Boston, Massachusetts

The International Society of Arthroplasty Registries
in conjunction with
The American Joint Replacement Registry
and Massachusetts General Hospital
presents

3rd International Congress of Arthroplasty Registries
Boston, Massachusetts
May 31 - June 2, 2014

Preliminary Program

April 30, 2014
CME Accreditation

This live activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME).

The American Academy of Orthopaedic Surgeons is accredited by the ACCME to sponsor continuing medical education for physicians.

The American Academy or Orthopaedic Surgeons designates this live activity for a maximum of ______ AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Objectives

1. Interpret registry studies and understand whether appropriate statistical methods have been applied.
2. Appreciate the role of population based data derived from registries in driving improvements in the quality and safety of arthroplasty care.
3. Understand the concept of outlier performance options for definition and identification of an outlier, and notification strategies and their consequences.
All sessions will be held in the Ballroom unless otherwise noted.

Saturday Sessions

7:00 AM - 9:00 AM
Breakfast – Courtyard Reception

8:30 AM - 1:00 PM
Statistics and Methodology
Moderators: Jonas Ranstam, Ashley Blom

- NARA Stastical Guidelines
  Jonas Ranstam
- Observational Studies Versus RCT
  Jonas Ranstam
- Computer Simulation of Joint Registries: Applications and Insights
  Phil Noble
- Propensity Score, Competing Risks
  Steve Kurtz
- Missing Values
  Szilárd Nemes
- Validation Processes Australian Experience
  Elisabeth Griffith
- Validation Processes Swedish Experience
  Göran Garellick
- Validation Processes Kaiser Permanente Experience
  Liz Paxton
- Risk Adjustment
  Patricia Franklin, PhD
- Are We All Talking About the Same Thing? The Need of Harmonization.
  Stephen Graves, MD

10:30 AM - 11:00 AM
Break – Courtyard Reception

11:00 AM - 11:30 AM
Open Discussion

11:30 AM - 12:30 PM
Podium Presentations
Moderators: Steve Kurtz, Ashley Blom

- An International survey on data validation in arthroplasty registers: Moving towards a consensus.
  Palan J, et al.
  There are now over 40 joint arthroplasty registers in existence. A critical aspect for the success of any registry involves having a robust data validation process to ensure that the data collected is as accurate and complete as possible. The development of an International Standard for Data Validation would be a valuable tool in ensuring this happens.

- Improving risk prediction models for readmission: Adding clinical variables to administrative data.
  Franklin PhD, et al.
  The Centers for Medicare and Medicaid Services (CMS) currently report 30-day readmission rates among Medicare beneficiaries with risk-adjustment based on administrative data only. We assessed the impact of adding clinical variables (not available in administrative data) on the ability to improve these prediction models.

- Overestimation of the Kaplan-Meier method in the presence of competing risk: A systematic review and meta-analysis.
  Bohm E, et al.
  The Kaplan-Meier (KM) method is commonly used to estimate cumulative incidence of revision following joint arthroplasty. However, competing risks (CRs) (e.g., death) may alter the probability of the event of interest (i.e., revision). Our aim was to examine the relationship between cumulative incidence estimates obtained using KM versus CR methods.

- Propensity score matching decisions can be highly influential on study findings.
  Lee YY, et al.
  Propensity score matching (PSM) reduces bias in observational studies, especially when studying rare outcomes or when many confounders were measured. However, the quality of the matches can be affected by the matching ratio and covariate selection in estimating the propensity scores.

- What percentage of patients must be captured by joint registries for reliable identification of outliers?
  Noble PC, et al.
  The timely identification of outliers (implants, surgeons or patients) using prospectively collected registry data is confounded by many factors, including the assumption that the sampled population is representative of the entire cohort of patients. In this study we utilized a computer simulation of a joint registry to address the question: How does incomplete enrollment of patients in registries affect the reliability of identification of outliers, and what percent capture of the target population is sufficient?
Magnitude of competing risk bias when comparing tibial implant types in total knee replacement.

Maradit-Kremmers H, et al.

The Kaplan-Meier (KM) is the traditional method in analysis of joint replacement registry data to estimate the probability of implant failures over time. In the presence of a competing risk such as death, KM is known to overestimate the probability of implant failure. Although there are a number of studies exploring the magnitude of competing risk of death in total hip replacement, there are none in total knee replacement. We evaluated the influence of competing risk of death during long-term follow-up of primary total knee replacement patients, focusing on the interpretation of revision outcomes with tibial implant characteristics.

12:30 PM - 1:00 PM
Directed Acyclic Graphs – DAGitty Workshop
Moderator: Olaf Sköldenberg

1:00 PM - 2:00 PM
Lunch – Riverside Room

2:00 PM - 4:00 PM
Parallel Session 1: PROMs
Moderators: Göran Garellick and Peter Devane
Disease Specific- or/and Generic Instruments and How to Incorporate PROs Into Registry Reports

Oxford Perspective
Jill Dawson
In addition to collecting information on surgical revision rates over time, some arthroplasty registries also collect data using patient-reported outcome (PRO) measures (standardised questionnaires), to gain greater insight into patients’ perceptions of pain and function. Others may be considering this addition. This talk aims to cover many of the important considerations when choosing and applying PROMs to the evaluation of outcomes of arthroplasty.

The Swedish Experience
Ola Rolfson

2:00 PM - 3:45 PM
Parallel Session 2: Registry and Industry Interaction (I) – Paul Revere Room

Should Retrieval Analysis Be Integrated with Registry Data
Moderators: Pamela L. Plouhar, PhD, Stephen Graves, MD

Role of Registries in Premarket Assessment and Post Market Surveillance (Nationally and Globally)
Jing Xie, Stephen Graves, Danica Marinac-Dabic

Does Industry Have a Role in Assisting Registries to Maintain Prostheses Databases and How Should This Be Organized (Nationally and Globally)?
Mick Borroff, Richard de Steiger
Led by ICOR, progress has been made on the development of a standard approach to the classification of implant component attributes for arthroplasty devices. This classification will facilitate the use of common component information and categorisation across all joint replacement registries that use it.

What Access Should Industry Have to Registry Data, and Does this Need To Be Regulated
Industry Speaker TBD, Henrik Malchau, MD

Role of Registry Data in Prosthesis Reimbursement and Contract Negotiation
Yvonne Bokelman, Martyn Porter

Should Industry Provide Funding to Registries and ISAR
Blair Fraser, Laurel Powers-Freeling

2:45 PM - 4:00 PM
Podium Presentations

A standardized index for assessing improvement in patient-reported outcome measures.
Nemes S, et al.
Patient-reported outcomes measures (PROMs) can facilitate objective comparisons of alternative treatments and can aid researchers, decision-makers, and laymen in gauging different healthcare providers’ performance. However, this assumes an easy to use and understand summary measure.

Comparison of clinically relevant clinician-derived and patient-reported outcome measures in TJA.
Perry Ki, et al.
The ever-changing healthcare environment in the US has placed increased responsibility on healthcare providers for improving care and controlling the costs of their interventions. Medicare and private payers may require reporting of long-term clinical outcome (i.e. registry) data by hospitals and surgeons as a way to measure quality and value of their interventions. Although ideal, routine clinical surveillance of THA and TKA is expensive and may be a barrier to its universal
implementation. In lieu of clinical evaluation, many have advocated alternative ways of obtaining follow-up, such as the use of patient reported outcomes derived through electronic, phone, or mailed questionnaires. We aim to compare the accuracy of these indirect media with clinical evaluation.

Validation of the 5-level version of the EQ-5D survey.

Greene ME, et al.
The EQ-5D-3L (3L) instrument is a generic health survey for measuring health related quality of life (HRQoL). There are 5-dimensions measuring mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The patient chooses from 3 answer options indicating their level of impairment in each dimension. A new 5-level version of the survey (5L) was developed with 5 answer options. This study aims to determine if 5L can replace 3L by providing a more discriminating profile of the patient's health.

Decreasing gains in HRQoL after total hip replacement above 70 years of age.

Gordon M, et al.
While age is a common confounder, its impact on health related quality of life (HRQoL) after total hip replacement is uncertain. This could be due to improper statistical modeling of age in previous studies, such as treating age as a linear variable or by using age categories. We hypothesized a non-linear association between age and HRQoL.

Charnley class and HRQoL after THR: Women in class C often fail to improve their mobility.

Gordon M, et al.
The Charnley classification is a comorbidity categorization tool for walking that organizes patients into three classes, A - one involved hip, B - two involved hips, and C - other severe comorbidities. Although this simple classification is a known predictor for health related quality of life (HRQoL) after total hip replacements, there is uncertainty regarding whether A and B should be grouped together and if there are any interactions between Charnley class, sex, and age.

Avoiding the ceiling effect of PROMs: A patient centered outcome measure reflects objective differences in function.

Collins RP, et al.
The Oxford Hip Score (OHS) has a ceiling effect, with many patients clustered close to full marks following arthroplasty. We developed a patient centered outcome measure (PCOM) allowing patients to select the functions/activities and aspirations against which success will be measured.

Our null hypothesis was that this PCOM would be no more successful than the OHS in discriminating between types of hip arthroplasty.

Does registry reporting of patient-reported outcomes, complications and length of stay make a difference?

Bohm E, et al.
It is well established that reporting revision rates lowers revision risk in total hip (THA) and knee (TKA) arthroplasty. Less clear is the benefit of reporting patient reported outcomes (PROMS), complications, transfusion rate and length of stay (LOS). In 2004, we instituted a regional joint replacement registry that reported these metrics. The purpose of this evaluation was to determine if yearly reporting resulted in the intended improvement.

Predictors of suboptimal patient-reported outcome response rates in the California Joint Replacement Registry.

Patel JJ, et al.
Patient-reported outcomes (PRO) provide a more subjective assessment of outcomes compared to traditional objective measures such as revision rate or survivorship. PRO data will be a powerful tool to guide clinical and policy decision-making. Historically, collection rates of PRO data have been suboptimal, and the reasons for this are unclear. This study aimed to identify the characteristics of patients and providers with low-reporting of PRO in the California Joint Replacement Registry (CJRR).

3:45 PM - 4:25 PM

Should Retrieval Analysis Be Integrated with Registry Data and Who Should Undertake That Analysis?

Steve Kurtz, Orun Muratoglu, John Skinner

The Value of Explant Retrieval Analysis in Collaboration with Orthopaedic Registries

Kurtz SM, et al.
TJA revisions represent a growing burden on orthopedic healthcare. Over 14 years ago we established a multicenter retrieval program that examines the etiology of failure of joint prostheses by performing integrated analyses of the clinical, patient, and implant factors contributing to the need for revision surgery. This study will discuss the structure, the role, and recent findings of such a retrieval program and outline how it can be implemented in collaboration with an orthopedic implant registry.

Developing a Retrieval Analysis Registry Linked to Clinical Outcomes.

Muratoglu O, et al

Retrieval studies are key to understanding the in
vivo material behaviors and damage mechanisms that occur in total joint replacements. Pre-clinical testing of materials and designs provides insight within the parameters of known variables, but can be limited by both our ability to replicate the in vivo setting and identify the variables in play. In addition to retrieval studies, patient registries also provide vital information on clinical outcomes. Unfortunately, patient registries are most often disconnected from the physical material analysis of implants at the time of revision or post-mortem analysis. This on-going study aims to link an internal outcomes registry with post-clinical retrieval study analysis and provide a complete assessment of total joint replacement outcomes.

4:30 PM - 6:00 PM  
Workshop for New and Developing Registries  
(Paul Revere Room)  
Moderators: Göran Garellick, Stephen Graves, Keith Tucker  
Meet with the experts and discuss: initial data sets, analyses, validation, staffing, governance, funding, secrets for success.

6:30 PM - 7:30 PM  
Reception – Riverside Room
7:00 AM - 9:00 AM  
**Breakfast – Courtyard Reception**

8:00 AM - 9:40 AM  
**Opening Ceremony**

*Welcome: Harry Rubash, Henrik Malchau, MD, Martyn Porter, William J. Maloney, MD*

**Keynote Speakers:** Decision Maker Speaker TBD, Barry Meier, Sally Okun, Clas Rehnberg

9:40 AM - 10:15 AM  
**Poster Tour – Courtyard Reception**

10:15 AM - 11:15 AM  
**What do Registries Have to Offer**

*Moderators: Göran Garellick, Martyn Porter*

- Post-market Surveillance  
  *Keith Tucker*
- Monitoring of Health Care  
  *Göran Garellick*
- Continuous Improvement Work  
  *Thomas Barber, MD*
  A large U.S. based total joint registry has improved patient care through: 1) successful identification and monitoring of implants following recalls and advisories 2) identification of the factors associated with higher revision rates 3) feedback leading to improved prosthetic and procedure selection by surgeons 4) improved patient selection and education 5) identification of areas of opportunity for improvement at the facility level. A comprehensive approach utilizing total joint registry data can be very successful at improving outcomes in total joint replacement.

- Clinical Research  
  *Stephen Graves*

11:20 AM - 12:30 PM  
**Podium Presentations**

*Moderators: Robert Namba, Richard de Steiger*

**Clinical Research**

- **Strong association between smoking and revision in patients with metal-on-metal hip arthroplasty.**  
  *Lübbeke A, et al*
  Thus far the ability to predict who will develop early prosthetic failure following the insertion of a metal-on-metal (MoM) bearing total hip arthroplasty (THA) has been very limited. We assessed the effect of smoking on failure rates in patients with a MoM bearing, compared with patients with a ceramic-on-polyethylene (CoP) bearing.

- **Total hip arthroplasty reduces reoperation risk in fracture patients. A study from the Swedish Hip Arthroplasty Register.**  
  *Rogmark C, et al*
  Both hemi- (HA) and total hip arthroplasty (THA) is common as fracture treatment, but there is no consensus regarding optimum implant choice.

- **Bisphosphonates reduce the risk of TJA but increase the risk of periprosthetic fractures..**  
  *Namba RS, et al*
  Total hip arthroplasty (THA) is a successful...
procedure performed predominantly on older patients, who are typically at a higher risk for osteoporosis. The clinical benefits of bisphosphonate use on THA recipients are not well described. The purpose of this investigation was to determine if bisphosphonate use in primary THA patients is associated with a change in risk of all cause and aseptic revision, or periprosthetic fracture when compared to patients not treated with bisphosphonates. Furthermore, we studied the risk of revision and periprosthetic fracture based on quantified bone mineral density measurements and age of patient.

12:30 PM - 1:15 PM
Lunch – Riverside Room

1:15 PM - 1:45 PM
Non-Surgical Treatments of Osteoarthritis
Moderator: Patricia Franklin, PhD

  Elena Losina
  BOA Sweden.
  Leif Dahlberg

1:45 PM - 2:45 PM
Harmonization - An Important Task for the Future – Devices, Outcome Metrics, Minimal Data Sets, etc.
Moderators: Martyn Porter, David G. Lewallen, MD

NARA Experience
Ove Furnes
The Nordic Arthroplasty Register Association was established in 2007 in order to compare demographics and to study quality of treatments, especially in groups with insignificant numbers in each country separately. It was decided to create two common data analysis files for the three participating countries; Denmark, Norway and Sweden, one for hip arthroplasties and one for knee arthroplasties. In 2010 Finland joined the group.

Component Database Issues - Unique Device Indicator
Peter Rottier

ISAR – ICOR Device Harmonization Project
Stephen Graves, MD

Integration of the Kaiser Permanente registry into an electronic health record system
Liz Paxton

ICHOM
Caleb Stowel

2:45 PM - 3:15 PM
Poster Tour – Courtyard Reception

3:15 PM - 4:15 PM
Parallel Session 1: Podium Presentations – Primary Hip
Moderators: Phil Noble, Rob Nelissen

Countrywise results of total hip replacement in the Nordic countries. A NARA study.
Mäkelä KT, et al
The aim of the study was to assess countrywise survival of total hip replacement (THR) based on the Nordic Arthroplasty Register Association (NARA) database.

Is preoperative comorbidity associated with 1-year PROs and reoperation within 2 years after THA?
Greene ME, et al
The predictive capacity of comorbidity scores for post-operative patient reported outcomes (PROs) and reoperation after total hip arthroplasty is not well studied. We attempt to assess if considering comorbidity scores would enhance prediction if we already know the patients preoperative PROs.

Influence of demographics on revision and mortality: 15-year results of a hospital-based registry.
Lübbeke A, et al
Patients undergoing total hip arthroplasty (THA) vary substantially with respect to preoperative characteristics, which may affect revision and mortality rates. However, in most registries with long-term follow-up only age and sex are available. Our objective was to assess the influence of age, sex, BMI, ASA score, Charnley grade, and smoking on the occurrence of revision and mortality over a 15-year period.

Do large heads improve outcomes? Yes and no, data from the NZ Joint Registry.
Devane P, et al
The use of larger heads is expected to reduce dislocations. The reduction in dislocations by using larger heads is much less than the increased revisions caused by MoM articulations.

Effect of bearing surface on mid-term survivorship of total hip replacement.
Bohm E, et al
The past 15 years has seen a move away from traditional metal on polyethylene (MoP) total hip
arthroplasty (THA) bearing surfaces. Alternate options have included metal on cross-linked polyethylene (XLPE), large diameter (LD-MOM) and regular sized head metal on metal (MoM), ceramic on ceramic (CoC), ceramic on XLPE (CoP) and resurfacing. There exists little North American data documenting effectiveness at improving THA survival. We sought to investigate this using data from the Canadian Joint Replacement Registry (CJRR).

Incidence and risk factors for readmissions after primary total hip arthroplasty.

Paxton L, et al
An integrated healthcare system total joint replacement registry was used to identify a cohort of patients with primary unilateral THAs from 2009 to 2011. A generalized linear model was used to study the relationship of risk factors (demographic, clinical, systems factors) and the risk of 30-day readmission, accounting for the nesting of observations within hospitals.

3:15 PM - 5:20 PM
Parallel Session 2: Revisions/Failures
Moderators: Keith Tucker, Henrik Malchau, MD
Paul Revere Room

End Point Definitions Any Kind of Further Surgery or Exchange of One or Both Components?

Henrik Malchau, MD

Surgeon or Unit Outlier

Speaker TBD

Implant Outlier

Richard de Steiger

A Dissatisfied Patient - Is That A Failure?

Ola Rolfson

4:20 PM - 5:20 PM
Podium Presentations – Primary Knee
Moderators: Otto Robertsson, William J. Maloney, MD


Badawy M, et al
Reports of high complication rates in some studies conflict with other studies achieving durable long-term results with unicompartmental knee arthroplasty (UKA). The purpose of the present study was to evaluate whether hospital procedure volume influence the risk of revision in unicompartmental knee arthroplasty using data from the Norwegian Arthroplasty Register (NAR).

RSA and Registries.

Pijls BG, et al
Recent problems with several hip and knee prostheses have illustrated that the orthopaedic community, industry, and regulators can still further improve patient safety. Given the early predictive properties of roentgen stereophotogrammetric analysis (RSA) and the meticulous follow-up of national joint registries, these two methods are ideal tools for such a phased clinical introduction. The purpose of this study is to evaluated the association between RSA prosthesis-migration data and registry data.

All-polyethylene versus metal-backed tibial components – an analysis of 27,733 CR TKAs.

Gudnason A, et al
The use of all-polyethylene tibial components in total knee arthroplasty is persistently debated. We hypothesized that there is no difference in 10-year survival between all-polyethylene and metal-backed tibial components of a specific design in a large nationwide cohort.

Role of early infection as a competing event in total knee arthroplasties – survival analysis.

Marinelli M, et al
In 2009, the Swedish Knee Arthroplasty Register introduced a new set of variables to be filled in at surgery. These included questions on prophylactic measures used/planned (antibiotic treatment, antithrombotic prophylaxis, anesthesia and local infiltration analgesia, tourniquet and drains). We describe the completeness in reporting and the initial results regarding the effects on the short term revision rate and mortality.

A new set of variables concerning prophylactic measures in the Swedish Knee Arthroplasty Register.

Robertsson O, et al
In 2009, the Swedish Knee Arthroplasty Register introduced a new set of variables to be filled in at surgery. These included questions on prophylactic measures used/planned (antibiotic treatment, antithrombotic prophylaxis, anesthesia and local infiltration analgesia, tourniquet and drains). We describe the completeness in reporting and the initial results regarding the effects on the short term revision rate and mortality.

Are all important predictors of pain and function after TKR and THR included in registry data?

Franklin PD, et al
As mandates for PRO assessment after TJR expand, a clear understanding of pre-existing clinical
Sunday Sessions

**All sessions will be held in the Ballroom unless otherwise noted.**

Factors that influence PROs after surgery is needed before comparing PROs across providers. We evaluated the roles of medical and musculoskeletal comorbidities in explaining variation in 6 month post-TKR and THR pain relief and functional gain.

**4:20 PM - 5:20 PM**

**Podium Presentations – Revision Arthroplasty**

**Moderators:** John Karrholm, Ove Furnes

The outcome of revised resurfacing arthroplasty.

*de Steiger RN, et al*

One of the cited benefits of hip resurfacing arthroplasty (HRA) is the potential ease of revision to a conventional stemmed hip arthroplasty with a large head Metal on Metal (MoM) bearing. In light of more recent data confirming a higher than anticipated rate of revision for MoM bearing surface in primary situations the purpose of this analysis was to examine the outcome of revised primary HRA and determine how the different types of revisions compared.

**Outcomes of revision total hip arthroplasty:**

**Analysis of a US total joint registry.**

*Khatod M, et al*

The incidence of total hip arthroplasty (THA) and revision THA (rTHA) are increasing. However, the survivorship of rTHA and the factors associated with re-revision has not been thoroughly evaluated. Using a US based Total Joint Replacement Registry (TJRR), we evaluated patient, implant, surgeon, and hospital factors associated with re-revision surgery following rTHA.

**Outcomes of revision total knee arthroplasty:**

**An analysis of a US based total joint replacement registry.**

*Bini SA, et al*

The revision burden for Total Knee Arthroplasty (TKA) is increasing. However, the survivorship of these TKA revisions (rTKA) and the risk factors associated with their re-revision has not been thoroughly evaluated in the literature. Using a US based Total Joint Replacement Registry (TJRR), we evaluated patient, implant, surgeon, and hospital factors associated with re-revision surgery following rTKA.

**Temporal trends in revision joint arthroplasty – an analysis of the National Joint Registry.**

*Palan J, et al*

There remains a paucity of information on patient characteristics and reasons for revision following total hip replacement (THR). The aim of this study was to describe trends in patient demographics and reasons for revision over 10 years.

**Is a revision a revision?**

*Liebs TR, et al*

The reported survival of implants depends on the definition used for the endpoint, usually revision of the implant. When screening through registry reports from different countries it appears that revision is defined quite differently. Therefore, we aimed to compare the definitions of revision among registry reports, and to apply common clinical scenarios to these definitions.

**Re-revision rates following revision of cemented and cementless primary hip arthroplasty – a Danish Hip Arthroplasty Registry Study.**

*Gromov K, et al*

Increased use of uncemented technique for primary THA in most parts of the world can lead to changes in reoperation patterns, ie indications for revision, and potentially influence the survival of revision arthroplasty. In this registry-based study we wanted to investigate the role, primary femoral fixation plays in survival of revision arthroplasty.

**6:15 PM - 7:00 PM**

**Reception – Charles View Ballroom**

**7:00 PM**

**Dinner – Charles View Ballroom**
Monday Sessions

7:00 AM - 9:00 AM
Breakfast – Courtyard Reception

8:00 AM - 9:15 AM
Podium Presentations – Emerging Registries, Implants and Techniques
Moderators: Eric Bohm, Ola Rolfson

Saudi National Medical Devices Implants Registry (Aspirations and challenges).
Altayyar SS, et al

Saudi Medical Devices Implants Registry (MDIR) is a huge documentation system which help to conduct research and assess the quality of health care. As well as, to fulfill the requirements of the regulatory bodies with regard to long term post market evaluation, surveillance and study the comparative effectiveness of Medical devices Implants. Saudi Arabia is the second biggest market for medical devices in the Middle East and North Africa, and has more than 415 hospitals; despite that, there are no registries for medical devices implant in Saudi Arabia. The main objectives of MDIR are to Increase patient safety via monitor and support implants FSN’s/Recalls, Support research, Provide an evidence-based rationale and other issues. This paper will address the main obstacles and challenges expected to face Saudi Food and Drug Authority during establishment and implementation of the National Medical Devices Implant Registry (NMDIR).

The International Cartilage Repair Society Registry: Global, innovative and essential.
Biant LC, et al

Local and National arthroplasty registries of arthritis treatments are mature, and their existence is translating into data for patient benefit. Arthritis commences with damage to the articular cartilage. Many of the fundamental innovations in orthopaedic surgery are in the realm of biologic and regenerative treatments for joints, trying to repair the native joint surface before resorting to arthroplasty.

Medical device identification in the Italian Arthroplasty Registry: A dedicated implant database.
Torre M, et al

This presentation treats the prospects in the US for nationwide patient registries such as those developed in Scandinavia. Based on an ongoing qualitative comparative study, it relates the main of the implants available on the Italian market (hip, knee, shoulder), in order to provide the surgeons with useful tools for devices identification.

Surveillance of quality, safety and effectiveness of orthopedic implant.
Sirena SA, et al

In 2011, the Brazilian National Health System has spent around US$ 64 million, which represents 1.4% of hospital expenditure on products of osteosintesis and arthroplasty. The objective of the present study is to evaluate the implementation of surveillance of hip and knee arthroplasties in a public hospital as a proposal to a national registry.

Effect of a regional registry on early revision rates and reasons for revision.
Singh J, et al

In 2004, an arthroplasty register was implemented in our health region to improve the outcomes of elective total hip (THA) and knee (TKA) arthroplasty. Yearly reports produced for each site and surgeon are reviewed by the regional orthopaedic standards committee. We sought to determine if this process had an impact on early (2 year) revision risk and the reasons for early revision.

Egyptian community arthroplasty register: An update.
Hafez HA, et al

The causes of failure in hip and knee arthroplasty in developed countries are well reported in literature. However, no such reports are available for developing countries. Data from the Egyptian community arthroplasty register were analyzed to identify the causes of failure from January 2007 to December 2013. The failure was identified either during the follow up of cases, which were listed in the registry as primary arthroplasty or during the entry of revision cases that their primary procedures were not listed in the registry.

9:15 AM - 11:15 AM
US Joint Replacement Registries: Accomplishments, Challenges, and Opportunities for Collaboration
Moderators: Tad Funahashi, David G. Lewallen, MD

Applicability of the Scandinavian Quality Registry Model in US Health Care
Charlotta Levay

This presentation treats the prospects in the US for nationwide patient registries such as those developed in Scandinavia. Based on an ongoing qualitative comparative study, it relates the main
features of national quality registries in Sweden and neighboring countries and considers to what extent this model can be applied in US health care. Due to differing contextual conditions, some components of the Scandinavian registry model are currently difficult to apply in the US. These include long term follow up and linkage to other health records, enabled by a universal patient identifier system, favourable health information laws, and a high level of institutional and generalized trust among the population. However, there are also recent developments in US health care that benefit registries of the Scandinavian type. These include policy reforms and payment models focused on quality reporting; improved possibilities for low-cost, low-effort data extraction from EHRs; and heightened interest in observational research studies.

**Institutional Registries**
Daniel J. Berry, MD, Mayo Clinic Total Joint Registry, Henrik Malchau, MD, Harris Joint Registry

**Community-Based Registry**
Susan Mehle, HealthEast

Charles Turkelson, PhD, Connecticut Joint Replacement Institute
The Connecticut Joint Replacement Institute’s (CJRI) total joint replacement registry aims to improve the value of total hip and knee arthroplasty. Although the registry is partly a research tool, it is also meant to serve local needs. Specifically, it is intended to help our surgeons improve patient-reported outcomes, decrease complications, and reduce costs.

**Patient Centered Research Registry**
Patricia Franklin, PhD, FORCE TJ R
In 2010, the US Agency for Healthcare Research and Quality (AHRQ) awarded a grant to the University of Massachusetts Medical School to establish the FORCE-TJR (Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement) registry. In contrast to implant registries, FORCE-TJR’s primary endpoint is patient-reported outcomes (PRO), supported by post-operative complications and revision.

**Integrated Health Care System Registry**
Bob Namba, MD, The Kaiser Permanente Registry

**State Registries**
Jay Patel, California Joint Replacement Registry
Brian Hallstrom, MD, Michigan Arthroplasty Registry

Developed in 2012, the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) has recruited 44 hospitals representing more than 330 physicians and is designed to collect 100% of elective, primary and revision, hip and knee replacement cases performed at participating hospitals.

**National Registry**
William J. Maloney, MD, The American Joint Replacement Registry

Liz Paxton

10:40 AM - 11:00 AM
Poster Tour – Courtyard Reception

11:00 AM - 11:20 AM
Panel Discussion: U.S. Registries
Moderators: Tad Funahashi, David G. Lewallen, MD
Panel: Carlotta Levay, Daniel J. Berry, MD, Henrik Malchau, MD, Susan Mehle, Charles Turkelson, Bob Namba, MD, Jay Patel, Brian Hallstrom, MD, William J. Maloney, MD, Liz Paxton

11:20 AM - 12:20 PM
Podium Presentations – U.S. Registry Results
Moderators: Michael Dohm, Daniel J. Berry, MD

Risk of surgical site infections associated with diabetes and hyperglycemia.
Maradit-Kremers M, et al
Although diabetes mellitus is a well-established risk factor for surgical site infections (SSI), evidence is conflicting to what extent perioperative hyperglycemia, glycemic control and treatment around the time of surgery modifies the SSI risk. We linked surgery-specific data from a large institutional Total Joint Registry with electronic health records to examine the association between diabetes mellitus, perioperative hyperglycemia, glycemic control, insulin administration and the risk of SSI in total hip (THA) and knee arthroplasty (TKA).

Pre-op THR and TKR pain and functional limitation profiles are consistent across US surgeons.
Ayres DC, et al
As the number of total hip replacement (THR) and total knee replacement (TKR) procedures increases dramatically in the US, questions about the consistency of surgeon selection criteria have been raised. We evaluated patient-reported pre-THR and pre-TKR pain and function scores across 21 US sites.
Surgical approaches for primary hip replacement: Comparison of complications and revision rate for posterior, direct lateral, anterior and anterolateral approaches in a community based setting.
Sheth DS, et al
Minimally invasive modifications of approaches from the front of the hip joints were introduced to reduce dislocation rate and facilitate early rehabilitation after a total hip replacement (THR). Lack of consensus continues regarding benefit of these newer approaches in reducing muscle damage, improving postoperative gait or facilitating earlier rehabilitation. The purpose of our study is to evaluate the risk of aseptic revision, septic revision, and dislocations in the various surgical approaches utilized for primary THRs performed in setting of a community based health care organization.

Multiple Methods of Patient Contace Increase Follow-up Rate.
Holmes AD, et al
Patient Reported Outcome measures are increasingly important for evaluating outcomes in arthroplasty patients. Achieving sufficient follow-up response rates can be challenging due to factors such as the older patient population. Effective methods to maintain high participation in follow-up data collection are of interest for clinical and research purposes.

California TJA outcomes: A collaboration of the Kaiser Permanente Total Joint Replacement Registry and the California Joint Replacement Registry.
Paxton L, et al

Disabilitly at Time of Surgery in Younger vs Older THR and TKR patients’ Lessons from Force-TJR
Noble P, et al
Growing numbers of US total knee (TKR) and total hip (THR) replacements are performed in patients under 65 years of age. To understand whether younger US patients are receiving TJR prematurely, we compared clinical profiles and knee/hip pain and functional status in younger versus older TKR and THR patients.

12:30 PM - 1:15 PM
Lunch – Riverside Room

1:15 PM - 2:00 PM
ICOR Session
Moderators: Jay Patel, Henrik Malchau, MD
ICOR Achievements Up to Date and Spectrum of Device Research and Surveillance Capabilities
Art Sedrakyan

2:00 PM - 2:30 PM
ISAR and the Future
Future Strategy
Martyn Porter
Panel Discussion
Panel To Be Decided

2:30 PM - 3:00 PM
Presentation of the 5 Best Posters
Moderators: To Be Decided

3:00 PM - 3:20 PM
Closing Ceremony
ISAR Awards and Final Remarks
Martyn Porter
Monday Sessions

All sessions will be held in the Ballroom unless otherwise noted.
ISAR Steering Committee

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ISAR Member Organizations

American Joint Replacement Registry (AJRR)
Australian Orthopaedic Association National Joint Replacement
California Joint Replacement Registry
Canadian Joint Replacement Registry (CJRR)
Catalan Arthroplasty Register - Registre d’Artroplàsties de Catalunya (RACat)
Danish Hip Arthroplasty Registry
Danish Knee Arthroplasty Registry
Dutch Arthroplasty Register (LROI)
Egyptian Community Arthroplasty Register
European Arthroplasty Register (EAR)
Finnish Arthroplasty Register
FORCE-TJR Registry
Harris Joint Registry
HealthEast Joint Registry (HEJR)
Hospital for Special Surgery Hip and Knee Joint Replacement Registry
Irish National Orthopaedic Register
Italian Arthroplasty Registry Project (RIAP)
Japanese Arthroplasty Register (JAR)
Kaiser Permanente National Total Joint Registry
Lithuanian Arthroplasty Register
Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI)
National Joint Registry (NJR)
The New Zealand Joint Registry
The Norwegian Arthroplasty Register
Portuguese Arthroplasty Register
Registro Ortopedico Lombardo Protesi - ROLP
Register of Orthopaedic Prosthetic Implants - RIPO
Registro de Orthopaedic Prosthetic Implants - RIPO Puglia
Romanian Arthroplasty Register (R.N.E.)
Slovak Arthroplasty Register
The Study Group - University of Arizona
Swedish Hip Arthroplasty Register (SHAR)
Swedish Knee Arthroplasty Register (SKAR)
Total Hip Arthroplasty Register of the French Society for Orthopaedics and Traumatology
Western Slope Study Group