Adverse Events Regional Feasibility Study: indicative findings

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Abstract

Aims. To identify substantive findings of potential clinical and managerial significance from a regional feasibility study of adverse events (AEs).

Methods. A standardised protocol using structured implicit review was applied to 142 AEs generated in an audit study of three public hospitals in the Auckland region for admissions in 1995. Areas of potential significance addressed were: timing, location and impact of AEs; preventability; and clinical context and predictability.

Results. 142 cases were identified as AEs (10.7% of 1326 screened records). In 102 cases, 7.7% of all screened records, it was considered to be more likely than not that health care management contributed to the AE. About half the reported AEs occurred before the index admission, the majority outside hospital. Over half of all events resulted in disability that was resolved within a month. An average 6.7 extra days stay in hospital were attributable to AEs. For 60% of AEs the evidence for preventability was either low or non-existent. Areas of potential prevention were predominantly educational. Over half of all AEs occurred in a surgical context. Medical AEs were more likely to have occurred outside hospital, to be drug-related, to be associated with an acute admission, to be classified as highly preventable, and to have a greater impact on hospital stay.

Conclusions. Although the data generated by a feasibility study must be treated with caution, the pattern of results is consistent with comparable Australian findings and is of potential clinical and managerial significance.

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The subject of patient safety, and the quality of health care, has gained increasing momentum. Although it has been over a decade since the publication of the first authoritative estimates of adverse events (AEs) in the Harvard Medical Practice Study (HMPS),[1] within the last eighteen months there has been a report on patient safety from the Institute of Medicine[2] and an issue of the British Medical Journal devoted to medical error.[3] Other journals have also canvassed the question[4-6] and studies on AEs and medical error have been published in other developed countries.[7,8] The matter has also gained attention in the United Kingdom because of highly-publicised incidents, such as the Bristol affair.[9]

Interest in patient safety has also been evident in Australia, with some of the earliest work published on anaesthesia-related mortality.[10] The first broad-based and representative investigation using internationally standardised and clinically generic procedures of AE determination was the Quality in Australian Health Care Study (QAHCS).[11]

In New Zealand the question of patient safety has, to date, been little researched. The methodological results from a feasibility study designed to test the application of such standardised epidemiological techniques in the New Zealand setting is reported in the preceding article.[12] This article presents some key substantive findings from the feasibility study that may be of clinical and managerial significance. These relate to the timing, location and impact of AEs, their preventability, and their clinical context and predictability.

Methods

Sampling and data collection. Three major public hospitals were selected for study in the Auckland region. The survey population was defined as all patient admissions to these hospitals for calendar year 1995 (excluding day and psychiatric cases). Fuller details on sampling are provided in the preceding paper.[12]

Standard hospital inpatient information for each sampled admission was provided by NZHIS. This included admissions information (dates of admission and discharge, admission type and source), socio-demographic data (age, gender, ethnicity, domicile code), and clinical data (ICD9 and AN-DRG3.1 diagnostic classifications).

The core data collection procedure of the study was a two-stage retrospective review of medical records for selected cases using the Review Form 1 (RF1) and Review Form 2 (RF2), both closely modelled on the comparable instruments in the American and Australian studies. In two of the three hospitals an Expert Reviewer (ER) administered "blind" the full cycle of data collection on a one-in-ten sub-sample. Fuller details on data collection are provided in the preceding paper.[12]

Definitions.[11] An AE was defined as (a) an unintended injury or unintended complication, (b) resulting in temporary or permanent disability, including increased length of stay and/or financial loss to the patient, (c) that was caused by health care management rather than the underlying disease process.

Disability was defined as: temporary, lasting up to a year, or permanent impairment of function; death; or prolonged hospital stay even in the absence of impairment.

Preventability of an AE was assessed as an error in health care management due to failure to follow accepted practice at an individual or system level.

Potential for prevention of recurrence of particular AEs was assessed by MO reviewers identifying broad 'areas of effort'.

Because of the small size of the sample – 142 AEs – no formal statistical analysis is used in this paper. Any evaluative judgements applied to patterns in the data, therefore, while they may be suggestive of clinical or managerial relevance, do not imply statistical significance.

Results

Frequency. Of 1575 medical records sampled, and allowing for missing and excluded data, 515 were screened criteria positive and went on to medical review.[12] Of these, 142 cases were identified as AEs (10.7% of all screened records). In 102 cases, 7.7% of all screened records, it was considered to be more likely than not that health care management contributed to the AE.

Timing, location and impact. Information on the timing, location and impact of adverse events is presented in Table 1. Looking at all AEs, about a half occurred before the sampled (index) admission and an extra 6.7 days was added to hospital stay. A third of all AEs took place outside a public hospital (mostly in ambulatory settings) and had a greater than average effect in lengthening hospital stay. Over half of all events occurring before the index admission took place outside a public hospital. AEs occurring inside hospital and