Device regulation: what next?

Time to improve transparency and communication to the public

Stephen E Graves
MB BS, PhD, FAOrthA, Director,[1] and Professor of Arthroplasty[2]

Guy J Maddern
MD, PhD, FRACS, Jepson Professor of Surgery[3]

1 Australian Orthopaedic Association National Joint Replacement Registry, Adelaide, SA.

2 Flinders University, Adelaide, SA.

3 University of Adelaide, Adelaide, SA.

guy.maddern@adelaide.edu.au

doi: 10.5694/mja12.10230

Perspective p 232
Letter p 240
Research p 250, p 256

Quality regulation of medical devices is essential to ensure that safe and effective devices and procedures are available for use in the health care system. This not only helps protect patients, but also the companies that manufacture and sell these devices. For a variety of reasons, medical device regulation in Australia and internationally has been under increased scrutiny in recent years. In Australia, a number of reviews have been undertaken, including a review of health technology assessment,[1] the Therapeutic Goods Administration (TGA) transparency review,[2] and the recent Senate enquiry into the regulatory standards for the approval of medical devices in Australia.[3] Each has made valuable recommendations that have the potential to enhance our current regulatory practice.

Two important aspects of device regulation are the premarket testing and evaluation undertaken before obtaining approval and the postmarket surveillance that occurs after a device has been introduced. Manufacturing must be undertaken in an approved facility, but the requirement and extent of premarket testing, either in vitro or in vivo, for approval of an individual device varies, and depends on the perceived potential risk from that device.[4] The principle is that high-risk devices need more premarket testing, and closer regulatory review of that testing before approval. The amount of testing, and the assessment of that testing, is defined by the class of the device. Regulatory review of the testing is only mandatory for the highest-risk devices.

Most medical devices on the market have not had any assessment or premarketing testing undertaken by the companies that make them; many of these are low-risk devices. There are obviously "risks" in a risk-based approach to approval and, therefore, it is imperative that there is an effective postmarketing surveillance system that has the capacity to identify unexpected problems with the performance of the device. Postmarket surveillance in Australia is a combination of self-regulation with TGA oversight and adverse event reporting.[4] In general, companies have little capacity to undertake effective postmarket surveillance because of underreporting of problems by end-users. The national adverse event reporting system is also limited by the effectiveness of reporting to the TGA, in part because many are unaware that this system exists. Better mechanisms for identifying postmarket device safety and quantification of risk have the potential to enhance postmarket surveillance. Concerns about problems with devices, such as guide wire fragmentation, reported in this issue of the Journal,[5] can be acted on by such notifications, Both the health technology assessment review[1] and the Senate enquiry on the regulatory standards for the approval of medical devices[3] identified this problem.

Recent publicity about breast implants manufactured by French company Poly Implant Prothèse (PIP) has highlighted some of the ongoing regulatory issues. It is a major concern when an implanted device is found to be faulty, and this is compounded when that device has been used in a large number of people. It is estimated that over 4000 women in Australia had PIP breast implants between 2002 and 2010.[6] The need for an improvement to Australia's breast implant registry is highlighted in this issue of the Journal.[7] Following concerns by the French medical device regulatory authority (*Agence française de sécurité sanitaire des produits de santé*), Medical Vision Australia, after consultation with the TGA, withdrew the non-implanted PIP devices from the Australian market in April 2010. Following this, the TGA consulted widely both nationally and internationally and has kept the public and health professions well informed of the situation with this device. Since the initial withdrawal of the PIP prostheses, the quality of silicone used within the implants has also been identified as an issue. This has led France and a small number of other countries to advise surgical removal of the device.

After consultation with experts here and overseas, the TGA has not recommended this approach for Australian patients. This view has been supported by the United Kingdom and European Union.[8,9] Such guidance needs to weigh up the risks of rupture against the risks of removal. The TGA has also stated that there is no evidence in Australia to indicate that the device has an increased rupture rate. It appears that the TGA has done everything within its power to ensure quality management of this internationally initiated withdrawal. There are, however, a number of evident problems. It is not known exactly how many women in Australia have had this device implanted, and because of the known problems with the adverse event reporting system, it is likely that the estimates of the rupture rate currently provided by the TGA underestimate the true figure. In recent months, there has been an increase in the number of ruptures being reported, probably spurred on by the recent media attention.

There are some major differences between the recall of the PIP and the other major device recall undertaken in

the recent past. Articular Surface Replacement (ASR) hip prostheses, which have metal-on-metal bearing surfaces, were manufactured by DePuy Orthopaedics (Warsaw, Ind, USA) for use in both conventional total hip arthroplasty and hip resurfacing. Both the ASR XL Acetabular System and the ASR Hip Resurfacing System were withdrawn from the Australian market in December 2009,[10] and were withdrawn worldwide in August 2010. Just over 5500 of these devices were used in Australia and 93 000 worldwide. The Australian Orthopaedic Association National Joint Replacement Registry had identified that both of the ASR prostheses had had a higher than anticipated rate of revision compared with other prostheses in the same class. The value of more effective postmarket surveillance data is evident in the ASR recall.

As the problem was first identified in Australia, the TGA might understandably feel that the Senate enquiry criticism that there was potential for the regulator to have acted earlier was unfair. The vast majority of recalls in this country are company initiated. This was the case for both the PIP and ASR devices. By not initiating the recall, the regulatory authority avoids having to take responsibility for making that decision. This can be a heavy responsibility and, to make it, the TGA needs to be confident that the need to recall is well supported by facts. An error in the decision to withdraw could lead to significant compensation to the company and cost to the Australian public. It is always an easier option to encourage the company to withdraw its device. Although pragmatic, this approach can lead to the potential for criticism that there is a delay or that the regulatory authority is not being decisive. There are important implications if a recall is initiated voluntarily by the company compared with being undertaken by the TGA. Company-initiated recalls are not listed on the TGA website, and there is no requirement to notify regulatory bodies in other countries about such recalls. This is but one of the limitations of the TGA website, as outlined by McGee and colleagues in this issue of the Journal.[11] This was the situation with the ASR prostheses, and this may have been part of the reason for the later withdrawal of those devices in other parts of the world.

The TGA has accepted many of the findings of the various reviews, and is currently working to improve transparency and communication to the public about decision making and enhancing premarket assessment requirements for particular devices. This approach is also evident from other regulatory authorities worldwide, including in France. Device regulation is evolving. At the moment there appears to be an excellent opportunity to make significant enhancements — not only nationally, but internationally — to enhance the quality of regulation. All stakeholders, but most particularly patients, will stand to benefit if this occurs.

Competing interests: No relevant disclosures.

Provenance: Commissioned; externally peer reviewed.

1 Australian Government Department of Health and Ageing. Review of health technology assessment in Australia, December 2009. Canberra: DoHA, 2009. http://www.health.gov.au/internet/main/publishing.nsf/Content/00E847C9D69395B9CA25768F007F589A/$File/hta-review-report.pdf (accessed Feb 2012).

2 Australian Government Department of Health and Ageing. Transparency review of the TGA. Report of the review to improve the transparency of the Therapeutic Goods Administration. 20 Jul 2011. Canberra: DoHA, 2009. http://www.tga.gov.au/newsroom/review-tga-transparency-1101.htm (accessed Feb 2012).

3 Australian Senate Community Affairs References Committee. The regulatory standards for the approval of medical devices in Australia 2011. Canberra: Parliament of Australia, 2011. http://www.aph.gov.au/Senate/committee/clac_ctte/medical_devices/report/report.pdf (accessed Feb 2012).

4 Australian Government Department of Health and Ageing Therapeutic Goods Administration. Australian regulatory guidelines for medical devices, Version 1.1, May 2011. Canberra: TGA, 2011. http://www.tga.gov.au/industry/devices-argmd.htm (accessed Feb 2012).

5 Dulhunty JM, Suhrbier A, Macaulay GA, et al. Guide wire fragment embolisation in paediatric peripherally inserted central catheters. *Med J Aust* 2012; 196: 250-255.

6 Australian Government Department of Health and Ageing Therapeutic Goods Administration. Poly Implant Prothese (PIP) breast implants — the Australian perspective (4 January 2012 version). Canberra: TGA, 2012. http://www.tga.gov.au/safety/alerts-device-breast-implants-120104.htm (accessed Feb 2012).

7 Jeeves AE, Cooter RD. Transforming Australia's Breast Implant Registry. *Med J Aust* 2012; 196: 232-234.

8 Keogh B. Poly implant prosthesis (PIP) breast implants: interim report of the expert group. London: National Health Service, Department of Health, 2012. http://www.nhs.uk/news/2012/01January/Documents/pip-report.pdf (accessed Feb 2012).

9 European Commission. Scientific Committee on Emerging and Newly Identified Health Risks: The safety of PIP silicone breast implants. Version of 1st Feb 2012. Brussels: European Commission, 2012. http://ec.europa.eu/health/scientific_committees/emerging/docs/scenihr_o_034.pdf (accessed Feb 2012).

10 de Steiger RN, Hang JR, Miller LN, et al. Five-year results of the ASR XL acetabular system and the ASR hip resurfacing system: an analysis from the Australian Orthopaedic Association National Joint Replacement Registry. *J Bone Joint Surg Am* 2011; 93: 2287-2293.

11 McGee RG, Webster AC, Rogerson TE, Craig JC. Medical device regulation in Australia: safe and effective? *Med J Aust* 2012; 196: 256-260. ❑