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TRACHEOSTOMY REVIEW AND MANAGEMENT SERVICE

Tracheostomy Management in the Antipodes

Tanis Cameron, Director of TRAMS
Stephen Warrillow, Deputy Director of Intensive Care

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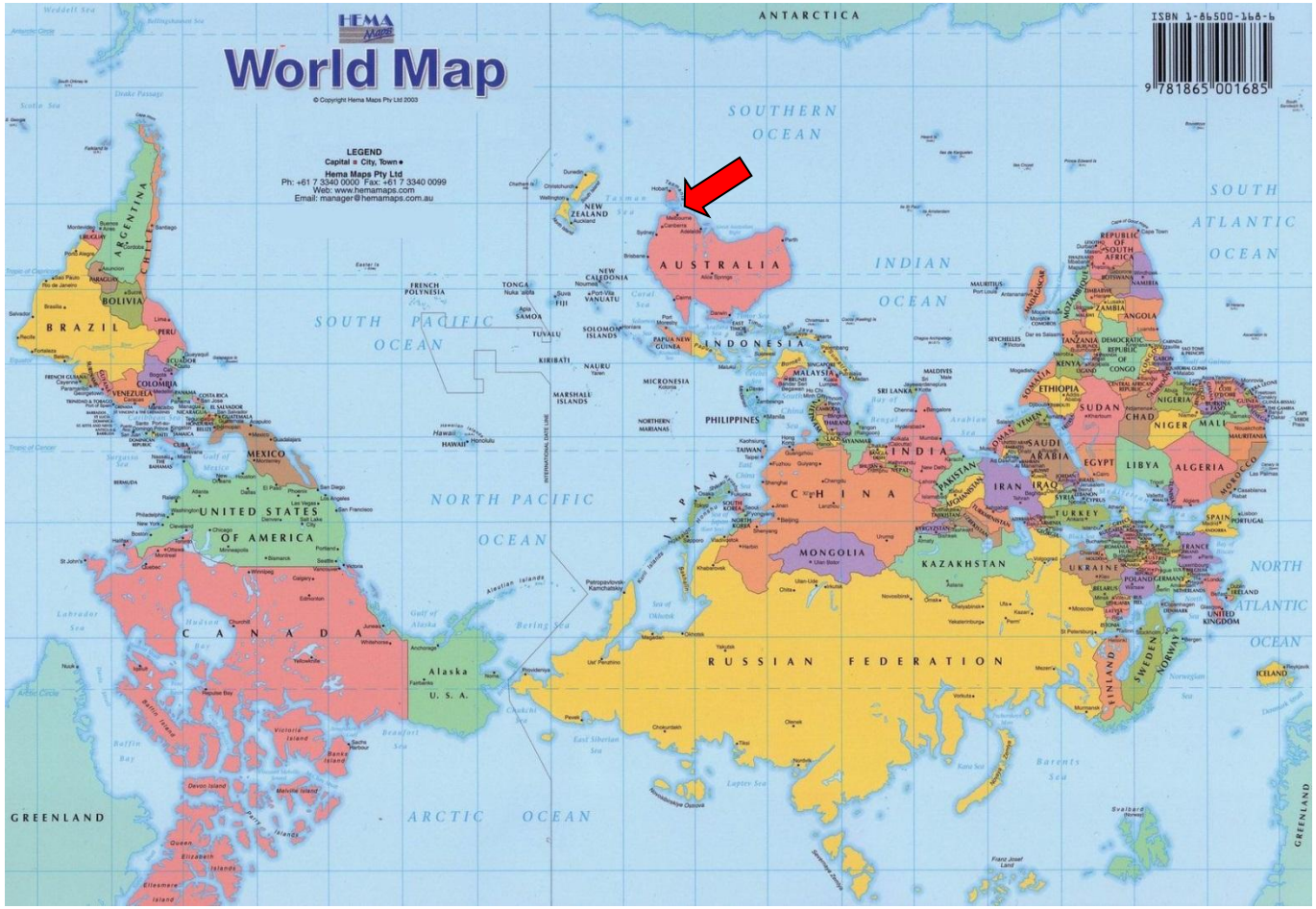
Where Exactly is (Melbourne) Australia?



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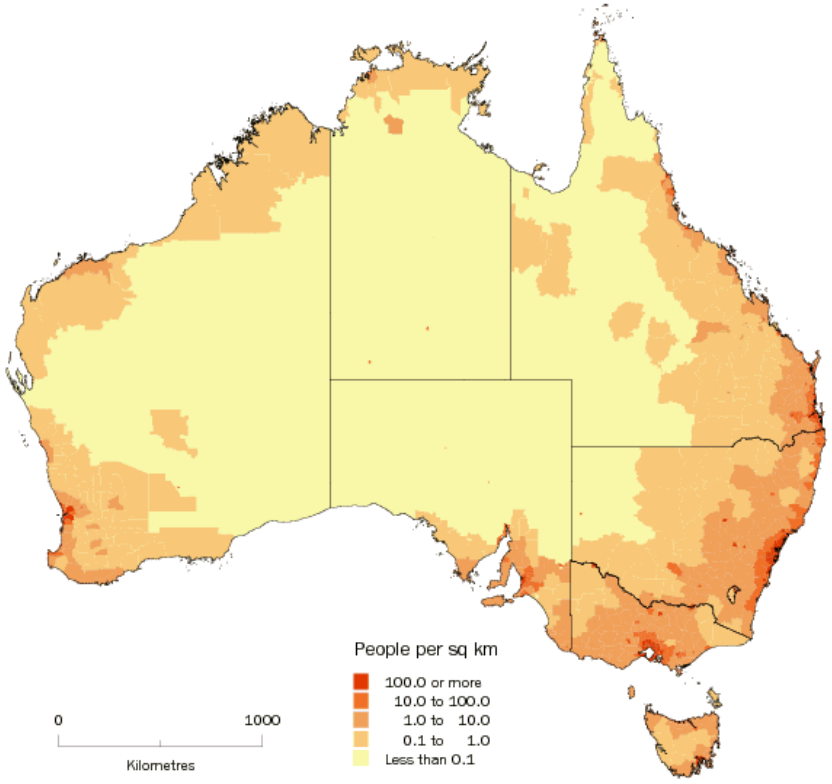
How Many Australians Are There?

- Australian population 23.5 million
- Highly urbanised to capital cities of six states and two territories



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The Australian Landscape

- Universal Public Healthcare System *and* busy Private Healthcare Systems working in parallel
  - Many patients and most doctors engaged in both
  - Health insurance purchased by individuals with strong incentives provided by government ‘sticks and carrots’ through taxation system
- All intensive care units operate on a ‘closed’ model
  - Staffed by ‘board certified’ intensivists, advanced trainees and specialist nursing & allied health staff with extensive specialist post-graduate qualifications

Why Does Australia Need the GTC ?

ICU Perspective – Steven Warrillow

- Review of recent ICU literature on tracheostomy

- Wards and Community Perspective – Tanis Cameron
  - Review of literature
  - TRAMS

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Australian Acute Care

- Embedded culture of research and quality improvement
  - The ANZICS Adult Patient Database (APD) includes 1.3 million separations from all major ICUs (140 in total) collected every quarter for over 16 years
  - The ANZICS CTG has enrolled more patients for investigator initiated prospective critical care research than any other group in the world
    - (NICE, RENAL, SAFE, DECRA, ARISE, CHEST, ENTERIC, etc)
    - 26 prospective ICU studies currently underway
- Collaborative (and relatively non-hierarchical) engagement with colleagues across departments, clinical craft groups and disciplines

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Tracheostomy Innovation Downunder!

First Ever Tracheostomy in a Koala

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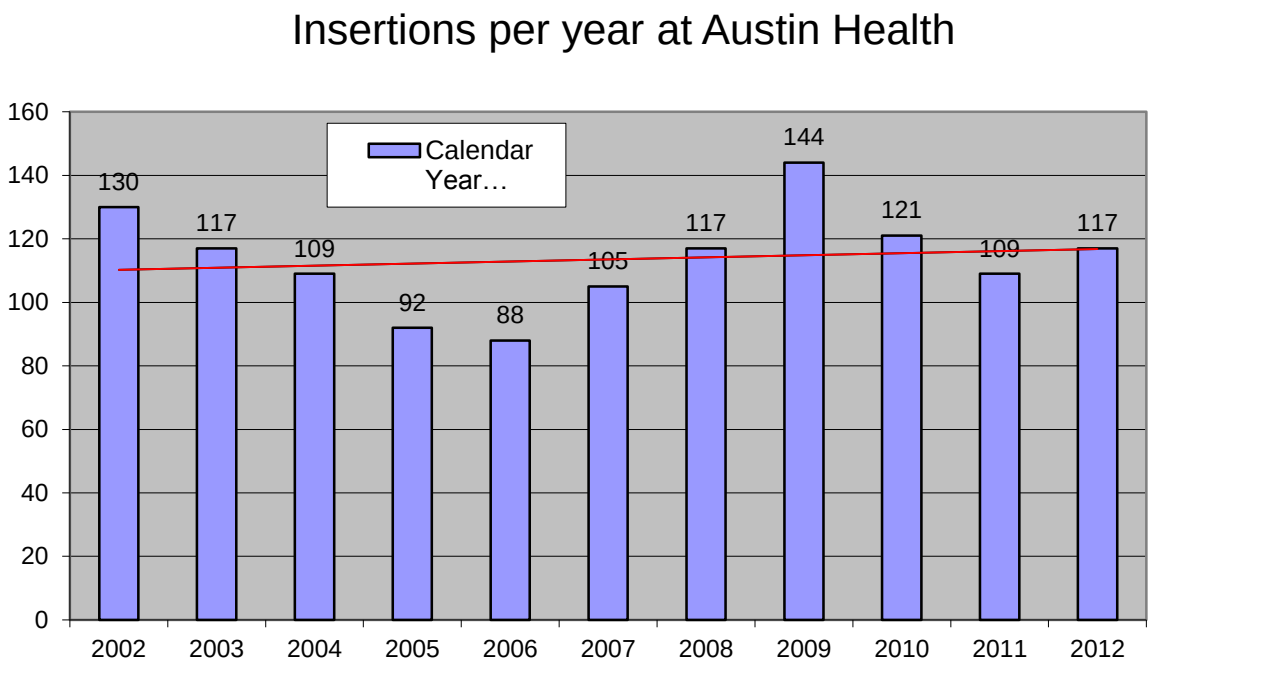
Tracheostomy in Acute Care

- Common
- Inserted into a broad case-mix of patients
  - Medical/Surgical
  - Elective/Emergency
  - Adult/Paediatric
  - Permanent/Temporary
- Many disciplines involved
  - ENT, Thoracics, Respiratory Med, ICU, MaxFacs, Oncology etc
- Mixed models of care and clinical responsibility across centres

Tracheostomy At Austin Health



Approx. 120 performed/year

Another 80-100 admissions with a trach/year

Approx. total of 200/year

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Data from Victorian Adult ICU 1999-2012

- Victorian population 5.64 million (approx)
- 10 640 adult ICU patients received a tracheostomy
  - 9.4% of all MV ICU patients excluding cardiac surgical case mix
- Four fold variation between institutions
- Technique: Open 50.7% vs. Percutaneous 49.3%
- 140 patients (1.3%) transferred to sole weaning service for the state (VRSS)

A. Casamento and G. Duke 2013
www.atsjournals.org/doi/abs/10.1164/ajrccm-conference.2013.187.1_MeetingAbstracts.A6113

Data from Victorian Adult ICU

	Tracheotomy	ETT	p-value
Number*	9,969	70,748	
Age, years	63 (48-73)	63 (43-73)	0.22
MV days	13.2 (8.1-20.5)	1.2 (0.5 – 3.2)	<0.001
ICU days	17.1 (11.2-25.8)	2.8 (1.3-5.7)	<0.001
Hospital days	34 (22 – 55)	9 (4 – 18)	<0.001
Deaths (%)	2,331 (23.4)	18,237 (25.8)	<0.001
Predicted[1] %	26.5%	25.2%	<0.001
Comorbidity	1.89	1.77	<0.01

1. Critical Care and Resuscitation 2008;10:35–41

Demographic features of study population with cardiac surgery subgroup excluded; median (IQR)

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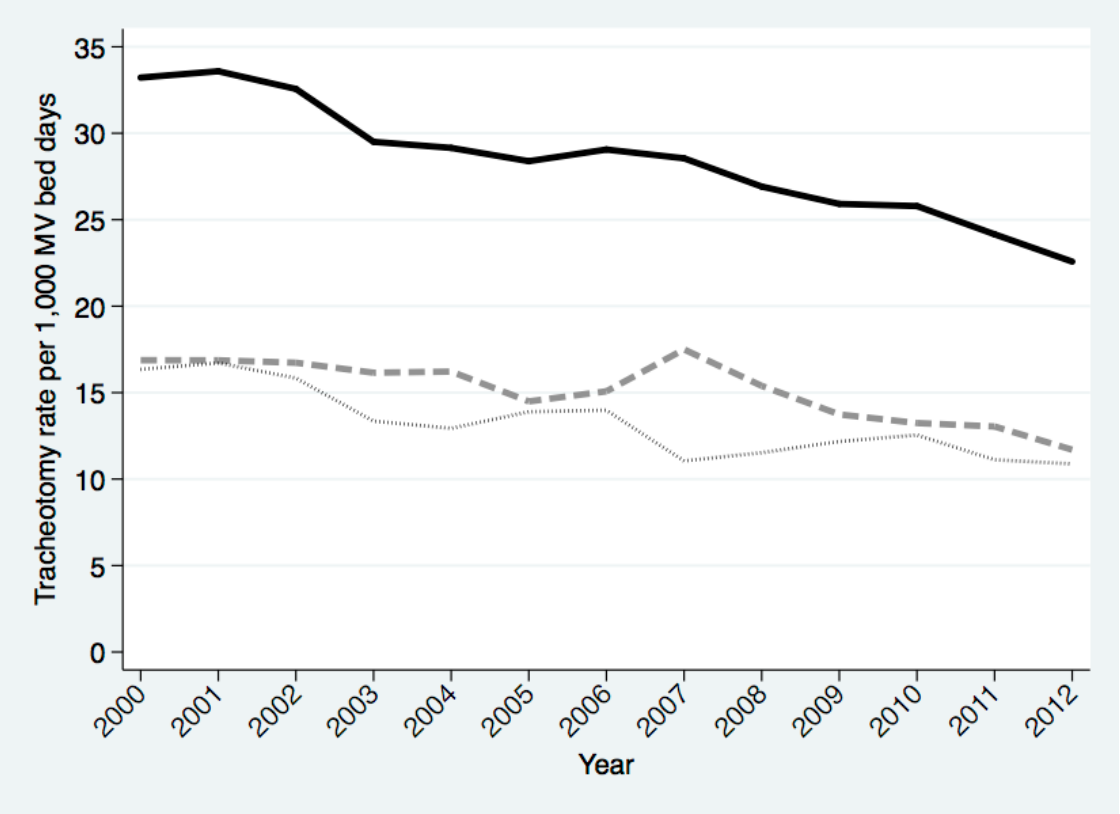
Data from Victorian Adult ICU

Tracheotomy rate per 1000 MV days



Open (dotted), percutaneous (dashed), and both (solid) insertion techniques; p<0.001 for all trends.

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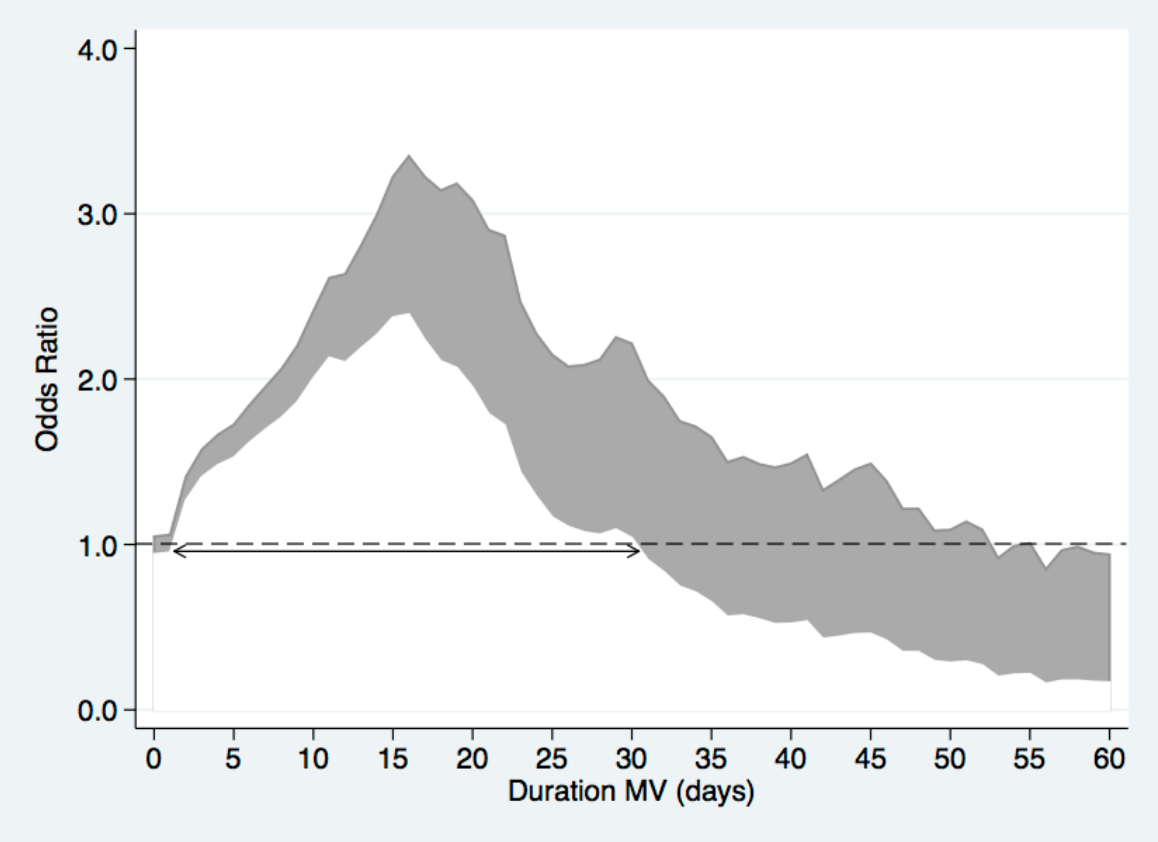
Data from Victorian Adult ICU



95% CI odds ratio (shaded-area) for hospital survival in all tracheotomy patients according to the duration of MV.

Arrow defines optimal MV time "window"

A. Casamento and G. Duke 2013
www.atsjournals.org/doi/abs/10.1164/ajrccm-conference.2013.187.1_MeetingAbstracts.A6113

Data from Victorian Adult ICU

Diagnostic Group	MV n=	Trach n=	MV time window (days)
All MV (study) patients	112,756	10,640	2 - 32
Traumatic brain injury (TBI)	5,678	1,204	2 - 15
Neurosurgical (non-TBI)	5,479	1,422	3 - 19
GIT major surgical	8,179	898	5 - 17
Malignancy	5,245	479	6 - 12
Chronic respiratory failure	3,232	610	7 - 14
Multitrauma (except TBI)	5,181	999	7 - 16
Vascular surgery	1761	197	8 - 21
Pneumonia	3,251	720	9 - 16
Septicemia	4,652	881	10 - 18
Cardiac medical	10,837	773	10 - 20
Cardiac surgical	32,039	671	13 - 17

Major diagnosis group and risk-adjusted optimal MV time "window"

No significant benefit from tracheotomy was identified in haematological malignancies, drug ingestion, other neurological, and renal disease subgroups requiring MV.

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Tracheostomy on Wards and Community

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Red Sox Fans in Melbourne !

David Hits it Home or YES We Won the World (Series)

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Tracheostomy Outside of the ICU 2002-2014 Challenges

- Adverse events – the main driver
- Trache tubes stay in too long, hospital stays too long
- Patients placed where little expertise exists – scary!
- Few discharge options …bed blockages … readmissions
- Lack of coordination of services
- Scant interdisciplinary procedures or education
- Show me the data! …..

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TRAMS Casemix

1380 patients seen by TRAMS

72 % Decannulated

18% Permanent (248)

10% Deceased

- Austin Health has 2 state wide services impacting case mix
- Victorian Respiratory Support Service VRSS
- Victorian Spinal Cord Injury Service (VSCS)
  - High needs population
  - Young and homogeneous group

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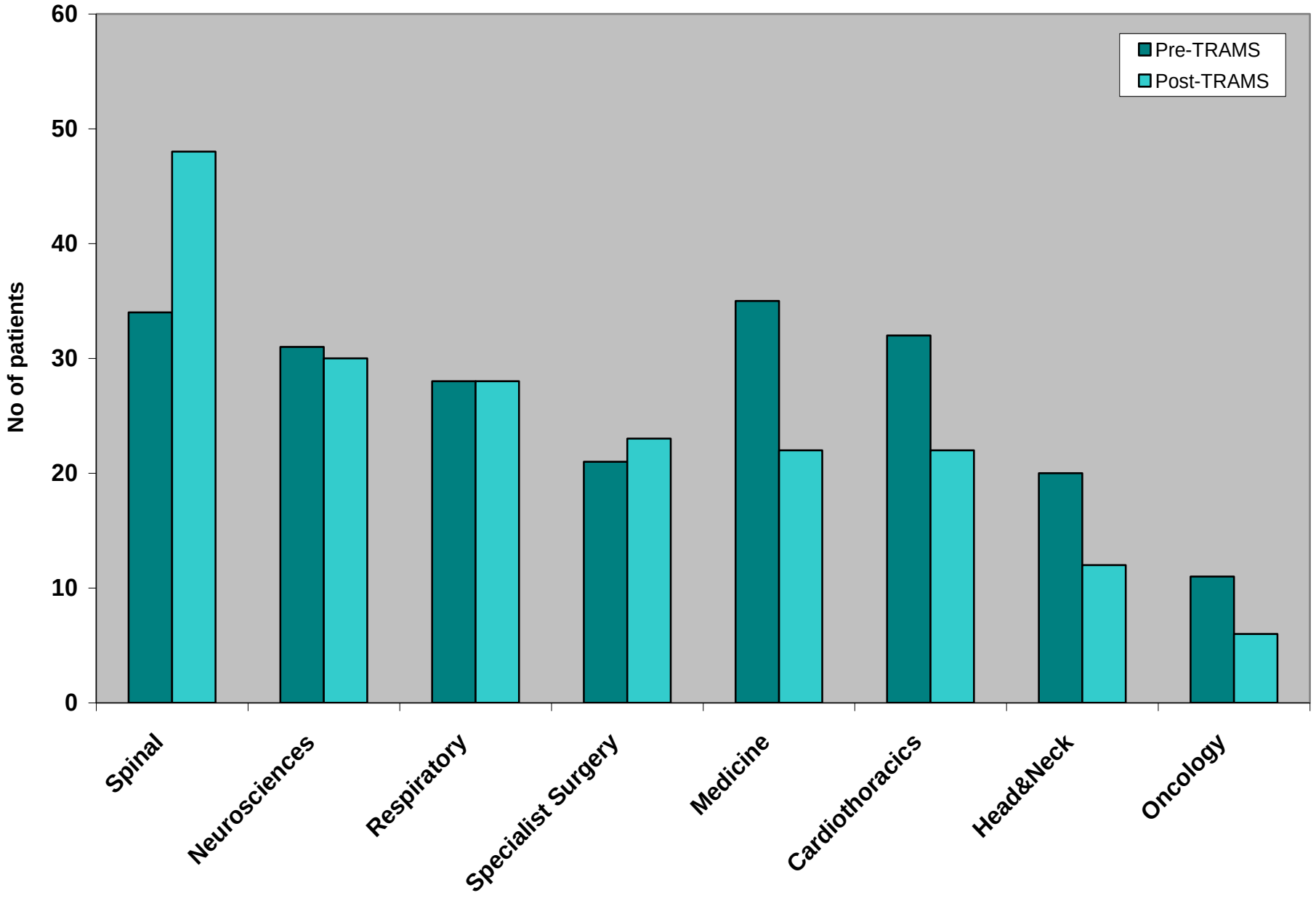
Distribution Across Clinical Areas



TRAMS Model of Care

- Coordinates interdisciplinary care, education, policy procedure across 3 campuses and into the community

Funded EFT

- Respiratory Doctors 3 sessions/week
- Clinical Nurse Consultant 1.6 EFT
- Physiotherapists .5 EFT
- Speech Pathologists .5 EFT
- Administration,.3 EFT

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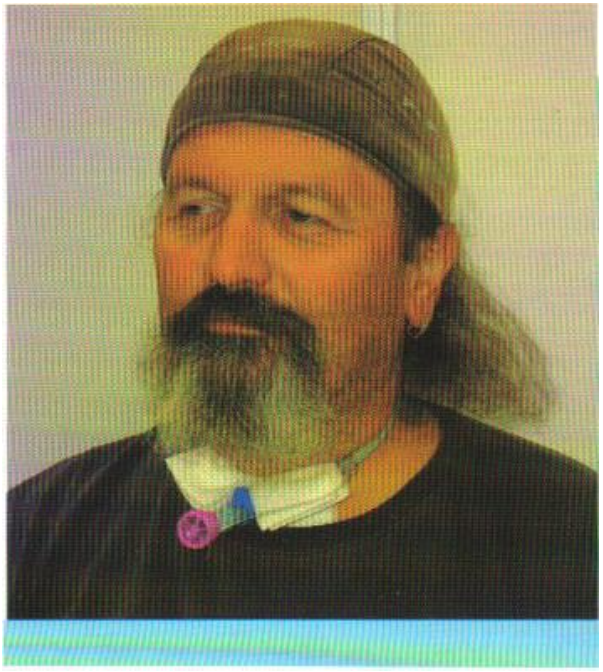
Aims of TRAMS 2002 – 2014

- Improve quality and of care
- Reduce duration of cannulation
- Reduce acute length of stay
- Provide interdisciplinary education
  - Series of elearning package www.tracheostomyteam.org
  - 555 staff trained last year – annual workshops, inservices
- Provide centre-wide, interdisciplinary procedures
  - 1 over arching policy, 13 procedures

Tracheostomy in the Community



TRAMS supports patients with tracheostomy in the community

VRSS supports ventilated patients

Discharge planning equipment, education, case management, tube changes

Very effective in preventing bed blockage and readmissions

Approx 50 patients in community at any time - 25 on each service

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Tracheostomy Teams in Australia & New Zealand

- TRAMS (2002) an early adopter of interdisciplinary team model
- Tracheostomy teams exist in most major and some smaller centres – 20+ other teams implemented post TRAMS education
- NZ Christchurch and Auckland – strong teams
- There is now an emerging body of literature

What do we know?

- Teams seem to be the way to go
- Interprofessional protocols and decision making key to team effectiveness Mitchell 2013
- Multdisciplinary care for tracheostomy ; a systematic review Garrubba 2009

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Meta Analysis of Tracheostomy Teams

Tracheostomy teams reduce total tracheostomy time and increase speaking valve use: A systematic review and meta- analysis Speed 2012

Aim: to assess effect of tracheostomy teams on patient outcomes

7 studies included – all pre/post design, low-moderate quality

Teams were associated with:

- Reduction in total tracheostomy time P < .01 (4 studies)
- Length of stay reductions: mean reduction 14 days P =0.23 (3 studies)
- Reduction in ICU length of stay and increases in speaking valve use leading to improved QOL (2 studies)

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Clinical Innovations

- Agency for Clinical Innovation New South Wales 2013
  - Care of Adult Patients in Acute Care Facilities with a Tracheostomy ACI link
  - Tracheostomy Virtual Community
- *Best practice may not be, and should not always be, identical from setting to setting*
- Model of care varies
- Members and composition of teams varies
- Leadership and funding varies
- Message is always the same…..

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Best Model of Care?

- **Care is patient centred, they are involved**
- Care is structured and coordinated
- Communication occurs across disciplines and across the continuum
- Policy and procedures in place
- Continuous interdisciplinary education
- Commitment to improve, change required
- Data to be simple and slick to record, report on
- Teams learn from each other

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Global Perspectives – Great News

The GTC – *sensational news*

ITS 2014 *Oct 8-9, 2014*

GTC Australasian
Roll Out & Seminars

pre ANZICS/ACCCN ASM education

Save the date

Join us for a great week !

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Australian Papers on Tracheostomy

Berney S, Bragge P, Granger C, Opdam H, Denehy L. The acute respiratory management of cervical spinal cord injury in the first 6 weeks after injury: a systematic review. *Spinal Cord 2011;49:17-29.*

Cameron TS, McKinstry A, Burt SK, Howard ME, Bellomo R, Brown DJ, Ross JM, Sweeney JM, O'Donoghue FJ. Outcomes of patients with spinal cord injury before and after introduction of an interdisciplinary tracheostomy team. *Critical Care and Resuscitation 2009;11(1):14-19.*

Choate K, Barbetti J, Sandford M. Tracheostomy: Clinical practice and the formation of policy and guidelines. *ANJ 2010;59.*

Delaney A, Bagshaw SM, Nalos M. Percutaneous dilatational tracheostomy versus surgical tracheostomy in critically ill patients: a systematic review and meta-analysis. *http://ccforum.com/content/10/2/R55.*

Freeman-Sanderson A, Togher L, Phipps P, Elkins M. A clinical audit of the management of patients with a tracheostomy in an Australian tertiary hospital intensive care unit: Focus on speech-language pathology. *International Journal of Speech-Language Pathology 2011;13(6):518-525.*

Garrubba M. Turner T, Grieveson C. Multidisciplinary care for tracheostomy patients: a systematic review. *Critical Care* 2009 13:R:77(doi:10.1186/cc8159

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Australian Papers on Tracheostomy Con't

Gowardman JR, Huntington D, Whiting J. The effect of extubation failure on outcome in a multidisciplinary Australian intensive care unit. *Critical Care and Resuscitation 2006;8(4):328-333.*

Husain T, Gatward JJ, Hambidge ORH, Asogan M, Southwood TJ. Strategies to prevent airway complications: a survey of adult intensive care units in Australia and New Zealand. *British Journal of Anaesthesia 2012;108(5):800-806*

Heslop L, Athan D, Gardner B, Diers D, Boon CP. An analysis of high-cost users at an Australian public health service organization. *Health Services Management Research 2005;18:232-243.*

Leung R, MacGregor L, Campbell D, Berkowitz R. Decannulation and survival following tracheostomy in an intensive care unit. *Ann Otol Rhinol Laryngol 2003;112:853-858.*

Mitchell R, Parker V, Giles M. An interprofessional team approach to tracheostomy care: A mixed-method investigation into the mechanisms explaining tracheostomy team effectiveness. *International Journal of Nursing Studies 2013;50:536-542.*

Pandit RA, Jacques TC. Audit of over 500 percutaneous dilational tracheostomies. *Critical Care and Resuscitation 200*

Australian Papers Continued

Parker V, Giles M, Shylan G, Austin N, Smith K, Morison J, Archer W. Tracheostomy management in Acute Care Facilities – a matter of teamwork. *Journal of Clinical Nursing 2010;19:1275-1283.*

Rose L, Redl L. Survey of cuff management practices in intensive care units in Australia and New Zealand. *American Journal of Critical Care 2008;17(5):428-435*.

Speed L,Harding,K.E.Tracheostomy teams reduce total tracheostomytime and increase speaking valveuse: A systematic review and meta-analysis *Journal of Critial Care* 2012

Silvester W, Goldsmith D, Uchino S, Bellomo R, Knight S, Seevanayagam S, Brazzale D, McMahon M, Buckmaster J, Hart GK, Opdam H, Pierce RJ, Gutteridge GA. Percutaneous versus surgical tracheostomy: A randomized controlled study with long-term follow-up. *Crit Care Med 2006;34(8):2145-2152.*

Tobin AE, SantamariaJD An intensivist led tracheostomy review team is associated with shorter decannulation time and length of stay;a prospective cohort study Crit care 2008;12:R48

Ward E, Agius E, Solley M, Cornwell P, Jones C. Preparation, Clinical Support, and Confidence of Speech-Language Pathologists Managing Clients With a Tracheostomy in Australia. *American Journal of Speech-Language Pathology 2008;17:265-276.*

Related Australian Papers

Hannan LM, Tam S. Hopkinson K, Marchingo E, Rautela L, Detering K, Berlowitz DJ, McDonald CF, Howard ME. Impatient and long-term outcomes of individuals admitted for weaning from mechanical ventilation at a specialised ventilation weaning uni. *Respirology – Asian Pacific Society of Respirology 2012; 'Accepted Article'. 10.1111/j.1440-1843.2012.02266*.

Hannan LM, Howard ME. Non-ICU ventilation discontinuation and weaning units. *International Journal of Intensive Care;Summer2013;77-81*.

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