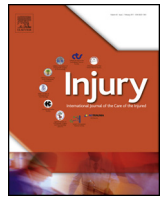




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Using national hip fracture registries and audit databases to develop an international perspective

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ABSTRACT

Hip fracture is the commonest reason for older people to need emergency anaesthesia and surgery, and leads to prolonged dependence for many of those who survive. People with this injury are usually identified very early in their hospital care, so hip fracture is an ideal marker condition with which to audit the care offered to older people by health services around the world.

We have reviewed the reports of eight national audit programmes, to examine the approach used in each, and highlight differences in case mix, management and outcomes in different countries.

The national audits provide a consistent picture of typical patients – an average age of 80 years, with less than a third being men, and a third of all patients having cognitive impairment – but there was surprising variation in the type of fracture, of operation and of anaesthesia and hospital length of stay in different countries.

These national audits provide a unique opportunity to compare how health care systems of different countries are responding to the same clinical challenge. This review will encourage the development and reporting of a standardised dataset to support international collaboration in healthcare audit.

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Introduction

Each year about 2 million people sustain a hip fracture; a global figure that may exceed 6 million by 2050, with the greatest increases anticipated in Asia and Latin America [1]. Mortality in the first few weeks after the fracture is of the order of 10%, and less than half of survivors regain their previous level of function [2]. The outcome of hip fracture is often determined by patients' pre-existing frailty, but recent trends suggest that implementation of

national audit programmes can significantly improve outcomes, including mortality [3].

Rikshöft, the Swedish national registry of hip fracture care was set up in 1988 as the first national database championing the care of patients with hip fracture [4]. Its success led to European Commission support for development of the Standardised Audit of Hip Fracture in Europe (SAHFE) as a model [5]. The Fragility Fracture Network (FFN) has extended the SAHFE model; developing a minimum common dataset (MCD) that has been used in a pioneering international collaboration between five European centres – Barcelona, Spain; Celje, Slovenia; Lübeck, Germany; Msida, Malta; Stuttgart, Germany [6].

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Denmark has run a nationwide population-based clinical quality database since 2003 [7]. Reporting is mandatory, with all orthopaedic departments providing data to the Danish Hip Fracture Database (DHFD). The Norwegian Hip Fracture Register developed alongside the Norwegian Arthroplasty Register, and since 2005 its reports have provided a detailed picture of trends in care, particularly in respect of changes in surgical and anaesthetic techniques [8].

The Scottish Hip Fracture Audit (SHFA) produced a series of annual reports between 1993 and 2010. More recently ‘snap shot’ data collected over a four month period was used in intermittent audit against standards directly relating to a specific hip fracture pathway [9]. However, from 2016 the SHFA will again be collecting and reporting data on all patients, having observed that some aspects of performance deteriorated with the move away from continuous audit.

Around the UK a number of individual hospitals routinely collected data using datasets modelled on that of the Standardised Audit of Hip Fracture in Europe. In 2005 collaboration between the British Orthopaedic Association and the British Geriatrics Society led to a series of innovations, including a joint ‘Blue Book’ which proposed standards for the care of patients with fragility fracture [10], and the establishment of the National Hip Fracture Database (NHFD) [11].

Since its inauguration in 2007 the NHFD has collected data on half a million people presenting with hip fracture in England, Wales and Northern Ireland. Its model initially focused on annual comparison of practice between participating hospitals, but in the last few years its emphasis has moved from an annual reporting cycle towards a continuous quality improvement programme; reporting live data to support clinical governance and innovation in individual hospitals, on a website open to the public.

The impact of the NHFD [3] has encouraged the development of similar national audits; Ireland have been reporting since 2013

[12], New Zealand and Australia released their first report in 2016 [13], and the year of data collection has just finished in the Netherlands.

New Zealand and Australia’s approach of presenting two national reports in a single document allows direct comparison of their patient populations, of their care, and of its outcome. In this paper we extend this to an examination of all eight of these national audits, considering how each has developed from their common origin, and what they might tell us about hip fracture, and about healthcare more generally in these different countries.

Methodology

We present a summary of the results of the most recent annual reports for eight national audits: Sweden [4], Denmark [7], Norway [8], Ireland [12], Australia and New Zealand [13] and the United Kingdom (where Scotland [9] reports separately from England, Wales and Northern Ireland [11]).

Each audit is underpinned by an enormous resource of data. However, information governance makes it difficult to access these directly or to combine them across national borders, so in this paper we have confined our analysis to the data that are publically available, including those not routinely published in English [4,7,8].

We constructed a detailed cross-tabulation of all demographic, casemix, care or outcome data that had been presented in the most recent annual reports from these countries. Annual reports do not repeatedly publish figures that are expected to be stable from year to year, so where necessary we supplemented these recent data with figures from the previous annual reports.

Our cross-tabulation identified 260 different aspects of case-mix, care or outcome that were described in one or more of the national reports. The three tables of this paper are focused on the 50 topics for which directly comparable data were available from at least three of the national reports.

Table 1
Structure and casemix of the eight national audits.

	Sweden	Denmark	Norway	England, Wales	Scotland	Ireland	New Zealand	Australia
AUDIT STRUCTURE				Northern Ireland				
Publication	Nov. 2016	April 2016	June 2016	Sept. 2016	July 2016	Nov. 2016	Sept. 2016	Sept. 2016
Audit period	2015	Dec 2014–Nov 2015	2015	2015 cases	Oct 2015–Jan 2016	2015	2015 cases	2015
Total number of cases	15,062	6789	8400	64,864	1041	2962	594	2925
Age range (years)	50+	65+	All ages	60+	50+	60+	50+	50+
Hospitals included	52/54	26/26	46/46	177/177	21/21	16/16	4/23	21/99
Cases captured (%)	88	100	93	91	–	81	–	–
Data completeness (%)	100	100	89	(94)	–	96	97	98
CASEMIX								
Female (%)	68	70	70	72	73	70	65	70
Average age (years)	82	83	80	(83)	82	–	82	82
Aged 80–89 years (%)	44	45	–	46	–	42	44	45
Admitted from home (%)	70	73	–	78	75	83	75	71
From care home (%)	26	19	–	19	18	8	24	28
Already an inpatient (%)	4	1	–	4	6	9	–	–
Pre-existing cognitive impairment (%)	21	–	24	37	26	26	27	40
Normal cognition (%) ^a	64	–	68	63	–	74	73	60
ASA grade 1–2 (%) ^b	39	–	37	27	(26)	44	27	18
ASA grade 3 (%)	53	–	54	54	(53)	51	55	58
ASA grade 4–5 (%)	8	–	7	14	(15)	5	17	23
Mobile outdoors, no aids (%)	43	–	–	36	–	48	49	44

(Bracketed figures are derived from the previous annual report, where none were given in the most recent report).

^a Normal cognition defined by Abbreviated Mental Test (AMT) score >6/10 in IHFD, and >7/10 in NHFD.

^b ASA = American Society of Anesthesiologists.

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