

November | 2018



EMERGENCY NURSE NEW ZEALAND

The Journal of the College of Emergency Nurses New Zealand (NZNO)

ISSN 1176-2691



In this issue

Features

P 9

**Managing the Bariatric Patient
in the ED setting****Authors: Dr Sandra Richardson
Shirley Harris**

P 22

**Case Study: Kawasaki disease
treatment and management****Authors: Morag Lawson CENNZ**

P 16

**HIV, PEP and PrEP: A Guide
for Acute Presentations****Authors: Judy Gilmour
Rebecca Henley
Michele Lowe**

P 26

**CENNZ Grants and Awards
Recipients 2018**

P 42

Snippets Summer 2018

Regulars

P 3

**A Word from
the Editor**

P 27

Regional Reports

P 8

**Chairperson's
Report**

P 46

**NEW FEATURE
What are you
looking at?**

A Word from the Editor

Matt Comeskey

Editor | Emergency Nurse NZ

mcomeskey@adhb.govt.nz

Letters to the Editor are welcome. Letters should be no more than 500 words, with no more than 5 references and no tables or figures.

In this edition of the journal you'll find plenty of interest. In particular I'd like to draw your attention to two articles. The first being HIV in the New Zealand Context and the other a call for study participants in a nation-wide survey of ED staff looking at Workplace Wellbeing in the Emergency Department (WoWe). In times not too long ago neither of these two areas of research and practice may have been considered core ED work. The addition of both articles in this journal illustrates how our scope and research interests are expanding and changing. In both cases the information and opportunity to participate in and apply research findings may lead us to some worthy goals; helping to end HIV transmission in our community by 2025 and being better equipped to withstand the demands our professional role places on us.

Matt

Letter to the Editor

Working in a black and white world – ED Point of care Ultra sound

19 August 2018

At the time of writing this I am four days away from completing a competency assessment in basic soft tissue ultrasound, and wondering why I put my ageing brain through such stress (will it hold back impending dementia ??).

I have been dabbling in USS for the past six years now and this year decided to (attempt to) gain a recognized qualification in what is FAST (sic) becoming de rigueur in emergency care.

The course I have enrolled with is run by ASUM (the Australasian Society of Ultrasound in Medicine), it involves passing a physics test (ugh, got there on the 3rd attempt), logging up a whole lot of different scans (joint effusions, foreign bodies, muscle and tendon tears etc) and the aforementioned competency test. Interpreting USS images has added a whole new headache trying to make sense of a whole lot of black and white speckles, lines, grey bits and finally some of this is making sense.

Most importantly is how useful is this at the bedside, what is the benefit for the patient? In short it is immense. Routinely now I have used these skills to determine the need for arthrocentesis (or not), to check fracture reductions, to gain IV access, look for a pneumothorax, determine the depth and volume of an abscess and a number of other point of care uses that expedite patient care.

I am extremely grateful to CENNZ for offering me some financial support in this endeavour of mine and look forward to sharing my knowledge with other nurses who are interested in this.

Currently many of the courses are centred in Australia and are quite expensive. It is my hope that we can run a course in NZ in the not too distant future, watch this space!

Michael Geraghty

WOWe Letter

Tēnā kouto

Dear NZ Emergency Nurses...

We are looking to undertake a multisite assessment of **WoWe (Workplace Wellbeing)** in NZ EDs in early February 2019. This will be based upon a study conducted at Auckland City Hospital ED in early 2018 (*submitted to Emergency Medicine Australasia, awaiting review*).

Please see the abstract on page 5, for details.

Thank you

Ngā mihi nui

Dr Mike Nicholls, Emergency
Medicine Specialist

Adult Emergency Department

Auckland City Hospital

cennzchair@gmail.com

We will:

1. Provide the survey and take care of ethics requirements.
2. Provide analysis
3. Collate data for publication

What we need from you:

1. An expression of interest. Please let Mike Nicholls (mnicholls@adhb.govt.nz) know by Oct 27 2018 if you may be interested in being involved in having the survey done in your ED and whether you know others in your ED who may be similarly interested.
2. A group of clinicians/staff who would advocate for the survey, ensure adequate participation, and act upon any survey findings they consider important. Please consider discussing with other work groups in your department. Some EM doctors will (hopefully) already be aware of this proposed study.
3. An undertaking to get institution participation consent. I can assist with this.

Abstract

Workplace Wellbeing in an urban emergency department in Aotearoa New Zealand

Objectives:

Staff wellbeing is important for individuals and considered integral to the development and maintenance of high performing health systems. Unless baseline parameters of wellbeing are known, the effects of any interventions to improve staff wellbeing will remain uncertain. By clarifying staff perceptions and/or objective measures of important factors related to wellbeing, our primary goal was to assess the baseline wellbeing of staff in our central city emergency department (ED).

Methods:

A survey template, the WoWe@AED (Workplace Wellbeing at the Adult Emergency Department) was developed from several sources. Burnout was measured using the Copenhagen Burnout Inventory (CBI). Inclusion in the survey required that participants worked in our ED, all staff groups were eligible. The electronic survey was conducted using between 22nd January and 5th February 2018. Quantitative and qualitative data were analysed.

Results:

270 of 380 potential participants (71.1%) participated. All staff groups were represented. 72.4% agreed/strongly agreed that AED was an excellent place to work, 80.7% found their work meaningful. 42.0% felt well informed regarding important decisions. 183/380=48.2% completed the CBI. Personal burnout was 42.1% (n=77), work-related burnout 35% (n=64), client related burnout 27.9% (n=51). Nurses and females were significantly (<0.05) more likely to have burnout some or all domains. Four key themes were identified: supportive teamwork and relationships; providing high quality patient care; resourcing; and workload issues.

Conclusions:

Baseline indices of wellbeing of the frontline staff in a central city ED have been documented. These have informed wellbeing interventions. Future measures can be compared against these data.

Editorial Info

Subscription:

Subscription to this journal is through a membership levy of the College of Emergency Nurses New Zealand - NZNO (CENNZ). The journal is published 3 times per year and circulated to paid Full and Associated members of CENNZ and other interested subscribers, libraries and institutions.

Copyright: This publication is copyright in its entirety. Material may not be printed without the prior permission of CENNZ.

Website: www.cennz.co.nz

Editorial Committee

Emergency Nurse N.Z. is the official journal of the College of Emergency Nurses of New Zealand (CENNZ) / New Zealand Nurses Organisation (NZNO). The views expressed in this publication are not necessarily those of either organisation. All clinical practice articles are reviewed by a peer review committee. When necessary further expert advice may be sought external to this group.

All articles published in this journal remain the property of Emergency Nurse NZ and may be reprinted in other publications if prior permission is sought and is credited to Emergency Nurse NZ. Emergency Nurse NZ has been published under a variety of names since 1992.

Journal Coordinator/Editor:

Matt Comeskey:

Nurse Practitioner, ADHB

Email: mcomeskey@adhb.govt.nz

Peer Review Coordinator:

Matt Comeskey:

Nurse Practitioner, ADHB

Email: mcomeskey@adhb.govt.nz

Peer Review Committee:

Margaret Colligan: MHsc. Nurse Practitioner. Auckland City Hospital Emergency Department, ADHB

Lucien Cronin: MN. Nurse Practitioner. Auckland City Hospital Emergency Department, ADHB

Prof. Brian Dolan: FRSA, MSc(Oxon), MSc(Lond), RMN, RGN. Director of Service Improvement. Canterbury District Health Board.

Nikki Fair: MN. Clinical Nurse Specialist. Middlemore Hospital Paediatric Emergency Care, CMDHB

Paula Grainger: RN, MN (Clin), Nurse Coordinator Clinical Projects, Emergency Department, Christchurch Hospital.

Libby Haskell: MN. Nurse Practitioner. Children's Emergency Department Starship Children's Health, ADHB.

Sharon Payne: MN. Nurse Practitioner. Hawkes Bay Emergency Department, HBDHB.

Dr. Sandra Richardson: PhD. Senior Lecturer. Centre for Postgraduate Nursing Studies, University of Otago.

Deborah Somerville: MN. Senior Lecturer. Faculty of Medical and Health Sciences, University of Auckland.

Submission of articles for publication in Emergency Nurse New Zealand.

All articles submitted for publication should be presented electronically in Microsoft Word, and e-mailed to mcomeskey@adhb.govt.nz. Guidelines for the submission of articles to Emergency Nurse New Zealand were published in the March 2007 issue of the journal, or are available from the Journal Editor Matt Comeskey at: mcomeskey@adhb.govt.nz. Articles are peer reviewed, and we aim to advise authors of the outcome of the peer review process within six weeks of our receipt of the article.

CENNZ NZNO Membership:

Membership is \$25.00 and due annually in April. For membership enquiries please contact: **Kathryn Wadsworth**
Email: cennzmembership@gmail.com

Design / Production / Distribution:

Sean McGarry

Phone: 029 381 8724

Email: seanrmcgarry@gmail.com

Chairperson's Report



Greetings to Emergency Nurses of Aotearoa.

I would like to thank our Hawkes Bay emergency nursing colleagues for hosting the 27th National CENNZ Conference in October. It was a fantastic meeting and a time to rejuvenate our commitment to excellence in emergency care. The Waikato and Thames crew have now picked up the baton for 2019 and planning is underway. It really is great to be part of a professional group that has so much energy.

Attending the CENNZ conference reminded me that we must acknowledge and celebrate success. It was very positive to see and hear of the steady growth in Nurse Practitioner and CNS positions across emergency departments in NZ. The CENNZ database also suggests there are increasing numbers of nurses in advanced practice roles and many nurses engaged in pathways towards these. Getting to this point has been a marathon not a sprint, and while there is still much work to do it is good to see some momentum.

The College has introduced two 'Emergency Nurse Leadership' grants. These will provide opportunities for College members with leadership

potential to attend a highly regarded course that is currently held in Australia. Check out the details in the journal or on the CENNZ website.

At the NZNO AGM the CENNZ committee requested that NZNO prioritise work on violence and aggression experienced by emergency nurses in their work place. I am very pleased that NZNO has responded and engaged with WorkSafe NZ to work collaboratively on this issue and we have CENNZ representation on this working group.

Wishing everyone a very happy and safe summer season.

Jo King

Chairperson

College of Emergency Nurses New Zealand

Contact: cennzchair@gmail.com

Authors: Dr Sandra Richardson^{a,b},
RN, PhD | Shirley Harris^{b,c}, RN,
MHealSc, NP

Corresponding author:
Dr. S. Richardson
Sandra.richardson@cdhb.health.nz

Affiliations: ^aNurse Researcher, Emergency
Department, Christchurch Hospital, Canterbury
District Health Board ^bSenior Lecturer, Centre for
Postgraduate Nursing Studies, University of Otago,
Christchurch ^cNurse Practitioner, Allenton Medical
Centre, Ashburton

Abstract:

This paper highlights the knowledge gap in the management of bariatric patients in the emergency department. This is particularly relevant given the rising rate of obesity in the New Zealand population. Challenges to resuscitation, nursing care and procedures are addressed and discussed.

Keywords: Bariatric, Emergency, Nursing, New Zealand

Managing the Bariatric Patient in the ED setting

There is relatively little literature examining the issues associated with management of the bariatric patient in the Emergency Department (ED) setting, and even less that focusses on the specific concerns related to the more seriously unwell patient who may require active resuscitation. The terminology and definitions associated with management of individuals who are of greater than 'ideal' weight or expected body proportions vary, but in general the term 'bariatrics' is used to refer to the treatment of obesity and its associated conditions within the healthcare system, while obesity is the state in which an individual has a body weight which is in excess of that determined to be ideal/healthy/or representing the socially accepted norm measured by a pre-determined calculation.

The concern with obesity and the increasing proportion of bariatric patients within the healthcare services of developed countries has led to an associated awareness of many of the patient related concerns, but the lack of ED specific information presents a gap in the current knowledge base. Given that management of the acutely unwell patient, including expertise in the skills of resuscitation, are the core business of EDs, it is essential that practitioners have a clear understanding of and ability to respond to all vulnerable groups who may

present. This includes a need to recognise the specific issues associated with the management of the bariatric patient group within the wider population. New Zealand (NZ) is currently facing an obesity epidemic, with data showing that NZ has the third highest rate of obesity out of the 33 OECD countries, behind only the United States and Mexico. The NZ measure of obesity is a BMI of 30 or more (NZ Statistics 2017; MOH, 2016); in the data gathered for 2015/16 32% of New Zealander's were classified as obese, up from 27% in 2006/7. Statistics continue to show the disparities in health across ethnicities, with 47% of Maori adults and 67% of Pacific adults being obese. Those with a BMI of 40 or more, classified as extreme obesity, increased to 5.1% of the population in 2015/16, which represents approximately 192,000 adults (MOH, 2016). Data has shown that more females than males are likely to be in the obese categories, with twice as many females in the category of extreme obesity. Socioeconomic disparities are most noticeable in this category - data from 2011-2013 showing that adults in the most deprived areas were four times as likely to be extremely obese as those living in the least deprived areas (MOH, 2015). One in nine children are obese, with 20% of those living in the most socioeconomically deprived areas being in this category compared to 4% of those in the least deprived category (MOH,

Managing the Bariatric Patient in the ED setting cont.

2016). Findings from the 2016/17 health survey identified nearly 100,000 children aged between 2-14 years were obese, up 8.4% on the 2008/07 findings (MOH, 2017).

The argument is made that obesity is an independent risk factor for a number of health conditions (Guh, 1999, Reilly et al., 2003, Bell et al., 2011; MOH, 2017b), so it could be expected that those with a higher level of obesity will have even greater health risks, and as such be more likely to utilise the services of the ED (Hasegawa et al., 2014; Prendergast et al., 2013). Even if the consideration of co morbidities is put to one side, the risks associated with injury and the physiological changes associated with extreme obesity create a new set of concerns for healthcare staff working with this population.

This article is intended to highlight some of the challenges facing staff when dealing with the bariatric patient in an emergency setting. As such, it does not provide a comprehensive outline of all potential issues, or address the perspectives of all those involved in the interaction. The focus is on physiological changes and their implications as they relate to the essential management of the acutely unwell bariatric patient; consideration of transport, safe handling and ongoing nursing cares are not discussed in detail. It is acknowledged that all of these areas are of importance and should also be considered when looking at the care of this vulnerable population. In particular, additional to the physiological focus offered in this paper it is recommended that additional attention be given to the psychological and therapeutic aspects associated with the nurse patient interaction.

Definitions and measures

In order to understand the complexities of this patient group, a review of the basic definitions remains helpful, including the ways in which obesity in health settings are defined. Various definitions are typically grouped into one or more of the following: 1) those that rely on a patient's Body Mass Index (BMI), with pre-set parameters determining inclusion into different categories of obesity; 2) those which relate to a specific category or range of weights, often associated with the propensity for the weight/size of the individual to exceed the safe load capacity of equipment; 3) those which include a combination of 1) and 2) but also refer to physical measurements such as waist and hip circumference and distribution of body fat by pattern and associated risk of comorbidities. The BMI is a straight forward index of weight-for-height calculation commonly used to estimate the general category, in terms of underweight, healthy weight, overweight and obesity, there

remain issues with this. The current metric is weight in kilograms divided by the square of the height in metres (kg/m²). *The common example is given of a 70kg adult whose height is 1.75 m as follows:*

BMI = body weight (in kg) ÷ height (in meters) squared

BMI = 70 kg / (1.75 m²) = 70 / 3.06 = 22.9

Aspects to consider include that the BMI is not in fact a measure of body fat, but of body weight (CDC, n.d.; Cetin et al., 2016; Rothman, 2008). As a surrogate measure for body fat, although shown to have good correlation with other specific measures of body fat, and with future health risk, BMI is affected by an individual's gender, age, ethnicity and muscle mass. While acknowledging individual variance, on average older adults tend to have more body fat than younger adults with an equivalent BMI, while women typically have greater amounts of total body fat than men with an equivalent BMI. Individuals may have a high BMI because of increased muscle mass, as in the case of highly-trained athletes (CDC, n.d.). Studies have shown that measurement of obesity using BMI has poor levels of specificity and sensitivity (Deurenberg et al., 2001). Ethnicity has also been shown to impact on the accuracy with which BMI can be used as an indicator of risk. The World Health Organisation (2004) identified that Asians, in general, have a higher percentage of body fat compared with whites of the same age, sex, and BMI; Chiu et al., (2011) determined that Type 2 diabetes mellitus developed in South Asian, Chinese, and black participants at a lower BMI, younger age, and higher rate compared with their white counterparts (as cited in Cetin et al., 2016). BMI remains a commonly used tool however, largely because it is simple to use, non-invasive and inexpensive.

Of interest, the use of the BMI alone is likely to result in the inclusion of an overall group of individuals with a lower range of absolute weight than where predefined weight is used. This can be seen in the example provided by Hignett et al. (2007) who notes that individuals with a BMI of 30 and typical heights ranging from 1.63m (5ft 4 inches) and 1.83m (6ft) would be expected to have a weight within the range of 84.67kg and 100.47kg. An individual with a BMI of 40 and the same typical heights would be expected to weigh within the range of 112.90kg and 133.96kg.

The category of extreme or very severe obesity is also referred to in some literature as 'morbid obesity', typically being that group with a BMI over 40, while a further category has come to be recognised as the super obese, those with a BMI in excess of 50.

Managing the Bariatric Patient in the ED setting cont.

Table 1: Body mass index cut-off points for adults aged 18 years and over

New Zealand classification	BMI value (kg/m ²)	Risk of health conditions
Underweight	<18.5	Not applicable
Healthy weight	18.5–24.9	Average
Overweight	25–29.9	Increased
Obese	≥30.0	Substantially increased
• Obese (class I)	30.0–34.9	Moderate
• Obese (class II)	35.0–39.9	Severe
• Obese (class III): 'extreme obesity'	≥40.0	Very severe

Source: Adapted from WHO 2000

Physiological and technical challenges associated with obesity

Concerns are present in regard to both pathophysiological and technical issues when managing the obese patient, and these are heightened further with regard to the bariatric or morbidly obese individual. As well as overall weight, it is worth noting that fat in different anatomic distributions is associated with differing physiologic and pathophysiological consequences. The two primary patterns of fat distribution are described as android and gynoid. Android obesity refers to the deposition of fat around the trunk and upper body and this central or visceral obesity is associated with cardiovascular and metabolic disease profiles. Gynoid obesity refers to the pattern of fat distribution around the buttocks and thighs and this gluteal-femoral obesity has fewer specific links to co-morbidities (Pozza & Isidori, 2017). The bariatric patient will typically have fat distribution across multiple areas, often presenting with a combination of these two patterns. However, some individuals may have predominance to one or other of these distributions and this can indicate differences in likely complications. In addition to the physiological impact on blood flow, metabolism and co-morbidities, the distribution pattern will result in different patterns of skin folds and associated complications in management.

Core clinical issues that should be anticipated include potential difficulty with airway management, effective respiration and gas exchange, as well as circulatory difficulties and altered pharmacokinetics. Technical procedures such as intubation, vascular access, and urinary catheterisation can also become challenging. The management of the patient is often further complicated by the presence of associated co-morbidities such as hypertension, asthma and diabetes (Malhotra & Hillman, 2008; Ortiz & Kwo, 2015).

Primary Survey

Airway and Breathing

Specific difficulties in this population group related to airway - most notably limited mouth opening and neck mobility. Bag-mask ventilation can be difficult to achieve, and while there are factors contributing to difficulties with intubation, this is often the only viable option. Recommendations include use of a short handle for direct laryngoscopy, or where available, video-laryngoscope. Positioning is important - with the use of the ramped position advocated. This involves raising the head and torso by packing beneath the patient with towels or similar products, to raise sufficiently to achieve a level ear-to-sternal notch configuration (Dixon & Braude, 2015; Killian, 2015; Myatt & Hare, 2010). Alterations in functional lung capacity are typically present, with diminished total lung capacity. Fat mass loading of the chest and abdomen produces reduced chest wall compliance, with respiratory resistance increased. These features contribute to a reduction in Functional Residual Capacity (FRC), which in practical terms means that desaturation occurs more rapidly than in non-obese patients. This is further exacerbated when the patient needs to be placed in the recumbent position, for example if needing to sedate or intubate, which increases the already elevated intra-abdominal pressure. This in turn increases the risk of gastroesophageal reflux and aspiration. These combined anatomical and physiological changes further increase the risk of atelectasis and Acute Respiratory Distress Syndrome (ARDS) (Brunette, 2004; Dixon & Braude, 2015). These features make it difficult to auscultate and percuss the chest, for example if assessing for pneumothorax, and it is difficult to gain access and accurate placement for chest drains.

Circulation

Circulating blood volume, plasma volume, and cardiac output increase proportionately with rising weight and there is an associated increase in required oxygen consumption. There is a linear increase in blood volume of approximately 3ml per 100g of adipose tissue. In practical terms, this means there is a large volume of circulating blood, so the response to a fluid bolus is likely to be minimal. There is an increased risk of pulmonary hypertension or cardiomyopathy associated with long term extreme obesity, complicating fluid resuscitation. The increased body mass requires an increase in blood volume, which over time results in increased left ventricular load and compensatory left ventricular hypertrophy (Kilian, 2015; Ortiz & Kwo, 2015; Brown & Velmahos, 2006).

Managing the Bariatric Patient in the ED setting cont.

It can be difficult to achieve an accurate blood pressure (B/P), and at times the reality may be that there is not appropriate cuff available and an arterial line reading may be required. An incorrect cuff size often overestimates the B/P, giving false reassurance. Similarly, obtaining intravenous access, including central venous as well as peripheral options, may not be achievable. Moving directly to intraosseous (IO) access has been suggested, however this can also be problematic. The most common IO access sites are the proximal tibia and proximal humerus; while misplacement is a relatively rare occurrence, the implications can be serious. The two main complications are dislodgment or under penetration – typically as a result of incorrect needle length or excess subcutaneous tissue. Obese patients also have a higher likelihood of having knee replacement prostheses, limiting choice of access sites (Glazier, 2015; Kilian, 2015; Ortiz & Kwo, 2015).

The ECG is likely to show different features. Fatty infiltration of the heart may impact on wave amplitude, but before assuming that low voltage is due to size of the chest wall it is important to rule out pericardial effusion. While a longer QT interval is common, one greater than 500ms is rarely due to obesity alone, and although signs of left ventricular hypertrophy may be present, obesity associated cardiomyopathy should be considered and may indicate the need for an echocardiogram (Kilian, 2015).

In the event of cardiac arrest, further difficulties arise in managing the extremely obese patient. Where the initial responder is of small build, less than or around 50kg weight, it is unlikely that sufficient weight/pressure can be produced to perform effective manual chest compressions; where manual compressions are performed physical exhaustion and ineffective practice should be anticipated within a reduced timeframe. Studies have demonstrated that morbid obesity remains an independent predictor of increased mortality following in-hospital cardiac arrest, in the case of both non-ventricular and ventricular fibrillation (Shahreyar et al., 2017; Jain, Nallamouthu & Chan, 2010). Factors which may contribute to this include, physiological challenges but also delays with correct placement of defibrillation pads, difficulty with cannulation, airway management, and ability to position the patient.

Trauma management

While there is no clear evidence to suggest that individuals who are morbidly obese are at higher risk of trauma, there

are a number of studies that suggest that they are more likely to experience delays in healing, complications and extended hospital stays. A retrospective trauma registry study of 2,196 patients, grouped by BMI and stratified by Injury Severity Score (ISS) showed that obese patients suffered fewer head injuries as a result of falls and motor vehicle crashes (MVCs), at $P=.005$ and $P=.043$ respectively (Osborne et al., 2014). There was no significant difference in relation to penetrating trauma, however, obese patients had lower mortality from falls ($P=0.35$) but increased length of stay ($P=0.2$) and decreased likelihood of discharge home ($P=.003$) following MVCs. The pattern of injuries resulting from blunt trauma is likely to vary, with an increased likelihood of extremity fractures (Evans et al., 2011). Other studies have shown that obesity remains an independent risk factor for nosocomial infections, with a study by Serrano, Khuder and Fath (2010) demonstrating that obese trauma patients stay longer in ICU when compared to non-obese individuals with the same ISS; obesity prevalence in the sample of 1,024 patients was 30.6% and when considered by BMI categories, the risk of infection ranged from the low of 4.2% for those with a BMI < 25 up to 20.3% for those with a BMI of > 40.

Further practical complications in managing the bariatric trauma patient include the difficulty in enabling a complete secondary and tertiary survey. This includes difficulties in undertaking the physical examination, where normal anatomic landmarks are difficult or impossible to locate, often associated with overhanging pannus, multiple skin folds obscuring areas, the presence of obesity induced lymphoedema and difficulty moving body parts for examination.

FAST scan and imaging

Adjuncts to clinical diagnoses in the ED include reference to different forms of radiographic imaging, with the use of FAST scans a common feature in most trauma capable emergency settings. The challenges of managing the morbidly obese patient include limitations imposed on available services. Use of standard x-ray will depend on the availability of equipment with appropriate load capacity and dimensions for the individual patient, and the increased mass of the patient reduces image contrast. The ability to access CT and MRI may be impossible – not only does the overall weight of the patient need to be considered, but also the gantry aperture diameter in the absence of bariatric specific scanners. Where CT imaging is possible, the problem of imaging artifacts and poor quality can still influence the accuracy of diagnostic interpretation (Modica, Kanal & Gunn, 2011).

Managing the Bariatric Patient in the ED setting cont.

The use of ultrasound (US) is often the only possible application when seeking to gain additional urgent diagnostic information; while this is also challenging, with morbid obesity often considered a potential contraindication. However, in the absence of alternatives, this modality may still offer some useful information particularly with an experienced operator. Suggestions include selecting the transducer with the lowest frequency setting and enabling tissue harmonic imaging. The US should be set to 'penetrate' mode, and where possible the patient placed in a modified lateral position to displace the fatty panniculus to assist with ability to scan through the flank. Consideration needs also to be given to the potential for pericardial fat to be misinterpreted as clotted blood and for perinephric fat to be misinterpreted as intraperitoneal free fluid or subcapsular haematoma, (Modica, Kanal & Gunn, 2011; Richards & McGahan, 2017).

Pharmacokinetics and Pharmacodynamics

One of the often-overlooked issues in determining appropriate medication administration for obese and severely obese individuals is the need to look beyond just increasing the dose in line with an increased body mass, and determining an appropriate access route. The influence of obesity also needs to be considered in regard to wider pharmacokinetics and pharmacodynamics. At its simplest, pharmacokinetics can be considered as what the body does to the medication in question, while pharmacodynamics relates to what the medication does to the body. The recommended drug doses are based on formula derived from individuals with normal weight; the likelihood of co-morbidities needs to be taken into consideration, as does the potential impact of highly lipophilic drugs (De Baerdemaeker et al., 2004, Barras & Legg, 2017; Ingrande & Lemmens, 2010).

Many medications are prescribed based on calculations of either ideal or total body weight, however, some are better dose adjusted to lean body mass (LBM). The implications for obese patients are clear - in most cases, further consideration will be needed, together with recognition of those drugs routinely given which will need re calculation. If medications are given based on total body weight (TBW) there is a risk that overdose can occur, given the disproportion between fat mass and lean body weight. The ideal body weight (IBW) calculation, however, does not account for changes in body composition within the same height range - so the IBW of a bariatric patient may be less than their LBM. In this case, the patient may receive subtherapeutic doses (Barras & Legg, 2017; Ingrande & Lemmens, 2010).

The IBW for males is calculated as 50kg with 2.3kg for each inch (2.5 cm) over five foot (60 inches; 152.4cm); for females this is 45.5kg, 2.3 kg for each inch (2.5 cm) over five foot (60 inches; 152.4cm). For individuals whose weight is more than 30% above the IBW, an adjusted body weight (ABW) can be used to calculate drug dosages. The $ABW = IBW + 0.4(\text{actual weight} - IBW)$. A number of calculators and apps are available to assist in determining these formulae.

Weight	How to Measure	Use
Total Body Weight (TBW)	Weigh patient	Loading dose for some lipophilic drugs
Ideal Body Weight (IBW)	Male = 50kg + 0.9kg for each cm >150cm height Female = 45kg + 0.9kg for each cm >150cm height	Maintenance dose of drugs where clearance is not changed in obesity
Lean Body Weight (LBW)	= $IBW + \frac{1}{3} \times (TBW - IBW)$ Estimate of fat free mass	Maintenance doses of most drugs with increased clearance in obese

For example a 160kg man whose height is 170cm

TBW = **160kg**

IBW = $50 + 0.9 \times 20 = \mathbf{68kg}$

LBW = $68 + \frac{1}{3} (160 - 68) = \mathbf{96kg}$

Figure 2: Clinical Pharmacology Bulletin (2008)

The increased body mass associated with obesity also results in an increased metabolism. Implications of this include that drug distribution may be affected by altered blood flow in terms of increased cardiac output, blood volume, organ size and renal clearance rates. If a medication is lipid soluble (lipophilic), then a larger dose may be required to achieve the desired affect; however, the subsequent release rate may also be altered and effect duration may need to be recalculated (Barras & Legg, 2017; Ingrande & Lemmens, 2010).

Drugs with particular significance in the emergency setting include those associated with anaesthesia, analgesia and cardio respiratory conditions. The following are among many other lipophilic drugs commonly used in the ED: thiopental, propofol, succinylcholine, fentanyl, midazolam, amiodarone,

Managing the Bariatric Patient in the ED setting cont.

and represent an example of the areas where concern may present. Specific pharmacokinetic data related to obese and severely obese patients is simply not available for many drugs.

Pain management is a frequent issue in EDs, and morphine is a commonly used medication. If weight-based formulae are used to determine optimal dosing, there are additional risks for respiratory depression. Several studies, however, have failed to indicate a clear relationship between weight and patient response to morphine administration (Patanwala et al., 2011; Patanwala et al., 2014; Xia et al., 2014). A retrospective study of 300 adult patients in ED, with 100 in each of the non-obese, obese and morbidly obese groups, found that fixed dose rather than weight based doses, titrated to effect, are appropriate even in severely obese patients experiencing acute pain. This analgesic response has also been seen in relation to other opioids (Erstad, 2004; Shibutani et al., 2005).

Summary

This article has presented a review in general terms of the issues associated with management of the severely obese patient in the ED, from the perspective of recognition of assessment, diagnostic and therapeutic issues. Inevitably, this is an overview with a broad focus, and each department will have specific guidelines and directions designed to facilitate the management of this patient group. What is important to recognise, however, is the complexity and challenge from a physiological perspective that is associated with this vulnerable population, and the importance of ensuring that ongoing education and review of best practice occurs. While the concerns related to physical management, movement and handling are immediately visible, those linked to the less obvious aspects - whether this be cultural awareness, therapeutic communication, reminders of pathophysiology or consideration of the underlying anatomy and physiology - need to be given equal recognition.

References

- Barras, M., & Legg, A. (2017). Drug dosing in obese adults. *Australian Prescriber* 40(5) 189-193 doi: 10.18773/austprescr.2017.053
- Bell, L.M., Curran, J.A., Byrne, S., Roby, H., Suriano, K., Jones, T.W., & Davis, E.A. (2011). High incidence of obesity co-morbidities in young children: A cross-sectional study. *Journal of Paediatrics and Child Health* 47(12) 911-917. doi: 10.1111/j.1440-1754.2011.02102.x
- Brunette, D.D. (2004). Resuscitation of the Morbidly Obese Patient. *American Journal of Emergency Medicine* 22(1) 40-47.
- Centres for Disease Control. (no date). Body Mass Index: Considerations for Practitioners. <https://www.cdc.gov/obesity/downloads/bmi-for-practitioners.pdf>
- Cetin, D., Lessig, B., & Nasr, E. (2016). Comprehensive Evaluation for Obesity: Beyond Body Mass Index. *The Journal of the American Osteopathic Association* 116, 376-382. doi:10.7556/jaoa.2016.078
- Chiu, M., Austin, P.C., Manuel, D.G., Shah, B.R., & Tu, J.V. (2011). Deriving ethnic-specific BMI cut-off points for assessing diabetes risk. *Diabetes Care* 34(8)1741-1748. doi:10.2337/dc10-2300
- De Baerdemaeker, L.E.C., Mortier, E.P., & Struys, M.M.R.F. (2004). Pharmacokinetics in obese patients. *Continuing Education in Anaesthesia Critical Care & Pain* 4(5) 152-5 doi.org/10.1093/bjaceaccp/mkh042
- Department of Clinical Pharmacology. (2008). Drug Dosing in Obesity. *Clinical Pharmacology Bulletin* 012/08
- Deranged Physiology. (2016). Trauma, Burns & Drowning: The morbidly obese trauma patient. <http://www.derangedphysiology.com/main/required-reading/trauma-burns-and-drowning/Chapter%2010.6/morbidly-obese-trauma-patient>
- Deurenberg P, Andreoli A, Borg P, Kukkonen-Harjula K, de Lorenzo A, van Marken Lichtenbelt WD et al. (2001). The validity of predicted body fat percentage from body mass index and from impedance in samples of five European populations. *Eur J Clin Nutr* 55 973-979.
- Dixon, D.R., & Braude, D. (Aug 17th 2015). Bariatric airway management is about more than intubation. *Journal of Emergency Medical Services* <http://www.jems.com/articles/print/volume-40/issue-8/features/bariatric-airway-management-is-about-more-than-intubation.html>
- Erstad, B.L. (2004) Dosing of medications in morbidly obese patients in the intensive care unit setting. *Intensive Care Med* 30:18-31.
- Evans, D.C., Stawicki, S.P.A., Davido, H.T., & Eiferman, D. (2011). Obesity in trauma patients: correlations of body mass index with outcomes, injury patterns, and complications. *The American Surgeon* 77(8) 1003-1008.
- Glazier, M.M. (2015). *Subcutaneous Tissue Depth Over Intraosseous Infusion Sites in a Cadaveric Model*. Thesis submitted for Masters of Health Science. 769. <http://scholarworks.gvsu.edu/theses/769>
- Guh, D.P., Zhang, W., & Bansback, N. (2009). The incidence of co-morbidities related to obesity and overweight: A systematic review and meta-analysis. *BMC Public Health*, 9(1). doi:10.1186/1471-2458-9-88
- Hanlon, P. (2016). Intubation and airway management for the bariatric patient. RT
- Hasegawa, Kohei Tsugawa, Yusuke Lopez, Bernard L. Smithline, Howard A. Sullivan, Ashley F. & Camargo Jr, Carlos A. (2014). Body Mass Index and Risk of Hospitalization among Adults Presenting with Asthma Exacerbation to the Emergency Department. *Annals of the American Thoracic Society* 11(9) doi.org/10.1513/AnnalsATS.201406-270BC
- Hignett, S., Chipcase, S., Tetley, A., & Griffiths, P. (2007). *Risk assessment and process planning for bariatric patient handling pathways*. Research Report RR573. Norwich, UK: HSE Books.
- Ingrande, J., & Lemmens, H.J.M. (2010). Dose adjustment of anaesthetics in the morbidly obese. *British Journal of Anaesthetics* 105(11) i16-i23 doi.org/10.1093/bja/aeq312
- Kam, J., & Taylor, D.McD. (2010) Obesity significantly increases the difficulty of patient management in the emergency department. *Emergency Medicine Australasia* 22, 316-323.
- Kilian, M. (2015). Obesity Emergency Management in Emergency Medicine Cases, A. Helman Editor. <https://emergencymedicinescases.com/obesity-emergency-management/>
- Malhotra, A., & Hillman, D. (2008). Obesity and the lung: Obesity, respiration and intensive care. *Thorax* 63 925-931. doi:10.1136/thx.2007.086835
- Mathew, B., Francis, L., Kayalar, A., & Cone, J. (2008). Obesity: Effects on Cardiovascular Disease and its Diagnosis. *Journal of the American Board of Family Medicine*. 2(6) 562-568 doi: 10.3122/jabfm.2008.06.080080.
- Ministry of Health. (2015). *Understanding Excess Body Weight: New Zealand Health Survey*. Wellington: Author.
- Ministry of Health. (2016). *Annual Update of Key Results 2015/16: New Zealand Health Survey*. <http://www.health.govt.nz/publication/annual-update-key-results-2015-16-new-zealand-health-survey>
- Ministry of Health. (2017a). *Annual Data Explorer 2016/17: New Zealand Health Survey* [Data File]. URL: <https://minhealthnz.shinyapps.io/nz-health-survey-2016-17-annual-update>
- Ministry of Health. (2017b). *Clinical Guidelines for Weight Management in New Zealand Adults*. Wellington: Author.
- Modica, J.M., Kanal, K.M. & Gunn, M.L. (May-June 2011). The obese emergency patient: Imaging challenges and solutions. *Radiographics* 31: 811-823.
- Myatt, J., & Hare, K. (2010). Airway management in obese patients. *Current Anaesthesia & Critical Care* 21 9-15. doi:10.1016/j.cacc.2009.09.004
- Ortiz, V.E., & Kwo, J. (2015). Obesity: physiologic changes and implications for preoperative management. *BMC Anesthesiology* 15(97) doi: 10.1186/s12871-015-0079-8
- Osborne, Z., Rowitz, B., Moore, H., Oliphant, U., Butler, J., Olson, M., & Aucar, J. (2014). Obesity in trauma: outcomes and disposition trends. *The American Journal of Surgery* 207, 387-392.
- Patanwala, A.E., Biggs, A.D., & Erstad, B.L. (2011). Patient weight as a predictor of pain response to morphine in the emergency department. *J Pharm Pract* 24:109-13

Managing the Bariatric Patient in the ED setting cont.

Patanwala, A.E., Holmes, K.L., & Erstad, B.L. (2014). Analgesic response to morphine in obese and morbidly obese patients in the emergency department. *Emerg Med J*. 31:139-142. doi.org.cmezxproxy.chmeds.ac.nz/10.1136/emered-2012-202168

Pozza, C., & Isidori, A.M. (2017). Ch. 1. What's behind the obesity epidemic in Laghi, A and Rengo, M. (Eds) *Imaging in bariatric surgery*. Latina, Italy: Springer.

Prendergast, H.M., Waintraub, E., Bunney, B., Gehm, L., Tyo, C., Marquez, A., Williams, J., Bailey, A., Marquez, D., Edison, M., & Mackey, M. (2013). The Aging Waistline: Impact of the Geriatric Obesity Epidemic on an Urban Emergency Department: Original Communication. *Int J Clin Med* 4(5) 268-272. doi: 10.4236/ijcm.2013.45047

Reilly, J.J., Methven, E., McDowell, Z.C., Hacking, B., Alexander, D., Stewart, L., Kelnar, C.J.H. (2003). Health consequences of obesity. *Archives of Disease in Childhood*. 88(9) doi.org.cmezxproxy.chmeds.ac.nz/10.1136/adc.88.9.748

Richards, J.R., & McGahan, J.P. (2017). Focused assessment with sonography in trauma (FAST) in 2017: What radiologists can learn. *Radiology*. 283(1) 30-48.

Rothman, K.J. (2008). BMI related errors in the measurement of obesity. *International Journal of Obesity* 32 S56-S59

Shahreyar, M., Dang, G., Waqas Bashir, M., Kumar, G., Hussain, J., Ahmad, S., ... Jahangir, A. (2017). Outcomes of In-Hospital Cardiopulmonary Resuscitation in Morbidly Obese Patients. *JACC: Clinical Electrophysiology*, 3(2), 174-183. doi:10.1016/j.jacep.2016.08.011

Shibutani, K., Inchiosa, M.A. Jr., Sawada, K., et al. (2005). Pharmacokinetic mass of fentanyl for postoperative analgesia in lean and obese patients. *Br J Anaesth*. 95(3):377-83.

Statistics New Zealand. (2017). New Zealand Social Indicators: Obesity. http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/nz-social-indicators/Home/Health/obesity.aspx

WHO expert consultation. (2004). Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies [published correction appears in Lancet. 2004;363(9412):902]. *Lancet*. 363(9403):157-163.

Xia, S, Choe D, Hernandez L, et al. (2014). Does initial hydromorphone relieve pain best if dosing is fixed or weight based? *Ann Emerg Med*. 63(6):692-8.e4.

Recommended site:

ClinCalc.com (2017). Drug dosing in obesity reference table. <http://clincalc.com/kinetics/obesitydosing.aspx>

Authors:

Judy Gilmour – HIV nurse specialist – RN,
RM, PGDip PH

Rebecca Henley – HIV nurse specialist –
RN, PGDip advanced nursing

Michele Lowe – HIV nurse specialist – RN,
PGDip advanced nursing, MN.

Corresponding author:

Michele Lowe RN, MN

Clinical Nurse Specialist | Community HIV Team,
Infectious Disease Department Auckland District
Health Board. michelel@adhb.govt.nz

Abstract:

Treatment of HIV with ante retroviral medications has led to markedly improved outcomes for people living with HIV. However, in New Zealand the rate of newly reported transmissions has been increasing. New Zealand now follows a test and treat philosophy that sees the commencement of ante retroviral medication at the time of testing when high risk of exposure is identified. Patients are directed to emergency departments for testing and commencement of PEP (post exposure prophylaxis). This article discusses HIV in the New Zealand context and new initiatives to reduce HIV transmission.

Keywords: HIV, Post Exposure Prophylaxis (PEP), Pre exposure Prophylaxis (PrEP), Emergency Departments, New Zealand

HIV, PEP and PrEP: A Guide for Acute Presentations

HIV in the NZ context

Improvements in antiretroviral medication have transformed human immunodeficiency virus (HIV) from a potentially life threatening virus to a well managed chronic disease (May et al., 2007; HIV-CASUAL Collaboration, 2010). Most people living with HIV in New Zealand (NZ) lead normal healthy lives. The life expectancy of a person living with HIV is thought to be much the same as a person who does not have HIV (Cohen et al., 2011). One North American paper suggests people living with HIV have a higher life expectancy than those who don't because they are in regular medical care (Samji et al., 2013).

There are approximately 3500 people living with HIV in NZ with about a third of those living in the Auckland/Northland region (New Zealand AIDS Foundation, n.d.). About 75% of people living with HIV in NZ are 'men who have sex with men' (MSM) or gay men (AIDS Epidemiology group, 2018; Fig 1).

It is estimated a further 20% of MSM are not aware of their HIV diagnosis (Saxton, Dickson, Griffiths, Hughes, Rowden, 2012). A study performed in Auckland in 2012 offered community HIV testing for MSM at the 'The Big Gay Out', gay bars and sex on site venues for a week and found that 21% of HIV infected MSM were unaware they had HIV infection (Saxton et al., 2012).

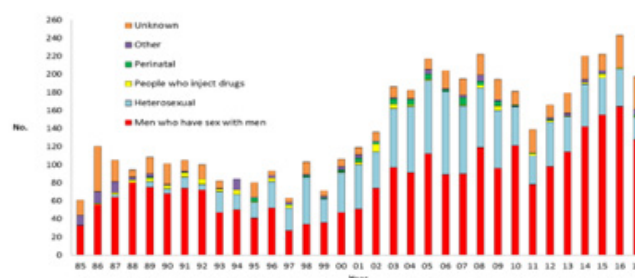


Figure 1: Number of people diagnosed with HIV in New Zealand through Western Blot antibody test and since 2002 through viral load (VL) testing, by year of diagnosis and means of infection. It is important to appreciate that infection may have occurred a number of years prior to diagnosis

HIV, PEP and PrEP: A Guide for Acute Presentations cont.

Figure 1 (AIDS Epidemiology Group, 2018) shows there was a consistent annual increase in new cases of HIV in MSM from 2011 to 2016. However, in 2017 there was a reduction in new cases for both MSM and heterosexuals. Although we cannot know if this decline will be maintained, there have been several changes to HIV care in NZ that may have contributed to the improved rate in 2017. These changes include the introduction of pre exposure prophylaxis (PrEP) and Pharmaceutical Management Agency (PHARMAC) changes allowing the prescribing of antiretroviral therapy for HIV immediately after diagnosis. Research shows that a person is likely to achieve an undetectable HIV viral load within 6-12 weeks of starting treatment (Kirby Institute, 2017). This, coupled with the evidence that supports an undetectable viral load (meaning that the infected person is un-infectious) is likely to have contributed to the improved rate (Saxton, Dickson, Hughes, 2014).

Ending HIV by 2025



The NZ AIDS Foundation (NZAF) prevention campaign aims to end all new HIV transmissions by 2025. The tools to achieve this goal are summarised in the 3 key areas below: Stay safe:

- Using condoms: condoms continue to be the most effective barrier to the transmission of HIV. They are widely available with NZ having one of the highest condom use rates (80%) amongst gay and bi-men in the world (New Zealand AIDS Foundation, n.d.).
- Access to post exposure prophylaxis (PEP): a 1 month treatment given to people who have been exposed to HIV to prevent infection.
- Access to pre exposure prophylaxis (PrEP) : a once daily pill that provides protection from HIV transmission . To be eligible, strict criteria must be met and those on it are reviewed every 3 months.

Treat early:

NZ now follows a test and treat philosophy. Unlike previously, treatment is no longer dependent on a declining CD4 count.

Evidence has shown that starting treatment around the time of diagnosis not only has significant health benefits but also results in most people quickly obtaining undetectable viral loads which radically reduces the risk of HIV transmission (World Health Organization, 2015). In fact, HIV experts describe the transmission risk of someone with an undetectable viral load in their blood for at least 6 months in terms of 'no longer infectious, cannot transmit , no infection risk' (Political Action Committee, 2016).

Further information on Undetectable = Untransmittable (U=U) can be viewed at <https://endinghiv.org.nz/treating/undetectable-viral-load>



Test often:

Many people living with HIV do not know they actually have HIV. Research conducted by the University of Otago in 2012 measured undiagnosed HIV among Auckland's gay and bisexual men. Of the men who took part and were living with HIV, 1 in 5 (21 %) did not know they had the infection (Saxton et al., 2012). NZAF encourages anyone who is sexually active to test twice yearly, or more often if having unsafe sex (New Zealand AIDS Foundation, n.d.). Regular testing means early treatment if diagnosed positive.

HIV testing

Since 2006, The Centre for Disease Control and Prevention (CDC) has recommended routine HIV screening for all adults less than 65 years at all health related interactions, unless they have been recently screened (Branson et al., 2006). Evidence supports universal screening to be more effective than risk based screening (Simpson et al., 1998). In NZ, risk-based screening remains common practice and therefore has the potential to result in late diagnosis, negative health impacts, avoidable transmissions and increased financial burden (Girardi, Sabin, Monforte, 2007; Dickson, McAllister, Sharples, Paul, 2011).

HIV, PEP and PrEP: A Guide for Acute Presentations cont.

Furthermore, there is evidence that people living with HIV in NZ are often diagnosed late (Hopkins, Reid, Gilmour, Werder, Briggs, 2018; Lundgren, Phillips, 2018). Early diagnosis of HIV is best achieved by regular HIV testing. Many gay men take the opportunity to have regular HIV testing because they are aware that they are part of a high-risk group. However, this does not necessarily include all gay men, bisexual men or other MSM.

It has been shown that a risk-based approach to antenatal HIV screening in NZ resulted in a poor uptake and a number of HIV positive women not being screened or diagnosed (National Screening Unit, 2015). To remedy this, in 2005 the risk-based approach to antenatal screening was changed to the current universal offer of HIV screening for all pregnant women (National Screening Unit, 2015).

Missed opportunities for HIV screening

A recent Auckland study reviewed missed opportunities for HIV testing in adults living in the Auckland District Health Board catchment area diagnosed with HIV between 2007 and 2013 (Hopkins et al., 2018). The study found that 68 of the 201 (34%) newly diagnosed patients had prior hospital contact within the time period that they were assumed to have had HIV infection and could potentially have been diagnosed earlier if they had been offered an HIV test at the time of this hospital contact (Hopkins et al., 2018). Introducing a routine offer of universal HIV screening to Emergency Departments, inpatient and outpatient hospital services would result in earlier diagnosis, reduced morbidity, prevent transmissions and save on the health care costs that occur when patients are diagnosed with late stage HIV infection (unpublished data). However, the added cost of HIV testing particularly in lower prevalence areas of NZ, the explanation of the test, plus the responsibility for the follow-up of the test results still need to be carefully reviewed.

PEP and PrEP

Post exposure prophylaxis (PEP)

Post exposure prophylaxis (PEP) is the use of antiretroviral medication taken after an HIV exposure to prevent HIV transmission. PEP consists of 28 days of oral antiretroviral medication commenced as soon as possible following an HIV exposure and definitely within 72 hours.

The data on the efficacy of PEP is limited; however, animal

studies and observational studies of patients who were offered PEP after a sexual exposure suggest a likely benefit, with early initiation of PEP being a factor in treatment success (U.S. Department of Health and Human Services, 2005; UpToDate, 2018). In New Zealand PEP for non-occupational exposure to HIV (i.e. sexual exposure or needle sharing) has been funded by PHARMAC since July 2010.

PHARMAC funded PEP usually consists of a 3-drug regimen, with a cost to the patient of \$5 per prescribed medication (usually \$10); whereas self-funded PEP consists of a 2-drug regimen at a cost of approximately \$70-\$100 depending on the pharmacy.

In order to qualify for funded PEP a person must:

- initiate treatment within 72 hours post exposure; and
- have had unprotected receptive anal intercourse with a known HIV positive person; or
- have shared intravenous injecting equipment with a known HIV positive person; or
- have had non-consensual intercourse and the clinician considers that the risk assessment indicates prophylaxis is required (PHARMAC, 2010).

Application for Special Authority for PEP must be sought by a named antiretroviral specialist. A list of named specialists can be found published on the Pharmaceutical Schedule or Ministry of Health Sector Services (MOHSS).

Consideration for PEP is based on the calculated risk of HIV transmission to the exposed person i.e. **risk of HIV transmission = risk per exposure x risk of source being HIV positive**. International guidelines recommend PEP when the risk of transmission can be calculated to be greater than 1/1,000 (ASHM, 2016). Any exposure calculated to have risk of transmission between 1/1,000 and 1/10,000 may wish to consider PEP; while a risk of transmission calculated at less than 1/10,000 should be informed that the risk is low and the potential harm of PEP outweighs the potential benefits. Where there has been more than one exposure within the previous 72 hours the cumulative risk is considered (ASHM, 2016).

Table 1. Exposure and transmission risk/exposure with known HIV-positive source who is NOT on antiretroviral treatment. Retrieved from ASHM Australian National Guidelines (Second edition), 2016.

HIV, PEP and PrEP: A Guide for Acute Presentations cont.

Type of exposure with known HIV-positive source who is NOT on antiretroviral treatment	Estimated risk of HIV transmission/exposure*
Receptive anal intercourse (RAI) – ejaculation – withdrawal	1/70 1/155
Shared needles and other injecting equipment	1/125
Insertive anal intercourse (IAI) uncircumcised	1/160
Insertive anal intercourse (IAI) circumcised	1/900
Receptive vaginal intercourse (RVI)	1/1250
Insertive vaginal intercourse (IVI)	1/2500
Receptive or insertive oral intercourse	Unable to estimate risk – extremely low
Needlestick injury (NSI) or other sharps exposure	1/440
Mucous membrane and non-intact skin exposure†	< 1/1000

* These estimates are based on prospective studies, not cross-sectional data or figures derived from modelling. These estimates do not take into account source viral load, which if undetectable markedly reduces risk estimates.

† Human bites are extremely low risk.

Risk assessment

When a person presents requesting PEP they should be assessed, if possible, in a private area to lessen anxiety and embarrassment and to ensure confidentiality.

In order to ascertain the level of risk to calculate if the patient meets criteria for funded or non-funded PEP, a thorough history must be obtained. History required includes information regarding the patient, the source, and details of the risk behaviour. As well as the history, baseline testing should occur at the initial consultation.

Patient:

- Full and accurate contact details including General Practitioner (GP)
- HIV status including date of most recent negative HIV test
- Any medical or mental health conditions
- Current STI (sexually transmissible infection) risk, hepatitis infection
- Any current medications (particularly pre-exposure prophylaxis)
- Any drug allergies
- Previous PEP
- If female - risk of pregnancy, contraception or lactation (is emergency contraception required?)

Source:

- Identifying information if possible - name, gender, age, ethnicity
- HIV status - if positive are they taking anti-retroviral therapy? Do they have an undetectable viral load? What is the date of the most recent HIV viral load?
- Current STI risk including hepatitis B and C status

Risk behaviour:

- Date and time of exposure (<72 hours)
- What type of exposure (blood/body fluid involved)

If sexual exposure:

- Consensual or non-consensual sex (if non-consensual refer to sexual assault team if available)
- Insertive or receptive sex? Anal, vaginal or oral sex?
- Was a condom used? If so was it intact or broken?
- Was there ejaculation?

Non-occupational needle-stick:

- Blood contamination, amount of blood
- Age of needle/syringe
- Depth of injury

Baseline Testing:

Baseline testing should include bloods for HIV, syphilis, hepatitis B and C, full blood count, creatinine, liver function tests and a pregnancy test if the patient is female. Baseline testing should also include an STI screen including a pharyngeal swab, first pass urine and a self-taken rectal and/or vaginal swab for chlamydia and gonorrhoea NAAT testing (see Table 2).

Table 2: Recommended Tests: Retrieved from Post-exposure prophylaxis after non-occupational exposure to HIV guideline, ADHB, 2017.

HIV, PEP and PrEP: A Guide for Acute Presentations cont.

Test	Baseline	Week 4–6	Month 3
HIV serology	✓	✓	✓
Hepatitis B serology	✓		✓
Hepatitis C serology	✓		✓
STI screen	✓	✓	✓
Syphilis	✓	✓	✓
FBC, LFT, Creat, CK	✓		
Pregnancy test	✓		

When a full assessment has been completed and information has been obtained to ascertain risk of HIV transmission, discuss with a sexual health or infectious diseases physician to decide whether the patient meets criteria for PHARMAC funded or self-funded PEP.

- If PHARMAC funded, many Emergency Departments have access to a 3 or 5 day starter pack.
- If self-funded, give prescription for 28 days of medication and advise at which pharmacy (in your area) the patient can fill the prescription.

Refer to specialist team (infectious diseases or sexual health) for follow up if available. Consider referral to the appropriate service for pre-exposure prophylaxis (PrEP) following completion of PEP.

Ongoing Follow up:

The patient should be contacted when baseline test results are back (usually within 48 hours) by a specialist team if available. At that stage any STI's should be treated as per New Zealand Sexual Health Society Guidelines (NZSHS, 2017). If a patient is found to be HIV positive on baseline testing they should be referred to an HIV specialist service immediately.

Follow up testing should occur at 4-6 weeks and 12 weeks after the exposure (see Table 2).

Pre exposure Prophylaxis (PrEP)

Pre exposure prophylaxis (PrEP) is an HIV prevention strategy whereby HIV negative individuals take anti HIV medication BEFORE coming into contact with HIV in order to reduce the risk of becoming infected. Studies have shown that PrEP provides a 92%-99% reduction in HIV risk for HIV-negative

individuals who take the pills every day as directed (Anderson et al., 2012). If a daily dose is missed, the level of HIV protection may decrease. PrEP does not protect against other STI's and is not a cure for HIV.

The World Health Organisation (WHO) now recommends that people at substantial risk of contracting HIV infection should be offered PrEP as an additional prevention choice, as part of comprehensive prevention strategy (World Health Organization, 2012). PrEP is not a tool to compete with effective and well established prevention strategies such as condom use and regular testing, but merely an additional tool in the prevention toolbox.

PrEP became publically available in NZ in March 2018. It involves taking a once daily pill of co-formulated Tenofovir disoproxil fumarate and Emtricitabine (Truvada). PrEP is generally safe and well tolerated. It is available on prescription in NZ for those who meet PHARMAC criteria. See criteria for PrEP Special Authority at <https://www.pharmac.govt.nz/medicines/my-medicine-has-changed/prep-for-hiv/>

Initially PrEP must be prescribed by, or on the advice of, an HIV specialist with ongoing renewals available from GPs trained in PrEP prescribing.

For those considering PrEP, a discussion with their GP or an appointment with the Sexual Health Services is necessary. In addition to the \$5 per 3 month prescription fee, PrEP requires three monthly check ups with their prescriber which includes HIV and STI testing, adherence counselling and risk reduction support.

For more information on PrEP go to: <http://whatisprep.org/>

Conclusion:

In 2018 HIV infection is a chronic well managed disease however prevention is always preferable to treatment. In 2016, NZ had the highest number of new HIV infections since records began in 1985 (AIDS Epidemiology Group, 2018).

The most effective means of preventing the transmission of HIV infection continues to be reliable condom use. However, NZ now has access to early HIV treatment following diagnosis (U=U to reduce transmission), access to funded PEP (following a high risk HIV exposure), and access to funded PrEP for those at high risk of contracting HIV infection. The introduction of routine HIV screening in hospitals and medical centres could

HIV, PEP and PrEP: A Guide for Acute Presentations cont.

result in earlier diagnosis, reduced morbidity and reduced HIV transmission. It is important when a person presents to Emergency Department for HIV testing, PEP or PrEP that staff provide accurate and non-judgmental information and assessment in a safe and confidential environment and know who to refer to for appropriate care and follow up.

Healthcare professionals, particularly those working in Emergency Departments, have a unique and valuable role in providing access to testing and the tools available to prevent further HIV transmission.

Let's all get behind NZAF in their campaign to prevent all new HIV transmissions by 2025!

References:

- AIDS Epidemiology Group. (2018, June). *AIDS - New Zealand*, 77. Retrieved from https://www.otago.ac.nz/aids/group/pdf/77%20AIDS-NZ_June%202018.pdf
- Anderson, P., Glidden, D., Liu, A., Buchbinder, S., Lama, J., Guanira, J., Grant, R. (2012). Emtricitabine-Tenofovir concentrations and pre-exposure prophylaxis efficacy in men who have sex with men. *Science Translational Medicine*, 4(151), 125-151. <https://doi.org/10.1126/scitranslmed.3004006>
- Australasian Society of HIV Medicine (ASHM). (2016, August). *Post-exposure prophylaxis after non-occupational and occupational exposure to HIV - Australian National Guidelines (second edition)*. Retrieved from <https://www.ashm.org.au/products/product/978-1-920773-47-2>
- Branson, B., Handsfield, H., Lampe, M., Janssen, R., Taylor, A., Lyss, S., Clark, J. (2006, September). Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recommendations and Reports*, 55, 1-17. Retrieved from <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm>
- Cohen, M., Chen, Y., McCauley, M., Gamble, T., Hosseinipour, M., Kumarasamy, N., Hakim, J., Kumwenda, J., Grinsztejn, B., Pilotto, J., et al. (2011). Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine*, 365, 493-505.
- Dickson, N., McAllister, S., Sharples, K., Paul, C. (2011). Late presentation of HIV infection among adults in New Zealand: 2005-2010. *HIV Medicine*, 13, 182-89. <https://doi.org/10.1111/j1468-1293.2011.00959.x>
- Girardi, E., Sabin, C., Monforte, A. (2007). Late diagnosis of HIV infection: epidemiological features, consequences and strategies to encourage earlier testing. *Journal of Acquired Immune Deficiency Syndrome*, 46 Suppl 1:S3-8.
- HIV-CAUSAL Collaboration. (2010). The effect of combined antiretroviral therapy on the overall mortality of HIV-infected individuals. *AIDS*, 24, 12-137.
- Hopkins, C., Reid, M., Gilmour, J., Werder, S., Briggs, S. (2018). Missed opportunities for earlier diagnosis of HIV infection among adults presenting to ADHB hospital services. *Internal Medicine Journal*. In press.
- Kirby Institute. (2017, July). Results of Opposites Attract study, Final analysis, Fact sheet 2017. Kirby Institute, Sydney, Australia. Retrieved from https://kirby.unsw.edu.au/sites/default/files/kirby/news/Final-Analysis-Factsheet_20170711.pdf
- Lundgren, L., Phillips, A. (2018) Prevention of HIV transmission by antiretroviral therapy. *The Lancet HIV*, 5(13), 108-109. [https://doi.org/10.1016/S2352-3018\(17\)30204-7](https://doi.org/10.1016/S2352-3018(17)30204-7)
- May, M., Sterne, J., Sabin, C., Costagliola, D., Justice, A., Thiebaut, R., Gill, J., Phillips, A., Reiss, P., Hogg, R., et al. (2007). Prognosis of HIV-1-infected patients up to 5 years after initiation of HAART: collaborative analysis of prospective studies. *AIDS*, 21, 1185-1197.
- National Screening Unit. (2015). *Guidelines for Health Practitioners offering antenatal HIV screening in New Zealand*. Wellington: Ministry of Health. Retrieved from <https://www.nsu.govt.nz/system/files/page/guidelines-health-practitioners-offering-antenatal-hiv-screening-in-nz-jun15.pdf>
- New Zealand AIDS Foundation. (n.d.). *HIV in New Zealand*. Retrieved from <https://www.nzaf.org.nz/hiv-aids-stis/hiv-aids/hiv-in-new-zealand/>
- New Zealand AIDS Foundation. (n.d.). *How often should I test?* Retrieved from <http://www.nzaf.org.nz/getting-tested/why-when-should-i-be-tested/>
- New Zealand AIDS Foundation. (n.d.). *HIV prevention*. Retrieved from <https://www.nzaf.org.nz/hiv-aids-stis/hiv-prevention/condoms/>
- New Zealand Sexual Health Society. (2017). *NZSHS STI guidelines for use in primary care 2017*. Retrieved from <https://www.nzshs.org/guidelines>
- PHARMAC. (2010, June 1). *Approval of proposal to widen access to antiretroviral therapy for post-exposure prophylaxis following non-occupational exposure to HIV (nPEP) and to amend the Special Authority for percutaneous exposure*. Retrieved from <https://pharmac.govt.nz/2010/06/01/2010-06-01%20Notification%20of%20widening%20access%20to%20antiretrovirals.pdf>
- Political Action Committee. (2016). *Consensus statement-Transmission of HIV from a person living with HIV who has an undetectable viral load*. Retrieved from <https://www.preventionaccess.org/consensus>
- Samji, H., Cescon, A., Hogg, R., Modur, S., Althoff, K., Buchacz, K., Burchell, A., Cohen, M., Gange, S. (2013, December 18). Closing the Gap: Increases in life expectancy among treated HIV-positive individuals in the United States and Canada. *PLoS One*, 8(12):e81355. <https://doi.org/10.1371/journal.pone.0081355>
- Saxton, P., Dickson, N., Griffiths, R., Hughes, A., Rowden, J. (2012, February). Actual and undiagnosed HIV prevalence in a community sample of men who have sex with men in Auckland, New Zealand. *BMC Public Health*, 12:92. <https://doi.org/10.1186/1471-2458-12-92>
- Saxton, P., Dickson, N., Hughes, A. (2014). Location-based HIV behavioural surveillance among MSM in Auckland, New Zealand 2002-2011: condom use stable and more HIV testing. *Sexually Transmitted Infections*, 90, 133-8. <https://dx.doi.org/10.1136/sextrans-2013-051160>
- Simpson, W., Johnstone, F., Boyd, F., Goldberg, D., Hart, G., Prescott, R. (1998). Uptake and acceptability of antenatal HIV testing: randomised controlled trial of different methods of offering the test. *BMJ*, 316, 262-7.
- UpToDate. (2018, June). *Management of nonoccupational exposures to HIV and hepatitis B and C in adults*. Retrieved from https://www.uptodate.com/contents/management-of-nonoccupational-exposures-to-hiv-and-hepatitis-b-and-c-in-adults?search=how%20effective%20is%20post-exposure%20prophylaxis%20following%20non%20occupational%20hiv%20exposure&source=search_result&selectedTitle=2-150&usage_type=default&display_rank=2%23H823699269
- U.S. Department of Health and Human Services - CDC. (2005, January 21). *Antiretroviral postexposure prophylaxis after sexual, injection-drug use, or other nonoccupational exposure to HIV in the United States*. Retrieved from <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5402a1.htm>
- World Health Organization. (2015). *Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV*. Geneva.
- World Health Organization. (2012). *WHO guidance on oral pre-exposure prophylaxis (PrEP) for serodiscordant couples, men and transgender women who have sex with men at high risk of HIV*. Retrieved from http://www.who.int/hiv/pub/guidance_prep/en/

Kawasaki disease treatment and management

Case Study: A febrile 8-month-old – could it be Kawasaki Disease?

History of presenting complaint

- 8-month-old Samoan girl brought in by her parents with her identical twin sister
- 8-day history of fevers, rash, diarrhoea and vomiting
- Given pamol 30 minutes prior to being examined
- Has been to GP once and this is the third presentation to ED. On second presentation she was referred to paediatrics, who kept her overnight and then discharged her home with a diagnosis of gastroenteritis.

Past Medical History

- Monochorionic Diamniotic twin number 2.
- Born at 36 weeks, weighing 2.23kgs, was breach.
- NICU for 2 weeks to establish feeding.
- Breastfed and now having solids.
- Up to date with immunisations.
- NKDA
- Nil regular medications, PRN pamol.

Subjective Review of Systems

- Ongoing unsettledness and intermittent fevers. Remains taking bottles well, less food intake.
- HEENT/Respiratory:
 - Red eyes a few days ago, which has now resolved
 - Mild cough, no other cold symptoms
 - Ongoing fevers
- Gastrointestinal:
 - Vomiting has resolved, ongoing diarrhoea

- Skin:

- Rash is continuing to spread, has now moved around both eyes and down her legs

Objective Review of Systems

- Looks lethargic, crying at times but settles with mum's cuddles
- T37.7°C, P188 regular, RR42, saturations 98% RA, central capillary refill 2 seconds
- HEENT:
 - Erythema around both eyes. No scleral injection, no exudate
 - Cherry red lips with peeling skin
 - Ears- unable to visualise tympanic membranes due to debris in ear canals
 - Throat- mildly erythematous, tongue pink and moist
 - No sunken or bulging fontanelle
 - Scattered cervical lymphadenopathy
- Cardiovascular/Respiratory:
 - Heart sounds dual with nil murmur heard
 - Air entry heard throughout lung fields with nil adventitious sounds heard
 - Pink and well perfused in all limbs
- Abdominal:
 - Bowel sounds heard throughout
 - Soft, non-tender to palpation. No organomegaly palpable
- Skin:
 - Blanching maculopapular rash in patches over torso and limbs. Worse on limbs

Case Study: A febrile 8-month-old – could it be Kawasaki Disease? cont.

- Some areas of peeling skin on upper arms. Some areas of small blistering on lower arms
- Rash over buttocks, but genital area spared
- Both palms of hands and soles of feet red and swollen

Differentials

	Rule in	Rule out
Kawasaki Disease	Cherry red lips, 8 days of fever, lymphadenopathy, swollen hands and feet, rash	
Steven Johnston	Unusual spreading of rash. Areas of peeling and blistered skin	No new drugs given, no recent immunisations, no antibiotic treatments, regular pamol
Bacterial infection	Fevers, rash	No clear source of infection
Gastroenteritis	Diarrhoea, fevers	Vomiting resolved, still drinking milk, other symptoms, worsening rash

Kawasaki Disease

Kawasaki Disease is an acute febrile illness. Typically, the children have high swinging fevers with a collection of other symptoms. The cause of the disease is unknown although it causes inflammation of small and medium sized blood vessels throughout the body, in particular the coronary arteries. It is usually self-limiting and is seen to resolve spontaneously in 4-8 weeks. However, 20% of the untreated cases develop coronary artery damage of which 2% of these patients will die, most commonly from a heart attack. This outlook is improved significantly with appropriate treatment.

Kawasaki disease has been reported in all ethnicities, however, the highest incidence is of children of Asian descent, with 5000-6000 cases per year seen in Japan. 80% of the cases occur in children under the age of 5, with the peak age being between 1-2 years of age. It is very uncommon in children over 14 years old and in adults. It is most commonly found in boys. It was

first described in Japan in 1967 by a paediatrician by the name of Dr Kawasaki and was initially called mucocutaneous lymph node syndrome.

Signs and Symptoms of Kawasaki Disease



Images courtesy of the Kawasaki Foundation

Five cardinal signs of Kawasaki Disease are:

- Rash – morbilliform, macupapular, erythematous or target like. Skin peeling can occur in the convalescent stage.
- Oral signs – redness within the mouth or on the pharynx, strawberry tongue and red or cracked lips.
- Eye signs – redness of the conjunctiva without exudate of stickiness.
- Peripheral limb signs – firm swelling and/or redness of the hands or feet, sometimes including the fingers and toes.
- Lymphadenopathy – swollen lymph glands often localised to one side of the neck. One lymph gland of 1.5cm in length is considered diagnostically enlarged.

These symptoms may appear at different times and not all have to present over the course of the illness.

It is predominantly a disease of exclusion and the criteria for diagnosis are:

- Fever of at least 5 days AND
- At least 4 of the 5 cardinal signs AND
- The absence of any other illness to account for the signs and symptoms.

There are no specific laboratory tests that establish definitive diagnosis.

Plan

- Transfer to Paediatric Ward for further investigations.

Case Study: A febrile 8-month-old – could it be Kawasaki Disease? cont.

- Bloods: *Hb* 87, *hct* 0.27, *mcv* 53 - indicating microcytic anaemia, *Platelets* 854, *WCC* 23.4, *neut* 13.8, *albumin* 25, other LFTs and electrolytes were within normal limits, *ESR* 78, *CRP* 78. ASO titre and antistreptokinase B were both negative, indicating no Group A Streptococcus bacterium present.
- MSU: NAD
- CXR: mild central bronchial wall thickening. No obvious hyperinflation. Mild signs of respiratory tract infection. Slightly elevated right diaphragm of unclear significance.
- Echocardiogram: difficult examination due to restlessness. RCA appears dilated (0.29cm), difficult to assess LMA and LAD, measured within normal limits but in some images appear dilated. LCA likely dilated. Normal LV and systolic function. Normal AV.

Ongoing Management

A Samoan interpreter was utilised to ensure the family fully understood the diagnosis and treatment. The principal aim of treatment is to attempt to prevent/limit coronary

artery disease progression and this is primarily achieved by infusing immunoglobulin, which is proven to relieve the acute inflammation seen in the coronary vessels of patients with Kawasaki's disease. Once the fever resolves it is suggested that clinically significant myocardial dysfunction or heart failure is less likely and maximum benefit is seen if the immunoglobulin is given within 10 days of onset of fever.

Shortly following the completion of the infusion, the patient began to show signs of improvement with her temperature resolving and her rash settling. She continued to breastfeed and sleep well. She was discharged with ongoing aspirin therapy until her Echo results normalised with an outpatient Echo appointment booked for 6 weeks' time. Her parents were encouraged to give her cereal with added iron or meat daily, to attempt to address the microcytic anaemia, she was to have repeat bloods in 6 weeks' time. Her 15-month immunisations were delayed due to the possible interference from the immunoglobulin. It is known that the antibodies circulating from the immunoglobulin can interfere with the live vaccines, therefore reducing their efficacy.

References:

Melbourne Vaccination Education Centre (2014). *Live attenuated vaccines and immunoglobulins or blood products*. Retrieved from <http://www.mvec.vic.edu.au/immunisation-references/live-attenuated-vaccines-and-immunoglobulins-or-blood-products/>

Ngan, V. & Mahon, S. (2012). *Kawasaki Disease*. DermNet New Zealand. Retrieved from <http://www.dermnet.org/topics/Kawasaki-disease/>

Scheinfeld, N., S. Jones, E., L. & Ogerslock, P., R. (2017). *Kawasaki Disease treatment and Management*. Retrieved from <https://emedicine.medscape.com/article/965367-treatment>

Hair Tourniquet

What is a hair tourniquet?

A thin piece of thread or a long hair which wraps around a digit leading to tissue necrosis.

As it cuts through the skin it can become buried in the surrounding oedematous tissue and be hard to find; and so may be missed. *Something to consider in the irritable neonate/infant.*

Cases have mainly been reported in young infants, and incidence probably increases by about 3 months of age as maternal post-partum hair loss kicks in.



Option 1: Unwind the Thread

- Certainly, if caught early enough, you may be able to simply unwind the thread.
- Need to ensure that the entire band is removed and that no residual constrictive portion remains.

Option 2: Depilatory Cream [O'Gorman, 2011; Plesa, 2015]

- Since the majority of the threads will be hair, application of depilatory cream is reasonable
- Apply to the affected area and cover with a thin film dressing such as Tegaderm

- Leave for no longer than 10 minutes
- After 10 minutes, rub the area and rinse with warm water
- The hair should come away or may need help to be removed with a pair of fine pointed forceps
- If successful then the patient can be discharged home with GP review in 24hrs
- +/- dressing depending on amount of tissue damage.

Option 3: Consultation for surgical exploration is required if there is any concern that there is continued constriction.



Works by simply breaking down the keratin in hair.

Kathryn Johnson NP
Starship Children's Emergency Department

2018 Recipients

CENNZ Grants and Awards Recipients 2018

Conference Grant

S Addison
Kym Orchard
Keziah Jones
Vicki Townley
Rochelle Harper
Natalie Anderson
Anna Pretorius

Education Grants

Michael Geraghty
Diane Vary

Funding

Amanda Kerr
Stacey Lancaster

Kirsty Morgan Award

Kyla Butler

AENN Award

Nicky Anderson

Journal Award

Jane Key

Pacific Island Nurse Grant

Not Awarded

Foundation Award

Lynnie Baines

Lynnie Baines was nominated to receive the CENNZ foundation Award for 2018. Lynnie has worked in the Emergency Department in the Waikato for many years progressing from RN to CNS and now on the pathway to Nurse Practitioner. She has served on the CENNZ committee for four years, some of this in the Chair position. Lynnie is a lead instructor on the triage course and is valued by participants and instructors alike for her high standards. She has been a strong advocate for Emergency nursing over many years and this is acknowledged by this award.

Regional Reports

Northland/Te Taitokerau | Auckland
Midland | Hawkes Bay/Tarawhiti
Mid Central | Wellington | Top of the South
Canterbury/Westland | Southern

Northland/Te Taitokerau Region



Chris Thomas

(Cennz Treasurer)

Registered Nurse / Cns

**Emergency Department
Whangarei Hospital**

Contact: ChrisI_t@yahoo.com

Greetings from Northland

Well my tenure as Northland CENNZ rep is drawing to an end and this will be my last regional report. The opportunity to network and work with other ED nurses from around the country has been invaluable and I would thoroughly encourage other ED nurses to embrace this opportunity in the future and become more engaged with the college. Sue Stebbings, a nurse practitioner from Whangarei ED, will be the new Northland representative on the committee.

Whangarei ED is still undergoing a few changes to cope with demand on the service as the intended pressure relief of getting an admission and planning unit functioning within the hospital did not eventuate due to a lack of physical capacity. An escalation plan has been introduced (hospital wide) where the wards with an identified discharge patient may take an intended admit patient, who meets pre-determined criteria, and care for them as a corridor patient when ED is overflowing. Obviously, this is not an ideal situation for the patient or staff but it is an acknowledgement that the ED bed-block issue is in fact a hospital-wide issue and needs to be dealt with in a collaborative manner.

Front of house has again been modified to include a bigger space for secondary assessment, following triage, and now has the space to perform an ECG if required. Prior to this triage staff needed to borrow

a fast track space to perform ECGs or a focused assessment which interfered with patient flow in that area.

Fast track hours of service have been extended to cope with demand and are now manned with both a nurse and either medical staff or NP from 0930 until 11 pm. Although this is only a 3 bed and 3 chair space through-puts are steadily increasing and it therefore takes a huge pressure off the rest of the department and reflects favorably in patient wait times.

Training is now going on for the long-awaited monitoring upgrade that is due to be rolled out within the month, which the staff are ecstatic about. New Phillips monitors on the way.

At the time of writing this article (mid October) Whangarei ED is recruiting for a newly funded ACNM position with that role due to begin in November. There has been a strong response to recruitment and the job interviews are underway.

Bay of Islands Hospital has had the official opening for its new building and the plan is to move into the new building in November. The new ED will have 2 resus beds, a procedure room and a triage room as well as their bed spaces.

I would like to take the opportunity to wish all our members and colleagues a safe and happy festive season.

Chris

Auckland Region



Matt Comeskey
Nurse Practitioner
(Editor)

Auckland District Health Board

**Auckland City Hospital,
Adult Emergency Department**

Contact: mcomeskey@adhb.govt.nz

It has been a busy close to the winter in Auckland, with significant acuity and prolonged periods of high demand for specialty in-patient bed spaces. Despite the workload the department has continued to see innovation and research continue.

A significant study being conducted in ED alongside the ADHB pharmacists is looking at whether three commonly prescribed analgesic medications are more effective than Paracetamol alone. The drugs are Paracetamol + Ibuprofen + Codeine, or Paracetamol + Placebo. To date over 60 participants have been enrolled and is ongoing. It is anticipated that about 120 will be enrolled in the study. This RCT study is funded by the Morsom Taylor award from ACEM and the A+ Trust. You can read about it here:

(<https://adhb.hanz.health.nz/adult-medical/AED-CDU/Pages/PAinED-Study.aspx>)

Further innovation has included improving security in the department. This has been reviewed and changes have been completed. Duress alarms have been installed. When a duress alarm is activated, it's location is notified at staff base and security staff are obliged to attend. Security doors have been installed to separate the main department from the short stay area. The triage nurses and security guards now have the ability to lock the front entrance doors from behind the security of their respective work stations.

This will be my last report as the Auckland CENNZ committee rep. My four year term is up. I will admit to an initial hesitation in taking on the role – my golden rule was never volunteer for anything when there's somebody else to do the job, and never-ever join a committee. Both rather selfish 'golden rules' have been comprehensively smashed over the past four years. But I have to say it's been quite informative and enjoyable meeting the wider ED family. If you have ever considered expanding your professional scope and interest, taking a role in CENNZ might be a good move. I hope I've been useful.

I'm really pleased that Natalie Anderson and Anna-Marie Grace are filling the two vacated Auckland positions. They will bring a knowledge and interest in paed's, nursing management and education to the national committee.

Kia Kaha

Matt

Waitakere Hospital ED

Well it will come as no surprise to any of you that the winter has been busy for all our ED's. In 2017 Waitakere saw 57,000 patients, a third of these were children under the age of 15 years. To date in 2018 Waitakere ED has seen a 4.7 % increase in patients presenting already reaching 44,000 and North Shore ED 54,000 presentations. The gap seems to be narrowing with Waitakere seeing numbers on par with NSH ED. It has taken a real team effort to deal with the large numbers of patients and bed block is always an on-going challenge. Our Paediatric ward Rangatira did need to open its doors for the first time to adult patients to relieve the pressure on beds. Pressure on our service and the entire DHB also saw planned study leave for nurses cancelled.

At Waitakere we have been able to offer patients that have presented with low acuity minor injury or minor medical problems the offer of a White Cross voucher giving free treatment ... (and car parking) and this has taken some pressure off our

service. The Triage Nurses are able to make this decision. However we are finding some resistance from the Public regarding this who feel they would rather stay and be seen in our ED.

Mental health nurses are an integral part of our team seeing those patients acutely unwell. I spoke with Matt one of our MH nurses who reports that they are still seeing a disturbing number of clients who present with acute psychosis from synthetic cannabis and some of those patients require mechanical restraint. Unfortunately we have also had one of our volunteers and one of our Clinical Charge Nurses who is pregnant physically assaulted. A new CALM Communications e-learning module designed to up skill all staff around safety and security and has become part of our mandatory training. Our security officers are now wearing cameras in order to capture and hopefully reduce violence. The mental health team are able to cover most shifts during the week

We have welcomed new staff from the Acute Assessment Unit and our New Graduates have been consolidating their knowledge working through the different areas of our ED. We continue to run the weekly scenario training and alternate on a Thursday between a paediatric presentation and an adult presentation. Our last hand hygiene audit showed significant improvement in compliance and noted that our doctor colleagues improving in this area.

We look forward to some respite over summer and more beds being available for those that need our care. On a lighter note we are considering testing the water here as we have a number of staff (6 in total) expecting the pitter patter of little feet in the coming months.

We wish all our colleagues a great summer and hopefully a little respite from the winter just been.

Jan Boyd Paediatric CNS (WDHB)

Midland Region



Kaidee Hesford
Nurse Manager

**Lakes District Health Board
Emergency Department,
Rotorua Hospital**

Contact: kaidee.hesford@lakesdhb.govt.nz

It has been a busy few months in the Midland region. Although the temperature is warming up it seems most of us are still seeing record patient numbers through ED. Recently the New Zealand Emergency Departments Conference was held in Taupo, this was a very successful conference with large attendances and the content was all very relevant to our current issues seen across ED's nationally.

Thames ED has recently completed a CNS pilot. This was very well received by staff (nursing and medical) and by patients. The CNSs have rediscovered their passion for patient care. They are feeling re-energised and getting a great deal more job satisfaction from being wholly responsible for the patient's journey (with MO guidance). Thames ED has now been able to appoint 2.7FTE permanent CNS following the successful pilot. This will provide daily staffing by CNS with replacement cover for leave etc. It is a hugely exciting time for Thames with very clear support from the multi-disciplinary team for advanced nurse practice roles.

Whakatāne; Have been busy filling gaps and recruiting 5 new staff. They now have a massive training load for the next couple of months. Whakatāne have an "E3 flow project" which has been running and it has been well received. The Alpha ED team includes Allied Health, Pediatric liaison, Pharmacy, OT Physio, Social work and KMEDS Maori NP working with ED staff. The links between these staff bringing their knowledge of individual patients and whanau combined

with their expertise and links to the community has had a significant impact on quality. Case finding and simplifying referral has reduced the demand on ED staff as the single point of referral. It's enjoyable to work in that multidisciplinary environment.

Waikato: Have had a challenging few months with an 8% increase in presentations over the past year and acuity has been high, making every aspect of emergency nursing a challenge. The result of this and being in the thick of a change process Waikato ED has seen a significant increase in staff turnover. Aside from high turnover, high acuity and a perceived increase in clinical risk around the department, they are more united as a team to ensure our voice is heard and can have quick resolution to our concerns.

To mitigate some of these concerns, they are implementing a new role in collaboration with the professional development unit. The orientation and clinical support role will be up and running in the next few weeks with the aim to support our growing number of staff new to ED and fresh off orientation. This is also a development opportunity for our staff that has an education focus and can assist staff in growing their critical thinking abilities.

A number of service projects outside of ED have positively impacted on the journey for patients from ED. A more streamlined process with the opening of the Surgical Unit now sees a reduction in our census of this group of patients waiting in their department.

Midland Region

Waikato now have a mental health Nurse Practitioner working in ED full-time which is providing them with some instant gains in care for this group of patients.

Lakes; Both Rotorua and Taupo ED's have a CATT (acute mental health team) based in ED between 2300-

0700hours 7/7, this has been well received by the ED team as not only are they additional eyes and ears on the floor, but most of this team come from social worker backgrounds so they also give support to those patients should they require it even if the patient doesn't fit the mental health bracket.

We have had an unprecedented number of triage 1 and 2 patients through Rotorua ED of late breaking all previous records. We have managed exceptionally well and we are looking forward to the summer months ahead.

Kaidee

If you would like to submit an advertisement or article for the next issue of the journal please contact the editor matt comeskey for more information!

email Matt at: mcomeskey@adhb.govt.nz

Hawkes Bay / Tarawhiti Region



Paula Draper
Nurse Practitioner

Emergency Department
Hawkes Bay Regional Hospital

Contact: pjdraper@xtra.co.nz

Hello from Sunny Hawkes Bay.

It's feeling very much as though winter is well behind us now, with some beautiful warm and sunny days!

Unfortunately, it still feels as though it's the middle of winter in ED. We continue to have high numbers of presentations with high acuity, and reduced access/attendances to GP services. The hospital continues to run at capacity which of course impacts on flow for ED.

The winter pressure overflow ward has remained open and has been staffed by casual pool and relief staff. Whilst this has provided more beds, it has impacted on staffing resources. There has also been high demand for ICU beds. This has resulted in patients having prolonged stays in ED Resus whilst either waiting for a bed becoming available, or for patient condition improvement.

The Fast Track team continue to see approx. 20% of all presentations as well as assessing and implementing treatment for complex/unwell

patients in times of surge and reduced flow. The Fast track team are also providing care and treatment for patients awaiting speciality input such as Mental Health, orthopaedic and low acuity surgical.

On a happier note, we are eagerly awaiting the arrival of new monitors for Resus. Word has it they should be here by Christmas!

Although ED can be a challenging place to work, there is still high demand to work here. We are currently looking to improve staffing with a dedicated night Triage Nurse, as well as increasing Resus staffing with 2 RNs per shift during the day.

Hawkes Bay has just hosted the 2018 CENNZ conference., and wow, what a great conference it was! 166 registrations, and such inspiring knowledgeable presenters. 16 sponsors were there providing expert knowledge, demonstrations and samples throughout the conference. If you attended the conference, I hope you enjoyed it.

Paula



CENNZ 2018 conference committee
ConnectED

Left-Right, Sue Revell, Paula Draper, Sharon Payne, Amy Hutchison Winnie Freeman.

Mid Central Region



Katie Smith

Nurse Practitioner

(Knowledge & Skills Framework
& Website/Social Media)

NZDF

Contact: katie.smith@nzdf.mil.nz

Palmerston North Emergency Department

In Palmerston North we are appreciating the reduced patient numbers after an impressive increase over the last three months which saw the highest monthly presentation figures ever. Our capacity was stretched, but our nurses showed incredible grit and team commitment, supporting each other day after day.

Our new reception area and ambulance bays are open and we are looking forward to the renovation completion before Christmas. Workforce development continues with nurses attending TNCC this month, and others preparing for National triage course and CENNZ conference. We are pleased to say the nurse practitioner recruitment process is underway with the hope of appointing our first NP this year!

Angela Joseph – Charge Nurse ED, Palmerston North.

NZDF

This time of year sees a busy period for the emergency nurses within the NZDF. We have been lucky enough to have several NZDF nurses attend the annual CENNZ conference which was well received with a variety of interesting and clinically relevant topics, as well as best practice updates. Another successful conference in a very beautiful part of our country. Well done Hawkes Bay.

Our emergency nurses continue to conduct clinical placements in several DHBs including CCDHB, HVDHB, HBDHB, and Waikato DHB with the largest presence of our emergency nurses in MidCentral DHB. The ongoing clinical placements within DHBs

enables our clinicians to conduct clinical training, and at the same time, network with other emergency nurses and provide clinical care to the local community, and continue to foster positive relationships between the NZDF and the DHBs.

We congratulate OCDT Steve Orlowski who is about to complete his NETP placement with MidCentral DHB (ED). Well done Steve.

Even though it feels like winter has only just left us, with the arrival of spring and pending silly season, busy emergency departments and large patient presentation numbers continue to be a challenge. Look after each other, keep safe and enjoy the festive holiday season.

Taranaki

The updates since I've been in the role, are mainly that we've had an increase in staffing Fte of about 7Fte, so we've been able to increase our night staffing up to 5 RN's, and afternoon staffing to 9 RN's, including an afternoon shift 2ndry triage, or 'clinical initiatives nurse'. We also had a new ED nurse educator start in September - Jonele Woodhead. Jonele has previous educator experience, as well as a background in ED and cardiology.

It has been a busy winter, with high volumes and definitely higher acuity than previous years from what the staff has told me. We do have a few problems with skill mix, with a lot of new staff who have a lot of potential, but lack ED experience, so will take time to get them up to speed

Therese Manning – Charge Nurse Manager, ED / TDHB

Paula

Wellington Region



Kathryn Wadsworth

Clinical Nurse Manager

Acute Services

Wairarapa District Health Board

Contact: Kathryn.wadsworth@wairarapa.dhb.org.nz

Like all old people say every year seems to go faster and although it is mildly depressing to realize I am now one of the older people this is definitely a fact. I do think that the pace of work in all three of our Wellington regions Emergency Departments is the reason we love it, very rare is it that an ED nurse is bored. That being said, there used to be periods where staff could at the very least catch their breath but it appears those days have now passed.

The key message from Wellington ED is pressure, pressure, pressure and I think that essentially sums up the year that's been and disturbingly, the potential year that's coming. Trauma season seems to have arrived early this year and although this means different things to different hospitals the impact of these unstable, high acuity patients is felt by all. Couple this with the late flu season and it feels like we have

a double whammy on our hands. Unfortunately staff and patients have been affected by this late flu onset and this has impacted significantly on maintaining a covered roster and a safe shop floor. Staff retention and recruitment is an ongoing challenge for all of us and although the new graduates that are coming our way are of an extremely high caliber it is difficult to maintain that senior level of skill that we rely on so heavily in our departments.

Patients presenting with mental health issues are a constant issue with concern being raised in all three Emergency Departments around the best management and support for this group. Unfortunately, it is this high risk group that appear to have extremely long waits in the department and any remedies to this has been unsuccessful to date. In Wellington the lack of resourced mental health beds is now resulting in patients requiring this service being moved into the general hospital.

Drug and alcohol related presentations and the often resulting undesirable behaviors exhibited by this group continue to plague our environments. Ongoing concerns around violence towards staff and insufficient security also doesn't seem to be letting up and if anything is becoming more prevalent in our at risk areas. That being said Wairarapa ED has finally had some approval for security which will be extremely welcome. The impact in the Wairarapa due to the lack of available GPs is yet another cause for our constant flow of presentations. Masterton now has closed books in all practices and unfortunately this appears to be hitting the most vulnerable in the community.

The TLC appeal NZ that supply Emergency Departments with colorful teddy bears has been very well received by children needing to use our departments. Fundraising is a constant in many of our departments with pediatric resourcing identified as a need. I would like to acknowledge those staff who continue to spend their own time and energy doing this. It truly shows how much they care about patients and the experience they have in our EDs. The recent countdown ball held in the Wairarapa with the aim of raising money for pediatrics using Wairarapa Hospital was a huge success with many staff from the Emergency Department supporting this.

Hutt ED has one Nurse Practitioner who has passed council and one pending, with one full time position approved. Wellington ED has four Nurse Practitioner candidates heading to council over the next month and are strongly advocating for an approved position but this is a work in progress. Wairarapa has multiple staff on the NP pathway with the two Nurse Practitioners well embedded into the ED and recognized by the multi-disciplinary team as vital. We are growing our own successfully but we now desperately need to acknowledge and support them into roles in a fast changing environment that is struggling to keep up.

Wellington region wishes everyone well in the coming festive season and although this also comes with its own unique challenges for our ED's it is hoped the summer brings with it some reprieve.

Kathryn

Top of the South Region



Jo King

CNS / Registered Nurse
(Chairperson)

Emergency Department,
Nelson Hospital

Contact: jo.king@nmhs.govt.nz

Greetings from the Top of the South where the cold temperatures have provided a magnificent backdrop of snow covered peaks. While this heralds much excitement about the opening of the ski season, the icy starts to the day are contributing to falls, fractures and problems on the roads.

The last few months have seen a bit of a hiatus between the summer and winter workload peaks. There have been improvements in the 6hr LOS and minor decreases in patient presentation numbers and minutes in the department. The admission rate has also returned to a more acceptable 23% after trending well above this over the last few months.

One unexplained trend identified in May was a spike in Triage 4 patients of 15%.

Despite improvements in some emergency department KPIs, the ability to respond adequately to peaks in demand and workload variance, remains a major challenge. One of the pressure points is holding patients who are waiting on ICCU beds. We have begun to collect data around this and have identified that over the last 2 months we have provided 145 hours of 1:1 ICU level nursing care. This obviously has a significant impact on resourcing the rest of the department during these times.

We are eagerly awaiting the opening of a 'Medical Assessment Unit' in Nelson. While this will initially be a pilot we look forward to seeing how it impacts on ED. And still in 'pilot mode' are our CNS and HCA roles. These positions are both established and embedded in our departments and we are hopeful of obtaining permanency.

As a response to emergency department demand in our region increased DHB - funded redirection to primary care has been initiated. I am also aware this is a trend occurring in many organisations around the country. It is advantageous for the right person to be seen by the right service provider, however it is equally important to remember that the acts of triage and redirection are separate processes. This had led me to revisit ACEM and CENNZ publications on redirection. Both

caution that the Australasian Triage Scale is not designed nor as yet proven to be a validated tool for redirection. Furthermore, they suggest that additional skills, education and competencies may be required to support triage nurses who undertake redirection. I do consider we must be cognisant that "redirection is a complex clinical decision with both clinical and professional accountabilities for the health practitioner" (CENNZ, 2014).

The department has held a combined nursing / medical SIMS day. This was held off-site and was a wonderful opportunity to up-skill collaboratively and collegially. We have ongoing quality initiatives in paediatric oncology and hyperemesis pathway development. And we are all benefitting from having an enthusiastic bunch undertaking post-graduate study this year.

On a very concerning note we have seen a spike in Safety First notifications for staff safety over recent months. One of these represents a significant incident where police were unable to attend due to the critical nature of their own work demands. I know this is an escalating challenge facing all our departments and there is much work to be done.

As I write this, we are in turbulent times of negotiations and potential industrial action. Despite this, in the Top of the South, it's business as usual for emergency nurses.

Jo

Canterbury/Westland Region



Dr Sandra Richardson
Nurse Researcher

**Emergency Department,
Christchurch Hospital**

**Canterbury District
Health Board**

Contact: sandra.richardson@cdhb.govt.nz

This has been a busy period for the Emergency Department(s) in the region, and indicates the continuing pressures facing ED staff. Within the Christchurch Hospital ED, a particular focus has been on the introduction of new patient administration systems - South Island Patient Information Care System (SI PICS) which went live on the 6th October in Christchurch and Ashburton; and the ED At A Glance (EDAAG) patient management and administration system which has been introduced into ChCh ED. The introduction of any new system has associated challenges and stressors, and introducing both programmes over a similar time frame has been particularly challenging for the clerical staff. Ongoing focus on identification of 'glitches' and unforeseen issues has allowed for constant recognition of actual and potential risks, and for these to be addressed in a timely manner. There has been capacity to provide additional nursing staff to provide support on the initial shifts, purely relating to the IT aspects. Additional high patient numbers have added to the sense of tension, but despite concerns the introduction has proceeded well and staff have adapted to the new systems in an efficient and effective manner. As with any such change, the new system has continued to highlight the difficulties in adapting processes that are not designed specifically for use in one's own ED, and the realisation that a national, consistent and consolidated system across New Zealand would be of great benefit.

A number of nurses from the region recently attended the Regional Emergency Department conference in Taupo, which continues to provide a relevant and thought provoking forum to discuss a range of emergency related issues amongst colleagues. The CENNZ NZNO Professional Nursing Advisor, Suzanne Rolls, was able to join an additional meeting organised

within the nursing delegate group via teleconference. This enabled discussion and clarification of issues associated with the introduction of measurement systems for those EDs not currently using Trendcare, and how this might relate to the distribution of additional staffing support resulting from the NZNO pay negotiations. The focus on transformation and change introduced some excellent examples from practice and identified a number of areas and processes for further consideration.

International Emergency Nurses Day was marked at ChCh ED with the presentation of the ED Nurse Awards. There are two awards, the first of which is The Paul O'Donovan Cup for Excellence in Emergency Nursing which is awarded for the RN who demonstrates qualities that exemplify the essence of Emergency Nursing and excellence in the delivery of nursing care. The second is the Making a Difference Award, for the RN who is proactive in the implementation of new ideas or ways of doing things. Following a nomination and selection process, the Cup was awarded to Paddy Holbrook, NP and the Making a Difference Award to Kez Jones. Kez introduced a number of changes in regards to the shift roster processes, include establishing a facebook page to facilitate swaps and shift changes, and the establishment of a rolling roster based on a mathematical formula which ensures adequate shift coverage. This has proved so successful, that she has been asked to share this with other areas, providing presentations and education around this. Comments from her nominators included mention of her hard work, communication skills and above all her willingness to listen to others.

This year an additional award was spontaneously generated from the senior nursing team for the Charge Nurse Manager, Anne Esson, to thank her for her work 'above and beyond' in

Canterbury/Westland Region

relation to managing the many changes the department has undergone recently and for her support, and advocacy on behalf of staff.

We congratulate our two NetP students, Susannah Durham and Georgia Finch, who were both nominated for the Canterbury Region NetP Awards, with Georgia receiving the award for Confidence and Commitment to Nursing Practice. Many thanks also to their mentor, Aisling Tormey. It is great to be able to recognise the positive aspects in our practice, and to celebrate the development and professionalism of emergency nurses. Staff have also been able to take part

in several external educational courses, with good attendance and pass rates resulting. These include seven nurses who completed the ENPC - Brenna Rush, Dani Beck, Jessica Wigley, Kate Boys, Kate Collings, Vikki McColl and Zoe Baker

- and six who completed the Emergency Management of Severe Burns course (EMSB) - Heelin Lim, Sally Winters, Fay Stickley, Amy McGrannachan, Sarah Mannion and Lucia Fenwick.

Overall, the workload and acuity nurses working across the region remains 'steady' with intermittent peaks which provide challenges to individuals and to

services. Our staff remain professional, caring and responsive to patient needs but there is also no doubt that stress and exhaustion at times interfere with the ability to provide the best possible care we all want to deliver. It is important we continue to support each other, celebrate our successes, and work towards identifying and improving those issues we face on a regular basis.

Sandy

Article submissions for the new year issue of the journal are now open. Please contact the editor **matt comeskey** for more information!

email Matt at: mcomeskey@adhb.govt.nz

Southern Region



Erica Mowat

Triage Portfolio

Registered Nurse

Southland District Health Board

Emergency Department
Dunedin Hospital

Contact: Erica.mowat@southernadhb.govt.nz

Dunedin

Presentation and Staffing

Patient presentations have remained steady over the winter period with numbers similar to those for the same period in 2017. There has been a noticeable increased acuity and complexity of presentations, although this is not currently captured by our data collection methods. Senior management are aware of the increasing demands on staff, staff recruitment requirements and pressure on the department's capacity due to availability of inpatients' beds. The winter flex FTE has been made permanent with a further promise of extra FTE's

under the safe staffing negotiated during the MECA. The nursing team have worked hard over the winter period with all staff doing overtime to provide safe care for the patients. Skill mix issues has also seen our ACNM working on the floor and working nights. Strong team work has helped us through this demanding period.

Next year there will be three, possibly four, new graduates joining our team and Signe Stanbridge will be starting as our first Nurse Practitioner in February. The CNS team have been working in the early assessment zone over winter and will now return to the minor injury area. These developments present opportunities to explore and develop the senior nursing model.

Projects and Education

Otago Heli and Gardens Heli have obtained the contract for the SDHB bases. Bases will now be permanently added to Te Anau and Queenstown which will shorten patient transfers.

The Francis Group will be in ED the week of the CENNZ Conference to assess and provide suggestions to improve patient flow. They will be looking at the flow within the department and impacts on the flow from other areas.

Several staff from the emergency department will be attending the ED Conference in Hawkes Bay with one of our ACNMs, Tanya Meldrum presenting a project on improved flow through ED for cancer patients. A few of the staff will attend a Trauma Education Day while others will attend the upcoming TNCC course.

On a personal note I wish to say thank you and acknowledge the support I have received during my time on the CENNZ committee. I have held the Triage portfolio on the national committee over the last two years which has been interesting and delivered many challenges. My colleagues on the CENNZ committee, triage instructors and triage administrator Sharyne Gordon have been invaluable in helping me in this demanding roll and I feel proud of the work we have achieved.

Copies of the NZ Mental health tool will be distributed to NZ ED's throughout NZ prior to the 2018 November triage courses. Discussion at these meetings also centred around the opportunity to advance the instructor role and provided the impetus for the development of an instructor manual. This manual includes the instructors code of practice and outlines the reciprocal agreement between the Triage instructors, CENNZ Triage Director and CENNZ Committee

I would like to thank all my colleagues who have been so supportive during my time on the CENNZ committee. They have kept me informed of changes and progress within the emergency departments of the southern DHB. Welcome to Anne O Gorman, ACNM in the Dunedin Emergency Department, who will be taking over as the SDHB representative on the CENNZ committee and will champion your thoughts and concerns in 2019.

Erica

Regional Reports

Invercargill

Winter has been busy with a high number of presentations and acuity. The winter flex staffing plan allowed us to deploy an extra RN on nights and a flow nurse from 1100 to 1900. We are still advertising for one more FTE but are otherwise fully staffed. This has made a significant difference to care delivery.

Work continues on our Releasing Time to Care modules which allow for work flow improvements and more efficient work spaces especially in the resuscitation bays. Our triage area is currently undergoing a revamp with both processes and the physical work environment being reviewed and altered.

On the education front we have staff attending the coming TNCC which is being held here in Invercargill. We have four of our staff travelling to the sunny Hawkes Bay for this coming CENNZ conference and we continue to have regular Journal Clubs. These are held three times a year and are a great way to discuss relevant literature in a social forum.

Our Nurse Educator Olivia Murray and the Paediatric Respiratory Nurse Specialist Annie Smith are heading to Melbourne as part of the final touches to the International Bronchiolitis study that they have been part of over the past two years.

We look forward to summer and all the social activities that this will include. Merry Christmas to you all!

Queenstown

Another busy winter snow season has come to an end with further increase in presentations on last year. However, the ED has become

increasingly crowded, but we hope to have our new ED completed before next winter season. Outside my window I can see the exciting sight of earthworks for our new ED, radiology and district nursing departments. It is especially exciting to have CT facilities on site, and it will be interesting to see how this impacts our model of care as hopefully it will necessitate fewer patient transfers.

We have been well supported by extra hours from MRT and administration ensuring good patient flow through the department and reduced waiting times.

Several nurses completed their Nurse Initiated X ray training earlier in the year and have enjoyed this addition to their practice, being able to take more autonomy in their patient care. Two nurses have recently attended the Triage Course in Christchurch and 2 nurses will attend TNCC in December and we appreciate the support for our nurses to develop their trauma and assessment skills. Staffing has improved with a permanent extra nursing FTE and increased medical staff FTE. Maternity leave for four staff have led to a recruitment drive, but luckily we had high calibre applicants appointed to these temporary roles. We have been well supported by extra hours from MRT and administration ensuring good patient flow through the department and reduced waiting times.

Oamaru

Since our last report a new CEO has been appointed. We welcome Ruth Kibble, who has been seconded from SCDHB. She will be the project

leader through the development of new model of care for the Waitati. Hospital departments review continue to achieve a new district wide health service which recently includes the outsourcing of food services. Lesley Clare, our clinical nurse manager will be leaving at the beginning of November with her position being divided into two. One will cover the 'inpatient coordinator' role and the other role will be as ED coordinator. Sadly, Dr Fazal Mann has resigned as clinical team leader and Dr Mo Watfa is returning to the UK. We welcome Michelle Peperkoorn Nurse Practitioner who has joined the ED team, from Middlemore ED.

ED continues to be very busy, although still staffed by one nurse and one doctor in the mornings, No other clinical support, such as HCA's, are currently employed. Requests for increased RN nursing hours to cover ED in the mornings have been forwarded to management with the hope the request will be reviewed in keeping with the MECCA staff staffing parameters.

Patient flow from ED to inpatient beds is affected by limited availability of inpatient beds. The increased patient acuity and complexity continue to stretch staffing and capacity. Our afternoon swing nurse is being utilised for inter hospital transfers as St John are unable to provide extra staff.

On the education front one of the Oamaru staff will be attending the CENNZ conference and will get the opportunity to network with other nursing staff from rural hospitals.

Triage Courses 2019

Course details, terms and conditions available:

https://www.nzno.org.nz/groups/colleges_sections/colleges/college_of_emergency_nurses/courses

Region	Dates	Venue	Closing date for Applications	Closing date for payment	Registration
Christchurch	29/30 March 2019	Manawa Building [Registration 2ndFloor], Health Education & Research Facility, 276 Antigua Street, Christchurch	1st February 2019	15th February 2019	Book Now
Taranaki	6/7 April 2019	Lecture Theatre, Education Centre, Building 3, Taranaki Base Hospital, David Street, Westown, New Plymouth 4310	8th February 2019	22nd February 2019	Book Now
Tauranga	4/5 May 2019	Tauranga Hospital Education centre, 889 Cameron Road, Tauranga.	9th March 2019	23rd March 2019	Book Now
Rotorua	8/9 June 2019	Conference Room, 3rd Floor, Clinical Services Block, Rotorua Hospital, Corner Arawa Street and Pukeroa Road, Rotorua	13th April 2019	27th April 2019	Book Now
Lower Hutt	21/22 June 2019	The Learning Centre, 2nd Floor, Clock Tower Block, Hutt Hospital, High Street, Lower Hutt	26th April 2019	10th May 2019	Available soon
Waikato	14/15 September 2019	Clinical Skills Centre (under the library) Waikato Hospital Campus, Corner Selwyn and Pembroke Street, Hamilton West	20th July 2019	3rd August 2019	Available soon
Wellington	7/8 November 2019	Education Centre, Level 11, Ward Support Block, Wellington Hospital, Riddiford Street, Newtown	12th September 2019	26th September 2019	Available soon
Christchurch	22/23 November 2019	Manawa Building [Registration 2nd Floor] Health Education & Research Facility 276 Antigua Street, Christchurch	27th September 2019	11th October 2019	Available soon

Snippets Summer 2018

Comparing the Effect of Throughput and Output Factors on Emergency Department Crowding: A Retrospective Observational Cohort Study. *Annals of Emergency Medicine*. 2018

This Canadian study compares how throughput and output factors affect emergency department (ED) median waiting room times. Different strategies to improve waiting times are discussed.

<https://www.ncbi.nlm.nih.gov/pubmed/29804715>

Emergency Department Length of Stay for Maori and European Patients in New Zealand. *Western Journal of Emergency Medicine*. 2018

Emergency department length of stay (ED LOS) is currently used in Australasia as a quality measure. Maori, the indigenous people of New Zealand, have a shorter ED LOS than European patients. This is despite Maori having poorer health outcomes overall. This study sought to determine drivers of LOS in a provincial New Zealand ED, particularly looking at ethnicity as a determining factor.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4944800/>

Using preceding hospital admissions to identify children at risk of developing acute rheumatic fever. *Journal of Paediatric Child Health*. 2018; 54(5):499-505

This analysis of NZ public hospital discharge data from 2000 through 2014 examined the effectiveness of using hospitalisations to identify children at subsequent risk of acute rheumatic fever (ARF). The national ARF prevention programme has introduced funding to improve housing. As the study researchers explain, effective tools are needed for targeting high-risk children at risk of ARF, so that all interventions yield the greatest benefit.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/jpc.13786>

Scabies is strongly associated with acute rheumatic fever in a cohort study of Auckland children. *Journal of Paediatric Child Health*. 2018; 54(6):625-32

Analysis of data from the Auckland Regional Dental Service (ARDS) involved 213,957 children aged 3–12 years attending the ARDS for the first time who were free of rheumatic heart disease at baseline. Children diagnosed with scabies during follow-up were 23 times more likely to develop ARF or CRHD, compared with children who had no scabies diagnosis.

Even though it is not common, the significant disparities in rheumatic fever and heart disease rates between Māori and Pacific people and non-Maori/Pacific are appalling, and reflect badly on NZ's approach to the wellbeing of Māori and Pacific children. Both papers offer potential solutions: a housing review for children presenting to hospital; and diagnosing/treating scabies.

<https://www.ncbi.nlm.nih.gov/pubmed/29442387>

Recent opioid use may cause fall-related injury among older patients with trauma. *Canadian Medical Association Journal*. 2018 Apr 23; 190(16): E500–E506.

In a retrospective cohort of 67,929 patients, mean age 80.9 years, with injuries (of mixed severity, via different modes – whether from falls or other means), it was found that 4.9% who were previously dispensed opioids had the injury because of a fall, compared to 1.5% who were dispensed opioids, who had an injury because of a reason other than a fall. The injuries were serious with over 50% of the 67,929 requiring surgery.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5915247/>

Colloids versus crystalloids for fluid resuscitation in critically ill people. *Cochrane Database Syst Rev*. 2018 Aug 3;8:

Critically ill people may lose fluid because of serious conditions, sepsis, trauma, or burns, and need additional fluids urgently to prevent dehydration or renal failure. Colloid or crystalloid

Snippets Summer 2018 Cont.

solutions may be used for this purpose. Crystalloids have small molecules, are cheap, easy to use, and provide immediate fluid resuscitation, but may increase oedema. Colloids have larger molecules, cost more, and may provide swifter volume expansion in the intravascular space, but may induce allergic reactions, blood clotting disorders, and kidney failure. This is an update of a Cochrane Review last published in 2013.

https://www.cochrane.org/CD000567/INJ_colloids-or-crystalloids-fluid-replacement-critically-people

A Systematic Review and Meta-analysis of Ketamine as an Alternative to Opioids for Acute Pain in the Emergency Department. Academic Emergency Medicine . 2018 Jul 17.

Opioids are commonly prescribed in the emergency department (ED) for the treatment of acute pain. Analgesic alternatives are being explored in response to an epidemic of opioid misuse in North America. Low-dose ketamine is discussed as one opioid alternative for the treatment of acute pain in the ED.

<https://www.ncbi.nlm.nih.gov/pubmed/30019434>

Impact of the four-hour national Emergency Access Target on 30 day mortality, access block and chronic emergency department overcrowding in Australian emergency departments. Emergency Medicine Australasia. 2018 Jul 30.

Previous research has reported strong associations between emergency department overcrowding and mortality. In this longitudinal cohort study, the authors assessed the effect of the Four-Hour Rule (4HR) intervention (Western Australia (WA) 2009), then nationally rolled out as the National Emergency Access Target (Australia 2012) policy, on mortality and patient flow.

<https://www.ncbi.nlm.nih.gov/pubmed/30062847>

Interventions to improve patient flow in emergency departments: an umbrella review. Emergency Medicine Journal 2018 Aug 9.

Patient flow and crowding are two major issues in ED service improvement. A substantial amount of literature exists on the interventions to improve patient flow and crowding, making it difficult for policymakers, managers and clinicians to be familiar with all the available literature and identify which interventions are supported by the evidence. This umbrella review, published in the *Emergency Medicine Journal*, provides a comprehensive analysis of the evidence from existing quantitative systematic reviews on the interventions that improve patient flow in EDs.

<https://www.ncbi.nlm.nih.gov/pubmed/30093379>

Why do 'fast track' patients stay more than four hours in the emergency department? An investigation of factors that predict length of stay. Emergency Medicine Australasia (EMA).

Low-acuity 'fast track' patients represent a large portion of Australian EDs' workload and must be managed efficiently to meet the National Emergency Access Target. This study, determined the relative importance and estimated marginal effects of patient and system-related variables in predicting ED fast track patients who stayed longer than 4 hours in the ED

<https://www.ncbi.nlm.nih.gov/pubmed/29569844>

Oral flucloxacillin 1000 mg with food TDS is probably effective.

In a trial done in New Zealand¹ in healthy volunteers, flucloxacillin 1000mg TDS with food got equivalent blood levels as in participants without food in their stomachs.

In New Zealand, flucloxacillin is only used in patients with skin infections or bacterial mastitis. For skin infections the recommended duration of treatment is now five days of treatment and for bacterial mastitis 5 to 7 days.

Snippets Summer 2018 Cont.

Caution is needed as this dosing with food has not been tested in sick patients and close monitoring may be warranted initially. Equally, the 500mg dose has not been tested.

<https://www.goodfellowunit.org/gems/oral-flucloxacillin-1000-mg-food-tds-probably-effective>

Indigenous adolescents' perception of an eMental Health Program (SPARX): Exploratory qualitative assessment.

JMIR Serious Games. 2018 Jul 5;6(3). Outcomes are described from a study that explored Māori adolescents' (taitamariki) opinions about the SPARX (Smart, Positive, Active, Realistic, X-factor thoughts) programme, a computerised intervention developed in New Zealand to treat mild-to-moderate depression in young people. The intervention engages users in a virtual 3D environment where they must complete missions to progress to the next level. Each level presents challenges and puzzles to complete. It was designed to appeal to all young people in New Zealand and incorporates several images and concepts that are specifically Māori. Six taitamariki participated in semi-structured interviews after they had completed work with the SPARX resource. They considered SPARX to be helpful.

<https://www.ncbi.nlm.nih.gov/pubmed/29980495>

Abscess Incision and Drainage With or Without Ultrasonography: A Randomized Controlled Trial. Annals of Emergency Medicine. 2018 Aug 17.

Patients (125 participants) with soft tissue abscesses who were undergoing incision and drainage with point-of-care ultrasonography demonstrated less clinical failure compared with those treated without point-of-care ultrasonography.

<https://www.ncbi.nlm.nih.gov/pubmed/30126754>

Centers for Disease Control and Prevention Guideline on the Diagnosis and Management of Mild Traumatic Brain Injury Among Children. JAMA Pediatr. 2018 Sep 4.

Mild traumatic brain injury (mTBI), or concussion, in children is a rapidly growing public health concern because epidemiologic data indicate a marked increase in the number of emergency department visits for mTBI over the past decade. However, no evidence-based clinical guidelines have been developed to date for diagnosing and managing pediatric mTBI in the United States.

This paper offers a CDC best practice guideline based on a systematic review of the literature to aid clinical recommendations for health care professionals related to the diagnosis, prognosis, and management/treatment of pediatric mTBI.

<https://plus.mcmaster.ca/EvidenceAlerts/NewArticles.aspx?Page=2&ArticleID=82276#Data>

Journal Ad

Triage Instructor

Expressions of interest are invited for the position of Triage Instructor for the New Zealand Triage Course. This role offers an opportunity to diversify within the teaching arena and be involved in the delivery and shaping of the New Zealand triage course. The instructor term is for an initial period of three years, with potential to extend this period.

Candidates must hold Registered Nurse credentials with a current NZ practicing certificate, have been a financial member of CENNZ for the two years prior to application and be currently working in a NZ emergency department. They will have successfully completed the NZ triage course themselves, have evidence of post graduate study and have verified experience teaching adults.

The successful applicant(s) will be expected to teach a minimum of three NZ Triage courses a year, maintain regular communication with the triage director and adhere to the Instructor code of conduct. Remuneration is on a course by course basis.

Should you wish to be considered for this role, please provide 2 referees with an endorsement regarding teaching experience your ability to take part in a phone or skype interview.

Please forward all enquires and applications to the current Triage Director, Erica Mowat, at: cennztriage@gmail.com

Applications Close

**5pm Friday 18 January
2018**

What are you looking at?



Kupu

Kupu, this has to be the most fun, educational app I have seen for a while. The technology in this is beyond my understanding but put simply, it's linked to the camera in your phone so when the app is in use you can take a picture of anything and it will name the object in te reo Māori. It will even name surrounding objects. The images and the te reo descriptions are reviewed by the app's moderators to ensure accuracy. Kupu might struggle with some medical objects but the basic stuff seems to be all covered. So if you have ever wanted to expand your vocabulary in the medical work place, or at home - this is the app for you.

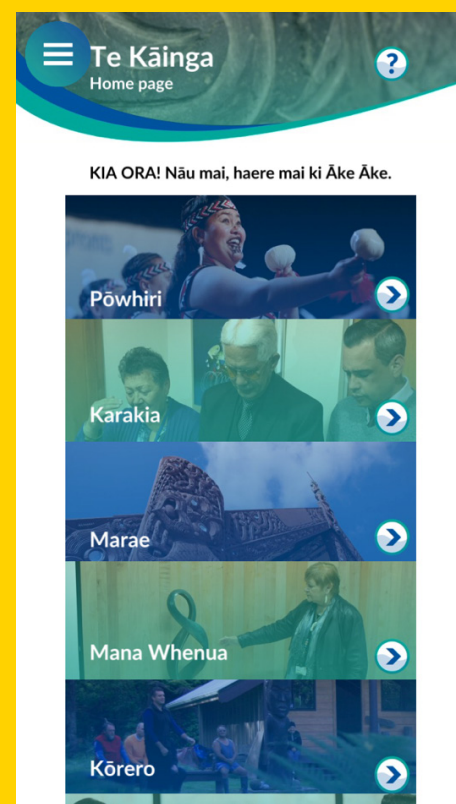
And if you have identified what you are looking at in Te Reo and you need help in pronunciation, the newly launched ADHB / WDHB app Āke Āke is super



Kupu: Translation app in action

useful. This app also explains cultural protocol and waiata. Āke Āke gives users the ability to write their own mihi, (formal introduction) in te reo Māori. And it gives a very simple explanation of marae protocol. I have been using Āke Āke while driving. The text is read out loud on speaker phone which makes a pleasant change from depressing news bulletins and the same-old-middle-of-the-road music.

Both Kupu and Āke Āke are free from the Apple or Android stores.



Āke Āke Phone App

Frequently Asked Questions

Who is Eligible for the CENNZ Pacific Island Nursing Grant?

The Pacific Island Nursing Grant has been part of the CENNZ grants and awards for a number of years but has not, in recent memory been granted. The CENNZ National Committee and the NZNO Pacific Nurses section have re considered the criteria for awarding this grant.

The grant criteria are now less prescriptive. Hopefully the grant will be more readily accessed by CENNZ members with an interest in working in nursing roles in the Pacific and building relationships with Pasifika nursing colleagues.



Nelly taking her sick baby to clinic. Makira
Ulawa Province Solomon Islands.

Information and application forms can be found on the
CENNZ web site:

[https://www.nzno.org.nz/groups/colleges_sections/
colleges/college_of_emergency_nurses/grants_awards](https://www.nzno.org.nz/groups/colleges_sections/colleges/college_of_emergency_nurses/grants_awards)

MORE ISN'T ALWAYS BETTER

HERE'S FOUR THINGS TO DISCUSS WITH EVERY PATIENT:

1

DO I REALLY
NEED THIS
TEST, TREATMENT
OR PROCEDURE?

2

WHAT ARE
THE RISKS?

3

ARE THERE
SIMPLER, SAFER
OPTIONS?

4

WHAT IF
I DON'T DO
ANYTHING?

Unnecessary tests, treatments, or procedures can be harmful, and costly. But by making sure your patients are well informed, you can make the best decisions about their health care, together.

Choosing Wisely provides specific resources, developed with specialist colleges across New Zealand, to help professionals and patients alike.

Find out how your practice can benefit at choosingwisely.org.nz



A COUNCIL OF MEDICAL COLLEGES
IN NEW ZEALAND CAMPAIGN
and part of Choosing Wisely work internationally.

CHOOSE
WISELY

EMERGENCY NURSE NEW ZEALAND

The Journal of the College of Emergency Nurses New Zealand (NZNO)
ISSN 1176-2691