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EMERGENCY NURSE NEW ZEALAND

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EMERGENCY NURSE NZ

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A WORD FROM THE EDITORS:

Kia ora, he mihi tino nui ki a koutou katoa I teenei tau hou.....

Well it's probably March or April by now and I have never been sure what the social etiquette for wishing people a Happy New Year if you have not been in touch since this side of Xmas. Hei aha!

The reason I am unsure of the exact date is down to the fact that this is written in the past (woooo, spooky), 19th December to be precise and written knowing that I will no longer be penning my name as Editor of this esteemed journal. After ten, maybe 11 or 12 years in this 'job' I have decided to step down. I wish I could cite a philosophical conflict with the CENNZ committee, lack of a pay rise, interference with my rights of free speech or other dramatic reasons but the truth is I think it is probably time for a change, new blood and all that.

In the short term Matt Comeskey will be holding the reins although I am sure the committee would love to hear from any of you who might like to be involved in the journal.

Many thanks to all those who have supported the journal over the years, the National Committee for allowing me to rabble on and to Sean McGarry for making it all look so professional.

MICHAEL GERAGHTY
RETIRING EDITOR

After twelve years as editor of this journal I think it's fitting to thank Mike for a job well done. It's not easy cajoling contributions from busy people and keeping to deadlines and budget. Balancing clinical and teaching responsibilities with editing a journal is a bit like herding cats. I have no doubt that the free time Mike now has will fill with other demands on his time – some of which hopefully involve surfing.

With Mike moving on I have been asked to fill the editor's role. The opportunity has given me cause to reflect on what having a journal is all about. If I can surmise; the journal is a bit like a navigation tool – a map and compass. Just like navigating at sea or in the mountains - to know where you are going, you have to first know where you've come from. A record of progress and set-backs is important if we are to avoid going in circles. With this in mind, this journal is a significant record of the development of emergency nursing in Aoteroroa. On looking back over previous copies, it's clear the big issues and changes can be tracked through it's pages.

So it is important we continue to record our activities – and CENNZ members have indicated this in the recent on-line survey regarding the journal. With this in mid, the most environmentally and financially sustainable way of doing this is to move from a hard copy to a digital copy, emailed to members, which individually you may choose to print or not.

This will likely be the last hard copy of the journal published. The cost savings are going to be passed back to members in the form of increased funding for awards and grants as well as payment for significant journal articles that are submitted for publication. So, if you are considering contributing – a thought provoking letter to the editor, a review or research – now is good.

MATT COMESKEY
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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.

EMERGENCY NURSE NZ

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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 cennzjournal@gmail.com. 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 Michael Geraghty at: cennzjournal@gmail.com. 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

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Chairperson's Report

Greetings Emergency Nurses across Aotearoa

The New Year is well underway and with it the chance for a fresh start. At short notice I have taken up a clinical position outside of emergency nursing in line with my professional aspirations. Leaving emergency nursing has left me with mixed feelings; I will miss this dynamic area of nursing and the strong collegial bonds it forges.

I have participated in clinical teams and seen the amazing work that Emergency Nurses do, it has been a privilege to represent our speciality. Working with the committee I have had the opportunity to support emergency nursing thereby improving patient and family/whanau care. My experience with CENNZ has been very valuable in expanding my horizons; time with our committee gives you a new perspective and understanding of the complex world in health beyond our immediate departments or DHBs.

"CENNZ is well supported by the infrastructure of the NZNO."

CENNZ is well supported by the infrastructure of the NZNO. This backing allows our volunteer led College to seek ways of being innovative and engaged in the contemporary issues facing emergency nursing. Ongoing activities aim to address topics including professional development and safe staffing. This year the College will develop social media platforms as we also transition to an electronic version of the Emergency Nurse NZ Journal. I must thank Michael Geraghty our journal editor who has just stood down after more than a decade.

If you have any questions about CENNZ or if you want to become more engaged in our projects contact your regional representative. Local representative positions with the national committee become available generally every 2 – 4 years. I have found this experience incredibly worthwhile and can strongly recommend it.

Jo King from Nelson Hospital is taking over the chairperson position. Jo brings a wealth of emergency nursing knowledge and experience. She has been a real asset for CENNZ during my term. I am certain Jo and the rest of the team will continue to fly the emergency nursing flag high and proudly.

Best Regards

RICK FORSTER

Chairperson

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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

WHAT'S NEW WITH POO? CONTEMPORARY APPROACHES TO PAEDIATRIC GASTROENTERITIS IN THE EMERGENCY DEPARTMENT

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INTRODUCTION

Gastroenteritis in the developed world may not be associated with significant child mortality but it nevertheless comprises 6% of all presentations to the paediatric emergency department (ED) in Australasia and it is one of the leading causes of hospital admissions in the under-five age group [1-3]. The causative organisms are primarily viral in this context, although bacterial causes are also seen [4-7]. Children with gastroenteritis present with symptoms of diarrhoea often with accompanying vomiting, anorexia, myalgias, abdominal pain and fever; the type and severity of symptoms varies with the causative organism and the host's age and constitution [1, 8]. On-going fluid and electrolyte losses can result in volume depletion/hypovolaemia (salt and fluid loss) or dehydration (water loss only), terms that are often used synonymously even though they are not exactly the same thing [9]. Thus, the treatment priorities for gastroenteritis are: identifying children with life threatening volume depletion, initiating prompt and appropriate repletion therapy, establishing and supporting on-going fluid requirements and finally determining which children may be safely managed at home or will require admission for on-going fluid therapy and/or surveillance [1, 10-18].

In the ED, due to the six hour target, there is an additional onus on clinicians to complete care and/or make disposition decisions (admit or discharge) early. [19]. Hence, care delivered in the ED must be timely as well as effective. Oral rehydration therapy (ORT) is widely advocated as the mainstay of rehydration for children with mild to moderate dehydration but evidence suggests that it is underutilised in both primary and secondary care settings [20-30]. Clinical guidelines for gastroenteritis are numerous, can be complex, difficult to execute in practice and there is considerable variance between them in terms of content and quality [31].

LITERATURE SEARCH

The treatment of gastroenteritis involves an assessment of dehydration and fluid replacement regimens (i.e. the route, type and volume of fluids administered). In addition, adjuncts to relieve symptoms of vomiting and diarrhoea may also be utilised. This literature review will attempt to summarise the contemporary evidence pertaining to assessment, rehydration and adjunct therapies for children with gastroenteritis in the ED. A search was executed in Medline, Cinahl, and Scopus for the population of children in ED with gastroenteritis and articles were filtered to include primary research published in English in the last 5 years. In addition, reference lists were scrutinised to ensure that key texts were not overlooked and clinical guidelines were also appraised [32-36]. The interventions revealed will be discussed in the following section.

ASSESSMENT OF DEHYDRATION IN CHILDREN WITH GASTROENTERITIS

Studies relating to the assessment of dehydration are difficult to compare for several reasons. Firstly, there is poor agreement about the precise degree/percentage of dehydration that reflects mild, moderate or severe dehydration with different percentage values being used between studies. Secondly, diagnostic tests are measured against different benchmarks; some use post illness weight whereas others use dehydration scoring tools but, as will be discussed in the following section, neither of these is likely to be completely reliable. Thirdly, many published studies have significant methodological flaws or bias and often omit sufficient detail to allow an adequate appraisal of the study or to compare it with other studies. Thus, the accurate diagnosis of degrees of dehydration continues to be contentious.

Weight loss (i.e. subtracting current weights from pre-illness weights) is often heralded as the gold standard for assessing fluid losses and thus the degree of dehydration but accurate pre-illness weights are seldom available in practice which renders them largely unfeasible [37, 38]. Furthermore, a study that triangulated theoretical pre-illness weight (from extrapolation of previous centile chart weights), clinical dehydration scores (from clinical signs) and measured post illness weight in 293 children, found that post illness weights were consistently

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lower than expected, suggesting that children lost lean body weight during their illness as well as fluid [39]. The implication being that weight loss may not accurately reflect dehydration alone but also that studies using post illness weights to test diagnostic interventions may be less reliable than previously thought [39, 40].

Clinical signs such as pulse rate, blood pressure, mucous membrane evaluation, capillary refill, respiratory rate and depth, skin turgor and urine output are all likely to change with hypovolaemia. However, they are also affected by other factors such as pain, crying, fever, ambient temperature, drinking or mouth breathing and there is conflicting evidence for the predictive value of many individual clinical signs [37, 41-43]. In addition, when measured empirically, there is often poor inter-rater correlation for the subjective assessment of clinical signs and it has proven difficult to validate correlations between clinical signs and precise degrees of dehydration [44, 45].

Thus, dehydration scores that use combinations of clinical signs were devised to attempt to improve diagnostic accuracy. These include the Gorelick Dehydration Score, and the Clinical Dehydration Scale (CDS) and local guidelines include variations of these [33, 35, 36, 46-49]. In practice, studies have shown that the CDS and Gorelick Hydration Scores have moderate accuracy for ruling in dehydration (which varied between studies) but less so for ruling it out (CDS for >6% LR+5.19-11.79; LR- 0.4-0.71; Gorelick >5% LR+1.68-6.26 ; LR- 0.15-0.82) [44, 45, 50]. This means that dehydration is likely to be over-diagnosed using these scores. Another important point is that the accuracy of the scores increased with severity of dehydration (CDS: <3% dehydration accuracy 47.95-51.61, 3-6% dehydration accuracy 44.75- 48.39, >6% dehydration accuracy 58.41-88.58; Gorelick: >5% dehydration accuracy 57.52-84.56, >10% dehydration accuracy 83.77-86.56). This suggests that more clinical signs emerge and are recognisable as the severity of dehydration increases but that lesser degrees of dehydration are harder to diagnose reliably [45].

It has been suggested that blood testing may be used to diagnose dehydration. Indeed, studies have shown there is a correlation between degree of dehydration and blood urea nitrogen, base excess, serum bicarbonate and perhaps most surprisingly with serum ketones, which was found to have the best correlation with dehydration even though ketosis is actually a marker of starvation rather than dehydration [43, 51]. Again, the correlations were most notable for severe dehydration and less so for moderate and mild dehydration [41, 43, 52, 53].

Other reported methods of assessing dehydration include: bedside ultrasound (comparing aortic and pulmonary artery ratios) which was found to have moderate sensitivity (0.85 (95%CI 0.68-0.95)) but lower specificity (0.56 (95%CI 0.40-0.72)) and was, consequently, likely to over-diagnose >5% dehydration. It was also felt to have limited practical value as it relied on the availability of equipment and appropriately skilled personnel [54]. Bladder scanning was shown to accurately calculate mL/kg/hr of urine production as a marker of rehydration but, as two scans are needed to measure this comparison, there is limited application for the initial diagnosis of dehydration [55]. Urinalysis for specific gravity and ketones was not found to correlate well with dehydration based on post illness weight [41, 49, 56]. Perhaps the most promising measure was digital capillary refill time which had high sensitivity (1.00 95% CI 0.75-1.00) for the detection of >5% dehydration (dehydration assessed by post illness weight) [45]. Specificity was not calculated as there were no false or true negatives in the cohort sample (n=83) [45]. Obviously, this requires further work to validate and generate ranges for clinical application.

Issues with a lack of agreement and precision in estimating percentage fluid losses, have led to the evolution of a pragmatic categorical assessment in most contemporary clinical guidelines; where patients are categorised as "not dehydrated", "dehydrated" or "severely dehydrated" [32, 33, 35, 36, 49]. This has the advantage of placing less emphasis on the precise estimation of dehydration but means that rehydration regimens have needed to move away from replacing calculated losses mL for mL. The following section will discuss the evidence for the most effective route, type and volume of rehydration fluids for children with gastroenteritis.

THE ROUTE OF REHYDRATION IN CHILDREN WITH GASTROENTERITIS

When enteral (oral/nasogastric (NG)) and intravenous (IV) rehydration routes have been compared, multiple studies have found no statistical difference between them in terms of the duration of diarrhoea, weight gain, total fluid intake or risk of hypo/hypernatraemia [57, 58]. There may be some reduction in length of stay with enteral rehydration but this is inconsistent between studies [57, 58]. In terms of adverse outcomes, IV fluids are associated with an increased risk of phlebitis (RD -2%, [95% CI -4 to -1]) as well as seizure or deaths (RR 0.36 [95% CI 0.14 to 0.89]); whereas enteral rehydration increases the risk of paralytic ileus (RD 3%, [95%CI 1 to 5]) [57, 58]. Freedman et al. (2013) also found that IV fluids were associated with higher revisit rates to the ED and that this was independent of disease severity [18]. These results would seem to favour oral/NG rehydration over IV fluids as they have similar efficacy

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with fewer risks. Conversely, studies have shown that parents actually prefer IV over oral rehydration with the most likely reasons being that IV rehydration is easier to administer once a cannula has been inserted but it may also vindicate their decision to attend the ED [16, 38, 59, 60].

The use of subcutaneous (SC) fluid administration (augmented by the SC administration of recombinant human hyaluronidase (rHFSC)) has also been evaluated. One RCT (n=148) found that SC fluid administration was not inferior to IV fluids in children with mild to moderate dehydration for: mean total volume infused (in ED), weight increase post infusion and improvement in dehydration score [61]. There was a higher proportion of treatment failure in the IVF group (treatment failure rHFSC 7% versus IVF 24%) which was almost exclusively due to catheter placement success rates being higher in the SC group (catheter placement: rHFSC 100%, IV 78.7%, $P < 0.0001$) in the under 3 years of age subgroup.

THE TYPE OF FLUID USED IN THE REHYDRATION OF CHILDREN WITH GASTROENTERITIS?

Enteral rehydration usually involves the administration of oral rehydration solutions (ORS). ORS contains a sodium concentration of between 40 to 90 mmol/L, a glucose concentration between 110 to 140 mmol/L and an osmolarity of about 290 mOsm/L [62]. ORS exploits the co-transport of sodium as glucose is passively transported into the intestinal cells, which is not disrupted during diarrhoea [23]. The uptake of these two solutes increases the intracellular concentration resulting in a net movement of water into intestinal cells via osmosis and this is how rehydration occurs [21]. Fluids that contain high amounts or glucose or sodium encourage water to move or stay in the lumen of the intestine and may actually increase stool volume [63]. The sodium content of ORS can make it unpalatable to children and several studies have shown that the refusal to drink is a common reason for oral rehydration failure but also that children will drink more of ORS that tastes pleasant [22, 24, 64, 65]. Nasogastric rehydration (with ORS) can be used instead and is still preferable in young children to IV rehydration if the child won't drink. However, a recent study has shown that half strength apple juice is an effective alternative to ORS for mild to moderate dehydration, because children are more willing to drink it and this may reduce the risk of NG or even IV rehydration [66].

IV rehydration is more complex, if shock is present there is consensus that boluses of 0.9% Sodium Chloride (NS)) are used in the first instance [31, 67]. When there is no shock, maintenance and sometimes replacement IV fluids for children have historically been hypotonic (less than 0.9% Sodium Chloride), as they were originally designed to replicate the components of breast milk [68]. However, during periods of physiological stress such as gastroenteritis, antidiuretic hormone (ADH) production is increased to conserve water and maintain blood volume [9, 68-73]. Hypotonic fluids also increase net water in the blood hence the dilutional hyponatraemia that ensues. Thus, most contemporary guidelines use isotonic solutions to correct dehydration without inducing hyponatraemia [74, 75]. Concerns about giving isotonic fluids to children with hypernatraemia have been raised but the consensus of opinion seems to suggest that correcting the intravascular depletion will allow the kidneys to self-correct serum sodium levels and will prevent rapid falls in serum sodium (which are to be avoided to prevent cerebral fluid shifts) and are safe to use for most ED patients with dehydration [10, 53, 75]. Children with severe sodium derangements are best managed by paediatric specialists who can monitor and correct serum sodium over a longer period of time [72, 73, 75, 76].

The addition of glucose to isotonic NS is another recent change. For instance, Levy et al., (2013) found that the addition of 5% Dextrose corrected ketosis more quickly than with NS alone (at 1 hour mean difference was 1.1mmol/L [95% CI 0.4 to 1.9 mmol/L] and at 2 hours mean difference was 1.6mmol/L [95% CI 0.9 to 2.3 mmol/L]) [77]. There were also modest decreases in admission rate (risk difference 9%; 95% CI -5% to 22%) and revisit rate (risk difference 7%; 95% CI -9% to 23%) in the NSD5 group [77]. Other studies have reported similar corrections of ketosis and as young children are known to have decreased glycogen stores and often become hypoglycaemic in response to physiological stress, the addition of 5% glucose seems reasonable and there were no reported adverse effects [10, 68, 75].

VOLUME/RATE OF REHYDRATION IN CHILDREN WITH GASTROENTERITIS

Rehydration rate and volumes for children without shock are definitely the aspect of rehydration with the least consistent evidence due to the sheer number of different rates and volumes proposed. As a result, it is difficult to compare them. Historically, rehydration was achieved over 1-2 days but more recently rapid rehydration regimens over 4 hours have become popular [78, 79]. Again there is wide disparity between recommendations but volumes between 50-100mL/kg over 4 hours have been shown to correct dehydration and electrolyte disturbances more quickly than longer regimens without adverse outcomes for both IV and enteral rehydration [23,

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35, 80]. Rapid rehydration regimens are also associated with reduced admission rates and lengths of stay [32, 40].

Several studies have also reported on ultra-rapid rehydration (50-100ml) regimens over one hour and noted no significant superiority over 4 hour regimens (when comparing weight gain, decrease in heart rate, duration of admission or revisits) [32, 81]. Furthermore, there were some adverse outcomes such as worsening metabolic acidosis (most likely due to chloride administration); so there seems to be no significant clinical benefit to rehydrating over 1 hour [81, 82].

ADJUNCTS USED IN THE TREATMENT OF CHILDREN WITH GASTROENTERITIS.

Several treatments for reducing vomiting and diarrhoea have been proposed. The currently favoured anti-emetic for use in paediatric gastroenteritis is Ondansetron, a serotonin 5-hydroxytryptamine 3 (5HT3) antagonist that blocks impulses sent to the chemoreceptor centre and the vomiting centre to trigger the vomiting reflex [83-87]. Multiple studies that have shown that in the context of paediatric gastroenteritis, oral/buccal Ondansetron reduced the risks of IV fluid requirement (RR ranges 0.31- 0.57, NNT ranges 4 -13) and admission rates albeit with varying magnitudes of effect between studies (RR ranges 0.22-0.8) [57, 88-90]. One retrospective cohort review noted more children who revisited had previously received Ondansetron on their index visit (5.3% compared with 7.3%) but there were some issues with reporting bias with this study and this is not a widely reported effect [91]. There also seems to be an associated cost saving from reduced admissions; one study found cost comparisons of US $9600 for the Ondansetron group and US $25,079 for the non-Ondansetron group, providing a 73.7% saving associated with Ondansetron use [89]. However, it should be noted that there were significant methodological flaws with this study (no blinding, no randomisation) which raises concerns about the relative acuity and comparability of the two groups and thus these results should be treated cautiously.

Other anti-emetics such as Granisetron (a similar drug) and Domperidone were found to be less effective or ineffective for paediatric gastroenteritis [90, 92].

In the UK, Racecadotril (an anti-secretory, anti-diarrhoeal agent) is widely used and when compared with placebo in one systematic review (9 RCTS, 1384 children) in children with gastroenteritis was found to reduce the mean duration of diarrhoea by one day (Racecadotril 1.75 days versus placebo 2.81 days) and children administered Racecadotril recovered more quickly and had decreased mean stool output (mean stool output ratio: inpatient studies - 0.59 (0.51; 0.74), $P < 0.001$. $I2 = 31$; mean ratio of number of diarrhoeic stools - outpatient studies, 0.63 [95% CI0.47 to 0.85], $P < 0.001$, $I2 = 0.26$) [93]. Unfortunately, Racecadotril is not available in New Zealand currently. Loperamide (a synthetic opioid) is available and also reportedly reduces the mean duration of diarrhoea by 0.8 days in one systematic review [95% CI 0.7 to 0.9] [57]. Unfortunately, in the same study, Loperamide had an Absolute Risk Increase for adverse events of 8.6% [95% CI 6.4% to 10.9%] and 0.8% [95% CI −0.1% to +1.8%] for serious adverse effects (defined as ileus, lethargy, or death) [57].

There were a large number of trials that explored the efficacy of probiotics at reducing the duration of diarrhoea in children with gastroenteritis. Most of these trials were of low or very low quality and there were considerable discrepancies between them in terms of strains that were tested, methodology, definitions of diarrhoea used, gaps in reported findings as well as their setting and context. Nevertheless, the number of trials with the same result, that probiotics reduced the duration of diarrhoea by approximately 1 day, does demonstrate consistency of effect this [94-100]. The strains with the best efficacy were Lactobacillus GG Rhamnosus and Saccharomyces boulardii at doses of ⩾1010 CFU/day [97].

DISCUSSION

From the literature it is clear that determining the precise percentage of dehydration is problematic and there is no perfect benchmark for evaluating new techniques. The fact that severe dehydration is more recognisable, based on clinical signs, is reassuring given that these children are most at risk of serious outcomes. Clearly, diagnosing mild to moderate dehydration is less straightforward and is likely to be over-diagnosed using clinical signs. However, it could be argued that, at worst, these children will receive rehydration fluid they may not have required (which is unlikely to cause harm in previously well children) and for those underdiagnosed, they will either improve as their disease abates (and thus have suffered no ill effects from being overlooked) or they will develop detectable signs that will elicit treatment if they deteriorate. It does suggest though, that if there are no overt signs of dehydration but there are other risk factors for dehydration (long duration of disease, significant reported losses) a longer period of observation and assessment may be warranted and that return advice should include signs of dehydration.

Changes in blood chemistry (bicarbonate, ketones etc) also only approach predictive accuracy for severe dehydration and

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if severe dehydration is discernible from clinical signs, there seems to be no added value to blood testing for diagnosis alone and it may delay treatment [61]. Digital capillary refill time may offer a promising alternative non-invasive diagnostic tool but further work is required to validate the initial findings, effectively measure specificity and to derive ranges for clinical practice.

Enteral rehydration is equally safe and effective compared with IV for moderate dehydration without shock and has fewer associated adverse outcomes, although the latter may be preferred by parents. IV fluids were also found to increase the risk of revisits, irrespective of objective disease severity measures; suggesting that the use of IV fluids incorrectly conveys to parents that their child is more unwell [18]. SC may be a future route for rehydration, especially in the under 3-year age group where IV cannulation has the highest failure rate. However, this requires the administration of rHFSC which is neither licensed nor available in New Zealand currently.

Rapid rehydration over 4 hours has been found to as effective, or more effective, than rehydration over 24 hours for children with gastroenteritis and there are measurable associated decreases in lengths of stay and admission rates but no increase in adverse events [10, 82, 101, 102].

ORS is the ideal solution to use for enteral rehydration but taste may be an issue for some children who may avoid NG or IV rehydration if offered alternatives such as half strength apple juice instead. For IV rehydration for dehydration without shock, 0.9% Sodium Chloride with added glucose (5%) (NSD5) has been found to be effective, safe, reduce the risk of hyponatraemia and to correct ketosis sooner. For both enteral and IV rehydration rates of 50-100ml over 4 hours are safe and effective. However, if dehydration is more likely to be over-diagnosed one might argue that not all children will require 4 hours of rehydration if signs of dehydration abate and there are no on-going losses. Therefore, it may be pragmatic to describe rehydration rates as 15-25ml/kg/hour for *up to 4 hours*, with frequent reassessments of hydration. There are advantages to using these rates for both enteral and IV rehydration as the regimens are easy to remember and do not require complex calculations.

Ondansetron has emerged as the superior adjunct for terminating vomiting in paediatric gastroenteritis and there is a plethora of evidence supporting its use, efficacy and safety. Indeed, the New Zealand Formulary for Children has recently added prescribing guidelines for Ondansetron in the context of gastroenteritis from age 6 months (see table)**. There are no available medications for terminating diarrhoea in New Zealand that are both effective and safe to use in this context so these are not endorsed currently, which is reasonable given that most children are well nourished and viral gastroenteritis is usually self-limiting. Probiotics may reduce the duration of diarrhoea by 1 day if the correct strains and dosages are administered. However, given their modest effects and that they are food supplements, cost, availability and quality may limit their use.

In conclusion, this review has described the contemporary interventions for paediatric gastroenteritis in the ED. The main aspect of treatment is to pragmatically assess for dehydration, correct fluid losses and to promote enteral intake over IV rehydration.

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SOME HYDRATION ASSESSMENT TOOLS

Figure 2: Waitemata DHB Hydration Assessment Tool

HYDRATION ASSESSMENT TOOL (HAT)	
FEATURES SUGGESTING DEHYDRATION (Any combination of these) • Reduced urine output • Recent weight loss • Thirsty • Absent tears • Sunken eyes	**FEATURES SUGGESTING SEVERE DEHYDRATION / SHOCK** (any combination of these) • Tachycardia, small volume pulses • Delayed capillary refill time • Cool peripheries • Limp and drowsy

From Waitemata DHB Paediatric Rehydration Best Care Bundle (http://www.waitematadhb.govt.nz/health-professionals/best-care-bundles).

Figure 3: Starship Clinical Guideline: Dehydration Chart

SEVERITY	SYMPTOMS	PHYSICAL SIGNS
Mild	thirsty, restless	None Slightly dry buccal mucosa
Moderate	lethargic, irritable	Dry buccal mucosa, absent tears Sunken eyes & fontanelle Decreased urine output Altered skin elasticity Signs of ketosis (rapid shallow breathing, smell of ketones)
Severe	limp, drowsy	Drowsiness Shock (tachycardia, poor volume peripheral pulses, cool peripheries) Hypotension is late/ominous sign Skin retraction time > 2 seconds Capillary refill time > 3 seconds
As a rough guide, the child who is mildly dehydrated (≈5%) may be considered to have a 50 ml/kg deficit, and the child who is shocked (≈10 - 15%) may be considered to have at least a 100 ml/kg deficit.		

From https://www.starship.org.nz/for-health-professionals/starship-clinical-guidelines/g/gastroenteritis/

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Figure 4: The Clinical Dehydration Scale

CHARACTERISTICS	0	1	2
General Appearance	Normal	Thirsty, restless or lethargic but irritable when touched	Drowsy, limp, cold, or sweaty, +/- comatose
Eyes	Normal	Slightly sunken	Very sunken
Mucous membranes (tongue)	Moist	Sticky	Dry
Tears	Tears	Decreased tears	Absent tears
A score of 0 represents no dehydration; a score of 1 to 4, some dehydration; and a score of 5 to 8, moderate/severe dehydration. CDS = clinical dehydration scale.			

From: External validation of the clinical dehydration scale for children with acute gastroenteritis [47]

Figure 5: The Gorelick Dehydration Scale

CHARACTERISTICS	NO OR MINIMAL DEHYDRATION	MODERATE TO SEVERE DEHYDRATION
General Appearance	Alert	Restless, lethargic, unconscious
Capillary refill	Normal	Prolonged or minimal
Tears	Present	Absent
Mucous membranes	Moist	Dry, very dry
Eyes	Normal	Sunken, deeply sunken
Breathing	Present	Deep; deep and rapid
Quality of pulses	Normal	Thready; week or impalpable
Skin elasticity	Instant recoil	Recoil slowly; recoil > 2 s
Heart rate	Normal	Tachycardia
Urine output	Normal	Reduced; not passed in many hours
Scoring: 4 point scale (italics): > 2 Clinical Signs (4 pt) >5% BWA; > 3 Clinical Signs (4 pt) >10% BWA; 10 point scale (all signs/symptoms): > 3 Clinical Signs >5% BWA; > 7 Clinical Signs >10% BWA		

From: Comparing the accuracy of the three popular clinical dehydration scales in children with diarrhea [46]

WHAT'S NEW WITH POO? CONTEMPORARY APPROACHES TO PAEDIATRIC GASTROENTERITIS IN THE EMERGENCY DEPARTMENT

SUMMARY OF REHYDRATION REGIMENS

From Waitemata Rehydration BCB which can be viewed

NOT DEHYDRATED	DEHYDRATED BUT NOT SHOCKED	DEHYDRATION WITH SHOCK
• Offer oral fluids (ORS if tolerated otherwise diluted apple juice (15ml/kg/hour). • Consider Ondansetron for suspected nausea or persistent vomiting • If tolerating oral fluids with no significant on-going losses, consider discharge if appropriate.	• Offer oral fluids (ORS if tolerated otherwise diluted apple juice (15ml/kg/hour)). • Consider Ondansetron for suspected nausea or persistent vomiting • If not drinking or >1 vomit per hour, consider NG (under 2 years) or IV rehydration (15ml/kg/hour for up to 4 hours) NSD5 solution • If losses continue increase rate to 25ml/kg/hour for up to 4 hours (Oral/NG/IV) • If signs of dehydration abate and tolerating oral fluids with no significant on-going losses, consider discharge, if appropriate.	• IV fluids – 20ml/kg STAT bolus doses of 0.9% Sodium Chloride until signs of shock abate • Seek senior advice after 40ml/kg fluid is given • Consider Ondansetron for persistent vomiting • Continue rehydration regimen and disposition planning, if indicated, on individual basis

From https://www.starship.org.nz/for-health-professionals/starship-clinical-guidelines/g/gastroenteritis/

ONDANSETRON DOSING

(Buccal disintegrating tablet 4mg – place on top of tongue, allow to disperse then swallow)

Child 6 months–18 years

Body-weight 8–15 kg 2 mg once as a single dose (discard remaining portion)

Body-weight 15–30 kg 4 mg once as a single dose

Body-weight over 30 kg 8 mg once as a single dose

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WHAT'S NEW WITH POO? CONTEMPORARY APPROACHES TO PAEDIATRIC GASTROENTERITIS IN THE EMERGENCY DEPARTMENT

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RESEARCH SNIPPETS

ED STAYS DECREASED BUT WITH STRINGS ATTACHED

Research into hospital emergency department waiting times has shown that waiting times are lower than ten years ago but significant challenges remain for treating patients in a timely manner. The study, published in BioMed Central Health Services Research studied ED waiting times at four New Zealand Hospitals between 2006 and 2012.

http://www.scoop.co.nz/stories/GE1710/S00029/ed-stays-decreased-but-with-strings-attached.htm

QUALITY IMPROVEMENT: NO QUALITY WITHOUT EQUITY?

This 'think piece' from the Health Quality & Safety Commission signals their intention to tackle health inequities.

The state of quality improvement and patient safety teaching in health professional education in New Zealand. The aim of this article, published in the New Zealand Medical Journal, was to investigate how quality and patient safety domains are being taught in the pre-registration curricula of health profession education programmes in New Zealand.

https://www.hqsc.govt.nz/our-programmes/other-topics/publications-and-resources/publication/3093/

HOSPITAL PRODUCTIVITY AND PATIENT FLOW

Journal of Evaluation in Clinical Practice 2017 Apr;23(2):333-339.

Slick scripts: impact on patient flow targets of pharmacists preparing discharge prescriptions in a hospital with an electronic prescribing system

Inpatient bed access decreases when ward discharge is delayed. This contributes to prolonged emergency department (ED) length of stay (LOS) which has been associated with increased hospital LOS and mortality. Delays in preparation of discharge medication prescriptions by ward doctors may contribute to delayed ward discharge. This study aimed to evaluate the effect on patient flow of having a pharmacist collaborate with ward doctors to prepare discharge prescriptions at a hospital with an electronic prescribing system.

https://www.ncbi.nlm.nih.gov/pubmed/27524695?dopt=Abstract

PRESCRIBING BY NURSE PRACTITIONERS: INSIGHTS FROM A NEW ZEALAND STUDY

Journal of American Nurse Practitioner (2017) Oct;29(10):581-590.

The majority of NPs registered in New Zealand prescribe medicines. Those in primary care prescribe the most medications. NPs prescribe a broad range of medicines across all drug therapeutic groups. The patients seen by NPs often live in the most deprived areas of New Zealand. Understanding prescribing patterns will help to inform curricular development and continuing education programs for NPs.

https://www.ncbi.nlm.nih.gov/pubmed/28771962

EMERGENCY DEPARTMENT REDIRECTION TO PRIMARY CARE: A PROSPECTIVE EVALUATION OF PRACTICE

Scottish Medical Journal (2017) Feb;62(1):2-10.

Non-urgent Emergency Department presentations contribute to overcrowding, which can adversely affect patient care. Redirecting patients to a more appropriate service is an option to help address this. We conducted a prospective evaluation of a major Scottish hospital's Emergency Department redirection policy to assess its safety.

https://www.ncbi.nlm.nih.gov/pubmed/28173740

REVIEW ARTICLE: IDLE 'JUST-IN-CASE' PERIPHERAL INTRAVENOUS CANNULAS IN THE EMERGENCY DEPARTMENT: IS SOMETHING WRONG?

Emergency Medicine Australasia. (2017)

Peripheral intravenous cannula (PIVC) placement is often an essential emergency medicine precursor to lifesaving treatment, but it is not harmless. Patients frequently and without proper consideration of the consequences receive a 'just-in-case' PIVCs as part of their assessment and admission, which, in a not insignificant number of patients, remains unused or idle in situ. We reviewed the literature and performed a thematic analysis of data collated from 21 articles published in the past 24 years regarding redundant PIVCs. The following five common themes emerged: heterogeneous prevalence data on post-insertion PIVC usage, preventable intravascular complications, financial burden, loss of time and a culture of over-investigating.

RESEARCH SNIPPETS

ACHIEVING HEALTH EQUITY IN AOTEAROA: STRENGTHENING RESPONSIVENESS TO MAORI IN HEALTH RESEARCH

New Zealand Medical Journal. (2017)

This paper makes the point that health research should aim for equity and ensure that no one is left behind. The New Zealand Government considers that health research conducted in New Zealand should contribute to improving Māori health and eliminating health inequities. Increasingly, as recipients of government funding, researchers are obliged to demonstrate that they understand their delegated responsibilities in their research, making sure that the work has the potential to address Māori health needs and priorities.. In this viewpoint, Papaarangi Reid and colleagues provide an overview of existing frameworks that is intended to be used to develop thinking and positioning in relation to the Treaty of Waitangi and responsiveness to Māori. They go on to describe an equity-based approach to responsiveness to Māori and highlight four key areas that require thoughtful reflection: (1) relevance to Māori; (2) Māori as participants; (3) promoting the Māori voice, and; (4) human tissue. The paper argues for greater engagement with responsiveness to Māori activities as part of an ongoing commitment amongst researchers to ensure equitable health outcomes.

http://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2017/vol-130-no-1465-10-november-2017/7414

NON INVASIVE TREATMENTS FOR ACUTE, SUBACUTE, AND CHRONIC LOW BACK PAIN: A CLINICAL PRACTICE GUIDELINE FROM THE AMERICAN COLLEGE OF PHYSICIANS

Annals of Internal Medicine (2017).

The American College of Physicians developed this guideline to present the evidence and provide clinical recommendations on non invasive treatment of low back pain.

http://annals.org/aim/fullarticle/2603228/noninvasive-treatments-acute-subacute-chronic-low-back-pain-clinical-practice

THE EFFECTIVENESS OF PHYSIOLOGICALLY BASED EARLY WARNING OR TRACK AND TRIGGER SYSTEMS AFTER TRIAGE IN ADULT PATIENTS PRESENTING TO EMERGENCY DEPARTMENTS: A SYSTEMATIC REVIEW

BMC Emergency (2017

Changes to physiological parameters precede deterioration of ill patients. Early warning and track and trigger systems (TTS) use routine physiological measurements with pre-specified thresholds to identify deteriorating patients and trigger appropriate and timely escalation of care. Patients presenting to the emergency department (ED) are undiagnosed, undifferentiated and of varying acuity, yet the effectiveness and cost-effectiveness of using early warning systems and TTS in this setting is unclear. This paper aims to systematically review the evidence on the use, development/validation, clinical effectiveness and cost-effectiveness of physiologically based early warning systems and TTS for the detection of deterioration in adult patients presenting to EDs.

https://bmcemergmed.biomedcentral.com/articles/10.1186/s12873-017-0148-ze

THE IMPACT OF WALK-IN CENTRES AND GP CO-OPERATIVES ON EMERGENCY DEPARTMENT PRESENTATIONS: A SYSTEMATIC REVIEW OF THE LITERATURE

International Emergency Nursing (2017)

Internationally, non-urgent presentations are increasing the pressure on Emergency Department (ED) staff and resources. This systematic review aims to identify the impact of alternative emergency care pathways on ED presentations - specifically GP cooperatives and walk-in clinics

https://www.ncbi.nlm.nih.gov/pubmed/28506567?dopt=Abstract

RESEARCH SNIPPETS

NAVIGATING PROFESSIONAL AND PRESCRIBING BOUNDARIES: IMPLEMENTING NURSE PRESCRIBING IN NEW ZEALAND

Nurse Education in Practice . (2017)

Because prescribing has traditionally been viewed as a medical role, there are inevitable interprofessional boundary tensions when non-medical prescribing is introduced. In New Zealand, enabling legislation has allowed nurse practitioners to apply for prescriptive authority after undertaking appropriate educational preparation. This study explored the experiences and perspectives of one of the first cohorts of nurse prescribers and their strategies in establishing the role and negotiating the associated professional boundaries.

https://www.ncbi.nlm.nih.gov/pubmed/28802979?dopt=Abstract

ASTHMA AND RESPIRATORY FOUNDATION NZ CHILD AND ADOLESCENT ASTHMA GUIDELINES: A QUICK REFERENCE GUIDE

New Zealand Medical Journal (2107)

The purpose of the New Zealand Child and adolescent asthma guidelines: a quick reference guide is to provide simple, practical, evidence-based recommendations for the diagnosis, assessment and management of asthma in children and adolescents in New Zealand, with the aim of improving outcomes and reducing inequities. The intended users are health professionals responsible for delivering asthma care in the community and hospital emergency department settings, and those responsible for the training of such health professionals.

https://www.ncbi.nlm.nih.gov/pubmed/29197898?dopt=Abstract

NURSING INTERVENTIONS FOR SMOKING CESSATION

Cochrane Database (2017)

A review of randomized trials of smoking cessation interventions delivered by nurses or health visitors with follow-up of at least six months. Fifty-eight studies met the inclusion criteria, nine of which are new for this update. Pooling 44 studies (over 20,000 participants) were compared to a nursing intervention to a control or to usual care. The authors concluded there is moderate quality evidence that behavioural support to motivate and sustain smoking cessation delivered by nurses can lead to a modest increase in the number of people who achieve prolonged abstinence. There is insufficient evidence to assess whether more intensive interventions are more effective than one-off support. There was no evidence that the effect of support differed by patient group or across healthcare settings.

https://plus.mcmaster.ca/EvidenceAlerts/NewArticles.aspx?Page=4&ArticleID=78172#Data

GLOBAL EMERGENCY DEPARTMENT CONFERENCES 2018

ED CONFERENCES 2018	LOCATION	ABSTRACTS DUE:	DATES
Australian & New Zealand Disaster and Emergency Management Conference https://anzdmc.com.au/	Gold Coast, Australia	closed	21 - 22 May 2018
Emergency Tasmania Conference 2018 http://www.emergencytasmania.com/	Cradle Mountain, Tasmania	4th April 2018	10 – 12 August 2018
16th International Conference for Emergency Nurses 2018 http://2018.icen.com.au/	Melbourne, Australia	13th June 2018	10th – 12th October 2018
3rd Global Conference on Emergency Nursing & Trauma Care https://www.elsevier.com/events/conferences/global-conference-on-emergency-nursing-and-trauma-care	Noordwijkerhout, The Netherlands	9th March 2018	4 - 6 October 2018
Emergency Nursing 2018 (ENA) https://www.ena.org/event/2018/09/26/ena-annual-conferences/emergency-nursing-2018	Pittsburgh, USA	closed	September 26 - 29, 2018
WADEM (World Association for Disaster and Emergency Medicine) https://wadem.org/congress/brisbane-2019/	Brisbane, Australia	Not yet announced	7-10 May 2019
Emergency Nursing 2019 (ENA)	Austin, Texas	Not yet announced	Sep 29 - Oct 02, 2019
Ultrasound for Emergency Nurses [USENI80628] - 2 Day Course (Ultrasound Training Solutions) https://www.ultrasoundtraining.com.au/courses/event/ultrasound-for-emergency-nurses-USENI80628 https://www.ultrasoundtraining.com.au/courses/category/ultrasound-for-emergency-nurses	Victoria, Australia Location: Ultrasound Training Solutions Facility, Suite 4, 50 Upper Heidelberg Road, Ivanhoe	This course is aimed at candidates that have little or no prior ultrasound experience. Hands on time is the focus with a 1:3/2:3 ratio of time dedicated to theory/practical. units.	June 28th 2018
Emergency Nurse Practitioner Ultrasound (Australian Institute for Ultrasound) http://www.aiu.edu.au/programs_and_courses/d/?c=6&i=24	Broadbeach, Goldcoast, Australia	Basic practical physics, "knobology" and artifacts Probe manipulation techniques Scanning protocols in: • eFAST (trauma) • Basic Soft Tissue Techniques • Early Pregnancy Assessment • Ultrasound Needle Guidance Techniques	Oct 4th 2018 20-22 Jun 2018

REGIONAL REPORTS

NORTHLAND/TE TAITOKERAU REGION

CHRIS THOMAS (CENNZ TREASURER)

Registered Nurse / CNS

Emergency Department
Whangarei Hospital

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Greetings from Northland.

Wow, summer has been a pretty mixed bag for Northland with the weather ranging from glorious sunny days to exhausting humid heat and sub-tropical storms and floods. With global warming this disturbed weather is steadily becoming our normal.

From an ED perspective we have been contending with the usual influx of visitors to the area, a steady flow of both minor and major traumas and an increasing number of complex, high acuity and elderly patients.

Our heaviest day to date was on January 2nd when we saw and treated 171 patients in Whangarei when our average throughput is normally around 110 patients per day. EDs in the peripheral hospitals have also been busy over this summer period.

The end of January greeted us with the sad news of the Whangarei ED Nurse Manager's resignation. Margaret Dreadon has served just under 20 years in that capacity and is a well loved and hugely respected nurse manager.

I think it is fair to say, the news has certainly rocked the team but we understand her reasoning and wish her well for the new adventures in front of her. Our CNE Kath Erai is being seconded into Marg's position for three months while the recruitment and appointment process of a new NM occurs.

There are also some major projects due to come to fruition in Whangarei ED over the next few months: - The new EDDAG system hopefully coming on line in May/June. Project work around the physical revamping of our triage area for the re-introduction of triage first is also well underway. A further CNS position has been approved that will allow staff to progress toward Nurse Practitioner and work along side our current NP, particularly in a fast track/low acuity area to begin with, and hopefully progressing to seeing and treating from the whole department.

A further FTE position has also been approved to roster an extra nursing staff member onto night shift as the patient presentation no longer decreases as much as it did over the night hours and presentation numbers and acuity keeps rising steadily.

At the Bay of Island's campus the new build is progressing well with most of the structure now in place and internal work underway.

I hope members everywhere are enjoying the end of summer and recharging the batteries ready for the next seasonal onslaught.

CHRIS

REGIONAL REPORTS

AUCKLAND REGION

MATT COMESKEY

Nurse Practitioner

Auckland District Health Board

Auckland City Hospital,
Adult Emergency Department

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ADULT EMERGENCY DEPARTMENT, AUCKLAND CITY HOSPITAL

After a particularly grueling evening shift recently I drove home thinking about how things had changed in our department in the past few years. On the way home, well after midnight, I did my supermarket shopping in a surprisingly busy Countdown, drove past the wharves going flat-out shifting containers, drove past cops, cleaners and contractors and dodged the numerous road works and routine maintenance that now gets done in the middle of the night. As I was doing all this, I couldn't help but wonder if we have moved to a 24 hour economy in the city center without even noticing it. And just as we need supermarkets open all hours, maybe we need more GPs, A&M clinics, dentists and pharmacies open at night too. Auckland City is no longer a 9-5 Monday – Friday experience. And this is reflected in our waiting rooms, filled late into the night with people who can't get to a GP because they are child minding for a working partner or working themselves.

Over- crowding in our EDs is multi factorial – there's no single answer to this on-going problem. However, we should consider that the changing nature of our local economy and what constitutes work and leisure hours may account for some of the long suffering patients in our waiting rooms at a time when many might prefer to be tucked up in bed.

It has been a flying start to the new year with a new record set for presentations over a 24 hour period. Over January the hospital has dealt with prolonged periods of bed blockage. And while some staff have managed to take a well-deserved break over the Christmas and New Year period, those that have been working have operated under some quite trying conditions. On the positive side it was easy to get a car park and the commute was quite pleasant as the city emptied out to go elsewhere for a holiday – leaving the CBD to be enjoyed with ease.

CDU

The building of the new Clinical Decision Unit (CDU) attached to the emergency department is well advanced. The CDU is a 24 single-room unit with a procedure room. It is anticipated that the unit will be operational by 23 April. At this time, it is anticipated that the unit will have a 1:5 nurse to patient ratio. Patients will be placed and moved under the six hour target. It will not have cardiac monitoring. It is planned that patients will be triage 3, 4 and 5; direct GP referrals and transfers from AED awaiting specialist review and admission.

Thirty-five new nurses are being employed to staff the new unit. They will be starting in groups of up to 8, with the first group started on 30 January. We will also have 7 new grads starting mid-February. These are busy times for our preceptors. Four new clinical coaches will be appointed to support new staff. In addition to new RNs the department employed a new Nurse Practitioner. Hilary Whitmill is the fifth NP to be employed in Auckland adult ED, having worked for a number of years in a CNS position. We have also welcomed two newly appointed enrolled nurses to our ED team.

MATT

REGIONAL REPORTS

AUCKLAND REGION

MICHELLE PEPERKOORN

Nurse Practitioner

Counties Manukau Health Board

Emergency Department, Middlemore Hospital

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Greetings and salutations from Middlemore Emergency Department.

I hope everyone had a restful Xmas and New Year and have been enjoying the spectacular weather or if you were working – I hope it went fast for you.

General news: In November last year we welcomed Fraser Brooks into the unit Nurse Manager's role. Fraser has been working in the Emergency Department here for over ten years most recently five years as an ACNM. We also recently employed a new CNS Victoria Collins into the adult team and are currently interviewing for a paeds CNS Intern.

Renovations have started in the Paediatric Emergency department.

Mumps presentations have increased over the past few months and the usual dengue fever patients post-Christmas holidays in the islands.

Quality Initiatives: We have a number of quality initiatives on the go at the moment. Debbie Hailstone is working alongside our Trauma Nurse Specialist and the Emergency Medicine Medical team has commenced a trauma audit looking at the numbers of trauma patients and outcomes. Twenty-two per cent of our status one patients are as a result of trauma.

E-Radiology is almost ready to roll out enabling the ordering of radiology online.

Documentation, time to analgesia, hand hygiene and sepsis are areas we strive to improve upon every day.

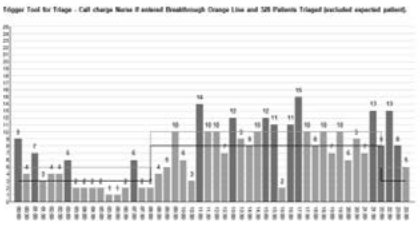
Research: Oxygen in acute coronary syndromes: Middlemore is currently allocated to high flow oxygen strategy. The aim of this study is to determine whether giving supplemental oxygen to patients presenting with a suspected acute coronary syndrome and clinical evidence of myocardial ischemia influences 30 day mortality.

Patch Study: A prospective, multi-centre, double-blinded, randomised, placebo-controlled trial of patients with severe trauma at high risk of traumatic coagulopathy. St John are randomising the patients and initiating treatment which includes a placebo or a dose of Tranexamic acid. Once they are in the ED they are then either on a placebo or Tranexamic acid infusion.

The STAND study: Selective Treatment with Antibiotics in Non-complicated Diverticulitis: This study is a double-blind randomised control trial comparing antibiotic therapy to placebo in patients with CT-proven uncomplicated AD. Recruitment will occur over 18 months across Auckland City Hospital, Middlemore Hospital and North Shore Hospitals.

Alcohol Related Presentations in ED: In July 2017 the MOH included the 'Alcohol Involved' field in the National Non-admitted Patient Collection (NNPAC). This implementation requires all Emergency Departments in New Zealand to record the Alcohol Associated status of patients. The aim is to consistently and routinely capture alcohol associated data nationally for all ED attendances in an attempt to reduce alcohol related harm in NZ. The ED Alcohol ABC Project aims to support the ED staff at Middlemore Hospital to record alcohol associated presentations as well as provide brief interventions and referrals using the Alcohol ABC approach.

Surges in patient numbers happen throughout the day and night. Identifying when there is a surge in presentations helps the department and hospital to be more proactive in the response to potential breaches, there is a need for an immediate response to help reduce the backlog of presentations waiting to be seen - it also allows for diagnostics to be prepared for a surge in requests in the next 1-2 hours, and allows 4-5 hours for the hospital to prepare for a surge in bed requests. The following table is a snap shot representation of patient presentations updated every thirty minutes over a twenty-four hour period in January.



MICHELLE

QUOTE FOR THE WEEK

"THE MORE THAT YOU READ, THE MORE THINGS YOU WILL KNOW. THE MORE THAT YOU LEARN, THE MORE PLACES YOU'LL GO." – DR. SUESS

REGIONAL REPORTS

MIDLAND REGION

KAIDEE HESFORD

Clinical Nurse Manager

Rotorua Emergency Department
Lakes District Health Board

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The last year for me has been not only one of the most rewarding in my nursing career but also one of the most demanding, to say the least. Taking on the CNM position at Lakes ED in early 2017 after being at Auckland City Adult ED for 8 years was certainly an eye opener. With the support of our ED clinical director we implemented a lot of changes and rapidly. "A lot of changes" is undoubtedly an understatement. Of late, Lakes DHB met the national 6 hour M.O.H shorter stays in ED target with achieving 98% for the most recent quarter. This was a huge achievement as never before has Lakes DHB met the target. This achievement was met with thanks to the determination of all staff at both sites (Rotorua and Taupo). Fingers crossed this momentum continues in the lead up to and during the impending winter months.

Both Rotorua and Taupo ED's had a fairly busy Christmas and New Year period with a sizable surge in trauma patients – likely due to the incredible weather we had in the lead up to Christmas and the alluring local attractions. Coming into the New Year we have been working on a few projects that will unquestionably be at the forefront of most ED's conversations this year – ensuring a safe work place by addressing violence and aggression, mental health impeding on ED, and frequent ED presenters.

From the current projects within Rotorua ED, the most significant has been the review of our ED security measures. This was not only highlighted by fresh eyes within ED, but by a recent Worksafe pilot project in which a review of Rotorua ED was carried out, and then reported that there was a concern at the level of safety and security measures we had in place for both staff and patients. We have since carried out a considerable amount of work to rectify and improve the short falls that were noted. The crucial alterations have been: implementing new signage throughout ED, developing a duress bell policy, removal of unnecessary call bells and noise pollution within ED, all ED staff completing an online CALM course and attending de-escalation training. Security alerts have been added to local alerts, development of a process with security to check in through ED regularly, engagement with local Maori wardens and police to do regular visits/ walk through of our ED and a three minute video which plays every 45 minutes on the waiting room TV explaining to patients about the process of being seen ED in the hope to deescalate the patients and families. This remains an on-going project and is being reviewed regularly to ensure optimal safety within our ED.

Another key project we have underway is building stronger rapport with our community services to help develop care plans to manage frequent ED presenters. With commitment from local GPs , community services, in-patient specialties, Maori health, mental health and St John - to develop care plans for these patients to ensure they are getting the best community care and to avoid unnecessary presentations to ED. We are anticipating this will benefit both patients and services involved in patients care to ensure consistent treatment care is carried out to avoid presentations to ED.

The third significant project we have is around the mental health service limitations within ED. At Lakes DHB there has been an increase of patients both requesting and requiring mental health services after hours. Previously there have been significant access constraints to the mental service as they were vastly spread with, at times, only one team covering Turangi to Rotorua. From late February 2018, we now have a community mental health service (CATT service) based in both Rotorua and Taupo ED's between the hours of 2300-0800. It has so far been well received and this also gives the ED staff on night's added assistance. The majority of the staff in this role come from a social work background so are not only a primary support for patients presenting needing acute mental health assessments but are also able to assist in social issues that arise during the night shift.

With summer now coming to a close we will now have to start thinking about winter planning within ED. I look forward to sharing thoughts and ideas with you as to what we can do to make winter months manageable.

KAIDEE

REGIONAL REPORTS

HAWKES BAY / TARAWHITI REGION

PAULA DRAPER

Registered Nurse

Emergency Department
Hawkes Bay Regional Hospital

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Hello from the sunny Hawkes Bay!

I hope everyone has had a great summer, and have been able to enjoy some rest and relaxation. Christmas and the summer holidays are always a very busy time in the Emergency Department, and this has certainly been true for Hawkes Bay.

There were almost 1000 presentations to ED in the week of Christmas and New Year, with a new record being set on New Year's day. This along with the hospital at capacity, resignations, sick leave and annual leave put further pressures on the Department. As always, the staff of ED dealt with these challenges to ensure the safety of all. I am sure that the challenges that Hawkes Bay faced over the holidays was also experienced by every other ED in NZ.

Given the pressures of increased presentations, high acuity patients, lack of hospital beds and demands for acute theatre, it is hardly surprising that we have not been able to meet the length of stay target this quarter.

As a result of increased presentations and incident reports, a business plan has been submitted for a Triage nurse for the night shift, and a second Resus nurse for the afternoon shift. These positions are vital if we are to maintain patient safety. The rostering of an extra Registrar working 6pm -2am has been very successful, and has helped to address the evening surge in presentations.

Our 3rd Nurse Practitioner is now up and running in the Fast Track, and there are plans for a 4th Nurse Practitioner position, although that has yet to be confirmed. The Fast Track is currently treating 20-30% of presentations each day in a 10 hour shift, as well as assessing and commencing treatment on those patients that require more in-depth management inside the department. The Fast Track Team have also recently started a weekly education session for the rest of the department and has been very well received!

Our NETP nurses have completed their year, and are great members of the team! We are pleased to welcome 2 new NETP nurses to the department. Although we have had a number of staff resignations, there are always a high number of applicants for every position advertised. It's great to know people want to come and work in the best place in the hospital!

Enjoy the rest of the good weather and stay safe!

PAULA

REGIONAL REPORTS

MID CENTRAL REGION

KATIE SMITH

Nurse Practitioner

Knowledge and Skills Framework and Website/Social Media

NZDF

Bay of Plenty District Health Board

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PALMERSTON NORTH EMERGENCY DEPARTMENT

RENOVATIONS:

Work started a couple of month ago on renovations to several areas within the Emergency Department at Palmerston North

Eventually the refurbishment will provide: improved triage area; a more welcoming, warm reception area; and improved facilities for relatives of critically ill patients in ED and a Sub Acute Area is being established to provide a more streamlined approach to care delivery.

Alongside this physical rebuild, working groups have been established to look at the models of care that are most appropriate for the department and the service we need to provide currently.

There has been some disruption to services, however staff are showing their resilience and ability to adapt to change, and are looking forward to the end product.

CHARGE POSITION:

Angela Joseph was appointed to Charge Nurse in November after the resignation of Iona Bichan from this position. Ange was formerly the CNE and an Associate Charge, with years of ED experience and involvement in national emergency initiatives. She has been a CENNZ representative in years gone by, and more recently was on the working group in the establishment of the CENNZ Knowledge & Skills framework working document. ED is in good hands and Iona is loving Marlborough.

WEBPAS STARTUP:

It would be an untruth to say that this change in patient management system went without a hitch, as there were many unanticipated issues that had a significant impact on the departmental running. However, the ED had a robust computer outage plan that covered having no computer system at all as we retired HOMER and installed WebPAS. Staff are adjusting the new system and the 'workarounds' continue for some aspects of the system. The things we are learning have been shared with Whanganui who are about to join the WebPAS whanau next month.

GENERAL:

Palmerston North recently hosted a TNCC course, which was well attended by emergency nurses from all around NZ. Patient presentation numbers have remained high over the summer, and with the department changes, the overall morale and ongoing commitment from staff has been fantastic.

NZDF:

Towards the end of 2017, large numbers of our emergency nurses were involved in a large scale exercise, Southern Katipo. This involved our staff being involved from point of injury care right through the evacuation chain, into the stabilisation and damage control facility of the Role 2, and scattered throughout the south island.

This exercise provided a good opportunity to exercise the evacuation chain, simulate patient care with moulaged emergency and trauma presentations, as well as mass casualty presentation management.

Recently we have been very lucky to have several staff attend TNCC courses locally which provides a good opportunity to not only network with colleagues, but keep clinical assessment skills up to date. MidCentral DHB hosted the last course in November and was well attended by emergency nurses throughout NZ.

Our staff continue to conduct clinical placements in emergency departments throughout NZ, with our strongest numbers being locally in MidCentral ED and CCDHB. These placements are vital for maintenance of ongoing emergency skills and knowledge, and thanks goes to our colleagues for ongoing support with these.

The summer has been busy with high levels of presentations and trauma, and the upcoming "flu" season looks to be unpredictable. The ongoing high acuity can be stressful and tiresome at times, but our colleagues and staff just keep trucking. Look after each other, the year has only just begun.

Here's to a busy, productive and safe 2018.

KATIE

REGIONAL REPORTS

WELLINGTON

KATHRYN WADSWORTH

Clinical Nurse Manager

Acute Services

Wairarapa District Health Board

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The summer heat appears to be stretching beyond the Wairarapa this year with the entire Wellington region getting a good taste of some hefty temperatures. This has many of us seeing patients with a raft of issues from dehydration to trauma with the outdoor activities opening up a whole range of interesting and challenging clinical presentations. Trauma rates appear to be up consistently throughout all three regions.

The general theme from the three Emergency Departments within the Wellington region is what previously had been considered an average busy day now seems relatively quiet with our numbers rising consistently everywhere. The Wairarapa has had the largest number of presentations ever recorded in the month of December, which has pushed resources to the limit at times. Both Wellington and Hutt report a significant increase in presentation numbers.

This coupled with a high turnover of senior staff, maternity leave and retirement, our three ED's continue to drive recruitment with a focus on the right staffing mix to join our teams. CCDHB has had two nurses achieve nurse prescribing and continue to support staff working towards a Nurse Practitioner portfolio. Hutt ED have a new CHOD Anne Clarke who comes to them from Canada with excellent leadership skills. They have a new CNS in place and have taken on two new graduate nurses. They are working on implementing Nurse Practitioners into the department currently. Wairarapa ED now have two practicing Nurse Practitioners and multiple nurses on the pathway with one new graduate nurse nearing completion of her first year in practice. Two nurses from the Wairarapa are heading to outback Australia for a short-term contract with their nurse educator also heading further afield to Bangladesh with the Red Cross. All of these experiences are growing our nurses personally and professionally which will benefit our ED's in the end, despite it being challenging in the interim.

Many new initiatives are either underway or being developed with Hutt ED continuing to expand their nursing standing orders and has been an ongoing project for the past ten months. CCDHB are piloting EDAM (emergency department arrest management) where the arrest is co-led by a nursing team leader and a Doctor lead thus enabling both to carry out their roles better and facilitate better adherence to the NZRC algorithms in ED cardiac arrests. The Wairarapa team are reviewing the process around resuscitations both inside and outside of ED with the formation of a multidisciplinary airway management committee developing a guide and audit tool for this purpose. All MET calls are managed by the Acute Service team and are currently being audited in a similar way via the resuscitation committee.

A special mention to our ED volunteers who are well embedded in our work places now; they are a valuable asset that work quietly behind the scenes and help our departments continue to function in an efficient way often with minimal recognition of their services. I would also like to mention the many ED nurses working within our three DHB's that tirelessly continue to do their jobs so incredibly well often under very difficult circumstances and challenging situations. It is humbling to see the professionalism and skill that is exhibited every day in this staffing group.

KATHRYN

REGIONAL REPORTS

TOP OF THE SOUTH REGION

JO KING

Registered Nurse

Emergency Department,
Nelson Hospital

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Greetings from the Top of The South. It has been a magnificent summer in our region, except of course for two major weather systems. Cyclone Gita and the King Tide event had little impact on our emergency departments but they certainly caused hardship for many in our district. Flooding, slips and road closures have isolated many communities. Over the holiday season we have seen high numbers of mountain bike trauma, sunburn, several stingray injuries and multiple presentations related to jellyfish.

Last week I attended the first CENNZ committee meeting for the year. We begin these meetings with a regional report from each College representative to summarise what is happening in our emergency backyards. While these reports highlight emergency departments and emergency nurses doing great things, it is of note that we all raise the same concerns about the challenges of meeting escalating demand with limited resources.

Presentation numbers in our region have been relatively stable, however patient minutes in the department continue to increase and our 6hr LOS continues to deteriorate. Patient minutes in the department increased by 7.5% over the last month and LOS was 93.9%. This time last year it was 95.4%. This is reflective of increasing acuity and the challenges of flow, bed block and staffing. We have recorded a sharp increase in road trauma, a 9% increase in triage 2 patients and an increase in hospital admission rates. We are hopeful that we will soon see the establishment of an acute admitting unit / assessment unit in Nelson Hospital. This is an urgent need.

We have experienced some unusual practices in the emergency department in response to hospital occupancy and staffing. Ventilated ICCU patients requiring 1:1 nursing have remained in ED in excess of 8 hours and backwards flow from wards for ED to manage therapies such as blood transfusions has occurred. Nurses do have a responsibility for optimal care of all patients and to respond to the wider need of an organisation. However, caring for in-patients in the ED environment, even as a short-term fix, is associated with significant clinical risk.

Last July a Clinical Nurse Specialist pilot was introduced in the Nelson Emergency department. This was a result of additional earthquake recovery funding. One of the priorities in setting up this model was to ensure it had flexibility to fit the local context of a provincial ED. This has underpinned its success. The CNS responds to where the need is in the department at any given time. This may be seeing patients as lead clinician, providing support in resus and with high acuity patients, initiation of pathways, clinical coaching and assisting in variance response management. The model was rapidly embedded in the department and data analysis has demonstrated the positive contributions the service has made to key performance indicators. Funding for this pilot will cease in June 2018. However, following its success there is growing support for establishing CNS / NP roles. Budget constraints currently remain a major obstacle. Many nurses across our region are suitably qualified or working towards these positions so I hope it is not too long before we can harvest all that underutilised potential.

As I write this report today the Australian College of Emergency Medicine's (ACEM) survey on waiting times for mental health patients in emergency departments has received traction in the media. It is certainly very timely to highlight this issue. A recent analysis of patients in the Nelson Emergency department with suicidal ideation shows a sustained and steep rise over the last 5 years. We are also aware we are unable to consistently meet the national standards for observation of suicidal patients as required in the MOH guidelines (2016). We continue to highlight this each month as a 'risk alert'. Recent additions to our staffing with some HCA and security hours have been helpful but do not provide a 24 hour or permanent service. On the bright side the acute mental health community assessment team (CAT) will shortly be based in our department during the day and evening. We look forward to the collaboration this will bring.

It was pleasing to see Wairau and Nelson Departments getting a voice in the media to highlight the problem of alcohol and drug- related aggression and violence . Sharon Scott, our Nelson CNL did an excellent job describing what the actual reality is for nurses working with these patients.

https://www.stuff.co.nz/nelson-mail/news/101470004/Intoxication-a-serious-problem-in-top-of-the-south-emergency-departments

REGIONAL REPORTS

WAIRAU EMERGENCY DEPARTMENT.

Wairau emergency department had the unenviable task of beginning their year by responding to a major gastroenteritis outbreak. This involved the community, in-patients, staff and a large number of admissions to hospital. They were well supported by their new infection control nurse Iona Bichan. Iona is well known in emergency circles having been the CNL of Palmerston North ED for many years and also a past and valued member of the CENNZ committee. It is great to have her expertise down in our part of the country.

Wairau has also experienced an increase in road trauma over recent months but interestingly this has not been from the newly opened State Highway 1. This may be a result of the good work done by all the road controls along the route. Having this main trunk line reopen will significantly reconfigure traffic routes across the top of the south. It will be interesting to see how this impacts on the Wairau and Nelson departments.

Wairau ED is keen to investigate integrating advanced nursing roles in their department. Those involved in the Nelson CNS pilot will meet with them shortly to share their model, the results of the data and see how they can collaborate.

Finally, I would like to welcome all the new staff who have joined us over recent months. We look forward to having you on board. Our nursing teams in the 'Top of the South' remain a committed, cohesive and resilient crew.

JO

CANTERBURY / WESTLAND REGION

DR SANDRA RICHARDSON

Nurse Researcher

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Canterbury District Health Board

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CANTERBURY/WESTLAND WORKLOAD

In line with most other regions, the Christchurch Hospital ED has continued to see increasing numbers of attendances, with patient numbers in excess of 300 becoming more and more common in a 24hr period. There has been a twenty percent increase in presentions in the time period between 2000 and 2400hours. The overall average number of attendances sits at 298, with the current high at 342. Whereas in previous years there has been a recognisable pattern involving a drop off in numbers over the summer period, this has not occurred, with steady increases and the absence of this plateau effect over the past two years. This adds to the sense of workload increase, staff busyness without a corresponding breathing space, and leads to recognition of the intensification of effort and significant contribution from all staff. As a result of these changes, we are taking longer to see patients, and not meeting the 6hr MoH targets.

QUALITY AND RESEARCH

The hospital as a whole is preparing for MoH Certification (formally known as Accreditation) and as part of this the ED has continued to undertake a number of audits and reviews of existing practice. Amongst other topics, this has included a focus on pressure injuries, with recognition of the potential for these to commence in the early stages of the hospital journey and acknowledgment of the initiatives undertaken in ED including use of bariatric beds as needed, 'slippery sallys' for patient transfers and reduction of use of Philips mattress (narrow, rigid mattress for x-ray). The ED has also been involved in the CDHB pilot of the NZEWS, and an audit of the use of this was undertaken. A set of 60 patient notes were reviewed for completeness of the NZEWS scoring process; the majority of patients (88%) had appropriate frequency of vital sign monitoring and 92% had the complete set of vital signs recorded. Of interest, it was noted that once a patient reached the 'blue zone', indicating the need for immediate registrar review, there was a tendency to stop calculating further totals. There was a degree of variance in the accuracy of manual addition, as at

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this point the ED based system remains paper based. In addition, we are pleased to welcome a Master of Health Sciences student who is looking to undertake her dissertation research on the experience of ED nurses working with mental health clients.

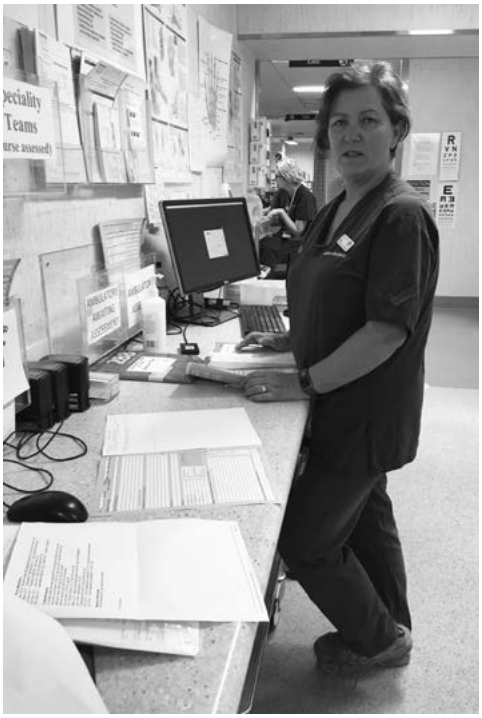
STAFFING

Staff numbers remain much the same, although over time fewer staff are now working at Full Time with increasing numbers reducing their hours. Staff sickness has also increased recently, and following recent exposures there have been interventions to offer vaccination updates for staff relating to diphtheria and measles. New models of care are continuing to be developed, with a focus on seeking ways to support less experienced staff and mentor them into a range of roles and areas within the department.

PROCESSES

Recently introduced multidisciplinary mortality and morbidity rounds have been well supported with high numbers of nurses attending. A pilot program looking at the feasibility of Front Door physio has recently been completed, and is being evaluated with preliminary results looking favourable. Following the establishment of a robust Simulation progamme, including interdisciplinary in-situ simulation (many thanks especially to Leona Robertson, Nurse Educator) a similar process used in this has been adapted to real life in the form of seven minute debriefing following traumatic events and situations. The department is pleased to announce the introduction of a national first – the appointment of a 24/7 on-site social worker presence. We look forward to seeing the impact that this might have.

SANDY



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SOUTHERN REGION

ERICA MOWAT
Registered Nurse

Triage Portfolio

Southland District Health Board

Emergency Department Dunedin Hospital

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DUNEDIN

The summer months of November to January have brought many challenges to the Dunedin Emergency Department due to an increase of presentations from this time last year. The department worked well over its capacity while experiencing unusual tropical temperatures of up to 35 degrees Celsius. Few of the increase in presentations were due to the heat wave but high trauma presentations and increased acuity and complexity contributed to the demands on the ED team.

The local Accident and Emergency clinic relocated just before Christmas and its x-ray facilities were limited over this period, so some minor trauma presentations were referred to ED. Minor trauma continues to increase and is frequently 40% of the total presentations within a 24-hour period. Presentations generally increased by up to 200 per month from this period last year. An increase in the total percentage of patients referred to specialist disciplines by GP has stretched the departments capacity for bed space with a flow on effect on inpatient bed requirements.

The staffing mix of new and experienced nursing staff was one of the departmental challenges over the holiday period. Several staff had taken up senior positions in Dunedin and Wellington Hospitals. To balance this, we have now recruited experienced staff from temporary contracts and within Otago to the 2.4 vacant positions. One of our other nurses, sponsored by the army, returned to her regular post, reducing our staffing flexibility. Great team work has resulted in the nursing staff covering the roster gaps together with some of our resource nurses. The ACNMs have given up their non-clinical days to ensure consistent operational management of the department as well as many other staff doing overtime.

Education in the first two months of 2018 included a valuable study day on 'Nurse in Charge' and an update on changes to the Triage tool. This was a full day attended by several senior nurses in the department discussion on Trauma calls and VRM. There are planned Fast track and resus study days for March as the previous ones in November were also well attended.

One of our SMO's Dr Ohad Darr has just launched 'Simulcourse' in conjunction with Dr Victoria Brazil (OCSC) who runs the course in Australia. This is a course for facilitators of simulation training and scenario planning. The current course allows for a Doctor to bring a nurse from their area without further cost. And runs between March 19 & 21st.

Welcome to Niki Holborough, who has been confirmed in the permanent ACNM position and Anna Dougherty, who continues in the CNS role for 1 day a week while Signe Stanbridge, CNS, embarks upon the nurse practitioner pathway.

OAMARU

Welcome to Lesley Clair as the new Clinical Nurse Manager at Oamaru Hospital. One of the pressing issues is collating presentation numbers to get improved staffing for not just Oamaru ED but also the inpatients wards. The Hospital is due to be audited on 18th of February and the model of care initially discussed last year has not yet been clarified. The Oamaru ED and hospital has had many shifts covered by locums and due to bed closures last year, patients continue to be transferred from Oamaru to Dunedin ED. Transfer of patients with a nurse escort has been difficult and frequent use of the 'swing shift' nurse has been necessary. This nurse also provides extra staffing for Oamaru ED. Improvements to the ED office has helped nursing staff devolve administration tasks to non-clinical staff increasing patient care time. They have also utilised the idea of a paediatric trolley to facilitate children's care in the department.

SOUTHLAND

The patient numbers over the last few months have had a wide daily variance of up to 50 patients within a twenty four hour period and an increase of the total number of monthly presentations over the summer months. The acuity has remained high and stretched resources. Increased demand led to an inability to close inpatient beds. The ED have had a full complement of staff over this period but departmental requirements for night staff is currently being assessed and a business case for increased staffing being developed.

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Current projects include improving patient flow and decreasing waiting times at front of house. Changes to front-of-house facilities and the triage area are currently being costed.

Another quality initiative is the improvement of timely care delivery for involving pregnant patients. Facilitating referrals for these patients and improving pathways for mental health patients have resulted in a huge improvement to waiting times within ED.

QUEENSTOWN

This is a a very exciting year for Lakes District Hospital as we continue planning for our new ED, Whanau room and remodelling of outpatients and admin areas, which will be built this year and addition of onsite USS and CT. This will improve the level of care we can provide here and will require a new model of care and staffing to match. With a hopeful impact on transfer numbers to Southland and Dunedin. ED presentations in the Queenstown Lakes District have continued to rise throughout the past few months up to 200 a month on average over the last two years over the holiday period. Staffing: 2 x 0.5fte temporary positions were appointed to manage the increased presentations, from Dec 18 – April. This has enabled us to have 2 nurses working in ED from 0900- 0030 hrs, when historically there was only one nurse. Exciting times are ahead and hopefully the chance for an expanded nursing role e.g. CNS for nursing staff.

A big thankyou to permanent staff who worked extended shifts or extra FTE to cover the roster gaps. Good New Year planning ensured a manageable night with few alcohol or drug related presentations impacting on the workload. Morale has remained good and staff support each other during busy shifts, and that I what gets us all through!!

ERICA

ARTICLE SUBMISSIONS FOR THE MID YEAR ISSUE OF THE JOURNAL ARE NOW OPEN. PLEASE CONTACT THE EDITOR MATT COMESKEY FOR MORE INFORMATION!

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EMERGENCY NURSE NEW ZEALAND