

**EUROHIP**

Karsten E. Dreinhöfer • Paul Dieppe  
Klaus-Peter Günther • Wolfhart Puhl

Editors

# EUROHIP

## Health Technology Assessment of Hip Arthroplasty in Europe



Springer



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# Preface

Projects have the greatest chance of success if the underlying question carries weight and is cogently put.

Successful projects get off to the best start in the most favourable circumstances, for example when a clearly targeted question is brought together with vision and drive.

The 'EUROHIP' project was initiated in just such propitious conditions on 28 October 1997 when Reinhard Mohn and Wolfhart Puhl sat opposite each other to talk about the indication for surgery in coxarthrosis. Reinhard Mohn had to accept that there were indeed different ways of looking at the indication.

Following a frank question and answer session, he found himself able to support Puhl's basic argument. However, on account of his analytical approach and his constant desire to find answers to open questions, and to resolve any unsolved problems, he remained dissatisfied with the overall situation.

His proposal, therefore, was to collect comparative data from all over Europe as a means of finding a substantiated solution which was basically acceptable to all parties.

All those working on the "Eurohip" project and all patients who stand to benefit from this work are grateful.

Following its introduction to routine medical care in the 1960s, total hip joint replacement has become one of the most valuable interventions available for chronic pain and disability. It has been shown to be both effective and cost-effective, and in all developed countries of the world demand and provision have both risen steadily over the last three decades. But in spite of the clear success of total hip replacement, practice variations remain huge, and many scientific questions about its provision are still to be answered.

Most developed countries are struggling to finance first class health care for everyone in their community, leading to renewed emphasis on appropriate and equitable provision of health care, and putting interventions that are both high in volume and expense under the microscope. Purchasers and managers of health care provision in Europe are now demanding answers to some of the unanswered questions about hip replacement.

The Eurohip project has been set up to try to answer some of these questions. With the help of funding from the Bertelsmann Foundation and Centrepulse Orthopaedic Ltd. (Sulzer Medical Ltd.) we were able to create a collaboration involving 22 orthopaedic centres from 12 different European countries. This collaboration is undertaking several different investigations into hip replacement, to address indications, practice variations, costs and outcomes. It is affiliated with the 'Bone and Joint Decade'.

We would like to acknowledge the hard work that Karsten Dreinhöfer has put into the Eurohip project. Without his help, the projects being undertaken, in addition to the publication of this book, would not have been possible.

Wilfred von Eiff

Paul Dieppe

Wolfhart Puhl

Principal Investigators and guarantors

# Contents

<b>1 Introduction: The Provision of Hip Joint Replacement.....</b>	<b>1</b>
Karsten Dreinhöfer, Klaus-Peter Günther, Paul Dieppe, and Wolfhart Puhl	
<b>Part I Health Technology Assessment of Hip Arthroplasty</b>	
<b>2 International Variations in Hip Replacement Rates .....</b>	<b>5</b>
H. Merx, P. Schröder, T. Stürmer, K. Dreinhöfer, W. Puhl, K.-P. Günther, and H. Brenner	
<b>3 Health Technology Assessment of Hip Replacement.....</b>	<b>21</b>
D. Lühmann	
<b>4 The Economic Perspective on Joint Replacement and Equity .....</b>	<b>27</b>
L. Davies	
<b>5 The Cost of the Procedure .....</b>	<b>33</b>
K. Dreinhöfer, D. Ziegler, G. Röderer, D. Dornacher, and H. Reichel	
<b>6 Trends in Hip Replacement Rates .....</b>	<b>47</b>
M. Flören, P. Dieppe, O. Johnell, and K. Dreinhöfer	
<b>Part II Indication for Hip Replacement</b>	
<b>7 Appropriateness: Consensus in the Criteria for Indications.....</b>	<b>55</b>
J. Williams	
<b>8 Radiographic Assessment of Indications for Total Hip Replacement .....</b>	<b>63</b>
M. Dougados	
<b>9 Patients' Views on Total Joint Replacement in the UK.....</b>	<b>69</b>
G. Woolhead, C. Sanders, and P. Dieppe	

<b>10 Population Requirement for Primary Hip-Replacement Surgery in England: A Comparison with Knee-Replacement.....</b>	<b>77</b>
P. Jüni and P. Dieppe	
<b>Part III Outcome Measurement</b>	
<b>11 What Are the Outcomes After Hip Joint Replacement for OA? .....</b>	<b>87</b>
L.S. Lohmander	
<b>12 Outcomes of Hip Replacement Vary.....</b>	<b>91</b>
A. Nilsson	
<b>13 Evaluation of the Implant.....</b>	<b>97</b>
<b>Different Perspectives of Outcome Measurement: Radiography and Alternatives</b>	
M. Krismer	
<b>14 Result Analysis of Hip Arthroplasty Registers .....</b>	<b>103</b>
U. Schütz and K. Dreinhöfer	
<b>15 The Patient's View: Indicators of Subjective Health and Their Use in Outcome Assessment .....</b>	<b>125</b>
T. Kohlmann	
<b>16 The Perspectives when Assessing Function in Patients with Osteoarthritis.....</b>	<b>133</b>
<b>International Classification of Function, Disability and Health</b>	
K. Dreinhöfer, A. Cieza, and G. Stucki	
<b>17 Conclusions: Where Do We Go from Here? .....</b>	<b>145</b>
Karsten Dreinhöfer, Paul Dieppe, and Wolfhart Puhl	
<b>Participants of the EUROHIP Project .....</b>	<b>147</b>

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# Introduction: The Provision of Hip Joint Replacement

# 1

Karsten Dreinhöfer, Klaus-Peter Günther, Paul Dieppe, and Wolfhart Puhl

In their Preface to this book, the responsible investigators outlined why and how they set up the “Eurohip” project. Having secured the interest of a large group of orthopaedic surgeons and health services researchers from many parts of Europe, they needed to bring them together to discuss what key projects they should be undertake. We, the editors of this book, were charged with organising a meeting to help fulfil that aim.

The meeting was held in the Hotel Sonnenalp, Ofterschwang, Germany in June 2000. It was attended by colleagues from Canada and other countries with expert knowledge and experience in research on the provision of hip replacement, in addition to members of the Eurohip group. Several presentations were made, and the excellent discussions that followed helped facilitate the development of Eurohip’s core projects.

Those attending thought that the meeting’s proceedings were worthy of publication, so after the conclusion of the meeting we asked the presenters if they would prepare a manuscript for us. We were delighted when nearly all of them agreed. Furthermore, when we gave them the opportunity to update their work in the light of the delay between the time of the meeting and publication of this book, most of the contributors graciously agreed to do that. This book is the outcome of their labours, for which we are most grateful.

The individual chapters cover some of the main problems and unanswered questions about the provision of total hip joint replacement. The topics covered include the evidence for practice variations, aspects of the indications for total joint replacement, including patient perspectives, economic issues and outcome assessment.

Many of the authors have separately published the work reported here in scientific journals, but by bringing these contributions together in a single publication we hope that we have been able to provide interested readers with a clearer overview of the subject. Recent surveys of the literature suggest to us that the time delay has not affected the relevance of these chapters to current health care provision.

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As we bring this book to publication we are in the middle of the WHO's "Bone and Joint Decade". The "Decade" is trying to increase awareness and understanding of bone and joint diseases. The Eurohip project is proud to be a part of that movement and we are delighted that the leaders of the "Decade" have agreed to the proceedings of our initial meeting being published as part of their work.



**Part I**

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# **Health Technology Assessment of Hip Arthroplasty**

H. Merx, P. Schröder, T. Stürmer, K. Dreinhöfer,  
W. Puhl, K.-P. Günther, and H. Brenner

## 2.1 Introduction

Radiographically-defined osteoarthritis (OA) of the hip affects about 15% of individuals over 65 years old in countries with Caucasian populations [1–3]. Hip OA can lead to pain and impaired function, and is known to be an important cause of disability in later life. Total direct and indirect costs of musculoskeletal diseases, of which arthritis is an important subcategory, have risen in the last 15 years, accounting for up to 1–3.5% of the gross national product in countries like Australia, Canada, the United States or the United Kingdom [4–7].

A number of studies have shown that total hip replacement (THR) effectively relieves symptoms of advanced hip OA and restores the loss of function [8–11]. In addition, THR is cost effective compared to other treatment options [12, 13]. Despite its major role in treatment of OA, different indication criteria to THR seem to be applied. The aim of our study was to sample health utilisation data for THR in the countries of the developed world, especially OECD countries (Organisation for Economic Co-operation and Development) and to investigate whether missing consensus criteria result in different replacement rates.

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## 2.2

### Methods

To obtain national THR rates we compiled data from the available literature, different data sources of national authorities and finally information from hip implant manufacturers. For information on further country-specific indicators, such as the population age structure or general health care costs, we also used the OECD Health Data File 1999.

#### 2.2.1

##### Literature Review

MEDLINE searches were performed for the period 1990–2000. We used “total hip arthroplasty”, “total hip replacement”, “total hip implant”, “THA” combined with “incidence”, “population-based”, “osteoarthritis” as search terms. Only articles in English, German or Dutch languages were considered. Further bibliographies and cross-referencing of identified papers were used for completion of the study.

The review includes only population-based studies with a specified data source of performed THR. In most cases, the data source was either a national register or the hospital records/operating theatre registers of an entire country, county or smaller area. Publications with district data were only included in the study in the absence of national data. Moreover, national or district THR rates were only considered if the reference population was the total population. If there were several publications pertaining to the same data source, e.g. a national register, only the most recent one was taken into consideration.

Whenever possible, the THR rates as provided in the publications were used. In some cases, only numbers of THR units were given in the publications. In these cases, the OECD-Health-Data File 1999 was the data source for the population to calculate THR rates. With few exceptions, only crude rather than age-specific or age-standardized THR rates are presented since only very few THR figures by age groups were recorded.

#### 2.2.2

##### Information from National Authorities

In order to get information on national data of THR rates we performed a survey among national authorities. We asked, in a standardised questionnaire, for annual rates, or, alternatively, absolute numbers of primary THR and overall hip replacements (sum out of primary THR, partial hip replacement and hip revision procedures) for the years 1985, 1990, 1995 and the most recent year with available data. As OA is a major diagnosis for THR, we also asked for hospitalisation rates due to OA (ICD-9: 715). Additionally, we requested further information on the data source (i.e. the coding system, National Register, percentage of the