Long Term Outcomes of Metabolic Surgery

Is it good, bad, or indifferent?

Jeanne Lubbe
University of Stellenbosch and Tygerberg Hospital

"In a world deluged by irrelevant information, clarity is power"
Yuval Noah Harari

> 5yrs – Long term

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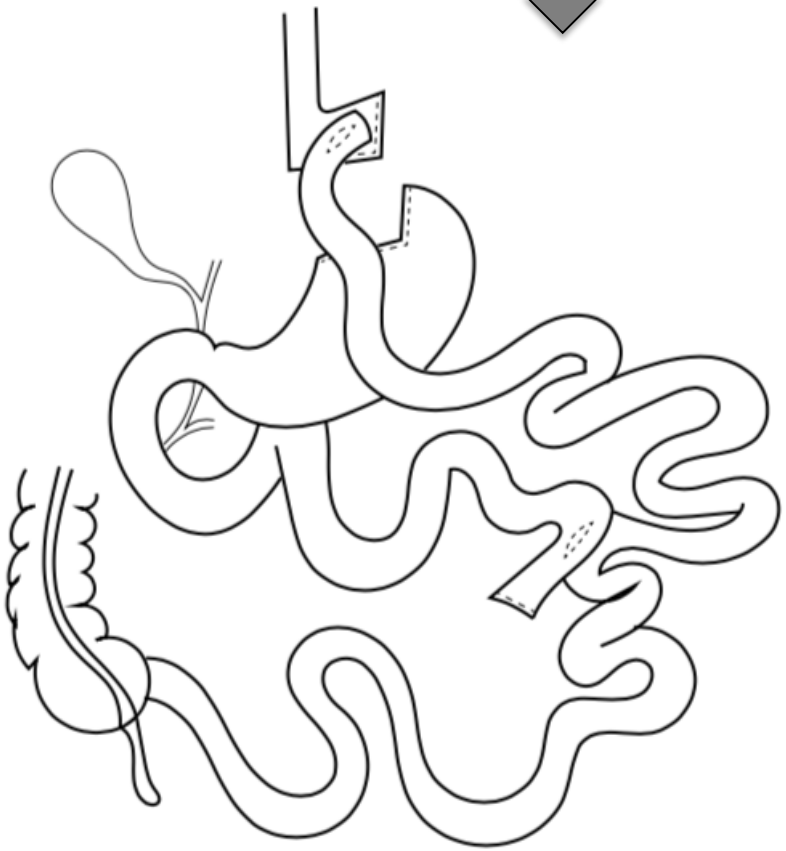


Weight as outcome is a problem

%TWL = ([Initial Weight]) – [Postoperative Weight]) / ([Initial Weight]) × 100

ΔBMI = [initial BMI] – [postoperative BMI]

%EBMIL = (ΔBMI / [Initial BMI - 25] x 100)

HEALTHY OBESE

Bariatric surgery versus non-surgical treatment for obesity: a systematic review and meta-analysis of randomised controlled trials

OPEN ACCESS

Viktoria L Gloy *junior researcher*[1], Matthias Briel *assistant professor*[1 2], Deepak L Bhatt *professor*[3], Sangeeta R Kashyap *associate professor of medicine*[4], Philip R Schauer *medical director, professor of surgery*[5], Geltrude Mingrone *professor*[6], Heiner C Bucher *director*[1], Alain J Nordmann *associate professor*[1]

Lifestyle modification – 1% - 10%

Metabolic Surgery - 35% - 40%

2 – 5 years

Bariatric Surgery for Weight Loss and Glycemic Control in Nonmorbidly Obese Adults With Diabetes

A Systematic Review

Melinda Maggard-Gibbons, MD, MSHS

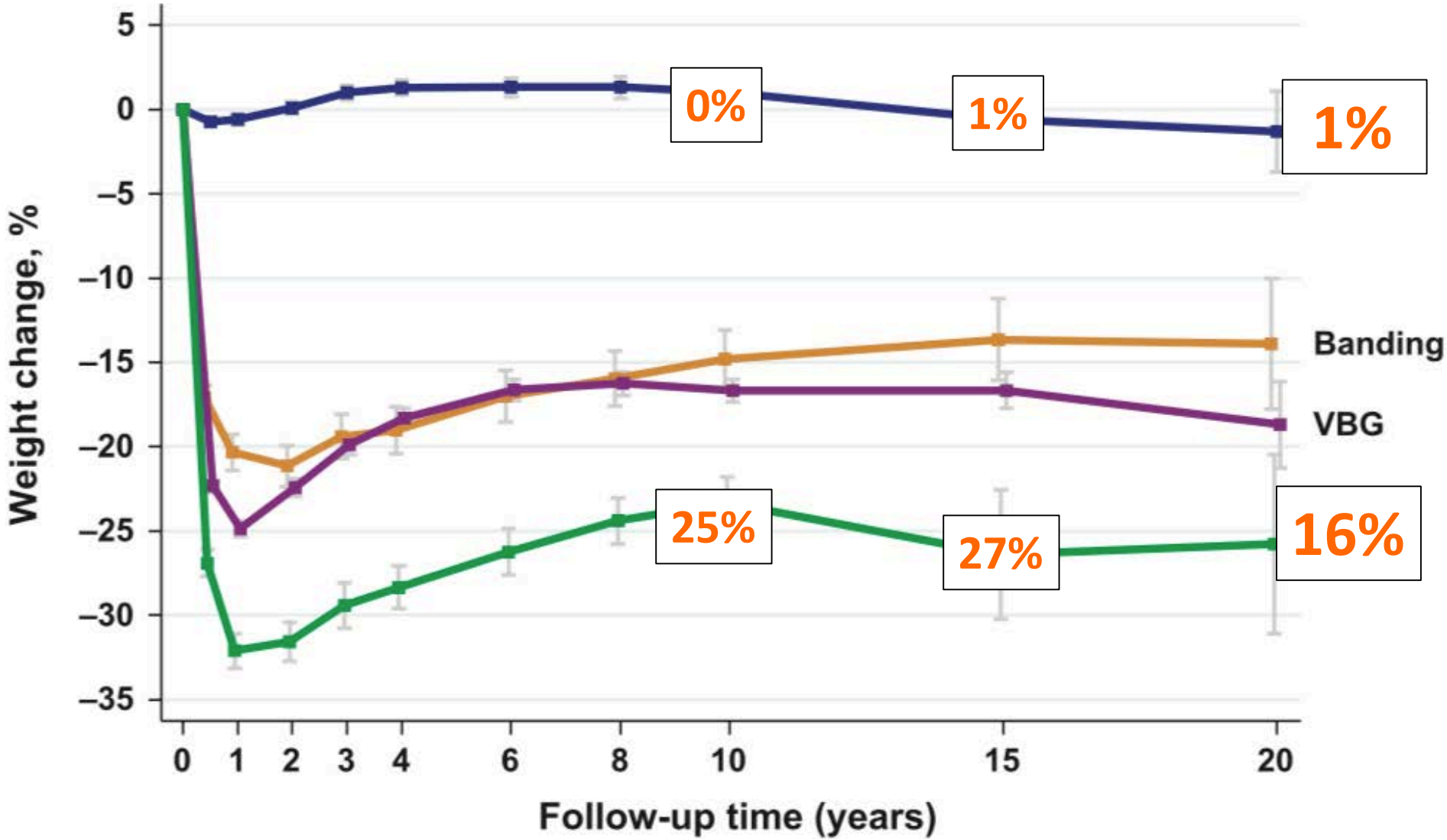
Importance Bariatric surgery is beneficial in persons with a body

Cochrane Library

Cochrane Database of Systematic Reviews

Surgery for weight loss in adults (Review)

Colquitt JL, Pickett K, Loveman E, Frampton GK



Swedish obesity study (SOS)

Original article

Long-term (11+ years) outcomes in weight, patient satisfaction, comorbidities, and gastroesophageal reflux treatment after laparoscopic sleeve gastrectomy

Gustavo A. Arman, M.D.[a,b,*], Jacques Himpens, M.D., Ph.D.[a,b], Jeroen Dhaenens, M.D.[a], Thierry Ballet, M.D.[b], Ramon Vilallonga, M.D., Ph.D.[a], Guido Leman, M.D.[a]

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110 SG - 11 years – 62.5% EWL

¼ patients had additional weight loss procedure

There is no consensus definition of

inadequate weight loss

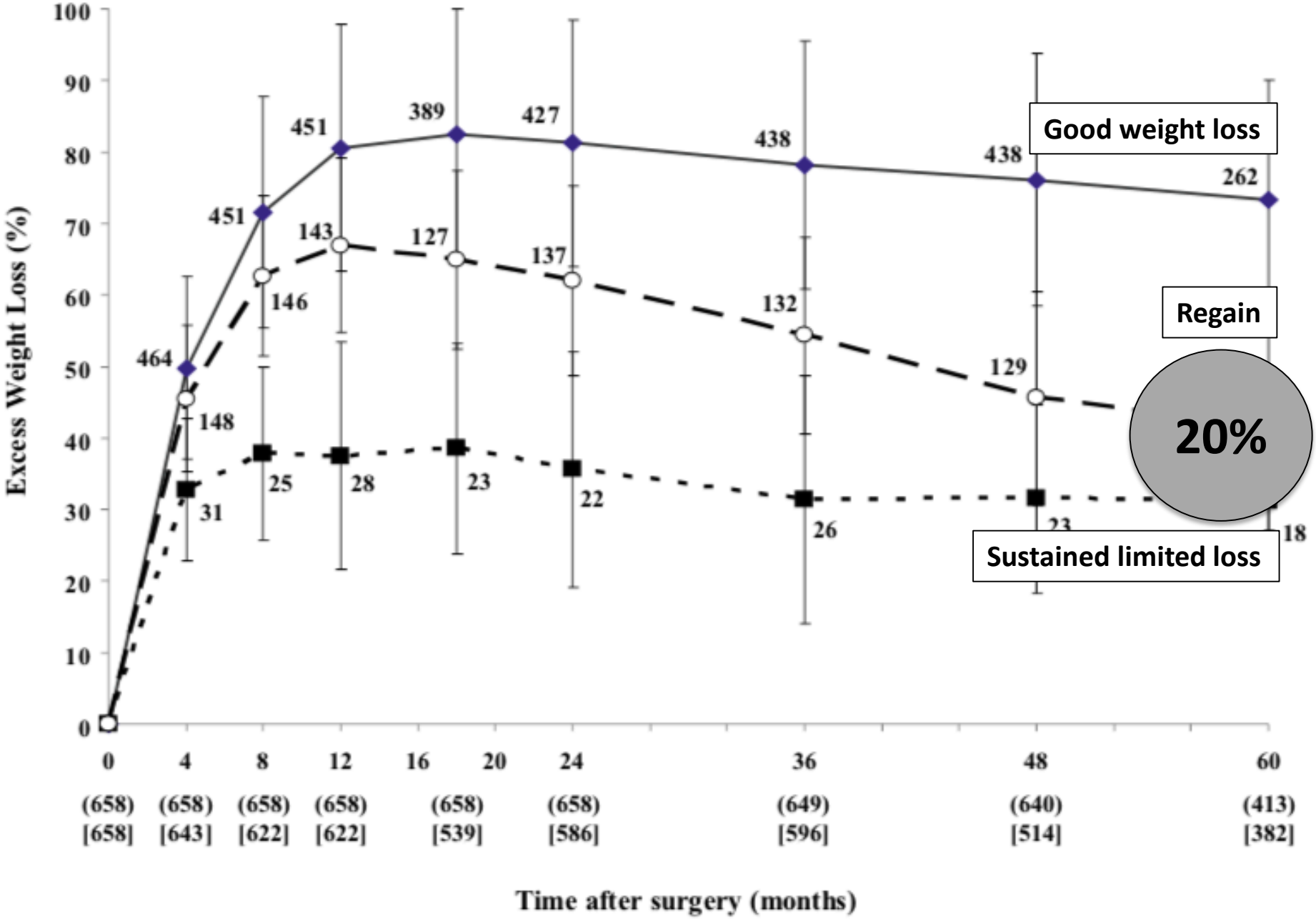
&

recidivism

< 50% excess weight loss

(Halverson and Koehler et al.)

20% gain weight back after 15-20 years


Excess Weight Loss (%)
100
90
80
70
60
50
40
30
20
10
0
464
451
451
389
427
438
438
262
148
146
143
127
137
132
129
31
25
28
23
22
26
23
18
Good weight loss
Regain
Sustained limited loss
20%
0
4
8
12
16
20
24
36
48
60
(658) [658]
(658) [643]
(658) [622]
(658) [622]
(658) [539]
(658) [586]
(649) [596]
(640) [514]
(413) [382]
Time after surgery (months)

Maggard-Gibbons M, Maglione M, Livhits M, et al. Bariatric surgery for weight loss and glycemic control in nonmorbidly obese adults with diabetes: a systematic review. **JAMA. 2013**

Yip S, Plank LD, Murphy R. Gastric bypass and sleeve gastrectomy for type 2 diabetes: a systematic review and meta-analysis of outcomes. **Obes Surg. 2013**

Ricci C, Gaeta M, Rausa E, et al. Long-term effects of bariatric surgery on type II diabetes, hypertension and hyperlipidemia: a meta-analysis and meta-regression study with 5-year follow-up. **Obes Surg. 2015**

Wu GZ, Cai B, Yu F, et al. Meta-analysis of bariatric surgery versus non-surgical treatment for type 2 diabetes mellitus. **Oncotarget. 2016**

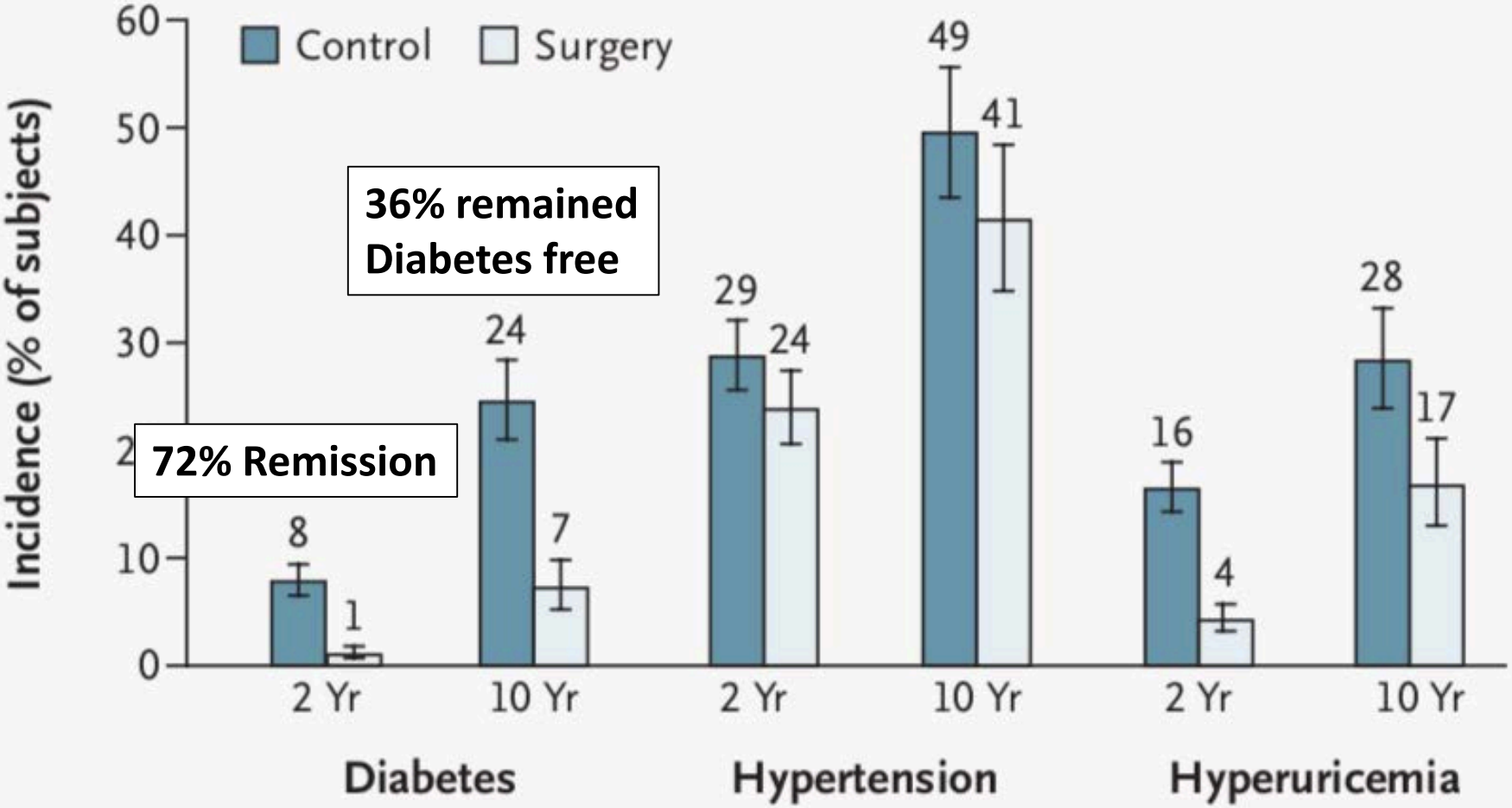
Mean reduction in HbA1c level

2% surgery vs. 0.5% medical

Less medications

Increased remission

(odds ratio of 22.1)



No. of subjects						
Control	1402	539	770	279	1017	382
Surgery	1489	517	623	215	1044	342
Odds ratio	0.14	0.25	0.78	0.75	0.22	0.49
95% CI	0.08–0.24	0.17–0.38	0.60–1.01	0.52–1.08	0.15–0.31	0.34–0.71
P value	<0.001	<0.001	0.06	0.13	<0.001	<0.001

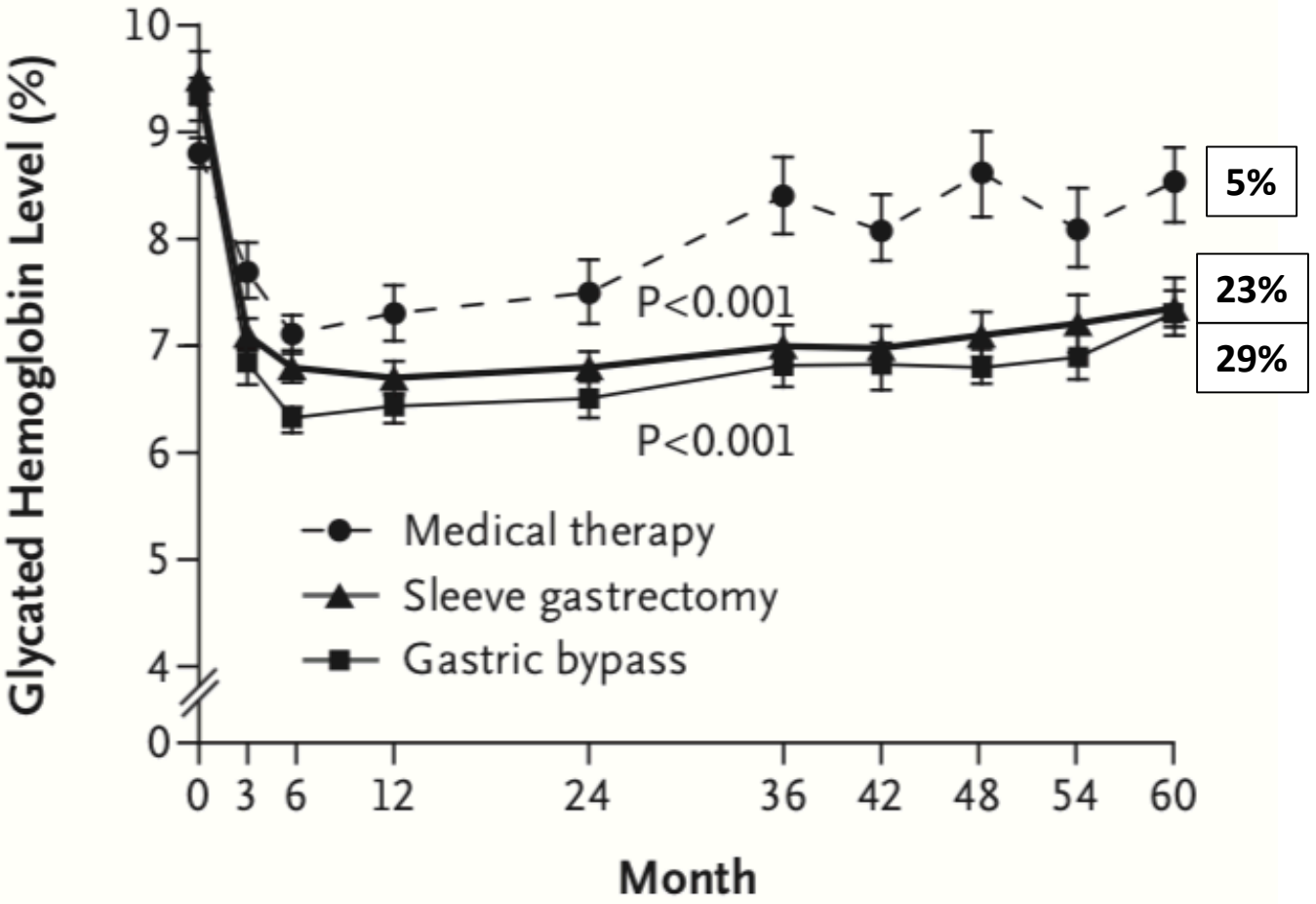
The Long-Term Effects of Bariatric Surgery on Type 2 Diabetes Remission, Microvascular and Macrovascular Complications, and Mortality: a Systematic Review and Meta-Analysis

Binwu Sheng [1] · Khoa Truong [2] · Hugh Spitler [2] · Lu Zhang [2] · Xuetao Tong [3] · Liwei Chen [2]

After 15 years still 6 times more likely to be in remission if operated

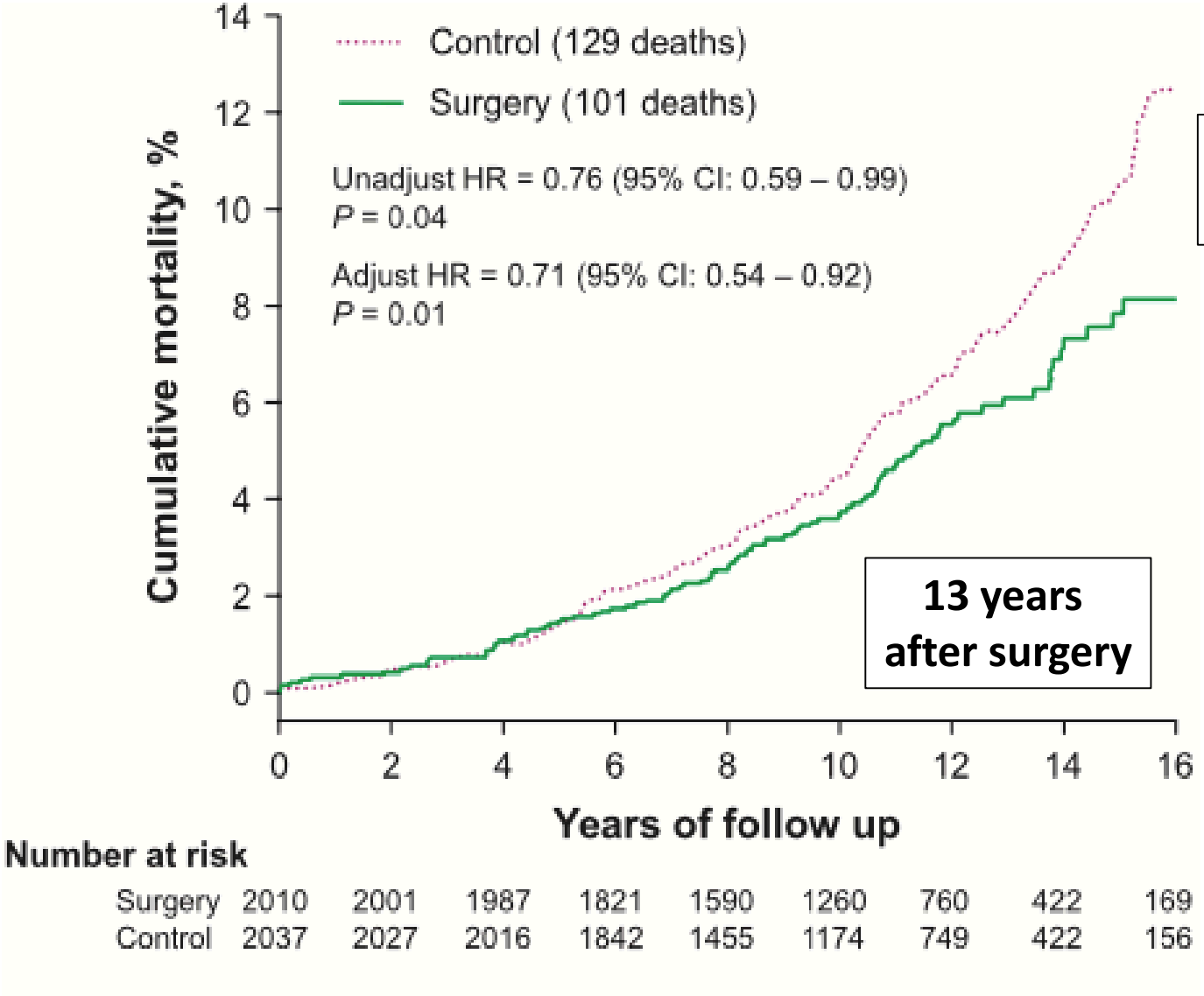
Survival benefit remained

STAMPEDE – Surgical Treatment and Medication Potentially Eradicate Diabetes Efficiently



Mean (median) Value at Visit						
Medical therapy	8.8 (8.6)	7.3 (6.8)	7.5 (7.2)	8.4 (7.7)	8.6 (8.2)	8.5 (8.0)
Gastric bypass	9.3 (9.4)	6.4 (6.2)	6.5 (6.4)	6.8 (6.6)	6.8 (6.8)	7.3 (6.9)
Sleeve gastrectomy	9.5 (8.9)	6.7 (6.4)	6.8 (6.8)	7.0 (6.7)	7.1 (6.6)	7.4 (7.2)

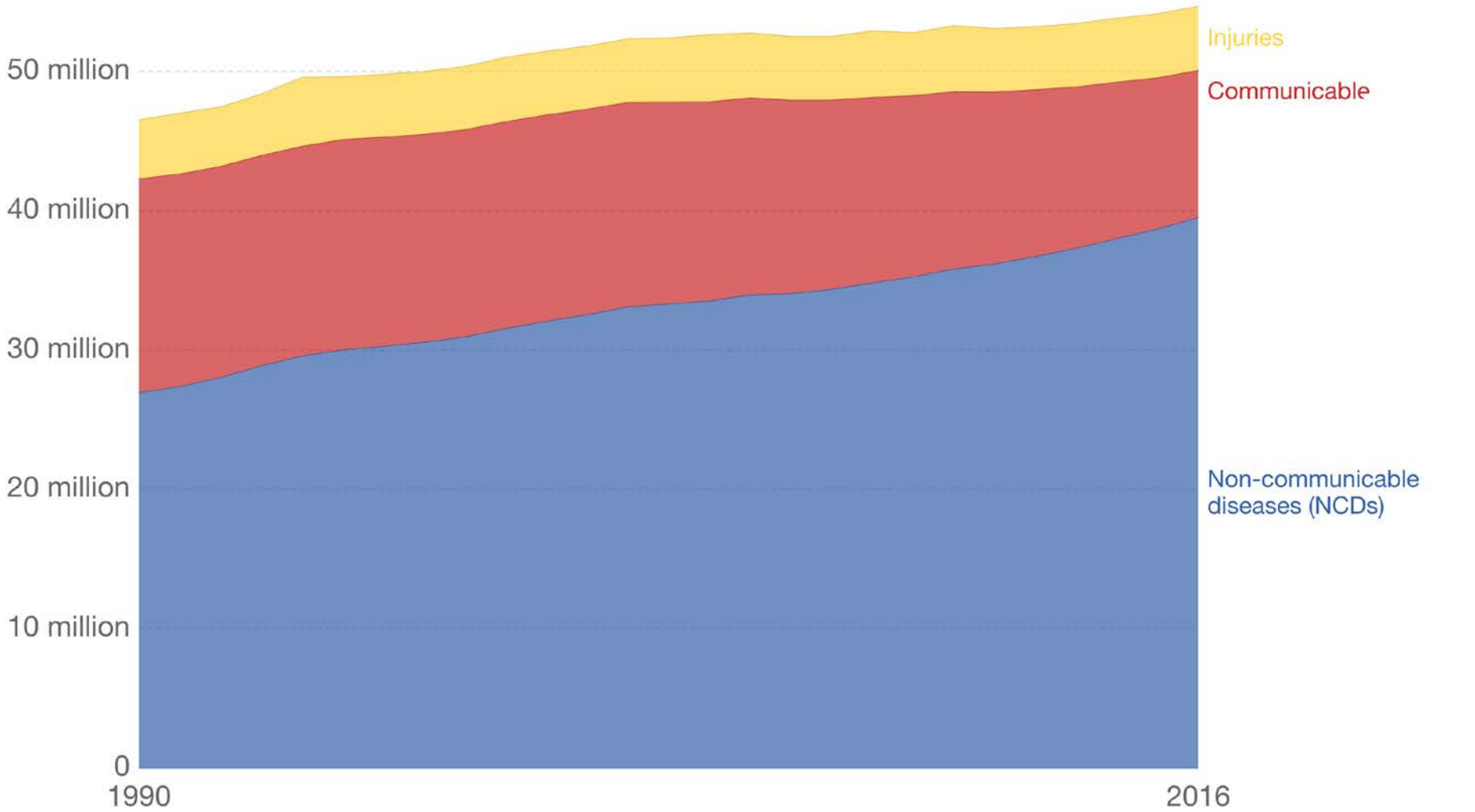
Cardiovascular disease and cancers



29% reduced risk of death

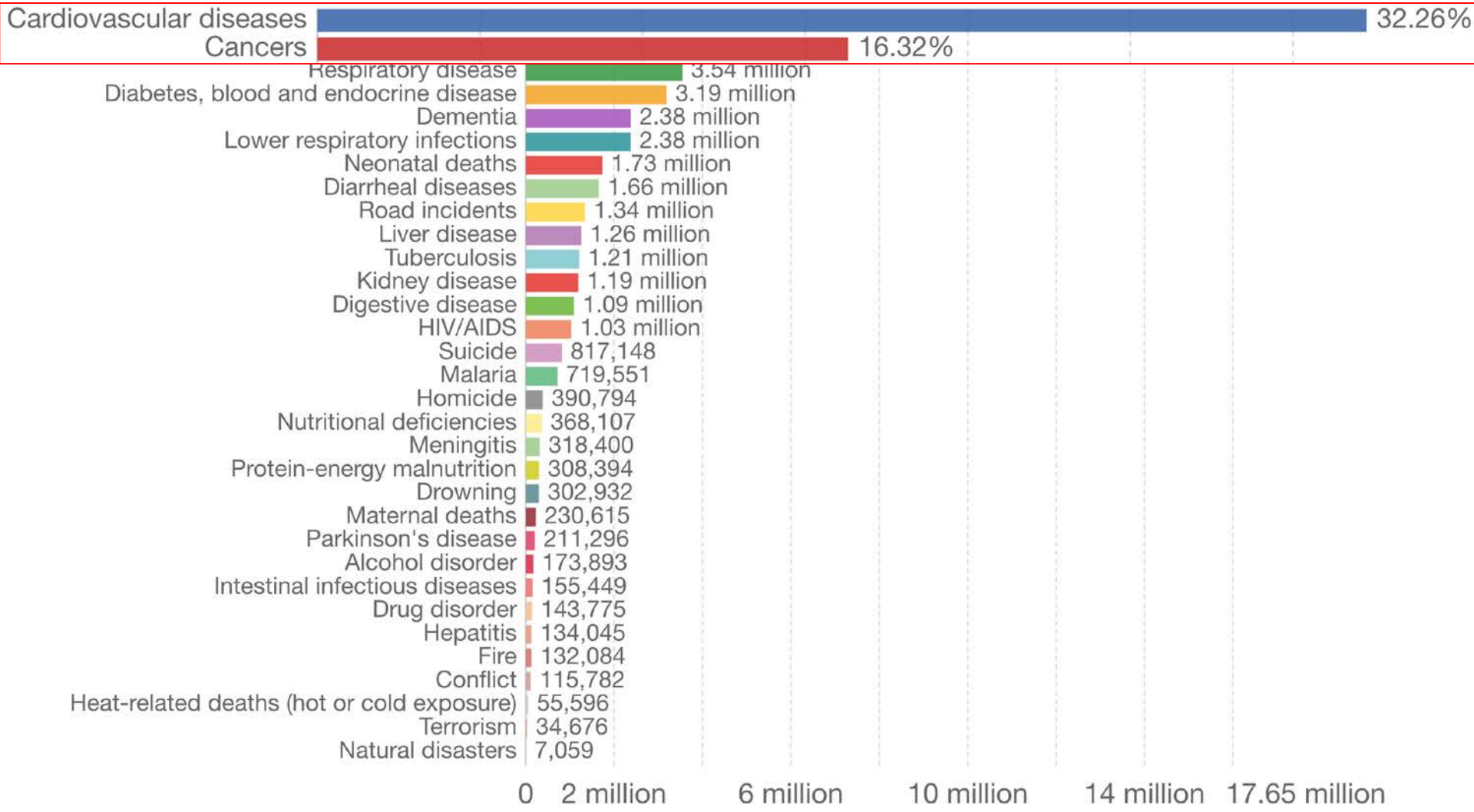
13 years after surgery

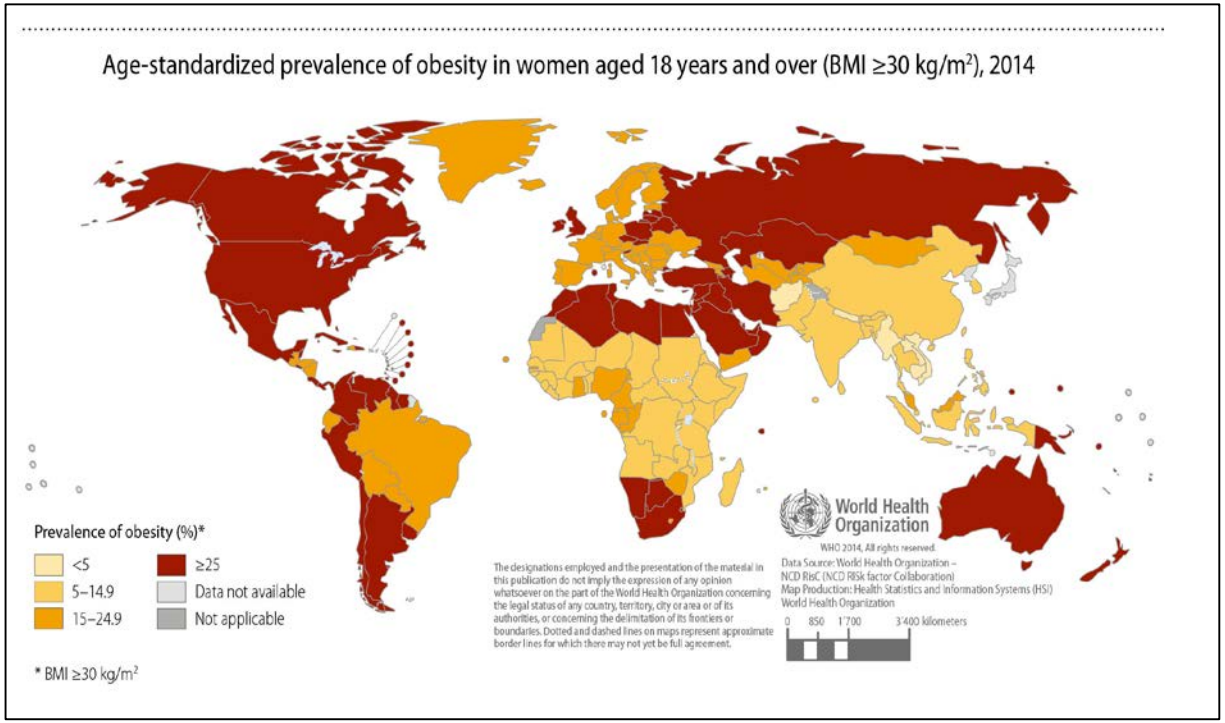
Total number of deaths by cause, World



Source: IHME, Global Burden of Disease

Annual number of deaths by cause, World, 2016





2013 Global Burden of Disease Study SA:

- **7 in 10 women (69.3%) BMI>25**
- **4 in 10 men (38.8%) BMI>25**
- **30% aged 30-59 years BMI>30**
- **9.6% girls and 7% boys BMI>30**

STATS SA 2017:

- **T2D leading natural cause of death in the Western Cape**

Endocrine Society of South Africa in 2018:

- **Number of people living with T2D estimated to increase by 140% by 2040**

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Is it good, bad, or indifferent?

It is the best we've got at the moment