

**NZNO**  
**coastn**  
COLLEGE of AIR & SURFACE TRANSPORT NURSES

**E-Magazine**

**Online Publication**

**July 2019  
Edition**



College of Air and Surface  
Transport Nurses  
Section of the New Zealand  
Nurses Organisation

Photo supplied by Helen Poole from Christchurch

[www.nzno.org.nz/groups/sections/flightnurses](http://www.nzno.org.nz/groups/sections/flightnurses)  
:Facebook Page: NZNO COASTN

# COASTN COMMITTEE

2019



Left to Right Back Row: Rachel Pringle, Amanda Thompson, Annie Bradley Ingle (PN), Toni Johnston

Left to Right Front Row: Lisa Black, Anju Sethi, Di Fuller, Joanna Knight, Angela Coward., Insert: Helen Poole

Chairperson	Toni Johnston	Antonia.johnston@southerndhb.govt.nz
Treasurer	Rachel Pringle (outgoing)	Rachelpringle71@gmail.com (resigned)
Secretary	Lisa Black	Lisa.Black@wdhb.org.nz
Magazine Editor	Angela Coward	angela@nzaas.co.nz
Deputy Chair	Joanna Knight	Joanna.Knight@wdhb.org.nz
Website/Facebook	Amanda Thompson	amandathompson987@gmail.com
Committee Member	Di Fuller	dianef@adhb.govt.nz
Committee Member	Anju Sethi	anju2372@yahoo.co.nz
Professional Nursing Advisor	Annette Bradley-Ingle	AnnetteB@nzno.org.nz
Treasurer (incoming)	Helen Poole	
Course Coordinator	Tamsin Irvine-Fynn	tazfynn@gmail.com

---

# FROM THE EDITOR

---

Angela Coward



Hi All and welcome to the July edition of the E-Mag. Thanks to all of you that have contributed to this edition, it is really encouraging to see so many regional round ups and photos and also to have flight nurses sharing knowledge and experience in the form of case studies. Check out the case studies from Peter Fortes from NZAAS, Zoe Matsas from PICU and Sarah Pease from Taranaki - what a great variety of information with the articles covering hyperbaric treatment, paediatric cardiac transport and a recent gear up landing highlighting the importance of CRM and EPC training. We have some great photos in this edition also—my top pic is from Northland!

There are several upcoming conferences and symposiums around NZ and Australia that are advertised in the e-mag. If you are planning something or are aware of any other upcoming education opportunities in late 2019 through to 2020 please let me know so that they can be included in the November issue.

We have included a couple of recipes in this edition, one for the lover of all things superfood and another for those who enjoy a little indulgence from time to time. If anyone has recipes that they would like to share, please send them to me. I know that it is often challenging deciding what food to take for work when our 'sky office' doesn't come complete with a jug, fridge or microwave!

Without further ado, I'll sign off and let you get into the interesting parts of the E-mag.

Thanks again, stay safe,

*Angela*

# CHAIR REPORT



Toni Johnston



Hi all

Well – the shortest day has passed so I have my fingers crossed for the days to be lengthening & the weather improving! That said – down South we have experienced a relatively unseasonably warmish & dry winter so far (the ski fields aren't best pleased – especially with school holidays beginning). However - 3 of our retrievals in the past week have been undertaken by road as weather conditions made flying impossible.

The revision of NZS8156 – Ambulance, paramedicine and patient transfer services standard has been completed & released for publication (electronic copies can be purchased from Standards New Zealand at a cost of ~\$60). There were 2 COASTN national committee members participating in the revision process of this standard (along with a wide variety of industry-related representatives) in what turned out to be a protracted process – taking significantly longer than anticipated. Section 9 encompassed IHT& was contentious in terms of some committee members indicating a desire to be very prescriptive when specifying training & qualifications of medical staff, in addition to the nursing personnel specifications. This discussion consumed a significant amount of time & energy – and in the end as no agreement could be reached the majority of the committee elected to remove the personnel specifications entirely. While the nursing section was not contested there was general agreement that the section in its entirety be revised & become more generalised – indicating that whoever the team was they were appropriately skilled & experienced in caring for the cohort of patients they were transferring. I apologise if this appears somewhat unsatisfactory (in terms of the lack of specifics) but in order to get agreement (& with the proviso/reassurance that the next review will occur within 3 years) there had to be a degree of compromise. The next iteration is likely to include more definitive personnel specifications – if agreement can be reached between the Medical Colleges.

---

# CHAIR REPORT

---

## Continued

Nationally work continues within the COASTN working party in terms of assimilating all the feedback received from those who have trialled the new passports, resulting in an updated version being formatted (with hard copies to be available at the symposium). This also includes feedback on minimum entry to flight/transport nursing practice – also revised following extensive feedback from individuals & service representatives. Once these have been finalised attention can then be focussed on other areas that the working party was considering – such as physical fitness/appropriate flight medical standards (for utilisation & adoption within services who do not currently have anything set in place, guided by current standards from services across New Zealand & Australian services). COASTN appreciates that none of these proposed standards can ever be mandatory (as there is no power to force current service providers to adopt them) but hope that service providers consider what they already have in place & whether they are aligned/similar to COASTNs work. In addition it is hoped that for some of the COASTN members who are part of some of the smaller / less well-resourced services that may struggle with establishing standards of practice & attaining necessary training/ongoing professional development these standards may provide reinforcement of the need to invest in their staff (as cost in terms of time & money are often seen as barriers to ongoing training & development).

Keep warm, stay well & remember to take a little extra care during the harsher winter months when you are out & about, & not safely tucked up inside a warm, dry, well-lit & well-resourced hospital or medical centre. Safe travels,

Toni

---

# SUB COMMITTEE

---

Di Fuller



14 July 2019

Update on progress for:

## National Standards for education, training and ongoing competency requirements for NZ flight nurses

&

## COASTN Clinical Support Crew Passport

Forty six trial COASTN Clinical Support Crew Passports were sent out to seven centres for flight nurses to review and provide feedback. The centres were:

- Whangarei
- Auckland NICU
- Starship PICU
- Waikato
- Whanganui
- Christchurch
- Dunedin

Fifteen written responses came back and some feedback was relayed verbally.

The feedback about the Passport was very favourable with its purpose being well understood.

The COASTN sub-committee working group met face to face on July 8<sup>th</sup>. In response to the feedback we received earlier in the year on the proposed National Standards, the group concentrated on adjusting some of the wording and content in this document.

We also focused on the Clinical Support Crew Passport to accommodate the feedback we received on this document.

For the immediate future, as a group we are going to continue to specifically concentrate on developing and refining these two documents ensuring they help form a strong backbone to maintaining & promoting our sector's professionalism, safety, training, education and mitigation of risk, referencing legislative documents to support us.

For the moment therefore, we are not concentrating on other identified criteria such as medical checks, audiology, physical fitness, water safety training, however these do remain on our agenda.

---

# SUB COMMITTEE

---

Di Fuller



We are aiming to have these two documents finalised and ready for presentation at the Dunedin Symposium with the view they 'go live' after this. It will take time to embed them into our conscious thought and practice throughout the country.

The working group does remain cognisant that use of these documents is not mandatory and we respect service specific entry criteria, training, education and documentation. We do hope however that these documents help provide unity amongst us, national baseline and benchmarking tools and that the Passport becomes recognised throughout the country providing a degree of transferability within NZ (and possibly Australia) if it is utilized well and becomes a robust record of your retrieval practice, professional development, training and education. And that it becomes a source of professional pride.

## EDUCATION CALENDAR

Soon to be up-and-running on the COASTN website will be an 'Education Calendar' that you will be able to refer to for information on educational opportunities and courses to do with flight nursing and retrieval work. This will provide details on what is available within N.Z. and Australia and when.

Finally, "thank you to all who have taken the time to provide us with your feedback".

As always, please do not hesitate to contact myself or any of the working group members with any questions or suggestions.

We hope to see you in Dunedin at the COASTN CRM workshop November 14<sup>th</sup> and at the COASTN symposium on November 15<sup>th</sup> when the COASTN AGM is also held.

Best wishes and kind regards

Di Fuller

Chairperson

## Working Group contact emails:

Di Fuller: [dianef@adhb.govt.nz](mailto:dianef@adhb.govt.nz)

Patrice Rosengrave: [patrice.rosengrave@otago.ac.nz](mailto:patrice.rosengrave@otago.ac.nz)

Karyn Hathaway: [karyn.hathaway@ccdhb.org.nz](mailto:karyn.hathaway@ccdhb.org.nz)

Joanne Knight: [Joanna.knight@wdhb.org.nz](mailto:Joanna.knight@wdhb.org.nz)

Rebecca Burley: [Rebecca.burley@northlanddhdhb.org.nz](mailto:Rebecca.burley@northlanddhdhb.org.nz)

Anju Sethi: [anju2372@yahoo.co.nz](mailto:anju2372@yahoo.co.nz)

---

# COASTN COURSE REPORT

---

Taz Irvine-Fynn



COASTN

## Aeromedical Retrieval Course 2019

### A History, Past present and future

Back in the days before COASTN there was the New Zealand Flight Nurse Association (NZFNA). In 2011 at an NZFNA committee meeting volunteers were asked to step forward to run their flight course. Everyone took a step backwards but Di Fuller was not as quick off the mark and found herself in the driving seat. Never one to shy away from a challenge Di thought "This sounds interesting" so she grabbed the wheel and what a ride it was. She never imagined it would be the beginning of eight years of overseeing, changing and driving the course forward.

Back in 2011, the course was classroom based. Whilst the participants completed the week with a vast array of new knowledge, the enormously experienced nurses attending the course were used to being 'on the go', problem solving and multi-tasking. Sitting in a classroom for hours on end was not conducive to their learning and the restlessness in the room became increasingly palpable as the week drew on. With this in mind and a great team behind her Di began to adapt the course and it continued to grow and evolve as the years went past and the grey hairs took hold. In 2014 Taz Irvine-Fynn joined the team initially assisting with technology and then becoming an integral member of the simulation team – a role which she continues to enjoy. Today, this exciting, internationally renowned course has taken on a life of it's own and last year Di handed over the reigns to Taz.

So in 2019 knowing she had some big shoes to fill Taz began to seek new and creative ways to empower NZ's aeromedical professionals to provide the highest standard of care to the people of New Zealand. She was lucky enough to be able to gather together an amazing team of experts who generously gave their time to share their vast knowledge and experience. Travelling from far and wide; flight nurses, paramedics, crew, military medical staff, pilots, experts in CRM and even a brave parent came together to impart their wisdom to the new generation of flight nurses from around NZ. The week ran smoothly and some really positive feedback was received from the candidates.

The 2019 candidates represented a fantastic mix of aeromedical teams from the length and breadth of the country and a variety of specialties. Already expert practitioners in their fields the candidates were encouraged to share their own knowledge and experiences (good, bad and ugly) with the group and this

---

# COASTN COURSE REPORT

---

## Taz Irvine-Fynn

helped to build great inter-hospital relationships which are invaluable- it is always nice to see a friendly face when you're preparing a challenging patient in an unfamiliar environment!

In the last two years the course has taken on an international flavor and we now reserve two positions each year for flight nurses from Australia. It is proving to be a great and worthy collaboration and we hope this affiliation continues for many more years to come.

So what's involved? Naturally, there has to be a classroom component and this has taken on a strong aviation focus examining concepts around crew resource management, the pilots perspectives and the professional and political aspects of the aeromedical industry. Outside the classroom however is where the magic happens. With practical training we encourage problem solving, critical thinking and multi-tasking.

Key components include:

Simulation training - Held at Ardmore Airport in the Warbirds Hangar this is always a fun aspect of the course. Back in 2012 attendees and staff were squeezed into the back of a helicopter which made for a cosy experience. Now, thanks to the generous involvement of NZ Air Ambulance Service we have moved into the luxury of a spacious aeroplane complete with a handsome pilot and realistic sound effects! Over the last few years a small cohesive team of people have come together, all from different areas and fields, who are passionate about simulation training in the aviation environment. This team now lead these days with flair, creativity and a lot of laughter - never at the participants. Although simulation can be nerve wracking the feedback afterwards is overwhelmingly positive.

Water and land survival skills: Water survival training provided by Denray Marine has become another fun part of the curriculum. This training includes HUET (helicopter underwater escape training) - for some the idea of this fills them with terror; others with delight. The land survival skills are conducted on Auckland's West Coast in the bush. Stu Gilbert of SOS Survival Training is an ex-airforce survival specialist and leads a very insightful and entertaining 5 hours of Bare Grills style survival training. Everyone ends this day with a smile on their face and a belly full of delicious BBQ food.

We are very lucky that COASTN has a Memorandum of Understanding with Auckland University of Technology (AUT). They provide us with superb facilities, the expertise of some of their tutors and various pieces of essential equipment for the simulation training. Also not forgetting the COASTN course can also be accredited to the AUT Aviation Physiology paper PARA801.

It's not all fun and games - of course there is an exam and academic assignment written at Level 8, however candidates are then certified as having met the standards as per the NZ Air Ambulance Air Search and Rescue Standard. More importantly though, for all their academic efforts, facing fears and braving the elements candidates finish the week with a vast array of knowledge, the ability to critically think on their feet, improved competence and confidence in the aeromedical environment and of course the obligatory certificate essential for every nursing portfolio!

After a successful year Taz is already on the hunt for new innovative and exciting ways to drive this amazing course forward into the future and ensure it remains at the cutting edge of aeromedical training! If anyone out there has ideas, please don't hesitate to contact Taz.

Of course, as with everything in the current economy the fees need to be increased slightly to achieve this but any of this year's candidates will tell you it's worth the extra few dollars!

Watch this space for further information about the 2020 course coming soon.

Taz Irvine-Fynn

---

# BAY OF PLENTY

---

## Regional Round Up.



### BAY OF PLENTY ROUNDUP

The last 8 months have seen quite significant growth and development of our service here in the sunny BOP.

At the end of last year Tauranga Hospital made the transition from an adhoc service to one where we have a flight nurse based in the hospital 7 days a week. Whilst this role is still developing it has come with many positive changes. For example, the speed in which we are able to get stroke patients up to Auckland for clot retrieval and the timeliness we can provide assistance to other hospitals in our region with air transport (Whakatane and Lakes DHB). We are also able to help out the busy duty managers by organising transport logistics they previously were completing. When not flying the flight nurse works as a supernumerary resource in the ICU which as we head in to the busy winter months has really helped the unit - even with things such as relieving staff for all important breaks.

The recent months have also seen lots of change in the crew flying in the helicopter with the addition of a permanent crew member and an Intensive Care Paramedic (ICP). Whilst it can feel quite full in the aircraft as we are completing transfers the team environment is great to work in and having an extra set of clinical hands should something go pear shaped, especially on nurse only transfers which we predominantly complete, is fantastic. The other thing we have had to consider is with the addition of the ICP means an increased chance of getting diverted to prehospital jobs on the dead legs of IHT's (one flight nurse did two pre hospital trips to Waiheke after completing an Auckland transfer recently). We have been working closely with all the flight crew to complete training and develop a clear understanding of everyone's roles for the differing types of jobs we may encounter when out flying.

The group of flight nurses we work with remains diverse with almost everyone in the team holding other positions within the hospital. Regular catch ups both professional and social have helped shape and mold our team. We unfortunately said goodbye to one flight nurse late last year and have one travelling the world on extended leave at the moment who promises to come back to us. We have also welcomed two new team members both who hold extensive paediatric and transport experience which has added another dynamic to the service we are able to provide.

Happy flying everyone,

Manda - flight nurse

---

# WAIKATO

---

Regional Round Up.

## WAIKATO ICU ROUNDUP



**A foggy time makes for interesting activities.**

**A very warm hallo from the Waikato Transport team.**

We have had quite a few changes in the membership with many of the team moving onto other ventures in the nursing field. We wish them all the best and also welcome the new members and hope that they enjoy the work that it involves as much as I do and past member have.

Recently I flew to Whakatane in our BK117 together with a cardiac surgeon, and anaesthetist and a scrub nurse to assist with a patient who was stabbed in the heart.

On approaching Whakatane hospital the pilot said that we could possibly have to divert to a field to land as there was a bit of fog sterling about the place, fortunately we managed to land and hot off load equipment so that the chopper could go to Tauranga to refuel. Unfortunately they could not return to us as the fog got thicker and they went back to Hamilton before the fog came down there.

In The Whakatane we continued with the open chest surgery to stop the bleeding of the patient and after quite a while the patient was stable enough to be moved to the ICU where I continued to look after the patient hoping that the fog would lift soon. The fog did lift by 8am but in Hamilton the fog lifted just before midday. The surgeon wanted us to come back by road. A 4 hour drive in the back of an ambulance with a patient who had his chest opened and was on high doses of noradrenaline, going into renal failure and hepatic failure due to the numerous blood products he received. I persuaded him that it was not a good idea as we were in a controlled environment and everyone was safer to stay put till the fog cleared.

---

# WAIKATO

---

## Regional Round Up.

Meanwhile in Hamilton the ICU consultant arranged that the fixed wing would pick us up. What to do with the stretcher and helicopter helmets??? Earlier in the morning I heard that there was a patient transfer vehicle taking two patients to Tauranga and then going to Waikato to repatriate a patient so I asked if they could take the stretcher and helmets back. I don't know how I could be thinking of all these things that needed to happen because by this time I was hungry, tired and not all the brain cells were firing well.

We managed to get the patient to Waikato ICU safely, drains all still in situ and everything going relatively well, no incidents in flight or the ambulance transfers between hospital and airports.

I eventually left the Waikato hospital at 5pm, 22 hours after starting my shift. I was impressed by the staff at Whakatane hospital and what they managed to do with the resources that they have.

What I did learn from this is that you never know how long you are going to be delayed so you had better be prepared because plan B might not be an option if you don't have enough battery life in your equipment, not enough drugs and did not take your sandwiches with you.

Happy flying & Safe travel

**John Jenje**

**Flight nurse/ Waikato ICU**

---

# WANGANUI

---

## Regional Round Up



### July Update

Winter greetings from Wanganui, like everyone the winter chills have arrived, along with the extra winter layers required for keeping warm while we are out and about!

Along with the challenges of keeping our patients warm after we move them from the warm confines of the hospital.

As expected, and in line with other services demand is increasing, and compared to this time 5 years ago, we have doubled the amount of patients we are transferring per month.

I would just like to acknowledge how much more efficiently we are working in the central region, and the benefit that our patients see from the effort put in to the relationship between DHB's. The amount of empty legs has dropped significantly, which is beneficial all round.

So a big warm winter thanks to all the teams around the country for all the hard work that goes into the safe movement of our patients around this beautiful country we live in, and all the flexibility and ever changing decision making that goes into safely transferring our most unwell patients.

Safe flying everyone!

---

# SOUTHERN

---

## Regional Round Up

Southern Critical Care Flight team (Dunedin ICU)

The advent of winter down South often means different expectations when it comes to our retrieval services: namely the expectation inclement weather will result in more road – vehicle transfers instead of our preferred rotary wing options (of which we are lucky to have several helicopters available for our use). This is coupled with the challenges the SDHB is currently facing in regards to Neurosurgical services at Dunedin Hospital – where there is currently only 1 resident neurosurgeon available, necessitating transfer of patients to Christchurch hospital for intervention when our surgeon is unavailable (in addition to the transfers that are currently undertaken as Dunedin does not offer Neuroradiological intervention services). In practical terms this necessitates a second-tier on-call team available – quite a task when our primary service isn't particularly well-resourced (i.e. our team operates off the floor rather than are a super-numerary workforce). All this on top of the usual increased winter workload – where we have been operating at 95 – 110 =% occupancy at times.

Southern Critical Care (formally called the Dunedin ICU) recently ran an art competition to find a design to be used on cards we send out on behalf of the SCC unit. Because of the fantastic relationship we have with our heli provider (Helicopters Otago – as part of HEMS NZ) the prize-winners were able to experience flight by taking a ride in our helicopter, leaving the rooftop helipad at the hospital & seeing beautiful Dunedin city before landing back at the heli base on the Taieri Plains.

We are also very thankful that our Southern Lakes colleagues who were unfortunate to crash in the Southern Ocean have somewhat recovered & a replacement helicopter has been sourced for their operations (one that was surplus to requirements in Hawkes Bay), as although the airframe was recovered from ~12m of water the “swim” wasn't conducive to it resuming any operative status. Unsurprisingly there appears to have been an increased requirement & subsequent uptake of attendance at local HUET courses (run by Heli Otago/GCH) for both aeromedical staff but more so for the significant number of commercial heli operators around the South Island. I struggle to be enthusiastic about HUET training (if brutally honest I get very stressed about it – which is completely illogical given the safety systems in place as part of the course & that I spent more than half my younger life in the pool as a competitive swimmer), but the heli crash certainly reaffirmed the benefits of undertaking regular training.

We look forward to seeing as many of you as possible in Dunedin in November to attend both the COASTN CRM workshop & flight symposium (November 14th & 15th), where we hope to add to your knowledge & show you around our southern operations. It's a great reason to head south for a few days – especially if you are keen on running as the Queenstown Marathon is being undertaken on November 16<sup>th</sup>. See you there



---

# NORTHLAND

---

## Regional Round Up

The Winterless North doesn't seem to be living up to its name at the moment as it has been pretty chilly up here, especially in the wee small hours up at 3000 feet. However there have been some spectacular photo opportunities when there are no patients on board, with stunning sunsets and sunrises peeking through the fog. Of course when the fog is really thick the aircraft doesn't fly and we have the joy of a road ambulance transfer to Kaitaia or Auckland with a really sick patient. Those transfers certainly remind the older flight nurses of how it used to be in the good old days before air retrieval and transfer became "the norm!"

Along with winter weather of course comes the winter ills and chills and we have recently done many transfers of patients with Respiratory Diseases - Community Acquired Pneumonias leading the way, closely followed by infants with Bronchiolitis. It is always a challenge transferring these little people attached to CPAP or high-flow oxygen, usually along with a worried parent who has never flown before. Most of the infants do very well and it is very gratifying to see them a few days later, leaving the ICU looking and sounding so much better. For those who don't recover quite as well, we often on-transfer to PICU or else their team kindly come and pick them up from us.

Like other services around the country we have recently had a load of new ICU/Flight Registrars join the team on their ICU/ED rotations. These guys and girls have all done their basic flight and safety training now and are eagerly awaiting their first flights – with a few nervous butterflies fluttering around when the flight phone first rings and they realise that they are now suddenly the "experts" about to fly off to support their rural colleagues around the Far North!

Counting both the inter-hospital and primary jobs, we've been busier than ever in Northland with over 400 patient transfers completed in the first 5 months of this year. We are eagerly awaiting the launch of our new aircraft and will be adding "Charlie" and "Oscar" to the existing fleet of "Juliet" and "Lima" in the near future. (Better known as Helimed One and Helimed Two.) The NEST engineers have been working tirelessly to get the two new helicopters ready to go over the next 2 months, with the medical cabins soon to be fitted. The ICU Flight Nurses are really keen to get airborne in the new helicopters and experience their state-of-the-art new features. We are hoping for a drinks fridge and a coffee machine – yeah, right! Watch this space for photos of our new, shiny machines in the next magazine!

Stay warm and enjoy all the crispy early morning transfers – spring has to be just around the corner!

Janet Barker

Northland ICU Flight Nurse



---

# SERVICE ROUND UP

---

## NZAAS AUCKLAND



Greetings from all of the team at NZAAS in Auckland,

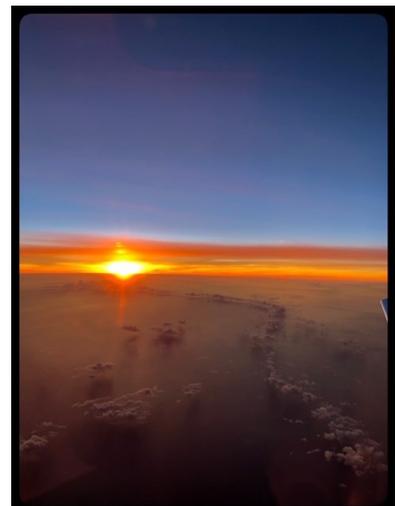
Just as we were reflecting on the relatively 'calm' month of May the winter started with a flurry of activity right on time for 1st June and has not let up since. All of our logistics team, aircraft and crew have been kept busy transporting the usual winter ailments, and we have seen the spike in ECMO retrievals that generally occurs over the winter months. Our flight nurses enjoy being a part of the CVICU ECMO transport team although the transports often seem to take quite a long time and involve carting a huge amount of gear in big black cases around the country. For those of you who have not seen the CVICU ECMO bridge set up I have included a photo. As you can see it is quite a 'neat' fit for any patients over 100kg. The bridge itself is also fairly hefty so we need to consider this when we are transporting patients particularly at the load/unload phases. The bridge travels with it's own oxygen and battery supplies and alarm system... and the obligatory crank handle for emergencies, as well as a team of 3 experts from Auckland City Hospital. With the new ambulance regulations regarding number of personnel and total weight of team/equipment this can pose some logistical challenges at referral points.



Fog has been playing a part in disrupting flights in and out of Auckland (and other centres) recently, and I guess that is one of the joys of transport by air in our beautiful country. The cloud that has been around does make for some pretty spectacular sunrises/sunsets, although personally I am already looking forward to getting back to longer daylight hours.

Stay Safe!

Angela and the team at NZAAS.

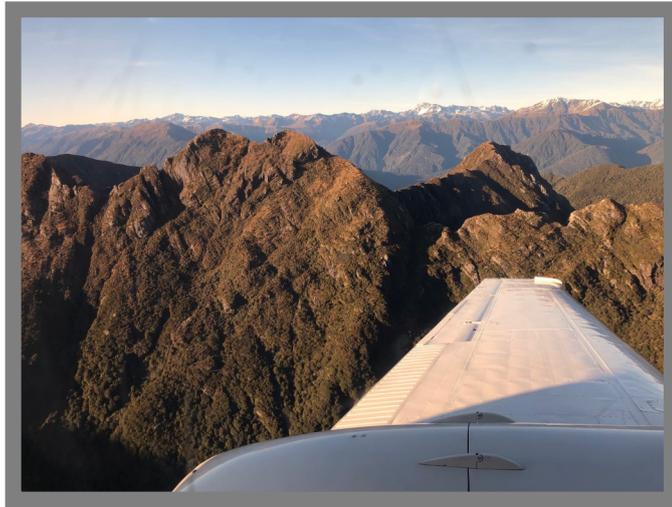


---

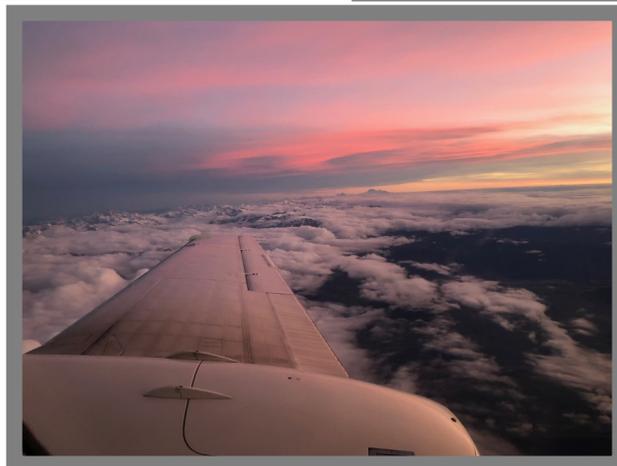
# CHRISTCHURCH

---

## Regional Round Up



A quick hello from Chilly Christchurch, with some cold mornings and evenings to see the country in our amazing job. Fog has been our enemy the last few weeks as we have seen some sub zero mornings and foggy evenings, delaying some of our retrievals. I'm happy to introduce myself as the new treasurer for COASTN, taking over from Rachel Pringle as she has left NZ for the warmer climes of Aussie, thanks Rach and good luck with your new venture! I've been working in an ICU environment for eons now and joined the Christchurch flight team three years ago and am absolutely loving it. As we all know its an incredibly rewarding job but also sends quite a few curved balls which all adds to the allure. Thought I'd add a few pics of my weekend to Greymouth for three retrievals, its a popular destination for us and one of my favs over the winter months. Safe and happy flying everyone



---

# CAPITAL COAST

---

## Service Round Up

Dear All

Greetings from CCDHB.

CCDHB IT have transferred our custom made retro Microsoft Access flight record database onto a more modern stable platform. The original was built by our Dr Peter Hicks way back in 1998 – it only took 6 IT programmers to sort the new version, with assistance from our Clinical Lead Dr Psirides and Flight Nurses.

Wellington has transferred 346 patients acutely from the 1<sup>st</sup> of April to the 6<sup>th</sup> of July 2019. We have certainly noticed the impact of the Taranaki plane incident along with one of our own Jetstreams being out for repair, after taking out a flood light in June. Whanganui must feel like everybody wants them! We have certainly required their assistance for midshift aircraft while LFW is out of action. Thank you Whanganui!

A large contingent of the Wellington Flight team are heading up to Denray Marine Services in Auckland for our HUET course in September. With feelings of both excitement and apprehension. Awareness of the need to prioritise this training was brought about by the Auckland Island ditching. Our team regularly fly across Cook Strait – although not wearing dry suits!

We ran a successful 3 day flight course in Wellington at the end of June with – attendees. --- were non CCDHB staff, also --- paramedics and ---midwives. The water safety afternoon is always a highlight.

Lois Roberts resigned from the service recently (also from the Flight ACNM/Flight Coordination role) leaving a huge legacy of 15 years of contribution to the service. Becky Oliver has stepped into the secondment role of flight CNS while Karyn Hathaway is seconded into the role of CNM for our Intensive Care Unit. It has been like musical Flight Coordinators! Fernah Peacey takes up some permanent FTE as Flight ACNM/Flight Coordinator.

Safe Flying from the Wellington team

Nikki Joseph

ACNM Flight Coordinator

# CAPITAL COAST

## Service Round Up Continued



Flight office creche up and running, Becky Leach minds Sarah Rodgers little one while organizing transfers.



Water safety fun on the last flight course.

Peter Roundtree escorts Kelly from the Flight Course back to CCDHB



---

# TARANAKI

---

## Feature Report—Flight Mayday.

### **Nose down, Tail up**

It started out as a typical day at the office. I was caring for a cardiac patient who was being transferred to a tertiary hospital. The ambient patient had occasional chest tightness lasting 10-20 seconds and was self resolving. After the ambulance transfer to the airport we settled into the plane, the patient opting to be seated rather than on a stretcher, all the time being monitored and in a stable condition.

It was an uneventful 35 minute flight, then coming into final decent to land I heard the pilot communicating to the

tower that we'd do a "fly-by if they could visualise the landing gear". This was the first que that things weren't going to be routine.

As we circled above the city, the pilot communicated with support personnel, while I informed the patient of the problem and learnt that they had previously been an aero engineer. A MAYDAY call was made to the tower followed by confirmation of the number of occupants on the plane and fuel time in minutes. The anticipated landing time was made (45 minutes after the original ETA). The pilot proceeded to take us up to 4,000ft to circulate there and consume fuel.

The only instruction I was given by the pilot was to put as much weight in the back as I could. This saw me shift my large medical bag and stow it as securely as possible at the foot of the stretcher. I also kept the patient updated, removed the protective covering from the emergency door and instructed the patient on how to use the emergency exit. I reminded the patient of the brace position for the rear facing seat they were seated in. There was little time for panic which helped keep things calm in the cabin for both the patient and I.

Thinking of what I could do to prepare the cabin for a foreseeable crash landing I noted the patient was carrying a few small objects in their hands, had a blanket over their knees that was draping round their feet and cardiac leads that were crossing the aisle to the monitor secured on the stretcher. I explained to the patient that once we started our decent I'd place their possessions in one of the many pockets in my flight pants, remove the blanket and also the cardiac monitoring so that there were minimal hazards to impede our exit.

The tower enquired after the needs of the patient and thankfully were able to relay that they were stable and should be able to exit the plane without assistance.

The time came to start our decent so I freed up the patient of monitoring equipment, loose linen and possessions, securing all I could within the cabin. I then braced myself as we touched down...for what was the smoothest landing I've ever had! The plane engines and electrics were promptly cut off and communication was then lost via headset, which I then threw over my shoulder out of the way.

Looking out the window we were slowing down with the nose remaining up until suddenly the nose went down to the ground and the cabin angle went to 45 degrees! I'm told the noise of metal on tarmac was loud but I don't recall it. I was just looking out waiting for the plane to stop moving so I could open the door and get the patient and I out of there!

Finally we came to a standstill. After a quick glance for smoke or fire and all was clear, I opened the main door only to see that we would have to jump down as the plane was nose down, tail up. Turning to the patient, they were already out of their seat and ready to follow me, so I made the jump and assisted the patient to the tarmac and then away from the plane to the edge of the runway.

The pilot exited a short time after us and ambulance and fire personnel were quickly to our aid. Within 10 minutes the patient and I were in the transfer ambulance and on the way to the hospital.

It was a great outcome for everyone and remaining cool, calm and collected certainly made the difference on the day!

Sarah Pease,

Taranaki DHB Flight Nurse (ICU)

---

# CASE STUDY

---

Peter Fortes, NZAAS.

## Hyperbaric Treatment for Decompression Illness

Recently we undertook a mission to Fiji to transport a young woman diver admitted to a private hospital and diagnosed by the treating doctor as having 'the bends.' The flight doctor and myself departed early in the morning on a Cessna Citation Sovereign air ambulance jet and flew at 40,000 feet flight altitude. The diver, a college sophomore from the United States, was on a volunteer diving program in Fiji during a break in her studies. She had completed two relatively shallow dives the previous day and stated she had correctly followed her personal dive computer algorithms. Her symptoms included bilateral lower limb tingling, pain and weakness, and bilateral finger tingling. The treating doctor had contacted the divers travel insurance company, and approval was given to transport her to a centre of excellence (COE) for recompression treatment. The closest COE was the Slark Hyperbaric Unit (SHU) located in Devonport, Auckland. The SHU was advised and accepted the diver. As the diver would be arriving in the evening, an on-call SHU team was activated and kept updated on the flight teams progress.

The diver was flown to Auckland at sea level cabin altitude with a flight altitude of 27,000 feet. Fuel consumption on the return leg was about 1.5 times greater than the outward leg. The diver remained stable during flight, spending the three-hour journey playing games on her iPhone. On landing at Auckland Airport, she was transported by road ambulance to the SHU to meet the assembled team.

The SHU opened in 1990 and was operated by the Royal New Zealand Navy. In 2013 ownership and operation was handed over to the Waitemata District Health Board (WDHB). It is named after the late Royal New Zealand Navy Surgeon Commodore Tony Slark who was a pioneer in diving medicine research. The dive chamber, housed inside a dedicated building, is made of steel and is of a circular tube design consisting of two internal compartments. The interior diameter is 2150 mm, the total length of the chamber is 6616 mm, with the main compartment being 3240 mm in length. It weighs 13,000 kilograms. The chamber can hold a maximum of one person lying down, four people seated and one chamber attendant (Slark Hyperbaric Unit, n.d.). Oxygen is supplied to the chamber via a bank of large G size oxygen cylinders.

There is one other publicly funded hyperbaric chamber in New Zealand. The Christchurch Hyperbaric Medicine Unit is located at Christchurch Hospital. Like the SHU it provides treatment for acute and elective conditions.

The following information is from an interview with Dr Chris Sames (unless otherwise referenced) conducted on Friday 28 June 2019:

Emergency calls are fielded by a Diving Emergency Service (DES) contact phone number (0800 4 DES 111 or 0800 4337111). During day-time hours the call will be transferred to the SHU Senior Medical Officer Dr Chris Sames. During after-hours it will be answered by a Registered Nurse at a call centre and transferred to the on-call SHU doctor. The call to the unit might come from a diver, dive instructor, Emergency Department (ED) doctor in NZ, or an overseas hospital doctor (e.g. from the Pacific Islands). After discussing the situation, a decision will be made by the SHU Medical Officer as to whether or not the diver needs recompression chamber treatment.

In addition to treating people such as divers with decompression illness (DCI) the unit also offers hyperbaric oxygen therapy (HBOT) for conditions such as carbon monoxide poisoning, gas gangrene, crush injuries, necrotising soft tissue infections, compromised skin grafts, radiation tissue damage in cancer patients and for enhancement of healing in selected chronic wounds (Waitemata DHB Slark Hyperbaric Unit, n.d.).

Decompression illness associated with scuba and deep-sea divers usually refers to one of two related conditions: Decompression sickness (DCS) can occur if a diver ascends too rapidly to the surface, causing nitrogen to form tiny bubbles in the blood and body tissues. DCS can occur despite a diver being within the limits of their dive computer or decompression tables. Arterial Gas Embolism (AGE) can occur during ascent when expanding gas stretches and ruptures alveolar membrane and capillaries (e.g. pulmonary barotrauma) allowing gas to enter the arterial circulation. The bubbles (containing oxygen, carbon dioxide, nitrogen and helium) can subsequently cause detrimental mechanical, embolic and biochemical effects (Vann, Butler, Mitchell & Moon, 2011). Signs and symptoms of DCI and AGE include altered consciousness, confusion, seizure during or just after ascent, malaise, headache, fatigue, periarticular discomfort (in recreational divers this occurs more commonly in the arms), subjective numbness, paraesthesia and rash (Vann, Butler, Mitchell & Moon 2011).

HBOT is the administration of 100% oxygen under increased atmospheric pressure, usually at two or more atmospheres (2 atm). This means the diver is inhaling considerably more oxygen, while maintaining their normal total lung capacity of about six litres. The concentrated oxygen assists with diffusion of nitrogen out of the bubbles, and indeed helps to get rid of the bubbles (Figure 1) that are the cause of the problem, thereby helping the blood to carry more oxygen to organs and tissues (Hyperbaric Medicine, n.d.). Hyperbaric therapy reduces the gas bubble size by increasing the ambient pressure and by causing systemic hyperoxia. The volume of the gas bubble is inversely proportional to pressure at a constant temperature (Boyle's law). As the patient is exposed to increasing ambient pressure, the nitrogen gas bubbles shrink. The hyperoxia produces large diffusion gradients allowing oxygen to enter the bubble and for nitrogen to exit the bubble. The hyperoxia also allows much larger quantities of oxygen to be dissolved in the plasma and increases the extent of oxygen diffusion into tissues (Muth & Shanks, 2000).

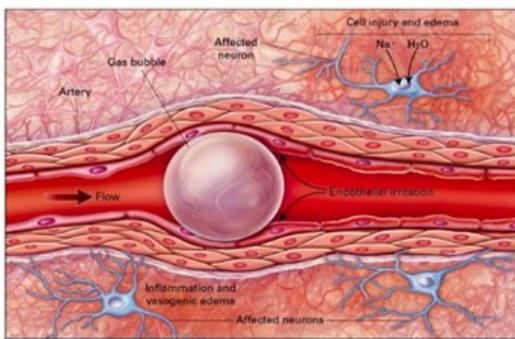


Figure 1. Intravascular nitrogen bubble (Muth & Shanks, 2000).





Figure 5. Control panel (own photo).

Depending on the situation, within New Zealand a diver might be picked up by rotary or fixed wing aircraft, then brought to the unit by road ambulance. In an acute dive emergency, a diver brought in by low-flying helicopter may either be transferred from the helicopter pad at North Shore Hospital (NSH) to the ED for assessment, investigations (such as chest x-ray to exclude pneumothorax which is a contraindication for recompression treatment) and basic or advanced life support interventions; or transported from the helicopter pad by road ambulance to the SHU in order to avoid delay and to initiate early recompression treatment.

A diver might even drive themselves to the unit after an initial phone consultation with the SHU Medical Officer. An example is a diver from the Waikato region contacting the SHU and being advised the best course of action is for them to drive themselves (or somebody else drive them) straight to the unit in Devonport, rather than going via a hospital Emergency Department. This will depend on the signs and symptoms the diver is exhibiting and how stable their condition is.

Our mission to Fiji was that of performing a pressurised, fixed wing, inter-facility transport of a diver in a stable condition from an overseas hospital directly to the unit for recompression treatment. This avoided any further delay that might occur if taking them to the ED at NSH prior to treatment at the SHU.

A chamber recompression is called a 'dive.' The SHU usually uses the United States Navy Recompression Table 6, which is the same as the Royal Navy Treatment Table 62, for the initial treatment of DCS (Figure 6.) For the first recompression treatment the diver is taken to a depth of 18 metres, or 2.8 atmospheres of pressure. The diver wears a close-fitting mask with a tight seal or hood that supplies 100% oxygen. The duration of treatment at this depth is usually for 75 minutes. This dive consists of three 20-minute sessions on oxygen, with five-minute intervals off oxygen. Following this the diver will be brought up to a depth of 9 metres over 30 minutes. At this depth the diver will be given a 15-minute period off the mask followed by 60 minutes on oxygen, another 15 minutes off the mask, then another 60 minutes on oxygen. They will then be brought up to sea level over a period of 30 minutes. The total duration of the first recompression treatment is usually 4 hours 45 minutes.

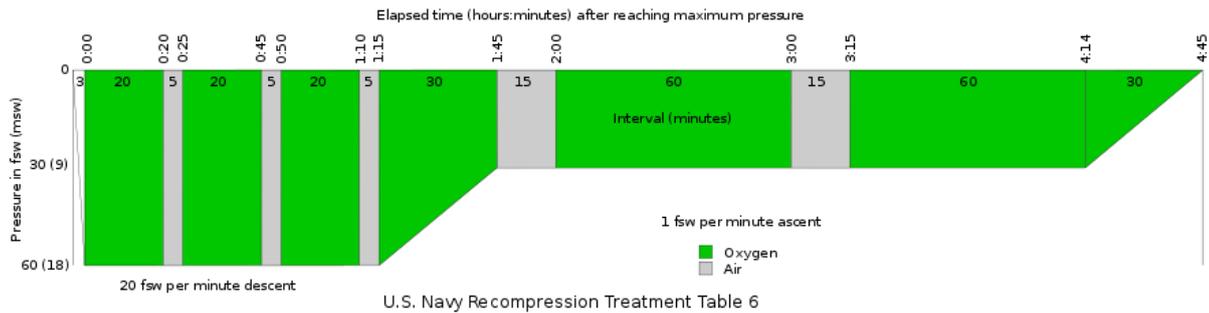


Figure 6. Hyperbaric Treatment Schedule - United States Navy Recompression Table 6 (Wikipedia, n.d.).

During this time the chamber attendant who is accompanying the diver will talk to them and do simple tests to determine any changes in symptoms. Chamber attendants, usually a Paramedic or Registered Nurse, act as diver observers and give feedback to the dive supervisor who is outside the chamber and is operating the dive. The attendant will put the divers mask on, ensuring it is secure, and remove it when required. The attendant reports humidity and temperature levels within the chamber. The dive supervisor also has this information along with gas concentration readings on their own instrument panel so this is a back-up check. The diver is not usually monitored for blood pressure, heart rate or oxygen saturations although a monitor/defibrillator is available in the chamber if needed. The attendant may also assist the diver to use the portable toilet which is provided in the adjacent smaller chamber attached to the larger chamber. The chamber can hold more than one person undergoing treatment such as one diver and four people receiving an elective treatment. The chamber attendant is not required to wear a mask except towards the end of a treatment when they also go on oxygen. They might also need to deal with problems such as a diver having an oxygen induced seizure due to oxygen toxicity. This is one of the reasons the diver takes their mask off for the five or 15-minute air-break periods. The attendant will ensure the divers airway is maintained should a seizure occur. There is however a very low chance of this occurring. Note that if the chamber attendant does an afternoon chamber dive they can't fly in the evening.

The follow-up recompression treatment is usually for a duration of 90 minutes. For this dive the diver is taken to a depth of 18 metres for 60 minutes, then is brought back up to sea level on oxygen over a period of 30 minutes. Total time for the initial and follow-up treatment can be as long as 7 hours. The time between the first and follow-up treatments can be between eight and 24 hours depending on the condition of the diver.

The course of treatment will depend on the condition of the patient. If there are no signs or symptoms after the first treatment, they may not require a follow-up chamber dive. If there is no improvement in symptoms after two treatments then it will be stopped. Residual tingling usually means the nerves are not functioning normally and this may continue for a period of days, weeks or months. The signs and symptoms will eventually resolve given the passage of time.

Sometimes a diver might arrive at the unit with total paraplegia. They may have limited bowel control and cannot pass urine. An in-dwelling catheter will be inserted and the diver will be placed onto a stretcher for their recompression treatment. Usually after the course of treatments have been completed the diver's symptoms will improve quite quickly and they usually manage to eventually walk out of the chamber.

If the diver has come from out of town or from overseas, between treatments they may have to sort out their own accommodation if they are not severe enough to be kept as an in-patient. This might be with family or friends, or at a motel or Air B&B. The cost of domestic transport is covered by the Accident

Compensation Commission (ACC). This includes road ambulance transport to and from the unit, and for transport home. In the case of our young diver her costs were covered by her travel insurance.

An elective patient will usually undergo a dive at 14 metres for 90 minutes with a 30-minute ascent (14/90/30). If a diver is also present in the chamber, the dive might be adjusted for both diver and elective patient to a dive at 18 metres for a total of 60 minutes with a 30-minute ascent period.

The current hyperbaric chamber is good but considered 'old technology.' Modern chamber designs are rectangular in shape and do not require a ramp to enter them as is the case with the SHU chamber. Future plans include locating the hyperbaric unit within the North Shore Hospital campus, perhaps attached to the end of the hospital closest to the helicopter pad. This is perhaps some years off due to WDHB funding priorities.

Endnote: The young woman that we transported from Fiji to Auckland received two dive treatments in the chamber and was admitted to North Shore Hospital overnight in-between sessions. It is thought that she may not have actually had 'the bends' but instead possibly had a neurological problem that was present prior to her trip to the Pacific. Her mother insisted that she return to the US rather than continue her volunteer dive program.

Peter Fortes - Flight Nurse, New Zealand Air Ambulance Service, Auckland. Special thank you to SMO Dr Chris Sames and Clinical Coordinator Marion Francombe ( from the Slark Hyperbaric Unit in Devonport, Auckland.

#### References:

- Hyperbaric Medicine* (n.d.). Retrieved from <https://healthpages.co.nz/directory/categories/hyperbaric-medicine>
- Hyperbaric Treatment Schedule - U.S. Navy Recompression Table 6.* (n.d.). Retrieved 3 July 2019 from [https://en.wikipedia.org/wiki/hperbaric\\_treatment\\_schedules](https://en.wikipedia.org/wiki/hperbaric_treatment_schedules)
- Muth, C.M. & Shanks, E.S. (2000). Gas embolism. *New England Journal of Medicine.* 342, 976 - 982. [https:// doi: 10:1056/NJEM200002173420706](https://doi.org/10.1056/NJEM200002173420706)
- Slark Hyperbaric Unit. (n.d.). *Patient Information Sheet* [Pamphlet]. New Zealand: Slark Hyperbaric Unit.
- Vann, R.D., Butler, F.K. Mitchell, S.J. & Moon, R.E. (2011). Decompression illness. *The Lancet.* 377 (9760), 153 - 161. Retrieved from <https://www.sciencedirect-com.wmezproxy.wnmeds.ac.nz>

---

# CASE STUDY

---

Zoe Matsas—PICU

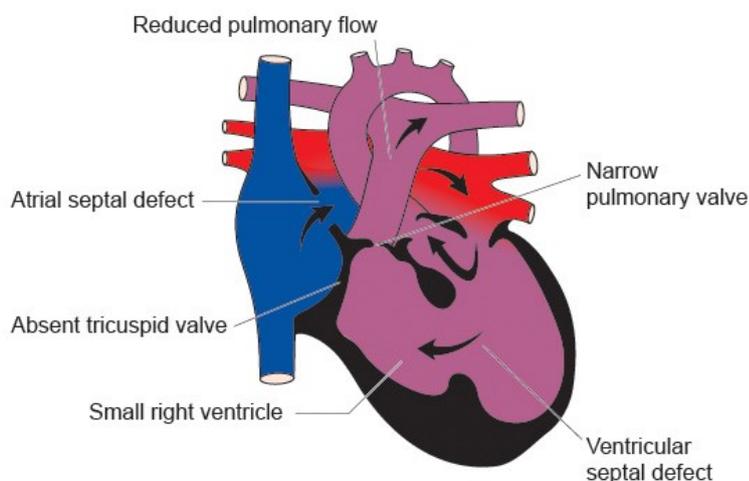


## PICU Transport Case Presentation

### Zoë Matsas (PICU Transport nurse)

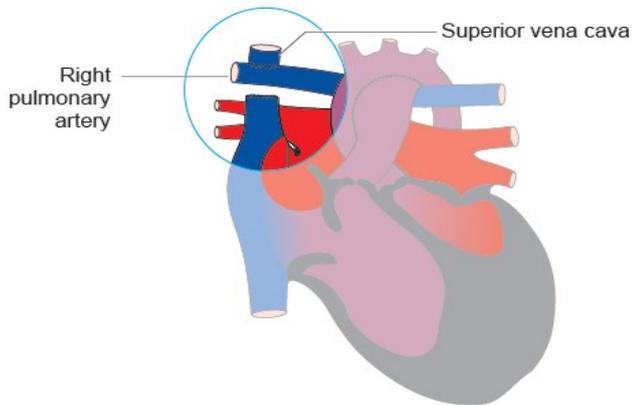
#### The referral:

The following transport began with a referral call at 18:10 from a general hospital in New Zealand. The infant needing to be retrieved was a two-week-old term baby, weighing 3.2kg that had an antenatal diagnosis of congenital heart disease. This consisted of tricuspid atresia, a hypoplastic right ventricle and pulmonary valve and a small VSD. (Diagram 1)



**Diagram 1: Tricuspid Atresia.** (Taken from Little Hearts Matter Website: [https://www.lhm.org.uk/information/single-ventricle-heart-conditions-and-their-treatments/tricuspid-atresia/tricuspid\\_atresia/](https://www.lhm.org.uk/information/single-ventricle-heart-conditions-and-their-treatments/tricuspid-atresia/tricuspid_atresia/))

They had been stable post delivery and discharged home at one week of age. The plan had been that they would return to hospital at around 3 months of age for a Glenn procedure. The Glenn procedure would involve connecting the Superior vena cava to the Right pulmonary artery, allowing blood to flow directly to the lungs from the body. (Diagram 2)



**Diagram 2: Glenn Shunt.** (Taken from Little Hearts Matter Website: <https://www.lhm.org.uk/information/single-ventricle-heart-conditions-and-their-treatments/tricuspid-atresia/>)

The baby normally had oxygen saturations of 80-85%, however during a community nurse visit the baby was noted to have saturations of 60% and was advised to go to hospital.

The details given at referral were that the baby was desaturated and had experienced a 20 second apnoea. The saturations had been in the 60's but were now in the 70's when settled on low flow oxygen. Heart rate (HR) was sinus tachycardia at 160-170bpm, respiratory rate (RR) was 80pm and non-invasive blood pressure (NIBP) was 88/45mmHg. A mean blood pressure was not given. Peripheral intravenous (I.V.) access had been obtained. Advice given by the PICU consultant was to give a 10ml/kg fluid bolus, get a chest x-ray, a blood gas, keep them nil by mouth and place them on high flow nasal prongs. They were also advised to place a nasogastric tube.

Whilst we were assembling the team and preparing to leave the paediatric intensive care unit (PICU), the following results came through via the PICU consultant. The venous blood gas showed a pH of 7.22, pCO<sub>2</sub> of 5.8Kpa, base excess of 9.5, glucose of 10 and a lactate of 7.5. The chest x-ray was reported to be normal with no pneumothorax or collapse. The liver was not enlarged. Advice was given to give a further 10ml/kg fluid bolus and I.V. frusemide.

#### Clinical assessment on arrival:

On arrival to the referring centre the transport team found that the baby was on high flow nasal prongs but now requiring 85% FiO<sub>2</sub> to maintain oxygen saturations of around 75%. Respiratory rate was 60pm, with bilateral chest movement and comfortable work of breathing. Heart rate was now sinus rhythm at 124bpm, and the baby had a capillary refill time of 2-3 seconds. Non invasive blood pressure was 86/46 with a mean of 56 and the baby had good pulses in all four limbs. Rectal temperature was 36.7°C. A venous blood gas revealed a pH of 7.33, CO<sub>2</sub> of 5.7 and lactate had dropped to 2.7 following the total of 20ml/kg fluid bolus. Neurologically the baby had a Glasgow coma scale of 15 with a soft, flat fontanelle and pupils were equal and reacting to light briskly. Glucose remained at 10.

The main change that concerned us as a transport team was the increasing oxygen requirements. We were able to transport the baby on high flow oxygen but with a FiO<sub>2</sub> of 85% we had concerns over the safety of this. It was a short flight time of around 30 minutes by rotary wing with good weather conditions but

what if the baby deteriorated mid-flight? Did we need to intubate prior to leaving the referral centre to ensure safe transport of the baby to PICU?

We discussed the risks versus benefits of intubating prior to leaving the referral centre, whilst taking into consideration the short flight time. We also spoke at length with the PICU consultant. The consensus was that the desaturations were occurring regardless of the level of oxygen delivered as they were felt to be a result of cardiac abnormalities as opposed to a respiratory cause.

#### Preparing to transport:

We decided to spend some time adjusting the  $\text{FiO}_2$  to see if it made any difference and to check if the baby could adequately saturate in less than 85%  $\text{FiO}_2$ . Our instincts were correct and we managed to decrease the oxygen to 60%, still maintaining saturations of around 70-80%. This showed us that we had room to increase oxygen delivery should we need to mid flight. The decision was made to sedate the baby with chloral hydrate and transport on high flow oxygen.

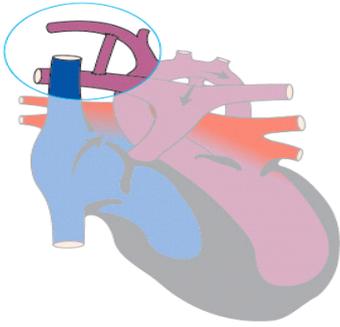
We loaded onto our stretcher bridge, and checked stability on our high flow system. The chloral hydrate had started to work and we felt we were in a good position to leave. We had briefed the mother who was going to fly with us and checked she was fit to fly. We loaded into the helicopter and the following observations were recorded: HR 126bpm in sinus rhythm, oxygen saturations 83% in 60%  $\text{FiO}_2$  via high flow prongs, RR 31pm. The pilots were planning to fly at as low an altitude as possible to minimize the barometric affects.

#### Mid flight:

Shortly after takeoff the baby became unsettled and began to cry. The following observations were recorded: HR 180bpm in sinus tachycardia, saturations had dropped to 57%. We increased the  $\text{FiO}_2$  to 70% however the baby's oxygen saturations continued to drop and became un-recordable. We increased the  $\text{FiO}_2$  to 100% and gave some sucrose on a pacifier to try to settle the baby and progressed to using a bag mask system to give some positive end expiratory pressure (PEEP). However we found that a "hands off" approach was better and as we suspected the percentage of  $\text{FiO}_2$  was having little effect. Shortly after this the baby began to settle down and we had recordable oxygen saturations of 52%. We landed and promptly went into PICU.

#### In PICU:

On arrival to PICU the baby continued to have desaturations and the decision was made to intubate. On induction the baby de-saturated to the 50's despite being in 100%  $\text{FiO}_2$ . They progressively became unstable from a cardiovascular state with decreasing NIBP. Arterial access and central venous access was obtained and inotrope commenced. After a bedside echocardiogram and discussions with a paediatric cardiologist the baby was consented for a central shunt (diagram 3), and went emergently to theatre in the early hours of the morning. A Gore-tex 4.0mm shunt was placed from the innominate artery to the right pulmonary artery thus providing blood flow from the heart to the lungs.



**Diagram 3: Central shunt.** (Taken from Little Hearts Matter Website: <https://www.lhm.org.uk/information/single-ventricle-heart-conditions-and-their-treatments/tricuspid-atresia/>)

On return from theatre the baby had a stable postoperative recovery and was discharged from PICU after 48 hours. They were achieving expected oxygen saturations of 70-85% and were commenced on aspirin once feeding was established. After 2 weeks the baby was transferred to their local general hospital. The discharge plan was to have monthly echocardiogram and a single ventricle pathway. Second stage surgery (Glenn procedure, see diagram 2) was planned for around 4-6 months of age with close single ventricle home monitoring in place.

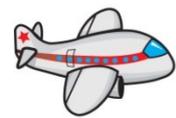
In summary this case study highlights the need for careful consideration of treatment pre, mid and post flight retrieval. It is important to consider the risks versus benefits of treatment options in relation to the setting and services available. It is also important to consider flight times and mode of transport. This baby ultimately needed a central shunt to be performed. The native pulmonary valve was becoming stenosed and any treatment in terms of increased ventilator support and intubation was not going to help increase the blood flow to the lungs. Fortunately the baby was being closely monitored in the community and was promptly sent into hospital from home. The baby was appropriately referred to PICU and management advice was obtained from the specialists involved. The baby was transported to where they needed to be for surgical investigation and treatment in a timely manner. Thank you to all involved in this transport!



The Southern Critical Care (Dunedin ICU) Flight team invite you to join us for:



# FLY SOUTH



2019's COASTN 1-day symposium

(following the CRM workshop to be held the previous day)

**Where?** Dunedin Public Art Gallery

**When?** November 15<sup>th</sup> 2019

Initial enquiries can be made to [Antonia.johnston@southerndhb.govt.nz](mailto:Antonia.johnston@southerndhb.govt.nz)

Further information will be distributed to workplaces as it becomes available



**FLIGHT NURSING EDUCATIONAL HOURS!!**

## **CRM - HUMAN FACTORS EDUCATION DAY**

**WHEN**

**Thursday November 14<sup>th</sup>  
2019**

**WHERE**

**Helicopters Otago Hangar  
Stedman Road  
Mosgiel 9024**

**TIME**

**10:00 – 17:00**

Evening social event late afternoon to early evening

**COASTN SYMPOSIUM NEXT DAY - FRIDAY 15<sup>TH</sup> NOVEMBER**

**Early bird rates: (date TBC)**

**CRM/Human factors day only: \$120.00**

**Symposium only: \$150.00**

**CRM/Human Factors & symposium: \$250.00**

**Enquiries to:**

**Antonia Johnston**

**[Antonia.johnston@southerndhb.govt.nz](mailto:Antonia.johnston@southerndhb.govt.nz)**

**Followed by a weekend away in Dunedin!!**

ASA+FNA 31st Conference | 15-17 October 2019 | Crown Perth | WA

# Call for Abstracts NOW OPEN

ABSTRACTS  
CLOSE  
29 March 2019

We invite you to submit your Abstract for presentation at one of Australasia's premier aeromedical industry events for 2019.

Our Conference theme is 'Wild Extremes – aeromedical retrievals which include overcoming the extremes in clinical, aviation, resources, coordination and logistics.'

#### ABSTRACT THEMES

- **Environment** – extremes in climate, hostility or altitude
- **Geography** – extremes in remoteness, distance or accessibility
- **Human Factors** – extremes in fatigue, crew resource management or psychological exposure
- **Physiological** – extremes in clinical condition, size or age
- **Resources** – extremes in non-dedicated platforms, triage coordination or telemedicine
- **Safety** – operating in an extreme or unpredictable situation or violent and aggressive patients
- **Other** – extreme ideas or thinking for the future

ASA+FNA 31st Conference  
15-17 October 2019 | Crown Perth | WA



SUBMIT YOUR ABSTRACT OR REGISTER TODAY at

[www.aeromedconference.com](http://www.aeromedconference.com)

DISTANCELEARNING

UNIVERSITY OF OTAGO, WELLINGTON

# Postgraduate Certificate in Health Sciences (Aeromedical Retrieval and Transport)



POSTGRADUATE



YOUR PLACE IN THE WORLD

The goal of the Postgraduate Certificate endorsed in Aeromedical Retrieval and Transport (AeroRT) is for graduates to develop an understanding of the aviation environment and its physiological implications; gain knowledge of aeromedical and aviation procedures and be able to utilise current best practice to safely plan and complete aeromedical retrievals and transfers.

In 2013, the PG Cert HealSc (AeroRT) underwent a comprehensive review and the curriculum was re-written after wide consultation. The result is an exciting new programme that is tailored to specifically meet the needs of nurses and paramedics working in the specialist area of aeromedical retrieval.

Graduates of AVME719 and AVME720 will have met the educational requirements set out in the NZ Air Ambulance/Air Search and Rescue Standard, the NZ Standard for Ambulance and Paramedical Services (NZS8156:2008), the educational requirements of the NZFNA and the educational standards for the Aeromedical Society of Australasia (ASA).

Graduates will also have the opportunity to continue studies towards a Post Graduate Diploma or Masters in Health Science endorsed in Aeromedical Retrieval and Transport (AeroRT).

## AVME719 Operational Aspects of Aeromedical Retrieval

The focus of AVME719 is on the aeromedical environment and the operational aspects that patients and clinical personnel are exposed to.

- General organisation and structure of retrieval systems
- Aeromedical environment and physiological implications
- Aeromedical aircraft and aviation processes
- Safety and survival

## AVME720 Clinical Aspects of Aeromedical Retrieval

The focus of AVME720 is to expand on the knowledge gained in AVME719 and incorporate this into clinical practice.

- Crew Resource Management, human factors and the impact on safe aeromedical practice and patient care
- Fatigue and systems for identification and management
- Clinical considerations and constraints
- Specialist clinical retrievals
- Integration of theory into independent clinical practice

*For further details please contact:  
oamu@otago.ac.nz or check out the  
website: otago.ac.nz/aviation\_medicine*



WELLINGTON

# UPCOMING CONFERENCES

2019



**PERTH**  
WESTERN AUSTRALIA  
**ASA+FNA 31st CONFERENCE**  
16-18 OCTOBER 2019

For more information: [www.aeromedconference.com](http://www.aeromedconference.com)



**INJURY**  
**2019**  
CONFERENCE

**THURSDAY 8 AUGUST 2019**  
EDEN PARK, AUCKLAND, NEW ZEALAND

[WWW.INJURY2019.NZ](http://WWW.INJURY2019.NZ)



*NZNO/COASTN offers 2 x \$500 scholarships per year.*

*Please see web site for terms and conditions and how to apply.*

*Scholarships may be used for conference attendance, study, and courses.*

*Apply online at:*

*[https://www.nzno.org.nz/groups/colleges\\_sections/colleges/](https://www.nzno.org.nz/groups/colleges_sections/colleges/)*



---

# WHAT MAKES A GOOD FLIGHT NURSE

---

By Ann Drown.

*Disclaimer: The opinions expressed in the following piece are those of the author and are not necessarily the views of the COASTN committee*

## What makes a good flight nurse?

I've been asked to do a talk on what "I" perceive to be a good flight nurse. Check the key word here people, "I". My view on what makes a good flight nurse. This is based on a short period of observation, logic, and my background and experience. You may not agree with it, that is ok. Please feel free to give me feedback, preferably constructive, I'm all for learning more.

So, I will break it into 5 main categories: Safety, Communication, Assessment, Time management, and Attitude.

Let's start with safety, probably the most important of all. This is safety of self, safety of others and safety of equipment. With the first two, that is physically, mentally and emotionally.

Safety of self. You will be of no use to anyone if you don't keep yourself safe. Physically, mentally and emotionally. To do this job well you need to be at the top of your game, or at least the top 75% of your game. What this means is that, if you are suffering from an illness or injury, stay home until you are completely over it, not sort of. If mentally and/or emotionally you are not coping that day, stay home. This is not being weak, or lazy, or selfish, it is being responsible, thoughtful and safe. When you try to do this job and you are not well, you endanger yourself and others.

So, on the job.

Physically. Be aware of your surroundings, don't tunnel vision. The job is busy, you are often trying to think and do several things at once, this is known and understood, but, we work in a physically dangerous environment, when you lose awareness of your surroundings you become a danger to yourself and others. From a management point of view, you are of no use to the company if you are injured, instead you are a liability. Quite apart from the ridiculous pile of paperwork it creates (joking).

Mentally. We are all aware of the very limited resources and the push to make every dollar count in our workplace and we all do what we can. But, the pressure we receive, to take that extra patient, to transport that sicker patient without a doctor, to take responsibility for that patient who is outside your range of experience, is high. This pressure, and the pressure that comes simply from the work we do, takes its toll. We need to stay strong against this pressure, if you feel that it is not safe for you to do something, say no. It doesn't matter if others might have done it, you know what is safe for you, don't go outside your safety

zone, because when it goes wrong, and it eventually will, you will have to live with the consequences. And as much as we would like to think otherwise, the company won't have your back.

Emotionally. The job we do is steeped in emotion, and I'm sure that as we are all experienced nurses, we all have ways to cope with the constant onslaught. But, sometimes things will slip through, that job that didn't go right, that patient whose story hit a little close to home, the frustration that the system isn't perfect and never will be. These things take their toll and it's important to acknowledge this. If we do not carefully monitor our emotional wellbeing it can obscure our focus leading to mistakes in our work, it can wear us down leading to illness both physical and mental, and it can, if left unchecked, lead to the end of your career.

Safety of others. This is patients, their support person and other team members.

When it comes to patients and their support people, remember, this is an unknown environment, They don't know the rules, explain them. They don't know the dangers, show them. Keep watch, the message doesn't always get through. Regarding your team mates, they are busy too and can lose focus. Keep an eye out, everyone drops the ball sometimes.

Now on to the mental and emotional state of your patients and families. They are going through a traumatic time, they can tell you they're fine till they're blue in the face, but if you think about it, unless they're a robot, that's not possible. These people have been taken completely out of their normal everyday lives and put in an unfamiliar environment, told they have a serious illness, one so serious they must be flown out to another hospital. Add to that, lack of sleep, pain, and as the majority of our patients are not health professionals, lack of understanding; honestly, they have to be a stressed-out bundle of nerves. Then we walk in the door. What do we add? A stretcher that is narrow and hard, that rocks around terribly and feels like it's going to fall over any second. We strap them to it so they can't get off, we add a frame to the end, trapping them more, add a heavy monitor that looks like it's going to fall on them any minute, attach a bundle of wires to said machine which beeps and flashes and shows them a load of info about themselves that they don't really understand, but are praying we do. And that's before we even leave the ward. It just gets worse from there. So be aware, talk to them, explain to them, reassure them, don't brush off their concerns, this is their body, their journey, respect that and act accordingly.

Safety of equipment. Be careful with it, it's expensive and hard to replace. If it's broken let the relevant people know, don't leave it for someone else to find, this can impact on the safety of others.

Right, let's move onto communication, the glue that holds this wacky system together. Think ahead. We need to communicate early, communicate clearly and communicate regularly. We may be more spread-out than on a ward, but we are still part of a team, don't forget it.

Things often change as the job progresses, let the relevant people know early. I know some people don't like regularly ringing the shift coordinator, but they need to know early what is happening to do their job well, and remember, that job involves supporting us in the field, so it is to our benefit. Communicating with the hospital and ward we are heading to means they are more likely to be ready and waiting for us when we get there, rather than scrambling to organise things. Communicating with our pilots means they can be ready to go when we get there, not having to still do flight checks etc. Clear communication with the ambulance teams allows them to have the right equipment on scene when we need it.

Patient and family. As I have said before, your patient and their family are going to be anxious and unsure; reassure them, explain what you are doing as you're doing it, explain what is going to happen, keep them in the loop when new information comes in. Remember, this is their journey not yours. Your patient has rights, respect their rights and show your patient respect. Work with your patient not against them, it will make the journey so much easier.

Handovers from the ward, sorting the wheat from the chaff. Have a clear system in your head before you get there as to what info you need and what is irrelevant, a framework like ISBAR can help. Don't wait until you're on your way to check you have all the required information, stop for two minutes and check it in the ward.

Your handover. The nurse on the ward is busy, make sure your information is clear, concise and relevant. They don't need to know that the patient had a toe amputated in 1989, unless it is relevant to their current admission, if they're that interested, they can read about it in their own time.

Written, there is a checklist on the clinical flight record for required paperwork, use it, check it before you leave the ward. Some people don't bother to fill out the entire clinical flight record, but just because a box isn't directly relevant to you, doesn't mean it's not important to the next person who has to gather information off that record, don't make their job harder, fill it out. When it

comes to filling out Mission Issues and Progress Notes, someone needs to read and use that information, make it legible, make it logical, and keep it short.

Ok, as much as you can get a lot of information about your patient from oral and written communication, nothing beats seeing and doing for yourself, if you don't, it will bite you in the arse. So, do an assessment, head to toe, within reason of course, and ask your patient, it's their body. It is also important to continue to do assessments throughout the trip, not as in-depth obviously, but don't just rely on numbers on a screen, they only tell you so much.

Next, time management, yeah yeah, blah blah, but good time management has a positive impact on every aspect of your day. Whereas bad time management can increase stress, decrease the safety of yourself and others and lead to all sorts of mistakes. So, get organised early, even if you don't know any details yet there is stuff you can get ready and hey, if you don't go flying that day it's not that hard to put it away neatly and it's ready for the next person to use. Once you are on your way, work logically and tidily, the situation can change quickly, so if you're not tidy and organised, things will get lost and missed. Don't just organise the physical, organise your mind too. Get a system going in your head, that way, you have a way of remembering stuff even if you're tired or stressed.

Now onto the last point, and some might feel that this one is irrelevant, I however don't. Patience, a positive attitude and a good sense of humour are all essential tools in getting through each day. Not just for your own wellbeing but also for the wellbeing of others around you. Its not always going to go right but raging at the situation or people involved is not constructive, it's destructive. By keeping the mood of the day professional but upbeat, you can deal with those hiccups more easily, you will decrease the anxiety and stress of your patient and their family, and hey, if you're lucky you might just make somebody else's day a bit brighter, and that's a side effect I can happily live with.

So, in conclusion. Safety. Safety of self, be aware of your surroundings, don't tunnel vision. Safety of patients and their family, they don't know the rules - explain them, they aren't aware of the dangers - point them out. Safety of others keep an eye out for your teammates, everyone drops the ball on occasion. Safety of gear be careful with it, it's expensive and hard to replace. If it's broken let the relevant people know, don't leave it for someone else to find. Verbal communication. Between different sectors, keep it clear, concise and early. And don't forget to keep the shift coordinator in the loop, they are there to help. Initial handover; make sure you understand, if you're not sure ask, you only get one chance, and check the paperwork before leaving the ward. Your handover; make it clear and concise, you don't have a lot of time. Don't forget to photocopy the clinical flight record and give them the original and keep some stickers for the shift coordinator. Patient and family; your patient and family are going to be anxious and unsure, reassure and explain, keep them in the loop, this is their journey not yours. Written communication. Remember,

someone has to read and understand what you have written, make it legible, make it relevant, make it short. Think of others, is there a way of making their job easier, think ahead, be organised. Remember, it may be more spread out than on a ward, but you are still part of a team. Assessment. Take the time, do an initial assessment, don't rely on what someone else has said, it will come back to bite you if you do. Ongoing assessment; things change, if you don't reassess you risk missing something. Time management. Get organised early. Work logically and keep things tidy. Have a framework in your head or on paper to guide you. And lastly. Patience, a good attitude and a sense of humour go a long way to making a bad day good. It's not always going to go smoothly or right, so suck it up, a bad attitude is going to help no one and make everyone's day worse.

I could go on, and on, and on. But I was only given a 5-minute timeframe and I've probably already smashed that out the window, so my final message is, don't panic, it helps no one.

---

# COASTN COMMITTEE

---

## Seeking Nominations



The COASTN committee is seeking nominations for committee members.

Nominations should be sent to Lisa Black and Diana Geerling.

LisaBlack@wdhb.org.nz

Diana.geerling@nzno.org.nz

**See the NZNO WEB FOR MORE DETAILS.**

Successful committee nominations will be announced at the COASTN AGM during the Dunedin Symposium.

This is an exciting opportunity to represent the COASTN members and be a part of shaping the future of flight nursing in New Zealand.

---

# RECIPE

---

A Whittaker's recipe Shared by Amanda Thompson



## Ingredients:

Biscuits

200g Softened Butter

1/2 Cup Castor Sugar

1 1/4 Cups Flour

1/4 Cup Cocoa

1 1/2 Cups Cornflakes

Icing/Decoration

1x Block Whittaker's Creamy Caramel Chocolate

1/2 Block Whittaker's Creamy Milk Chocolate

Method

Preheat oven to 180 deg. Grease and line a baking tray with baking paper

In a large mixing bowl cream the butter and sugar until light and fluffy

Stir in the flour and cocoa, add the cornflakes then stir until the mixture is combined

Roll the mixture into small balls, place on the lined baking tray and press lightly with a fork. Bake for 15-20minutes

Once removed from oven place a Whittaker's creamy caramel chocolate square on top of each of the biscuits whilst still warm, press down slightly.

Optional: once cool cover the caramel square with additional melted creamy milk chocolate and top each biscuit with a walnut.

---

# RECIPE

---

Angela—an adaptation of several similar recipes!

## Quinoa, beetroot and carrot salad with kale.

1/2 Cup uncooked Quinoa

1 Cup frozen edamame

1 raw red beet, peeled

1 Carrot, peeled

1 Cup roughly chopped Kale or spinach

1 avocado—chopped into cubes.

Handful of pepitas (toasted)

2-4 chicken thighs dusted with flour and Moroccan seasoning (optional)

3 TBSP white wine vinegar

2 TBSP lime juice

2 TBSP olive oil

1 TBSP fresh mint

2 TBSP honey

1 TSP Dijon mustard

Pinch of salt

Black pepper to taste.

Cook the quinoa in boiling water as per the instructions on the packet.

Pan fry the chicken in a little olive oil.

Boil the edamame until warmed through.

Toast the pepitas in a pan

Grate the beetroot and carrot.

Whisk together all of the dressing ingredients.

Place all of the salad ingredients in a bowl, and mix gently, top with the chicken and pepitas. Drizzle over the dressing and serve.



**New Zealand Flight Services Contact List**

Northland	Sarah.Pickery@northlanddhb.org.nz	
Auckland NICU	shirleyw@adhb.govt.nz	Ph: 021 713 000
Auckland NZAAS	assistance@nzaas.co.nz	Ph: 0800 111 400
Starship	dianef@adhb.govt.nz	Ph: 021 1951 720
Waikato ICU	Christine.craig@waikatodhb.health.nz	
Tauranga	Dianna.Keys@bopdhb.govt.nz	
Gisborne (tairawhiti)	Jacqueline.Johnson@tdh.org.nz	
Hawkes Bay	Maatje.Hiko@hawkesbaydhb.govt.nz	
Whanganui	joanna.knight@wdhb.org.nz	
Wellington ICU	karyn.hathaway@ccdhb.org.nz	Ph (04) 385 5999 ext 7216
Wellington NICU	sarah.cody@ccdhb.org.nz	Ph (04) 385 5999 ext 80822
Nelson	alex.thomas@nmdhb.co.nz	Ph 022 468 0548
Christchurch	shane.mckerrow@cdhb.govt.nz	
Christchurch NICU	Sue.Moore@cdhb.health.nz	
Dunedin	Antonia.Johnston@southerndhb.govt.nz	