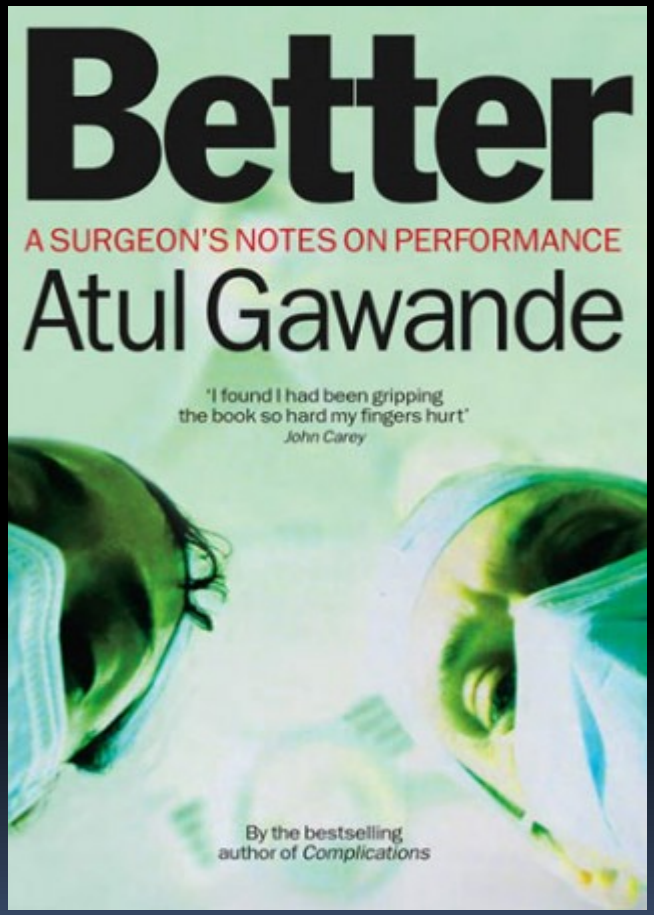
Teena Robinson NZRN, MN,FCNA (NZ) NP

Nurse Practitioner: adult elective perioperative



1 2 3... COUNT SOMETHING

Information to..

- talk to our patients & families
- help with clinical decisions
- help staff allocation
- support new nurse initiatives
- support good communication
- support nurse involvement in mortality review

Table 1: Cumulative Mortality (per 100,000), New Zealand 2005–2011

TOPICS ANALYSED OVER TIME	2005–2009	2006–2010	2007–2011
		Cumulative 30-Day Mortality Rate per 100,000	
Cholecystectomy: Acute		1040.9 (1.04%)	975 (0.98%)
Cholecystectomy: Elective/Waiting List		164.6 (0.16%)	151 (0.15%)
Colorectal Resection: 45 Yrs+ Acute	9818.3 (9.82%)		8456 (8.46%)
Colorectal Resection: 45 Yrs+ Elective/Waiting List	2057.7 (2.06%)		1700.6 (1.7%)
Hip Arthoplasty 45 Yrs+ Acute	7268.6 (7.27%)		6608.9 (6.61%)
Hip Arthoplasty 45 Yrs+ Elective/Waiting List	235.3 (0.24%)		180.5 (0.18%)
Low-Risk Anaesthesia (ASA* 1 & 2, Elective/Waiting List)		68.8 (0.07%)	62.9 (0.06%)
Pulmonary Embolism (Cause of Death): Acute		54.5 (0.05%)	61.7 (0.06%)
Pulmonary Embolism (Cause of Death): Elective/Waiting List		7.6 (0.008%)	8.7 (0.009%)
		Cumulative One-Day Mortality	
General Anaesthesia	119.08 (0.12%)		125.47 (0.13%)

ASA: American Society of Anesthesiologists Physical Status Classification System.

82 year old grandfather elective bowel resection 96% survival

Table 7: Mortality Following Elective/Waiting List Admission for Colorectal Resection by Age Group, Gender, ASA Score, Ethnicity and NZ Deprivation Index Decile in Adults 45+ Years, New Zealand 2007–2011

VARIABLE	CATEGORY	Number of Deaths	Number of Admissions	Mortality per 100,000 Admissions	Mortality per 100 Admissions (%)	Univariate OR	95% CI	Multivariate OR	95% CI
Colorectal Resection									
Elective/Waiting List									
Age Group	45–64 Years	7	3,120	224.4	0.22	1.00		1.00	
	65–79 Years	83	4,805	1,727.4	1.73	7.82*	3.61–16.93	6.49*	2.97–14.17
	80+ Years	78	1,954	3,991.8	3.99	18.49*	8.52–40.15	13.35*	6.01–29.64
Gender	Male	101	4,993	2,022.8	2.02	1.00		1.00	
	Female	67	4,886	1,371.3	1.37	0.67*	0.49–0.92	0.64*	0.47–0.88
ASA Score	1–2	38	4,642	818.6	0.82	1.00		1.00	
	3	84	2,364	3,553.3	3.55	4.46*	3.03–6.57	2.95*	1.99–4.37
	4	18	243	7,407.4	7.41	9.69*	5.45–17.25	6.13*	3.41–11.04

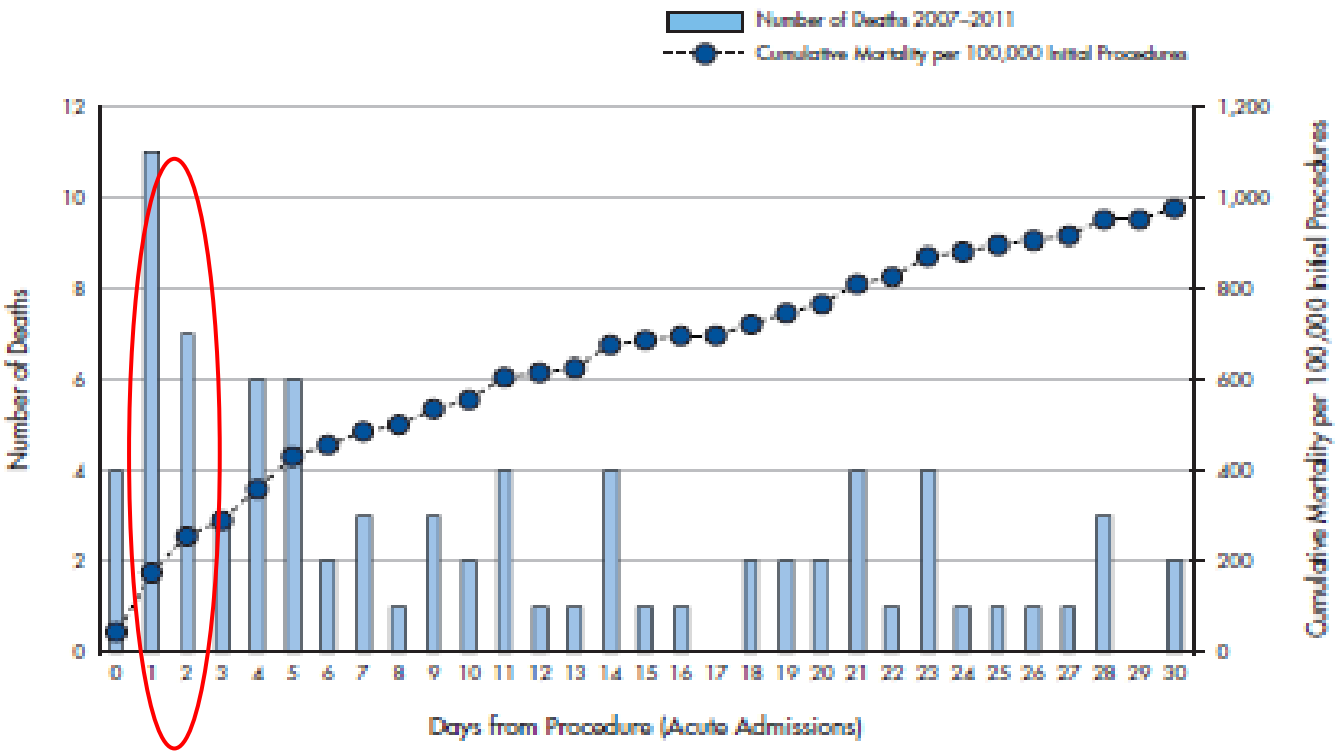
Useful for those family discussions

Page 34

Table 12: Mortality Following Acute Admission for Cholecystectomy by Age Group, Gender, First ASA Score, Ethnicity and NZ Deprivation Index Decile, New Zealand 2007–2011

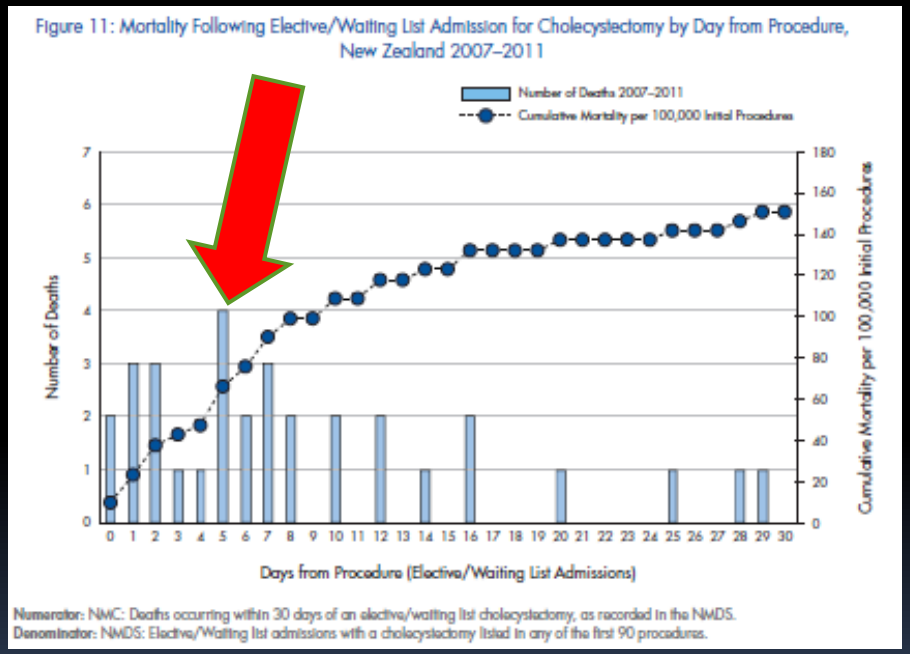
VARIABLE	CATEGORY	Number of Deaths	Number of Admissions	Mortality per 100,000 Admissions	Mortality per 100 Admissions (%)	Univariate OR	95% CI	Multivariate OR	95% CI
Cholecystectomy									
Acute									
Age Group	0–44 Years	6	3598	166.76	0.17	1.00		1.00	
	45–64 Years	17	2,784	610.6	0.61	3.68*	1.45–9.33	2.42	0.91–6.41
	65–79 Years	31	1,678	1,847.4	1.85	11.26*	4.69–27.03	4.28*	1.62–11.26
	80+ Years	30	557	5,386.0	5.39	34.05*	14.11–82.18	10.35*	3.73–28.67
Gender	Male	50	2,907	1,720.0	1.72	1.00		1.00	
	Female	34	5,710	595.4	0.60	0.34*	0.22–0.53	0.65	0.40–1.03
First ASA Score	1–2	10	6,083	164.4	0.16	1.00		1.00	
	3	30	1,319	2,274.5	2.27	14.13*	6.89–28.99	6.40*	2.98–13.74
	4	26	213	12,206.6	12.21	84.44*	40.14–177.63	30.46*	13.65–67.95

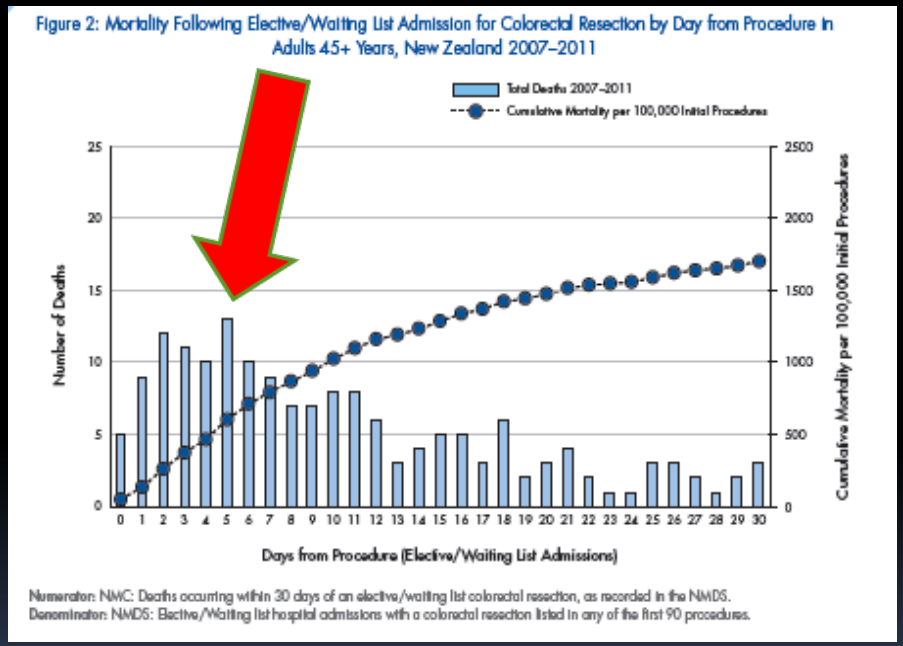
Figure 10: Mortality Following Acute Admission for Cholecystectomy by Day from Procedure, New Zealand 2007–2011



Numerator: NMC: Deaths occurring within 30 days of an acute cholecystectomy, as recorded in the NMDS.
Denominator: NMDS: Acute admissions with a cholecystectomy listed in any of the first 90 procedures.

What is it about days 5?





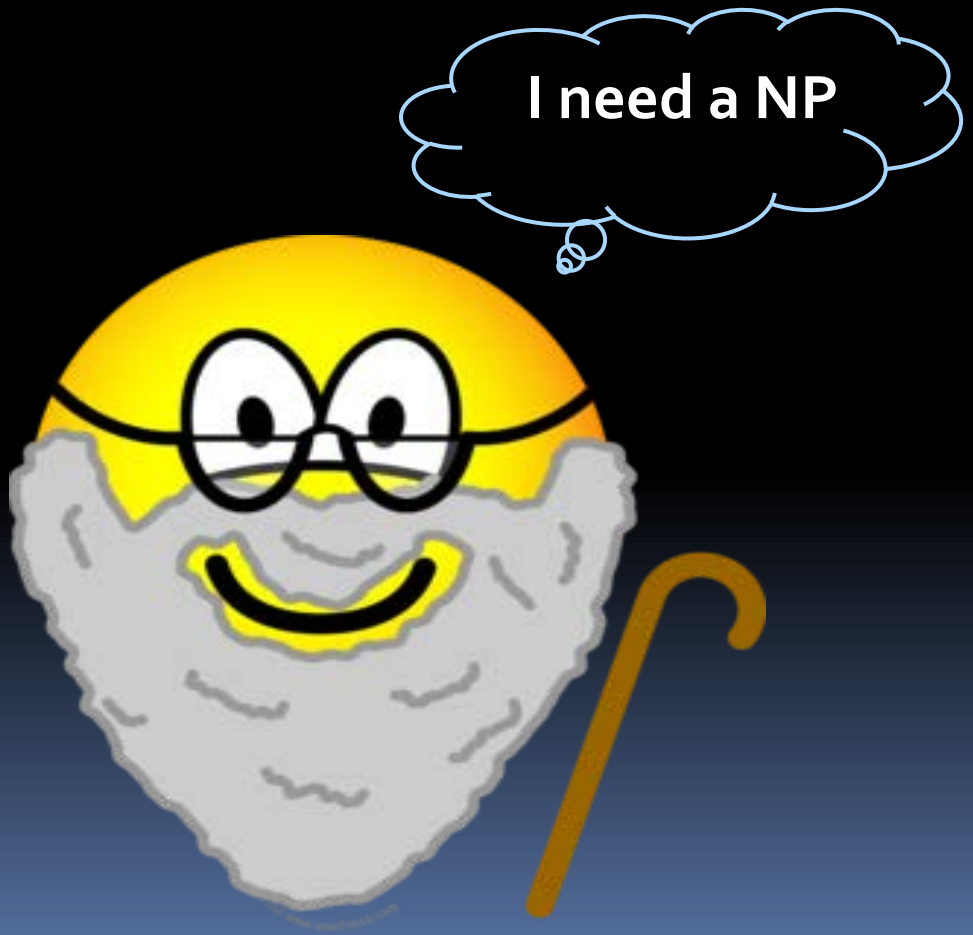
page 16 & 31

Cholecystectomy cumulative mortality 30 days

Open procedure	4.4 %
Lap to open procedure	1.1%
Lap-cholecystectomy	0.07%

page 27 & 29

Elderly over age of 80 years most at risk of dying



40 % of elective surgery is done in private hospitals

Table 20: Hospital Admissions with One or More General Anaesthetics by Admission Type, New Zealand 2007–2011

ADMISSION TYPE	Total Admission Events 2007–2011	Annual Average	Admissions (%)
One or More General Anaesthetics			
Acute	287,379	57,476	24.6
Public Hospital Semi-Acute	88,923	17,785	7.6
Elective/Waiting List	791,271 (312,144 or 39.4% at private hospitals)	158,254	67.8
Total	1,167,573	233,515	100.0

Data source: NMDS: Hospital admissions with one or more general anaesthetics listed in any of the first 90 procedures.

(57 081/ 395 982 X 100 = 14%)

Of the total ASA 1 & 2 elective surgery patients only 14% present to private hospitals

Table 24: Elective/Waiting List Admissions for Those with a First ASA Score of 1 or 2 by Hospital Type and Age Group, New Zealand 2007–2011

AGE GROUP	Number of Admissions 2007–2011 Public Hospitals	Number of Admissions 2007–2011 Private Hospitals	Total Number of Admissions 2007–2011
0–24	109,019	16,950	125,969
25–44	77,119	13,566	90,685
45–64	91,850	18,210	110,060
65–79	50,436	7,361	57,797
80+	10,477	994	11,471
Totals	338,901	57,081	395,982

Data source: NMDS. Elective/Waiting list admissions in those with a first ASA score of 1 or 2 and either a general anaesthetic or a neuraxial block.

Private hospitals have more of the sick than I realised

ASA score remains the strongest predictor of mortality this persists for all analysis & is consistent with previous reports.

- ASA 1 normal healthy patient
- ASA 2 patient with mild systemic disease
- ASA 3 patient with severe systemic disease
- ASA 4 patient with severe systemic disease that is a constant treat to life
- ASA 5 moribund patient not expected to live without operation

ASA

- A common language that conveys a shared understanding

Fewer deaths due to MI in 2007 -2011 for all admission types. page 6

MI as main underlying cause of death

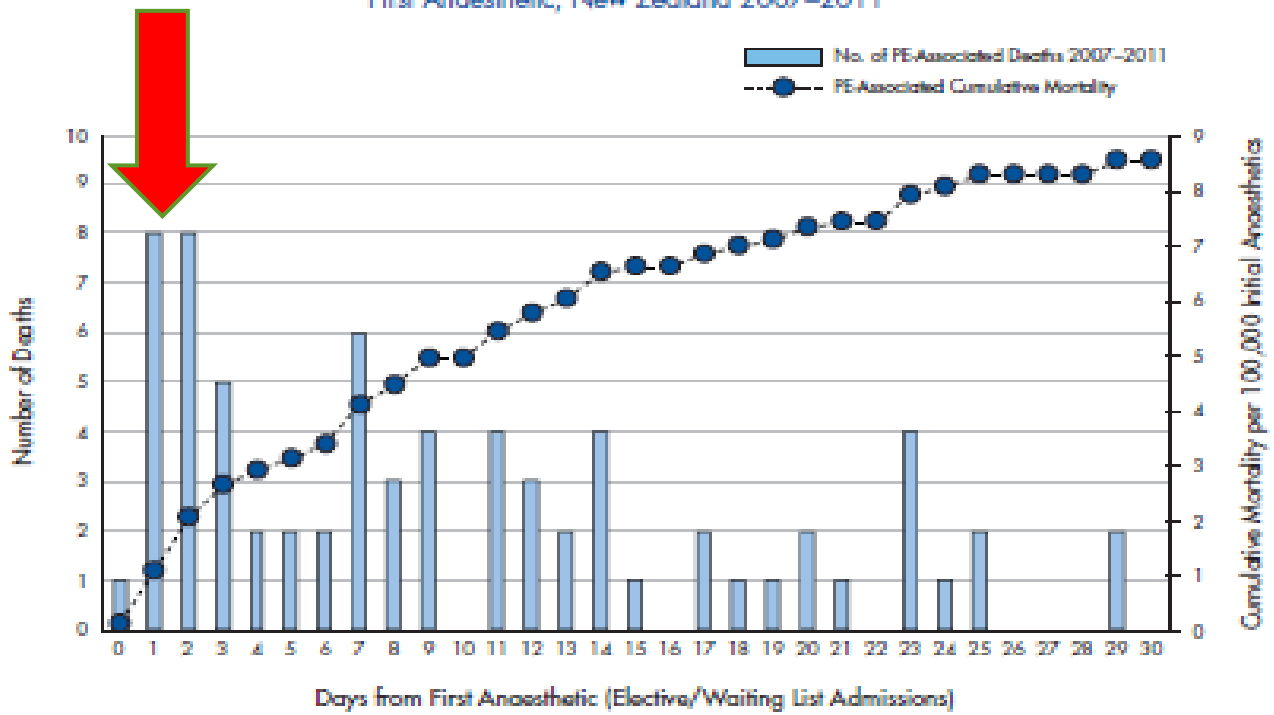
(same day or next day mortality following GA)

	2005-2009	2007-2011
Acute	9.7%	8.34%
Semi-acute	10.4%	4.9%
Elective	11.3%	6.2%

Report 1 page 76, Report 3 page 45

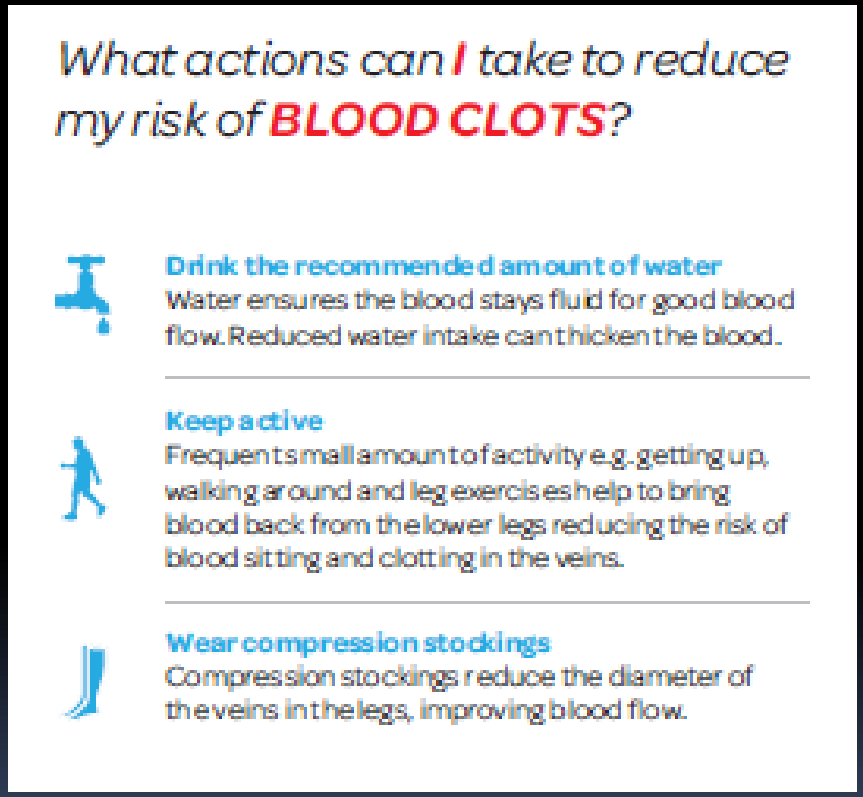
PE they die day 1 & 2 and then they keep on dying

Figure 33: Pulmonary Embolus-Associated Mortality in Elective/Waiting List Admissions by Day from First Anaesthetic, New Zealand 2007–2011



Numerator: NMC: Pulmonary embolus-associated deaths within 30 days of first anaesthetic of an elective/waiting list index admission.
Denominator: NMDS: All elective/waiting list admissions with a general anaesthetic or neuraxial block.
PE: Pulmonary embolus.

Patient engagement for VTE prevention



Patient out comes sensitive to nursing

- UTI
- Decubitus
- Pneumonia
- VTE
- Wound infection
- Sepsis
- Metabolic derangement (e.g. hypovolemia)
- CSN complications (e.g.. confusion)
- Shock / cardiac arrest/ death

McClosky & Dier 2005
(1989 to 2000)

- Nursing hours per 1,000 patient days 9% ⬇
- Casualisation of nursing 40% ⬆

- Negative patient outcomes ⬆
  - 9% VTE ⬆
  - 1766% CNS complications ⬆

Making Health Care Safer II:

An Updated Critical Analysis of the Evidence for Patient Safety Practices. (March 2013 AHRQ)

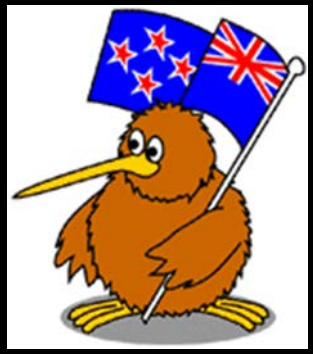
- 28 studies- higher RN = lower mortality
- 232,342 surgical discharges 4,535 patients (2%) died within 30 days
- roughly estimated the difference if 4:1 and 8:1 patient to nurse ratio would be 1000 deaths
- other studies estimate 1 to 5 fewer deaths per 1000 inpatient days

NZ

- 2008 DHB nurses 18,325
- 2014 DHB nurses 21, 598
- patients admitted increased 16% in the last 3 years (older and sicker)
- not uncommon to have 7:1 patient nurse ratio

Nursing Review April/May 2014 pg. 11

- Safe Staffing and Healthy Workplaces Unit (SSHW)
- Care Capacity Demand Management (CCDM) TRENDS programme



- 6 wards in 2 DHB's
- 734 shifts
- only 24% meet the full criteria for appropriate staffing

Stuff.co.nz 28 May 2014
Overworked nurses ration patient care.
Olivia Carville

PE deaths & nursing numbers

- 72 deaths related to elective admission
- 12 involved admission to private hospitals
- 40 % of elective surgery occurs in private hospitals (? could expect 28 deaths in private hospitals)
- patient :nurse ratio traditionally lower in private hospitals

International comparison PE as cause of death page 10

- NZ similar to Japan
- NZ better than Western populations

- NZ 10.2/1000
- Japan 11.5/1000
- UK 8.6/1000

The NZ Nursing Workforce 2012-2013 NCNZ
http://data.workbank.org

WHO Guidelines for Safe Surgery 2009

surgical surveillance metrics

- number of operating rooms
- number of surgical procedures performed in an operating room
- number of trained surgeons & number of trained anaesthetists
- day of surgery mortality rate
- in hospital postoperative mortality rates

WHO recommended measures

- number of operating rooms by location: hospital, ambulatory, public/private
- number of trained surgeons by specialty
- number of other surgical providers
- number of trained anaesthetists
- number of perioperative nurses
- number of 10 most frequent procedures
- death on day of surgery for 10 most frequent
- death in hospital for 10 most frequent

Education matters

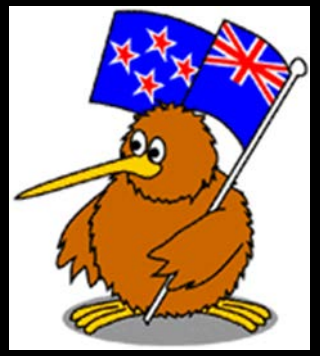
10% ⬆ in the proportion of nurses holding a bachelor degree was associated with a

7% ⬇ in the likelihood of death within 30 days of admission.

(420 000 patients in 300 hospitals)

www.thelancet.com/journals/lancet/articles/PIIs0140.6736(13)62631-8/abstract (Feb 2014)

NZ Nurse



- Average age RN 46.3 years
- 12% RN work force are surgical nurses
- 7% RN workforce are theatre nurses
- Post Registration Qualification
  - Theatre Nurses 33.8%
  - Surgical 29.2%

The NZ Nursing Workforce 2012-2013 NCNZ

Standardised perioperative mortality reporting reviewing

Multidisciplinary –**MUST** include nurses

- what we do
- our numbers
- our quality

MATTERS!

Teena Robinson
teenar@schl.co.nz
021436569