Starting point: Implants are classified as high risk group medical devices and have to be under vigilance control defined by regulations and registry/tracking systems that provide feedback about implant survival.

Purpose: to have qualified healthcare approach Goal: to provide statistical information about safety and long term survival of orthopedic implants by collecting data especially about revision procedures and to give correlations between patient characteristics (i.e. age, sex) and implant types (i.e. different sizes, with or without cement, brand, and model).

Background: ARS was firstly established in Sweden in 1975 with hip implant registry and has recently been used in several countries such as England, America, Norway, Australia and Canada. All these systems have some registration forms which are filled by doctors before and after surgery. Pre-operative forms contain the details about patient and the disease such as age, name, diagnosis, ASA score. Post-operative forms contain the information about surgery such as arthroplasty region, procedure type (primary or revision), surgical technique, anesthesia type and implant barcode number. Furthermore, in some countries there are patient tracking systems which are used for collecting information about patient health after surgery in different ways such as survey by email or doctor control by several intervals like 3 months and multiples. Patient safety is controlled by selecting a proper implant type according to the annual reports of these systems which are obtained after some statistical analysis. The organization structures, registration formations and outcomes of the present arthroplasty registry systems worldwide are surveyed in this study.

1. Swedish Knee/Hip Arthroplasty Register (SKAR/SHAR)

Since 1975 the Swedish Knee Arthroplasty Register and since 1979 the Swedish Hip Arthroplasty Register have registered primary total knee and hip prostheses performed in Sweden. Individual patients’ data such as age, sex, diagnosis, surgical technique and type of implant used are registered, and since 2002 patient-reported outcome such as pain relief, satisfaction and gain in health-related quality of life have been included. The Register’s main job involves activity analysis, clinical quality assurance, clinical improvement work and research, aiming to give each patient optimal care. Since 1989 the Register has been supported by the Swedish Association of Local Authorities and Regions (SRL) and the Western Götaland Region. The Board and steering group are appointed in consultation with the Swedish Orthopaedic Association.

2. National Joint Registry (NJR)


First analysis of English Patient Reported Outcomes Measures (PROMs)
First nine months of elbow replacement and shoulder replacement data
Second complete year of ankle replacement data
Data from 1.4 million procedures
Highest-ever patient consent rates (91%)
In-depth study: Metal-on-metal resurfacing
Trust-, Local Health Board- and unit-level activity and outcomes data for hip and knee procedures

3. American Joint Replacement Registry (AJRR)

The American Joint Replacement Registry (AJRR) is a multi-center, independent, not-for-profit organization with diverse national constituencies.

AJRR has a simple, easy to use, web-based process for hospitals to contribute data on primary and revision hip and knee arthroplasties to the registry. The process involves documenting patient, hospital, surgeon and procedures in the hospital’s electronic medical record system, then uploading quality through AJRR’s secure online portal. The AJRR converts and compiles data into its own aggregate format, and produces comparative reports individualized by hospital site, surgeon, procedure, implant, manufacturer, or other value-added criteria.

4. The Norwegian Arthroplasty Register

The Norwegian Arthroplasty Register started registration of total hip replacements in 1987. In 1994, registration was extended to include insertion of all types of artificial joints. The main reason for establishing a nation-wide register was that throughout the 1970ies, new hip implants had been introduced without documentation from clinical studies. After being used for more than 10 years, several of the prostheses were identified with high failure rates, but had at the time already been used on large numbers of patients. Throughout the registration period 1987 to 2005, information has been registered on about 114,400 hip replacements, 25,000 knee replacements and more than 2,300 elbow replacements. The total number of persons in the Norwegian population in 2003, the overall incidence per 100,000 persons was 182 primary total hip replacements and 87 primary knee replacements.

5. The Australian Orthopaedic Association National Joint Replacement Registry (AOANJR)

AOANJR is an initiative of the Australian Orthopaedic Association (AOA). The Registry was established in 1999 becoming fully national in mid 2002. Information on hip, knee, shoulder, elbow, wrist, ankle and spinal disc replacement is collected from all hospitals in Australia undertaking joint replacement surgery. The Registry is entirely funded by the Commonwealth Department of Health and Ageing. Joint replacements is a commonly performed major operation that has considerable success in alleviating pain and disability. The rate of joint replacement surgery has been increasing at a rapid rate for many years. It is anticipated that it will continue to do so. Currently more than 85,000 hip and knee replacements are undertaken each year in Australia.