



# Quality of Death

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## US Data

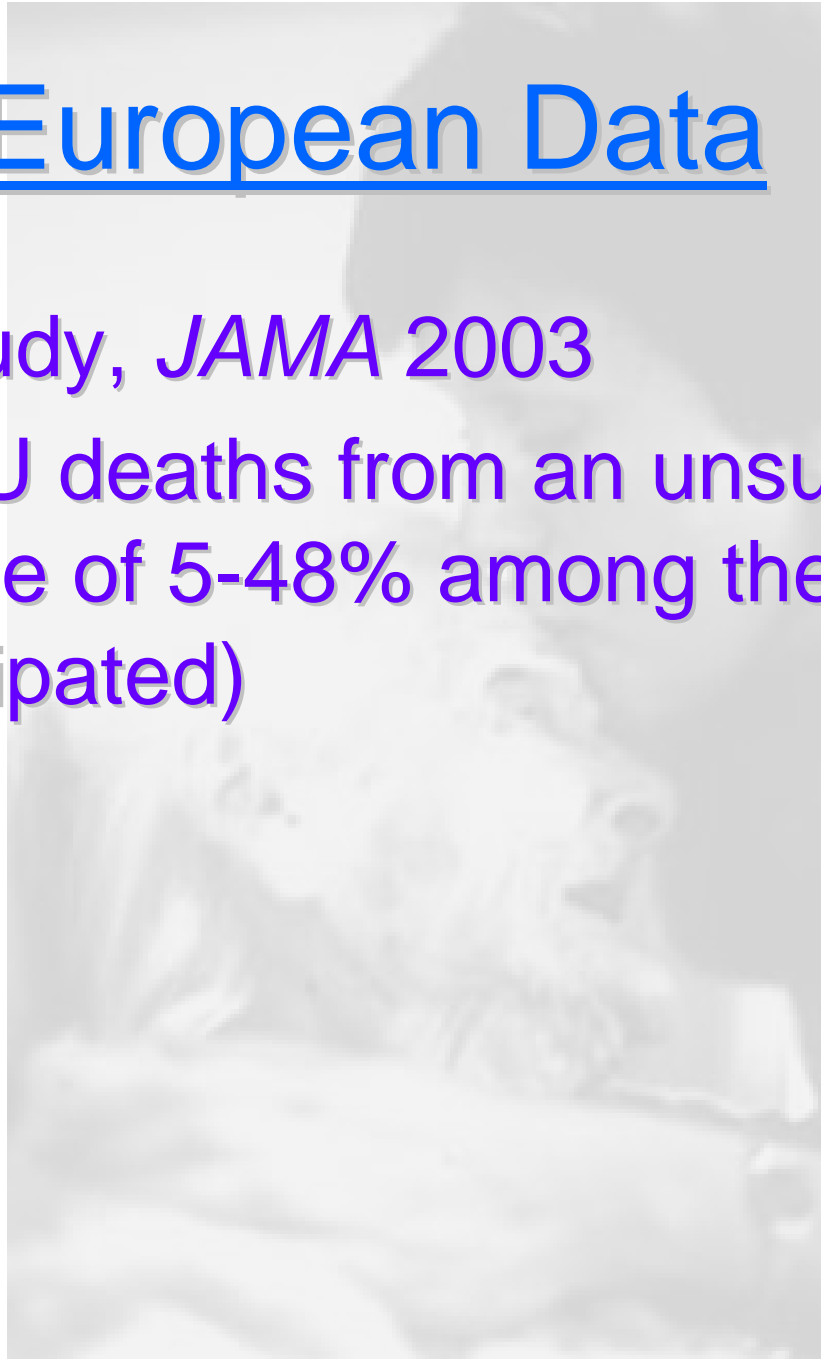
- 38.3% of deaths in the US occur in the hospital
- One in every 5 deaths preceded by an ICU admission
- 59% of hospital deaths involved ICU admission

Angus et al, *Crit Care Med* 2004

- 9 out of 10 Americans prefer dying at home
- Fields and Cassell, 1997

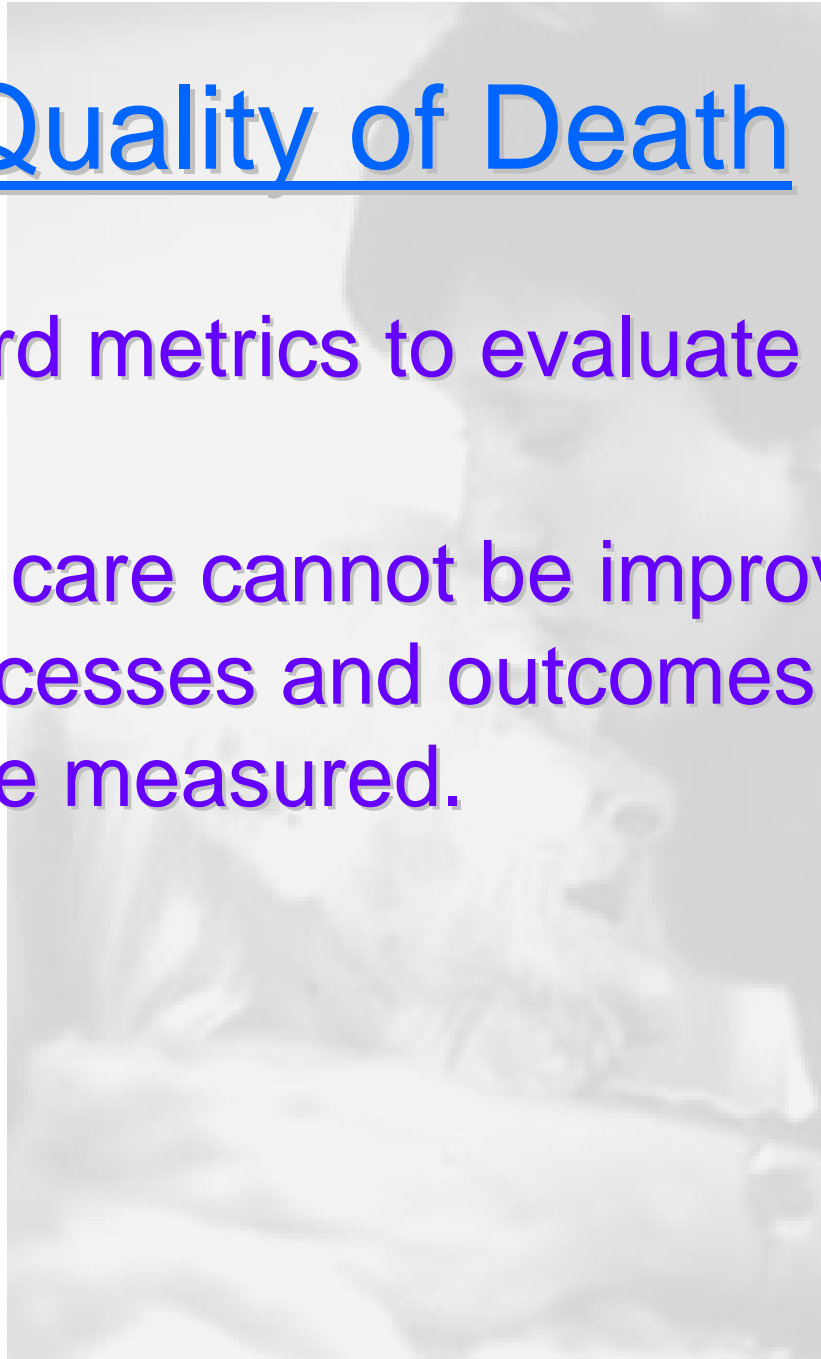
# European Data

- Ethicus study, *JAMA* 2003
- 20% of ICU deaths from an unsuccessful CPR (range of 5-48% among the countries who participated)



# Quality of Death

- No standard metrics to evaluate the quality of death
- End-of-life care cannot be improved unless processes and outcomes of its delivery are measured.



# Quality of Death

- Five dimensions of a good death:
  - Pain/symptom management
  - Avoiding prolongation of dying
  - Achieving a sense of control
  - Relieving burden on others
  - Strengthening relationships with loved ones

Singer et al, *JAMA* 1999

# End-of-Life Care

- Problems identified by SUPPORT Study (*JAMA* 1995):
  - Lack of discussion of patient preferences
  - Too many unnecessary prolonged ICU stay prior to death
  - Poor pain relief at the time of death

# End-of-Life Care

- Communication most frequently identified problem
- ICU patients and families are often dissatisfied with the amount, nature and clarity of communication
- Meetings often delayed and too brief
  - Abbott et al, *Crit Care Med* 2001
  - Azoulay et al, *Crit Care Med* 2000
  - Hall & Rucker, *Chest* 2000

# Objective

- Identify gaps in end-of-life care in Dunedin Hospital
- Obtain baseline measurements of processes and outcome that reflect quality of death
- Use results to design performance improvement initiative

# Methods

- Retrospective study looking at 200 consecutive decedents at Dunedin Hospital before 1 December 2003
- 350-bed tertiary care teaching hospital



# Methods

<b>Patient Information</b>	1	National Health Index		<b>Advance directive</b>	13	DNR	Yes / No
	2	Date of Birth			14	Others	
<b>Death</b>	3	Date		<b>ICU Admission</b>	15	Admission in past year	Yes / No
	4	Etiology			16	Total length of stay in past year	
	5	Place	Ward / ICU / ED / Other				
	6	Length of stay at this location					
<b>Hospital Admission</b>	7	Type	Acute / Elective	<b>Family</b>	17	Notified before death	Yes / No
	8	Length of stay			18	Documented discussion	Yes / No
	9	Previous admissions in past year			19	Present at death	Yes / No
<b>Procedures in last admit</b>	10	Surgery	Yes / No	<b>Pain Score</b>	20	Documented	Yes / No
	11	Invasive procedure	Yes / No		21	Present at Death	Yes / No
	12	Specify			22	On Treatment	Yes / No
					<b>Other symptoms</b>	23	Documented
				Specify			

# Demographics and Place of Death

- 200 decedents between 18 April and 29 November 2003
  - 174 acute admissions (87%)
  - 26 elective admissions (13%)
- Mean duration of stay before death was 8 days (maximum 69, minimum 1)
- Place of death:
  - 162 (81%) in ward
  - 38 (19%) in ICU

# Aetiology of Death

Etiology	Number
Infection, including pneumonia	61
Cardiac conditions (acute coronary syndrome, congestive heart failure)	49
Respiratory failure, including COPD	26
Stroke	18
Renal failure	9
Gastrointestinal complication (bleed, obstruction, perforation, ischemia)	8
Malignancy	7
Pulmonary embolus	6
Trauma	4
Liver failure	4
Miscellaneous	5
Unknown	3

# Interventions among Decedents

- Forty (20%) had surgery
  - Most common: repair of NOF fracture
- Another 43 (21.5%) had other invasive procedure
  - Mechanical ventilation
  - Central line placement
  - Renal support therapy

# Communication

- 148 patients (74%) with DNR orders at time of death
- 162 patients (81%) with documentation of clinician informing patient and/or family of terminal condition
- 164 patients (82%) with documentation of discussion of end-of-life care
- Family present at the time of death of 121 patients (60.5%)

# Pain and Other Symptoms

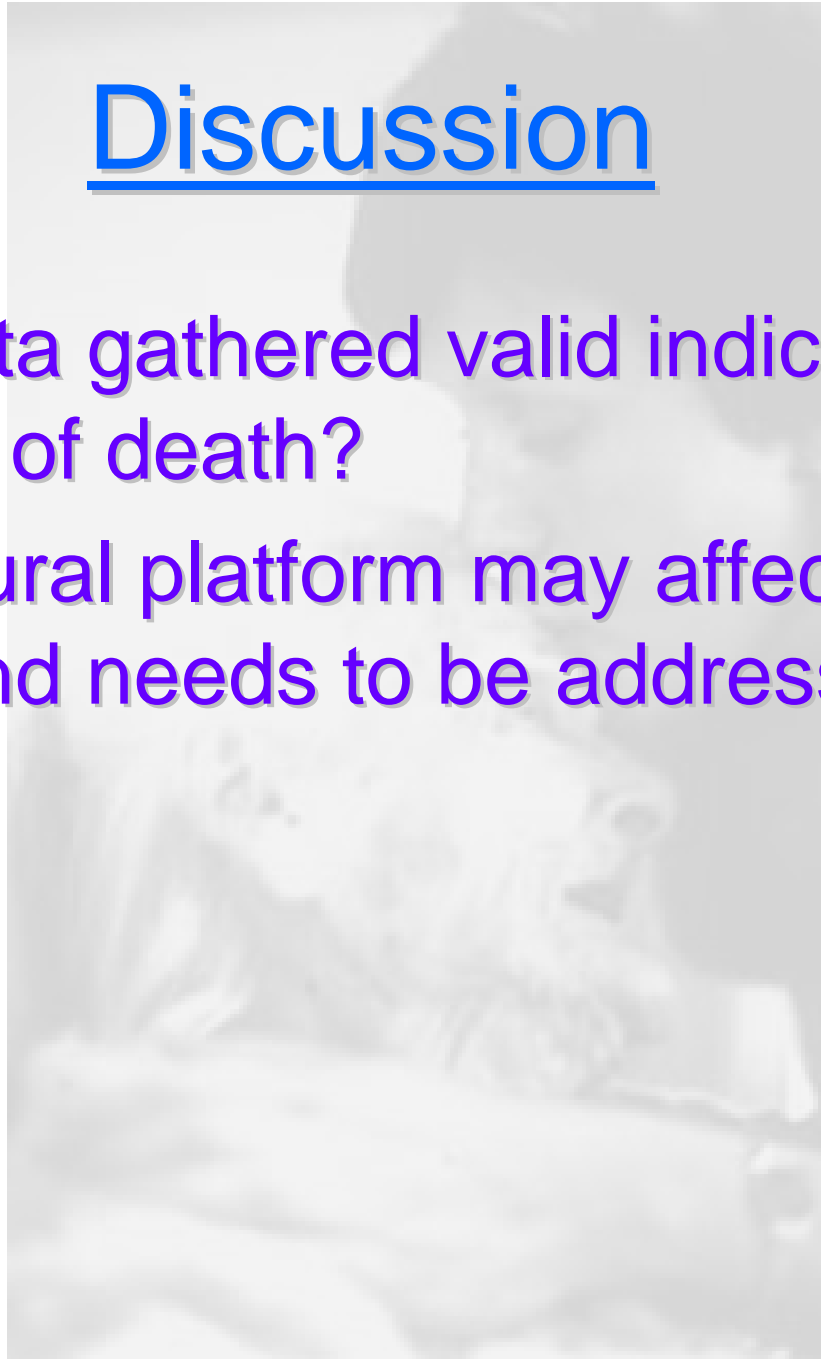
- Pain status documented in 140 patients (70%)
  - 134 were pain-free
- Other symptoms not sufficiently well documented to allow analysis
  - Most common
    - Dry mouth
    - Increased secretions

# ICU Admission

- 38 patients (19%) had ICU admission
- 31 died in the ICU
  - Mean age 56
  - Mean ICU length-of-stay 2.5 days
  - Median ICU length-of-stay 1 day
  - 29 out of 31 had documentation of family discussion regarding end-of-life

# Discussion

- Are the data gathered valid indicators for the quality of death?
- Socio-cultural platform may affect end-of-life care and needs to be addressed



# Process Metrics

- Rate of CPR among patients who die in the hospital
  - Majority of deaths in the hospital not due to unforeseen circumstances
  - Hospitals where end-of-life discussions are prevalent provide less CPR among their decedents
    - La Crosse, WI: education programme about CPR outcomes and end-of-life preferences led to DNR in 98% of decedents in 1995 (Hammes & Rooney, *Arch Intern Med* 1998)
- Is there an optimal CPR rate among hospital decedents?

# Process Metrics

- Documentation of symptom control
- Documentation of communication
  - How about quality?
    - Are end-of-life discussions initiated as soon as possibility of death is entertained?
    - How much time was spent listening to the patient and/or the family?
    - Did the patient and/or family understand what was discussed?

# Outcome Metrics

- Family satisfaction
  - Communication with clinicians
  - Care in general
    - ICU
    - Hospital ward
- Bereavement Project
  - Were there any specific issues in the ICU?
  - Any suggestions to improve ICU service?

# Socio-Cultural Platform of End-of-Life Care

- ICU utilisation proportional to ICU availability
  - Western Massachusetts 2-3x higher in ICU days per million population compared to Alberta, Canada (Rapoport et al, *Crit Care Med* 1995)
  - 24 ICU beds per 100,000 in western Massachusetts vs. 16 ICU beds per 100,000 in Alberta

# Socio-Cultural Platform of End-of-Life Care

## ■ Australia

- 9.4 ICU beds per 100,000
- ICU 2.8% of hospital beds

## ■ New Zealand

- 5.3 ICU beds per 100,000
- ICU 1.7% of hospital beds

Judson & Fisher,  
*Crit Care Clin* 2006

## ■ US

- Washington DC (highest)  
81 ICU beds per 100,000
- New Mexico (lowest)  
19 ICU beds per 100,000

Chang & Steinberg,  
*Hosp Top* 2006

- ICU 10% of hospital beds  
& 30% of hospital budgets

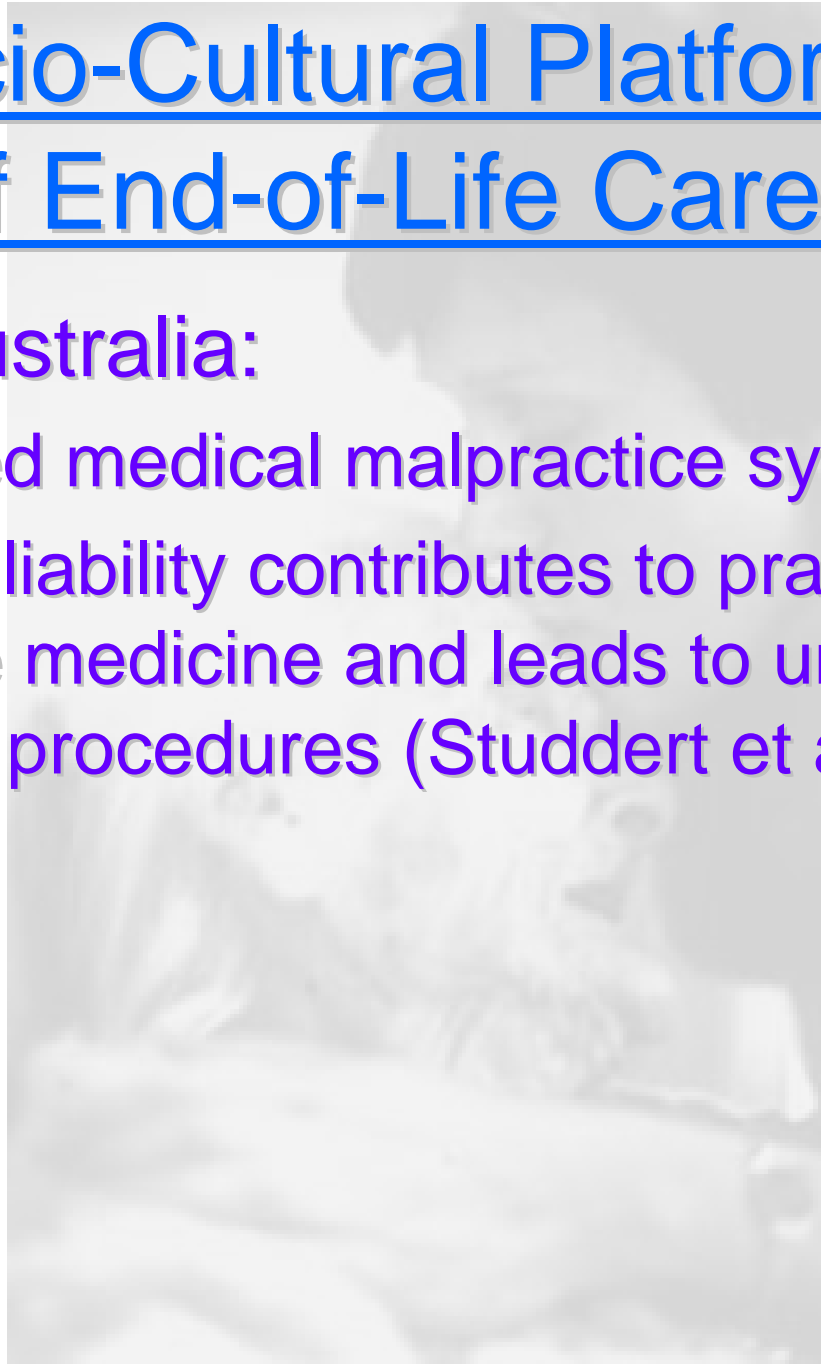
# Socio-Cultural Platform of End-of-Life Care

- New Zealand
  - Accident Compensation Corporation deals with medical injuries
  - System of 'no fault' compensation to injured patient without proving clinician negligence or incompetence



# Socio-Cultural Platform of End-of-Life Care

- US and Australia:
  - Tort-based medical malpractice system
  - Threat of liability contributes to practice of defensive medicine and leads to unnecessary tests and procedures (Studdert et al, *JAMA* 2005)



# Socio-Cultural Platform of End-of-Life Care

## ■ New Zealand

- Use of advanced technology in medicine centrally-controlled by government in consultation with clinicians, limiting its availability and public expectations
- People tend not to expect access to unlimited health care services (Streat & Judson, *New Horizons* 1994)

## ■ US

- 40% believe a terminally ill patient should be kept alive as long as possible regardless of cost (USA Today/Kaiser/ABC poll 2006)

# Socio-Cultural Platform of End-of-Life Care

- New Zealand: doctors and nurses repeatedly in the top five most trusted professionals (Readers Digest poll)
- US : distrust of health care system high (Armstrong et al, *J Gen Intern Med* 2006)

# Socio-Cultural Platform of End-of-Life Care

- Improving end-of-life care might need to address
  - Availability of ICU resources
  - Societal expectations
  - Medico-legal environment
  - Public trust of the clinicians