ARE DEDICATED VASCULAR ACCESS TEAMS A VIABLE ACUTE CARE OPTION?

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Financial Justification For Vascular Access Service

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HEALTHCARE IN THE US

- Health care is provided by separate legal entities
- Health care facilities are largely owned / operated by the private sector (ie for profit)
- Health insurance also primarily provided by private sector
- Public sector exceptions are Medicaid / Medicare / Veterans Health / Children's Health Insurance program (need to qualify)

(US is the industrialised nation that doesn't have universal provider)

- Medical debt is the leading cause of personal bankruptcy in the US
  (Public insurance set reimbursement rates)

HEALTHCARE IN THE US

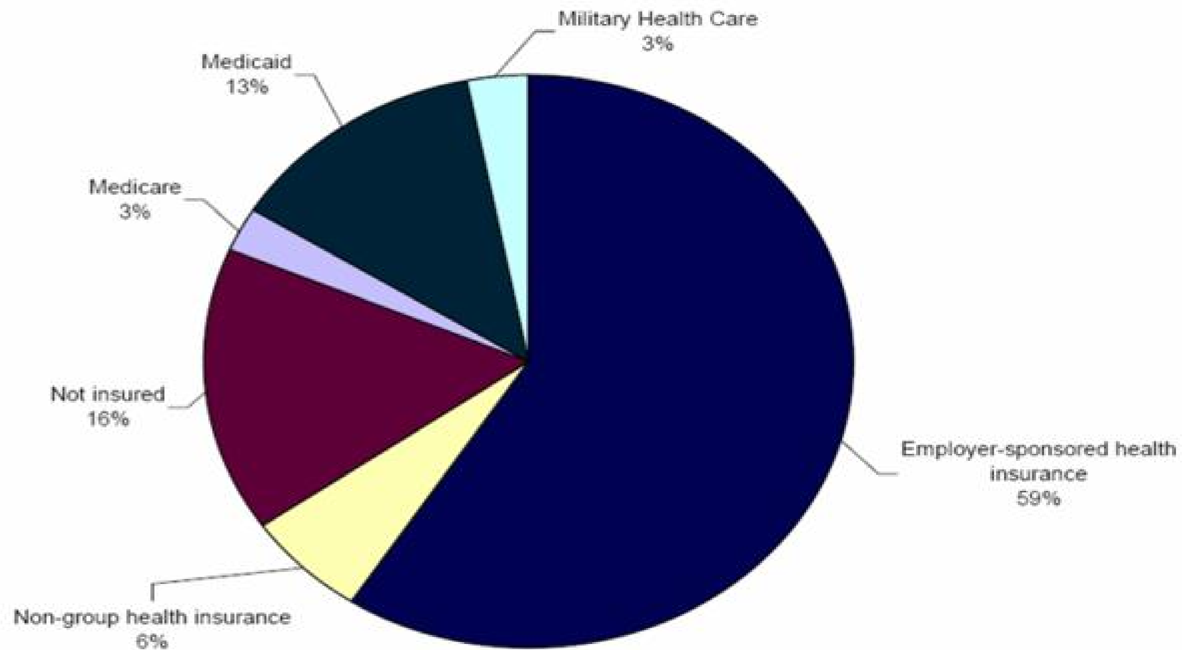
- Medicare – usually 65 years and older & Disabled (Federal Funding)
- Medicaid - low income people in certain categories, including children & pregnant women, the disabled. (State Funding)
- Doctors and hospitals are generally funded by payments from patients and insurance plans in return for services rendered.
- All government health care programs have restricted eligibility
- Individuals with private or government insurance are limited to medical facilities which accept the particular type of medical insurance they carry
- Doctors and Hospitals can refuse to accept patients if they are unable to meet any out of pocket expenses.

WHATS THE STATE OF PLAY IN THE US?

- Impact of the economic crisis
  - 6.6% increase in cost of care (2008-2009)
  - 46 million Americans have no insurance
  - 25 million Americans have minimal coverage
  - 1 out of 10 workers is un-employed
- $24,000 average health insurance plan 2016

HEALTHCARE IN THE US

Health Insurance Status (Under 65 Years of Age)



Source: U.S. Census Bureau. Income, Poverty, and Health Insurance Coverage in the United States: 2007.

HEALTHCARE IN THE US

- Average cost for DRG - $4,200 (MEDICARE)
- ALOS 3.6 – 5.6 days
- ALOS for PICC patient 10 – 14 days
- Eg DRG payment Osteomyelitis $4,469

  ALOS 4 days = $1,117 per day revenue

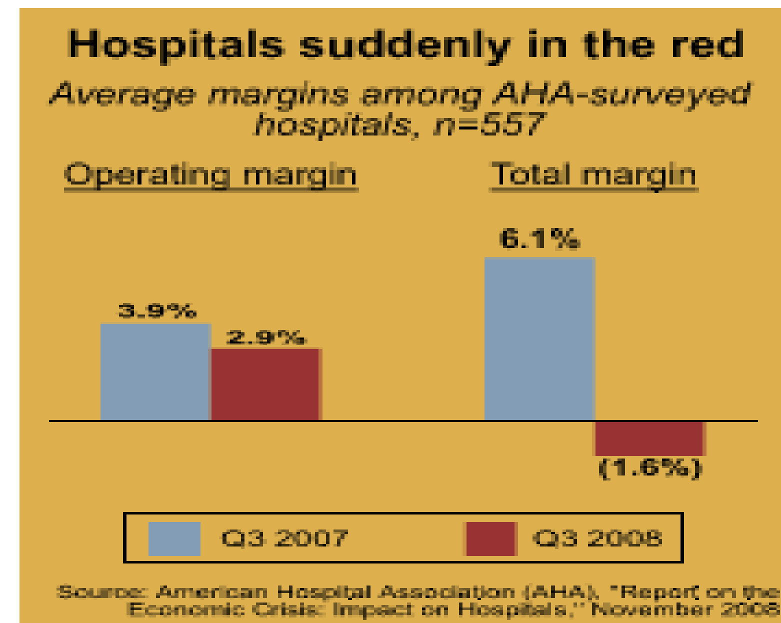
  ALOS 10 days= $446 per day revenue

- Thus placement of a PIV or even PICC cannot justify 1 RN FTE at $85,000 PA

WHATS THE STATE OF PLAY IN THE US?

- American Hospitals are working with operating margins of approx 7%. Total margin is worse with half of US hospitals in the red.

  Over half the hospitals in the US are planning staff cuts as they cant make wages.



WHATS THE STATE OF PLAY IN THE US?

'Everyone is Replaceable Mentality' - Continual role delineation changes.

RNs inserting PICCs instead of IR's or Hosp techs inserting PIV's instead of RN's

WHATS THE STATE OF PLAY IN THE US?

- *Vascular Access Teams in US hospitals need to show revenue savings or revenue gain*

How can this be done?

What can we learn?

WHATS THE STATE OF PLAY IN THE US?

- *COLLECT THE DATA:*

Reduce average LOS with early intervention

Reduce Complications / CRBSIs

Improve patient flow – facilitate early discharge

Reduce hospital operational costs – consumables etc

Reduce labour needs

Incorporate private patients into the equation (Is this viable in Australia?)

IS THIS NOT THE JUSTIFICATION FOR DEDICATED VASCULAR ACCESS TEAMS ANYWAY?

- *Alexandrou. E,* Spencer,T. Frost, S., Parr, M., Davidson,P. Hillman, K. The nursing role in central venous cannulation: implications for practice, policy and research. 2009. Journal of Clinical Nursing. January 2009.

  A total of 525 paper were reviewed for nurses inserting CVC's

  Minimal evidence: Only 10 papers met inclusion criteria (all from UK)

  Three major themes emerged

IS THIS NOT THE JUSTIFICATION FOR DEDICATED VASCULAR ACCESS TEAMS ANYWAY?

- Development of dedicated nurse led CVC insertion services were a response to lack of training for JMOs, unacceptable rates of complications on insertion and infection and increased costs with repeated attempts and also no dedicated follow up

  Insertion and infectious outcomes for nurses were similar to wider published (medical) literature

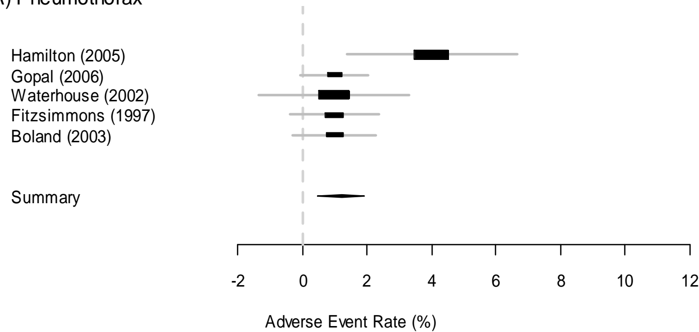
  Nurse services had dedicated / documented training and credentialling processes

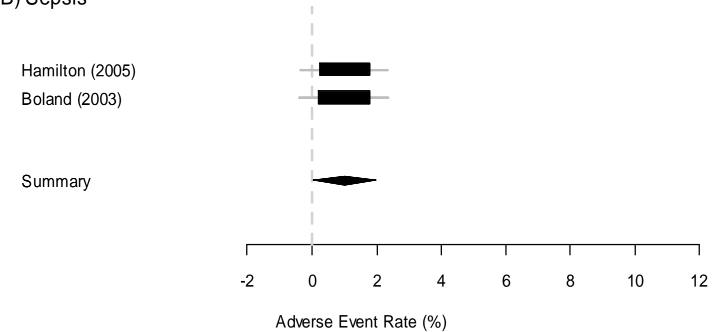
IS THIS NOT THE JUSTIFICATION FOR DEDICATED VASCULAR ACCESS TEAMS ANYWAY?

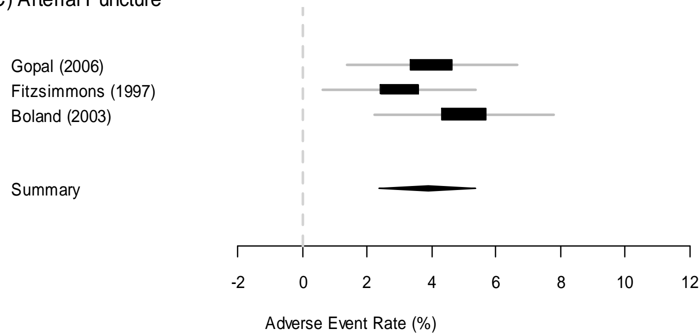
COMPLICATION	I. JUGULAR (%)	S/CLAVIAN (%)	FEMORAL (%)
Arterial Puncture	6.3 – 9.4	3.1 – 4.9	9.0 – 15
Haematoma	0 – 9.4	1.2 – 2.1	3.8 – 4.4
Pneumothorax	0 – 0.7	1.2 – 3.1	NA
Venous Perforation	0.2	1.2	0
TOTAL	**6.3 – 12.1**	**6.2 – 10.7**	**12.8 – 19.4**

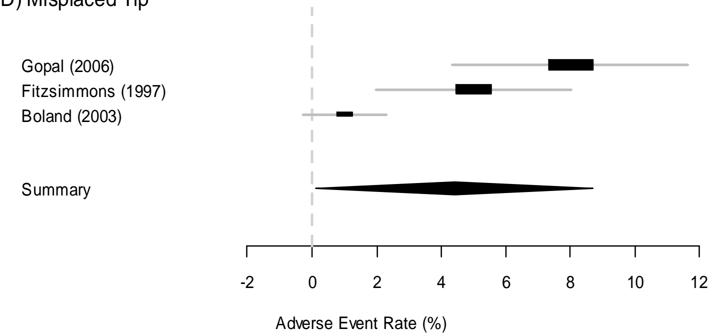
(Comfere & Brown 2007)

IS THIS NOT THE JUSTIFICATION FOR DEDICATED VASCULAR ACCESS TEAMS ANYWAY?









WHAT ABOUT OUR OUTCOMES HERE IN OZ?

NSW CLAB - ICU PROJECT

- On average 5 CRBSI's per 1000 catheter days
  Average cost is $8 million PA
  34 patients die a year in Australian ICU's from CLABs
- Methodology modelled on the work of Pronovost et al.
- The project promoted a standardised insertion technique including:

  Hand washing
  Full barrier precautions during insertion
  Cleaning skin with chlorhexidine
  Avoiding femoral site if possible
  Removing unnecessary catheters

- Also included a retrospective review of all incidents entered into the NSW Incident monitoring system

AR Burrell, M-L McLaws, A Pantle, M Murgo, E Calabria

CLAB – ICU Method

- Expert group – senior IC clinicians
- Some doctors mainly nurses..
- Later increasing senior intensivist involvement – greater scrutiny of data submitted due to feedback reports to participating ICUs
- Central Line Insertion Guidelines developed
- Data management established
  - Completed checklist faxed to CEC
  - Teleform methodology
- Central Line Insertion Pack developed
- ICCMU Nursing management guideline

CLAB – ICU Results

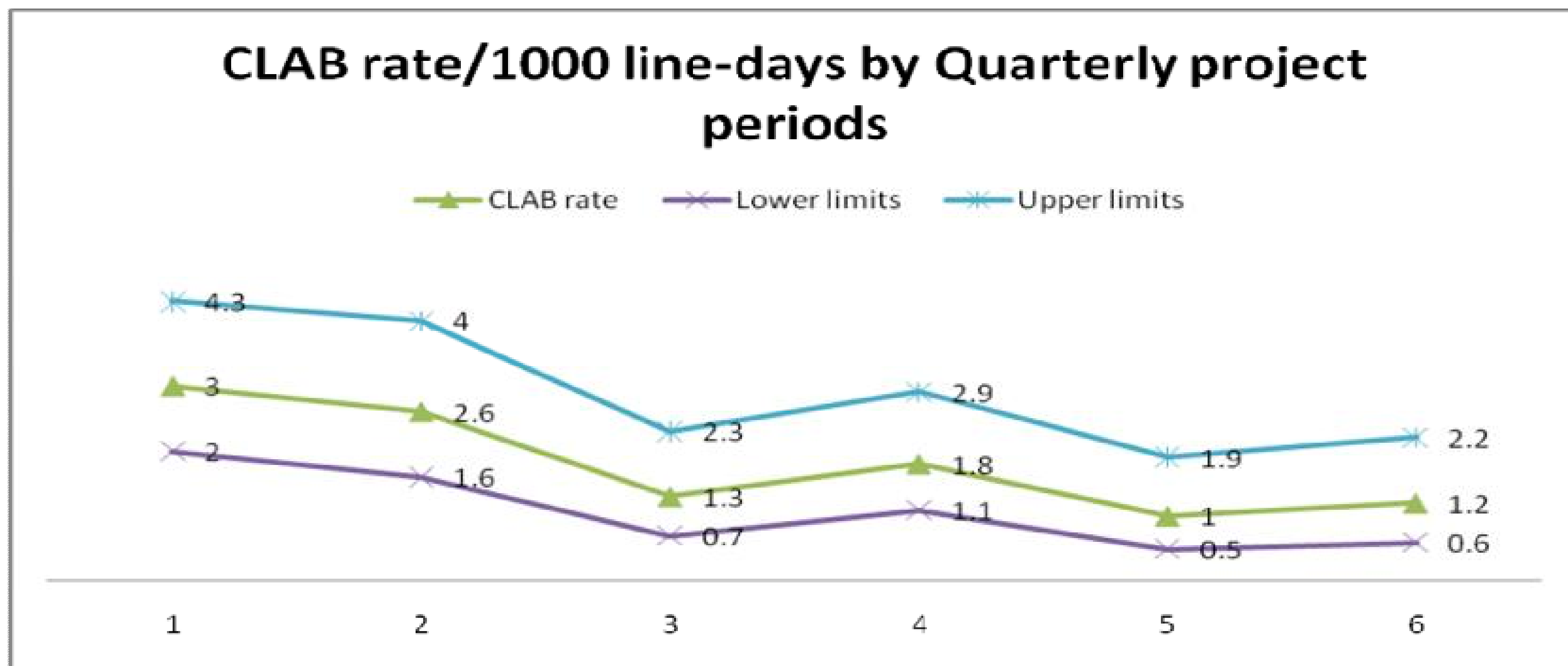
- Data on 10,890 line insertions
- Concurrent incident review:
  - Retained/lost guidewires
  - Arterial puncture
  - Multiple passes
  - Inadequately secured lines
  - Inadequate position check prior to use
  - Lack of access to ultrasound equipment
  - Policy breaches
- Training & supervision common themes
- Safety Alert for guidewires issued
- Training framework developed

CLAB – ICU Results

Checklist Compliance – all ICUs – July 07 – Dec 08

Competency assessed	48.3% (22.9% no, 28.8% missing)
Hat, mask, eyewear	79.9%
Hands washed 2 mins	91.6%
Sterile gown/gloves	95.9%
Alcoholic chlorhexidine prep allowed to dry	95.8%
Entire patient draped	93.4%
Sterile technique maintained	95.6%
No multiple passes	80.9%
Confirm position radiologically	74.3%
Other method to confirm placement	43.6% (44.7% no, 11.7% missing)

CLAB – ICU Results



WHAT ABOUT OUR OUTCOMES HERE IN OZ?

CNC VS MO PLACEMENTS – Nic Yacapetti's Data

	Clinician		p-values[1]
	Medical officer	CNC	
No. of lines	245	**123**	
No. of patients	148	**84**	
Age mean (SD)	50 (15)	**49 (18)**	0.1
Gender % (N)			
Males	53% (130)	**61% (75)**	0.1
Indications % (N)			0.4
Oncology / Autoimmune	59% (145)	**66% (81)**	
TPN	2% (6)	**2% (3)**	
ABs	30% (74)	**22% (27)**	
Drug therapy	4% (9)	**2% (3)**	
Other	4% (11)	**7% (9)**	
Insertion site %(N)			0.01
IJ	51% (125)	**66% (81)**	
SC	48% (115)	**34% (42)**	
Femoral	2% (5)	**0**	
Catheter type			< 0.01
Vascath	18% (29)	**17% (18)**	
Single lumen	26% (42)	**21% (23)**	
Double	14% (23)	**4% (4)**	
Triple	41% (65)	**58% (63)**	

WHAT ABOUT OUR OUTCOMES HERE IN OZ?

MO vs CNC PLACEMENTS

	Clinician		p-values
	Medical officer	**CNC**	
Complications on insertion % (N)			P = 0.5
Uneventful	81% (198)	79% (97)	
Multiple passes	7% (18)	4% (5)	
Arterial puncture	1% (2)	0% (1)	
Failed access	2% (5)	0% (1)	
Misplaced tip	0% (1)	0	
Difficult feed	2% (4)	3% (4)	
Difficult access	4% (11)	7% (9)	
Pneumothorax	1% (2)	0	
Haematoma	1% (2)	0% (1)	

WHAT ABOUT OUR OUTCOMES HERE IN OZ?

MO vs CNC PLACEMENTS

	Clinician		p-values
	Medical officer	CNC	
Routine CVC tip surveillance (No B/C's) % (N) N= 162	42% (104)	**47% (58)**	0.4
No tip growth	76% (76)	**88% (51)**	
Colonised tip	24% (25)	**12% (7)**	
Clinically indicated CVC tip surveillance (tip and blood cultures) % (N) N = 57	19% (47)	**8% (10)**	0.01
No tip growth	45%(21)	**90% (9)**	
Tip growth only	15% (7)	**0**	
Blood culture growth only	6% (3)	**0**	
CRBSI	34% (16)	**10% (1)**	
CRBSI per 1000 catheter days	2.5	**0.4**	0.4
Catheter related thrombosis (CRT)	0%(1)	**0**	

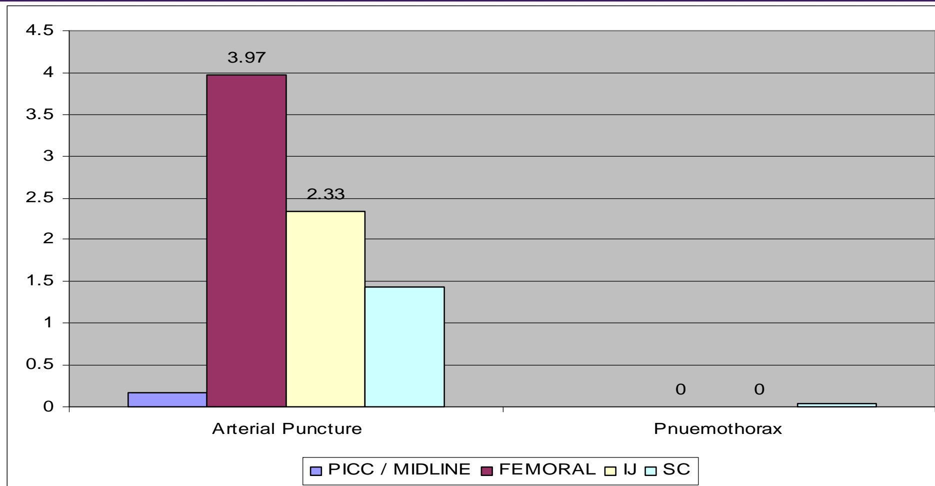
WHAT ABOUT OUR OUTCOMES HERE IN OZ?

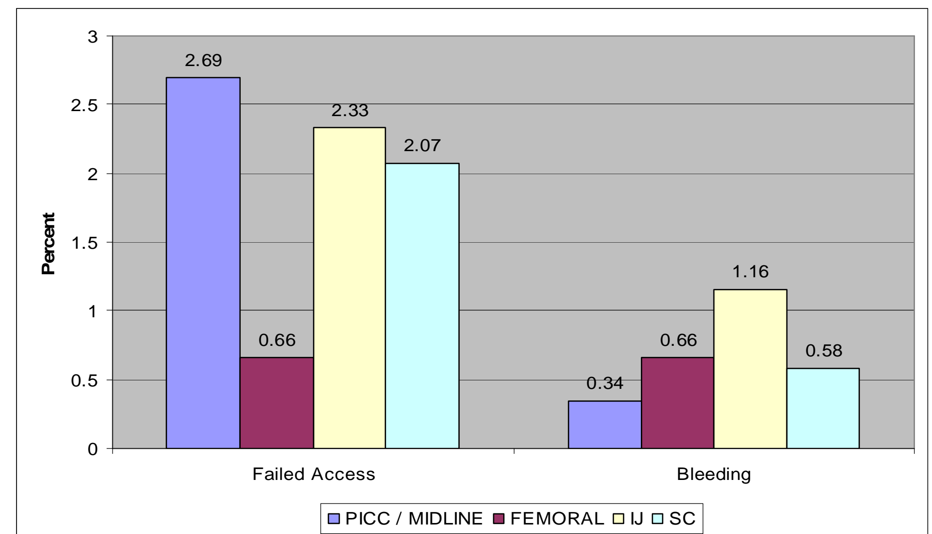
LIVERPOOL CVAS

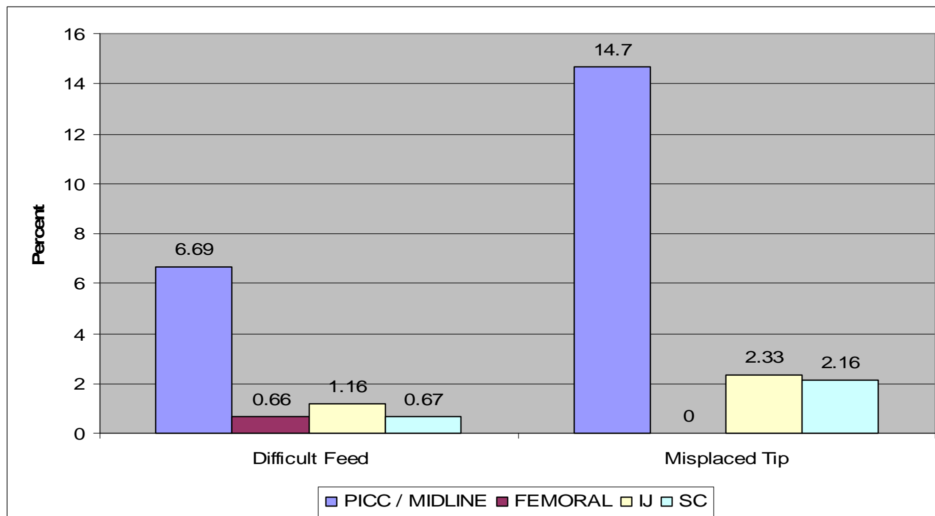
CHARACTERISTICS	
No. of Catheters	4,212
No. of patients	3,055
Age mean (SD)	56 (19)
Males %	58%
Indications % (N)	
Oncology / Autoimmune	18.0 %(759)
Parenteral Nutrition	5.2% (218)
Antibiotics	61.7% (2598)
Poor Vascular Access	7.2% (305)
Other	
Insertion Site %(N)	
Subclavian	52.8% (2225)
Internal Jugular	2.0% (86)
Femoral	3.6% (151)
Upper Peripheral Veins	41.5% (1748)
Catheter Type	
CVC	55.3% (2330)
PICC	38.9% (1635)
VASCATH	3.5% (149)
MIDLINE	2.2% (92)
Clinical Category of Patients	
Medical	55.2% (2325)
Surgical	43.5% (1831)
Women & Child Health	1.0% (42)
Critical Care	0.3% (14)

WHAT ABOUT OUR OUTCOMES HERE IN OZ?

LIVERPOOL CVAS







OVERALL WE HAD A GREAT TIME !