

# Patient-reported Outcome Measures and Health-economic Aspects of Total Hip Arthroplasty

*A study of the Swedish Hip Arthroplasty Register*

AKADEMISK AVHANDLING

som för avläggande av Medicine Doktorsexamen vid Sahlgrenska Akademien vid Göteborgs Universitet kommer att offentligens försvaras i hörsal Arvid Carlsson, Academicum, Medicinargatan 3, Göteborg, fredagen den 10 december klockan 13.00

av

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Avhandlingen baseras på följande delarbeten:

- I. Ola Rolfson, Johan Kärrholm, Leif E Dahlberg, Göran Garellick  
**Patient-reported outcomes in the Swedish Hip Arthroplasty Register - results of a nationwide prospective observational study**  
*Manuscript submitted*
- II. Ola Rolfson, Roger Salomonsson, Leif E Dahlberg, Göran Garellick  
**Internet-based follow-up questionnaire for measuring patient-reported outcome after total hip replacement surgery - reliability and response rate**  
*Accepted in Value in Health*
- III. Ola Rolfson, Oskar Ström, Johan Kärrholm, Göran Garellick  
**Costs related to hip disease in patients eligible for total hip arthroplasty**  
*Manuscript submitted*
- IV. Ola Rolfson, Leif E Dahlberg, Jan-Åke Nilsson, Henrik Malchau, Göran Garellick  
**Variables determining outcome in total hip replacement surgery**  
*J Bone Joint Surg Br. 2009 Feb;91(2):157-61*
- V. Ola Rolfson, Georgios Digas, Peter Herberts, Johan Kärrholm, Fredrik Borgström, Göran Garellick  
**One-stage bilateral total hip arthroplasty is cost saving**  
*Manuscript submitted*

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# Patient-reported Outcome Measures and Health-economic Aspects of Total Hip Arthroplasty

*A study of the Swedish Hip Arthroplasty Register*

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## **Background**

The Swedish Hip Arthroplasty Registry collects prospective, observational, nationwide data on all total hip arthroplasties (THAs) in Sweden. Implant survival has been the most commonly reported outcome variable. However, the main indications for THA are pain and impaired health-related quality of life (HRQoL) due to hip disease. Therefore it is crucial to include patient-reported outcome measures (PROMs). Consequently, starting in 2002, the Registry introduced a PROM programme which has gradually expanded to include all units performing THA.

## **Objectives**

The present aims were to investigate the response rates to the PROM programme, to test an application for an Internet-based follow-up questionnaire for PROMs, to analyse patient-reported outcomes (PROs) and predictive factors for PROs in the Swedish THA population, and to estimate all costs related to hip disease in patients eligible for THA.

## **Patients and methods**

The PROM programme comprises a self-administered, ten-item questionnaire including Charnley category, a pain and a satisfaction visual analogue scale, and the generic HRQoL tool EQ-5D presented pre-operatively and at one, six and ten years post-operatively. An Internet application for collecting PROMs was developed.

## **Key words**

Swedish Hip Arthroplasty Register, patient-reported outcome measure, total hip arthroplasty, outcome, health-related quality of life, EQ-5D, health economics, cost-of-illness, response rate.

The analyses were based on more than 40 000 THAs selected from the Registry according to predetermined criteria. A specific questionnaire to estimate cost of illness was completed by 2 635 patients prior to surgery.

## **Results**

Response rates to the PROM programme were appreciable but the Internet-based application for collecting PROMs did not give sufficient response rate to replace the pen-and-paper version. Patients eligible for THA reported poor HRQoL and considerable pain. The overall PROs were satisfactory, with an average increase in EQ-5D index of 0.37 one year after surgery. A non-negligible proportion did not respond satisfactorily to surgery one-year post-operatively. Musculoskeletal co-morbidity portended worse outcomes as did the presence of mental distress. The annual cost of illness for patients eligible for THA was SEK 58 600 (€≈6 000). Productivity loss was the major cost. Long wait for surgery was associated with increased costs.

## **Conclusions**

This study demonstrates the necessity of including PROM and societal cost data in a continuous, multi-dimensional assessment of THA. Thus the approach facilitates health-economic analyses and permits adequate monitoring and improvement of results.