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Absence of ageism in access to critical care: a cross-sectional study

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Abstract

Background: in recent years, the NHS has been accused of ageism frequently and from many fronts. Previous studies have shown that the number of critical care beds in the UK is inadequate to meet the needs of the population. This study asks whether there is discrimination against older people in access to these critical care beds.
Methodology: all sick patients in five hospitals in a South Wales Health Authority were studied every 12th day for one calendar year. Demographic, clinical and physiological data were collected. Ten members of the Welsh Intensive Care Society subsequently judged the optimum location of care for each of these individuals. This was based on a summary of diagnoses, procedures and physiological/biochemical results, but without access to the age of the patient or type of ward or hospital where the patients was actually treated. These data were analysed to determine whether the likelihood of being treated in the most appropriate setting, based on the consensus decision, was influenced by the patient's age.
Results: 4058 patients met the study criteria, of whom 2287 patients (56.4% of the total) were being cared for on a general ward and 1769 in critical care areas. The intensivist panel determined that 1085 (53%) ward based patients were more suitable for care on intensive care or high dependency units and 220 (12.4%) critical care patients were suitable for ward care. The proportion of patients considered to be in an inappropriate ward varied little in different age groups.
Discussion: many patients on general wards have needs that may be more appropriately addressed on critical care units but there is no relationship between these unmet needs and the age of the patient.

Keywords: *elderly, ageism*

Introduction

In recent years, the NHS has been accused of ageism frequently and from many fronts. Reports of ageist practices in the health service have made the headlines in the lay press [1, 2] and on television news programmes [3]. The Age Concern publication 'Turning Your Back On Us: Older People and the NHS' stated that age discrimination occurs at all levels of the NHS and cited examples of older patients being denied access to treatment [4]. The Royal College of Physicians [5] is also concerned that older people are excluded from the full range of therapies from which they could benefit and 'The National Services Framework for Older People' [6], published by the Department of Health in March 2001 acknowledged that older people had not received the same level of services and care as everyone else.

Throughout the literature, concerns are expressed regarding the existence of a bias against admitting elderly people to critical care units [7–11]. Many of these reports

originate from the United States, a country that has five times more critical care beds to total hospital beds than the UK [12]. In 1998, there were around 70 adult critical care beds per 1 million population in Wales and 55 per million in England. These numbers are inadequate to meet the needs of the population [13].

The aim of this study was to determine whether access to critical care in south Wales is related to age. In a large study to determine the population need for critical care beds, intensivists were given physiological and clinical data regarding sick patients on general wards and critical care units. They were blinded as to the ages of the patients as well as their location. The actual and preferred locations of treatment for a large number of patients were assessed, providing an opportunity to determine whether patients in need are denied access to critical care facilities solely on the basis of their age.

Methodology

The data used was from the south Wales study of the requirements for adult critical care beds and the methodology is described in more detail in a previous publication [13].

Study population

Iechyd Morgannwg Health Authority covers the contiguous geographical areas of Swansea, Neath, Port Talbot and Bridgend in south Wales, UK. It serves a population of 499,763 of whom 102,000 are over 65 years. All five hospitals that provide secondary and tertiary health services to this population were included in the study.

Case definition

A list of criteria was developed from the Department of Health's Working Group on Guidelines on Admissions to and Discharges from Intensive Care and High Dependency Units [14]. It was circulated to local consultants who were asked whether any additional cases might require critical care. They were asked to include borderline cases so that the list would overestimate rather than underestimate the number of patients in need. The final list of disorders, diagnoses and procedures used to screen patients for inclusion in the study is shown in Figure 1. Patients who were terminally ill and receiving palliative care were excluded. This was the only exclusion criterion. Chronological age, pre-morbid place of residence and quality of life judgements were not part of our patient assessment.

There was some diversity in the nature of the facilities provided by each of the five hospitals. One of the hospitals had several specialist critical care areas, in others there were separate intensive care and coronary care units whilst in two hospitals these were amalgamated into a single unit. It was therefore decided to amalgamate high dependency and intensive care beds into one category of critical care.

Data collection and analysis

Trained research nurses instructed identified ward staff in the study methods. Pilot studies of the methods were done in all hospitals. The number of patients who met the inclusion criteria was recorded every 12th day (08:00 day 11 to 08:00 day 12) for one calendar year. Checks were made on the most ill patients on wards which declared no patient suitable for critical care, and all in-hospital deaths in the previous 24 hours were checked for inclusion in the study.

Three of the five hospitals have dedicated rehabilitation and Care of the Elderly wards and patients on these wards were all screened for inclusion.

A summary sheet was prepared for each patient. This listed reasons for inclusion in the study, diagnoses, procedures and APACHE II variables. The patient's identity, age, hospital and type of ward were *not* included. Age was deliberately excluded to prevent any possibility that ageism would influence the primary objective of the study.

This summary sheet was judged by 10 intensivists from the Welsh Intensive Care Society. They decided whether each patient would be more appropriately cared for on a general ward or on a critical care unit. A three round Delphi technique was used with 7/10 agreement constituting consensus. Comparison was made between the actual location of care and that deemed most appropriate by the intensivists.

Age was grouped into the following categories: <55 years, 55–64 years, 65–74 years, 75–84 years and >84 years. Ninety five per cent confidence intervals were calculated for the proportion of each age group in either ward or critical care settings who should have been treated on a critical care unit.

Myocardial infarction subgroup analysis

The number of patients in general wards and in critical care units with a diagnosis of myocardial infarction within the previous 24 hours was analysed. Patients were grouped into the above age categories and relative rate of critical care treatment determined.

Results

The study criteria was met by 4058 patients, of whom 2287 (56.4% of the total) were being cared for on a general ward and 1769 in critical care areas. Details on three patients were incomplete (one age missing, two nursed in theatre areas). The intensivist panel reached a consensus decision on 3723 patients (91.8%). They determined that 1085 (53%) ward-based patients were more suitable for care on intensive care or high dependency units and 220 (12.4%) critical care patients

Exclude terminally ill patients
Include also those with any of the criteria who have died within the last 24 hours

General Criteria:

Temperature	> 38.5 axilla or > 39 core < 31.5 axilla or < 31.9 core
Pulse	>140 or < 54 and unwell
Systolic BP	>160 mm Hg and unwell < 80 mm Hg or < 30 mm Hg on normal
Respirations	>35 or < 6 per minute
IV lines	3 or more
Transfusion	5 or more units of blood > 4 litres of IV fluids in 24 hours
Oxygen Oxygen sat. in air < 90%	All on oxygen except those on oxygen at home
Blood gases	pH < 7.35 or Pa CO_2 > 8k Pa or Pa CO_2 > 1k Pa rise
Urine Output	< 135 mls in 8hrs
Glasgow Coma Score	< 9
Respiratory arrest < 24 hrs	

General Surgical:
Major surgery cancelled due to lack of bed

Surgery > 6 hrs duration

ASA code > 3
Emergency surgery after midnight

Neurosurgery:
Head injury with Glasgow coma score < 12

Head injury + intracranial abnormality < 24 hrs

Subarachnoid haemorrhage receiving iv Nimodipine or within 24 hrs if Glasgow coma score < 14

Anterior cervical discectomy less than 24 hrs

Cervical spine on traction

Posterior fossa haemorrhage (< 24 hrs)

Anaesthesia:
Ventilated
Epidural Anaesthesia (excluding obstetrics)

Dialysis:
On acute haemodialysis
On acute peritoneal dialysis

Obstetrics:

Eclampsia

Pre-eclampsia with diastolic BP > 100 MM Hg

Risk of respiratory Obstruction:

- Within 24 hrs of tracheal extubation
- With inspiratory stridor
- Inhaled foreign body (24 hrs)
- Trauma with risk of obstruction
- Thyroid surgery > 3 hrs
- Anaphylaxis – facial swelling
- Major head/neck surgery
- With oral or nasal ET tube
- Tracheal suction > once every 2 hrs
- Within 24 hrs of tracheostomy or mini-tracheostomy

Surgical Procedures within 24 hrs:

- Cystectomy
- Urinary diversion
- Nephrectomy
- Thoracotomy
- Aortic Aneurysm
- Carotid Endarterectomy
- Femoral/Popliteal bypass
- Axillo/Femoral graft
- Major Colonic surgery
- Pancreatectomy
- Gastrectomy
- Oesophagectomy

Cardiac Surgery

- Aortic dissection
- Aortic aneurysm
- Valvoplasty
- Valve repairs
- Replacement valves
- Coronary Artery Bypass
- Other major cardiac surgery

General Cardiac

- Post cardiac arrest (in last 24 hrs)
- Myocardial infarct (in last 24 hrs)
- Hypotension with inotropes (in last 24 hrs)
- IV Antiarrhythmias
- Unstable angina (in last 24 hrs)
- Angioplasty < 24 hrs
- Balloon Valvoplasty
- Telemetry

Miscellaneous:
None of the previous categories but nurse worried about the patient

Figure 1. Criteria for inclusion.

Table 1. Number of patients on a general ward considered suitable for critical care by intensivist panel

Age group (years)	Number of patients on a general ward (% for whom there was a consensus)	Number suitable for critical care	Percentage (95% C.I.)
<55	502 (89.4)	217	48.3 (43.7–53.0)
55–64	345 (91.0)	167	53.2 (47.7–58.7)
65–74	602 (89.4)	305	56.7 (52.5–60.9)
75–84	603 (87.9)	276	52.1 (47.8–56.3)
>85	233 (90.6)	119	56.6 (49.9–63.3)

were suitable for ward care. The proportion of patients considered to be in an inappropriate ward varied little in different age groups (Tables 1 and 2).

The rate ratio of being in a critical care ward with a myocardial infarction in the previous 24 hours by age group is shown in Table 3. The rate ratios do not show any trend for reducing as age increases.

Discussion

Our results suggest that there is no substantial age discrimination against patients who need critical care in south Wales. Many patients on general wards have needs that may be more appropriately addressed on critical care units but there is no relationship between these unmet needs and the age of the patient.

Of the 2287 patients included in the study who were on a general ward, 1438 (63%) were over 65 years old. This is a similar figure to that reported by the 2000 National Beds Enquiry, in which 66% of patients in general wards were over 65 [15]. The population profile of the Iechyd Morgannwg Health Authority is similar to the rest of England and Wales in terms of age structure and morbidity [13]. However, since there is considerable variation across the UK in the provision and use of intensive care units [12, 14], it should not be assumed that our results are reflective of policies nation-wide.

The results of this study would not be valid if elderly patients were excluded somehow before consideration by the intensivist panel. Our inclusion criteria were based solely around diagnoses and procedures. Factors which can discriminate against the elderly, for example chronological age, pre-morbid place of residence and quality of life judgements, were not part of our patient assessment. Patient selection was carried out on every ward of the five hospitals on each of the study days and included all the elderly care and rehabilitation wards.

However, older people may have been excluded if they were denied the procedures that comprise our inclusion criteria. We acknowledge that access to elective cardiac, surgical and neurosurgical procedures has not been assessed by this study. Decisions to manage patients palliatively on general wards or in the community rather than refer for complex or risky interventions may have been made on the basis of the patients' age, although we have no evidence of this. Indeed we found that 9% of the 44 patients who had undergone one of the following procedures; aortic aneurysm, carotid endarterectomy, femoral/popliteal bypass; axillo/femoral graft were 85 years or older. This compares to 7.5% of the study's total population of 4055 being in this oldest age group.

Table 2. Number of patients on critical care considered suitable for general ward by intensivist panel

Age group (years)	Number of patients in Critical Care ward (% for whom there was a consensus)	Number suitable for general ward	Percentage (95% C.I.)
<55	507 (96.4)	75	15.3 (12.1–18.5)
55–64	274 (94.5)	44	17.0 (12.4–21.6)
65–74	537 (95.5)	56	10.9 (8.2–13.6)
75–84	379 (92.9)	35	9.9 (7.0–13.6)
>85	71 (93.0)	10	14.9 (7.4–25.7)

Table 3. Rate ratio of being in critical care ward with a myocardial infarction in previous 24 hours by age group

		Number in general ward		Number in critical care ward	
Age group (years)	Rate ratio (95% C.I.)	MI +	MI −	MI +	MI −
<55	4.8 (1.8–12.4)	5	497	24	483
55–64	2.4 (1.3–4.5)	14	331	27	247
65–74	3.3 (1.9–5.7)	16	586	47	490
75–84	4.5 (2.5–8.2)	14	589	40	339
>85	4.2 (1.6–10.9)	7	226	9	62

Several studies, mostly in the area of cardiovascular disease, point out that older people are less likely to receive angiography after myocardial infarction [16] and are more likely to have severe coronary artery disease treated medically rather than surgically [17, 18]. Older patients with acute intracranial haematomas are less likely to be transferred for specialist neurosurgical care than younger patients with similar severity of injuries [19] and elective surgery for abdominal aortic aneurysm in octogenarians is 'reluctantly undertaken' [20]. Our data on the distribution of patients between critical care and general ward who had a myocardial infarction in the previous 24 hours (Table 3) does not support these finding and suggests that agesim is not evident within this study population.

There is a strong evidence base that older patients do benefit from critical care facilities. Studies have shown that whilst severity of illness is a predictor of intensive care outcome, age is not [21]. Older people may have worse functional ability at admission to intensive care, but the proportion of older patients who recover and their rate of recovery is the same as for younger patients [22]. Chelluri's reviews of the literature regarding intensive care conclude that there is no difference between old (70–85 years) and very old patients (over 85 years) in terms of mortality [8] or in activities of living and perceived quality of life [23]. It has even been suggested that elderly survivors are better motivated toward rehabilitation and derive greater satisfaction from their progress than younger survivors [24].

Since our data was collected, the Department of Health has announced extra funding to increase adult critical care beds by 10% [25] and emphasised its commitment to eliminate ageist practices [6]. Further studies are needed to monitor whether these measures correct the deficit in critical care beds and to ensure that services continue to be accessed by all patients in need, regardless of their age.

Key points

- Many patients on general wards have needs that may be more appropriately addressed on critical care units.
- There is no relationship between these unmet needs and the age of the patient.

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