

Performance Measurement for Health System Improvement

Experiences, Challenges and Prospects

Peter C. Smith, Elias Mossialos, Irene Papanicolas
and Sheila Leatherman



HEALTH ECONOMICS,
POLICY AND MANAGEMENT

European
Observatory
on Health Systems and Policies



CAMBRIDGE

Performance Measurement for Health System Improvement

In a world where there is increasing demand for the performance of health providers to be measured, there is a need for a more strategic vision of the role that performance measurement can play in securing health system improvement. This volume meets this need by presenting the opportunities and challenges associated with performance measurement in a framework that is clear and easy to understand. It examines the various levels at which health system performance is undertaken, the technical instruments and tools available, and the implications using these may have for those charged with the governance of the health system.

Leading authorities in the field present technical material in an accessible way and illustrate with examples from all over the world. *Performance Measurement for Health System Improvement* is an authoritative and practical guide for policy makers, regulators, patient groups and researchers.

Edited by

Peter C. Smith is Professor of Health Policy in the Business School and Institute for Global Health at Imperial College, London.

Elias Mossialos is Professor of Health Policy at the London School of Economics and Political Science, Co-Director of the European Observatory on Health Systems and Policies and Director of LSE Health, United Kingdom.

Irene Papanicolas is Research Associate and Brian Abel-Smith Scholar at LSE Health, the London School of Economics and Political Science.

Sheila Leatherman is Research Professor at the Gillings School of Global Public Health, University of North Carolina and Visiting Professor at the London School of Economics and Political Science, United Kingdom.

The Cambridge Health Economics, Policy and Management series

Series Editor: Professor Elias Mossialos, the London School of Economics and Political Science

This series is for scholars in health policy, economics and management. The series publishes texts that provide innovative discourses, comprehensive accounts and authoritative approaches to scholarship. The Cambridge Health Economics, Policy and Management series creates a forum for researchers to participate in interdisciplinary conversations on contemporary issues in healthcare. Concerns in health policy, economics and management will be featured in the context of international healthcare practices and on-going discussions on the latest developments in scholarly research and theoretical issues from a variety of perspectives.

Presenting clear, concise and balanced accounts of topics, particularly those that have developed in the field in the last decade, the series will appeal to healthcare scholars, policy makers, practitioners and students.

**Performance Measurement for Health System Improvement:
Experiences, Challenges and Prospects**

*Edited by Peter C. Smith, Elias Mossialos, Irene Papanicolas,
Sheila Leatherman*


Health Systems Governance in Europe:

The Role of European Union Law and Policy

*Edited by Elias Mossialos, Govin Permanand, Rita Baeten,
Tamara Hervey*

**Private Health Insurance and Medical Savings Accounts:
History, Politics, Performance**

Edited by Sarah Thomson, Elias Mossialos, Robert G. Evans



Performance measurement for health system improvement

Experiences, challenges and prospects

EDITED BY

PETER C. SMITH
(Imperial College Business School)

ELIAS MOSSIALOS
(LSE Health and European Observatory on Health Systems and
Policies, the London School of Economics and Political Science)

IRENE PAPANICOLAS
(LSE Health and European Observatory on Health Systems and
Policies, the London School of Economics and Political Science)

SHEILA LEATHERMAN
(School of Public Health, University of North Carolina)

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore,
São Paulo, Delhi, Dubai, Tokyo

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press,
New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521133487

© Cambridge University Press 2009

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2009
Reprinted 2010

Printed in the United Kingdom at the University Press, Cambridge

A catalogue record for this publication is available from the British Library

ISBN 978-0-521-11676-3 Hardback
ISBN 978-0-521-13348-7 Paperback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party Internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Contents

<i>Foreword</i>	ix
<i>Acknowledgements</i>	xi
<i>List of contributors</i>	xii
<i>List of boxes, figures and tables</i>	xvi
Part I Principles of performance measurement	1
1.1 Introduction	3
<i>Peter C. Smith, Elias Mossialos, Irene Papanicolas, Sheila Leatherman</i>	
Part II Dimensions of performance	25
2.1 Population health	27
<i>Ellen Nolte, Chris Bain, Martin McKee</i>	
2.2 Patient-reported outcome measures and performance measurement	63
<i>Ray Fitzpatrick</i>	
2.3 Measuring clinical quality and appropriateness	87
<i>Elizabeth A. McGlynn</i>	
2.4 Measuring financial protection in health	114
<i>Adam Wagstaff</i>	
2.5 Health systems responsiveness: a measure of the acceptability of health-care processes and systems from the user's perspective	138
<i>Nicole Valentine, Amit Prasad, Nigel Rice, Silvana Robone, Somnath Chatterji</i>	

2.6	Measuring equity of access to health care <i>Sara Allin, Cristina Hernández-Quevedo, Cristina Masseria</i>	187
2.7	Health system productivity and efficiency <i>Andrew Street, Unto Häkkinen</i>	222
	Part III Analytical methodology for performance measurement	249
3.1	Risk adjustment for performance measurement <i>Lisa I. Iezzoni</i>	251
3.2	Clinical surveillance and patient safety <i>Olivia Grigg, David Spiegelhalter</i>	286
3.3	Attribution and causality in health-care performance measurement <i>Darcey D. Terris, David C. Aron</i>	311
3.4	Using composite indicators to measure performance in health care <i>Maria Goddard, Rowena Jacobs</i>	339
	Part IV Performance measurement in specific domains	369
4.1	Performance measurement in primary care <i>Helen Lester, Martin Roland</i>	371
4.2	Chronic care <i>Martin McKee, Ellen Nolte</i>	406
4.3	Performance measurement in mental health services <i>Rowena Jacobs, David McDaid</i>	426
4.4	Long-term care quality monitoring using the inteRAI common clinical assessment language <i>Vincent Mor, Harriet Finne-Soveri, John P. Hirdes, Ruedi Gilgen, Jean-Noël Dupasquier</i>	472

<i>Population health</i>	vii
Part V Health policy and performance measurement	507
5.1 Targets and performance measurement <i>Peter C. Smith, Reinhard Busse</i>	509
5.2 Public performance reporting on quality information <i>Paul G. Shekelle</i>	537
5.3 Developing information technology capacity for performance measurement <i>Thomas D. Sequist, David W. Bates</i>	552
5.4 Incentives for health-care performance improvement <i>Douglas A. Conrad</i>	582
5.5 Performance measurement and professional improvement <i>Arnold M. Epstein</i>	613
5.6 International health system comparisons: from measurement challenge to management tool <i>Jeremy Veillard, Sandra Garcia-Armesto, Soumya Kadandale, Niek Klazinga</i>	641
Part VI Conclusions	673
6.1 Conclusions <i>Peter C. Smith, Elias Mossialos, Irene Papanicolas, Sheila Leatherman</i>	675
<i>Index</i>	707

Foreword

NATA MENABDE

Deputy Regional Director, WHO Regional Office for Europe

The provision of relevant, accurate and timely performance information is essential for assuring and improving the performance of health systems. Citizens, patients, governments, politicians, policy-makers, managers and clinicians all need such information in order to assess whether health systems are operating as well as they should and to identify where there is scope for improvement. Without performance information, there is no evidence with which to design health system reforms; no means of identifying good and bad practice; no protection for patients or payers; and, ultimately, no case for investing in the health system.

Performance information offers the transparency that is essential for securing accountability for health system performance, thereby improving the health of citizens and the efficiency of the health system. However, most health systems are in the early stages of performance measurement and still face many challenges in the design and implementation of these schemes. This book brings together some of the world's leading experts on the topic and offers a comprehensive survey of the current state of the art. It highlights the major progress that has been made in many domains but also points to some unresolved debates that require urgent attention from policy-makers and researchers.

This book arises from the WHO European Ministerial Conference on Health Systems: 'Health Systems, Health and Wealth', Tallinn, Estonia, 25–27 June 2008. During the conference, the WHO, Member States and a range of international partners signed the Tallinn Charter that provides a strategic framework, guidance for strengthening health systems and a commitment to promoting transparency and accountability.

Following on from Tallinn, the WHO Regional Office for Europe is committed to support Member States in their efforts to develop health system performance assessment. Measurable results and better performance data will help countries to support service delivery institutions

in their efforts to learn from experience; strengthen their health intelligence and governance functions; and contribute to the creation of a common ground for cross-country learning. By enabling a wide range of comparisons (for example, voluntary twinning or benchmarking) improved performance measurement should facilitate better performing health systems and thus the ultimate goal of a healthier Europe.

Acknowledgements

The editors would like to thank all those who contributed their expertise to this volume. The authors responded with great insight, patience and forbearance. Furthermore, the project benefited enormously from the contributions of participants at the WHO Ministerial Conference in Tallinn, Estonia and the associated preparatory meetings. The editors thank WHO and the Estonian Government for organizing and hosting the WHO Ministerial Conference and the pre-conference workshop at which some of the book's material was presented.

Particular thanks go to Isy Vromans, Claudia Bettina Maier and Susan Ahrenst in the WHO Secretariat for planning and organizing the workshop, as well as to Govin Permanand for his guidance and help in writing the WHO policy brief based on the book.

The pre-conference workshop could not have happened without the contributions of Nata Menabde, Niek Klazinga, Enis Bariş, Arnold Epstein, Douglas Conrad, Antonio Duran, David McDaid, Paul Shekelle, Gert Westert, Fabrizio Carinci and Nick Fahy. Sara Allin, Cristina Hernández-Quevedo and Cristina Masseuria would like to thank Julian Le Grand for his comments on an earlier version of Chapter 2.6. In addition, the editors would like to thank Jonathan North for managing the production process along with Caroline White, Jo Woodhead for the copy editing and Peter Powell for the typesetting. Thanks are also due to Chris Harrison and Karen Matthews at Cambridge University Press for their invaluable guidance throughout the project. Finally, we would like to thank Josep Figueras and Suszy Lessof at the European Observatory on Health Systems and Policies for their guidance and useful comments.

Nigel Rice and Silvana Robone acknowledge funding from the United Kingdom Economic and Social Research Council under their Public Services Programme.

List of contributors

Sara Allin is Post-Doctoral Fellow in the Department of Health Policy, Management and Evaluation at the University of Toronto, Canada.

David C. Aron is Co-Director of the VA Health Services Research and Development Quality Enhancement Initiative (QUERI) Center for Implementation Practice and Research Support (CIPRS) at the Louis Stokes Cleveland Department of Veterans Affairs Medical Center and Professor of Medicine, Epidemiology and Biostatistics at Case Western Reserve University School of Medicine, Cleveland, Ohio, USA.

Chris Bain is Reader in Epidemiology in the School of Population Health, University of Queensland, Australia.

David W. Bates is Chief at the Division of General Internal Medicine and Primary Care, Brigham and Women's Hospital and Professor of Medicine, Harvard Medical School, Boston, MA, USA.

Reinhard Busse is Professor of Health Management at Technische Universität, Berlin.

Somnath Chatterji is Team Leader of Multi-Country Studies, Health Statistics and Informatics (HSI), World Health Organization, Geneva.

Douglas A. Conrad is Professor of Health Services and Department of Health Services Director at the Center for Health Management Research, University of Washington.

Jean-Noël DuPasquier is Chief Economist at Me-Ti SA health and private consultant, Carouge, Switzerland.

Arnold M. Epstein is John H. Foster Professor and Chair of the Department of Health Policy and Management at the Harvard School of Public Health and Professor of Medicine and Health Care Policy at Harvard Medical School, Boston, MA, USA.

Harriet Finne-Soveri is Senior Medical Officer and RAI project manager at the National Institute for Health and Welfare STAKES, Finland.

Ray Fitzpatrick is Professor at the Division of Public Health and Primary Health Care, University of Oxford and Fellow of Nuffield College, Oxford.

Sandra Garcia-Armesto is Health Economist/Policy Analyst for the Health Care Quality Indicators project at the OECD Directorate for Employment, Labour and Social Affairs

Ruedi Gilgen is Attending Physician and Geriatrician at Waid City Hospital, Zürich, Switzerland and a principle in Q-Sys, a health information company providing quality data to participating providers.

Maria Goddard is Professor of Health Economics at the Centre for Health Economics, University of York.

Olivia Grigg is a scientist at the MRC Biostatistics Unit, Institute of Public Health, University of Cambridge.

Unto Häkkinen is Research Professor at the Centre for Health Economics (CHESS) in the National Institute for Health and Welfare (STAKES), Helsinki, Finland.

Cristina Hernández-Quevedo is Research Fellow at the European Observatory on Health Systems and Policies based at the London School of Economics and Political Science, London.

John P. Hirdes is Professor in the Department of Health Studies and Gerontology at the University of Waterloo, Ontario, Canada.

Lisa I. Iezzoni is Professor of Medicine at Harvard Medical School and Director of the Institute for Health Policy, Massachusetts General Hospital.

Rowena Jacobs is Senior Research Fellow at the Centre for Health Economics, University of York.

Sowmya Kadandale is Technical Officer at the Department for Health System Governance and Service Delivery, World Health Organization, Geneva.

Niek Klazinga is Coordinator, Health Care Quality Indicator Project, OECD, Paris and Professor of Social Medicine, Academic Medical Centre, University of Amsterdam.

Helen Lester is Professor of Primary Care at the University of Manchester.

Cristina Masseria is Research Fellow in Health Economics at the London School of Economics and Political Science, London.

David McDaid is Senior Research Fellow at the London School of Economics and Political Science and European Observatory on Health Systems and Policies.

Elizabeth A. McGlynn is Associate Director of RAND Health.

Martin McKee is Professor of European Public Health at the London School of Hygiene & Tropical Medicine and Head of Research Policy at the European Observatory on Health Systems and Policies.

Vincent Mor is Professor and Chair of the Department of Community Health at the Brown University School of Medicine.

Ellen Nolte is Director, Health and Healthcare, RAND Europe, Cambridge.

Amit Prasad is Technical Officer at WHO Kobe Centre, Kobe, Japan.

Nigel Rice is Professor of Health Economics at the Centre for Health Economics, University of York.

Silvana Robone is Research Fellow at the Centre for Health Economics, University of York.

Martin Roland is Professor of Health Services Research in the University of Cambridge.

Thomas D. Sequist is Assistant Professor of Medicine and Health Care Policy at Harvard Medical School and Brigham and Women's Hospital, Boston, MA, USA.

Paul G. Shekelle is Staff Physician, West Los Angeles Veterans Affairs Medical Center, Los Angeles and Director, Southern California Evidence-Based Practice Center, RAND Corporation, Santa Monica, California.

David Spiegelhalter is Senior Scientist at the MRC Biostatistics Unit, Institute of Public Health, University of Cambridge.

Andrew Street is Professor of Health Economics at the Centre for Health Economics, University of York.

Darcey D. Terris is Senior Scientist at the Mannheim Institute of Public Health, Social and Preventive Medicine, Universitätsmedizin Mannheim, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany.

Nicole Valentine is Technical Officer in the Department of Ethics, Equity, Trade and Human Rights at the World Health Organization, Geneva.

Jeremy Veillard is Regional Adviser, *ad interim*, Health Policy and Equity Programme at the World Health Organization Regional Office for Europe, Copenhagen.

Adam Wagstaff is Lead Economist (Health) in the Development Research Group (Human Development and Public Services Team) at The World Bank, Washington DC, USA.

Editors

Sheila Leatherman is Research Professor at the Gillings School of Global Public Health, University of North Carolina and Visiting Professor at the London School of Economics and Political Science.

Elias Mossialos is Professor of Health Policy at the London School of Economics and Political Science, Co-Director of the European Observatory on Health Systems and Policies and Director of LSE Health.

Irene Papanicolas is Research Associate and Brian Abel-Smith Scholar at LSE Health, the London School of Economics and Political Science.

Peter C. Smith is Professor of Health Policy in the Business School and Institute for Global Health at the Imperial College, London.

List of boxes, figures and tables

Boxes

2.1.1	Defining health systems	28
2.1.2	Comparing mortality across countries	37
2.7.1	Macro-level and meso-level production functions	224
3.1.1	Definition of risk adjustment	251
3.1.2	Inadequate risk adjustment	256
3.1.3	UK NHS blood pressure indicator	261
3.3.1	Community characteristics and health outcomes	320
3.3.2	Missed opportunities with electronic health records	321
3.3.3	New views on the volume–outcome relationship	330
4.1.1	Benefits of primary care	373
4.1.2	Framework for assessing quality of care	376
4.1.3	Ideal qualities of a performance measure	380
4.1.4	Quality and Outcomes Framework: performance measure domains (2008)	385
4.1.5	Veterans Administration performance measurement areas	391
4.1.6	EPA-PM: performance domains	393
4.3.1	Ohio Mental Health Consumer Outcomes System	437
4.3.2	Collection of mental health system process indicators in Ireland	443
4.3.3	Service-user satisfaction surveys in England and Wales	445
4.3.4	Making use of risk adjustment in performance measurement	454
5.1.1	Department of Health PSA Targets, 2004	513
5.1.2	Example of a PSA Technical Note: 2002 Joint Obesity Target for DH and DfES	515
5.1.3	Lack of accountability in Hungarian target setting	520
5.5.1	Studies of education coupled with outreach	617
5.5.2	Studies of audit and feedback by area of health care	621
5.5.3	Studies of different audit and feedback approaches	622

5.6.1	Debates around <i>The world health report 2000</i>	642
5.6.2	Standardization of performance concepts in international health system comparisons: WHO and OECD conceptual frameworks	646
5.6.3	Sources of information available to assess quality of care across countries	659
5.6.4	Benchmarking for better health system performance: example of the Commonwealth Fund in the United States	666
6.1.1	OECD HCQI project	679
6.1.2	Usefulness of structural outcome and process indicators	683
6.1.3	Key considerations when addressing causality and attribution bias	686
6.1.4	Advantages and disadvantages of composite indicators	689
6.1.5	Risks associated with increased reliance on targets	692
6.1.6	Design issues for pay-for-performance schemes	695
6.1.7	Stewardship responsibilities associated with performance measurement	700

Figures

2.1.1	Mortality from ischaemic heart disease in five countries, 1970–2004	34
2.1.2	Age-adjusted five-year relative survival of all malignancies of men and women diagnosed 2000–2002	41
2.1.3	Age-adjusted five-year relative survival for breast cancer for women diagnosed 1990–1994 and 1995–1999	43
2.1.4	Age-standardized death rates from breast cancer in five countries, 1960–2004	44
2.1.5	Mortality from amenable conditions (men and women combined), age 0–74 years, in 19 OECD countries, 1997/98 and 2002/03 (Denmark: 2000/01; Sweden: 2001/02; Italy, United States: 2002)	46
2.1	Annex 2 Overview of selected measures of population health in health system performance assessment	61
2.4.1	Defining catastrophic health spending	117
2.4.2	Catastrophic spending curves, Viet Nam	118
2.4.3	Catastrophic spending gap	119
2.4.4	Incidence of catastrophic out-of-pocket payments in fifty-nine countries	121

2.4.5	Out-of-pocket payments and poverty in Viet Nam, 1998	125
2.4.6	Case in which health spending is not financed out of current income	128
2.4.7	How households finance their health spending, selected countries	129
2.5.1	Framework for understanding link between health system responsiveness and equity in access	143
2.5.2	Traditional survey methods omit data from certain population groups, overestimating responsiveness	146
2.5.3	Responsiveness questionnaire as module in WHS questionnaire: interview structure and timing	147
2.5.4	Operationalization of responsiveness domains in WHS	149
2.5.5	Level of inequalities in responsiveness by countries grouped according to World Bank income categories	162
2.5.6	Level of inequalities in responsiveness by two groups of twenty-five European countries	163
2.5.7	Inequalities in ambulatory responsiveness against levels for twenty-five European countries	163
2.5.8	Level of inequality in responsiveness across World Bank income categories of countries	165
2.5.9	Level of inequalities in responsiveness by two groups of twenty-five European countries	166
2.5.10	Responsiveness inequalities against levels for twenty-five European countries	167
2.5.11	Gradient in responsiveness for population groups within countries by wealth quintiles	167
2.5.12	Gradient in responsiveness for population groups within countries in Europe by wealth quintiles	168
2.5.13	Gradient in responsiveness for population groups within countries by wealth quintiles	169
2.5.14	Gradient in responsiveness for population groups within countries in Europe by wealth quintiles	169
2.5.15	Correlations of average total health expenditure per capita and overall responsiveness for countries in different World Bank income categories	171
2.5.16	Responsiveness and antenatal coverage	172
2.5	Annex 1 Fig. A WHS countries grouped by World Bank income categories	180
2.5	Annex 1 Fig. B WHS countries in Europe	181

2.6.1	Concentration curves for utilization (LM) and need (LN) compared to line of equality (diagonal)	203
2.6.2	Horizontal inequity indices for annual probability of a visit, twenty-one OECD countries	207
2.6.3	Decomposition of inequity in specialist probability	208
2.6.4	Horizontal inequity index for the probability of hospital admission in twelve European countries (1994–1998)	209
2.7.1	Simplified production process	226
2.7.2	Productivity and efficiency	228
2.7.3	Allocative efficiency with two inputs	229
2.7.4	Technical and allocative efficiency	230
3.2.1	Risk-adjusted outcomes (adjusted thirty-day mortality, given patient Parsonnet score) relating to operations performed in a cardiac unit in which there are seven surgeons	291
3.2.2	Parsonnet score of patients treated in a cardiac unit	292
3.2.3	Mean risk-adjusted outcome over disjoint windows of 250 operations, where operations are by any one of seven surgeons in a cardiac unit	295
3.2.4	Moving average (MA) of risk-adjusted outcomes over overlapping windows of 35 operations by a particular surgeon from a cardiac unit of seven surgeons	296
3.2.5	Exponentially weighted moving average (EWMA) of risk-adjusted outcomes of surgery by a particular surgeon from a cardiac unit of seven surgeons	298
3.2.6	Risk-adjusted set size, or adjusted number of operations between outcomes of 1 (where a patient survives less than thirty days following surgery), associated with surgery by a particular surgeon from a cardiac unit of seven surgeons	299
3.2.7	Cumulative sum (CUSUM) of observed outcome, from an operation by a particular surgeon from a cardiac unit of seven surgeons, minus the value predicted by the risk model given patient Parsonnet score	301
3.2.8	Cumulative log-likelihood ratio of outcomes from operations by a particular surgeon from a cardiac unit of seven surgeons, comparing the likelihood of outcomes given the risk model (either elevated or decreased risk)	303

3.2.9	Maximized CUSUM of mortality outcomes by age–sex category of patients registered with Harold Shipman over the period 1987–1998, comparing the likelihood of outcomes under the England and Wales standard with that given either elevated or decreased risk	305
3.3.1	Interrelationships of risk factors: relating risks to outcomes	313
3.3.2	Health-care performance measurement: challenges of investigating whether there is a causal and attributable relationship between a provider’s action/inaction and a given quality indicator	316
3.3.3	Factors in choice of target HbA1c for care of a given patient with diabetes	323
4.1.1	Quality improvement cycle	377
4.1.2	Conceptual map of a quality measurement and reporting system	379
4.4.1	Percentage of long-stay residents who were physically restrained	483
4.4.2	Distribution of provincial indicator results	485
4.4.3	New stage 2 or greater skin ulcers by LHIN	486
4.4.4	Light-care residents (%) by type of long-term care facility in four medium- or small-sized towns, 2006	489
4.4.5	Mean case-mix index, staffing ratio, and prevalence of grade 2–4 pressure ulcers (%) in four residential homes, compared to their peers in 2006	490
4.4.6	Inter- and intra-canton comparisons of psychotropic drug use	493
5.2.1	Two pathways for improving performance through release of publicly reported performance data	537
5.3.1	Conceptual models of IT infrastructure plans	557
5.3.2	International penetration of electronic health records and data exchangeability: responses from primary care physicians across seven countries, 2006	560
5.5.1	Sample of length-of-stay report from STS database	620
5.6.1	Conceptualizing the range of potential impacts of health system performance comparisons on the policy-making process	663

5.6.2	Translating benchmarking information to policy-makers: example from the Ministry of Health and Long-Term Care, Ontario, Canada	664
5.6.3	Funnel plots for ambulatory care sensitive conditions for different Canadian provinces, 2006 data	665
6.1.1	Pathways for improving performance through publicly reported data	692

Tables

1.1.1	Information requirements for stakeholders in health-care systems	6
2.1.1	Decline in ischaemic heart disease mortality attributable to treatment and to risk factor reductions in selected study populations (%)	36
2.3.1	Assessing the eligible population for clinical process indicators	97
2.3.2	Determining the inclusion criteria for clinical process indicators	99
2.3.3	Specifying the criteria for determining whether indicated care has been delivered	100
2.3.4	Sample scoring table for a simple performance indicator	101
2.5.1	Item missing rates, ambulatory care (%)	151
2.5.2	Reliability in MCS Study and WHS	153
2.5.3a	Reliability across European countries: ambulatory care	154
2.5.3b	Reliability across European countries: inpatient care	154
2.5.4	Promax rotated factor solution for ambulatory responsiveness questions in the WHS	156
2.5.5	Promax rotated factor solution for inpatient responsiveness questions in the WHS	158
2.5	Annex 2 WHS 2002 sample descriptive statistics	181
2.6.1	Examples of summary measures of socio-economic inequalities in access to health care	200
2.6.2	Effect of specific non-need variables on health-care utilization, marginal effects	202
2.6.3	Contribution of income and education to total specialist inequality in Spain, 2000	208

2.6.4	Short-run and long-run horizontal inequity index, MI	210
3.1.1	Individual measures and domains in the STS composite quality score	265
3.1.2	Potential patient risk factors	267
3.4.1	Examples of domains included in composite indicators	343
3.4.2	Examples of impact of different transformation methods	351
3.4.3	Examples of methods to determine weights	353
4.1.1	Relative advantages and disadvantages of process measures to measure quality	382
4.1.2	Relative advantages and disadvantages of outcome measures to measure quality	383
4.2.1	Features differentiating acute and chronic disease	411
4.3.1	Mandated outcome measures in Australia	433
4.3.2	Twelve-month service use by severity of anxiety, mood and substance disorders in WMH Surveys (%)	446
4.3.3	Minimally adequate treatment use for respondents using services in the WMH Surveys in previous twelve months (% of people by degree of severity)	447
5.6.1	General classification of health system comparisons	649
5.6.2	HCQI project indicators	653
6.6.1	Dimensions of health performance measures	680