

Bariatric Surgery in Oxford



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Changing Perceptions of the Seriously Overweight

In the Past:

- Obesity was seen as a weakness or failure of individual
- Diet and exercise were prescribed treatments
- Weight loss surgery was viewed as dangerous and extreme

Now in the Present:

- Obesity is considered a disease and the cause of many serious health conditions
- Surgery has gained acceptance as the only proven method to treat this disease

Obesity is a Disease

- Two thirds of the UK adults are overweight or obese
- These rates have quadrupled in the last 25 years
- Patients suffer social and economic discrimination
- Health care cost to be more than 3.6£ billion / year in management of obesity and its related complications
- Mortality : 2-10 fold increase

What Causes Obesity?

- Genetic predisposition
 - Twin studies
 - Adopted children
 - “Obesity” gene
- Physiologic
 - Leptin
 - Decreased stretch receptors
 - Loss of satiety mechanism (hypothalamus)
 - Evolutionary
- Behavioral
 - Family tradition
 - Food to comfort child
 - Addiction
- Gender (80% women)
 - Higher fat component
- Socioeconomic
 - High/low income classes
 - Cultural views
- Psychosocial
 - Coping mechanism (i.e. stress, abuse)
- Societal
 - Technology has decreased energy expenditure
 - Elevators, power windows, food delivery, remote controls, computers, Sony playstation, TV, cars

Degrees of Obesity

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

NORMAL

OVERWEIGHT

OBESE

SEVERELY OBESE

MORBIDLY OBESE

BMI 18.5 — 24.9

BMI 25 — 29.9

BMI 30 — 34.9

BMI 35 — 39.9

BMI \geq 40



Body Fat Distribution and Risk

More at Risk

Less at Risk



*High BMI
High WHR
Ovoid*



*Low BMI
High WHR
Lean Android*



*High BMI
Low WHR
Fat Android*

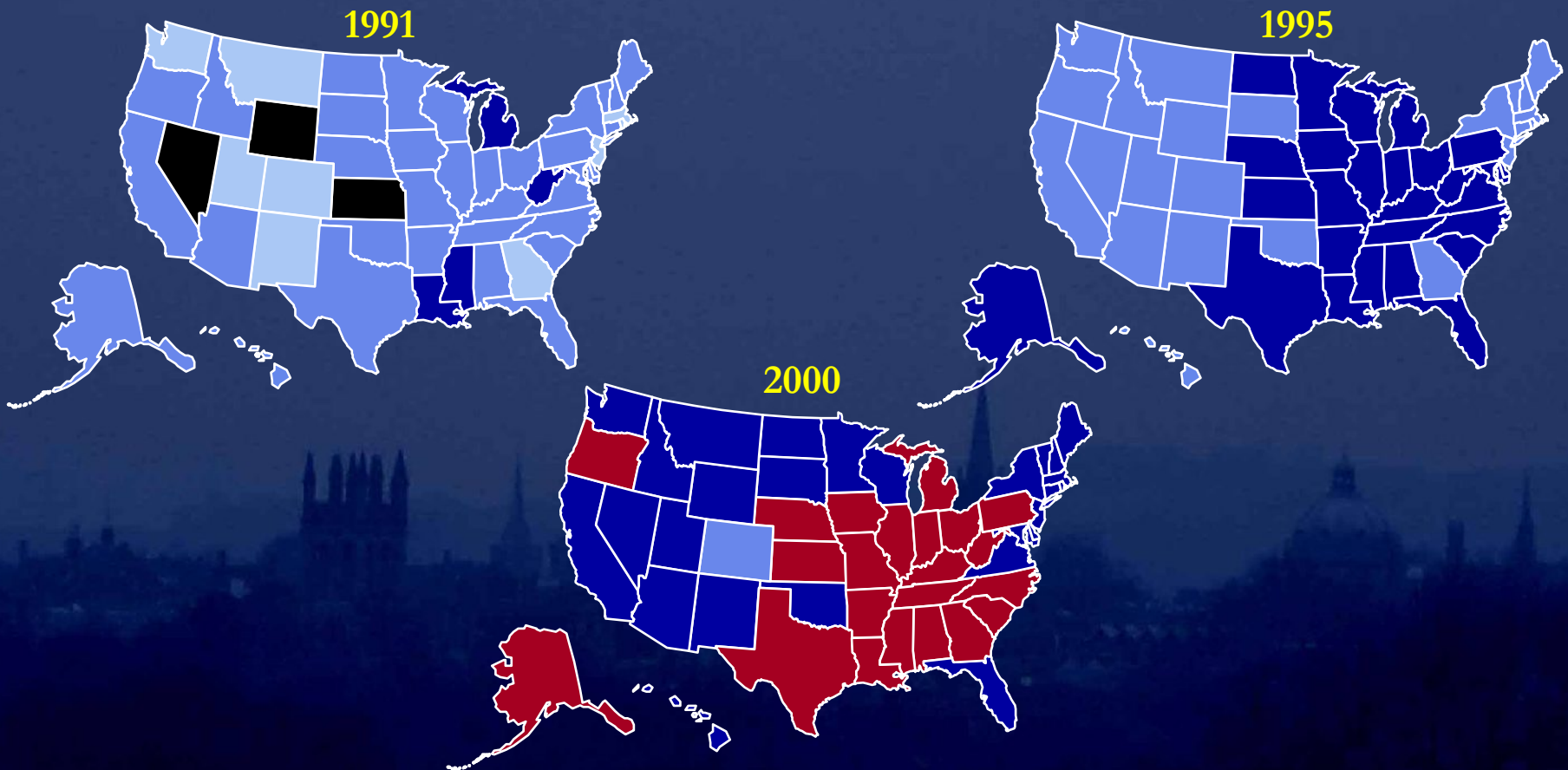
Metabolic Syndrome

- Central obesity
- Hypertension
- Type 2 Diabetes
- Dyslipidaemia

Particularly High Risk!

Obesity* Trends Among U.S. Adults

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5'4" person)



No Data <10% 10%-14% 15-19% 20% 20%+

Facts about obesity in the UK

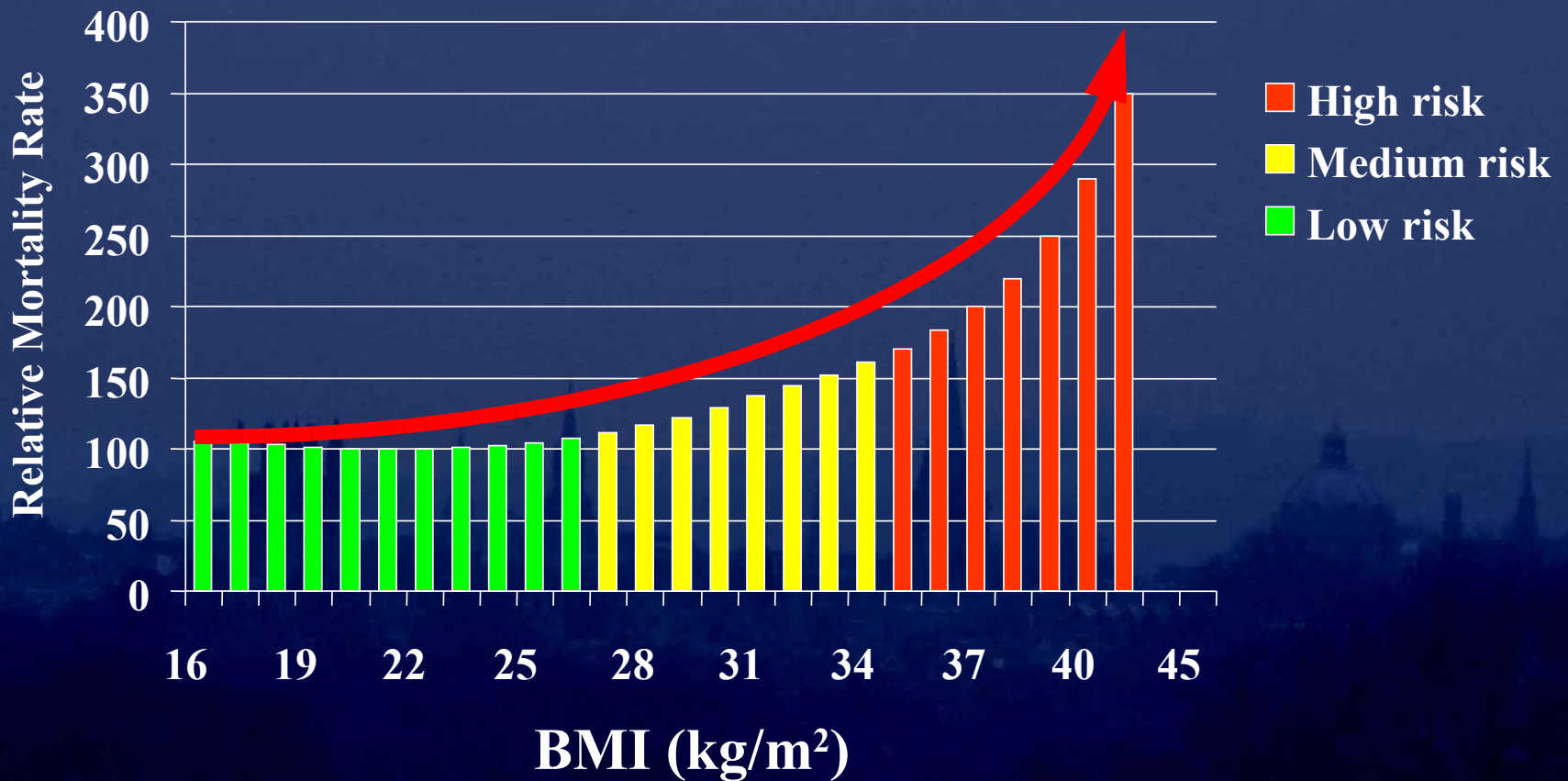
- Over 1 in 5 are obese (24.5% of population)
- Over 2m are morbidly obese
- More than half the population is either overweight or obese
- Obesity in the UK has trebled since 1980
- Obesity in children has trebled in the UK since 1990
- Direct cost of obesity in UK = £500 million a year (6% of total health expenditure)
- indirect costs to the NHS and industry through sickness = £2.5b

Facts about obesity in Oxfordshire

- Population
635 000
- Population which might benefit from bariatric surgery
10 000
- Population which fits NICE criteria
6 000
- Population which fits NICE criteria and wants surgery
2500
- Bariatric operations done per annum in NHS
<50

Body Mass Index vs. Mortality

Exponential Increase in Risk



Comorbidities Associated with Morbid Obesity

High Blood Pressure

Congestive Heart Failure

Sleep Apnea

Degenerative Joint Disease

Liver disease (fatty)

Stress Incontinence

Increased Cancer Risk

Ovarian dysfunction

Heart Disease

Diabetes

Cancer

DVT (Blood Clots)

Gallstones

Depression

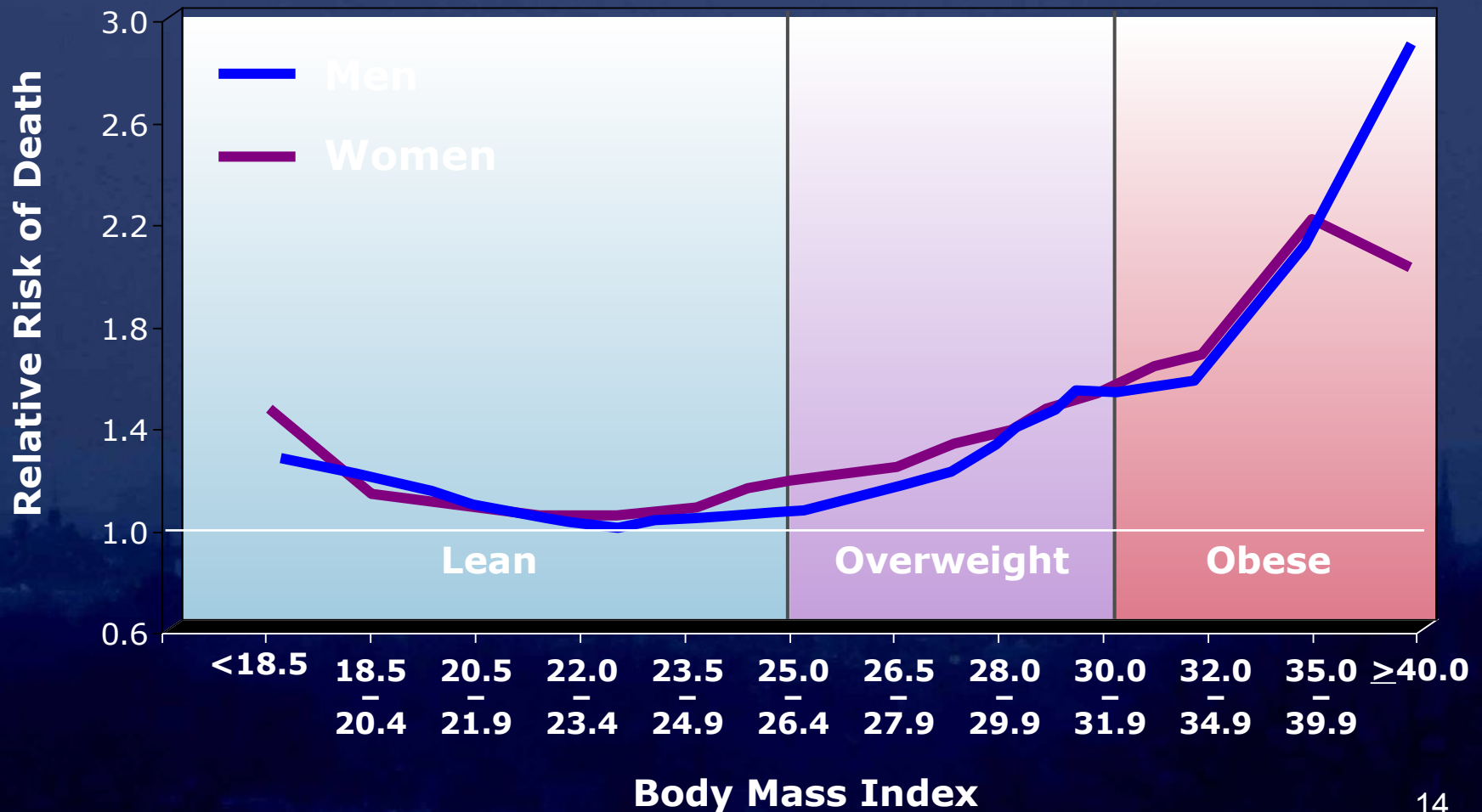
GORD

Infertility

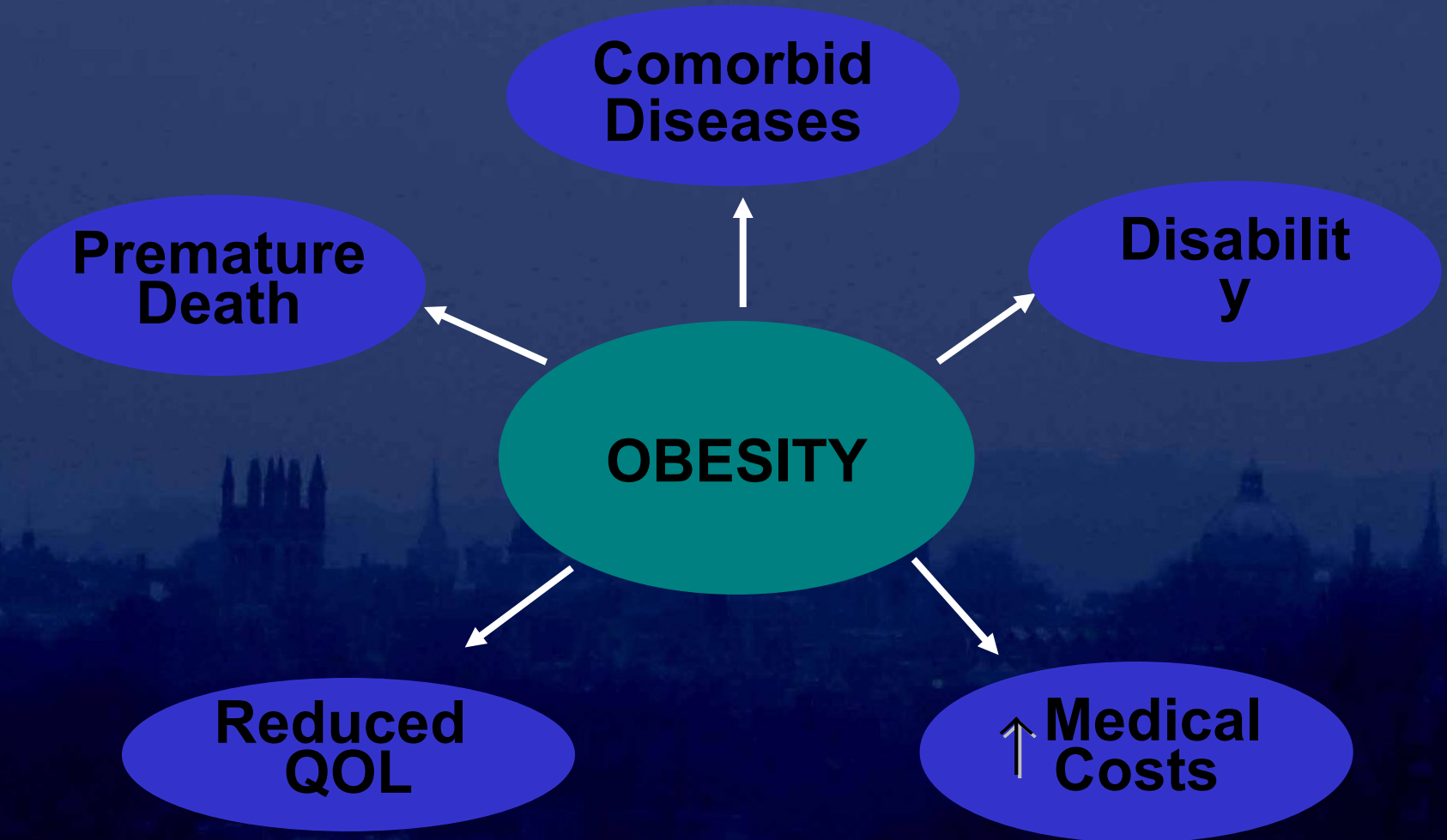
The Risk of Obesity

- With BMI > 30
 - 55% increase in mortality
 - 70% increase in coronary artery disease
 - 75% increase in stroke
 - 400% increase in diabetes
- Morbidly obese males between 25 and 35 have 12x the chance of dying as normal weight men
- A morbidly obese adult has a 33% chance of living to age 65 as that of a normal weight person

Relationship Between BMI and Cardiovascular Disease Mortality¹



Impact of Obesity



TREATMENT OPTIONS

Popular Methods

Dietary advice
Behavioral therapy
Exercise
Medication

Conservative
Vs
Surgical

Surgical

Gastric band
Gastric bypass
Sleeve Gastrectomy

Overweight
BMI 25- 29.9

Obesity I
BMI 30-34.9

Obesity II
BMI 35-39.9

Obesity III
BMI \geq 40

NICE guidelines 2006

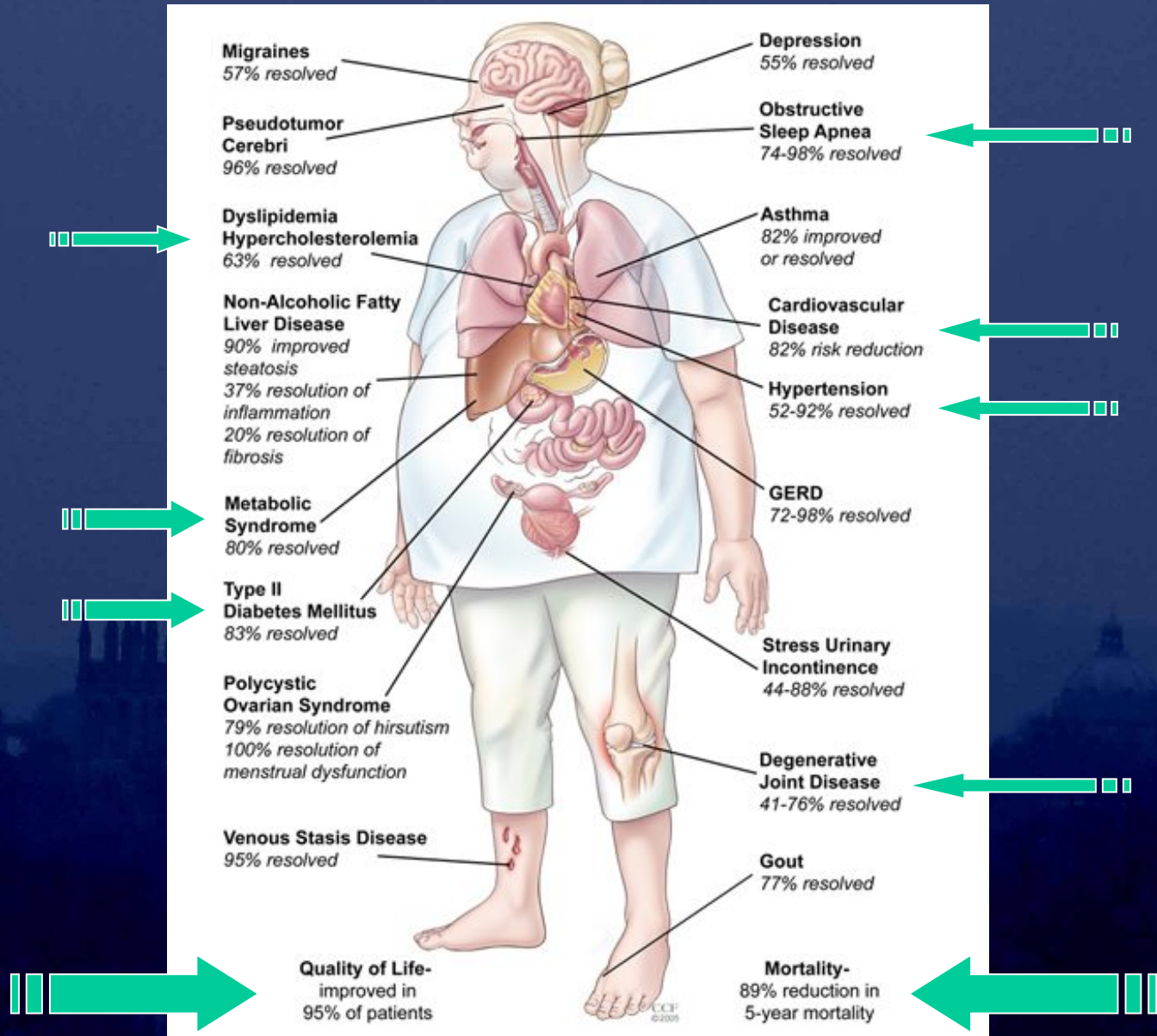
- they have a BMI of 40 kg/m² or more, or between 35 kg/m² and 40 kg/m² and other significant disease (for example, type 2 diabetes or high blood pressure) that could be improved if they lost weight
- all appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight loss for at least 6 months
- the person has been receiving or will receive intensive management in a specialist obesity service
- the person is generally fit for anaesthesia and surgery
- the person commits to the need for long-term follow-up.

Types of Bariatric Surgery

Goal of every bariatric procedure is to assist in reducing daily calorie intake

- Restrictive
 - Decreases food intake
 - **Laparoscopic adjustable gastric banding (LAGB)**
 - Vertical banded gastroplasty (VGB)
 - **Laparoscopic sleeve gastrectomy**
- Malabsorptive
 - Alters digestion
 - Causes food to be poorly digested and incompletely absorbed
 - Biliopancreatic diversion (BPD)
 - Distal gastric bypass (DGB)
- Combined
 - Shortens digestive tract and reduces stomach volume
 - **Roux-en-Y gastric bypass (RYGB)**

EFFECTS OF SURGERY ON OBESITY RELATED CO-MORBIDITIES



Morbid Obesity and Female Sexual Hormone Dysfunction

- Increased levels of:
 - Virilizing hormones (ANDROSTENEDIONE)
 - Feminizing hormones (estradiol)

Leading to

- Infertility
- Hirsutism
- Ovarian cysts
- Hypermenorrhea
- Increased risk breast and endometrial cancer

Morbid Obesity and Female Sexual Hormone Dysfunction

- Polycystic ovary syndrome

- The most common endocrine syndrome in women

- 6.8% women in reproductive age

- 33% - 47% of women with POS match the Metabolic Syndrome criteria

- (Central obesity, Hypertension, Type 2 DM, Dyslipidaemia)

Morbid Obesity and Female Sexual Hormone Dysfunction

Bariatric Surgery

- Returns sex hormones to normal levels
- Increases fertility
- Improves menstrual regularity

- Risk of neural tube defects during fast weight loss
- Birth control advised for the first year with two contraceptive methods

- Reduced risk of pregnancy
 - Pre-eclampsia
 - Problems at delivery (DVT and pulmonary embolism)
 - Reduced Caesarean section rate

Morbid Obesity and Urinary Stress Incontinence

- Intraabdominal pressure
- Diabetes related complication - Neuropathy

Weekly incontinence diagnosed in:

- 27% BMI > 30
- 55% BMI > 35 with T2DM

Bariatric surgery

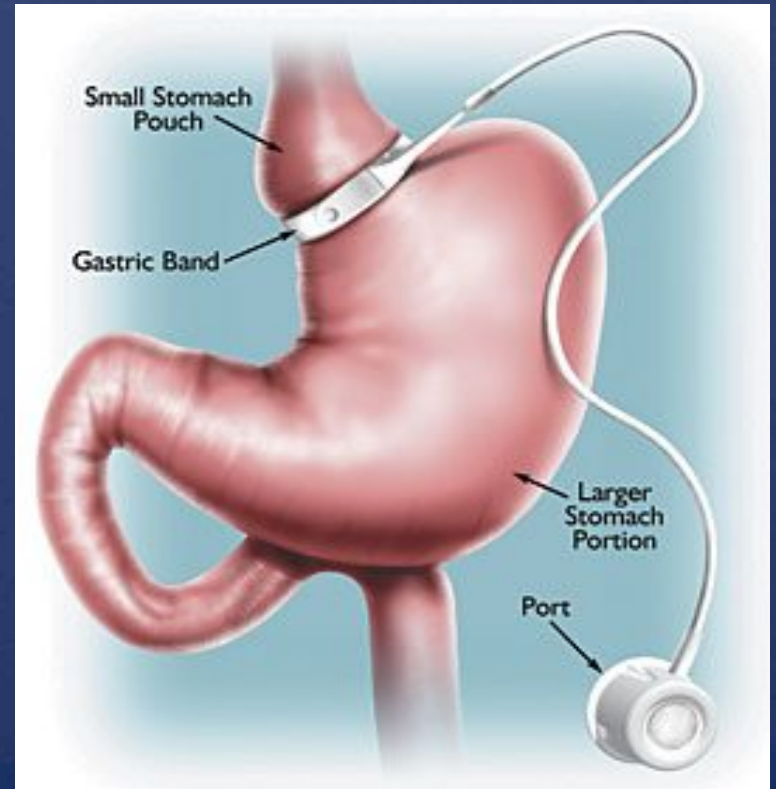
- Correction in 95% within 2 months
- Related to minimal weight loss

Swedish Obese Subjects Study

NEJM 2007 357 741-52

- 4047 patients
surgery 2010
controls 2037
 - Weight loss at 10 yrs
surgery 14-25%
controls <2%
 - Death within 10 yr FU
surgery 101
controls 129
p=0.04
- Death from cancer 29 vs 47
Death from MI 13 vs 25

The LAP-BAND System



Laparoscopic placement

Lap-Band System Around the World

- Most common operation for obesity in Europe, Australia and South America
- Over 50,000 implanted worldwide in past 9 years
- Extremely safe with good weight loss

The LAP-BAND System

Advantages

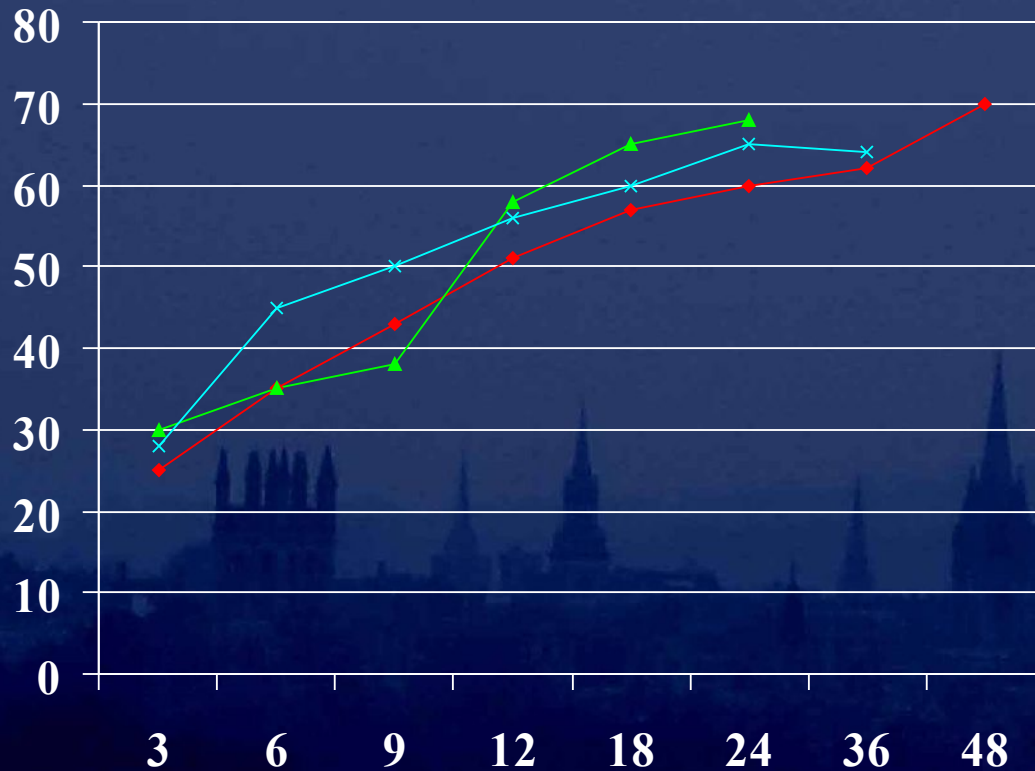
- Lowest mortality and complication rate
- Least invasive surgical approach
- No stapling, cutting, or intestinal re-routing
- Adjustable
- Reversible
- Low malnutrition risk
- Short operating time with 1 night in hospital / daycase

Disadvantages

- Slower initial weight loss than Gastric Bypass
- Regular follow-up critical for optimal results: Need adjustments
- Requires implanted medical device

LAP-BAND Clinical Results

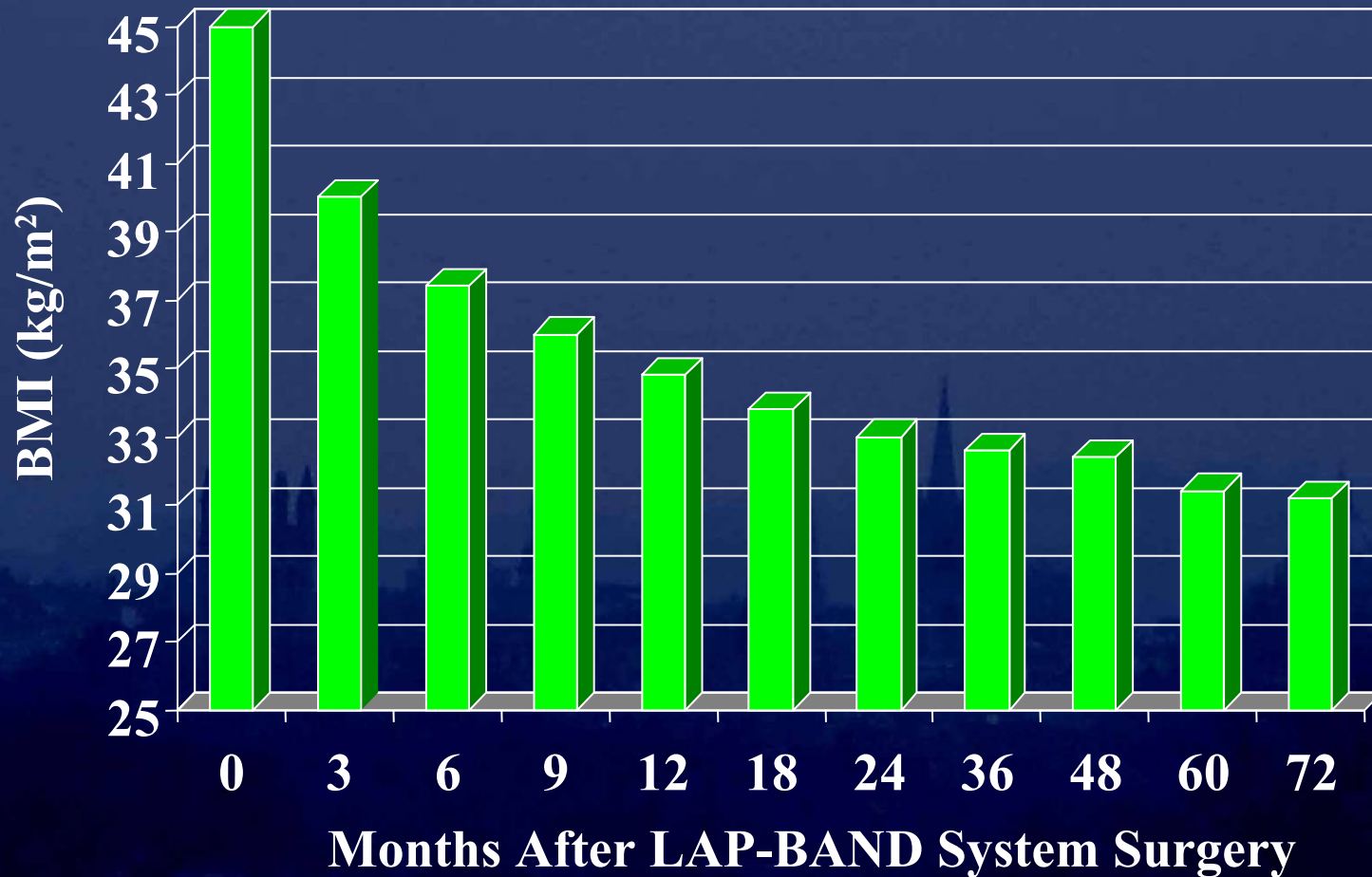
% EWL



- ◆— O'Brien (Australia) 1999 - 302 pts
- ▲— Cadiere, Favretti (Belgium, Italy) 2000 - 650 pts
- ×— Dargent (France) 1999 - 500 pts

Months

Change in Body Mass Index After LAP-BAND Surgery (N=700)



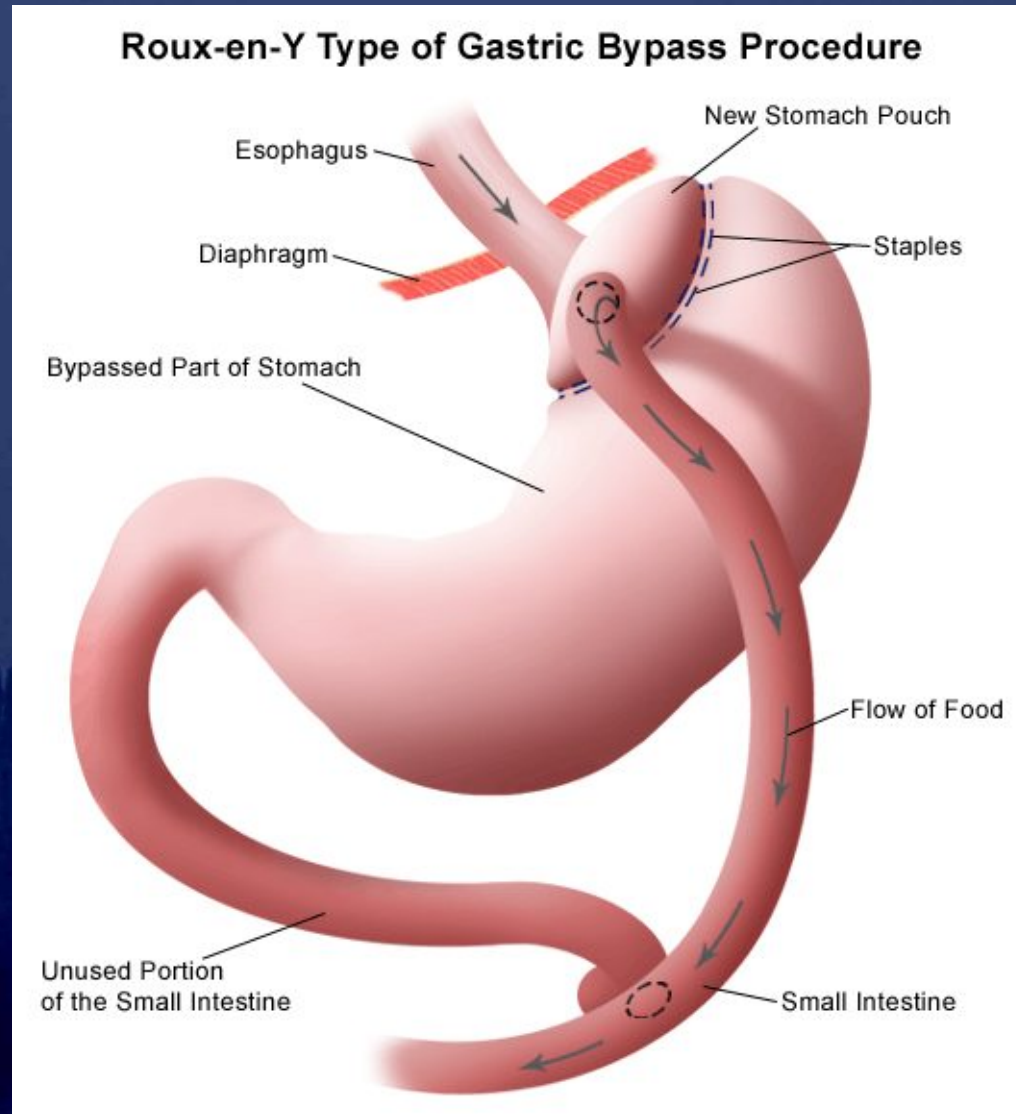
JAMA 2008 229 (3) 316-323

- 60 pts BMI 30-40 NIDDM
- 2 year follow-up
- Randomised to diet / lifestyle v lap band
- NIDDM reversal 13 % v 73%
- weight loss 1.7% v 20%

Complications

- Band Slippage 3-5%
- Band Erosion 1-3%
- Tubing Leak 2-3%
- Port Infection 1-2%
- 10% need to be removed
- Death 0.05%

Roux en Y Gastric Bypass



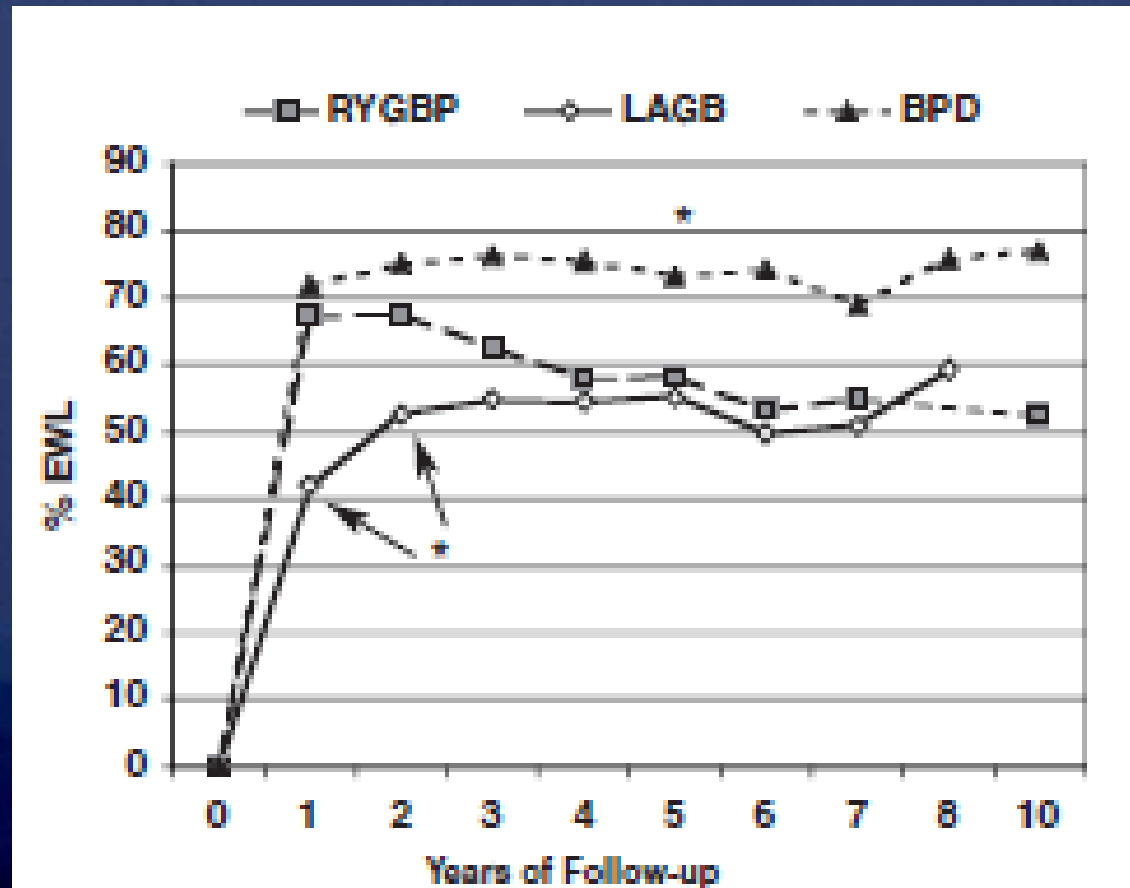
Gastric Bypass Advantages

- No plastic ring
- Greater weight loss
- Causes avoidance of sweets and fats
- Most foods well tolerated
- Low failure rate
- Little weight regain

Problems with Gastric Bypass

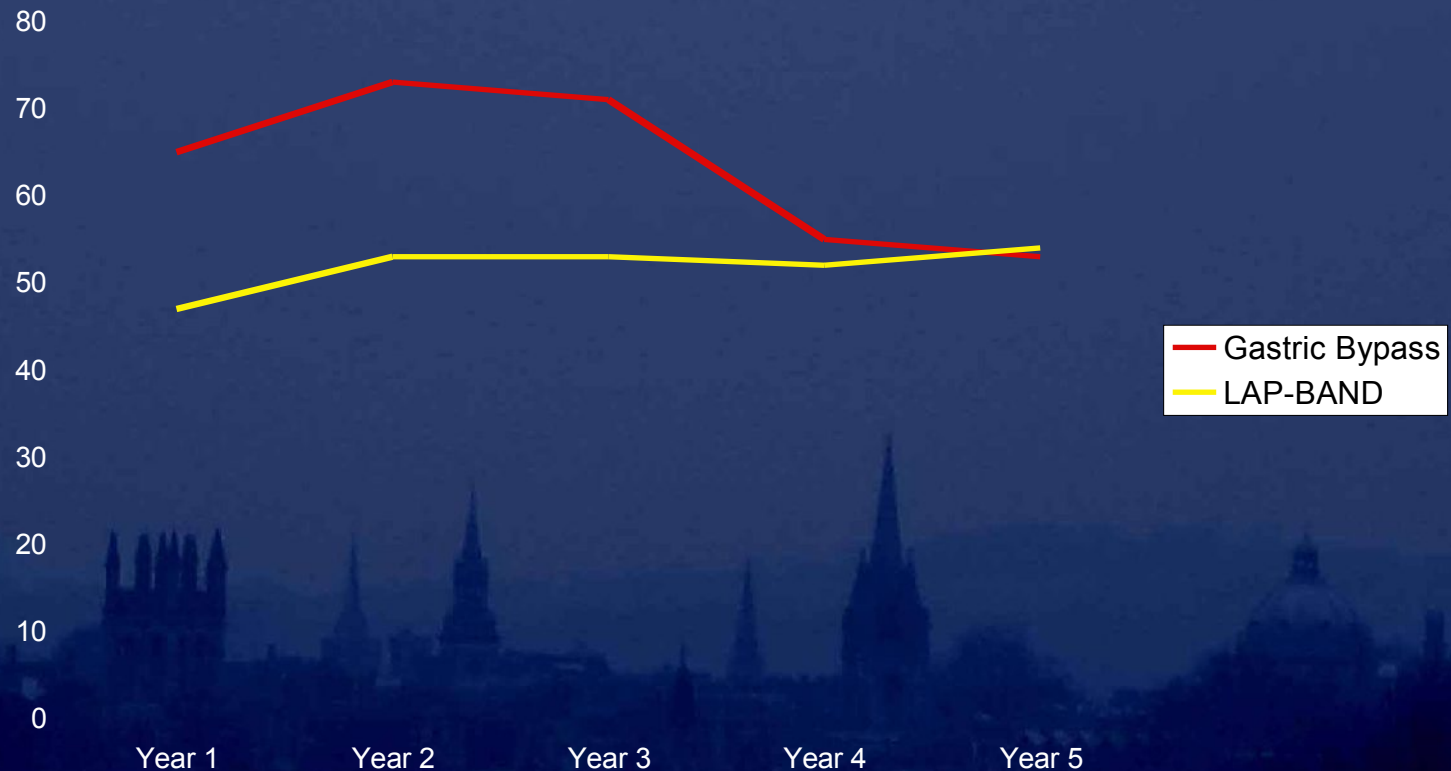
- Higher rate of complications
- 0.5% death rate
- Vitamins and minerals poorly absorbed
- Difficult to reverse

Bariatric Surgery and weight loss



Gastric Bypass vs. LAP-BAND

Long-Term Weight Loss



Source: Freeman J., Kotlarewsky M., Phoenix C., *Weight Loss After Extended Gastric Bypass*, *Obesity Surgery*, 7, 1997, 337-344; O'Brien, et. al. *The Laparoscopic Adjustable Gastric Band (LAP-BAND®): A Prospective Study of Medium Term Effects on Weight, Health and Quality of Life*, *Obesity Surgery*, 12, 2002, 652-660.

Oxford Bariatric Service

- 3 Consultant Surgeons with extensive OG and MIS experience
Nick Maynard
Bob Marshall
Bruno Sgromo
- 1 UGI Dietician
Liz Ward
- 1 Bariatric Clinical Nurse Specialist
Annie Gilbert

Oxford Bariatric Service

Extended MDT

- 3 Consultant UGI Anaesthetists
- Consultant Chest Physician
- Consultant Endocrinologist
- Consultant Diabetologist
- Clinical Psychologist
- Weekly Bariatric Outpatient Clinic in OCDEM
- **Weekly MDT Meeting**

Pre-Op Selection

- NICE criteria
 - BMI > 40 kg/m²
 - BMI 35-40 kg/m² with co-morbidities
 - Patient understands risks
- Educate / Pre and post op nutrition guidelines
- No contra-indications
- Reasonable expectations
- Aim for 4kg wt loss per month
- 2 yr weight loss goal is 50% of excess weight

Pre-Op Preparation: Patient

- VLCD: Very Low Calorie Diet
 - Jump start weight loss
 - Shrink the liver
 - Increase rate of laparoscopic completion
- Medical assessment
- Psychologist
- Dietician
- Clinical Nurse Specialist
- Support group

Postoperative Management of Gastric Band

extensive input from dietician and CNS

- 0-2 Weeks Post-Op:
 - Low calorie fluids only (minimal hunger)
- 2-4 Weeks Post-Op:
 - Soft diet (minimal hunger)
- 4-6 Weeks Post-Op:
 - Dry solid food, 3 meals a day, no snacks

Postoperative Management of Gastric Band

extensive input from dietician and CNS

- 6 Weeks Post-Op:
 - Barium swallow and first band fill
 - Fluid diet for 5 days then resume dry food diet
- 6 Weeks – 2 years
 - Variable band fills (mean 2-3) depending on weight loss, eating habits, patient preferences
- Important rules
 - Dry food not sloppy food
 - No fluids 30 mins before or 90 mins after meal

- **Thames Valley Priorities Committees**

- **(Oxfordshire PCT)**

- Policy Statement 87: Bariatric surgery for people with morbid obesity
- Ref TV67

- **Oxfordshire Commissioning Board decision: Approved, December 2006**

- **Date of Issue: December 2006**

- ***The Thames Valley Priorities Committees have reviewed the evidence for surgery for people with morbid obesity and recommend its use to be a LOW PRIORITY except for patients who meet the referral criteria below.***

- Following extensive discussions across Berkshire, Buckinghamshire and Oxfordshire, there was a consensus that:

- 1. PCTs should commission specialist bariatric surgery in the context of a care pathway including prevention and non surgical interventions. Priority should be given to the provision of effective, coordinated weight loss management support including combined access to specialist diet advice, exercise advice/referral scheme, pharmacological support and counselling.

- 2. Patients may be considered suitable for referral to a specialist obesity management centre for assessment (to be selected by specialist commissioning following development of a service specification) if they meet the following criteria:

- • **BMI of 50kg/m² or greater and**

- • **who also have diabetes mellitus or other severe co-morbidity due to obesity**

- • **who have been receiving treatment in a specialist obesity management service which included diet and exercise support, pharmacologic therapy and counselling and failed to respond adequately**

- 3. Access to bariatric surgery should only be via referral from a specialist obesity management Service.

- 4. Plastic surgery correction of redundant skin following weight loss should not be funded from NHS resources except in exceptional circumstances.

- **NOTES:**

Oxfordshire Primary Care Trust

- Criteria for Bariatric Surgery
BMI >50 with comorbidity
- Oxford preferred provider
- NICE Guidelines
BMI >35 with comorbidity or >40 without comorbidity
- Negotiations +++
? Reduce threshold to BMI 40 with comorbidity
- Tier 2 Medical Obesity Service

Referrals from Primary Care

- Agreement from PCT for funding for initial assessment
GP to apply to PCT
- Agreement from PCT for weight loss surgery
Secondary care to apply
- Appeal system
- Private referrals - NICE criteria
- In future – Tier 3 Medical Obesity Service

Bariatric Surgery for All?



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