

The United Kingdom National Bariatric Surgery Registry



First Registry Report to March 2010

Prepared by

Richard Welbourn MD FRCS
Alberic Fiennes MS FRCS
on behalf of the NBSR Data Committee

Robin Kinsman BSc PhD
Peter Walton MA MB BChir MBA
Dendrite Clinical Systems

For and on behalf of the NBSR Data Committee

Mr Michael Rhodes
Mr Peter Sedman

Mr Simon Dexter
Mr Bruce Tulloh

Mr Alberic Fiennes
Mr Marcus Reddy

**The Association of
Laparoscopic Surgeons**

**The Association of
Upper GI Surgeons**

**The British Obesity & Metabolic
Surgery Society**



and on behalf of all the contributors (see pages 10-11) whose contributions cannot be over-valued.

The Association of Laparoscopic Surgeons (ALSGBI), the Association of Upper GI Surgeons (AUGIS) and the British Obesity & Metabolic Surgery Society (BOMSS) operate the National Bariatric Surgery Registry (NBSR) as a consortium in partnership with Dendrite Clinical Systems Limited. The Societies also gratefully acknowledge the assistance of Dendrite Clinical Systems for:

- data analysis and
- publishing this report.

Dendrite Clinical Systems Ltd is registered under the Data Protection Act; Data Protection Act Registration Register Number Z98 44 379

This document is proprietary information that is protected by copyright. All rights reserved. No part of this document may be photocopied, stored in a retrieval system, transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the permission of the publishers and without prior written consent from the NBSR Data Committee and Dendrite Clinical Systems Limited.

Price: £70.00

February 2011 A catalogue record for this book is available from the British Library.
ISBN 1-903968-27-5

Published by

Dendrite Clinical Systems Ltd
The Hub, Station Road, Henley-on-Thames,
Oxfordshire RG9 1AY, United Kingdom



phone +44 1491 411 288

fax +44 1491 411 377

e-mail publishing@e-dendrite.com

**Printed &
bound by**



**Kindly
sponsored by**





Executive summary

This is the first comprehensive, prospective, nationwide analysis of outcomes from bariatric (obesity) surgery in the United Kingdom & Ireland:

In overview:

- 84 surgeons from 86 hospitals recorded 8,710 operations; 7,045 in the financial years 2009 & 2010.
- 68.8% operations were funded by the National Health Service; 30.9% were independently funded and a tiny proportion were paid for by private insurers.
- Data are analysed for 3,817 gastric bypass procedures, 2,132 gastric band operations and 588 sleeve gastrectomy operations.
- The observed in-hospital mortality rate after primary surgery was 0.1% overall (and just 0.2% for gastric bypass), much lower than that for many other planned operations.
- The recorded surgical complication rate overall for primary operations was 2.6 %.
- These figures compare to the best internationally available outcome benchmarks. Thus, surgery in the United Kingdom & Ireland, in the hands of the contributors, is safe.
- 80% of patients were discharged by the third post-operative day, indicating the efficient use of resource.

At the time of primary surgery:

- 24.9% of all patients had a high level of co-existing disease.
- 27.5% had type 2 diabetes
- 16.5% were on treatment for sleep apnoea.
- 69.0% of all patients had some functional impairment, *i.e.*, they could not manage to climb 3 flights of stairs without resting.

Follow-up data is derived from some 12,000 follow-up entries for the 2009 & 2010 patients

One year after surgery:

- On average, patients lost 57.8% of their excess weight (43.2% for gastric banding, 67.8% for gastric bypass & 54.0% for sleeve gastrectomy).
- Almost half of patients with pre-operative functional impairment returned to a state of no impairment one year after surgery, meaning they could climb 3 flights of stairs without resting.
- 60.2% of patients with sleep apnoea were able to come off treatment.

Two years after surgery:

- 85.5% of patients with type 2 diabetes returned to a state of no indication of diabetes, meaning, in practice, that they were able to stop their diabetic medications.

Healthcare implications:

- Severe & Complex Obesity is a serious, life-long condition associated with many major medical conditions, the cost of which threatens to bankrupt the NHS. Once established in adults it constitutes a dysregulated state of physiology and reversal is not primarily a voluntary or behavioural process.
- Among comparisons of age, weight, level of co-morbidity, gender, *etc.*, the data also show that the benefit for certain co-morbidities is greater the earlier surgical treatment is undertaken. This has implications for the prioritisation of treatment.
- Bariatric surgery greatly and highly cost-effectively improves the health of obese patients, much more so than other treatments.

Contents

Contents

Executive summary	3
Foreword	4
From the Chairman of the Data Committee and President of BOMSS	5
From the President of AUGIS	6
From the President of ALS	7
A transatlantic view	8
An historical view	9
Contributors	10
Obesity and bariatric surgery	18
Effects on the economy	19
Effects on the individual	20
Lay and professional perceptions of severe obesity	21
The patient journey	24
How surgery helps with weight loss	26
Reducing Intake	26
The choice of operation	26
Gastric bypass	26
Gastric banding	27
Duodenal switch	28
Sleeve gastrectomy	29
A note on the conventions used throughout this report	30
Conventions used in tables	30
Conventions used in graphs	31
Database structure	32
Glossary	32
Required fields	33
How the NBSR web registry works	34
Access to the NBSR	34
Database entry	35
Database overview	
Introduction	42
Growth of the database	43
Number of entries submitted	44
Number of entries for each consultant	44
Number of submissions by hospital	46



Type of procedures performed	48
Operation and type of surgery	48
Operation and approach	50
Age and gender	52
Ethnicity	54
Funding	55
Funding and operation	55
Funding, age and gender	56
Height, weight and body mass index	58
Height and gender	58
Weight and gender	59
Body mass index and gender	60
Body mass index, operation and gender	62
Body mass index, operation and funding	64
Weight-loss prior to surgery	66
Comorbidities	70
Missing data	72
Number of comorbid conditions	74
Comorbidity and BMI	77
Prevalence of comorbid conditions at presentation	78
Rates of comorbid conditions, gender and body mass index	80
Detailed data on diabetes	82
Diabetes duration and gender	82
Type of diabetes and duration of diabetes	83
NICE guidance	84
ASA grade	86
Post-operative outcomes	88
Cardiovascular complications	88
Other complications	89
Mortality	90
Post-operative stay	91
Follow-up data	93
Rationale	93
Who performed the follow-up	96
Excess weight loss	97
Comorbid disease after surgery	100
Improvement in diabetes	102

Gastric banding

Number of entries in the context of the database	108
Age and gender	109
Source of funding	110
Comorbid conditions at presentation	111
ASA grade	111
Number of comorbid conditions	112
Comorbidity rates	114
Rates of comorbid conditions, gender and body mass index	116
Technical aspects of gastric banding	118
Gastro-gastric tunnelling sutures	118
Dissection	118
Type of band used	120
Additional procedures	122
Post-procedure outcomes	123
30-day complications	123
Comorbid disease after surgery	124
Improvement in diabetes	126

Roux-en-Y gastric bypass

Number of entries in the context of the registry	132
Age and gender	134
Source of funding	135
Comorbid conditions at presentation	136
Number of comorbid conditions	136
Number of comorbid conditions and approach	138
ASA grade	139
Comorbidity rates	140
Rates of comorbid conditions, gender and body mass index	142
Obesity Surgery Mortality Risk Score	144
Technical aspects of Roux-en-Y gastric bypass	146
Gastric pouch	146
Linear stapler for gastric pouch	147
Reinforcement	148
Gastric pouch jejunostomy	149
Roux limb	150
Roux limb length	150
Roux limb length and BMI	151
Bilio-pancreatic limb	152
Bilio-pancreatic limb length	152
Jejuno-jejunostomy	154
Stapler used	155
Route of Roux limb	156



Closure of hernia defect	157
Additional procedures	158
Post procedure outcomes	160
30-day complications	160
Cardiovascular complications	162
Other complications	163
Combined post-operative complications	164
Mortality	165
Post-operative stay	166
Comorbid disease after surgery	168
Improvement in diabetes	170
Sleeve gastrectomy	
Number of entries in the context of the database	176
Age and gender	177
Source of funding	179
Comorbid conditions at presentation	180
Number of comorbid conditions	180
ASA grade	181
Comorbidity rates	182
Technical aspects of sleeve gastrectomy procedures	184
Linear stapler	184
Reinforcement	185
Bougie	186
Additional procedures	187
Post procedure outcomes	188
30-day complications	188
Comorbid disease after surgery	190
Appendices	
The NBSR database form	194
Database tooltips	215

The First National Bariatric Surgery Registry Report to March 2010

This report is a tribute to British surgery. It ... demonstrates a professional commitment to hard-nosed analysis of results.

Sir Bruce Keogh, Medical Director of the National Health Service in England

This report represents the coming of age of bariatric surgery in the United Kingdom...the most powerful and accurate dataset with which to represent United Kingdom bariatric surgery.

Michael Rhodes, President, Association of Laparoscopic Surgeons of Great Britain & Ireland

Every surgeon who performs a bariatric/metabolic procedure should consider participation mandatory.

Kelvin Higa, Past President, American Society for Metabolic and Bariatric Surgery

For the bariatric surgery community to have produced this registry is timely and impressive ...

Graeme Poston, President, Association of Upper GI Surgeons of Great Britain & Ireland

This volume contains the first ever compilation of pooled national outcome data for bariatric & metabolic surgery in the United Kingdom. Eighty-four surgeons and their teams, working at 86 hospitals, contributed data on some 8,700 patients treated up to March 31st 2010. The data are analysed in detail for the 7,000 patients operated on in the fiscal years ending 2009 and 2010.

Bariatric and metabolic surgery has increased in volume dramatically throughout the developed world over the past decade. It comprises operations to treat the condition of Severe and Complex Obesity or to ameliorate the associated Metabolic Syndrome (including diabetes, raised cholesterol, high blood pressure and sleep apnoea).

In these pages the reader will find introductory information about these conditions and their surgical treatment as well as the number and types of operation performed. The data go on to demonstrate a level of safety for this surgery comparable to that for many of the standard planned and routine operations widely accepted throughout modern healthcare. This is quite contrary to widely held beliefs. The effectiveness of this surgery is also demonstrated. Lasting major weight loss has its own consequences for return to normal social and economic activity. The data also document, prospectively and in the context of United Kingdom practice, the striking ability of this surgery to induce profound improvement of type-2 diabetes, abolish sleep apnoea, improve circulatory disease and restore functional capacity. Previous international publications have documented major health-economic saving against otherwise rapidly rising future treatment costs: This is the first substantial body of United Kingdom patient outcome data to support such dramatic cost-effectiveness as well as personal benefit in our national context. Future editions of the present project will provide progressively long-term information.

To our knowledge this publication is unique internationally as a detailed body of audit data and is offered as a benchmark for the care of the tens of thousands of patients undergoing bariatric/metabolic surgery world-wide.



The UK National Bariatric Surgery Registry

c/o Mr Alberic Fiennes

The British Obesity & Metabolic Surgery Society

The Association of Surgeons of Great Britain & Ireland

35-43 Lincoln's Inn Fields

London WC2A 3PE

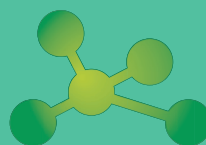
United Kingdom

Phone +44 (0) 207 973 0301

Fax +44 (0) 207 430 9235

email nbsr@asgbi.org.uk

nbsr.e-dendrite.com



Dendrite Clinical Systems

Dr Peter K H Walton

Managing Director

The Hub, Station Road

Henley-on-Thames

Oxfordshire RG9 1AY

United Kingdom

Phone +44 (0) 1491 411 288

Fax +44 (0) 1491 411 377

email publishing@e-dendrite.com

www.e-dendrite.com