NETS / PETS Working Group

Response to *One Health System* Green Paper
The working group is strongly supportive of the state-wide process to develop safe, sustainable and high quality services, but acknowledges that providing access to these services will require strong links between clinical facilities, and the capabilities and processes to transfer and retrieve patients.

The working group strongly agreed that the essential role of Ambulance Tasmania in providing robust retrieval and transfer process is not adequately emphasised in the Paper. Tasmania currently has well specified services for retrieval and inter-hospital transport of adult patients with supporting funding. Responsibility for this lies with the Aeromedical and Medical Retrieval Division (AMMRD) of AT.

Services for infants and children are unspecified, unfunded and provided ad-hoc by clinicians from the Royal Hobart Hospital (RHH) Neonatal/Paediatric Intensive Care Unit (NPICU) and from other hospitals. While acknowledging the strategic considerations for other Tasmanian patients, the dependency of a retrieval team based in Hobart upon a single plane operated from Launceston contributes to significant delays in skilled infant and paediatric retrieval teams reaching critically ill neonates and children. These problems combine to result in significant risks to patients.

The working group recommend:

1) Strategic responsibility and operational accountability is clearly defined and the service funded accordingly. Consideration should be given to moving the NETS/PETS service to sit under Ambulance Tasmania.
2) The State-wide NETS/PETS service be specified and adequately resourced.
3) Ambulance Tasmania’s infrastructure resources are expanded to provide capacity to support all retrieval cases within clinically appropriate timeframes, including access to a helicopter or plane based in Hobart.

There was consensus from the majority of Working Group members regarding the content of this submission; however it is noted that Dr Neil Atherton does not endorse Recommendation 3. Dr Atherton is of the view that the use of a helicopter or plane based in Hobart for medical retrieval would be an unnecessary duplication of the service provided by the existing fixed wing service in Launceston.

Working Group Membership

Dr Kevin Wheeler (Chair) – THO-S Paediatric Staff Specialist
Dr Neil Atherton – THO-N Paediatric Staff Specialist
Christine Coker – THO-N Nurse Unit Manager Neonatal Services
Amanda Compton – THO-NW (MCH) Nurse Unit Manager Women’s Health Services
Liza D’Ettorre – THO-S Business Manager
Con Georgalas – Director, Clinical Services Ambulance Tasmania
Heather Giannaras – THO-S Assistant Director of Nursing – Women’s, Adolescent and Children’s Services
Mandy Gleeson – THO-NW (MCH) Clinical Nurse Educator/Clinical Midwifery Educator
Dr Deborah Hickling – THO-NW (NWRH) Obstetrician and Gynaecologist Staff Specialist
Sue McBeath – THO-S Director of Nursing & Group Manager Women’s, Adolescent and Children’s Services
Dr Chris Williams – THO-S Paediatric Staff Specialist
Shaun White – Manager, Aero-medical and Medical Retrieval Operations Ambulance Tasmania
2. About the Working Group

The Women’s, Adolescents and Children’s Clinical Advisory Group formed a Working Group to provide clinical advice based on a review and analysis of the Tasmanian Neonatal and Paediatric Emergency Transport Service (NETS/PETS) to ensure safe, timely retrieval and transfer services for critically ill neonates, children and emergency transport of peri-natal women within Tasmania. The working group is comprised of representatives from the RHH NPICU, AMMRD and NETS/PETS clinicians across the state. The Working Group acknowledges the dedicated commitment of all those engaged at every level who have performed retrieval and transfer roles for the newborns, children and families of Tasmania over many years, with limited resources.

Transport and retrieval is identified as a critical enabler for access to health services for patients in one integrated health system. This Working Group may need to become part of a broader Advisory Group on statewide retrieval and transport issues to help facilitate the implementation of the service changes that will come into effect on 1 July 2015.

3. Current situation

Service Overview

Inter-hospital retrieval is the process of continuing an appropriate level of clinical care while a patient is transferred from one health-facility to another, for example to access services not provided locally, or to return a patient for continuing care, where clinically appropriate, by a facility closer to home. In addition to ambulance staff, specialised clinicians and/or equipment may be required to provide this clinical care during the transfer.

For neonates and children in Tasmania, NETS/PETS roles are led by the RHH NPICU, the main receiving unit for these patients. These clinicians, and others across DHHS, work to support the transfer of unborn babies, neonates and children to the most appropriate hospital facility for acute care 24 hours a day, 7 days a week.

Other elements of retrieval services for infants and children include acute emergency services e.g. ambulance services and emergency departments, and non-emergency transfers of patients to facilities closer to home e.g. premature babies escorted by nursing staff in a transport incubator. Other roles include statewide provision of specific education and training for neonatal and paediatric care for staff in hospitals without specialised educators.

In some states, a dedicated perinatal emergency referral service (PERS) coordinates the transfer of pregnant women whose babies are expected to require emergency care. However, in Tasmania obstetric and maternity staff from across Tasmania’s four public hospitals, and two private maternity hospitals (Hobart Private Hospital and Calvary Hospital) discuss patient transfers as required, and these are generally undertaken by direct discussion between maternity services and arranged through Ambulance Tasmania’s Aeromedical and Medical Retrieval Division (AMMRD).

AMMRD is a funded stand-alone division within Ambulance Tasmania (AT) incorporating a 24/7 roster of adult retrieval specialists providing clinical advice and expertise, and accessing funded flight paramedics and retrieval registrars employed at LGH but with a specific on-call roster.
In comparison, NETS/PETS is an unfunded, informal clinical collaboration between AT and RHH NPICU. To an even greater extent, PETS functions have not been formalised and most paediatric retrievals of children over 2 years of age are undertaken by AMRMD with an adult retrievalist and/or Intensive Care Flight Paramedic (ICFP). Different ad-hoc arrangements exist between hospitals around Tasmania and AT.

Service volume and funding

The service is a high cost, low throughput service with 78 neonatal/paediatric higher acuity retrievals undertaken across Tasmania in 2014 (69 intrastate and 9 interstate).

There are no defined service specifications for NETS/PETS and there is no dedicated retrieval funding for hospital services providing clinical care during retrieval, despite hospitals facing a number of sustainability issues in providing this service.

Staffing

High acuity clinical care during transport is provided by RHH medical and nursing staff. Clinical care for low acuity clinical transfers is provided by staff from the referring or receiving hospital (usually nursing staff or midwives), and/or AT paramedics.

NPICU staff specialists contribute approximately 1 day per week to the organisation of neonatal and paediatric retrievals (0.2 FTE). A Grade 4 Registered Nurse who holds a NETS portfolio supports the service 1 day per week (0.2 FTE) to coordinate retrieval and returns of babies and children, and also undertakes limited data collection.

Retrieval requests are received by the NPICU Consultant on-call. There have been discussions and progress towards implementing a single statewide retrieval phone number for referrals which includes the capacity to undertake a conference call with key stakeholders (where clinically required) and streamline processes to activate a retrieval team and deploy appropriate resources to enable the team to reach the patient.

NPICU operates an on-call roster for medical and nursing staff to be activated for retrieval. There is limited capacity to activate a three person team, and therefore limited education and clinical retrieval training opportunities. A clinical nurse from NPICU escorts the patient during the transfer. In most instances the transfer nurse will work overtime or an additional shift to facilitate this service which has budget implications for the NPICU.

The NPICU clinical Staff Specialist supervises the NETS team, and where required for complex or high risk retrievals will fulfil the role of the medical retrieval escort. Non-emergency returns of neonates to their home region are generally undertaken by neonatal nurses from the RHH (40 per year) or LGH (12 per year).

For low acuity non-elective transfers, there is a lack of clarity around governance with varying processes across the state.

Challenges and risks

The NETS/PETS Working Group has identified four main challenges to providing retrieval services:
1. Lack of clarity regarding governance and roles and responsibilities of the contributing services, i.e. role of Ambulance Tasmania, regional hospitals;

2. Lack of formalised leadership roles to implement the requirements of the service;

3. Lack of neonatal and paediatric service specifications; and

4. Lack of dedicated funding for clinical staff to provide safe and efficient retrieval services, in addition to providing an in-patient NPICU service.

A number of risks for referring units, receiving units, retrieval teams, transfer staff and AT have also been identified by the Working Group.

The above case study illustrates some of the risks and issues that need to be considered and managed by all those engaged in Tasmanian NETS/PETS retrievals. Specific issues that are particularly relevant to referring units, receiving units, retrieval teams, transfer staff and AT are outlined as follows:

**Referring Units**

- The main referring hospitals are in the north of Tasmania (i.e. Launceston General Hospital, Mersey Community Hospital, North West Regional Hospital and North West Private Hospital). The main receiving hospital is in the south (RHH). AT has access to a single plane which is based in Launceston. Access to the shared-use helicopter based in Hobart is very limited.
- The time taken for a neonatal retrieval team to reach a patient in Tasmania is considerably longer than interstate. The median response time for a NETS team to reach a patient in Burnie (250km away from Hobart) is 250 minutes. In Victoria, it takes approximately 150 minutes for a retrieval team to travel a similar distance to reach a patient.

Challenges faced by referring hospitals are compounded by:

- The lack of a referral activation policy which would allow AT to be notified sooner of the need for a retrieval. This policy should further define criteria for NETS/PETS/PERS retrievals.

- The lack of transparency regarding prioritising and escalation processes for retrievals. For example, when a local paediatrician has to inform a family that the transfer of their baby/child has been deferred to enable the retrieval of a higher priority case.

Other issues for referring units include:

- Referral processes are unclear when a non-RHH patient requires a combination of HDU/ICU care and subspecialty input when these require discussions with inter-state clinicians. It has been suggested that the RHH NPICU Staff Specialist could facilitate inter-state discussions and the statewide conference calling facility could be used to support complex multi-service referrals.

- There is a lack of clarity around the requesting, planning and escorting responsibilities of AT referring hospitals and RHH, in particular relating to low acuity transfers. This is compounded by the fact there is no consensus on what 'low acuity' means.

Receiving Units

- As clinical staff for NETS retrievals are provided on an 'on-call' basis from the RHH NPICU medical and nursing pool, there can be challenges finding adequate staff numbers for NPICU inpatient care (particularly nursing) when NPICU is running at a higher level of occupancy. When the RHH NPICU has a high occupancy level, retrieval activation has resulted in increased risk to referred patients. The responsibility of the RHH NPICU shift co-ordinator to the referred patient is unclear.

- The role (and resourcing) for transfer of patients to north and northwest hospitals is unclear.

- Although infrequent, there is currently almost no capability to operate two simultaneous critical NETS/PETS retrievals and dependencies on individual items of equipment put the 24/7 availability of retrieval services at risk.

- There are no centralised processes to co-ordinate state-wide bed management, and issues with timely back transfers can impact the availability of critical care beds.

Retrieval Teams

- The overall number of NETS/PETS retrievals in a year is low, such that many nursing staff will undertake less than 1 transfer per year, and many medical staff less than 3 transfers per year. It can be challenging to provide an appropriate skill mix for PICU retrievals and most RHH NPICU medical and nursing staff on the retrieval roster are not all familiar with providing paediatric intensive care, particularly out of a hospital setting. It generally falls to the (currently sole) PICU consultant at the RHH NPICU to undertake higher complexity
paediatric retrievals, meaning this individual is informally on-call all year (when not on leave) 24 hours a day, seven days a week. This is not sustainable.

- RHH NPICU nursing staff are often on-call after already working an 8 hour shift in the NPICU. As most retrievals exceed 6 hours in duration, this results in some nursing staff working excessively long shifts. This is an occupational health and safety issue, and is recorded as a critical incident

Transfer Staff and Ambulance Tasmania

- There is a key risk for AT regarding lack of ownership of the processes and equipment essential to retrieval. For example, in 2012 issues were identified with the safe transfer of neonates using low-acuity cots which stemmed from disparate processes which had been adopted across the state.
- There are risks in the lack of clarity regarding lines of responsibility for clinical care, training, and accountability for AT resource requests, whether these be for clinical care or non-clinical reasons e.g. training lack of accountability of THO-5 clinicians for retrieval resource requests.
- There is a lack of consistency around definitions and key performance indicators. For example, AT and NPICU use differing definitions for ‘delay in retrieval team arrival’ and ‘delay in retrieval team departure with patient’.
- There are no agreed robust state-wide clinical incident reporting and review mechanisms around neonatal and infant retrieval.

4. Recommendations

In addition to supporting the work of the development of a single referral system (to be implemented by 1 July 2015), the Working Group makes the following recommendations:

Recommendation 1

Strategic responsibility and operational accountability is clearly defined and the service funded accordingly. Consideration should be given to moving the NETS/PETS service to sit under Ambulance Tasmania.

Reviewing the governance arrangements for the operational elements of the NETS/PETS service must include:

- Management responsibilities and accountabilities including delegations;
- Logistic transport responsibilities and accountabilities;
- Clinical responsibilities and accountabilities in providing the service;
- Supply and allocation of human resources to provide the service;
- Appropriate funding as a state-wide service; and
- Policy.
AT will be responsible for the mechanism of providing a retrieval service for neonates and children with appropriately credentialed and supported clinicians responsible for the clinical care of the patient during retrieval. NETS/PETS clinician roles within hospital services also need to be appropriately funded.

The Working Group believes that as these roles are not currently funded, the allocation of the NETS/PETS service should have not an impact on the current funding of neonatal/pediatric services.

**Benefits of Recommendation 1**

By implementing Recommendation 1 the following issues can be addressed:

- **Governance**
  - The NETS/PETS service is a small proportion of AT retrieval and transport services and is not currently funded in the same way as retrieval services for adult patients. NETS/PETS clinical roles are largely unfunded and resourced through THO-S.
  - Currently, adult and most paediatric (2 years of age and above) retrievals are performed by AMMRD based in Launceston. Neonatal retrievals are performed by NETS/PETS through the NPICU based in Hobart (for patients under the age of one). For children above one year of age, retrievals are performed by either NETS/PETS or AMMRD depending on the clinical situation, skill mix and other considerations. Paediatric retrievals should be undertaken by escorts with appropriate paediatric retrieval expertise.
  - Occasionally a local retrieval response may be required due to a clinical need for an urgent response and the inability of the NETS/PETS retrieval team to attend in an appropriate timeframe.

- **The Neonatal Emergency Transport Team**
  - Clinical staffing for NETS/PETS is provided from the operational pool of NPICU clinical staff. However, responsibilities and accountability for elements of the NETS/PETS service are not well defined, resourced or separately funded.
  - AT manage and provide the coordination and transport infrastructure for timely retrieval and transfer to take place, procure and co-ordinate the maintenance of equipment (i.e., transport cots), record keeping, data management and data maintenance. NPICU provide the specialist clinical retrieval expertise to advise referring clinicians, specialised medical and nursing staff to provide the clinical care required during transfer, and coordinate the availability of appropriate beds.
  - Clinical referral and operational decision making responsibilities and accountabilities are currently being reviewed and outlined within the development of the Patient Transfer Policy.

- **The NETS/PETS Service – resourcing:**
  - The service is currently staffed using clinically experienced nursing and medical staff from within the RHH NPICU. Critically ill infants require a NPICU medical specialist, Neonatal ICU trained nurse and specialised equipment to safely retrieve between facilities.
• The roster is based on an on-call system which impacts on daily staffing availability and roster for the NPICU. Funding for staffing costs is not allowed for within the existing NPICU budget and is not sustainable.

• During 2003-2008 a dedicated paediatric registrar was appointed to undertake retrievals, however this funding was not extended beyond 2008. In addition, the current position of NETS Coordinator Nurse is not formalised or funded.

• Children older than two years of age are generally transferred in the direct care of AMMRD staff, but at times may require a NPICU medical specialist and/or ICU flight paramedic to retrieve the child. Return transfers are currently unfunded.

• There are restrictions on the availability of road ambulance/fixed wing/helicopter due to weather conditions or competing priorities.

• Equipment

  • Neonates require specialised equipment for transfer that requires knowledge and skills for operation and care. This specialised equipment requires regular audit and maintenance, and this is currently managed through NPICU. Equipment acquisition is currently funded through donated funds to the NPICU and children’s ward at the RHH. Maintenance is undertaken by technicians employed by RHH, or outsourced.

  • There remains a lack of clarity regarding who is responsible for the equipment. An example of this was the purchase of a contemporary transfer cot by THO-S to be used by AT. Due to a lack of clarity regarding implementation processes and lines of responsibility, it is still not operational 18 months after its acquisition.

Recommendation 2

The State-wide NETS/PETS service be specified and adequately resourced.

The service should be responsible for managing and co-ordinating:

• The service and addressing issues arising from retrieval and lower acuity transfers of neonates and children;

• KPIs and data monitoring;

• Policy development and revision;

• Education and training of retrieval staff; and

• State-wide access to neonatal and paediatric critical care education relating to resuscitation and pre-transfer care necessary to support and sustain the whole system.

In the interim, the Working Group recommends each hospital be responsible for providing neonatal and paediatric critical care education relating to resuscitation and pre-transfer care to their staff.

Benefits of Recommendation 2

By implementing Recommendation 2, the following issues can be addressed:

• The service, and addressing issues arising from retrieval and non-emergency returns
o Refer to key issues set out above for referring units, receiving units, retrieval teams and transfer staff and AT.

• KPIs and data monitoring

o Retrieval data currently exists throughout a number of fragmented data repositories making meaningful analysis difficult. Key standards, performance indicators, and data reporting mechanisms to guide timely, safe clinical practice need to be considered, documented, and regularly audited.

o However, there are limited resources to undertake this currently. Despite repeated recommendations by external reviewers, there remains no process to improve data linkages for NETS/PETS data, and no system to compare Tasmania’s data with national data.

• Policy development and revision

➢ Extensive development, and expansion of existing agreed statewide policy is necessary, encompassing the following: The consultation, referral and patient transport processes for neonates; paediatrics or perinatal women;

➢ Clinical governance guidelines defining roles and responsibilities for NETS/PETS retrieval, transport, and returns;

➢ The criteria for transfer of women and/or neonate; and

➢ standards for safety, quality transport modes; equipment; staffing resources; projected timeframes for retrieval/transfer; etc.

o Comments regarding some of the requirements for NETS/NETS/PERS services have been provided for inclusion within the Draft Patient Transfer Policy and Tasmanian Guide to Inter Facility/Hospital Patient Transfers documents, currently being reviewed by the Statewide Clinical Governance Forum.

o The Working Group believes that these policies/guidelines are required to define systems and processes, and inform staff in transitioning to one integrated health service.

• Education, training, and support for referring units

o Education, supplemented by competency assessment or credentialing process, is required to ensure appropriate knowledge and skill maintenance for clinical staff. There is currently no dedicated staff, funding, or regular process in place to facilitate this education and training.

o An additional function of NETS/PETS services in some states is to provide support to all neonatal services; and in particular specialised education support to medical and nursing staff within referring hospitals so they are equipped with the knowledge and skills to manage critically ill neonates and children prior to the NETS/PETS retrieval team arriving for transfer. There are currently no dedicated staff, funding, or regular processes in place to facilitate this function.

o Since 2012 the RHH NPICU has co-ordinated the joint licensing of a newborn education program from NETS Education Victoria for THO-S, NW and N. THO-S has also set-up the statewide on-line education program for newborn resuscitation.
- Some informal education and practice networking exists between the THOs, support for clinical placements and development of Resus4Kids.

- In Tasmania none of these roles are specifically defined or funded, however in 2014 a cost recovery mechanism was developed between THO-S and THO-NW for education. Continuation of the current model of statewide educational support is not sustainable.

Recommendation 3

Expand AT’s infrastructure so that inter-hospital retrievals can be conducted in a clinically appropriate timeframe. The retrieval needs of infants and children would be best met via access to a helicopter or plane based in Hobart.

Benefits of Recommendation 3

Currently the single fixed wing asset offers limited flexibility for deployment, and if already in use can lead to delays in activating retrieval responses. The reliance on front-line road crews as a back-up resource impacts the delivery of care by AT to the general community.

There may be increased demands for retrieval resources if re-organisation of hospital services led to an increased number of patients needing to move between hospitals to access services. In line with previous recommendations access to the current shared-use helicopter based in Hobart should be improved such that this can become the default deployment resource for NETS/PETS patients requiring immediate or urgent retrieval.

Increased helicopter access for NETS/PETS would be synergistic with retrieval developments for other patient groups; however the health economics around this would need to be appropriately examined. As helicopter transport cannot always operate, consideration should also be given to increased access to road and fixed wing resources.