

Guest editorial

Why does Australia have a higher rate of knee reconstruction surgery than New Zealand (and Scandinavia) and what can we do about it?

In 1856, Norway instituted the first national register of a disease (leprosy).¹ In 1975, Sweden developed the first register of total joint replacements, and was initially followed by the other Scandinavian countries.² Australia and New Zealand were amongst the first non-Scandinavian countries to establish national arthroplasty registers in 1999.² Predictably, the Scandinavian countries have been the first to establish national registers of anterior cruciate ligament (ACL) reconstruction surgery.³ However, New Zealand currently has the only national database of all knee ligament injuries (both surgical and non-surgical).⁴ In Australia, rates of ACL surgery are now able to be calculated courtesy of a national surgical database kept by the Australian Institute of Health and Welfare.⁵ This database allows population incidence of surgeries to be calculated accurately but does not contain the detail required to compare outcomes types of surgery or follow accurate trends of incidence per sporting exposure.

Australia and New Zealand are therefore ahead of many countries in terms of orthopaedic registers, but still trail the Scandinavian world leaders. A recent review of national arthroplasty registers concluded that government funding and support is critical for the ongoing success of a register.² It may therefore be assumed that government support will also be necessary to achieve an ongoing register of ACL injuries in Australia. If such a register was funded by the government, what value could be expected in return? The Scandinavian arthroplasty registers have, over many years, led to lowered rates of surgical failure because of the feedback which allows techniques with poorer results to be discarded in favour of those with superior results. Given the many differences in ACL reconstruction technique,⁶ including the resurgence of artificial ligaments in recent years, similar surgical improvements should theoretically be able to be achieved in the long-term from ACL registers. This requires both the collection of data and, once sufficient information is available, surgeons acting on the results to change their techniques to the most effective ones. Ideally surgeons

would voluntarily choose to use techniques with superior results, but government incentives such as differential Medicare (Australian national health insurance scheme) rebates could be used as an incentive if voluntary behaviour of surgeons did not respond to the results of a register in a timely fashion.

An ACL register, however, should be able to offer more than just improvements in surgical technique. Like registries for cancer, heart disease and traffic accidents, the ultimate (desired) end-point is a reduction in the incidence of the injury (or disease). If a national ACL register kept detailed data on the sport (or activity) at the time of injury, then it is foreseeable that preventive measures could eventually reduce the toll of ACL injuries. It is known, for example, that certain movement patterns⁷ and ground surfaces⁸ are potentially reversible risk factors for ACL injury.

For Australia the primary prevention of ACL injuries needs to be a key goal. Recently published data reveals a higher population incidence rate of surgery (50 operations per 100,000 persons per annum) than figures available from New Zealand, Scandinavian countries, and the USA.⁵ There are many potential explanations, and with the sports-specific incidence rates difficult to calculate, we can only speculate on why Australia may have a higher rate of surgery. Warm-season grasses, a climate which is favourable for playing outdoor sports year-round, the proliferation of multiple football codes, the lack of a national sports injury preventive body⁹ and our fee-for-service payment system for surgeons may all be possible causes for a comparably high rate of ACL reconstructions. A recent randomised controlled trial, also from Scandinavia,¹⁰ suggests that not all ACL injuries should be treated with reconstructive surgery. The only unreasonable explanation is that Australia's higher rate of ACL reconstruction is something that we have no control over and should ignore. We have one of the world's highest rates of melanoma, due to a combination of climate and a pale-skinned population, yet we react to this appropriately by having melanoma registries and aggressive campaigns to try

to limit sun-exposure. Sports injuries are fundamentally no different to other injuries or medical diseases in general, in that the logic of monitoring injury incidence, assessing reversible risk factors and preventive intervention should yield results.¹¹

The economic benefits of a comprehensive ACL register would be twofold:

1. *The register would facilitate better allocation of surgical resources*—techniques with superior results could be used preferentially and funded preferentially through Medicare/private health. Techniques with significantly poorer results could receive limited rebates, resulting in more effective health spending. Those lower demand patients who do not necessarily require surgery could have better evidence presented to them (in terms of the long-term follow-up of a registry) that reconstruction may not be mandatory after ACL injury.
2. *Through prevention, the register would lead to a reduction in spending and have a positive effect on health outcomes*—using the register to focus on primary prevention would potentially save a substantial amount through direct and indirect costs. In addition, every ACL injury prevented would contribute to improved health outcomes, such as reduced rates of knee osteoarthritis.

The direct costs of ACL surgery in Australia are estimated at \$80 million annually, a figure which is increasing every year.⁵ Indirect costs, such as the future osteoarthritis attributable to knee injury, would be far higher, but must eventually be borne by our health system. In the longer term, it will cost more to take no action and to let this amount spiral higher and higher than to take the sensible action and fund a national ACL injury register. At a minimum, this register should include information on both surgical technique and the circumstances surrounding the primary injury. Ideally, the register would also include information about whether the operation led to later further knee surgery and record ACL

injuries which are diagnosed, but which are not surgically repaired.

References

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