
Treatment of Obesity

The biggest preventable health threat of the 21st Century

Helen M. Heneghan

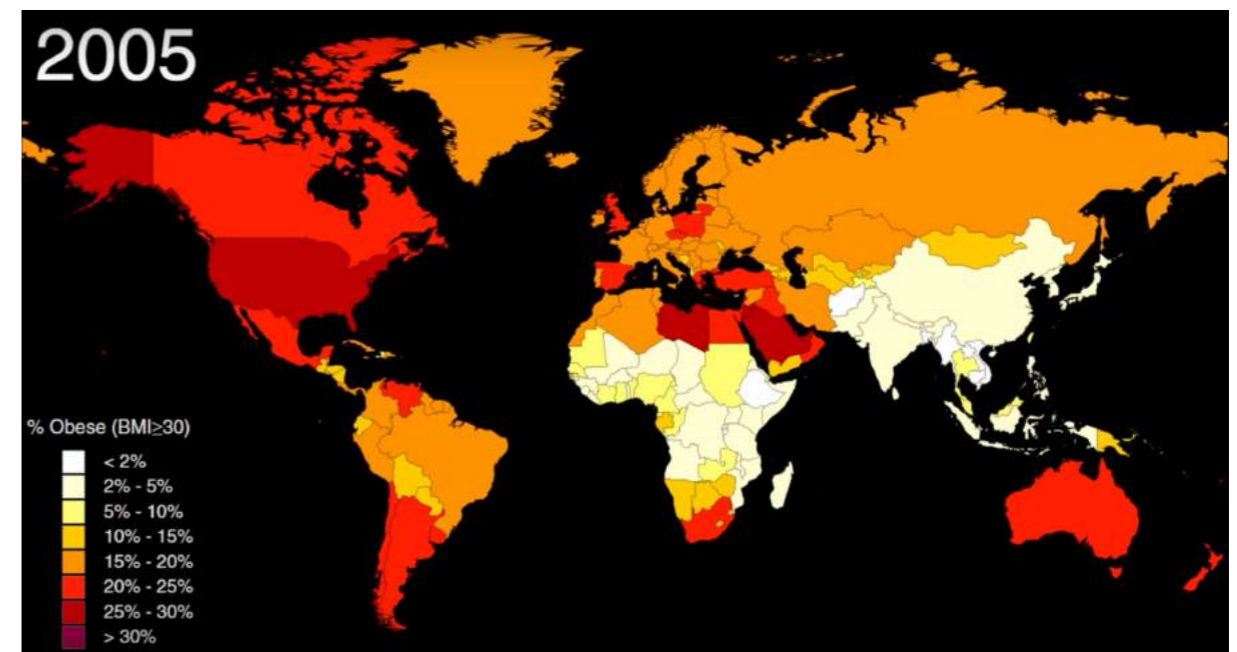
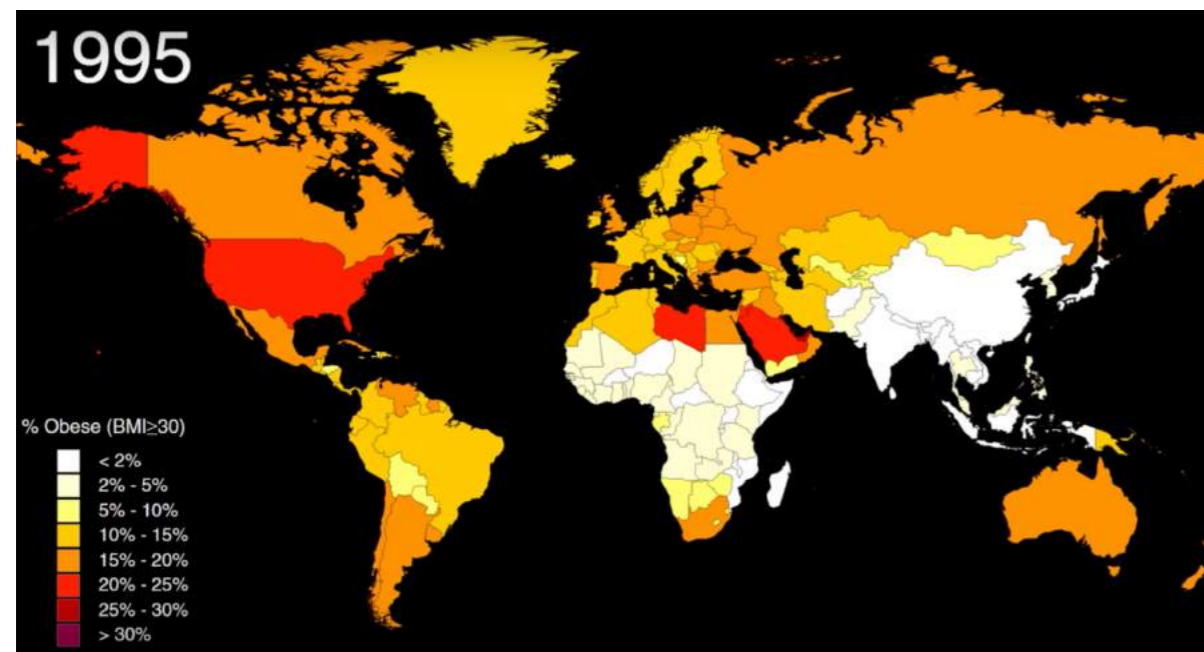
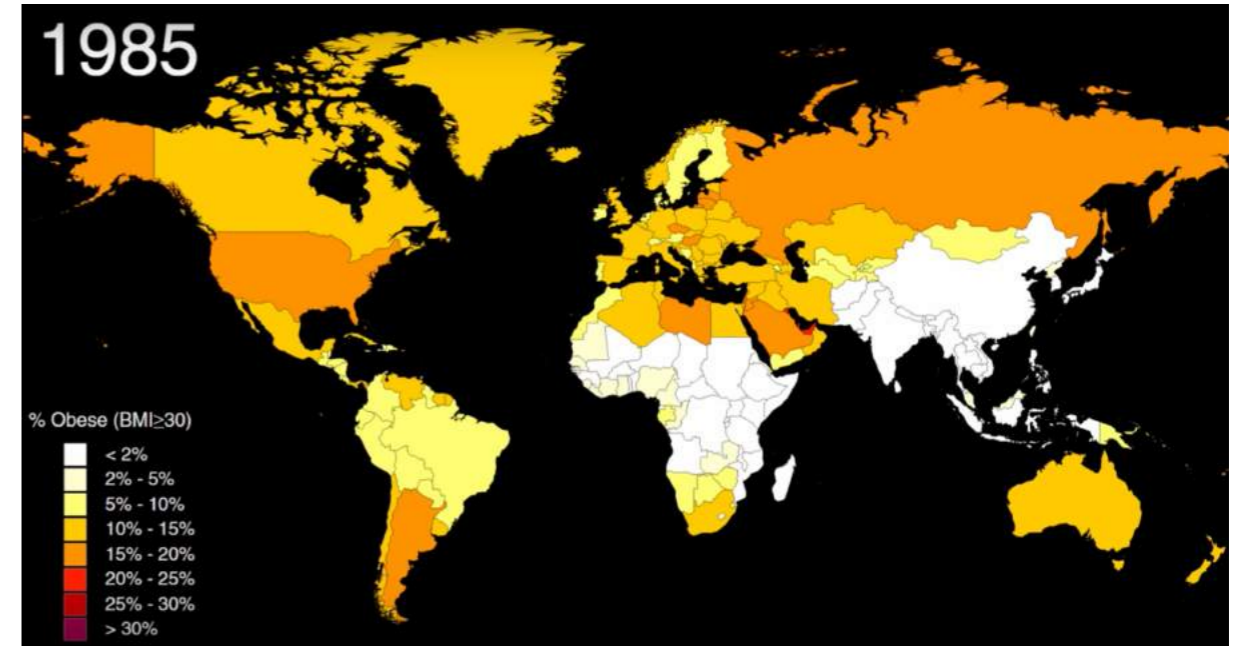
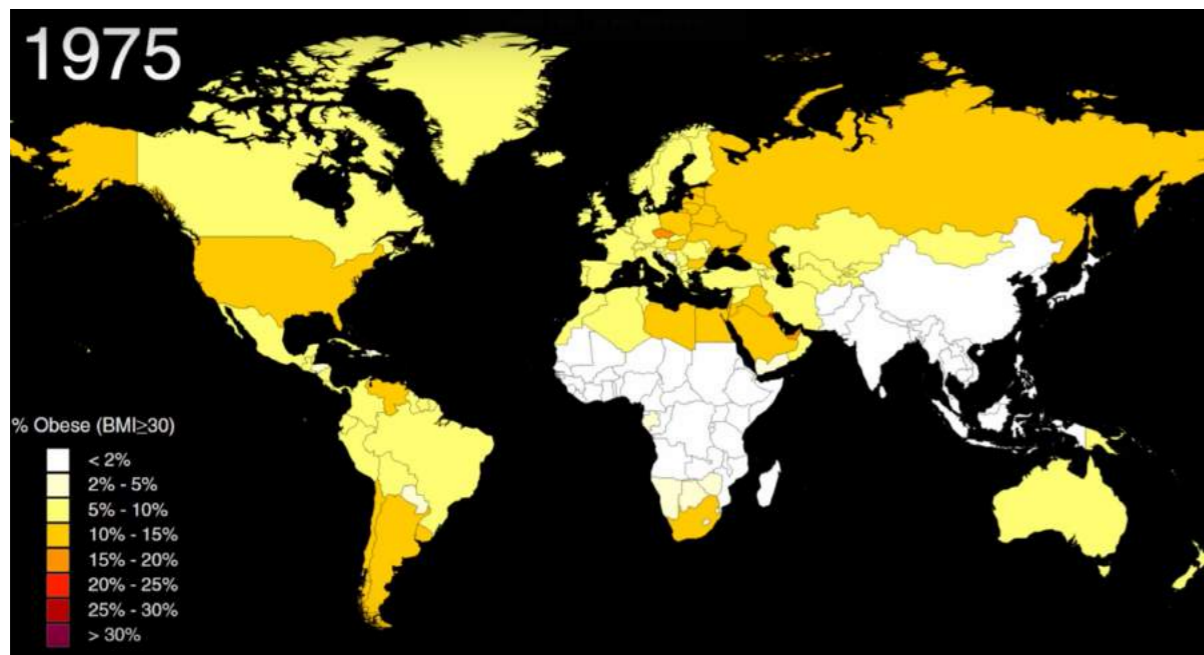
Consultant Bariatric Surgeon
St Vincent's University Hospital
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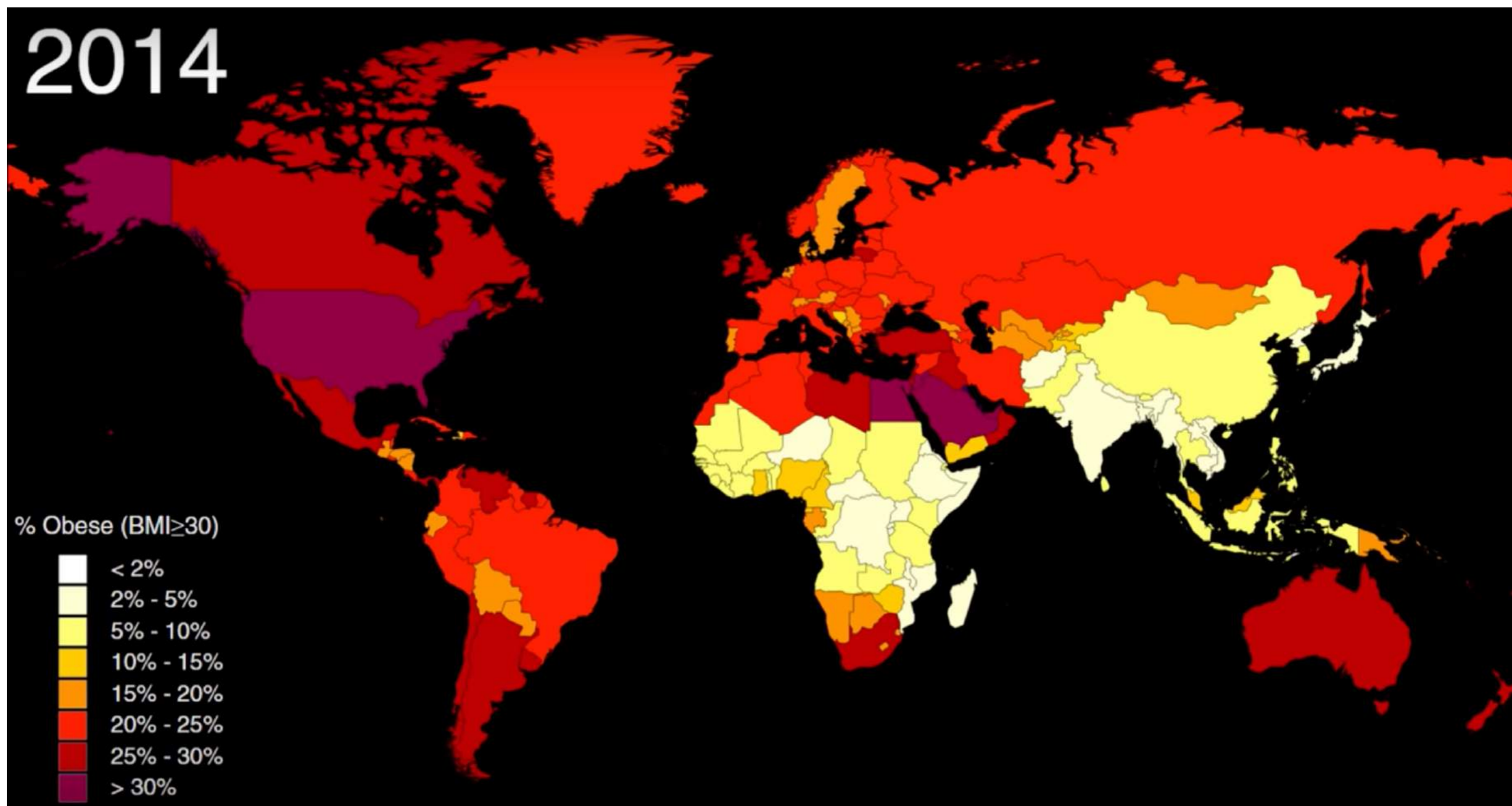
UCD UN SDG Seminar Series



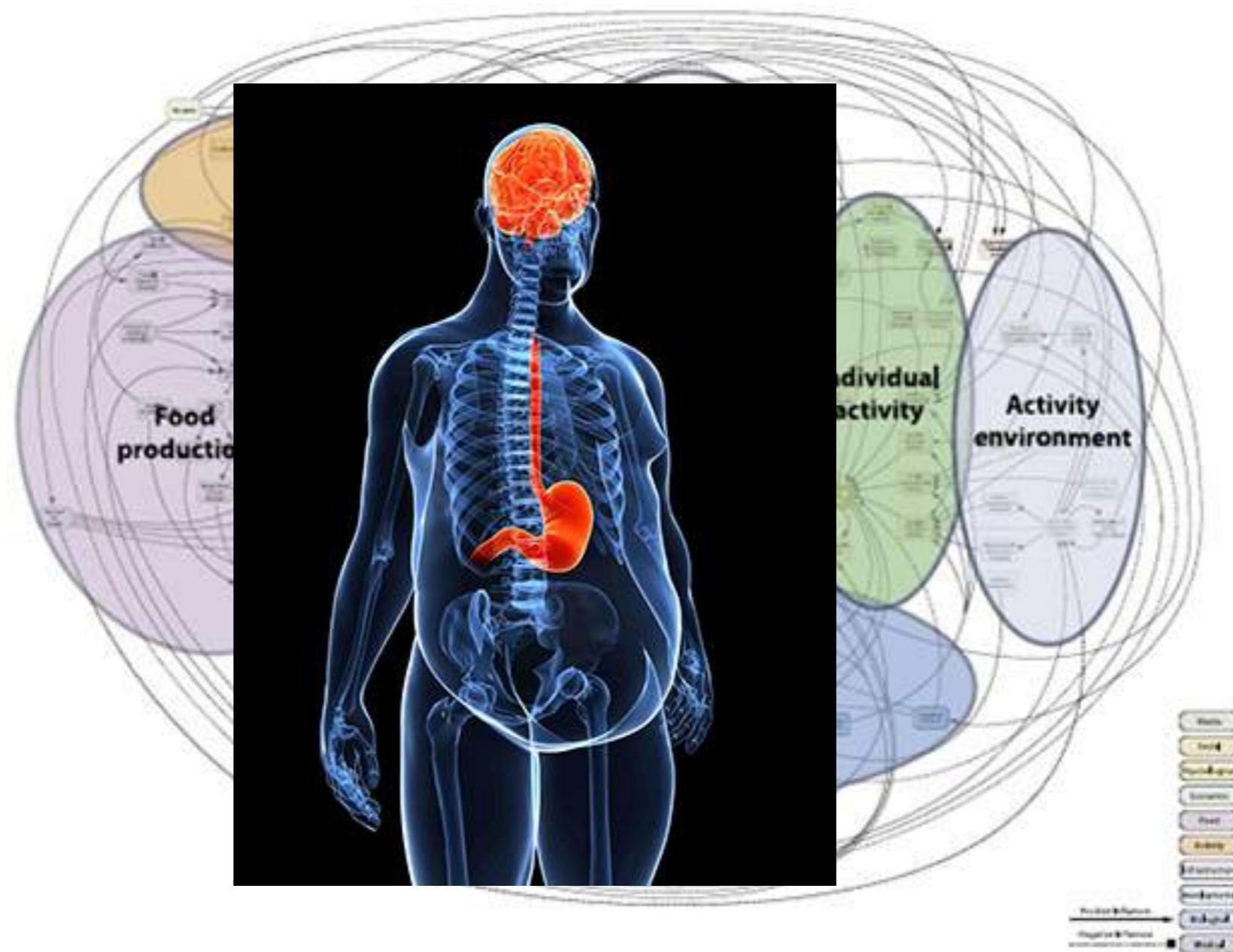
Evolving Obesity Pandemic



Evolving Obesity Pandemic

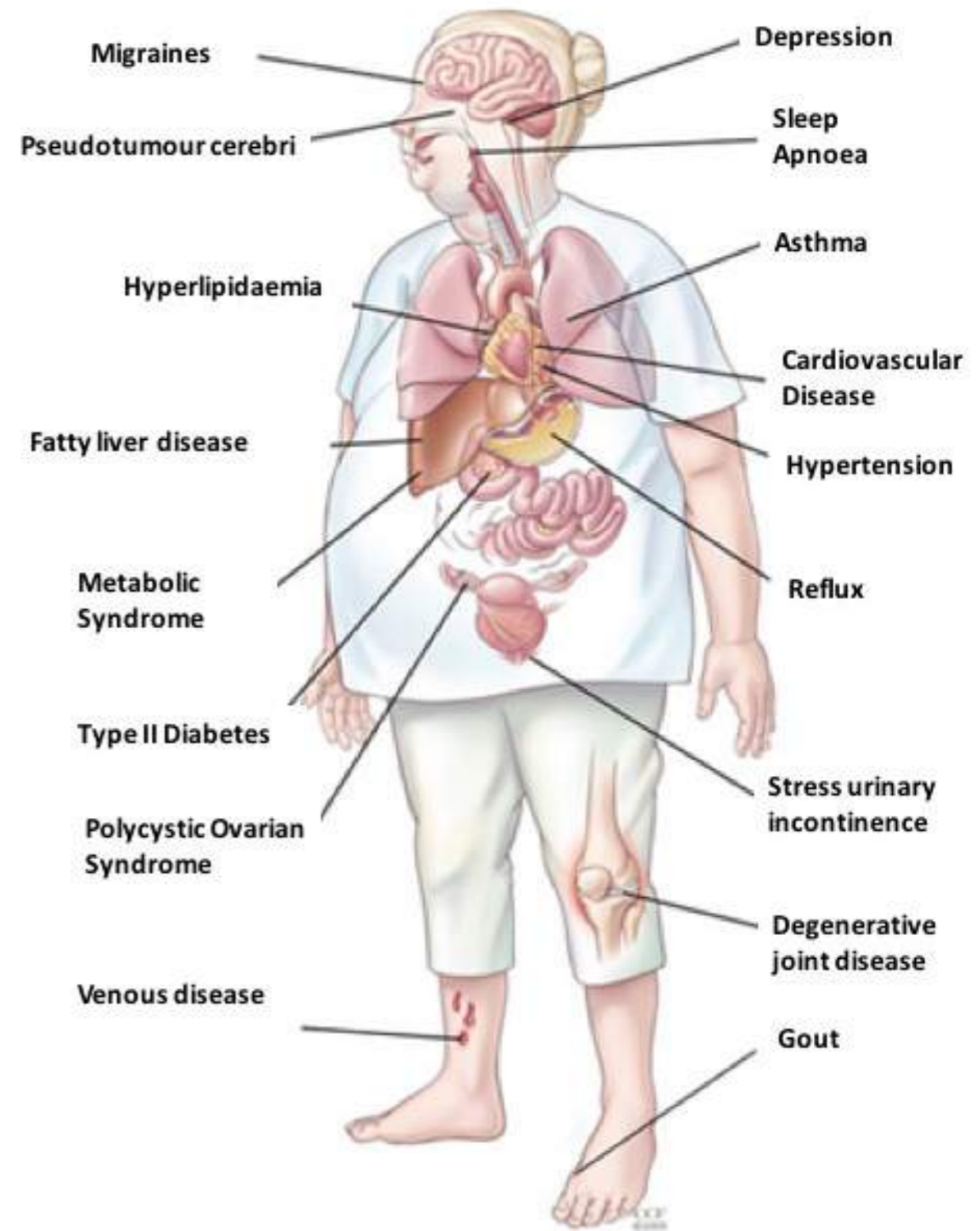


Obesity is a Chronic Disease



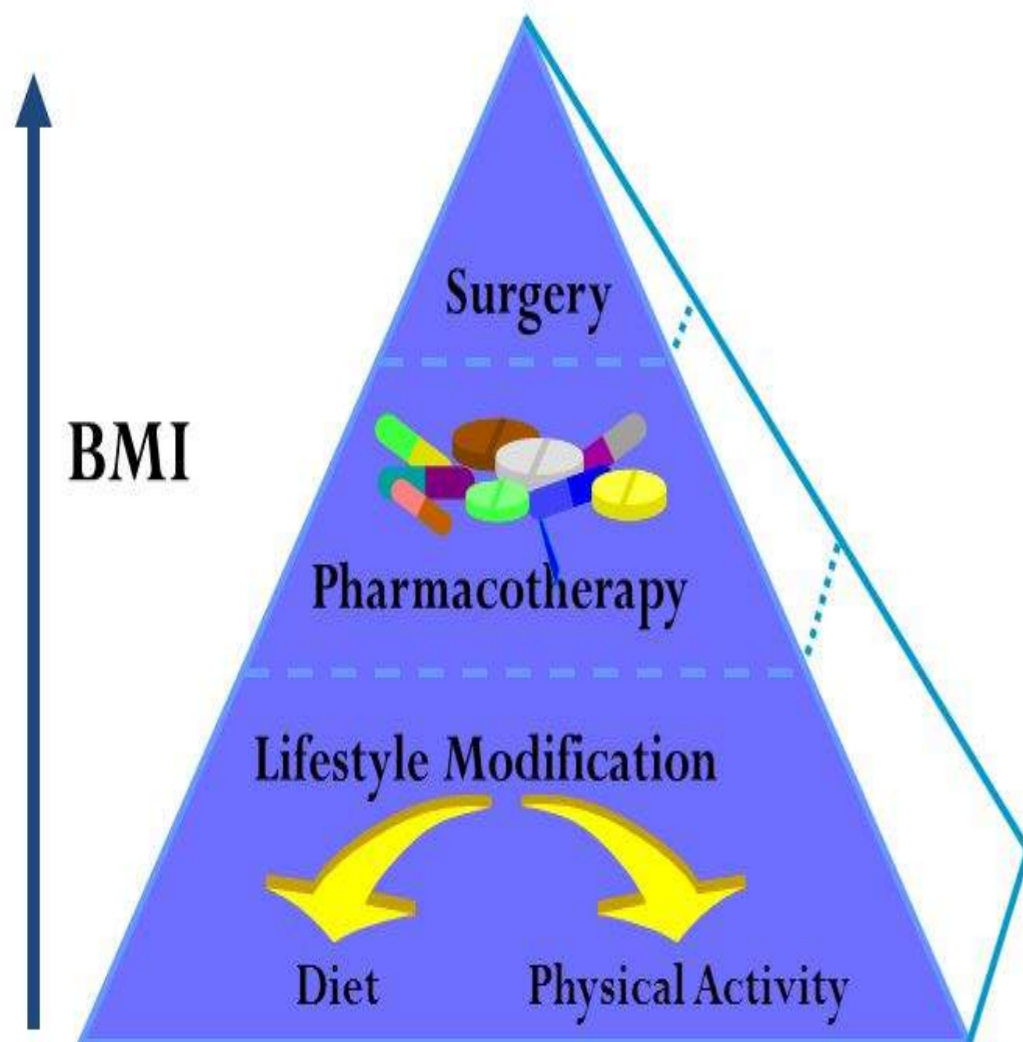
Obesity is a Disease with Significant Consequences

- 1 in 4 Irish adults are obese
- 80% of obese patients have a complication of obesity
 - Would improve/remit with >10% weight loss
- ~ 2,000 deaths per year
- Annual cost €1.13 billion



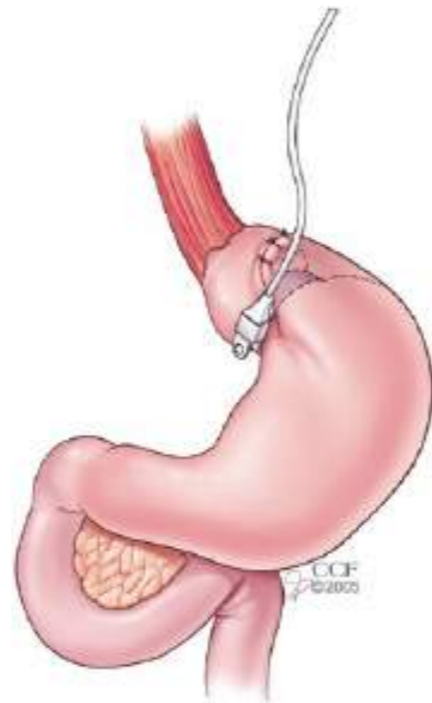
Successful Treatment of Obesity

Obesity Treatment Pyramid

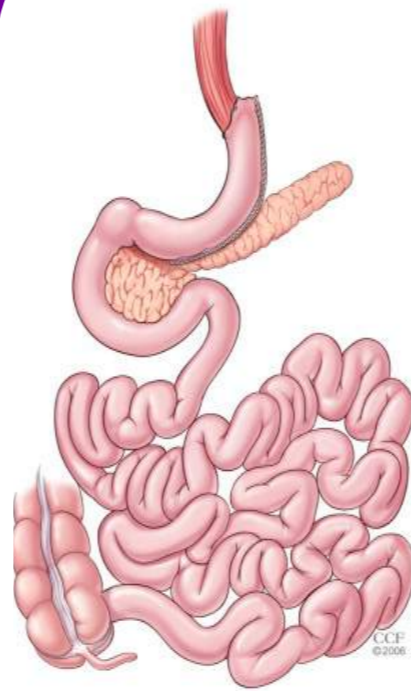


- **>9 in 10** who undergo **Bariatric Surgery** will achieve & sustain >10% weight loss (25-30% usually)
- **3 in 10** can achieve & sustain 10% weight loss through the addition of **Medications**
 - Victoza (Liraglutide)
 - Mysimba (Bupropion & Naltrexone)
- **1 in 10** obese people can achieve & sustain 10% weight loss through intensive **dietary & lifestyle interventions**

Bariatric Surgery Procedures



Gastric Banding



Sleeve gastrectomy



Roux-en-Y Gastric Bypass

Who Qualifies for Bariatric Surgery?

- BMI > 35 with co-morbidities.
- BMI > 40.
- Must have attempted and failed prior weight loss therapy.
- Must understand risks of operation.
- Must agree to lifelong follow up.

Bariatric Surgery Procedures



- Day of surgery admission
- Enhanced Recovery After Surgery Programme
- Length of Hospital stay: 2 nights
- Mortality: 0.04%
- Major complications: 1-2%

SVUH : National Bariatric Surgery Centre
Volume: >120 cases per year

Bariatric Surgery Outcomes: Weight Loss

Meta-analysis of 52 studies with ≥ 5 year follow-up [n=16,867]

Procedure	% EWL* at 5 yrs	BMI change at 5 yrs
RYGB	64.9%	-16.0
Sleeve	59.4%	-15.5
Gastric band	41.6%	-11.4

Heneghan et al. Am J Card 2011

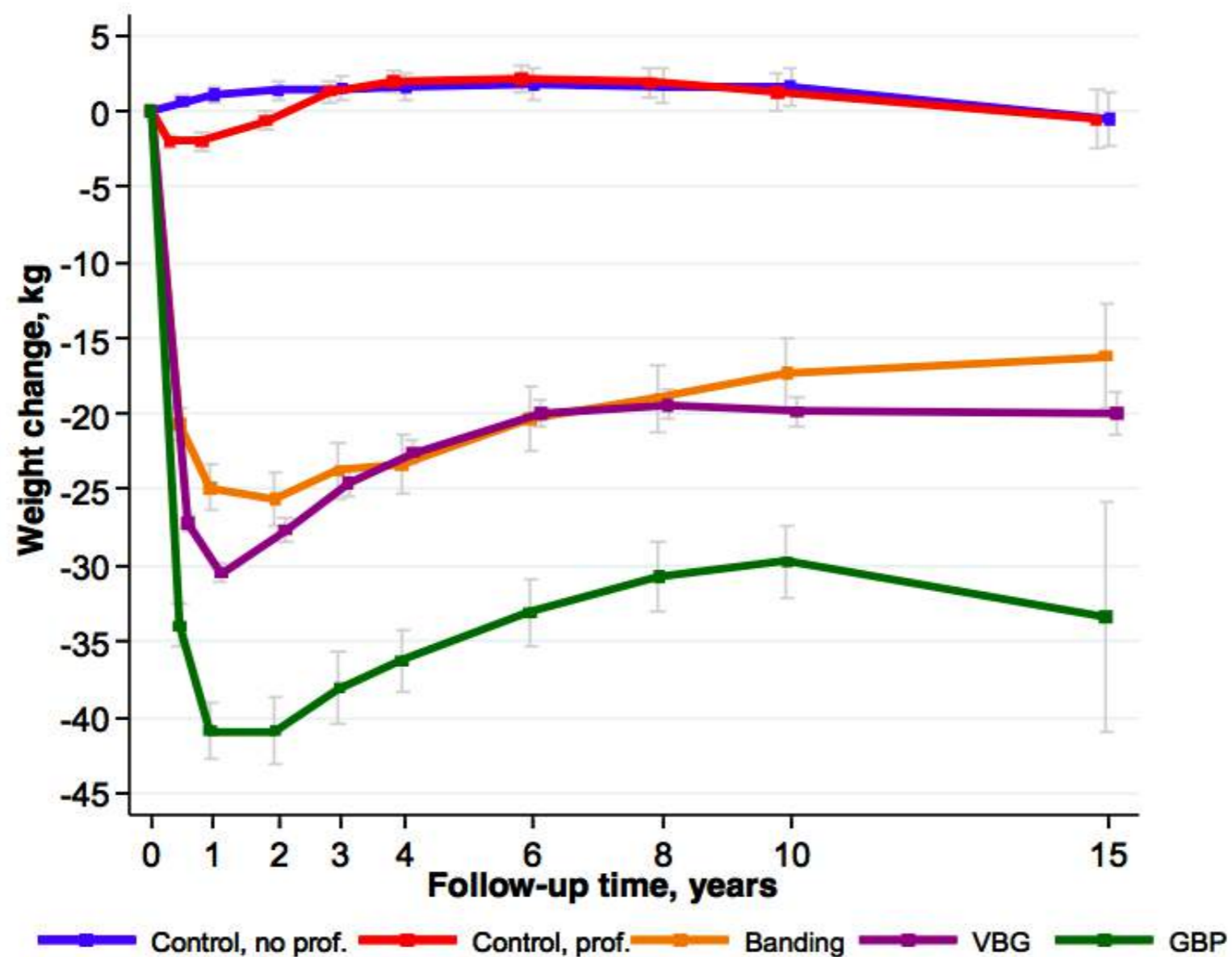
*EWL = Excess Weight Loss

This is the % of a patients **excess** weight (the amount over their **ideal** body weight – i.e. at BMI 25 kg/m²), lost after treatment

Bariatric Surgery Outcomes: Weight Loss

Figure S3. Weight changes over 15 years in SOS subjects without diabetes at baseline in the surgery subgroups and in controls not obtaining (no prof) or obtaining (prof) professional help.

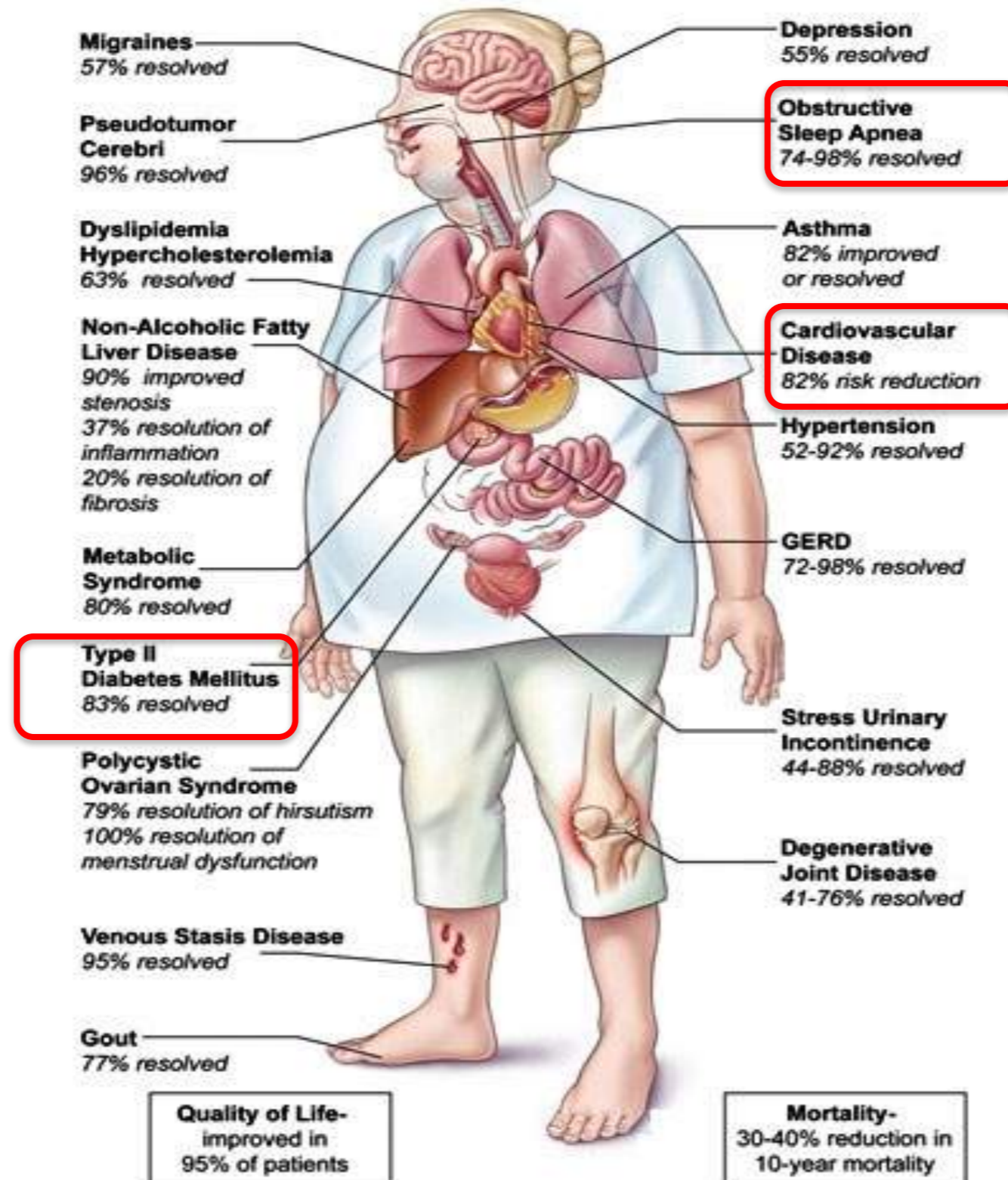
95% CI are shown.



NEJM 2004, 2007 & 2012

JAMA 2012

Effects of Bariatric Surgery on Obesity Complications

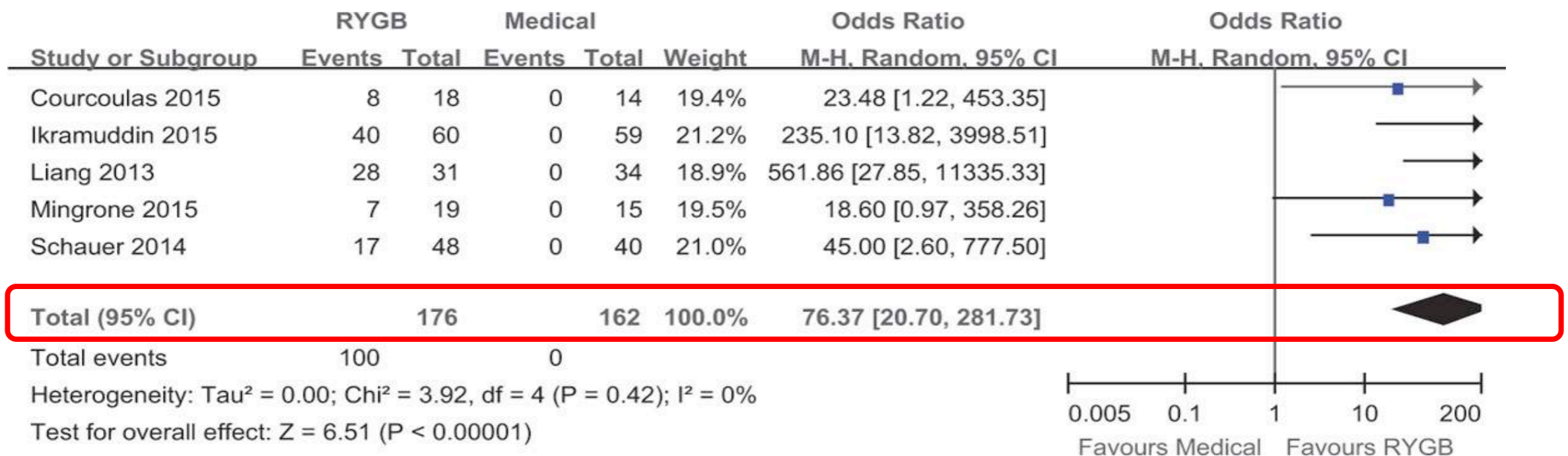


Bariatric Surgery Outcomes: Remission of Type 2 Diabetes

Bariatric Surgery Vs. Medical Therapy for Type 2 Diabetes In Obese Patients: Systematic Review and Meta-Analysis of Randomized Controlled Trials.

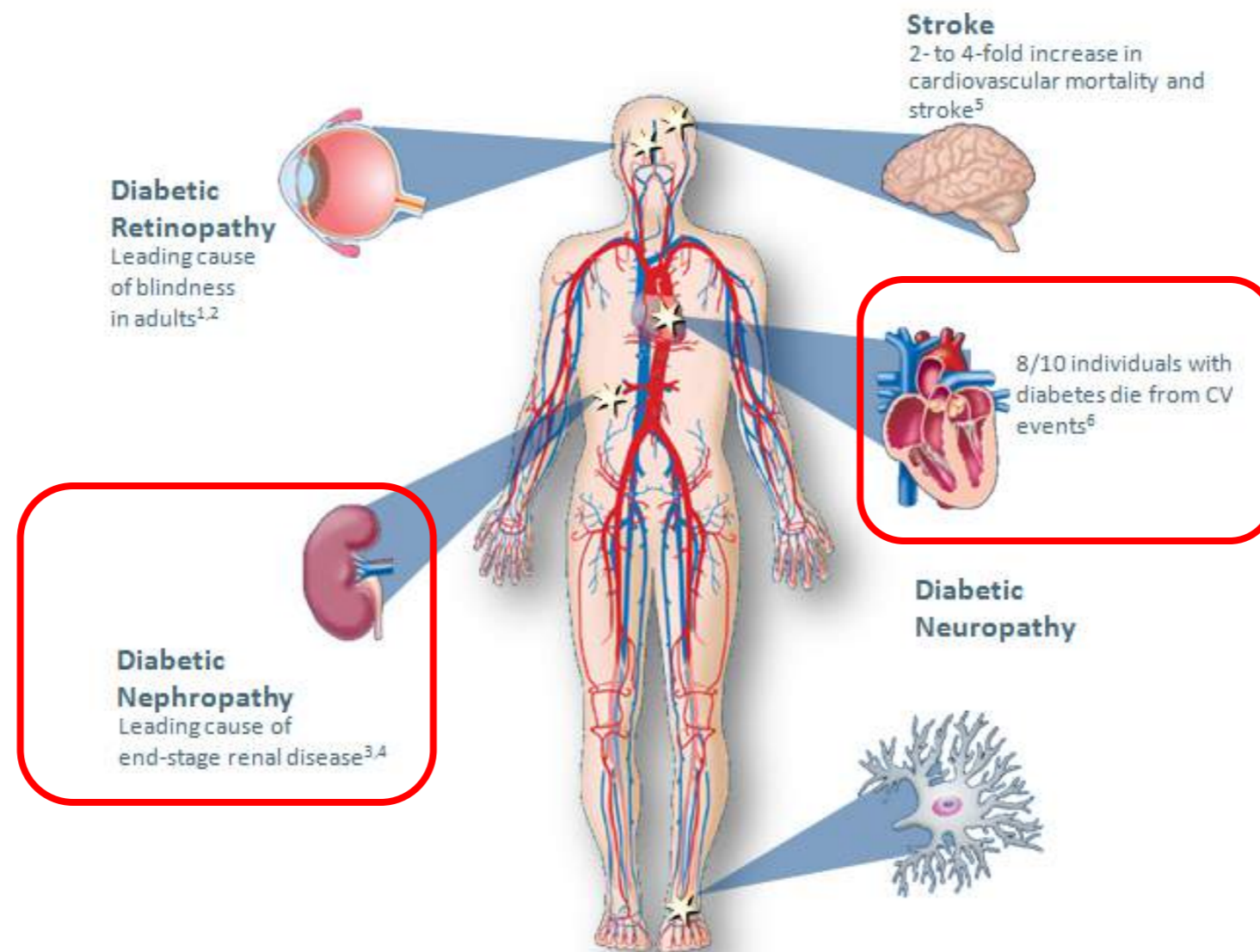
- 16 RCTs, N=984
 - Surgery group 523
 - Controls (Best medical therapy) 461

Overall Diabetes Remission Rate in RCTs

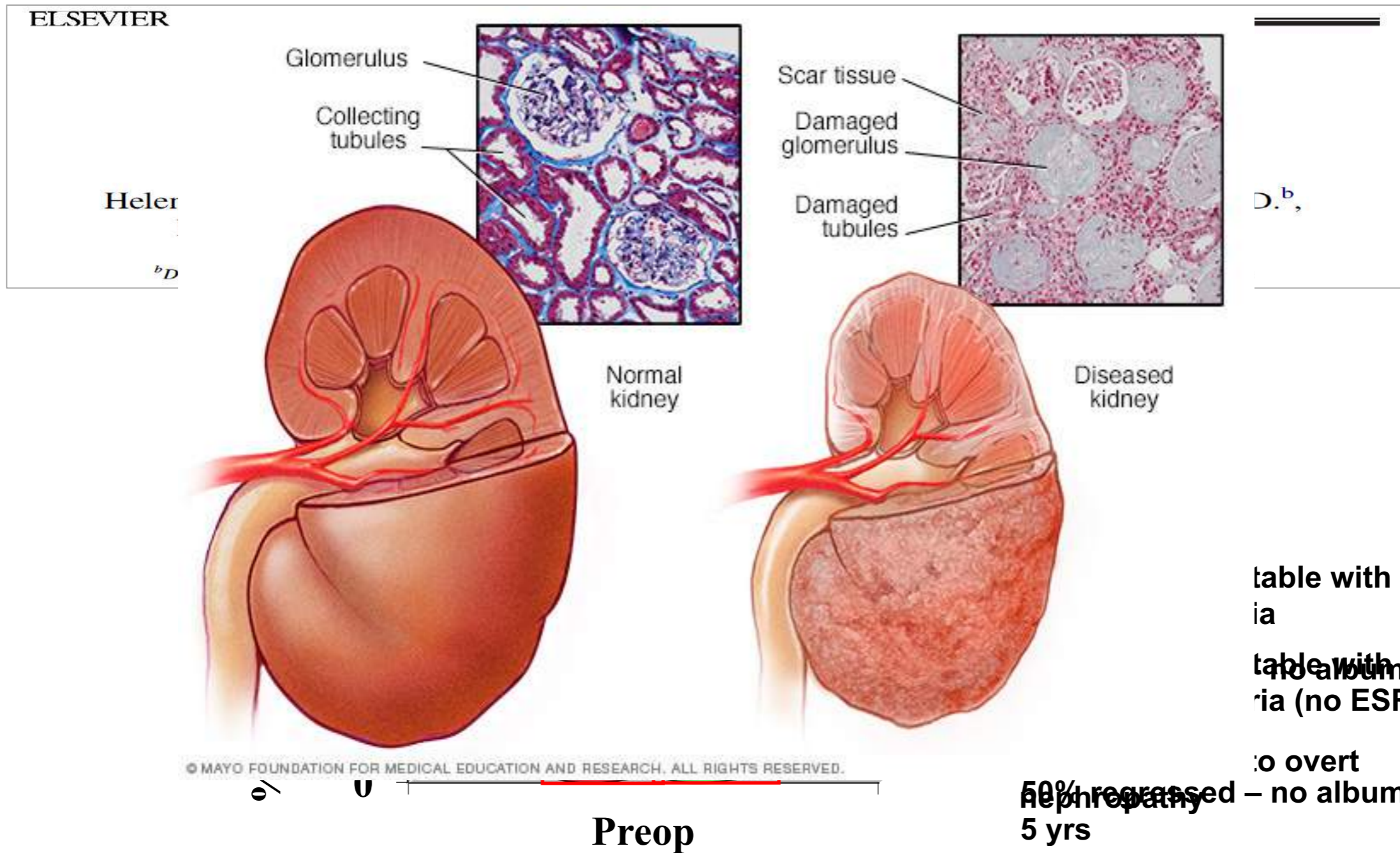


BARIATRIC SURGERY OUTCOMES:

EFFECT ON END-ORGAN COMPLICATIONS OF DIABETES



Bariatric Surgery Outcomes: Effect on End-Organ Complications of Type 2 Diabetes



Heler
bD

D.^b,

table with
ia
table with
no albuminuria at
ria (no ESRD

50% regression of nephropathy – no overt
5 yrs

**THE EFFECT OF METABOLIC SURGERY ON
MACROVASCULAR COMPLICATIONS OF T2DM**

CARDIOVASCULAR DISEASE

Bariatric Surgery Outcomes: CV Mortality

Bariatric Surgery and Long-term Cardiovascular Events

Lars Sjöström, MD, PhD

Markku Peltonen, PhD

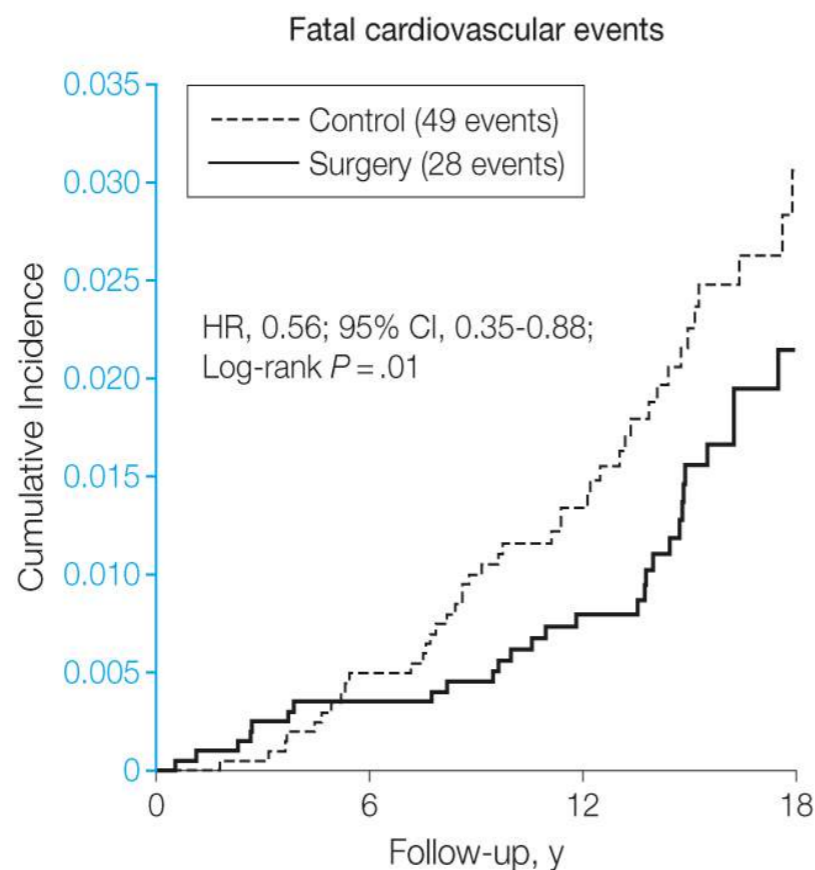
Peter Jacobson, MD, PhD

C. David Sjöström, MD, PhD

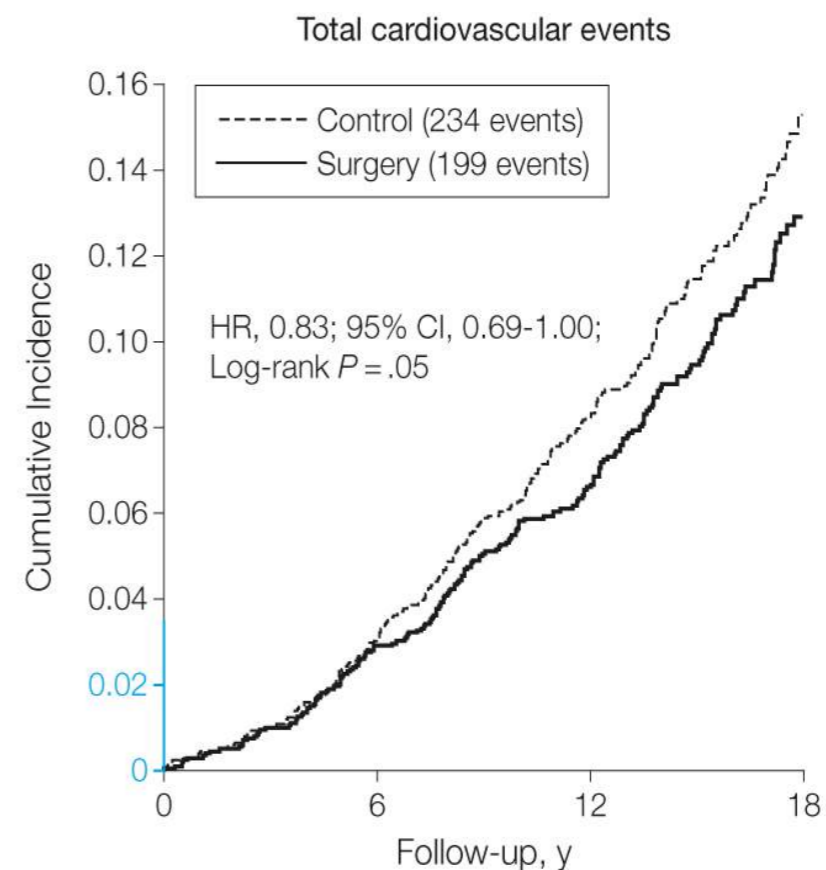
Context Obesity is a risk factor for cardiovascular events. Weight loss might protect against cardiovascular events, but solid evidence is lacking.

Objective To study the association between bariatric surgery, weight loss, and cardiovascular events.

SOS study, JAMA 2012



No. at risk	0	6	12	18
Control	2037	1993	1423	405
Surgery	2010	1970	1557	412

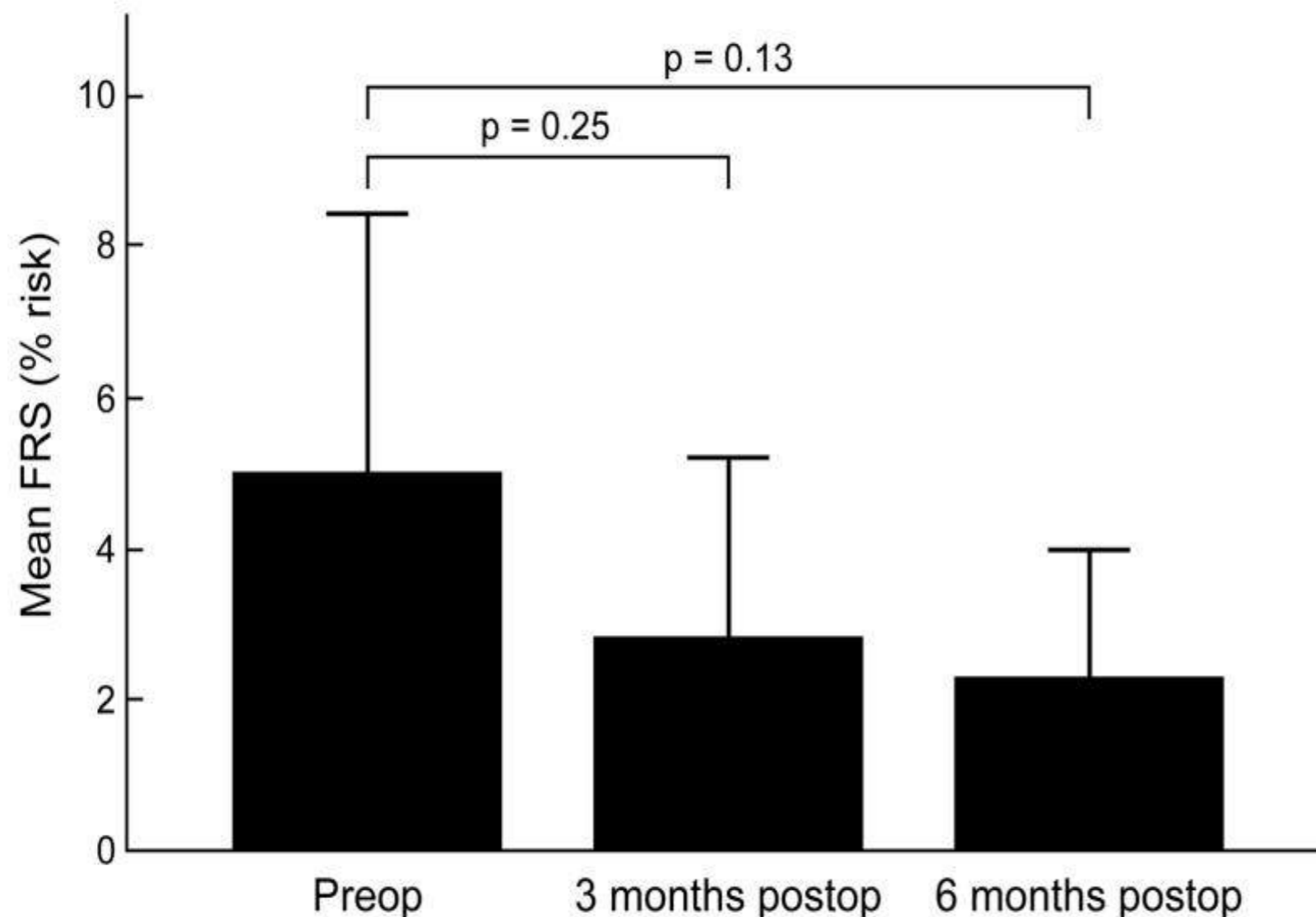


No. at risk	0	6	12	18
Control	2037	1945	1326	361
Surgery	2010	1921	1468	375

Bariatric Surgery Outcomes: CV disease

Significant decrease in CV disease risk factors after metabolic surgery

Framingham Risk Score – estimates 10-year cardiovascular risk of an individual



- Systematic review
N=15 RYGB
- 52 studies, N=16,772
 - 33.5% reduction in FRS at 3m
 - 40% RR reduction in FRS
 - 43.6% reduction in FRS at 6m
24 months postop

Heneghan et al. SOARD 2013

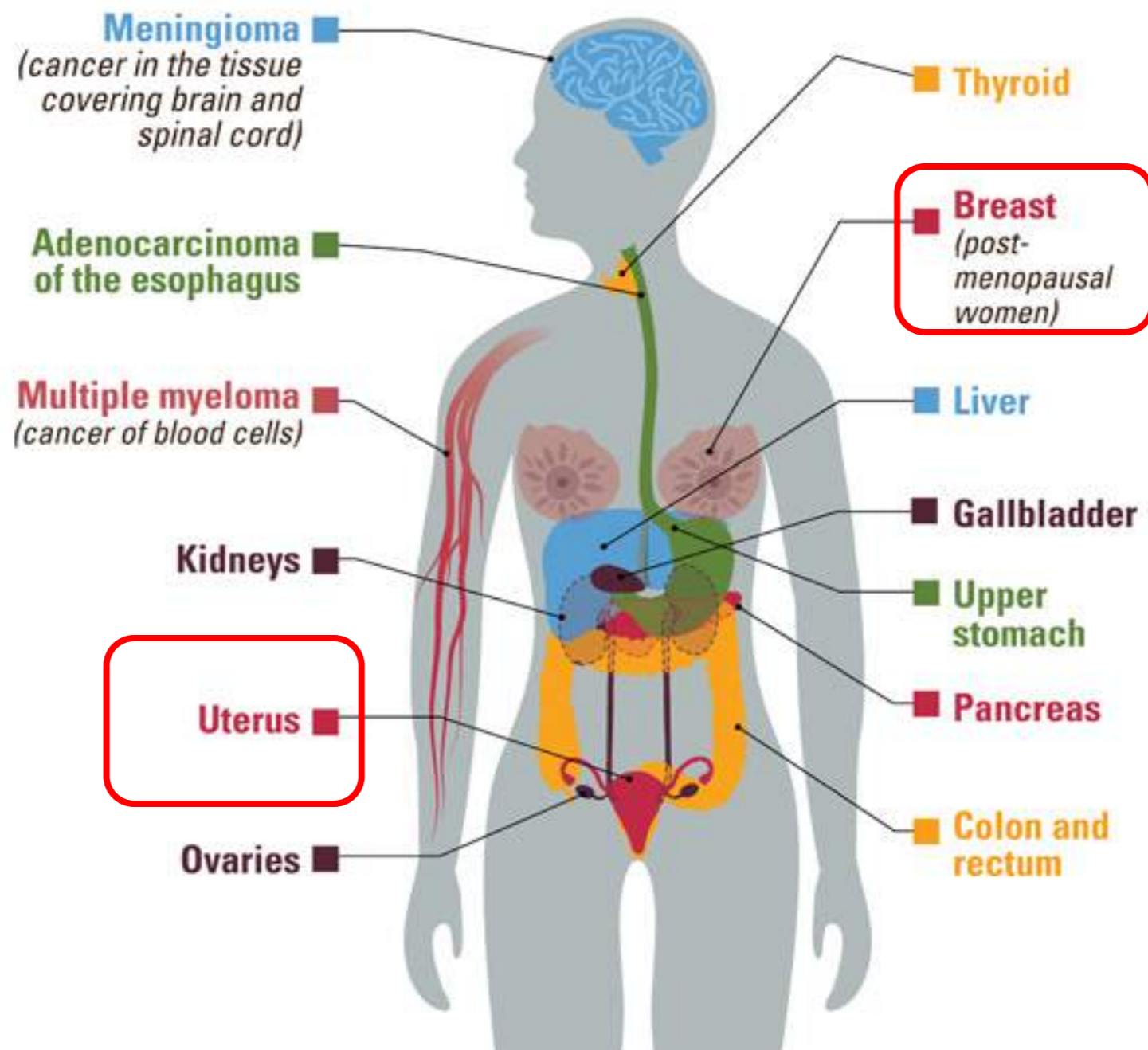
Heneghan et al. Circulation 2013

**THE EFFECT OF BARIATRIC SURGERY ON
OTHER COMPLICATIONS OF OBESITY**

CANCER

Obesity & Cancer Risk

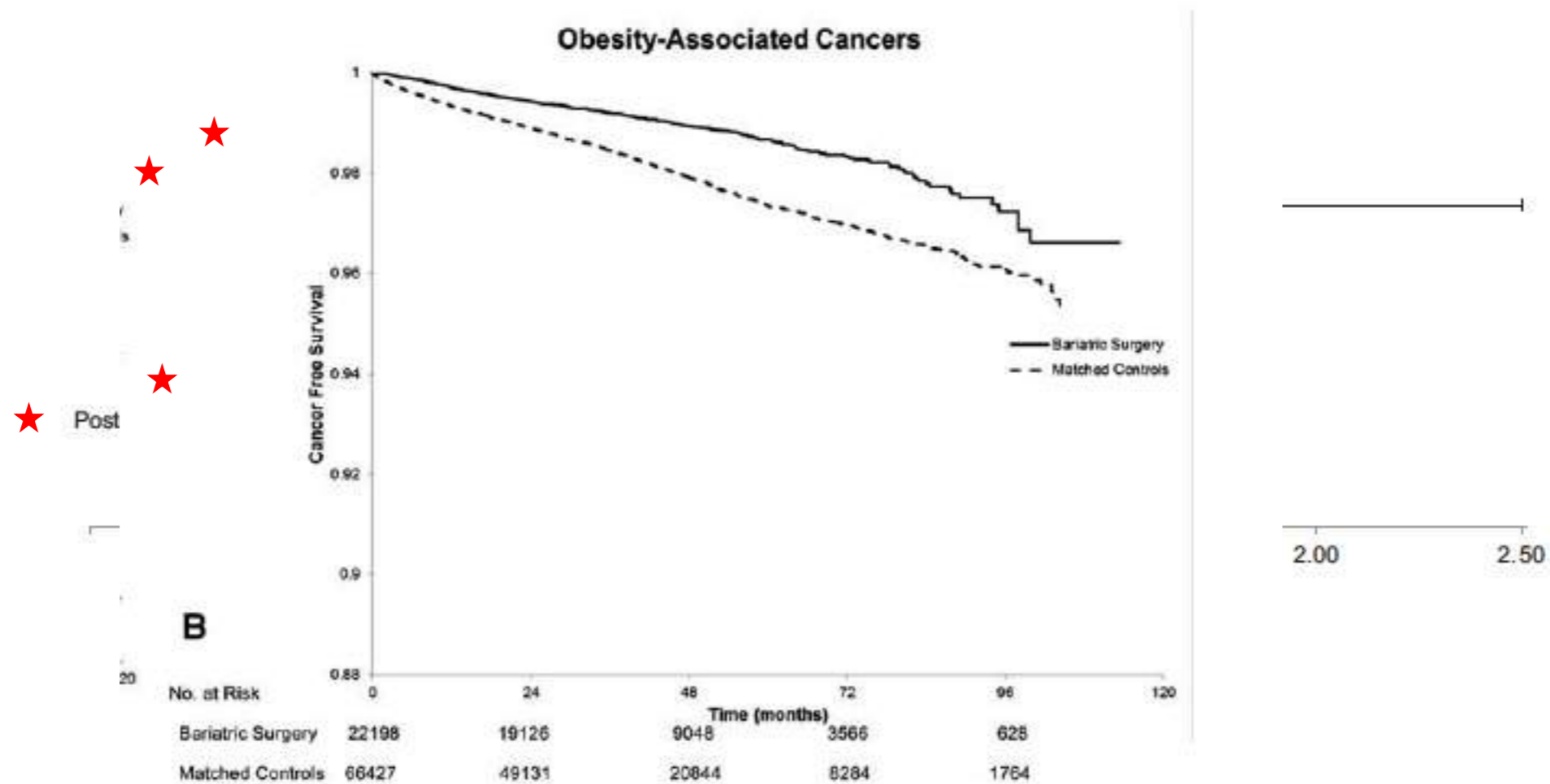
13 cancers are associated with overweight and obesity



Metabolic Surgery Outcomes: Cancer Risk

Schauer et al. Ann Surg 2017.

- 22198 patients had bariatric surgery vs. 66427 obese controls
- Bariatric surgery is associated with:
 - **33% reduction in risk of any cancer**
 - **41% reduction in risk of obesity-related cancer**



METABOLIC SURGERY FOR DIABESITY

HOW DOES IT WORK?

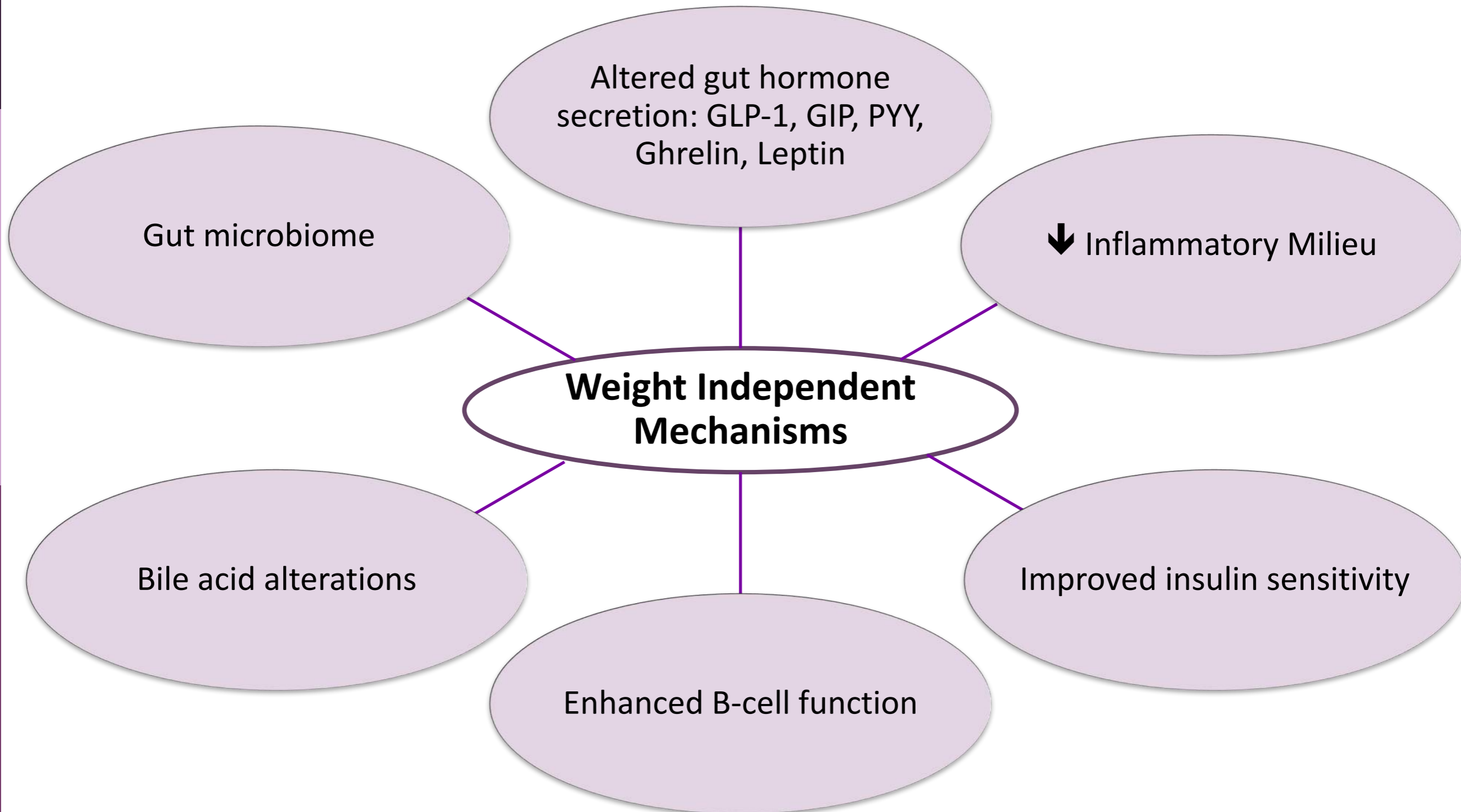
Metabolic Surgery & Type 2 Diabetes Remission Mechanism

- Weight loss
 - % Weight lost correlates to likelihood of T2DM remission
 - Weight gain after surgery is associated with recurrence of T2DM
- Weight independent mechanisms
 - Effect is immediate postoperatively
 - Leaner patients with T2DM attain similar remission rates
 - Higher remission rates for procedures where intestinal anatomy is altered compared to interventions with equivalent weight loss

Mingrone et al. Diabetes Metab 2009
Heneghan et al. Curr Atheroscler Rep 2012
Heneghan et al. Med Clin N Am 2017

Metabolic Surgery & Type 2 Diabetes Remission

Weight-independent Mechanisms



OBESITY & BARIATRIC SURGERY

OPPORTUNITIES FOR THE FUTURE

Obesity & Bariatric Surgery Research in Ireland



Obesity
Immunology Group



UCD DCRC
Diabetes Complications
Research Centre

**Obesity & Bariatric
Surgery Research**

Obesity & Cancer
Research Group



US-IRELAND
RESEARCH & DEVELOPMENT
PARTNERSHIP

THANK YOU