



No more excuses: fracture liaison services work and are cost-effective

Time to find a systems-level model for a serious, undermanaged, but preventable problem

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For over 20 years, we have known that osteoporotic fractures predispose to further fractures and significant morbidity.^{1,2} We also understand that first and subsequent fragility fractures are associated with premature death.²⁻⁴ However, surprisingly little has happened over the past two decades to translate this knowledge into good clinical practice for our patients. Of course, anyone presenting with a low-trauma fracture to an Australian hospital will get it fixed in due time. But little happens after that. Nobody seems to ask why that person had a low-trauma fracture (or a second or third one) to begin with. Indeed, 75%–80% of patients who have had an osteoporotic fracture are neither being investigated nor treated for their underlying condition — osteoporosis.^{5,6} This systematic failure is all the more shocking as we have available to us not only one of the world's best medical systems, but also subsidised pharmacotherapies with proven efficacy to reduce the risk of (re)fracture.⁷

Recent data from New South Wales reveal that 35% of patients admitted to hospital with an osteoporotic fracture were readmitted with another fragility fracture, often

within 1–2 years of the initial event. This accounted for 16 225 essentially unnecessary admissions with a startling average length of stay of 22 days. Of those with refractures, 17% died during the period studied.⁸ These numbers represent a medical nightmare and a health care systems failure of huge and growing dimensions. Because the Australian population is ageing, the prevalence of osteoporosis has been steadily rising over the past few decades. Currently, 2.2 million Australians live with osteoporosis, and this number is projected to increase to 3 million by 2021.⁹ While 67 000 osteoporotic fractures were recorded in Australia in 2001, this figure had risen to more than 87 000 in 2007.⁹ In 2001, the annual total cost of osteoporosis to the Australian health system was estimated at \$7.4 billion,¹⁰ and it does not require much imagination to anticipate that we will soon spend an even larger amount of our nation's income on a medical problem that can be treated and, more importantly, effectively prevented.

The reasons for such management failures are complex, and include inadequate awareness among doctors and patients of the health hazards related to osteoporosis, and

the almost complete lack of effective medical postfracture care.⁶ While the fundamental need to improve osteoporosis recognition and management has been acknowledged worldwide, attempts to tackle this issue through simple educational campaigns have clearly not translated into improvements in treatment rates.¹¹

In contrast, there is now high-quality evidence that the implementation of system-level models of care reduces refracture rates, morbidity and mortality, hospital bed days and other health system use. The most effective of these interventions are “fracture liaison services” that include targeted case-finding, systematic assessment, appropriate treatment and follow-up, and access to self-management education programs and support systems.^{12–15} While such programs have been developed by individual clinicians in Australia, most health services seem reluctant to meet the financial and logistical requirements for secondary fracture prevention services.

Are we asking for too much? Would public funding for such services be justified? Let us look at the evidence.

We recently reported on the clinical effectiveness of a fracture liaison service established in 2005 at Concord Repatriation General Hospital in Sydney.¹² This outpatient service is available to all patients with osteoporotic fractures and, over 4 years, reduced the risk of refracture by 80% compared with standard care. Obviously, the service involves human resources and more use of bone densitometry, laboratory testing and medications. The question therefore was whether the benefits provided by the service would be cost-effective. A health-economic analysis published in the latest issue of *Osteoporosis International* shows that even though the service is comprehensive, it is also highly cost-effective.¹⁶ The economic model used for the analysis accounted for all major osteoporotic fractures (ie, hip, forearm, and humerus), their associated direct costs, changes in health utility and, in the case of hip fractures, increases in mortality. Fracture probabilities were calculated from the clinical data, and medical costs for the service and the control arm were derived from reported health resource consumption data.

The (very conservative) analysis showed that reducing subsequent fractures through a fracture liaison service led to significant improvements in quality-adjusted life-years (QALYs). Despite higher treatment costs, the total cost of the intervention was only \$1300 per patient over a 10-year period, that is, \$130 per patient per year. The incremental cost-effectiveness ratio for the service (versus no intervention) was \$20 210 per QALY gained, which means that the

intervention represents excellent value for money. Indeed, when lower medication costs were introduced (as would be expected over time), the service was cost-saving; that is, the money saved by preventing fractures would be more than the cost of the service.¹⁶

The Concord fracture liaison service is one of various possible models, but conceptually can be implemented in any Australian health service. Its proven clinical and cost-effectiveness leave no excuses for not attempting to close the appalling gap in the postfracture care of patients at high risk of fracture.

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