Australian Government
Department of Health
Therapeutic Goods Administration

How the TGA uses implant registry data

Experience with the Australian Orthopaedics Association's National Joint Replacement Registry (AOANJRR)

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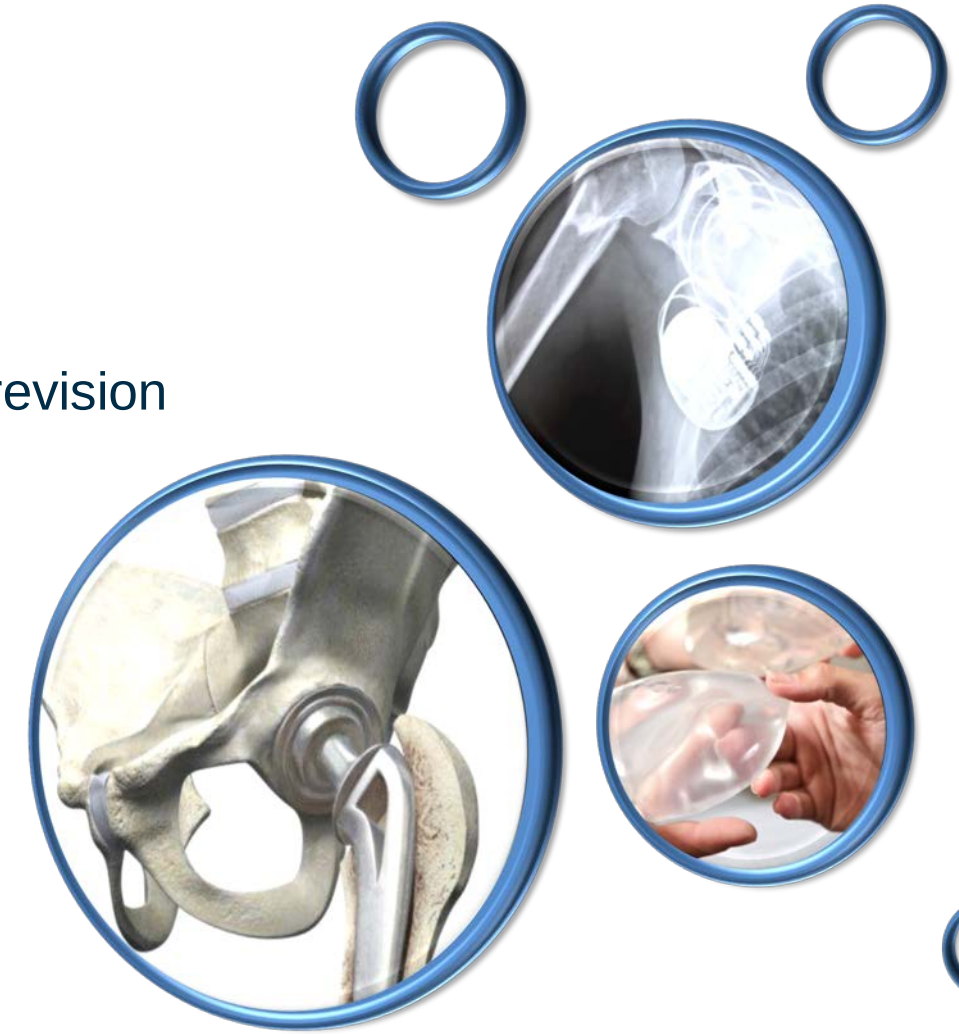
11 May 2016

TGA Health Safety Regulation

Outline

- **The AOANJRR:**
  - How it works, reporting, benefits, limitations
- **How the TGA uses AOANJRR Data**
  - Prostheses with a higher than anticipated rate of revision
  - Adverse Event and Complaint Investigations
  - Premarket Assessment of Submissions
- **Conclusions**



The AOANJRR: How it works

- **A joint replacement procedure triggers data collection**
  - Patient identifying details, consulting surgeon, reason for surgery, and the type of implant, including individual implant components
  - If the procedure is a revision: type of revision, reason for revision
- **“Opt Out” System**
- **Outcome Measure: Revision**
  - Reported as Cumulative Percent Revision from the time of the primary procedure
- **Comparison between different “populations” is possible**
  - e.g. primary diagnoses; gender; age; use of cement; type of implant; implant models; etc.
  - Hazard Ratios are used to compare rates of revision

The AOANJRR: Reporting

- **Annual Reports on Hip, Knee and Shoulder Replacement**
  - Published in October each year using data collected to the end of the previous year
  - Collection started in 1999 (2004 for shoulders)
  - Contains information about prostheses with a higher than anticipated rate of revision
- **Supplementary reports on joint replacement:**
  - E.g. demographics and mortality of Hip, Knee Arthroplasty; Cement in Hip and Knee Arthroplasty
- **Individual reports on prostheses with higher than anticipated rates of revision (since 2010)**
- **Ad-Hoc summary reports from an online web portal**

The AOANJRR: Benefits

- **A wide variety of analyses is possible**
  - Cumulative Percent Revision (Kaplan Meier Survivorship)
  - Breakdown of revision rates among particular patient populations, implant types, etc.
- **Completeness of data arising from “opt out” method of enrolment**
- **Comprehensive outcome reports**
- **Online access to data**

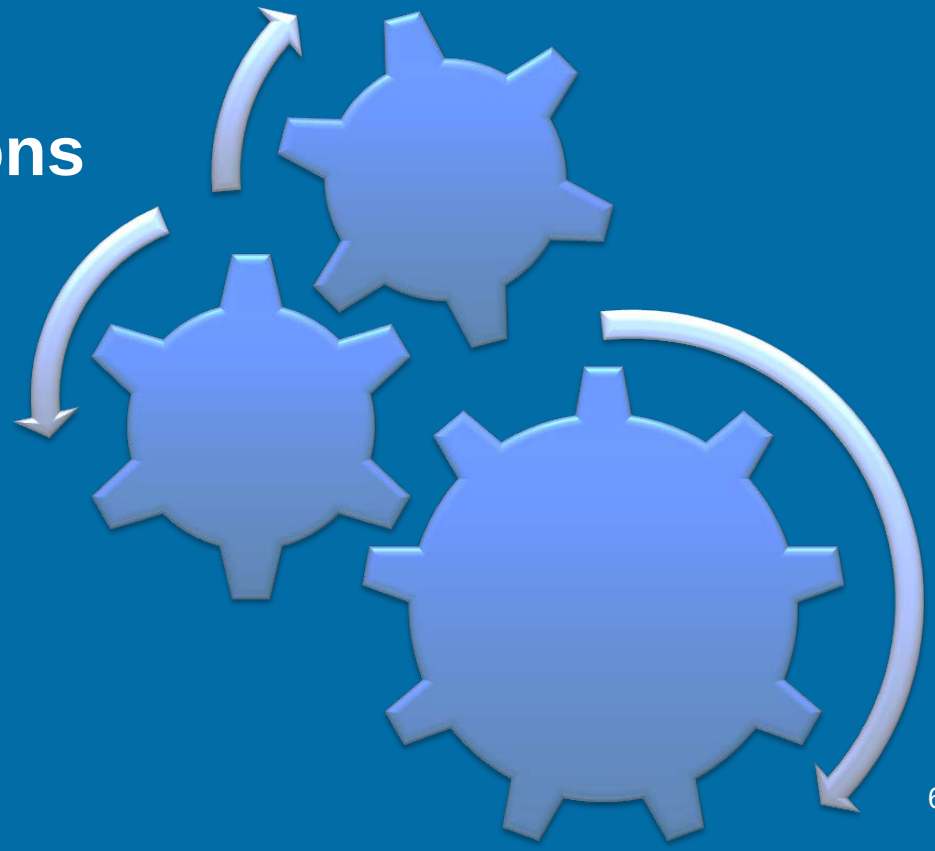
The AOANJRR: Limitations

- **Privacy restrictions**
  - The data can be used to track patients only in exceptional circumstances
    (NB: the TGA can get this information from other sources)

- **Inaccurate coding**
  - E.g. some evidence that loosening/lysis, pain, metal sensitivity are being used interchangeably

How the TGA uses AOANJRR data

- Prostheses with a Higher than Anticipated Rate of Revision
- Adverse Event and Complaint Investigations
- Pre- Market Assessment of Submissions



Prostheses with a higher than anticipated rate of revision

- **Immediate regulatory action on identified prostheses is not appropriate**
  - There are many reasons why the revision rate of a prosthesis is high, only some are related to the prosthesis
  - A prosthesis may also have redeeming features that make the higher revision rate “tolerable”

- **Identification by the AOANJRR initiates an three stage investigation process that determines if the safety and performance of the implant is acceptable**

Prostheses with a higher than anticipated rate of revision

1. The Sponsor/Manufacturer of the implant is invited to make a submission relating to the safety and performance of the implant
2. A group of orthopaedic experts considers the information from the AOANJRR and the Manufacturer: Advises the TGA about safety, performance and benefits that may compensate for the high risk of revision
3. The TGA considers the evidence AND the expert advice and makes a regulatory decision. Can be Recall, Hazard Alert, Safety Alert and/or Cancellation. Can also be do nothing

Prostheses with a higher than anticipated rate of revision

In 2015 the AOANJRR identified 125 implant combinations (71 hips; 47 knees; 6 shoulders and 1 ankle) placing them into three categories:

No Longer Used (74 Implants)	32 withdrawn from the market after TGA intervention 42 not supplied at the time they were identified
Identified Prior to 2015, Still Used (43 Implants)	23 under observation after expert group advice. 12 subject of compliance action 8 still under investigation
Newly Identified 2015 (8 Implants)	5 under observation after expert group advice 3 are being investigated

Adverse event and complaint investigations

- **The TGA will routinely consider information available through the AOANJRR on-line portal during the investigation of implant adverse event reports.**

EVENT: 2012 Device Incident Report; revision of an acetabular cup; triggers a routine query of the information held about the implant by the AOANJRR

FINDINGS: The Cumulative Percent Revision rises sharply 3 years after implantation. This was not yet manifested in a rise in the revisions per 100 observed years used by the AOANJRR to “identify” outliers

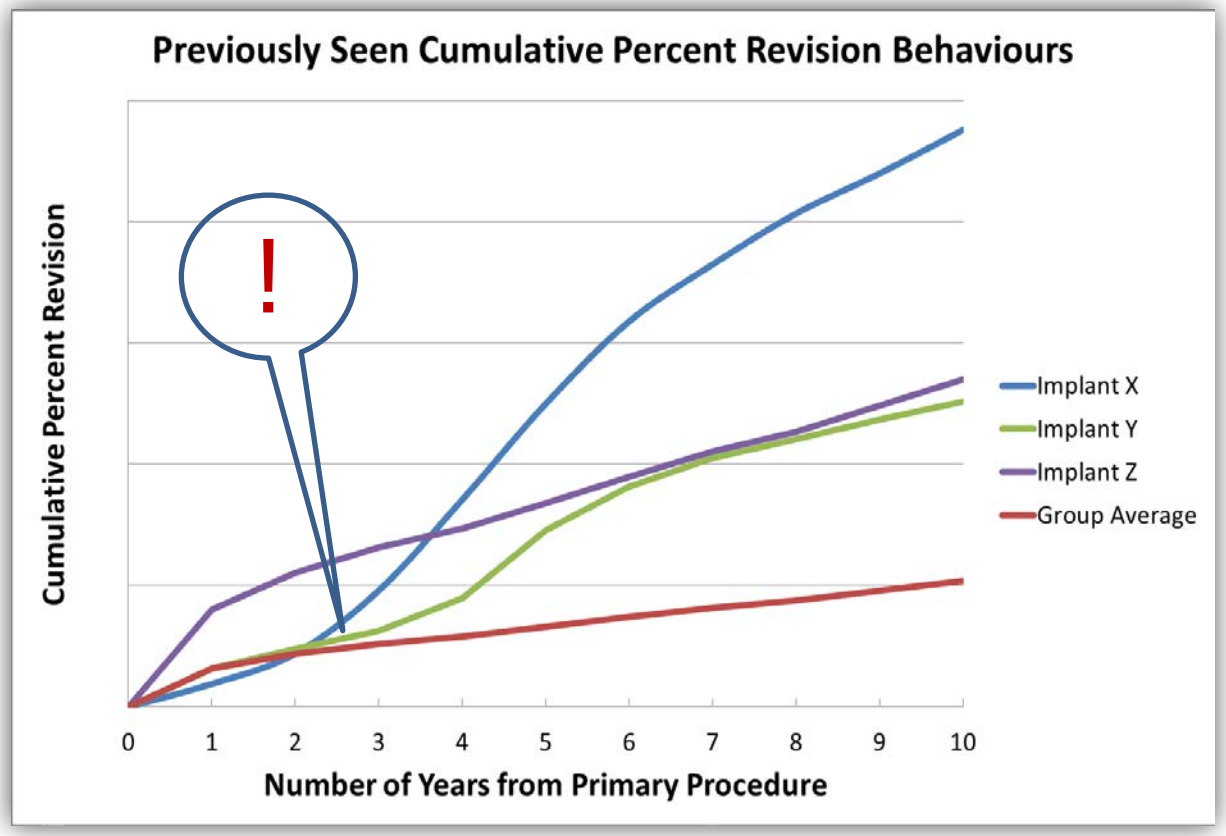
OUTCOME: Hazard Alert and contra-indication of the use of the device in total conventional hip replacements

Premarket assessment of submissions

- **In the absence of direct clinical evidence, the TGA has used AOANJRR reports on clinically equivalent implants….**

  … and predicates can work both ways

- **Is the clinical study large enough? Is the minimum follow up long enough?**
  - AOANJRR data on clinically equivalent implants can provide guidance



Conclusions

- **Implant registries that can provide comparative analyses on outcomes are an invaluable tool for post-market vigilance and monitoring. Registry information is used for pre-market decisions as well**

  However: The outcome measures must be subjected to thorough clinical/technical assessment to ensure that appropriate regulatory measures are taken.

- **Patient tracking is not particularly useful to Regulatory Agencies**
  - The information can be obtained from other sources
  - In case of a problem, it is best for the patient to be contacted by a medical practitioner

  However: Outcomes registries will still need to track patients to ensure the integrity of the data analysis

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