

## Editor's Spotlight/Take 5

# Editor's Spotlight/Take 5: A Review of Current Fixation Usage and Registry Outcomes in Total Hip Arthroplasty: The Uncemented Paradox [DOI 10.1007/s11999-013-2941-7]

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The study findings presented by Troelsen and colleagues remind me of the book *How*

*We Know What Isn't So: The Fallibility of Human Reason in Everyday Life*, by Thomas Gilovich [1]. After reading it, I remember thinking the title was more interesting than the book. That is not the case here. The Uncemented Paradox is a catchy title, but the work by Troelsen and colleagues is truly fascinating.

From 2006 to 2010, the registries of all the countries surveyed in the study by Troelsen and colleagues reported overall increases in the use of uncemented fixation, even in older patients. Yet, those same patients had more durable results with cemented implants, according to their countries' registries.

**Note from the Editor-in-Chief:** *In "Editor's Spotlight," one of our editors provides brief commentary on a paper we believe is especially important and worthy of general interest. Following the explanation of our choice, we present "Take Five," in which the editor goes behind the discovery with a one-on-one interview with an author of the article featured in "Editor's Spotlight."*

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The paper makes me wonder how many of us think we "know" what the right approach is, even when the data tell us that it "isn't so."

I can understand if surgeons practicing in the United States or other countries are sometimes at odds with the data from the Norwegian Hip Arthroplasty Registry. The populations may be considered too different for the results to apply. Perhaps the registry data do not fully capture important functional outcomes that guide our implant choices.

But when practicing surgeons in Denmark are at odds with widely available data from their own excellent registry, questions emerge. When seven countries with quality registries do this — as Troelsen and colleagues found — it is important to stop and ask why.

We know registry data do not provide the entire story, but we also understand that physicians occasionally make practice decisions despite the best evidence, rather than in accord with it. Surgeons still perform arthroscopic débridements for knee arthritis even after a placebo-controlled surgical trial demonstrated these to be ineffective [2, 4]. When the public discovers that patients were harmed as a result of physicians ignoring the evidence, people rightly ask probing questions [3]. The "art of medicine" is too often a euphemism for "doing what I feel like" or "doing what I have always done." Where does "the art" stop and the science take over?

How do we know what we think we know? It is a key question. Whether or not you perform hip replacements is

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beside the point. If you agree it is important to question what we know and how we know it, then you will want to read the article by Troelsen and colleagues, and the interview below.

## Take 5 with Anders Troelsen MD, PhD, DMSci and Henrik Malchau MD, PhD

Co-authors of “A Review of Current Fixation Usage and Registry Outcomes in Total Hip Arthroplasty: The Uncemented Paradox” [DOI 10.1007/s11999-013-2941-7]

**Seth S. Leopold MD:** *Your review of registries suggested that the dominant practice pattern is at odds with the evidence. What factors might be driving the practice pattern you observed? To what degree might industry be among those factors?*

**Anders Troelsen MD, PhD, DMSci and Henrik Malchau MD, PhD:** We believe the increasing use of uncemented fixation is multifactorial. Basically, all parties (hip surgeons, administrators, and industry) desire to give patients the best possible treatment. This is one of the basic goals for the development of new products. Unfortunately, many of the new innovations do not have sufficient scientific documentation when they are introduced. Additionally, it seems there is a

perception among some surgeons that “new is better.” This behavior may be driven by conscious or unconscious marketing efforts. Registry data have the potential to display nationwide outcome of treatment modalities (the mode of fixation, for example). Registry data could potentially warn of poor performing implants and principles of treatment.

Preclinical and clinical studies are important to document early clinical performance. In order to document that practice patterns are in line with best evidence, we believe that new developments should always be introduced stepwise, beginning with preclinical tests, followed by single- and multi-center clinical studies. It is in the interest of both industry and surgeons to apply these principles. Their application should be mandatory prior to large-scale marketing of new products. Additionally, both new and existing devices, as well as surgical techniques, should be monitored in registries in order to establish a feedback mechanism for surgeons regarding the outcome of practice patterns.

**Dr. Leopold:** *If indeed the evidence here does not support the common practice, this would not be the first instance of everyday practice lagging behind the evidence. Who should determine when the evidence is*

*sufficiently robust that all should act on it, and what roles do you think surgeons, specialty societies, payors, and governments have to play when the evidence is deemed adequate on a key point of practice?*

**Drs. Troelsen and Malchau:** As surgeons we have the first-line responsibility concerning the best possible treatment of our patients. Quality of treatment is a concern nationwide. The surveillance offered by registries is a relevant source of evidence to decide on issues of everyday practice. The decision about when to act on potential deviations between everyday practice and evidence, such as the uncemented paradox we observed, should be made by surgeons with academic interest in this question. We suggest an international collaboration of national arthroplasty registries that provides feedback to surgeons based on consensus decisions. An upcoming US arthroplasty registry would be a great and important participant in this collaboration.

**Dr. Leopold:** *Although arthroplasty registries have thrived in several countries, other important orthopaedic registries exist, and I do not know that everyone is familiar with them. What kinds of nonarthroplasty registries should general orthopaedic surgeons be aware of, where can they access the data from those registries, and are you aware of*

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**Fig. 1** Anders Troelsen MD, PhD of Hvidovre University Hospital in Hvidovre, Copenhagen, Denmark, is the lead author of "A Review of Current Fixation Usage and Registry Outcomes in Total Hip Arthroplasty: The Uncemented Paradox".

*any analogous tensions or "paradoxes" between registry data and practice like the ones you found in your study?*

**Drs. Troelsen and Malchau:** Paradoxes between actual practice patterns and registry data exist. An example of this is the use of uncemented TKA when registry data suggest that cemented TKA has significantly better long-term survivorship. We are currently reviewing these potential "paradoxes" in knee arthroplasty surgery and will soon have more detailed information. Other paradoxes may exist, but the ability to identify a paradox depends on having a strong registry.

Using the Scandinavian countries as an example, there is a long-standing tradition for national quality monitoring databases. Most of these databases frequently publish their results in the English-language literature. Annual reports can be viewed online. Some new and interesting registries are covering fracture-related surgeries in Denmark and Sweden. Fracture-related surgery is among the largest fields of orthopaedic surgery. Until recently, the field has lacked any kind of overall quality monitoring. Given the large numbers of procedures performed, these registries will be able to give feedback on best practices quite soon.

**Dr. Leopold:** *Is there a chance that the difference between registry data and everyday practice could be the result of registries not capturing all the important information that users of these implants are able to discern, perhaps including patient pain and function or ease/reproducibility of surgical technique? If so, how might that apply to other kinds of registries, and how do you recommend practitioners integrate the potentially conflicting inputs of personal observation with registry data?*

**Drs. Troelsen and Malchau:** So-called "residual confounding," is a limitation to results from registries. To maintain high completeness of data implies a limit on the amount of detail you can ask (or expect) surgeons and staff to report. However, aggregating data from hundreds of thousands of patients will minimize the effect of most confounders. When looking at general principles of surgery, such as mode of fixation, registry data can be considered reliable when estimating the long-term survivorship. When looking at the performance of a single implant, or individual surgeon, it probably can reliably show whether the outcome is clearly inferior (registry data used in a warning system).

Patient reported outcome measures are integrated in some registries, and these add valuable information to registry results. Surgeons should use

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**Fig. 2** Henrik Malchau MD, PhD of Massachusetts General Hospital in Boston, MA, USA is a co-author of 'A Review of Current Fixation Usage and Registry Outcomes in Total Hip Arthroplasty: The Uncemented Paradox'.

registry data to develop evidence-based algorithms for principles of treatment. From a strictly scientific point of view, personal observation is only reliable if outcomes are quantified. In general, we should not worry how highly specialized hip surgeons are performing; they perform only a minority of these procedures in the United States. By contrast, when nationwide quality of treatment is of

concern, registries are excellent data sources to guide practice.

**Dr. Leopold:** *This next question is for the hip specialists. Not everyone remembers how to cement an acetabular component; even cementing the femur is becoming a lost art in some parts of the world. Poor technique may result in failures in excess of what you have observed here. How should this*

*affect how hip surgeons use the evidence you have identified?*

**Drs. Troelsen and Malchau:** Given the increasing use of uncemented fixation observed in all countries, it is clear that a reintroduction of cemented fixation must be organized. We soon will reach a “point of no return” where reintroduction and reeducation will result in inferior outcome of cemented fixation largely as a function of lack of experience with this technique.

Remember, deteriorating results over time of cemented fixation have already been observed. Cementing a THA should be part of basic residency and fellowship training. Senior surgeons must routinely use this mode of fixation in appropriate patients. The orthopaedic societies and the industry should facilitate the educational process by introducing courses focusing on contemporary cementing technique. In short, reeducation and reintroduction are the key words.

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