development and I hope you have been able to attend our latest webinar, presented by Dean Cowles. Dean is the Māori Nurse Advisor – Nurse Directorate for Southern Cross Healthcare and he presented a wonderful and engaging korero on "The Treaty … or te Tiriti, an analysis."

If you missed it, you can view it here: https://myhealthhub.co.nz/pnc/, along with all our previous webinars since December 2022.

PNC webinars, in partnership with My Health Hub, are an excellent way to receive education by nurses, for nurses and the whole perioperative workforce. PNC is devoted to the professional development and use of up-to-date evidence-based practice to ensure our workforce is promoting and providing safe and optimal care to all patients. Dean is willing to take part in the review of PNCs' strategy in 2024 to embed te Tiriti o Waitangi and the four articles of Kawanatanga, Tino Rangatiratanga, Oritetanga and Wairuatanga.

We plan to formulate these into our future documents relating to perioperative practice, including the Perioperative Knowledge and Skills Framework and our standards for New Zealand.

## Anaesthetic technicians

You may be aware of the current Consultation - Review of the Anaesthetic Technician Scope of practice by the Medical Sciences Council of New Zealand, which commenced on July 20, 2023. You can access it here: https://www.mscouncil.org.nz/news/consultation/.

PNC has consulted with membership and provided a strong submission. I have written a more detailed piece which you can read on page 8. It is an important topic for PNC as we recognise the importance of recruiting to the position of anaesthetic technicians. However, the proposal directly relates to the roles of nurses in the perioperative environment and the possibility that in the future the perioperative workforce may consist of non-nurses.

I thank those that have individually, and on behalf of your organisations, submitted feedback on the proposal and represented perioperative nurses' views and opinions. This consultation will have closed by the time this edition is printed, so be active and engaged to ensure you are participating in the future of the perioperative workforce.

## A new dawn

*The Dissector* journal is also heading for change and I'd like to take the opportunity to inform members that this issue and the next will be the last published in print and mailed to members.

PNC is one of the last Colleges within the NZNO to publish a printed journal and we have held off for two years, from when the last print *Kaitiaki* was mailed to members. Our continued relationship with our publishers will remain a valued and important relationship as we move into the digital world.

*The Dissector* has been in print since 1974 and PNC welcomes members in celebrating and honouring our last print version to 50 years of production by contributing with your perioperative experiences, advances and memories. Please email these to dissector.editor@gmail.com.

The digital age of healthcare is upon us, and you may be seeing changes in your own workplace integrating clinical care and digital health. I encourage you to take part in this digital amalgamation of health delivery, nursing practice and improving patient care as nurses are the key providers of perioperative healthcare in New Zealand.

Ensuring nurses stay abreast of healthcare ensures the role of the nurse and the true essence of nursing is paramount in the delivery of all aspects of perioperative patient care.

The role and the needs of nursing is currently being investigated and explored by all international nursing bodies. The International Council of Nurses President Pamela Cipriano spoke to this topic recently and said "Recent advances in digital health, including delivery of virtual care, the analysis of big data, the introduction of smart wearables and the dramatic developments in artificial intelligence, reinforce the need for nurses to be digital health experts so they can maximize the advantages of these technologies, for the benefit of their patients. Empowering nurses through innovations in digital healthcare will advance gender equity and improve patient care but these benefits will only come about if sufficient attention is paid to nurses' needs in an increasingly technological world." (International Council of Nurses, 2023).

Nurses must be present for current and future policy discussion, practice reviews and collaborate on the state of nurses locally and internationally.

Speaking of networking and getting together, PNC is currently planning our biennial conference in Wellington, October 17-19, 2024. Mark this in your diaries, inform your managers and if you are not already a member, join the PNC to take advantage of lower rates and awards. Also, check in with your PNC Region to investigate if there are scholarships or sponsorships applicable to assist with attending next year's wonderful conference.

I look forward to seeing you there, networking and celebrating perioperative nursing to its fullest. We are almost at the end of the year and the start of summer. Let the changing of the seasons recharge you and your team to do the very best you can deliver to all of our perioperative patients.

Kindest regards

*— Cassandra Raj, Chair, Perioperative Nurses College*

## Reference

International Council of Nurses (September 1, 2023). ICN Position Statement: The future of nursing and digital health: new ICN position statement highlights opportunities and risks. Retrieved from https://www.icn.ch/news/future-nursing-and-digital-health-new-icn-position-statement-highlights-opportunities-and ■

# 2024 PNC Conference Wellington October 17-19

The 2024 Perioperative Nurses Conference in Wellington (October 17-19) will mark the 51st Anniversary of the original held in 1973. However, due to the cancellation of three national conferences, the 2024 event will actually be the 48th PNC Conference.

There was no 2011 Conference after earthquakes destroyed the Christchurch venue. Nor was there a PNC Conference in 2020 or 2021 following Government restrictions on travel and public gatherings due to the COVID-19 pandemic, triggered by the release of the SARS-CoV-2 virus in Wuhan, China in November 2019.

Wellington marks something of an historic return — the capital hosted the inaugural event in October 1973. At that time it was billed as a "Seminar" for the New Zealand Operating Theatre Nurses Special Interest Section of the New Zealand Nurses Association, as the College was then known.

The 2024 conference will run under the theme: "Embracing the Future: Everything Counts" and is being organized by Composition Ltd., which merged with 2022 conference organising company The Conference Team on April 1, 2023. Composition is working with the Wellington PNC Regional Organising Committee, which comprises Amber Cox, Karen Hall, Juliet Asbery, Emma Brooks, Tim Hill, Jenny Kendall, Grace Cui, Judith Wilde and Reggie Williams.

Williams says the Wellington team has invited a number of keynote speakers as well as speakers who will present at the concurrent sessions.

"We are also networking with our sponsors from the trades, who will be showcasing their innovations," Reggie says.

"Examples of the topics we'd like to present are: gender affirmation surgery, hybrid operating theatres, vaping and anaesthesia as well as the advances being made in robotic assisted surgeries."

### Unique opportunity

"Our 'Embracing the Future: Everything Counts' conference provides a unique opportunity for nurses, researchers, and healthcare professionals to come together and shape the future of perioperative care. We encourage prospective speakers to join us in this inspiring journey as we explore innovations, share knowledge, and prepare Perioperative Nurses to thrive in an exciting, ever-evolving field while contributing to the betterment of healthcare outcomes. Together, we will ensure everything counts in the pursuit of excellence in perioperative care and equity in healthcare."

For more information on the 2024 PNC Conference in Wellington, contact either Arna Wahl Davies or Nerida Ramsay at Composition Ltd. Contact details are:

Arna Wahl Davies, Composition Ltd

Tel: 03 332-4537 or 021 519-145. E: Arna@composition.co.nz

Nerida Ramsay, Composition Ltd

03 332-4537 or 021 519110, E: Nerida@composition.co.nz ■

# Industry news New Skytron GS70 table

Cubro has recently released a new Skytron operating theatre table onto the New Zealand hospital market. Designed with patient and staff safety in mind, the Skytron GS70 Salus offers unique and advanced features which will keep any OR informed and safe. Named after Salus, the Roman goddess of safety and well-being, the GS70 Salus is the first of the Guardian Series surgical tables from Skytron.

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- Continuous improvement using captured performance data;

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# PNC Chair Response

## to Medical Sciences Council proposed changes to the Scope of Practice for ATs

**By Cassandra Raj**

*This article has been written to advise and inform members of the position of the Perioperative Nurses College of the New Zealand Nurses Organisation (PNC [NZNO]) regarding changes to the scope of practice for anaesthetic technicians (ATs), proposed by the Medical Sciences Council (MSC) of New Zealand.*

*The PNC is concerned the proposal indicates that ATs will be moving into current nursing roles within the perioperative environment, including PACU, scrub and circulating roles.*

### MSC Proposal

On July 20 this year, MSC released a document setting out a number of proposed changes to the scope of practice for ATs (MSC, 2023).

There are four proposals within the document. These are:

1. MSC proposes to change the title of AT to 'Perioperative Practitioner'.
2. MSC proposes to broaden the scope of practice to enable these practitioners to work in all areas in the perioperative environment and adjuncts, including emergency department and interventional radiology.
3. MSC is proposing to include a registration pathway for applicants who do not hold the prescribed qualification, but instead hold a relevant qualification in anaesthesia or perioperative practice.
4. MSC is proposing to require that all newly registered practitioners undergo a period of supervision.

On August 2, NZNO's *Kaitiaki* journal published an article highlighting the proposal and expressing concerns about the proposed change in scope, as well as concern that the title change to Perioperative Practitioner could be easily confused with that of Nurse Practitioners.

Cassandra Raj, PNC Chair was quoted as saying that *"Essentially it pushes nurses out of the nursing role in the perioperative space — it means employers can employ a non-nursing healthcare professional in that role"* (Longmore, 2023, para 1.).

In response to this article, NZATS President Matthew Lawrence sent an open letter on August 8 arguing that "*...about 8000 nurses registered for the first time in New Zealand last year. Compare this to the less than 150 newly registered ATs in the same timeframe. It is staggering to believe there is still this belief that our workforce would ever replace nurses...*" (Lawrence, 2023, para 3.).

Lawrence went on to say there was no indication in the practice review documentation that graduates of the degree programme would be placed in roles outside the current prescribed AT scope of practice as soon as they graduate (Lawrence, 2023).

The following aims to highlight feedback and opinions received from members, reply to the letter from the NZATS President, and to authentically, and genuinely reply from the Chair of the Perioperative Nurses College.

### Perioperative Nurses College position

The MSC review of the scope of practice of ATs in New Zealand is a topic many have strong opinions about and whilst PNC strongly advocates for nurses, our primary responsibility is to ensure high standards of professional practice and patient care is maintained in the perioperative continuum.

PNC takes part in the delivery of education in the perioperative environment that promotes the workforce to provide safe care from qualified, educated staff who have defined competencies. Our membership has a strong opinion about the standard of care for perioperative patients. Therefore, the high standards of practice, patient care and competencies will be the benchmark throughout all consultation and feedback to any regulator that is designing scopes of practice.

PNC also recommends that te Tiriti o Waitangi and strengthening the overall health system's responsiveness to Maori Health is compulsorily embedded into all health studies to adhere to the four articles of the Te Tiriti o Waitangi of Aotearoa New Zealand.

### PNC Membership feedback

PNC has been collating responses from membership since the proposal was announced. Members acknowledge there is a shortage of ATs and welcome solutions to the issue but are cautious and apprehensive of the proposed changes to the AT scope of practice.

Members have commented that the new Auckland University of

Technology (AUT) Perioperative Practice degree offers a potential in which a whole degree is catered to the broad perioperative workplaces. However, some members doubt a three-year degree focused solely on the perioperative environment will be sufficient to competently and skilfully advocate and provide for the holistic needs of individual patients.

PNC Members repeatedly and strongly advise that the graduates of this programme receive a longer supervision period of up to a year and a new entrance to practice programme to support these new graduates into the perioperative health workforce.

### PNC Questions

PNC believes that clarity regarding the following areas would facilitate partnership and transparency of this proposed new workforce.

The MSC proposal states that *"Employers/hospitals will have the ability to provide appropriate, Council-approved, education programmes that will allow practitioners greater ability to work across different practice area"* (MSC, 2023, p10). There has been no communication with nursing stakeholders regarding the assessment or development of educational content/requirements of graduates. Furthermore, there is a lack of clarity around the process for developing/validating these education programmes. It is important to ensure new graduate supervision and the expectations for supervisors of the new graduates.

The PNC requires clarity on the MSC's expectation for perioperative nurses regarding support and guidance of the perioperative practice graduates in currently perioperative nursing roles.

The MSC proposes to broaden the scope of practice and make it more 'flexible', including making the current Expanded Practice role obsolete. The proposal states that *"all practitioners may, with appropriate education, insert PICC lines and work in theatre in scrub, circulating and traditional anaesthetic technician roles as well as pre-operative care and PACU" (MSC, 2023, p10).*

There is a lack of clarity of the regulation of the current ATs' internationally qualified health workforce and the proposed Perioperative Practitioner. PNC requires clarification on how the proposed changes to the scope of practice will be regulated to ensure only those who are appropriately trained/qualified work in areas previously outside of the scope, or expanded scope, for ATs in New Zealand.

In his open letter, Lawrence states "Reading through the scope of practice review documentation, there is no suggestion graduates of the degree programme will be placed in these roles that are outside our current prescribed AT scope of practice as soon as they graduate." (Lawrence, 2023, para 5).

It is troubling there is nothing in the proposal that explicitly states this, and PNC is concerned this has not been clarified in the proposal. PNC requires reassurance that the new graduate Perioperative Practice candidates will only be employed into anaesthetic assistance roles for at least their new graduate year (similarly to new graduate nurses). Furthermore, PNC requires clarification on training requirements to work in roles that are outside the current AT scope of practice.

Anaesthetic technicians work alongside anaesthetists under the guidelines of *PS08(A) Position statement on the assistant for the anaesthetist* (Australia New Zealand College of Anaesthetists, 2016). PNC requires clarification on how the MSC proposes to bring this workforce to a professional autonomous and accountable role of caring for the whole patient and their health expectations including international qualified practitioners using the proposed pathway by MSC.

### Collaboration

PNC believes the patient should be at the centre of the conversation and development of proposed new scopes for the perioperative environment. We are eager, willing and able to assist in the design and processes of the programme, as experts in the provision of these areas of safe patient care in the perioperative environment.

PNC looks forward to a start in collaboration and improved communication focussing on the guidelines for graduate's competencies, clear standards and expectations of supervisors and graduates as they move throughout the proposed roles and the expectations of graduates as they enter the health workforce, especially scopes of practice that intersect nursing.

For more information on the proposed consultation, please visit the MSC on: https://www.mscouncil.org.nz/news/consultation/

Feedback to the proposals closed on September 14, 2023.

As this issue of *The Dissector* is published after the submission date, through MSC, PNC would like to inform members that the content of our submission was closely linked to what is written in the article above.

### References


Australia New Zealand College of Anaesthetists (2016). *PS08(A) Position statement on the assistant for the anaesthetist 2016.* Retrieved from ANZCA | Professional documents

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Medical Sciences Council. (2023). *Consultation: Review of the Scope of Practice for Anaesthetic Technology Practitioners.* Retrieved from https://www.mscouncil.org.nz/news/consultation/" https://www.mscouncil.org.nz/news/consultation/

# Post-discharge Nausea & Vomiting in ORL day stay patients

By Helen Loader and Rachael Parke

**Abstract** Post-discharge nausea and vomiting (PDNV) is often not reported or widely studied. This article describes a study which aimed to determine the incidence and severity of PDNV in patients undergoing day-stay head and neck surgery at a central Auckland public hospital. A third of the participants in this study experienced PDNV, showing that PDNV may be a problem for this patient population.

**Keywords:** Postoperative nausea and vomiting, postoperative opioids,

## Introduction

Nausea and vomiting are part of the body's defence system to avoid the digestion of potentially harmful or toxic substances. Nausea can be defined as a subjective unpleasant sensation in the epigastric region or throat of needing to vomit ("ASPAN's Evidence-Based", 2006), while vomiting is the forceful expulsion of gastric contents via the mouth (Zhong et al., 2021).

Anaesthesia was first recognised as a stimulus for nausea and vomiting in 1848 (Islam & Jain, 2004). Postoperative nausea and vomiting (PONV) can be nausea and/or vomiting after a surgical procedure, usually with a general anaesthetic, up to 24 hours postoperatively (Gan, 2007).

Apfel et al. (1999) identified four risk factors for developing PONV; female gender, having a history of either PONV or motion sickness, being a non-smoker and receiving opioids either during surgery or in the PACU. From this, a simplified PONV risk assessment scoring system was developed, which estimated the probability of developing PONV at 10 per cent for those with no risk factors, increasing with each additional risk factor to 20 per cent, 40 per cent, 60 per cent, and up to 80 per cent if the patient had all four risk factors.

Post-discharge nausea and vomiting (PDNV) is usually defined as nausea and/or vomiting that continues or first occurs after discharge from a health facility (Bruderer et al., 2017).

Apfel et al. (2012) identified five risk factors for PDNV: female gender, age under 50 years, a history of PONV, postoperative opioids and postoperative nausea (PON) before discharge.

A risk prediction score was developed by Apfel et al. (2012), where a patient with no risk factors has a 10 per cent chance of experiencing PDNV, with the risk increasing to 20 per cent, 30 per cent, 50 per cent, 60 per cent and 80 per cent for each additional risk factor.

Odom-Forren et al. (2013) state that 35-50 per cent of patients undergoing day-stay surgery in the United States of America (USA) experience PDNV in some form, and many will not have experienced PONV symptoms before discharge (Carroll et al., 1995; Wesmiller et al., 2014).

PDNV may be more distressing for patients than PONV, as they have left the hospital, medical help is not readily available, and they may not have easy access to antiemetic therapy (Geralemou & Tong, 2016).

This research enrolled day-stay patients undergoing otorhinolaryngological (ORL) surgery. Day-stay (ambulatory) surgery is increasing, with up to 70 per cent of operations in the USA undertaken as day-stay procedures (Lee, 2017), with around 7.5 per cent of those on the ears, nose, mouth or pharynx (Bhattacharyya, 2010).

Bhattacharyya (2010) states that many ORL procedures are safe to perform as day-cases, with minor complications at a rate of one per cent and life-threatening complications exceedingly rare. Standard ORL procedures undertaken as day surgeries are myringoplasty with ventilation tube placement and tonsillectomy with or without adenoidectomy (Bhattacharyya, 2011). A study was undertaken to provide valuable data on PDNV in this patient group, as well as PDNV in New Zealand.

## Methods

This single-centre prospective observational study enrolled consecutive participants to report their experiences of PDNV for up to 72 hours post-surgery. Participants were eligible for enrolment if they were over 18-years of age, undergoing a general anaesthetic for elective otorhinolaryngology, head or neck surgery and expected to have a same-day discharge and have their surgery at the identified hospital.

Written informed consent was obtained on admission to the hospital by a trained nurse who was not involved in the participants' care. This

| Table 1 | | |
|---|---|---|
| ***Participant Characteristics*** | | ***N=29*** |
| Age, yrs. (SD) | | 40.9 (15.0) |
| Under 50 n (%) | | 21 (72.4%) |
| Female n (%) | | 9 (31.1%) |
| Ethnicity n (%) | NZ European n (%) | 19 (65.5%) |
| | Māori n (%) | 3 (10.3%) |
| | Asian n (%) | 5 (17.2%) |
| | MELAA n (%) | 1 (3.4%) |
| | Pacific Peoples n (%) | 0 (0%) |
| | Other n (%) | 3 (10.3%) |
| *Note.* MELAA: Middle Eastern, Latin American or Asian | | |

| Table 2 | | |
|---|---|---|
| ***Clinical Characteristics*** | ***n*** | ***%*** |
| **Surgical procedure** | | |
| Microlaryngoscopy | 4 | 13.8% |
| Tonsillectomy/Adenoidectomy | 9 | 31.0% |
| Dental Extraction | 1 | 3.4% |
| Septoplasty and Rhinoplasty | 1 | 3.4% |
| Turbinoplasty | 3 | 10.3% |
| Septoplasty and/or Rhinoplasty and Turbinoplasty | 4 | 13.8% |
| Tonsil Biopsy | 1 | 3.4% |
| Other nasal | 4 | 13.8% |
| Facial or Neck Lesion | 2 | 6.9% |
| **Intraoperative medications** | | |
| TIVA | 15 | 51.7% |
| Antiemetic(s) | 25 | 86.2% |
| Opioid(s) | 18 | 62.1% |
| Paracetamol | 16 | 55.2% |
| Tramadol | 3 | 10.3% |
| Parecoxib | 24 | 82.8% |
| Clonidine | 2 | 6.9% |
| Local anaesthetic | 23 | 79.3% |
| **Postoperative medications** | | |
| Antiemetic(s) | 8 | 27.6% |
| Opioid(s) | 15 | 51.7% |
| Paracetamol | 11 | 37.9% |
| Tramadol | 8 | 27.6% |
| **Discharge medications** | | |
| Ondansetron | 6 | 20.7% |
| Paracetamol | 29 | 100% |
| Tramadol | 15 | 51.7% |
| NSAIDs* | 19 | 65.5% |
| Difflam | 2 | 6.9% |
| *NSAIDs Non-steroidal anti-inflammatory drugs | | |

was adapted to an online form due to COVID-19 restrictions.

The post-anaesthetic care unit (PACU) and ward nurses collected perioperative data using a custom-designed form, and the patient completed an online survey which was sent by the researcher. The survey included questions about incidence, severity and coping strategies. Participants rated the severity of their nausea each day using a visual numerical rating score (NRS) from zero to 10.

Ethical approval was obtained for this study. Data were analysed using Statistical Package for Social Sciences (SPSS). Statistical significance was established using the Fisher's Exact test, two-sided significance and summary statistics to show the central tendency (mean and range) regarding the severity.

## Results

Participant characteristics are presented in Table 1, and clinical characteristics in Table 2.

## Incidence

The overall incidence of any PONV was 38 per cent (see Table 3), with 27 per cent of participants receiving at least one postoperative antiemetic.

The incidence of PDNV was 34.5 per cent over the three-day study period (Table 4). The highest incidence occurred on the day of surgery, with 27.6 per cent reporting PDNV between leaving the hospital and midnight on postoperative day (POD) 0. By POD 1, the incidence had decreased to 17.2 per cent but increased again on POD 2 up to 24.1 per cent. By POD 2, no participants were experiencing vomiting. The incidence at any time during the study was not affected by whether the participant had received antiemetics intraoperatively.

## Risk Factors

Of all risk factors for PDNV identified by Apfel, only previous PONV was found to be statistically significant, with all participants that had previously experienced PONV experiencing PDNV (n=3), p=0.015.

PDNV was experienced by 45 per cent (n=5) of participants who had no reported PON whilst in hospital (Figure 1). Of participants who experienced no PDN, the majority (79 per cent) had two or fewer risk

| Table 3 | *incidence of PONV* | | |
|---|---|---|---|
| | Valid N | n | % Of Valid N |
| Any PONV * | 29 | 11 | 37.9% |
| PON 30 minutes | 25 | 2 | 8.0% |
| POV 30 minutes | 25 | 1 | 4.0% |
| PON Discharge PACU | 22 | 0 | 0% |
| POV Discharge PACU | 22 | 2 | 9.1% |
| PON Other PACU** | | 2 | |
| PONV PACU *** | 29 | 9 | 31.03% |
| PON Ward | 15 | 3 | 20.0% |
| POV Ward | 15 | 2 | 13.3% |
| PONV Ward * | 29 | 6 | 20.6% |
| PONV self-reported**** | 28 | 9 | 32.1% |
| *Note.* Valid N varies due to missing data. PON = postoperative nausea, POV = postoperative vomiting | | | |
| *PONV incidence includes any reported nausea, vomiting, and/or receiving an antiemetic.<br>**Nausea documented on inpatient form at a time other than the scheduled assessment time<br>***Recorded in the PACU at non-specified times.<br>****Self-reported PONV is from the online survey. | | | |

| Table 4<br>Incidence of PDNV Over the Study Period | | |
|---|---|---|
| | n | % Of Valid N (29) |
| **Overall** | | |
| Nausea | 10 | 34.5% |
| Vomiting | 3 | 10.3% |
| Nausea and Vomiting | 10 | 34.5% |
| **Car ride home** | | |
| Nausea | 4 | 13.8% |
| Vomiting | 3 | 10.3% |
| Nausea and Vomiting | 5 | 17.2% |
| **Postoperative day 0** (excluding journey home) | | |
| Nausea | 6 | 20.7% |
| Vomiting | 2 | 6.7% |
| Nausea and Vomiting | 7 | 24.1% |
| **Postoperative day 0** (including journey home) | | |
| Nausea | 8 | 27.6% |
| Vomiting | 4 | 13.8% |
| Nausea and Vomiting | 8 | 27.6% |
| **Postoperative day 1** | | |
| Nausea | 5 | 17.2% |
| Vomiting | 1 | 3.4% |
| Nausea and Vomiting | 5 | 17.2% |
| Postoperative day 2 | | |
| Nausea | 7 | 24.1% |
| Vomiting | 0 | 0% |
| Nausea and Vomiting | 7 | 24.1% |

factors, with 80 per cent of those that did experience PDNV having three or more risk factors (p= 0.028) (Figure 2).

### Severity

The car ride home produced the highest severity ratings (Figure 3), with 75 per cent (n=3) experiencing severe nausea, the highest NRS being eight, the lowest NRS four and a mean of 6.75. Most participants, 66 per cent (n=4) of participants that experienced nausea (n=6), report moderate to severe nausea on POD 0. By POD 1, of the five participants that experienced nausea, 80 per cent reported it as mild. Although seven participants experienced nausea on POD 2, only six reported severity scores, with 66 per cent being mild and one a score of seven.

### Coping Strategies

Participants who experienced PDNV employed different methods to cope with the symptoms, most commonly eating or resting (Table 5). Other non-pharmacological strategies used were not eating and the use of a cold flannel. Four participants took an antiemetic to relieve nausea, with only six receiving a prescription for ondansetron on discharge. Of those who experienced PONV (n=11), only four received an ondansetron prescription, and for those with three or more risk factors (n=10) (Table 6), only three received a prescription.

### Effects on Quality of Life

PDNV affected the patient's ability to return to usual daily living. PDNV had the most significant effects on POD 0; participants reported PDNV affected their ability to take regular medications, eat, dress and participate in everyday family life. By POD 1, most participants

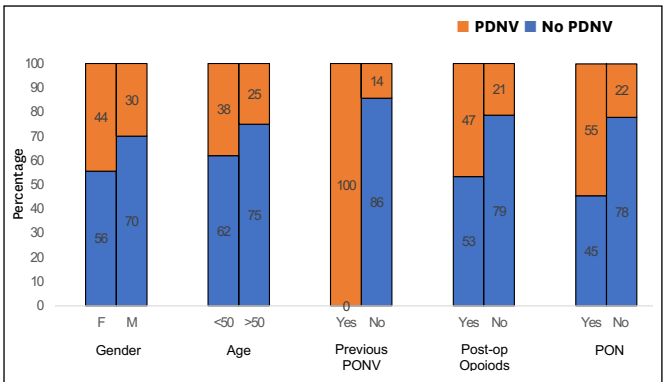


**Figure 1:** *Apfel Risk Factors For PDNV, Percentage of Participants With and Without PDNV for Each Risk Factor*

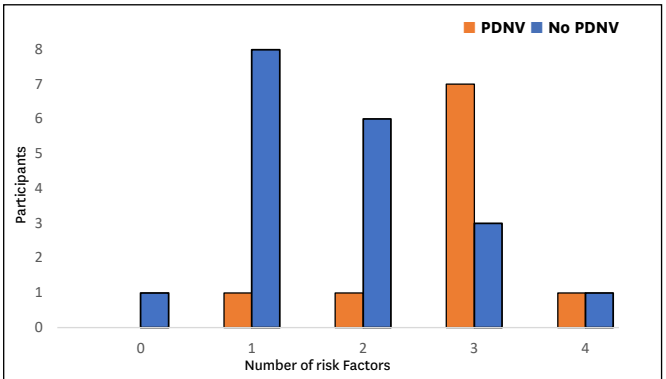


***Figure 2:*** *Comparison of the Number of Risk Factors in Those With and Without PDNV*

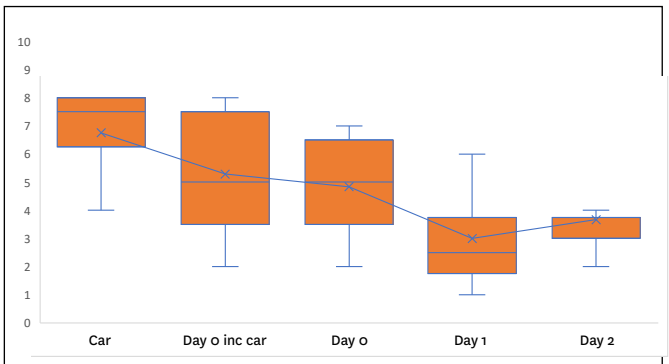


***Figure 3*** *Boxplot Showing Nausea Severity Scores Over the Three-Day Study Period*

Note. Including mean markers and line, and outliers. Quartile calculation, inclusive of the median. Day 0 including car; if the participant was nauseous in both periods, the highest score was used.

| Table 5 | How Participants Coped With PDNV | | |
|---|---|---|---|
| | POD 0 (N=7)<br>n | POD 1 (N=5)<br>n | POD 2 (N=7)<br>n |
| Eaten (%) | 4 (57.1%) | 2 (40%) | 1 (14.2%) |
| Not Eaten (%) | 1 (14.2%) | 0 | 1 (14.2%) |
| Rested (%) | 5 (71.4%) | 4 (80%) | 1 (14.2%) |
| Other* (%) | 1 (14.2%) | 0 | 0 |
| Antiemetic** (%) | 3 (42.8%) | 4 (80%) | 4 (57.1%) |
| Note. *Cold flannel **When specified, ondansetron | | | |

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|---|---|---|---|---|---|---|---|---|
| | | | | | | mm | Each | Each |
| AGANI | AN*1838N | 1143998 | | Blunt 90° | 18G | 38 | 100 | 10000 |
| Unisharp | UDR38 | 1179963 | | Blunt 40° | 18G | 38 | 100 | 10000 |
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| Table 6 | *Crosstabulation of Ondansetron Prescription by Number of Participant Risk Factors* | | | | | |
|---|---|---|---|---|---|---|
| | Number of risks | | | | | |
| | 0 | 1 | 2 | 3 | 4 | Total |
| No Ondansetron | 1 | 9 | 4 | 8 | 1 | 23 |
| Ondansetron | 0 | 0 | 3 | 2 | 1 | 6 |
| Total | 1 | 9 | 7 | 10 | 2 | 29 |

felt it did not affect their life, although this increased again on POD 2, predominately affecting eating and family life.

## Discussion

This study found that a third of patients undergoing elective, day-stay ORL surgery experienced PDNV.

The overall incidence of PDNV (34.5 per cent) indicates that PDNV is a side effect of day-stay surgery that should not be overlooked, with 60 per cent of those with PDNV saying it affected their activities of daily living at some point over the study period.

The overall incidence in this study is similar to previous reports of 35 per cent to 50 per cent (Viswanath et al., 2017), though higher than 26.3 per cent reported by Maraş & Bulut (2021), and lower than 56.1 per cent reported by Viswanath et al. (2017) or the up to 72 per cent reported by Brookes et al. (2015). These differences may be due to many factors including, the majority of previous research having taken place in either the United States or Europe, that have differing drugs available, and many of these studies include a variety of different surgical specialities, some of which may have a higher incidence of PDNV.

Unsurprisingly, we found that risk factors for PDNV previously identified by Apfel et al. (2012), such as female gender, age under 50, postoperative opioid use and current PON, were also found in this study. We also found, similar to Apfel et al. (2012), that the more identified risk factors the patient has, the higher their risk of developing PDNV.

Four-fifths of participants that experienced PDNV had three or more risk factors, and nearly four-fifths of those with no PDNV had two or fewer risk factors. Using a risk score of three or more as high-risk for developing PDNV, the Apfel PDNV would have identified 80 per cent of participants who experienced PDNV, validating its use in this patient population.

Opioids are a known risk factor for PONV and PDNV (Apfel et al. 1999, Apfel et al. 2012); despite this, half of the participants in this study received postoperative opioids.

In this study, there was no significant association between opioids and the development of PDNV, although nearly half of those who received opioids reported PDNV, compared to a fifth of those who did not receive opioids experiencing PDNV.

The use of alternative analgesics such as paracetamol or parecoxib should be considered to reduce the use of postoperative opioids. Parecoxib, a long-acting intravenous non-steroidal anti-inflammatory with a mean duration of 15-22 hours, has been shown to reduce the need for other analgesics up to 24 hours following oral and orthopaedic surgery (Medsafe, 2019).

The use of postoperative opioids must be balanced against the patient experiencing pain, which is also recognised as a cause of postoperative nausea (Aubrun et al., 2019; Odom-Forren et al., 2015; Yosief et al., 2022).

Odom-Forren et al. (2013) examined PDNV on postoperative days three to seven and found postoperative pain with activity a significant predictor of PDNV in this period. They also examined the relationship between pain and nausea in day-stay patients for the first seven days postoperatively and found a moderate correlation between the two (p=<0.001) (Odom-Forren et al. 2015).

There is little current evidence regarding PDNV following ORL surgery, with much of the research with ORL participants around PONV and including paediatric patients: however, as prior PON and current PONV are risk factors for PDNV, this literature cannot be overlooked.

A risk in many ORL surgical procedures, for example, tonsillectomy, is passive blood flow into the stomach (Erkalp et al., 2014), which may stimulate PONV (Apipan et al., 2016; Hooper, 2015b).

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This study supports passive blood flow causing PDNV, with three-quarters of participants that had undergone a tonsillectomy or adenoidectomy or both experiencing PDNV; this was the only surgical procedure participants underwent in this research which reached statistical significance (p=0.03).

## Limitations

There were a number of limitations to this study. Firstly, identifying eligible participants planned for day-stay surgery was difficult due to conflicting information on the surgical booking form, preoperative assessment and surgical list. The inpatient form completed by PACU and ward was rarely fully completed; however, the response rate for the in-hospital data form in PACU was high, and there was an excellent response rate for the online survey.

The online survey allowed for accessible data collection for most participants; however, participants could complete it all on the first day if they chose, which could result in some unreliable data. This data was not analysed, so it is unknown if this happened.

This study did not examine postoperative pain at any point, which is recognised as stimulus of nausea.

The effects of COVID-19 outbreaks and subsequent restrictions on surgery and effects of lockdowns, impacted this small single-centre study, affecting the consent process, surgical lists, participant numbers, and the researcher's ability to access the hospital and keep staff fully engaged.

## Recommendations for future practice

Despite these limitations, this study provides valuable data on the incidence of PDNV in this patient cohort, where evidence is minimal, and makes the following recommendation for future practice:

- A formal preoperative risk assessment for PONV undertaken for all preoperative patients.
- Preoperative education to patients with two or more identified risk factors.
- A formal postoperative assessment for PDNV on the ward before discharge.
- Following assessment, all patients with PONV and those with three or more risk factors of PDNV receive a prescription for antiemetics before discharge.
- All patients receive a follow-up call from a registered nurse the next day to see how they are recovering. This could enhance the patients perioperative experience by opening the door for patients experiencing PDNV, or other postoperative issues to reach out for help.

## Conclusion

PDNV was reported in a third of participants undergoing day-stay ORL surgery. The highest incidence was on the day of surgery, with the severity being worse in the car whilst going home. Participants reported eating and resting as the most common method of coping with PDNV, and their lives were affected in various ways including eating and participating in family life.

An assessment of a patient's risk of developing PDNV prior to discharge should be routine and access to appropriate antiemetics provided for those found to be at moderate to high risk.

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# Vasovagal syncope
## prevention and management

By Liying Duan

**Abstract:** The vasovagal reflex is an automatic response when the vagus nerve is stimulated. Vasovagal syncope may follow resulting in transient loss of consciousness. The vasovagal reaction is the most common adverse patient event experienced in the outpatient radiology setting. It is distressing and potentially dangerous for the patient and a source of concern for particularly inexperienced members of the multidisciplinary team. The pathophysiology and management of this reaction is reviewed with the intent of developing a staff education package.

**Keywords:** vasovagal syncope, vasovagal reflex, radiology, loss of consciousness

### Introduction

Vasovagal syncope is a relatively common event in the outpatient radiology setting resulting in transient loss of consciousness. This is caused by a short period of inadequate blood flow to the cerebral tissues, most often the result of a sudden drop of systemic blood pressure (Centeno et al., 2018; Kenny & McNicholas, 2016).

Several diagnostic procedures carried out in radiology can precipitate this adverse event. The most common is the insertion of an intravenous (IV) cannula for either CT (Computed Tomography) or MRI (Magnetic Resonance Imaging). Vasovagal syncope may also occur in response to pain during general X-rays, particularly of the neck, or where fractures are potentially present.

Ultrasound vascular studies of the legs with the patient standing and fine needle biopsies of the head and neck are also common triggers. Cervical contact during a hysterosalpingogram (HSG) may also cause a vasovagal reaction.

The nursing team in the Radiology Department at Greenlane Clinical Centre has always encouraged Medical Radiation Technologists (MRT) to immediately summon their help with any patient causing concern. However, a number of recent events, while managed safely, highlighted the need for a multidisciplinary education package to enhance staff understanding and confidence in potentially anticipating and managing these episodes. For example, a young man undergoing an X-ray of his fractured wrist before the removal of a cast became pale, sweaty, and lost consciousness when the cast was opened, and he saw his exposed wrist. On another occasion, a young man witnessing an IV cannula being inserted for his CT scan, immediately complained of dizziness and fainted.

In this article, the pathophysiology of vasovagal syncope is reviewed, common triggers are discussed, symptoms are identified and the treatments researched. It is intended that the literature sourced, together with input from experienced staff will form the basis of an education package. This will not only be valuable for staff new to radiology and MRT students but also provide a valuable refresher for the whole multidisciplinary team.

### Pathophysiology of vasovagal syncope

According to Kenny and McNicholas (2016), there are three types of syncope: reflex syncope, syncope due to orthostatic hypotension, and cardiac syncope. Vasovagal syncope is the most common cause of syncope and is a type of reflex resulting from an overall decrease in blood flow to the cerebral tissue (Bolen, 2022; Dijk, Rossum & Thijs, 2021; Kenny & McNicholas, 2016).

Vagus is Latin, meaning "fugitive," or "wanderer"; the vagus nerve is the longest and most widely extended of the nerves and plays a critical role in the regulation and maintenance of homeostasis in functions relating to digestion, satiety, respiration, blood pressure, and heart rate control (Hauser, 2023). If the vagus nerve is suddenly stimulated, the reflex response will occur automatically (Bolen, 2022). The vasovagal reflex causes vasodilation by withdrawing of the sympathetic system and bradycardia by disinhibiting the parasympathetic system and activating the vagal system (Dijk et al., 2021). These factors lead to a drop in peripheral vascular resistance, producing excessive blood pooling in the peripheral vasculature and resulting in a sudden drop in the return of blood from peripheral veins (Dani et al., 2021). It is then followed by a sudden drop in the heart rate and blood pressure, leading to decreased profusion to systemic end organs and insufficient supply of oxygen to the brain, ultimately resulting in cerebral hypoperfusion and syncope.

### Causes and symptoms

From a pathophysiological viewpoint, vasovagal syncope has two different types: orthostatic vasovagal syncope and emotional vasovagal syncope (Kenny & McNicholas, 2016). The most common trigger for orthostatic vasovagal syncope is prolonged standing, but combinations with triggers like a hot environment can cause vasovagal syncope to occur much earlier.

Emotional vasovagal syncope is triggered by strong emotions, such as pain, fear and foul smell. However, a combination of the triggers is also possible. Acute emotional vasovagal reactions leading to syncope or presyncope are common in several stressful settings such as IV cannulation, blood testing, or intrauterine device (IUD) insertion (Kenny & McNicholas, 2016).

The vasovagal reflex is not necessarily abnormal and the nerve pathways involved are most likely present in everyone (Bolen, 2022). One study notes that 42 per cent of women and 32 per cent of men experience at least one vasovagal syncope event by the time they reach

the age of 60 (Bolen, 2022). According to this study, some people tend to faint more often than others. Meanwhile, Alboni and his colleagues (2007) found that vasovagal syncope is not generally associated with cardiovascular, neurological or other diseases and therefore represents an isolated manifestation. Isolated vasovagal syncope is not regarded as a disease (Alboni, Brignole & Uberti, 2007).

Vasovagal syncope has precipitating factors, such as fear, severe pain, emotional distress, instrumentation or prolonged standing and is typically associated with prodromal symptoms (Dani et al., 2021). It usually starts with a feeling of warmth, vague nausea, abdominal cramps, and a desire to sit down or leave the room. However, during this period, if no preventative measures are taken, light-headedness, a swimming sensation or dizziness, cold sweats, fatigue, blurred and fading vision, palpitations, especially in young patients, sounds 'coming from a distance' and buzzing in the ears are common symptoms to follow. Just before the faint, facial pallor or greyness, tachypnoea, excessive sweating, restlessness, salivation, pupillary dilatation, staring and hearing loss may occur, followed by loss of consciousness. Most reactions are transient and resolve spontaneously.

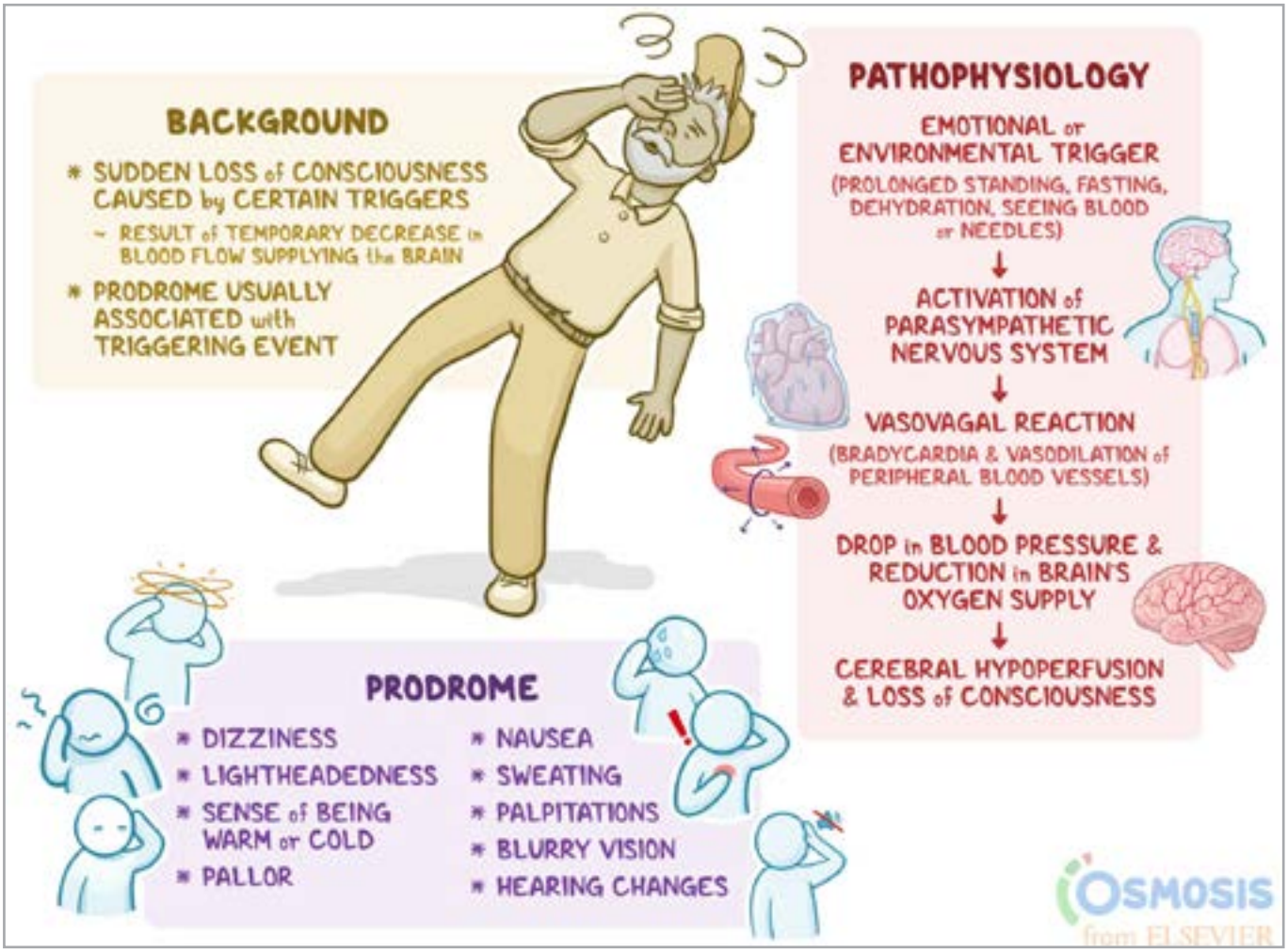
### Prevention and management

Though vasovagal syncope is common and usually not a dangerous condition as episodes are transient and self-limiting, the rapid loss of consciousness can be scary for patients and their family members and there is a risk of falls and trauma, as well as affecting the patient's sense of physical control and self-esteem (Krediet et al., 2022). However, these episodes are largely preventable. Early detection and patient education is the key.

According to evidence-based research, vasovagal reactions occur more frequently in people who have a predisposition (Dijk et al., 2021). Therefore, to avoid a possible syncopal event, patients should be asked if they have ever fainted or passed out at the sight of blood or when having an injection or a procedure. If the response is affirmative, health staff can place the patient in a lying position when cannulating or place a chair beside the patient when standing is required. Healthcare staff should accept and respect their emotional feelings and acknowledge that such episodes can be scary, assure them that these symptoms will pass and that calming self-talk and mind-over-body practices can be helpful to get through a stressful period and avoid panic. It is important to maintain communication with the patient and empower patients to inform the staff about any early warning symptoms.

Meanwhile, patients should be taught that they can prevent it from happening again by drinking plenty of water before their appointment, crossing their legs and tightening their hand, arm and leg muscles during the procedure. Many studies (Dani et al., 2021; Han et al., 2006; Kenny & McNicholas, 2016; Wieling, 2022) have confirmed that leg crossing combined with muscle tensing when applied at the onset of prodromal symptoms can delay or prevent syncope or a full vasovagal reaction and fainting.

Leg crossing produces a rise in cardiac output and blood pressure, while muscle tensing causes an increase in heart rate and an additional rise in blood pressure. The physical manoeuvres are easy to perform, safe and should be recommended for patients with previous experience of vasovagal events, hopefully preventing vasovagal syncope during medical procedures. Patients should be informed how to perform the



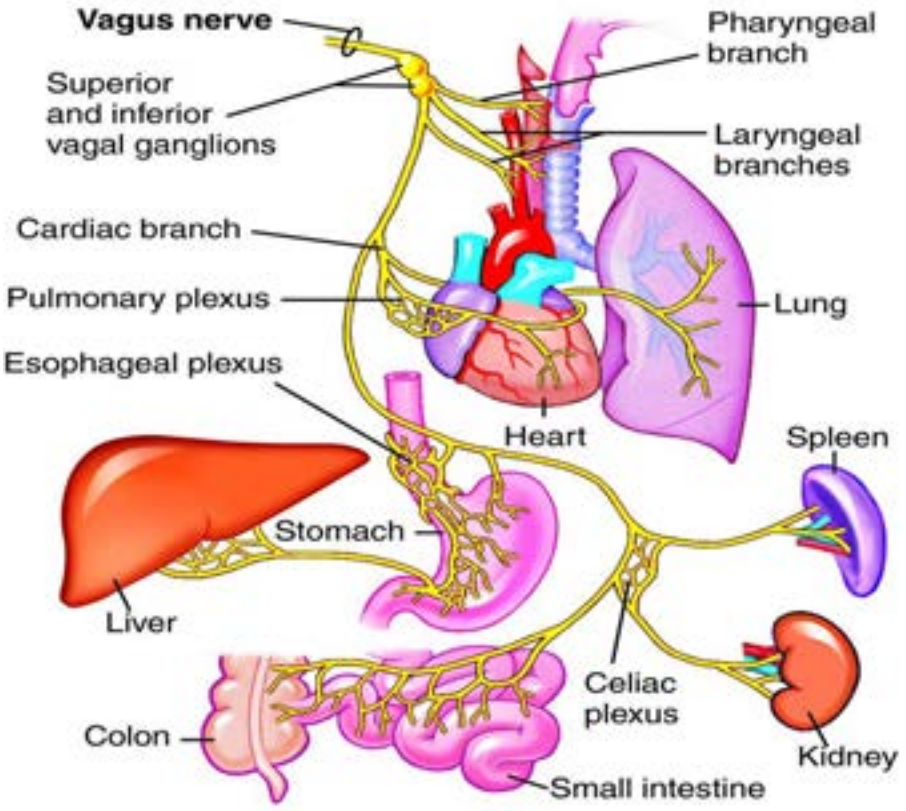

*Vasovagal syncope: What is it, causes, prevention, and more. (From Hernandez A., (2023) https://www.osmosis.org/answers/vasovagal-syncope ).*

physical manoeuvres if they start to feel early warning symptoms.

If an acute episode occurs, patients should be assisted to sit or lie down quickly and elevate the legs. This decreases gravitational demands on blood flow, increases venous return by draining the splanchnic pooling into the right heart, rapidly improving preload, stroke volume and cardiac output and quickly restoring oxygen return to the central nervous system.

Resumption of cerebral perfusion should therefore occur, allowing both sympathetic and parasympathetic responses to quickly return to normal (Pallais et al., 2011). Recovery generally occurs after less than one minute (Pallais et al., 2011). Any episode lasting more than a few minutes is not syncope and is more likely to be related to a seizure or other acute neurologic process which needs to be further investigated (Grossman & Badireddy, 2023).

Patients should be placed in a horizontal position with legs elevated after the acute event, then encouraged to gradually sit up as they feel better. Before patients leave the department, education should be given about how to recognise the warning symptoms of pre-syncope, physical manoeuvres to help prevent this and the importance of informing staff of the prior event.




*In vasovagal syncope, the vagus nerve will cause an abrupt vasodilation/decreased cardiac output in the affected patient. This in turn will decrease arterial blood pressure, reducing perfusion of blood to the brain. (Image courtesy Stepwards: https://www.stepwards.com/?page_id=7507).*

## Conclusion

The vasovagal reflex is an automatic response when the vagus nerve is stimulated. Vasovagal syncope is a common experience that patients have in the outpatient radiology setting. Syncope and the sensation of syncope are secondary to the vagal reflex that causes a sudden drop in blood pressure and heart rate causing the patient to feel faint. Vasovagal syncope has precipitating events and is associated with typical prodromal symptoms. Though vasovagal reactions are common and can be scary for both the patient and staff, they are often preventable with care and vigilance. Early detection is the key. Recognising the signs and symptoms of a vasovagal reaction and maintaining effective communication with the patient is important. Healthcare staff should pay attention to patients' medical history, recognise early warning signs and do their best to avoid the patient fainting. The physical manoeuvres are easy to perform, safe, and should be recommended for treatment and subsequent prevention of vasovagal syncope. Meanwhile, patients should be educated about recognising the warning symptoms and inform the healthcare staff, ideally before the procedure.

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# Delirium in PACU

## are we screening our patients?

By Eby Eapen-Mathew

**Abstract** Postoperative delirium has been identified as a major concern, especially for elderly patients. However, the literature suggests there are gaps in the knowledge of delirium among PACU nurses as well as in the application of appropriate screening tools. This article looks into the concept of delirium and introduces some of the screening tools and the recommendations of the relevant bodies.

**Keywords** Delirium, Post Anaesthetic Care Unit (PACU), screening tool

### Introduction

Post Anaesthesia Care Units (PACU) cater to patients recovering from various types of anaesthesia. PACU nurses often receive unconscious patients who traverse an unpredictable trajectory, both haemodynamically and from a neuro-cognitive perspective. Good assessment skills in a time-constrained environment are a key attribute of any PACU nurse.

Perianaesthesia Nursing Standards of the American Society of PeriAnaesthesia Nurses (ASPAN) stipulate screening for the 'presence of delirium' as a component of initial and ongoing assessment in phase one recovery (ASPAN, 2018). However, it appears that screening for postoperative delirium is often overlooked in PACU.

Aldwikat et al. (2023) say that there is a 15 to 25 per cent incidence of delirium reported after major elective surgery and 50 per cent after emergency surgery and in PACU the incidence varies between 4.1 to 45 per cent.

Inouye et al. (2015) describe delirium as the most common surgical complication in older adults with an incidence of 5 to 50 per cent.

In this article, the diagnostic criteria for delirium are provided and screening tools are discussed, along with their importance in the PACU setting.

### Delirium Diagnostic Criteria

Delirium is described as an acute decline in cognitive function and attention and represents acute brain failure (Inouye et al., 2015).

The Diagnostic and Statistical Manual of Mental Disorders has the following diagnostic criteria for Delirium (American Psychiatric Association, 2022):

A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) accompanied by reduced awareness of the environment.
B. The disturbance develops over a short period (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during a day.
C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception).
D. The disturbances in Criteria A and C are not better explained by another pre-existing, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.

### Screening for Delirium in PACU

Hight et al. (2018) stress the importance of delirium screening in PACU by saying that delirium diagnosed in PACU is often associated with adverse clinical outcomes. They add that the effects of anaesthesia and physiological consequences, such as pain, complicate the assessment of delirium and call for an appropriate screening tool and education.

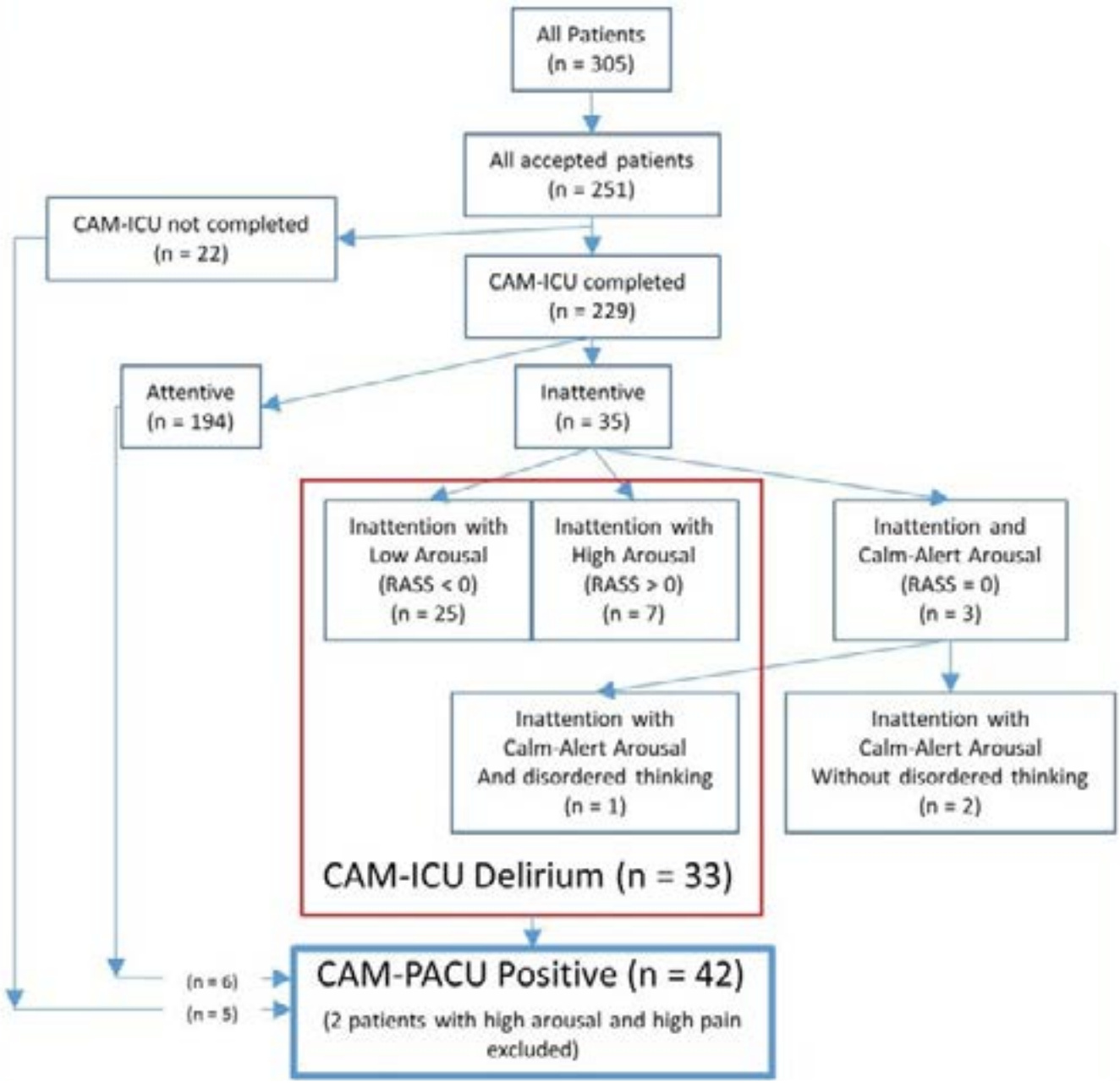
The American Geriatrics Society, in its best practice statements on postoperative delirium in older adults, recommends that healthcare professionals should be trained to recognize the signs and symptoms associated with delirium (Inouye et al., 2015).

A study titled 'Nurses Knowledge of Delirium: A Survey of Theoretical Knowing' found that nurses held substantial theoretical knowledge but it was not always transposed into practical application (Christensen, 2016). Various tools, specific and non-specific to PACU, are available for delirium screening. For example, 3D-CAM, a three-minute delirium assessment method derived and simplified from the confusion assessment method (CAM), the 4 'A's test, NuDESC – Nursing Delirium Screening test (Aldwikat et al., 2023, Banerji et al., 2022).

Aldwikat et al. (2023) say that despite having tools that have shown high sensitivity and specificity for delirium screening in PACU, delirium is still under-recognized by nurses in PACU and the orthopaedic ward. They say that this is despite the recommendation from bodies such as The Australian Commission on Safety and Quality in Health Care in the Delirium Clinical Care Standard (Australian Commission on Safety and Quality in Healthcare, 2021). It is interesting to note that in the same article, they comment on how nurses in the ward and PACU felt that some modification in the tool is necessary to increase adaptation and utilization.

Research by Hight et al. (2018) led to a modified tool called CAM-PACU, which was modified from CAM-ICU. They suggested that the sensitivity of CAM-ICU in diagnosing delirium or disordered thinking is improved by the inclusion of extra criteria for its use specifically in PACU and named it CAM-PACU.

Agitation associated with severe post-surgical pain and decreased level of arousal from the residual anaesthetic agent are two important factors in PACU patients, differentiating them from patients in ICU and are hence included in the PACU-specific CAM assessment.




*Flow-chart showing the number of patients diagnosed with delirium according to the confusion assessment method-intensive care unit (CAM-ICU), or who were confusion assessment method-post anaesthesia care unit (CAM-PACU) positive. (Hight et al., 2018, p4)*

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The test was administered 15 minutes into the PACU stay according to the authors. A brief description of the above-mentioned tools is given in the boxes below.

**The 3D-CAM** is a three-minute delirium assessment method derived and simplified from the Confusion Assessment Method (CAM).

The 3D-CAM takes four features into consideration for determining whether a patient is delirious or not:

1. acute change and fluctuating course
2. inattention
3. disorganised thinking
4. altered level of consciousness

**The 4AT comprises assessment of four items:**

1. alertness
2. cognition (using the Abbreviated Mental Test-4 (AMT4), which requires the patient to state their age, date of birth, present location and current year)
3. attention (the patient is asked to state the months of the year in reverse order)
4. acute changes (or fluctuating alertness or cognition arising in the last two weeks and still evident in the last 24 hours – a core diagnostic feature of delirium. Information may be obtained from different sources, including next of kin, nurses and carers of the patient, and also from patient medical records. *(Aldwikat et al, 2023, p e-30)*

## Conclusion

In summary, there is evidence to conclude that knowledge and screening for delirium are important in a PACU setting postoperatively. The American Geriatrics Society recommends healthcare systems should implement formal education programmes with refresher sessions to improve the understanding of the epidemiology, assessment, prevention, and treatment of delirium (Inouye et al., 2015). They also recommend using a validated delirium screening instrument in practice. The introduction of this PACU-specific tool for delirium screening will be a worthwhile quality improvement activity to improve patient safety and care.

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# Pre-operative Screening for Delirium

By Bron Taylor R Comp N, MN (First Class Hons)

**Abstract** Acute episodes of delirium are more likely to occur in older patients with a degree of cognitive impairment. Cognitive screening of all patients over 75 years of age is routinely included in the anaesthetic pre-assessment at Te Toka Tumai Auckland to identify 'at risk' patients. This approach alerts the patient and whanau of the potential risks and strategies and allows appropriate post-operative care planning.

**Keywords** Delirium, pre-operative screening, Mini-ACE, post-operative planning

## Introduction

Delirium can be defined as an acute decline in cognitive function and attention (American Geriatrics Society Expert Panel, 2015 as cited in Fiamanya et al., 2022). It is reported to be the most common surgical complication in the elderly, affecting up to 50 per cent of older adults (Fiamanya et al., 2022).

Cognitive impairment has been identified as a predictor of postoperative delirium in older patients (Fiamanya et al., 2022). Postoperative delirium in patients who have undergone major elective surgery is associated with worse in-hospital outcomes including higher mortality, increased length of hospital stay and a decrease in overall function (Culley et al., 2017; Amando et al., 2019; Fiamanya et al., 2022).

The importance of screening for cognitive impairment as part of a comprehensive pre-operative assessment is outlined along with the tool used by the Anaesthetic Department at Te Toka Tumai Auckland.

## Cognition

The normal ageing brain undergoes a decline in cognitive abilities. In the United States, between 35 and 50 per cent of those over 65 years old are said to have mild cognitive impairment or dementia (Culley et al., 2017). Pain, depression and polypharmacy are possible factors that may be responsible for altering the trajectory of decline. Older patients and those with pre-existing cognitive dysfunction are predisposed to postoperative cognitive changes. The combination of anaesthesia and surgically induced neuroinflammation may also play a role (Amando et al., 2019). The baseline cognitive status of patients must be known for interventions to be enacted that may improve outcomes (Amando et al., 2019).

## Pre-operative Screening for Delirium

Preoperative assessment reviews a patient's physiological status to predict perioperative outcomes (Fiamanya et al.s, 2022). It is especially important in older adults as it helps in the planning and execution of anaesthetic and post-operative care (Culley et al., 2017).

Older adults have a higher rate of perioperative complications and poor surgical outcomes, including sustained functional decline (Culley et al., 2017). The patient's cognitive status should be one of the measures of the preoperative assessment (Fiamanya et al., 2022). Standard neurophysiological tests can be very time-consuming and not practical in a busy preoperative assessment clinic. Therefore, a brief, easily administered and scored cognitive assessment with a high inter-rater reliability is recommended (Culley et al., 2017).

## Pre-operative Cognition Screening at Te Toka Tumai |Auckland

The Anaesthetic PreAssessment clinic at Te Toka Tumai conducts cognitive screening on all patients 75 years and older who are assessed by a Nurse Specialist or anaesthetist pre-operatively. Cognitive screening in the clinic provides a pre-operative baseline and highlights patients who are at increased risk of postoperative cognitive issues. Identifying this high-risk group provides an opportunity to inform patients of the risk of postoperative cognitive issues, enables them to plan for this possibility and potentially provides an opportunity to prevent episodes of delirium. There is also an opportunity to discuss with the whanau/family how they can assist and address whether the patient has an Enduring Power of Attorney (EPOA).

Patients with an existing diagnosis of cognitive impairment or dementia proceed straight to the high-risk pathway. Patients with no pre-existing diagnosis will have a Nurse Specialist perform a Mini-Addenbrooke (Mini-ACE) cognitive screen befores their anaesthetic assessment.

The Mini-ACE is a brief cognitive screening test that evaluates four main

cognitive areas (orientation, memory, language and visuospatial function). It takes around five minutes to complete and is straightforward and easy to use (New Zealand Dementia Foundation, 2023). Training to complete the test is completed online at https://www.nzdementia.org/mini-ace.

One of the greatest risks of postoperative delirium is pre-existing cognitive impairment, so if anyone scores 25/30 or below on the Mini-ACE screening tool they get a high delirium risk alert sticker inserted in their notes and the patient will proceed on to the high-risk pathway.

The high-risk pathway includes:

- Letter sent to their GP informing them of the screening result and suggesting more formal cognitive screening if there are ongoing concerns;
- Informing the patient that they are at higher risk of post-op confusion, giving them a delirium information leaflet and highlighting some simple things they can do to possibly reduce their risk;
- Checking whether they have an EPOA in place and if not, if not, suggesting they think about one;
- Placing a sticker in the patient's notes to inform ward staff that they are at high risk of postoperative delirium.

## What can be done to reduce postoperative cognitive issue risk?

Measures to reduce the risk of postoperative issues include ensuring the patient takes in glasses and working hearing aids, has a treasured personal item and arranges for family to visit postoperatively. There is some evidence that physical exercise and stimulating the brain with reading/puzzles etc. may help (Xiang, 2019).

Good ward care is the most effective postoperative intervention. Good care includes well-managed analgesia, mobilisation, hydration, nutrition, sleep hygiene, avoiding constipation and or urinary retention and ensuring the patient does not have any sensory deficits such as no glasses, is within sight of a window and is oriented to the unit (Xiang, 2019).

## Conclusion

Preoperative screening in the clinic provides a baseline assessment and an opportunity to prevent episodes of delirium. It also offers a chance to inform patients of the risk of postoperative cognitive issues, enabling them to plan for this possibility. Healthcare staff are also alerted to the need for added vigilance and planning to prevent falls and other injuries.

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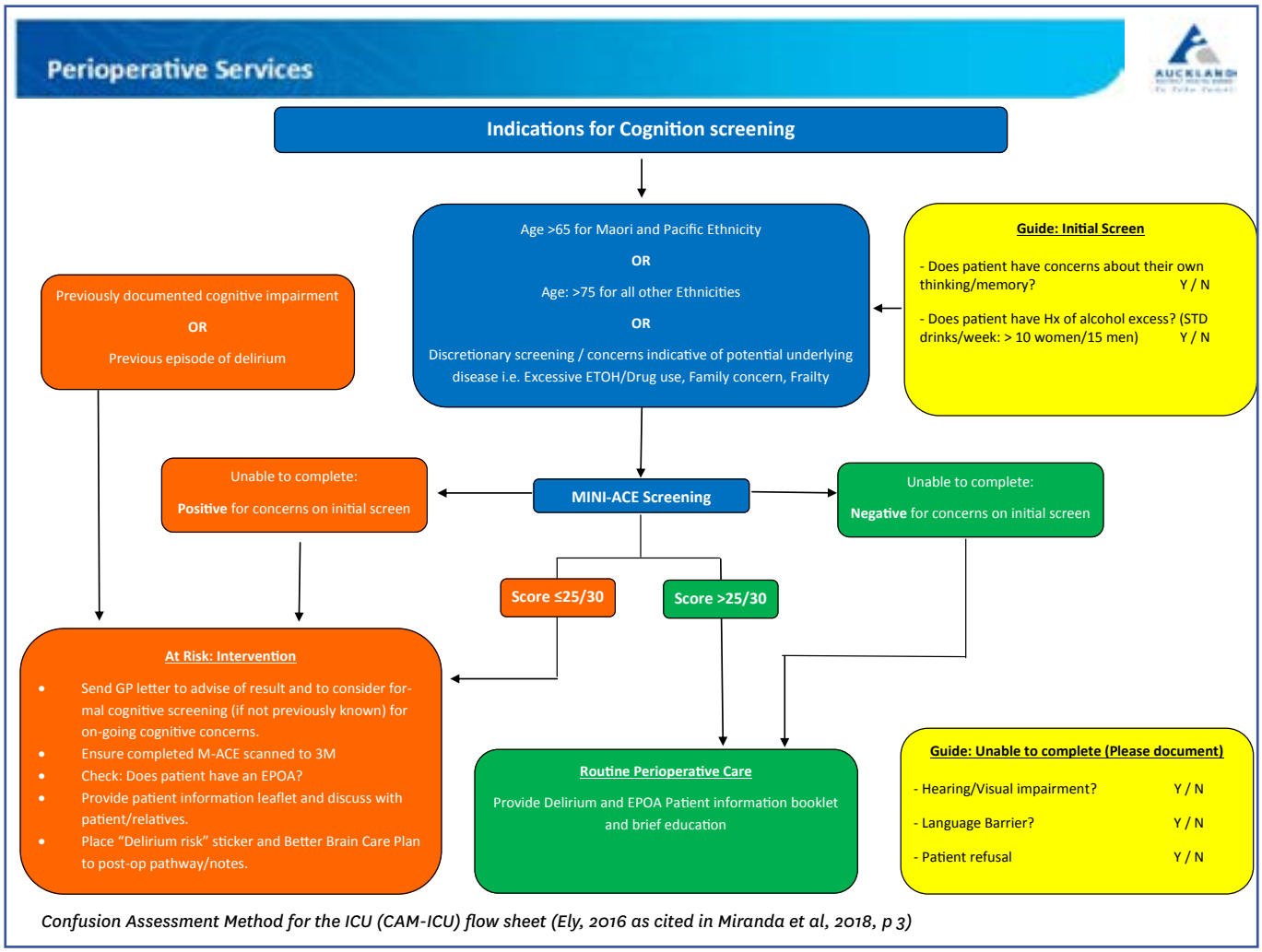


*Confusion Assessment Method for the ICU (CAM-ICU) flow sheet (Ely, 2016 as cited in Miranda et al, 2018, p 3)*

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