

# Learning From No-Fault Treatment Injury Claims to Improve the Safety of Older Patients

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## ABSTRACT

New Zealand's treatment injury compensation claims data set provides an uncommon no-fault perspective of patient safety incidents. Analysis of primary care claims data confirmed medication as the leading threat to the safety of older patients in primary care and drew particular attention to the threat posed by antibiotics. For most injuries there was no suggestion of error. The no-fault perspective reveals the greatest threat to the safety of older patients in primary care to be, not error, but the risk posed by treatment itself. To improve patients' safety, in addition to reducing error, clinicians need to reduce patients' exposure to treatment risk, where appropriate.

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## INTRODUCTION

Improving patient safety is one of the greatest challenges facing modern health care systems. Medication adverse events in the elderly result in many avoidable hospital admissions and cost health systems billions every year.<sup>1,2</sup> The aging population and the vulnerability of the elderly make addressing patient safety even more urgent. Although most health care is delivered in primary care, comparatively little is known about threats to patients' safety in the outpatient setting.<sup>3</sup> The claims data set created under New Zealand's distinct no-fault accident insurance scheme presents novel opportunities for learning from all types of safety incidents, including minor incidents and incidents not associated with error or negligence.<sup>4</sup>

New Zealand's accident insurance scheme provides assistance with treatment and rehabilitation costs for all personal injuries, including treatment injuries, regardless of injury severity or fault.<sup>5</sup> Treatment injury is defined under the scheme as a "personal injury suffered by a person seeking treatment or receiving treatment and caused by treatment."<sup>5</sup> Any patient may lodge a claim to the Accident Compensation Corporation (ACC) with any clinician. ACC assesses all claims for both acceptance (injury/no injury) and for severity of potential consequences (minor, major, serious, sentinel). A claim is assessed as minor if it "results in minimal lessening of bodily function"; major if it "results in short-to-medium lessening of bodily function"; and serious or sentinel, respectively, if it "has the potential to result in" or "has resulted in" "unanticipated death or major permanent loss of function." ACC makes no assessment of injury preventability (or error or negligence) to avoid impugning and alienating clinicians. The scheme bars suing for compensatory damages. Doctors may be held to account for harm under separate medical professional accountability processes.<sup>6</sup>

Conflicts of interest: author reports none.

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## METHODS

Deidentified primary care treatment injury claims data from July 1, 2005, to June 30, 2009, were analyzed to describe the treatments in primary care that injure patients. The focus of analyses was on the elderly (aged 65 years

and older) and on the treatment rather than the injury to inform preventive action. For the purposes of this study, primary care included general practice/family medicine clinics; physiotherapy, chiropractic, and osteopathy rooms; dental clinics; community pharmacies, laboratories, and radiology rooms; and rest homes. Excluded were claims arising from treatment provided in hospitals, in private specialist clinics, and by maternity clinicians.

## RESULTS

Table 1 displays the primary care treatments that caused injury and serious and sentinel injury. The elderly suffered a disproportionate number of severe injuries. Medication was the leading cause of injury. The medications that caused injury are listed in Table 2. Antibiotics were an outstanding cause of medication injury.

**Table 1. Treatment in Primary Care Causing Injury and Serious and Sentinel Injury in the Elderly (Aged ≥65 Years), Adults (Aged 18-64 Years), and the Young (Aged <18 Years)**

Treatment	All Treatment Injuries No. (%)				Serious and Sentinel Injuries No. (%)			
	≥65 y n = 861	18-64 y n = 2,525	<18 y n = 458	Total N = 3,844	65 y+ n = 78	18-64 y n = 152	<18 y n = 29	Total N = 259
	Medication	294 (34)	928 (37)	201 (45)	1,423 (37)	56 (72)	88 (58)	7 (24)
Minor surgical procedures	127 (15)	207 (8)	28 (6)	362 (9)	0 (0)	4 (3)	0 (0)	4 (2)
Cryotherapy	57 (7)	85 (3)	28 (6)	170 (5)	0 (0)	0 (0)	1 (3.5)	1 (0)
Ear syringing	51 (6)	56 (2)	5 (1)	112 (3)	0 (0)	2 (1)	0 (0)	2 (1)
Dental treatment	50 (6)	450 (18)	34 (8)	534 (14)	0 (0)	10 (7)	0 (0)	10 (4)
Venipuncture	47 (5)	169 (7)	7 (1)	223 (6)	0 (0)	0 (0)	0 (0)	0 (0)
Podiatry	36 (4)	14 (1)	0 (0)	50 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Injection	35 (4)	171 (6)	8 (2)	214 (6)	7 (9)	6 (4)	0 (0)	13 (5)
Vaccination	34 (4)	83 (3)	121 (26)	238 (6)	3 (4)	2 (1)	11 (38)	16 (6)
Physical examination	32 (4)	12 (0)	0 (0)	44 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Physiotherapy	30 (3)	114 (5)	5 (1)	149 (4)	0 (0)	2 (1)	0 (0)	2 (1)
Delay or failure to diagnose or treat	24 (3)	40 (2)	13 (3)	77 (2)	9 (12)	28 (19)	9 (31)	46 (18)
Chiropractic	13 (2)	68 (3)	0 (0)	81 (2)	0 (0)	5 (3)	0 (0)	5 (2)
Other	31 (3)	128 (5)	8 (2)	167 (4)	3 (4)	5 (3)	1 (3.5)	9 (3)

**Table 2. Medications in Primary Care Causing Injury and Serious and Sentinel Injury in the Elderly (Aged ≥65 Years), Adults (Aged 0-64 Years), and the Young (Aged <18 Years)**

Medication	All Medication Injuries No. (%)				Serious and Sentinel Medication Injuries No. (%)			
	≥65 y n = 294	18-64 y n = 928	<18 y n = 201	Total N = 1,423	≥65 y n = 56	18-64 y n = 88	<18 y n = 7	Total N = 151
	Antibiotic	150 (51)	531 (57)	164 (82)	845 (59)	22 (39)	21 (24)	2 (29)
NSAID	27 (9)	108 (12)	6 (3)	141 (10)	3 (5)	15 (17)	0	18 (12)
ACE inhibitor	24 (9)	22 (2)	0	46 (3)	1 (2)	1 (1)	0	2 (1)
Warfarin	11 (4)	4 (1)	0	15 (1)	8 (14)	2 (2)	0	10 (7)
Steroid	10 (3)	18 (2)	3 (2)	31 (2)	4 (7)	8 (9)	3 (42)	15 (10)
Opiates	8 (3)	12 (1)	2 (1)	22 (1)	3 (5)	1 (1)	0	4 (2)
Allopurinol	7 (2)	4 (1)	0	11 (0)	3 (5)	1 (1)	0	4 (2)
Statin	4 (1)	9 (1)	0	13 (0)	2 (4)	3 (3)	0	5 (3)
Diuretic	4 (1)	3 (0)	0	7 (0)	1 (2)	1 (1)	0	2 (1)
Aspirin	3 (1)	3 (0)	1 (0)	77 (5)	1 (2)	0	0	1 (1)
Terbinafine	3 (1)	11 (1)	1 (0)	15 (1)	2 (4)	4 (5)	0	6 (4)
Proton pump inhibitor	2 (1)	10 (1)	2 (1)	14 (1)	1 (2)	1 (1)	0	2 (1)
Anticonvulsant	2 (1)	9 (1)	3 (2)	14 (1)	0	5 (6)	2 (29)	7 (5)
Hormonal contraceptive	0	12 (1)	2 (1)	14 (1)	0	6 (7)	0	6 (4)
Antidepressant, antipsychotic	0	25 (3)	2 (1)	27 (1)	0	4 (5)	0	4 (3)
Other	39 (13)	147 (16)	15 (7)	201 (14)	5 (9)	15 (17)	0	20 (14)

ACE = angiotensin-converting enzyme; NSAID = nonsteroidal anti-inflammatory drug.

Some medication injuries likely involved error, such as, for example, those associated with medication prescribing, dispensing, and administration (128; 9% medication injuries). Most medication injuries were allergic and idiosyncratic reactions, however, for which there was no suggestion of error (1,295; 91% of medication injuries and 34% of all injuries).

Procedural treatments and manual therapies were also identified as threats to elderly patients' safety in primary care, highlighting the need for greater caution when treating frail older bodies. Injections (mostly of steroids) caused disproportionately severe injuries in the elderly, including septic arthritis, septicemia, ischemia, and nerve damage. Delay or failure to diagnose or treat caused comparatively few injuries overall, but the injuries were disproportionately severe.

## DISCUSSION

New Zealand's treatment injury claims data set provides a novel no-fault perspective of patients' safety incidents unavailable to researchers in tort-based jurisdictions. The no-fault perspective confirmed medication as the leading threat to older patients' safety in primary care but, in a reorganization of the list of dangerous medications, identified antibiotics as a key threat to safety and thus as a key target for injury prevention initiatives.<sup>2</sup>

For most medication injuries there was no suggestion of error or mismanagement. Even if all errors were eradicated, many patients would still be harmed. To improve patients' safety, we need to look beyond reducing error to include reducing patients' exposure to treatment risk, where appropriate—in particular the risk posed by medication. To improve patients' safety, we need to reduce potentially inappropriate medication use, especially for antibiotics, for which use not only poses a risk to individuals but also to society as a result of increasing antibiotic resistance.<sup>7-9</sup>

Although the claims data set offers a fresh perspective on threats to patients' safety, it suffers from a number of limitations for patients' safety purposes. The data set provides an incomplete and potentially skewed picture of threats because of underreporting of injuries as well as selective reporting of injuries. For example, there are comparatively few claims for falls, delay or failure to diagnose or treat, and drugs well-known to cause harm, such as hypnotic, diuretic, hypoglycemic, and oral antiplatelet drugs.<sup>2,10</sup> Claims for injuries are driven by the financial assistance provided by ACC. There is little incentive to file a claim if treatment is provided free of charge (public hospital care), and there is a greater incentive if the patient is billed for treatment (adult dental care). Interpretation of study findings

is limited by the lack of data about injury preventability. In addition, the lack of a denominator for many treatments constrains any determination of relative risk.

Despite these limitations, analysis of the no-fault claims data provides new insights into threats to patients' safety. The no-fault perspective reveals that the greatest threat to older patients' safety in primary care to be, not error, but the risk posed by treatment itself. This finding suggests that to improve patients' safety, not only must error be minimized but also patient exposure to the risk posed by potentially inappropriate treatment.

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**Key words:** primary health care; aged; patient safety; no-fault insurance; patient harm

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