Percutaneous Transluminal Coronary Angioplasty

A Report of the National Confidential Enquiry
into Perioperative Deaths

Data collection period 1 September 1998 to 31 August 1999

Compiled by:

K G Callum MS FRCS

F Whimster MHM

Published 21 November 2000 by the National Confidential Enquiry into Perioperative Deaths

35-43 Lincoln's Inn Fields, London WC2A 3PN
Tel: (020) 7831 6430
Fax: (020) 7430 2958
Email: info@ncepod.org.uk
Website: www.ncepod.org.uk

Requests for further information should be addressed to the Chief Executive

ISBN 0 9522069 9 4

A company limited by guarantee Company number 3019382 Registered charity number 1075588

This report is printed on paper produced from wood pulp originating from managed sustainable plantations and is chlorine-free, acid-free, recyclable and biodegradable.

Additional information

This report is available for downloading from the NCEPOD website at www.ncepod.org.uk

Copies can also be purchased from the NCEPOD office.

The analysis of data from questionnaires is not included in full in this report. A supplement containing additional data, and copies of the questionnaires, is available free of charge from the NCEPOD office.

ACKNOWLEDGEMENTS

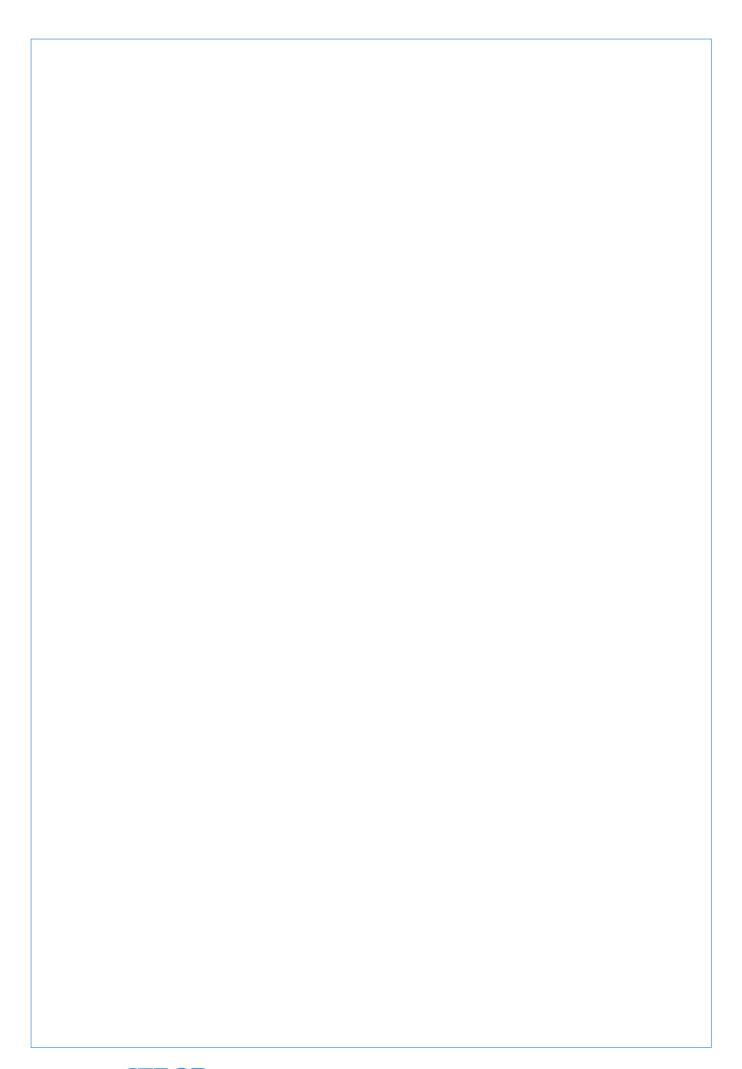
This report could not have been achieved without the support and cooperation of a wide range of individuals and organisations. Our particular thanks go to the following:

- The Royal College of Physicians and British Cardiovascular Intervention Society for supporting the concept of this study.
- The Local Reporters, whose names are listed in Appendix D.
- All those cardiologists whose names are listed in Appendix E, together with a small number of anaesthetists and surgeons, who contributed to the Enquiry by completing questionnaires.
- The Advisors whose names are listed overleaf.
- Those bodies, whose names are listed in Appendix B, who provide the funding to cover the cost of the Enquiry, together with the Department of Health who provided additional support.
- Mr Chris Macklin, Surgical Registrar, Derbyshire Royal Infirmary, for the illustrations on the front cover.
- Professor Tom Treasure for the drawing in Figure 6.

The Steering Group, Clinical Coordinators and Chief Executive would also like to record their appreciation of the hard work and tolerance of the NCEPOD administrative staff: Peter Allison, Fatima Chowdhury, Paul Coote, Sheree Cornwall, Jennifer Drummond and Dolores Jarman.

The views expressed in this publication are those of NCEPOD and not necessarily those of the National Institute for Clinical Excellence, or any other funding body.





CLINICAL CONTRIBUTORS

NCEPOD COORDINATORS

K G Callum Clinical Coordinator, NCEPOD and

Consultant General and Vascular Surgeon,

Derbyshire Royal Infirmary

K M Sherry Clinical Coordinator, NCEPOD and

Consultant Anaesthetist, Northern General Hospital NHS Trust, Sheffield

SPECIALTY ADVISORS

Anaesthesia

D K Whitaker Manchester Royal Infirmary

Cardiology

M de Belder South Cleveland Hospital

H H Gray Southampton University Hospital

and Royal College of Physicians' representative on

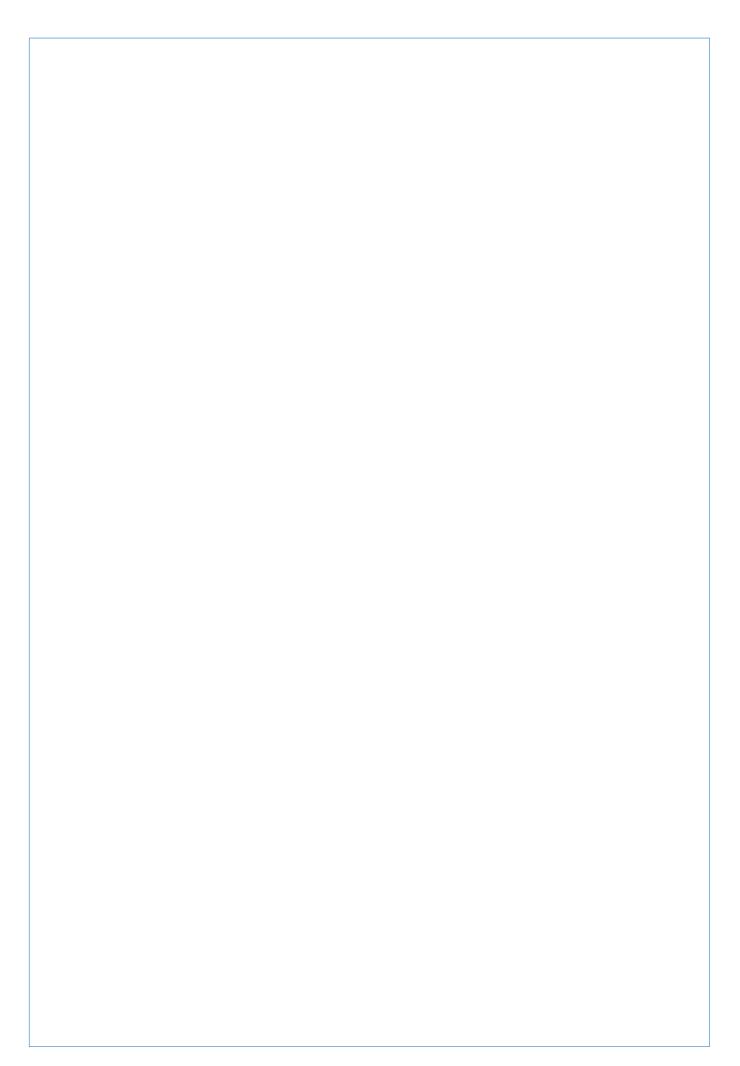
NCEPOD Steering Group

L D R Smith Royal Devon and Exeter Hospital

Cardiothoracic surgery

T Treasure St George's Hospital, London

G Venn St Thomas' Hospital, London



CONTENTS

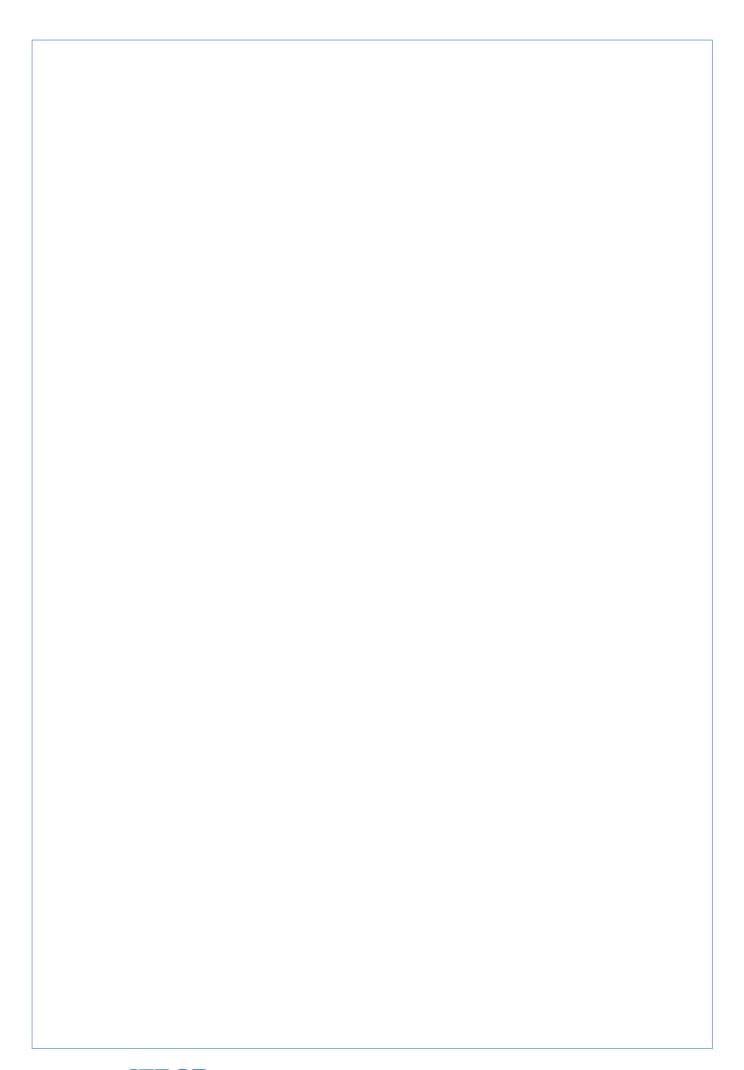
Foreword	xi
Selected Key Points	xii
Recommendations	xiii
PERCUTANEOUS TRANSLUMINA CORONARY ANGIOPLASTY (PTC.	
Introduction Data collection	
General data	2
Monthly returns Reported procedures Reported deaths Distribution and return of questionnaires	2
Clinical data	6
Referral pathway Source of angiogram Admission pathway Admission details Type of ward Admitting consultant Decision making Delays before the PTCA	6 7 7
Patient details and risk assessment Admission category and urgency Coexisting medical conditions Category of myocardial ischaemia Extent of coronary artery disease Left ventricular dysfunction Anticipated risk of death Previous coronary artery bypass grafts (CABG) Restenosis lesions	9 10 11 12 13
Procedural details Coronary vessel treated Elective stenting Therapeutic manoeuvres prior to the procedure Experience and availability of the operator Grade of the operator Other commitments Clinical and procedural responsibility Experience of the operator Anaesthesia Resuscitation Monitoring, sedation and oxygen therapy Pulse oximetry Anticoagulants Activated clotting time	.14 .15 .16 .16 .16 .17 .18 .18 .19 .20
Success of the procedure	

Complications	
Cardiac enzymes	
Referral for cardiac surgery	22
Availability of emergency cardiac surgery	22
Discussion with a specific cardiac	
surgeon before undertaking the procedure	29
Referral for coronary artery	
bypass grafts (CABG)	99
bypass grants (Cribo)	4.4
Postprocedural care	99
Destination following catheter laboratory	
Designated and equipped recovery area	99
Length of stay	99
Length of stay	40
Drugs used following PTCA	43
Other supportive measures following PTCA	24
Hindrances and complications in	0
postprocedural management	
Hindrances	
Complications	
Cardiopulmonary resuscitation	.25
D1	0.0
Death	
Place of death	
Postmortem examinations	26
A 12	0.5
Audit meetings and availability of case notes	27
References	.29
REI EREIVOES	4
Appendices	
THE POLICE	
A Abbreviations	3]
B NCEPOD corporate structure	33
C Data collection and review methods	
D Local Reporters	
E Participants (cardiologists)	39
L Tardelpants (cardiologists)	



TABLES, FIGURES AND QUESTIONS

Table 1:	Monthly returns by region2	Table 20:	Anticoagulant treatment given before, during or after the procedure	.20
Figure 1:	Total deaths reported	Table 21:	Complications of the final PTCA procedure	
Table 2:	Inappropriate reports received and excluded3			
Figure 2:	Calendar days from procedure to death4	Table 22:	Measurement of cardiac enzymes	Z I
Figure 3:	Age/sex distribution of reported deaths	Table 23:	Destination of the patient on leaving the catheter laboratory	.23
Figure 4:	Distribution and return of questionnaires5	Table 24:	Number of days on respective wards	.23
Table 3:	Regional distribution, return and analysis rates5	Table 25:	Intravenous drugs used following PTCA	.23
Table 4:	Source of angiogram	Table 26:	Other supportive measures following PTCA	.24
Table 5:	Admission pathway	Table 27:	Clinical complications	.24
Table 6:	Destination on admission	Table 28:	Place of death	.26
Table 7:	Admitting consultant	Table 29:	Members of the team attending the postmortem examination	26
Table 8:	Decision to perform the coronary angioplasty8	Table 30:	•	20
Table 9:	Urgency of the final procedure9	lable 50.	Receipt of copy of the postmortem report by the clinical team	.27
Table 10:	Coexisting medical conditions			
Table 11:	Category of myocardial ischaemia11			
Table 12:	Extent of coronary artery disease11			
Table 13:	Left ventricular dysfunction (prior to procedure)12			
Figure 5:	Distribution of ejection fractions			
Table 14:	Anticipated risk of death			
Figure 6:	Diagram of coronary circulation			
Table 15:	Proposed and actual coronary artery attempted15			
Table 16:	Therapeutic manoeuvres undertaken before the procedure			
Table 17:	Grade of operator			
Table 18:	Clinical and procedural responsibility			
Figure 7:	Number of years the cardiologist had been a solo operator			
Figure 8:	Number of PTCA procedures performed in the previous year			
Table 19:	Responsibility for monitoring pulse oximetry19			



FOREWORD

We were delighted when those in the profession involved in this important modern development in treatment were prepared to contribute so enthusiastically to this NCEPOD survey. The consultants involved were not previously experienced in NCEPOD investigations and they have responded enthusiastically with a dramatically high rate of return. It was well recognised that as a specialty their data had been collected centrally and the results shown in the NCEPOD survey closely tally with the outcome of their own specialty audit.

Another important feature of this study is that it is one of the first times we have been able to gather reliable denominator data. This significantly affects the interpretation of the overall returns and hence enhances the importance of the report.

The cases reviewed in this survey were all severely ill patients and the outcome of interventions, only very recently deemed inappropriate, is impressive. The mortality rate is low and, as demonstrated by the report, consistent with the severity of illness of the patients under investigation.

This is a small survey by NCEPOD standards, but one of great importance, and demonstrates the value of the acquisition of reliable data by clinicians involved, and the importance of recording this on a national level to assess the quality of outcomes.

John Ll Williams Chairman