

Welcome & Overview

Amir Ghaferi, MD, MSc, MBA

Director, MBSC
Moses Gunn, MD Professor of Surgery,
University of Michigan



M B S C

2022
Obesity
Summit

sponsored by **BCBSM / BCN**

Welcome and thank you!

› Attendees- 374

- PCPs- 132
- PO participants (Medical Directors, NPs, PAs, RNs, Quality, etc.) – 95
- 31/40 POs in the state of Michigan represented
- BCBSM- 12
- Partnering CQIs- 34
- MBSC Bariatric surgeons- 24
- MBSC Allied Health- 62
- Guest speakers- 16

› Thank you BCBSM/BCN!!

Today's format

- › Agenda included in the program booklet
 - 4 sessions with 3-4 speakers
 - Please hold your questions for the end of each session
 - Please use the microphones placed around the room when asking questions
- › Breaks
 - Encourage you visit the CQI Fair
 - Tweet about today on your social media platforms #ObesitySummit22
- › Provider survey
 - Please complete the survey today and leave at your table
- › Wifi password:
 - Network: Suburban Collection Showplace
 - Username: mbsc2022
 - Password: mbsc2022
- › Meeting will be recorded
- › Any questions: mbsc.help@umich.edu

Obesity



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Goals

- › Build relationships among colleagues
- › Improve communication between providers
- › We want to hear from you today about how we can optimize obesity care in Michigan



SESSION I

The Burden of Obesity

Moderator:
Oliver Varban, MD



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THE EPIDEMIOLOGY OF OBESITY

Dina Griauzde, MD, MSc

Assistant Professor, Department of Internal
Medicine

University of Michigan

Diplomate, American Board of Obesity
Medicine

Research Director, Michigan Medicine
Weight Navigation Program

Co-Medical Director, MOVE! Medication
Program, VA Ann Arbor Healthcare System



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Rising Obesity in the United States Is a Public Health Crisis



Rising Obesity in the United States Is a Public Health Crisis

Obesity Linked to Severe Coronavirus Disease, Especially for Younger Patients

Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.



Rising Obesity in the United States Is a Public Health Crisis

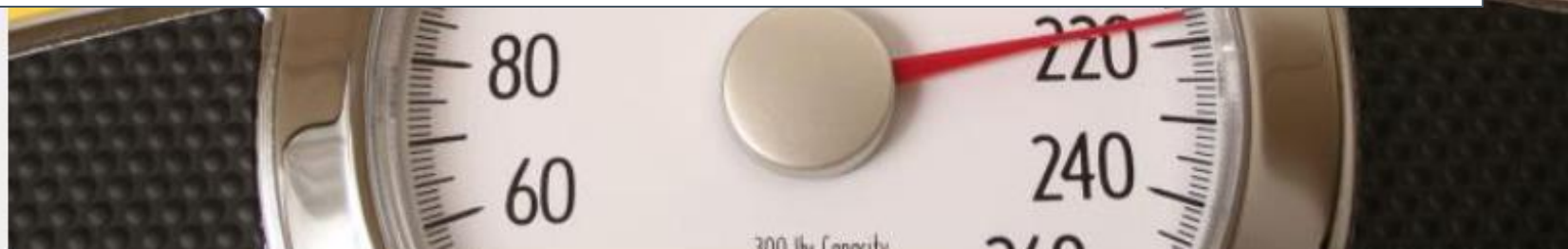
Obesity Linked to Severe Coronavirus Disease, Especially for Younger Patients



Stateline

Pandemic Health Inequities Expose Need for Greater Obesity Prevention

STATELINE ARTICLE | September 29, 2021 | By: [Christine Vestal](#)



Rising Obesity in the United States Is a Public Health Crisis

Obesity Linked to Severe Coronavirus Disease, Especially for Younger Patients



Stateline

Pandemic Health Inequities Expose Need for Greater Obesity Prevention

STATELINE ARTICLE | September 29, 2021 | By: [Christine Vestal](#)

U.S. Life Expectancy Falls Again in 'Historic' Setback

The decline during the pandemic is the sharpest in nearly 100 years, hitting American Indian and Native Alaskan communities particularly hard.



Overview

1. Definition of obesity
2. Prevalence of obesity
3. Obesity Disparities
4. Economic Burden

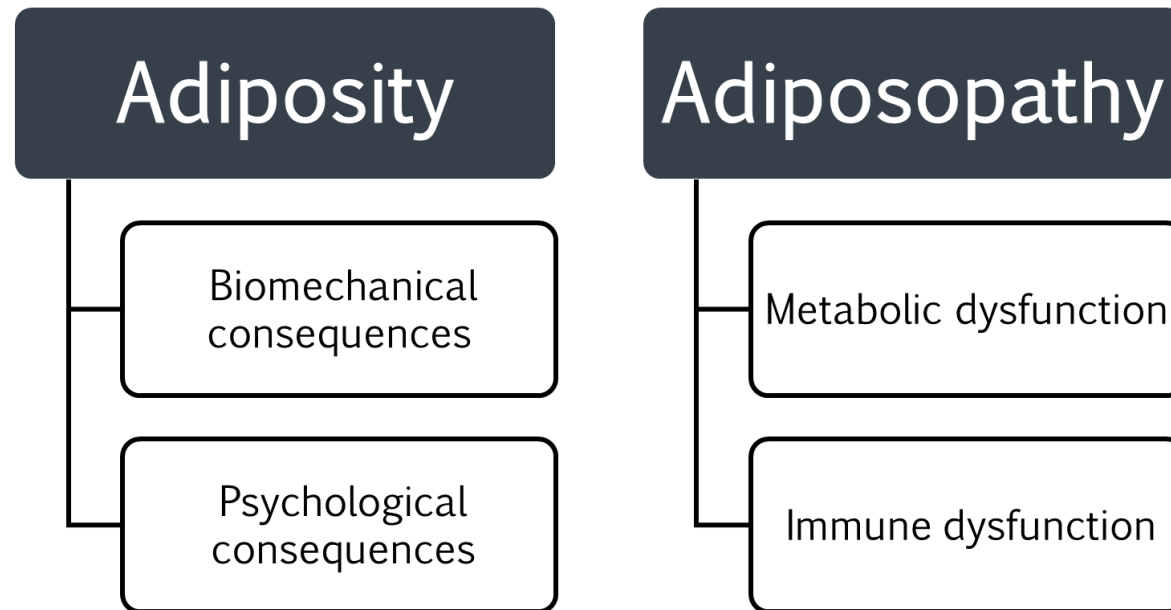
Obesity Itself is a Disease

Complex, chronic, often relapsing, disease with
multifactorial etiologies
(behavioral, genetic, environmental, neurohormonal, socioeconomic)

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Complex, chronic, often relapsing, disease with
multifactorial etiologies

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Adult Obesity Defined by BMI

WHO CLASSIFICATION OF WEIGHT STATUS	
WEIGHT STATUS	BODY MASS INDEX (BMI), kg/m ²
Underweight	<18.5
Normal range	18.5 – 24.9
Overweight	25.0 – 29.9
Obese	≥ 30
Obese class I	30.0 – 34.9
Obese class II	35.0 – 39.9
Obese class III	≥ 40

Adult Obesity Defined by BMI

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Obese class III	≥ 40

Pediatric obesity: BMI percentile $\geq 95^{\text{th}}$ percentile

Pediatric severe obesity: 120% of the 95th percentile

Limitations of BMI

Why You Should Stop Assuming Size Has Anything to Do with Health

Learn to embrace the Health at Every Size principles, and stop judging people based on their size.

by **TESSA YANNONE** • 1/24/2020, 3:37 p.m.

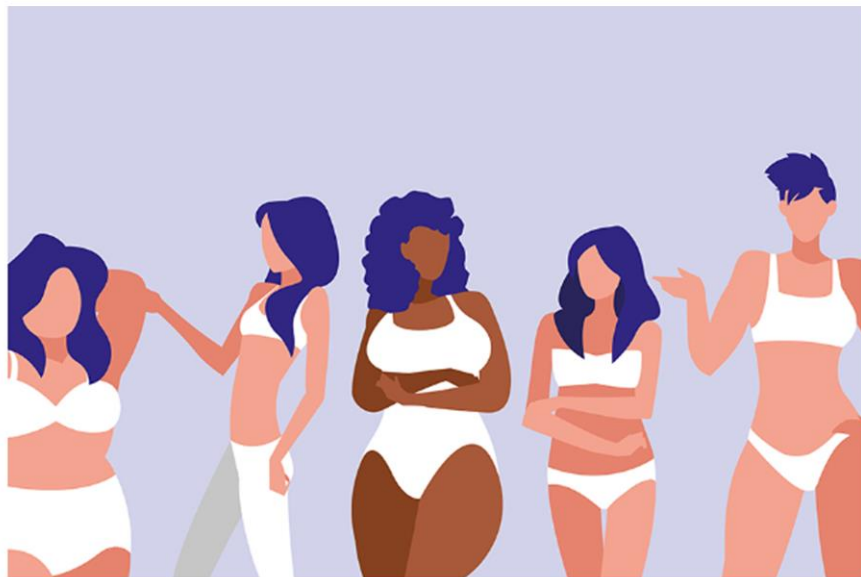


Photo via Getty Images

Limitations of BMI

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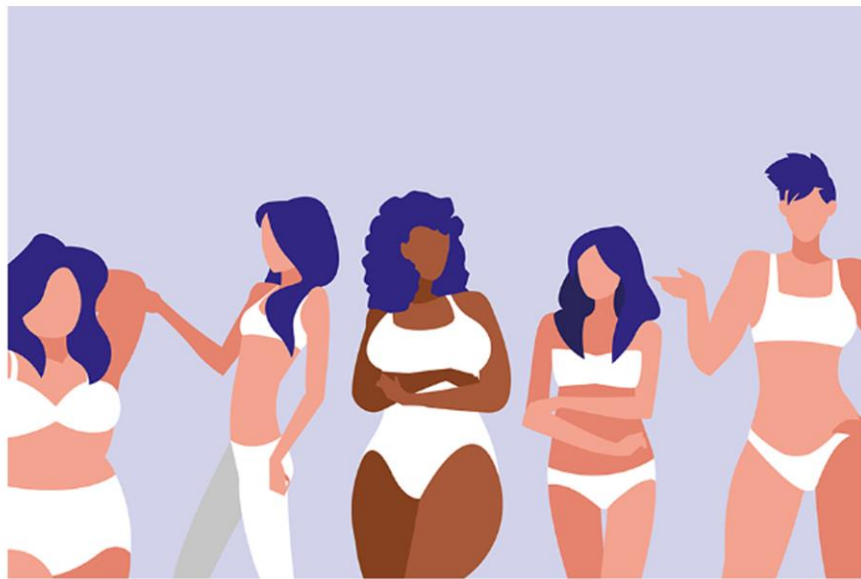
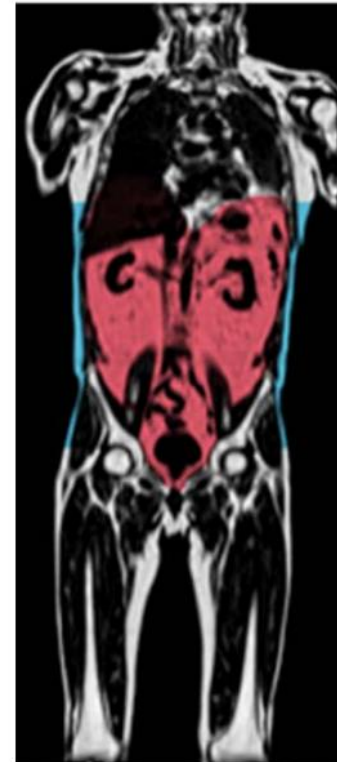


Photo via Getty Images

67 year old male
BMI 25 kg/m²
Visceral fat 2.58 L/m²



53 year old male
BMI 30 kg/m²
Visceral fat 0.88 L/m²

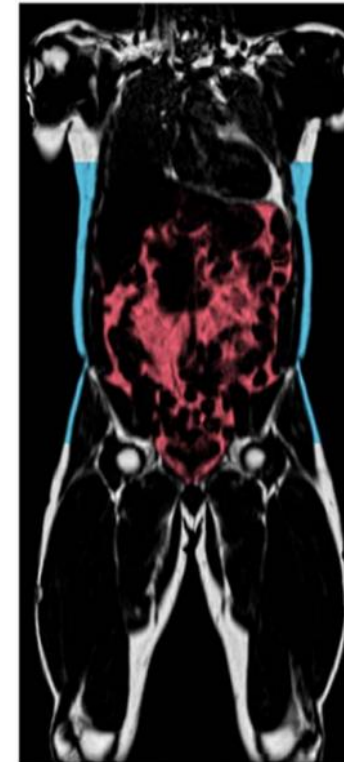


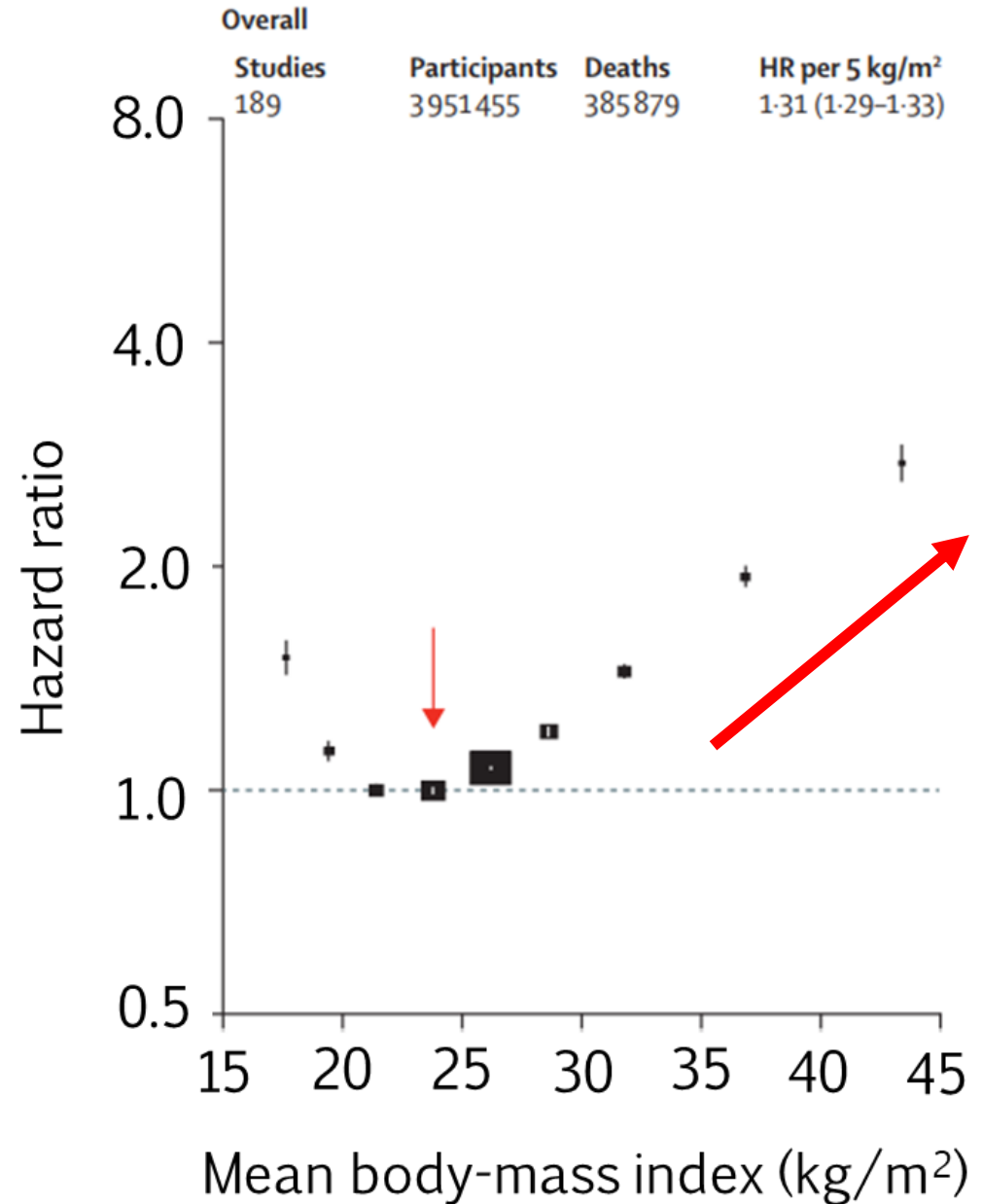
Figure 1. Extreme variation in abdominal fat distribution.

BMI AND ALL-CAUSE MORTALITY

Meta-analysis

- 239 studies
- 4 continents
- >10 million people

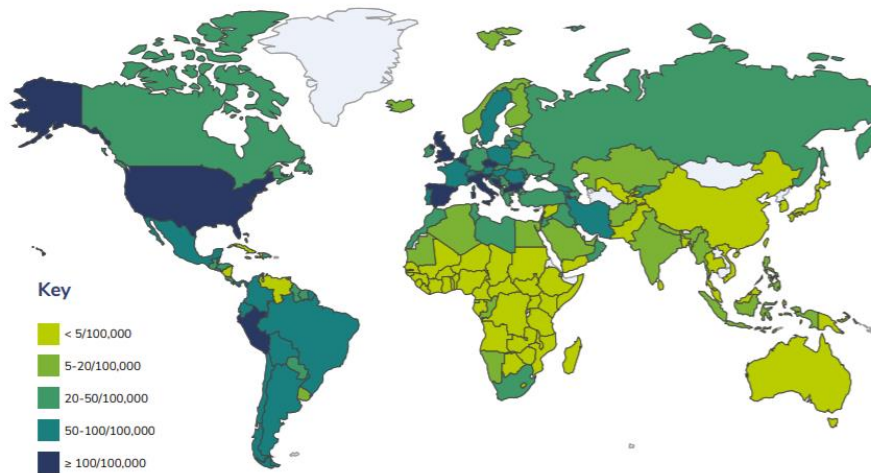
All-cause mortality increased ~log-linearly with BMI > 25



BMI and COVID-19 Mortality

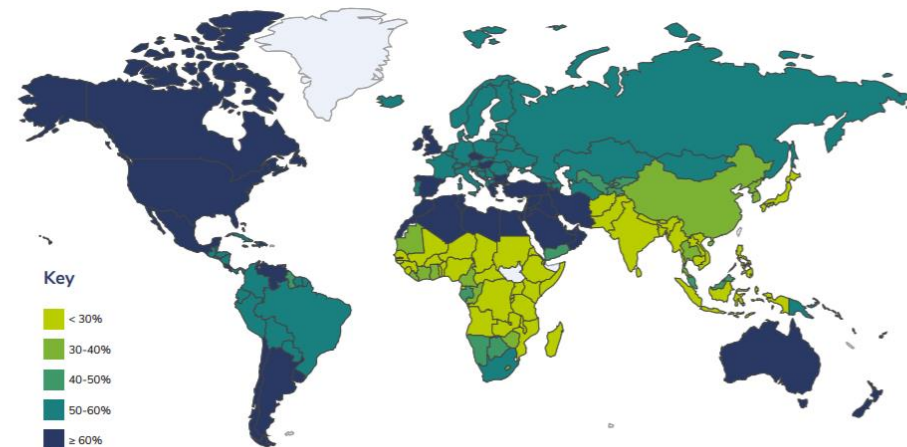
1. COVID-19 mortality

Deaths per 100,000 population



2. Prevalence of overweight in adults

Adult overweight BMI > 25kg/m²



10x higher in countries where > 50% of adults with overweight (BMI ≥ 25 kg/m²)

GLOBAL OBESITY PREVALENCE

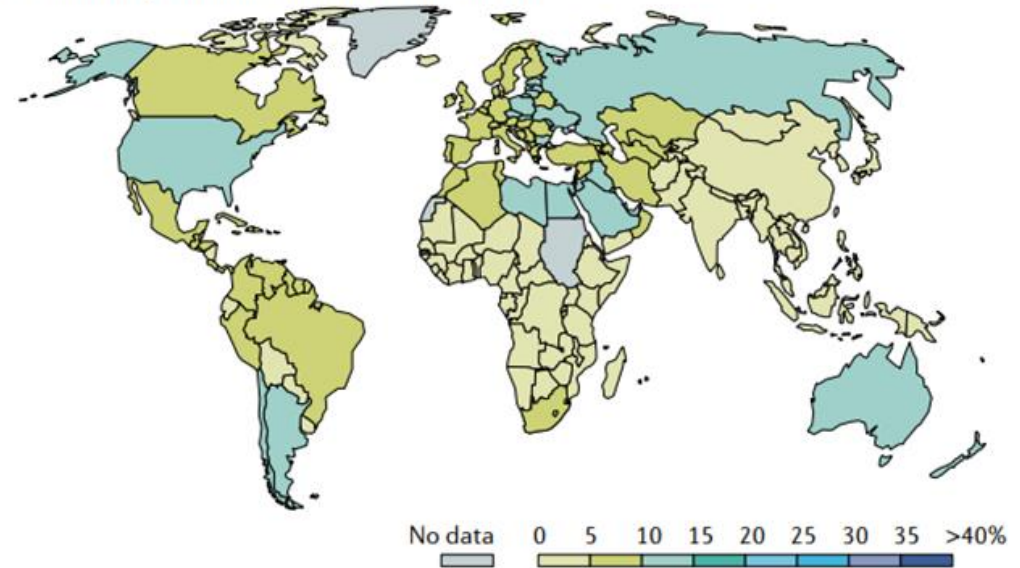
~3x higher than 1975

2016:

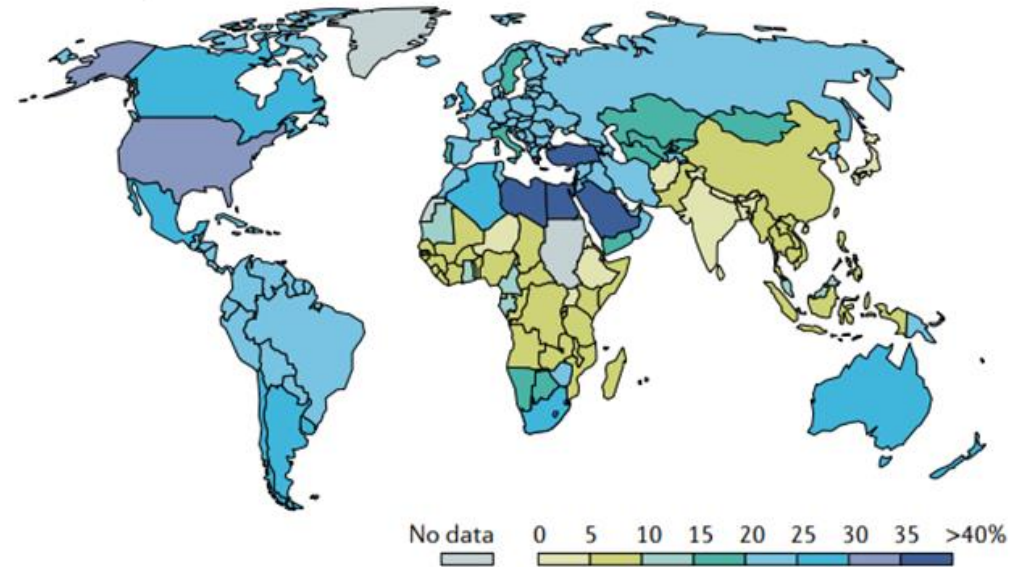
~2 billion adults with overweight (39%)

650 million adults with obesity (13%)

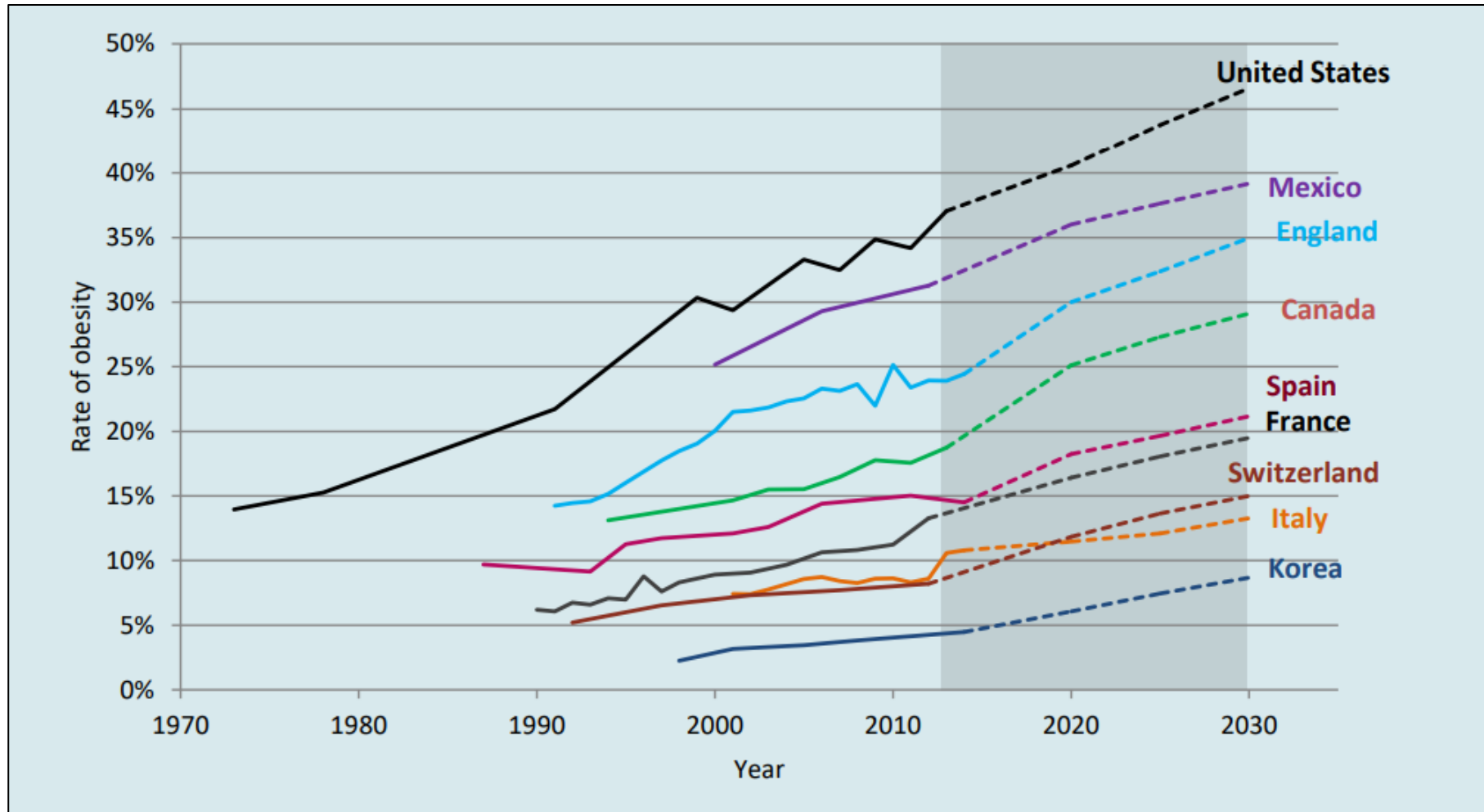
a Percentage of adults defined as obese, 1975



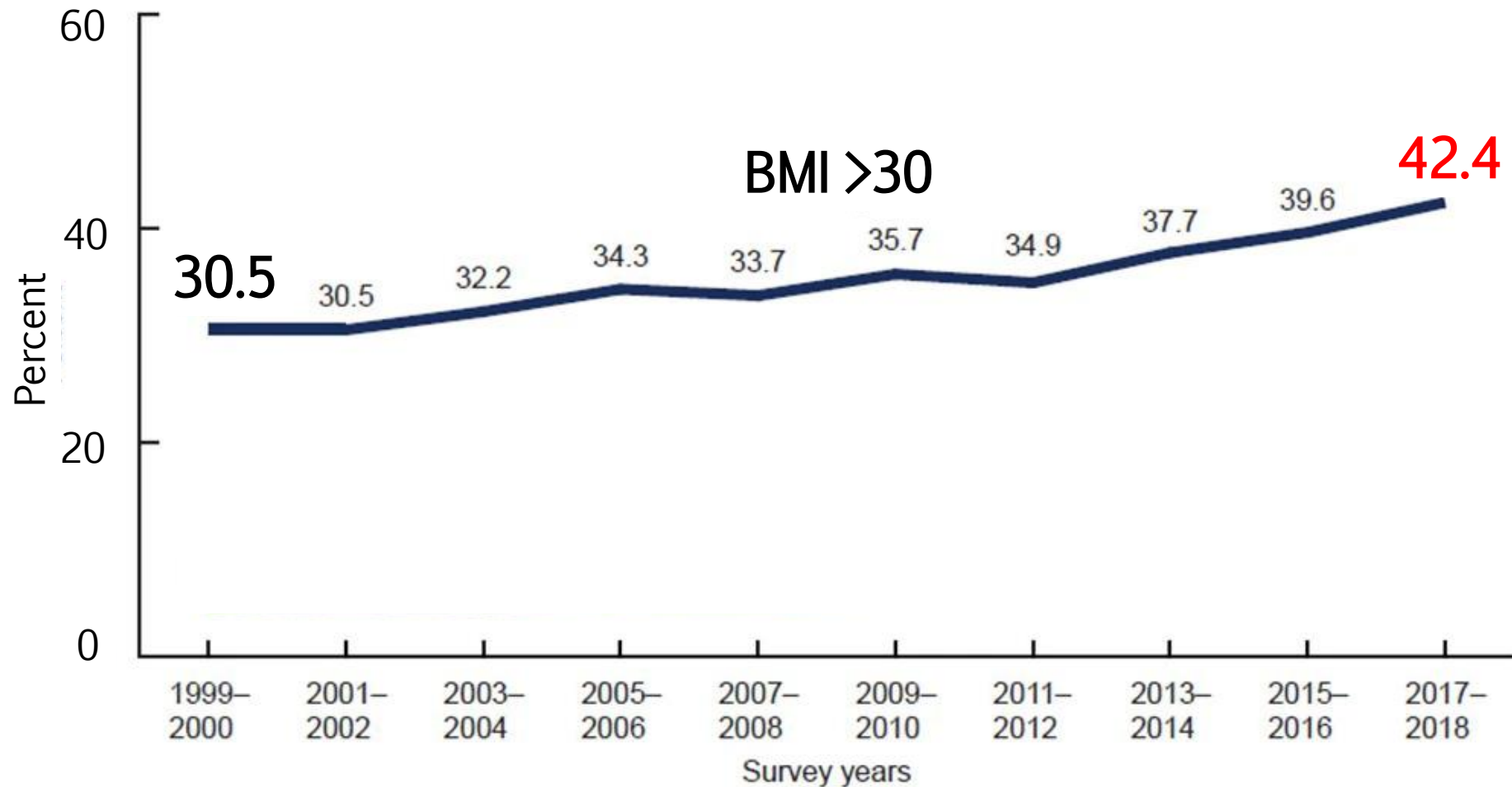
b Percentage of adults defined as obese, 2014



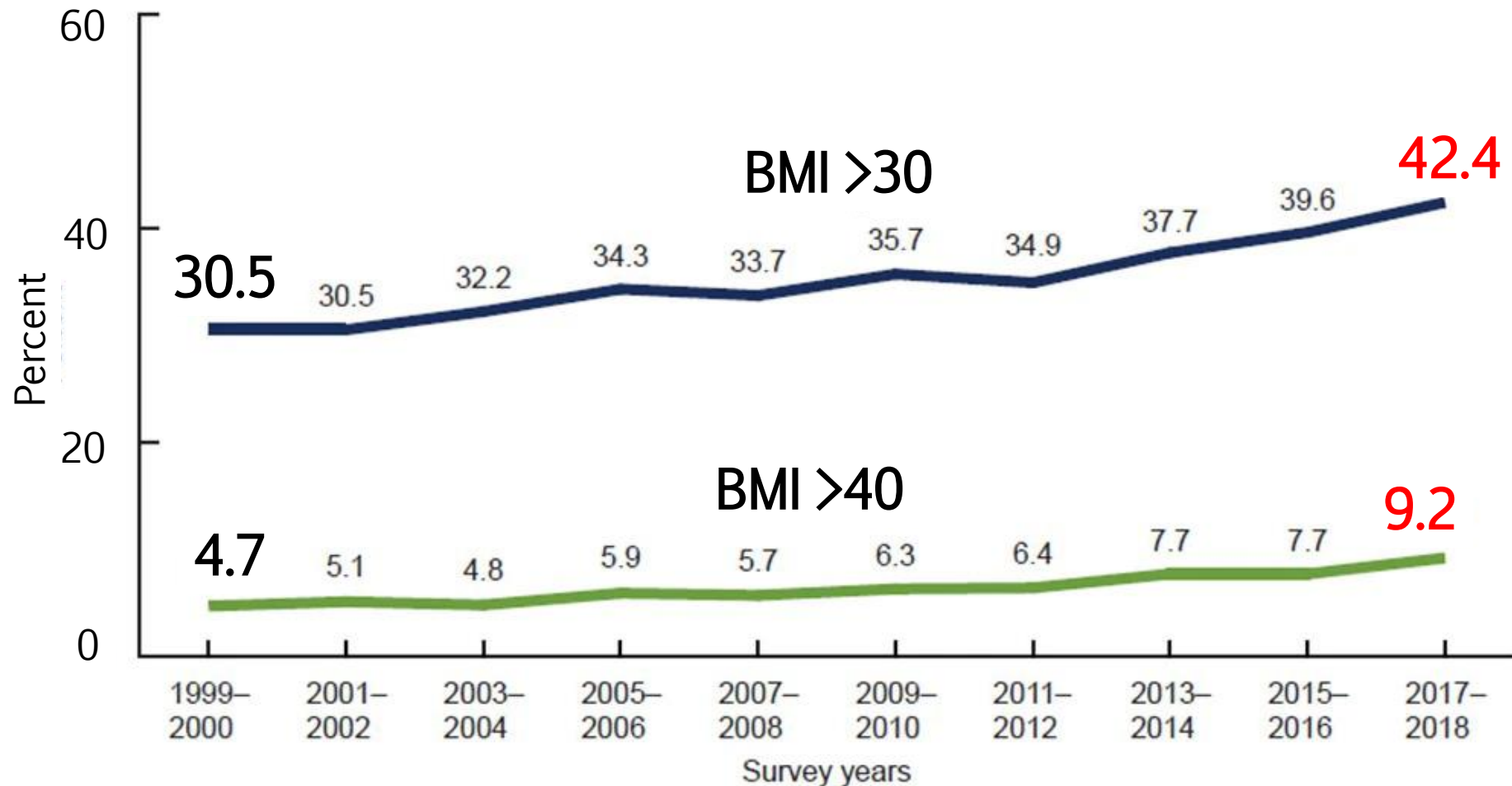
Projected Global Increase Through 2030



Adult Obesity in the U.S.

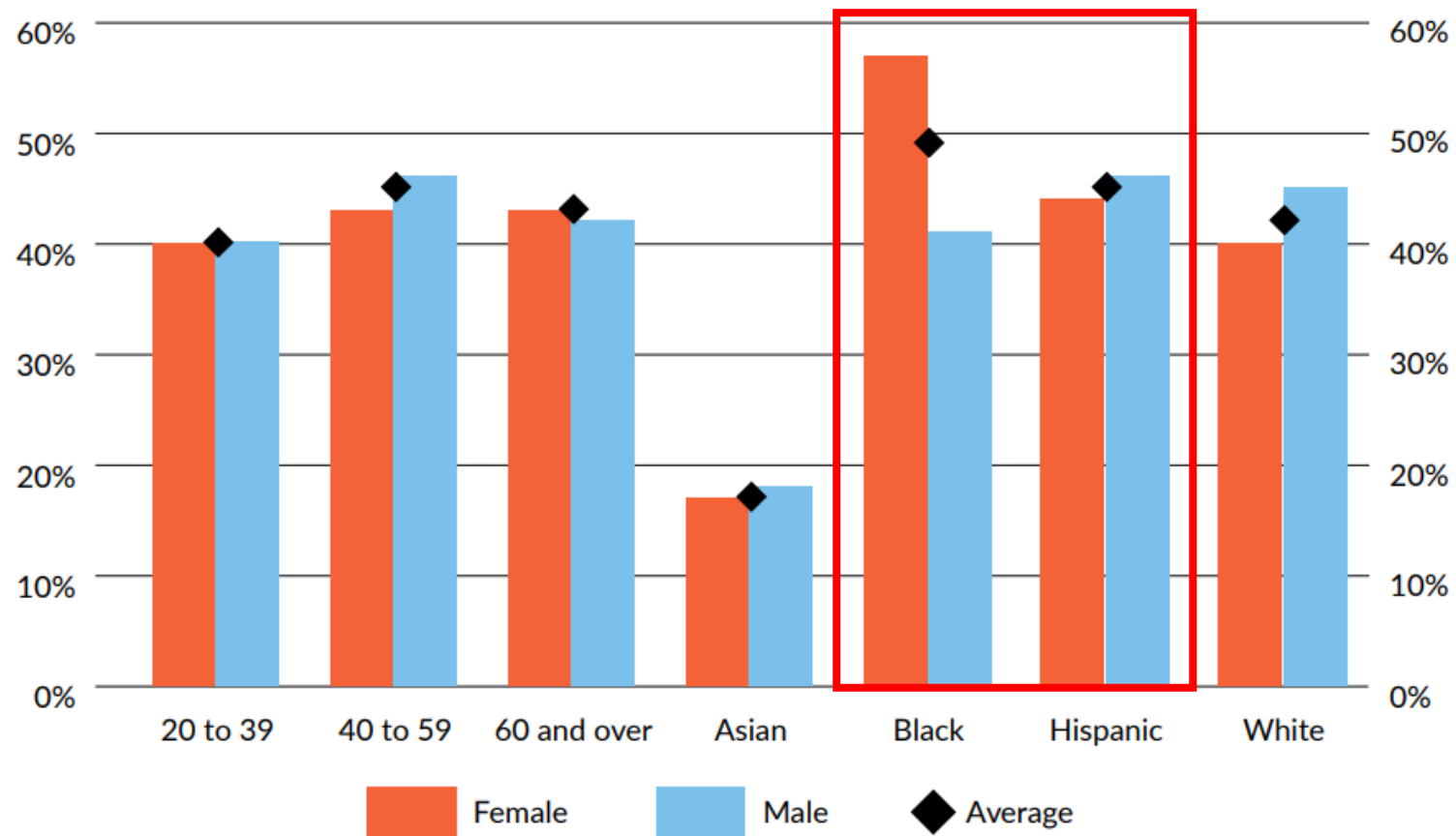


Adult Obesity in the U.S.

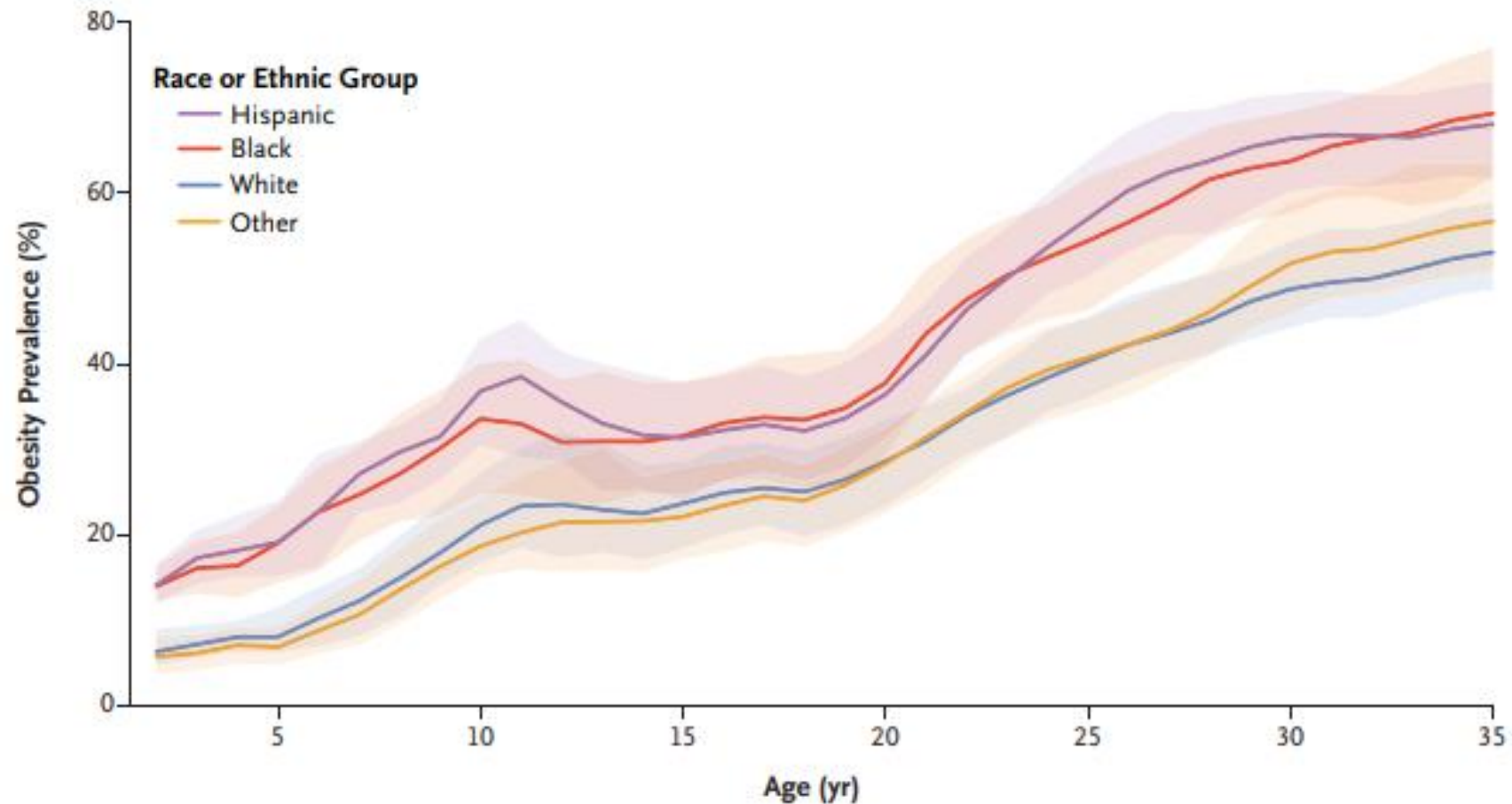


Disparities in Obesity Prevalence

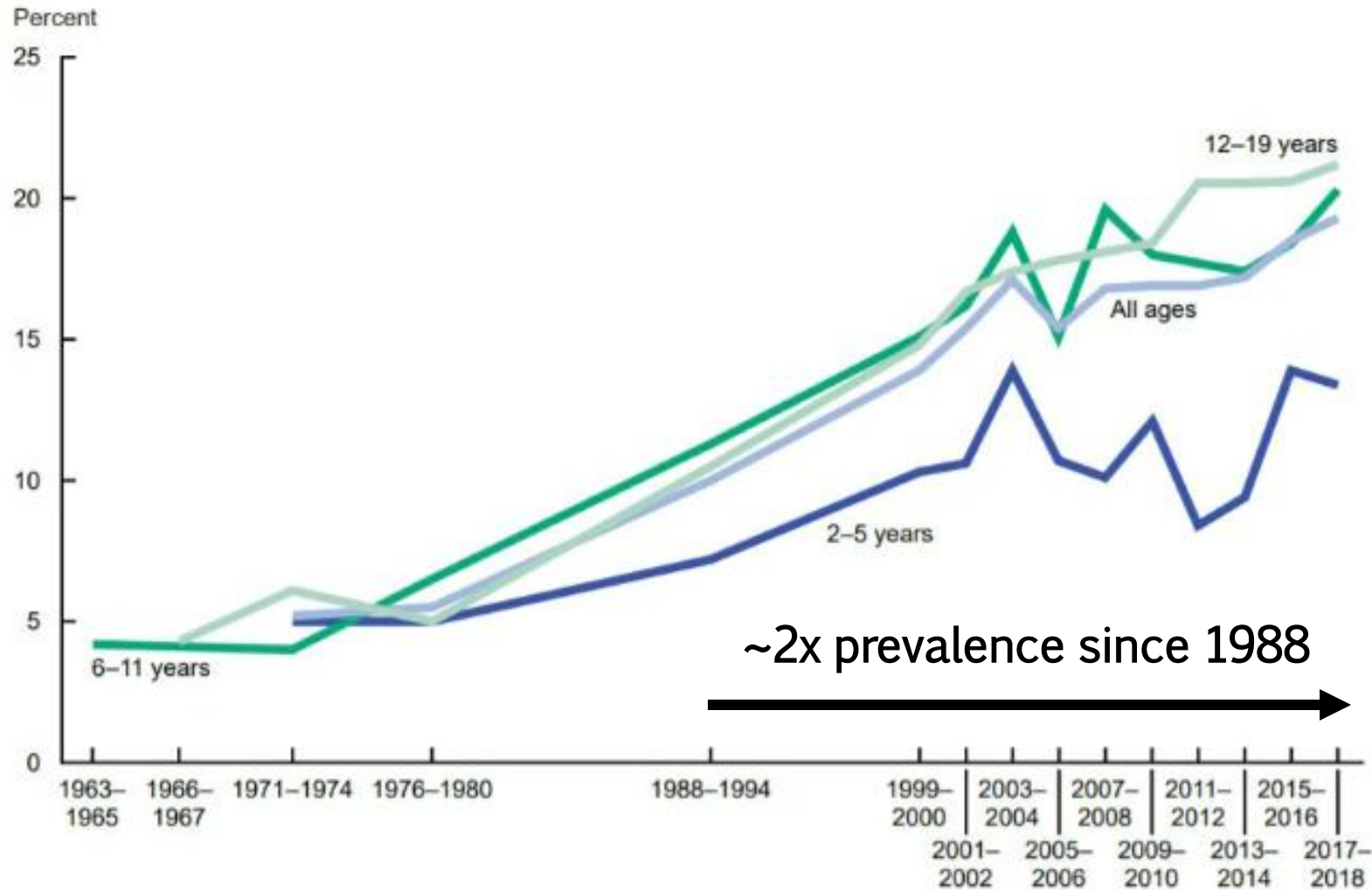
Figure 2: Adults with Obesity (BMI \geq 30), by Age, Gender, and Race for 2018



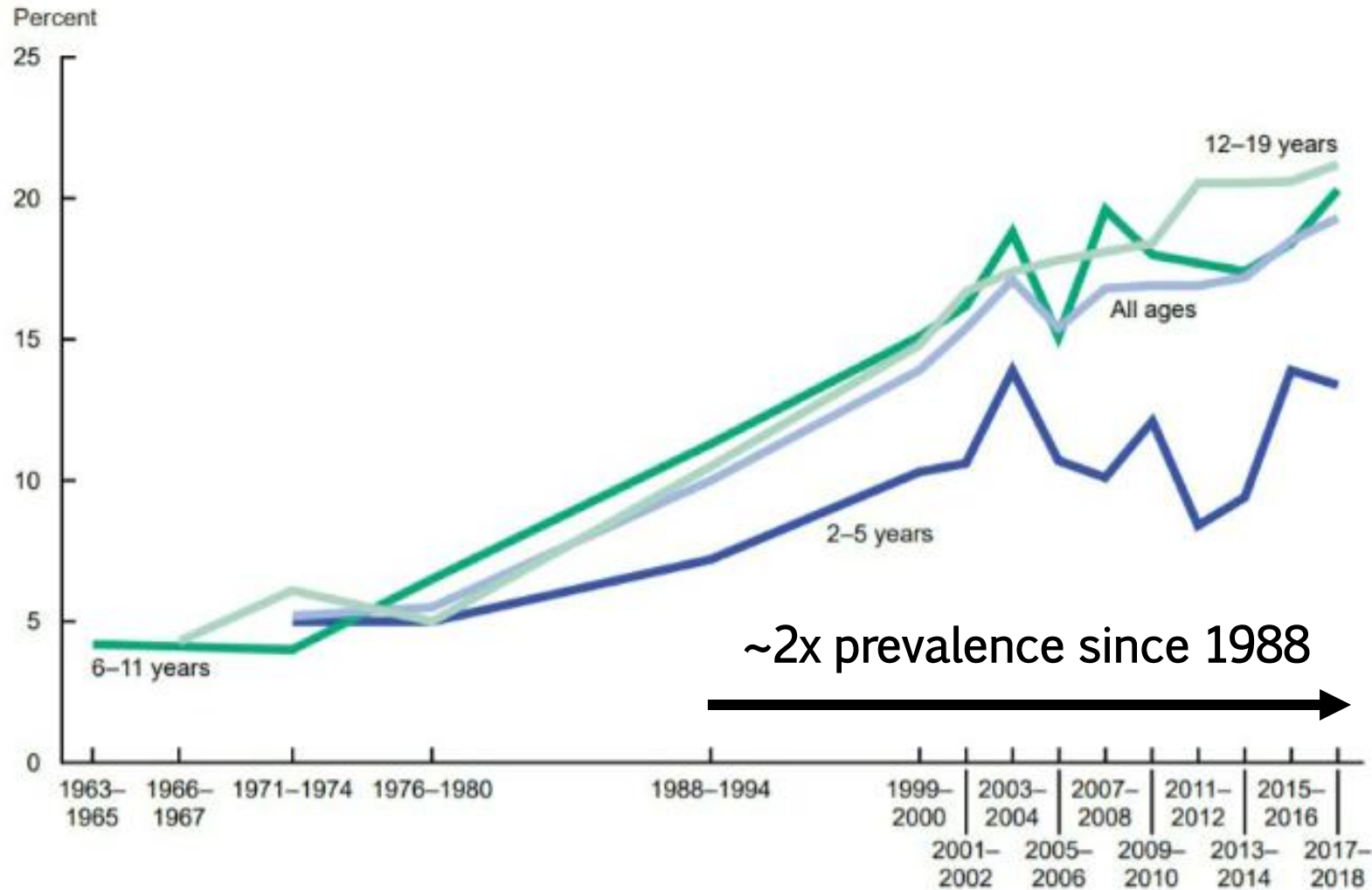
Obesity Disparities Emerge in Childhood



Childhood Obesity in the U.S.



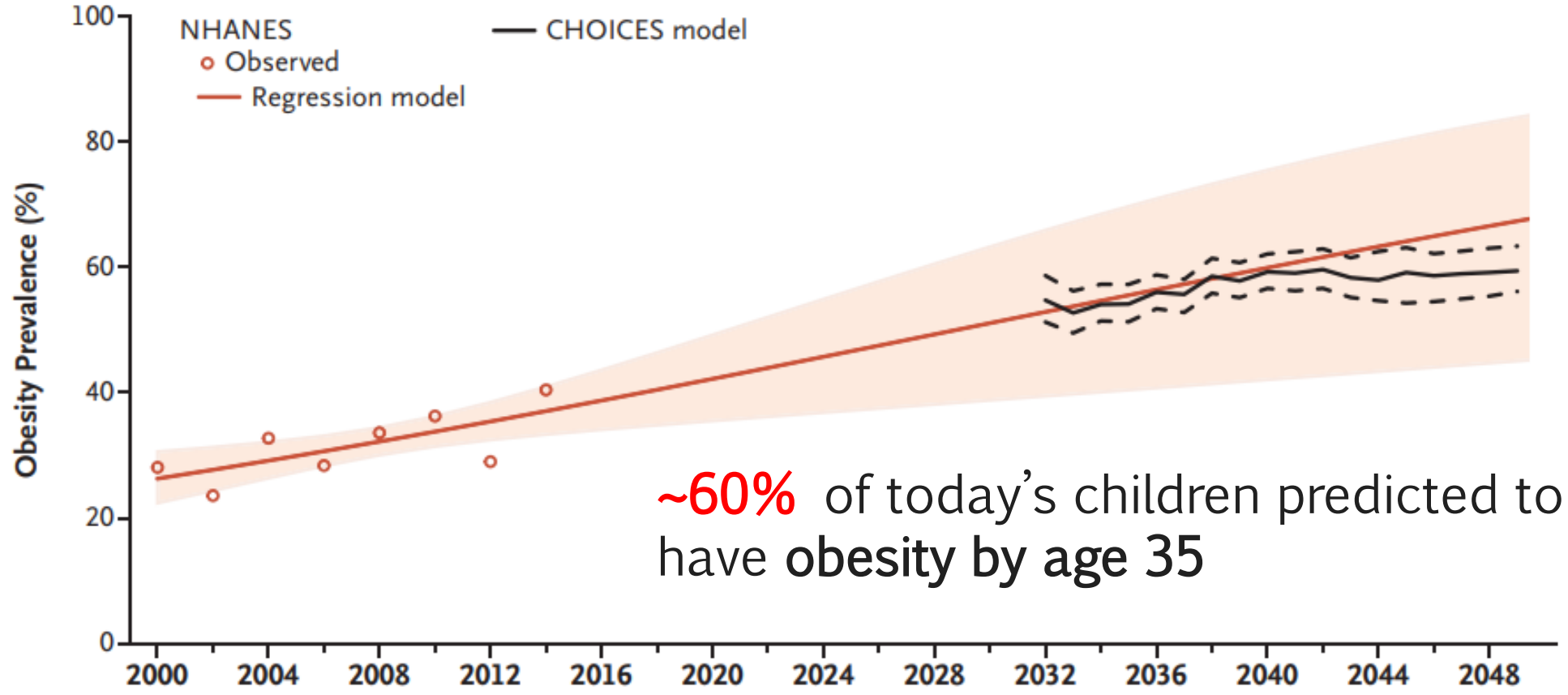
Childhood Obesity in the U.S.



19.3% of all children had obesity in 2018

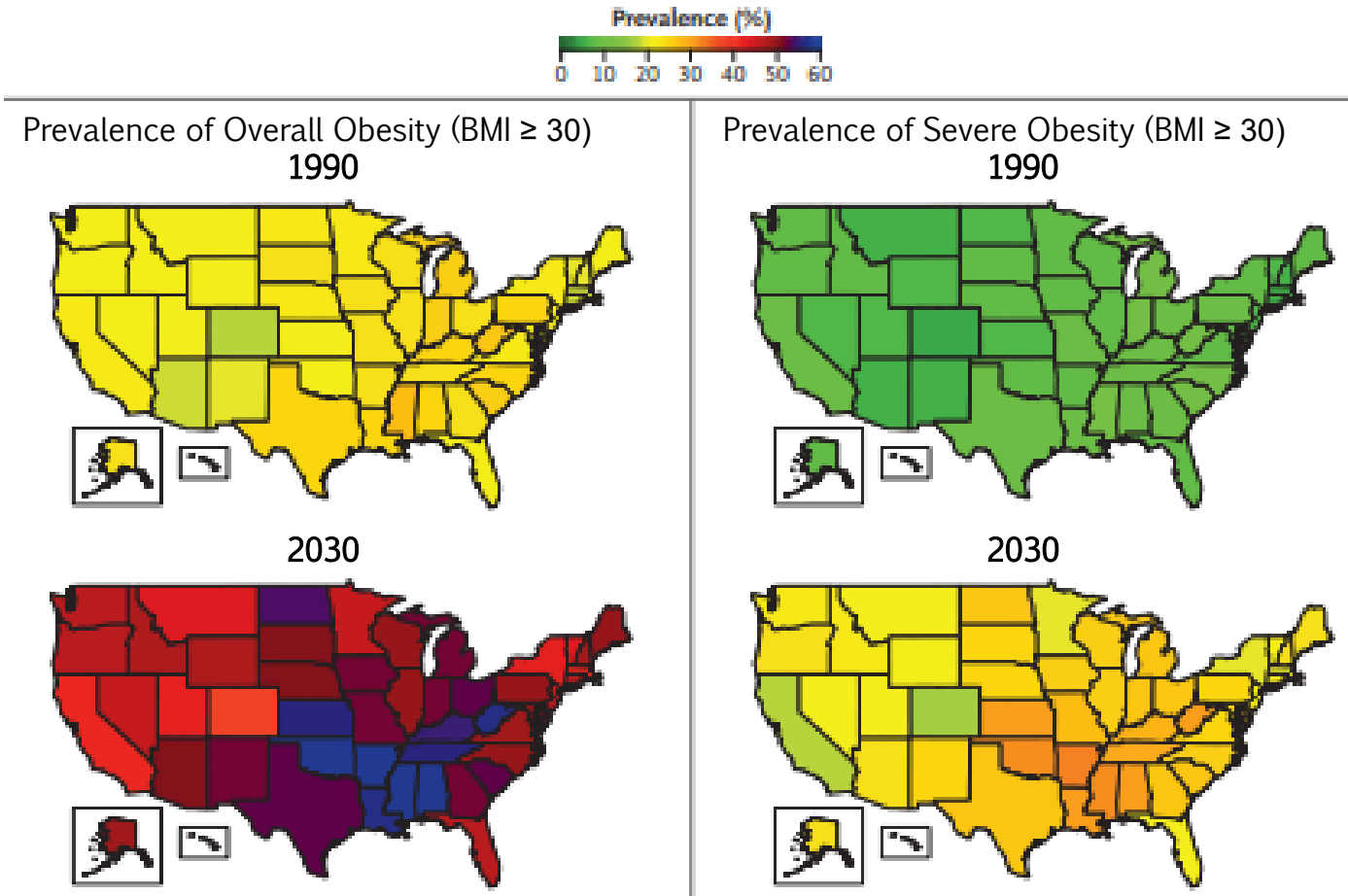
Most of Today's Children Will Have Future Obesity

A Predicted Prevalence of Obesity at 35 Years of Age, According to Calendar Year



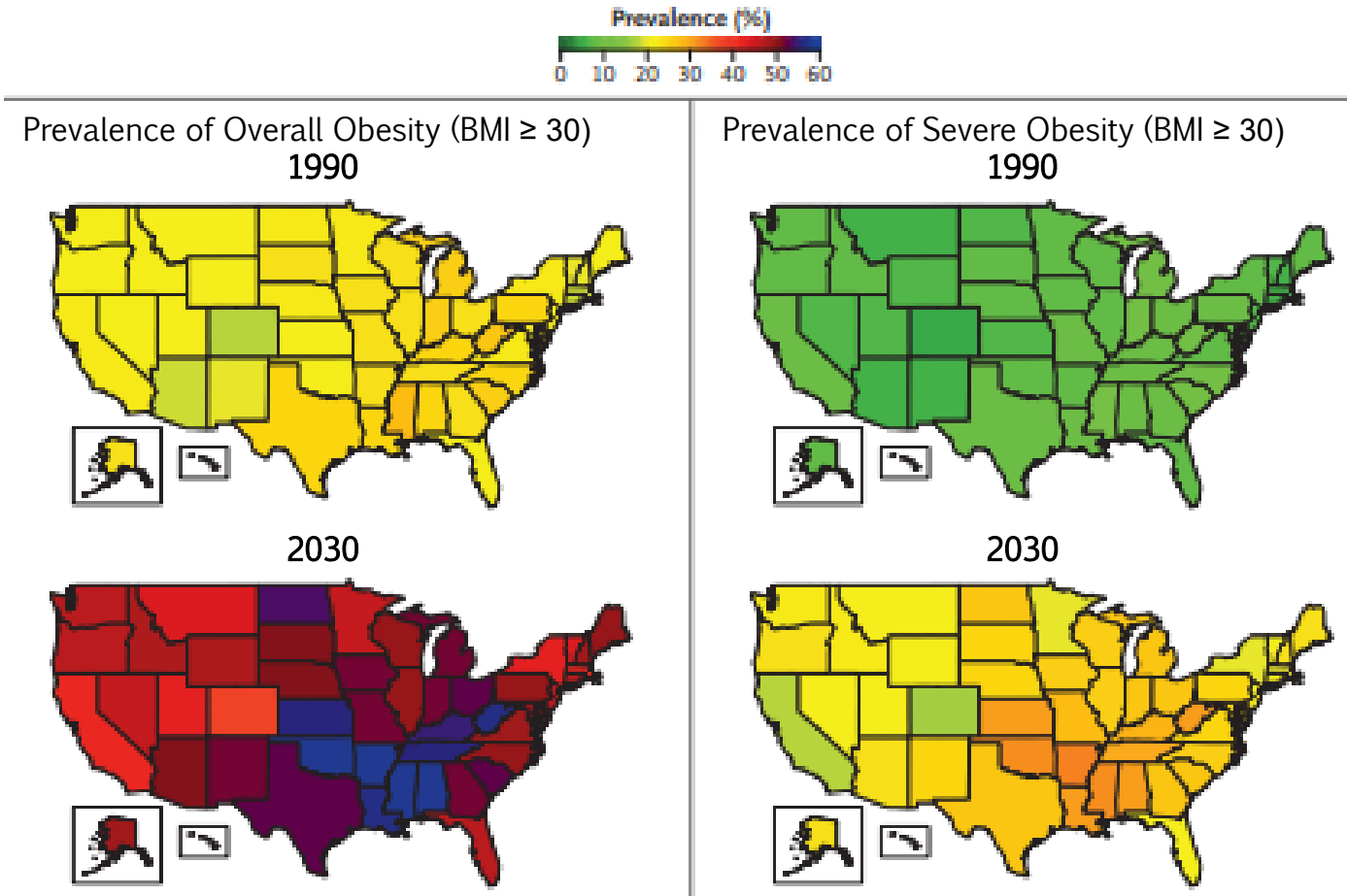
Ward et al. *NEJM*. 2017

Projected Obesity Prevalence - 2030



Prevalence of obesity is estimated to be **>50% in 29 states**

Projected Obesity Prevalence - 2030



Prevalence of severe obesity is estimated to be **>25% in 25 states**

Adult Obesity Prevalence Increased During the First Year of the COVID-19 Pandemic

by Brandon J. Restrepo



3% increase in first year of pandemic

CHILDHOOD OBESITY AND COVID-19

Ages 2-19 years:

- Rate of BMI increase nearly doubled during pandemic

THE CORONAVIRUS CRISIS

Children And Teens Gained Weight At An Alarming Rate During The Pandemic, The CDC Says

September 17, 2021 - 10:39 AM ET

SCOTT NEUMAN 

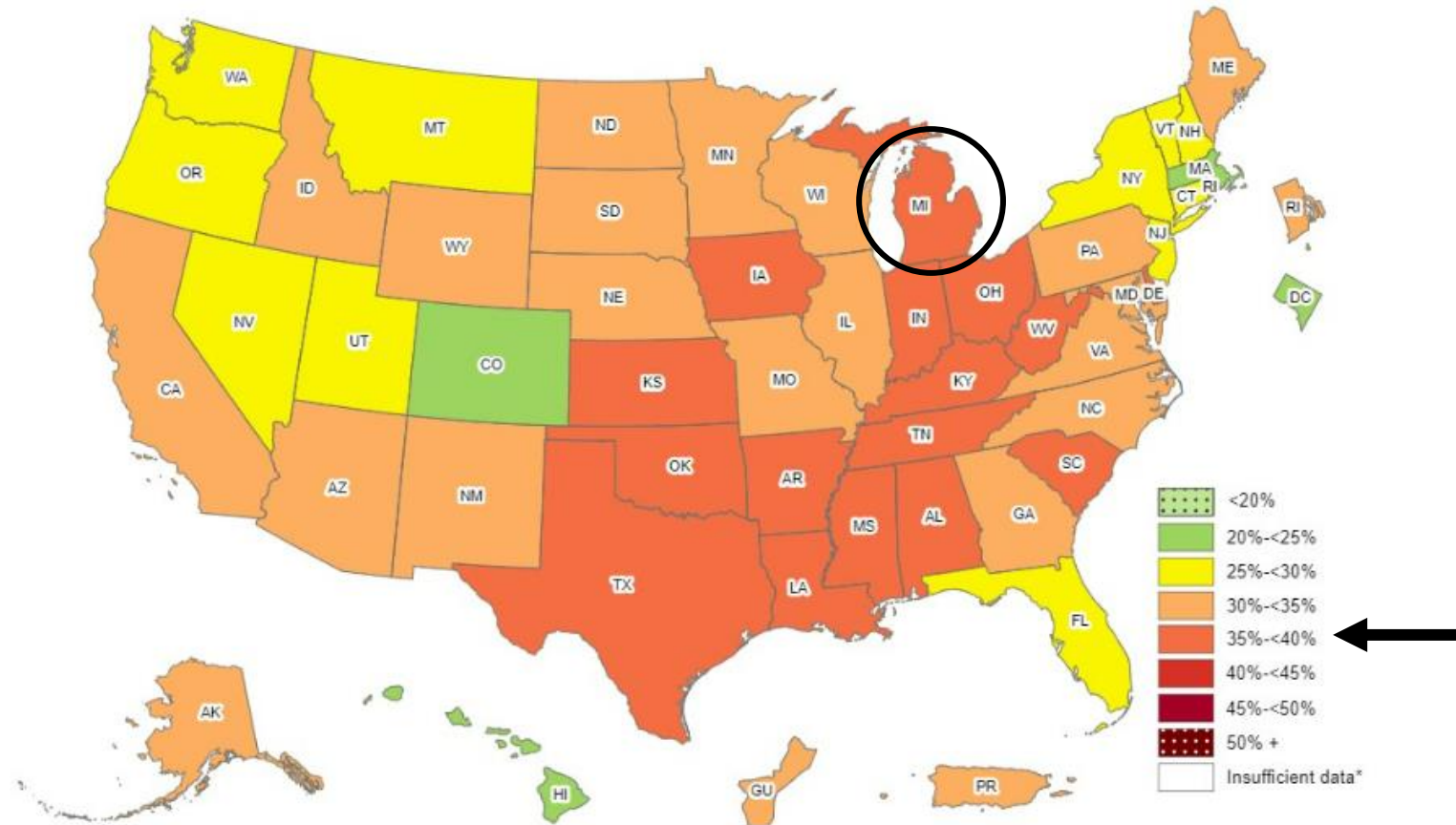


<https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7037a3-H.pdf>

Michigan is obese, unhealthy and dying young. And that's costing billions.



Obesity in Michigan, 2020



Michigan is one of 16 states obesity prevalence \gt 35%

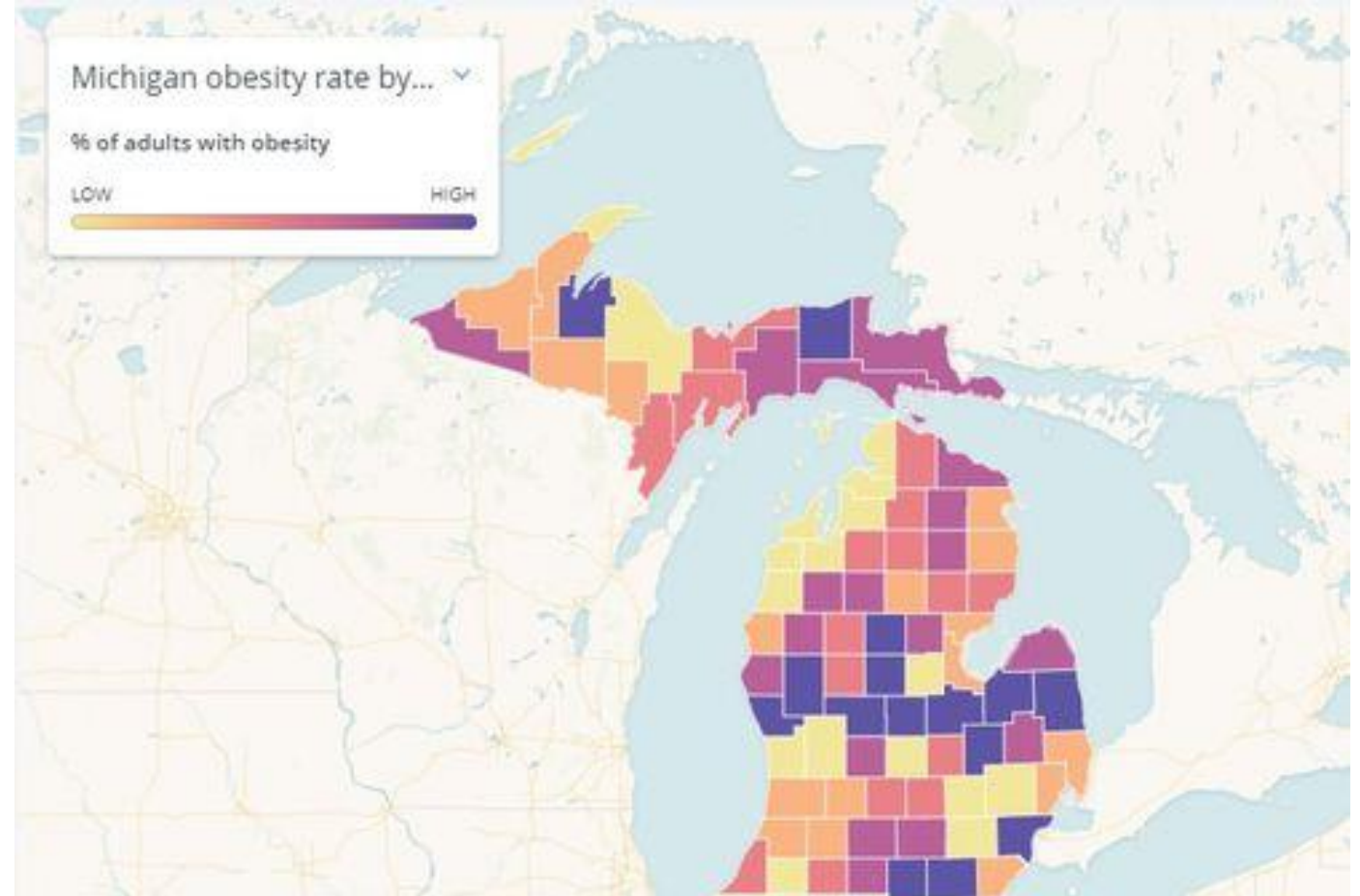
OBESITY IN MICHIGAN, 2020

Lowest rates in higher income counties

- Washtenaw: 29.4%
- Oakland: 30.7%

33 counties rates > 38%:

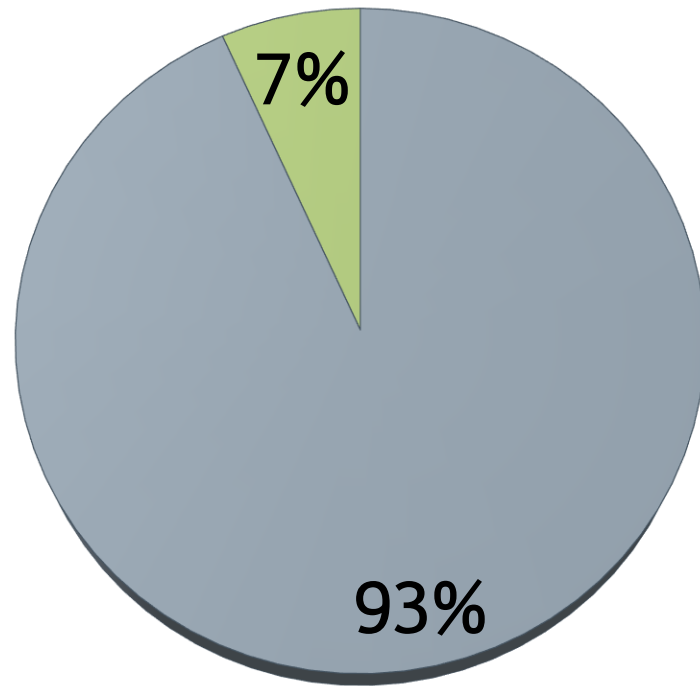
- Saginaw (41.7%)
- Clare (41.6%)
- Montcalm (40.8%)
- Hillsdale (40.8%)



Overall obesity prevalence: 35.2%

Economic Impact of Obesity

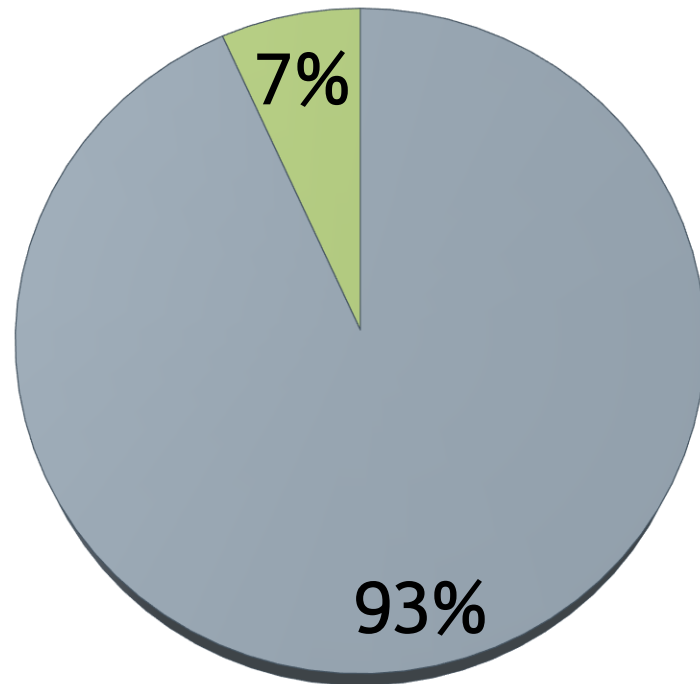
U.S. GDP (2018)



■ Total GDP ■ Cost of Overweight/Obesity

Economic Impact of Obesity

U.S. GDP (2018)

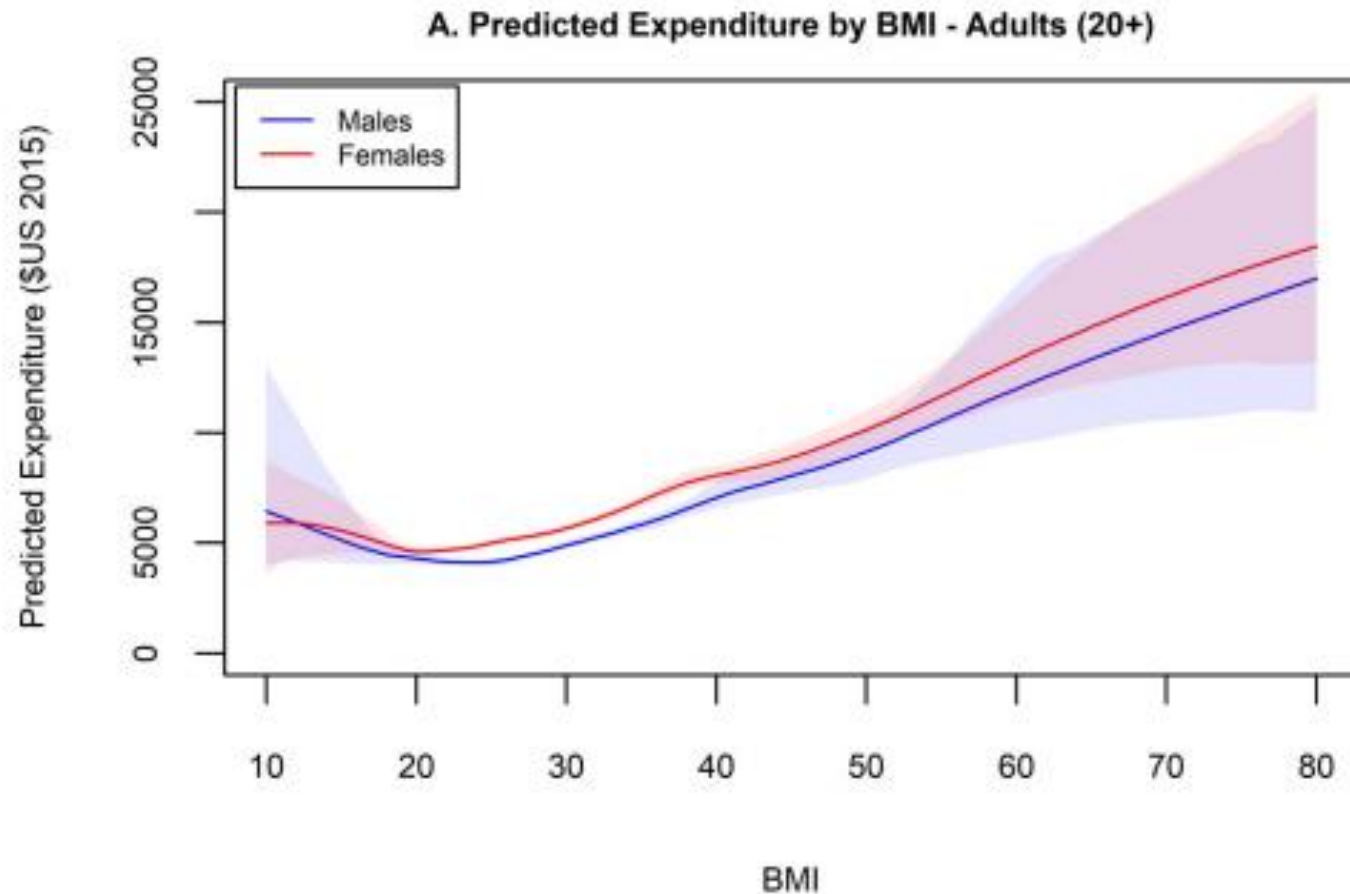


\$1.39 trillion

\$370 billion in direct costs
\$1.02 trillion in indirect costs

■ Total GDP ■ Cost of Overweight/Obesity

Predicted Medical Expenditure by BMI

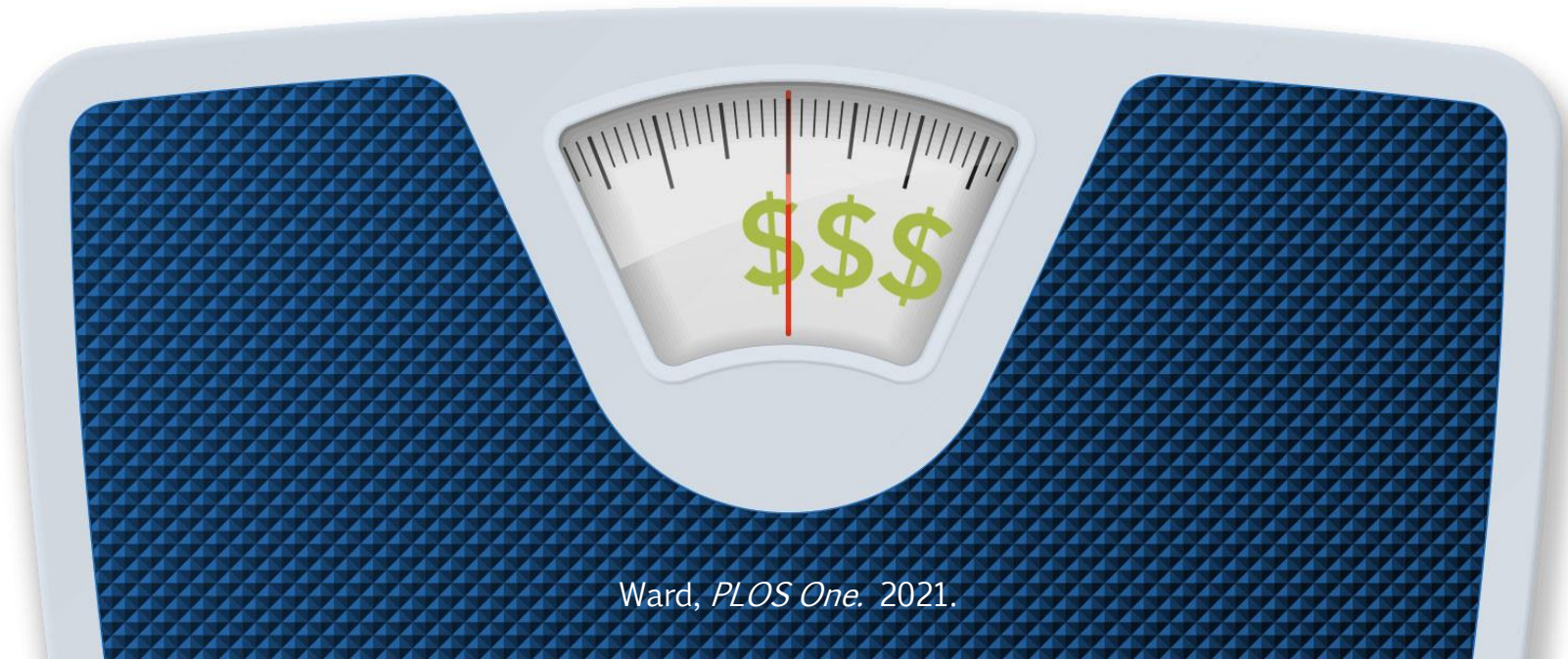


Each one-unit BMI increase above BMI 30 associated with additional cost of **\$253** /person

Excess Annual Medical Costs

Obesity: ~\$1,800 per person

Severe obesity: ~\$3,000 per person





Obesity is...
PREVENTABLE
and
TREATABLE



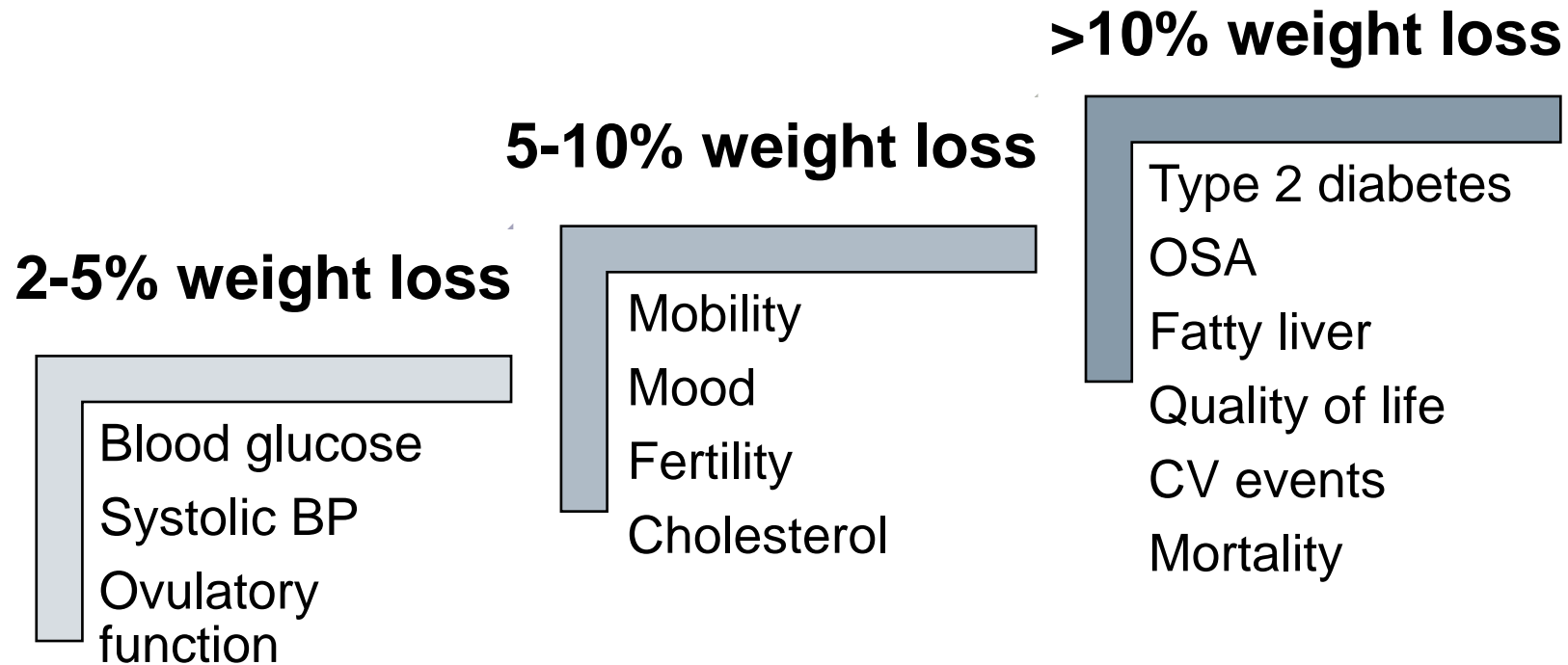
World Health
Organization



World
Obesity
Day 4 March
2021

**EVERY
BODY
NEEDS
EVERYBODY**

Even Modest Weight Loss Improves Health



Thresholds of weight loss and associated favorable health changes

Modest Weight Loss Reduces Medical Costs

BMI in kg/m ²	Change in Annual Medical Costs with a 5% Reduction in Body Weight
>40	-\$2,137
35	-\$528
30	-\$69

Initial 5% weight loss results in more savings than subsequent additional increments of 5% weight loss.

Strategies to Support Weight Loss



Strategies to Support Weight Loss



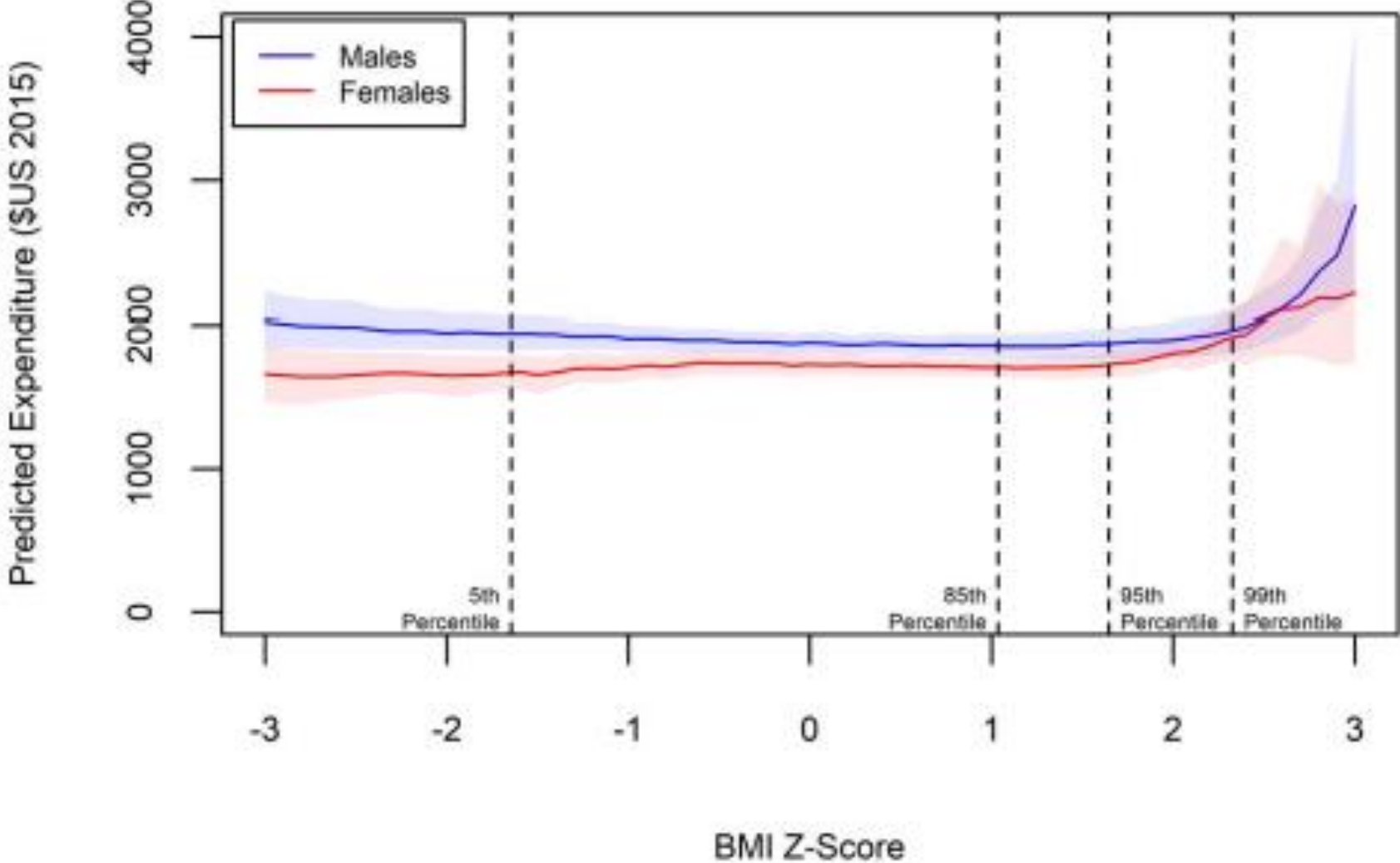
Need health system-level innovation and policy changes to ensure equitable access

Thank you!

dhafez@med.umich.edu

Additional Slides

B. Predicted Expenditure by BMI Z-Score - Children (6-19)

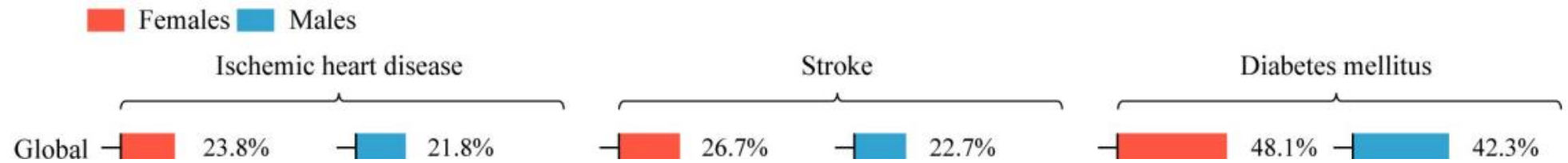


Covid-19 and Disparities in Nutrition and Obesity

Matthew J. Belanger, M.D., Michael A. Hill, Ph.D., Angeliki M. Angelidi, M.D., Ph.D., Maria Dalamaga, M.D., Ph.D., James R. Sowers, M.D., and Christos S. Mantzoros, M.D., Ph.D.

*“Though the factors underlying racial and ethnic disparities in Covid-19 in the United States are multifaceted and complex, **long-standing disparities in nutrition and obesity play a crucial role in the health inequities unfolding during the pandemic.**”*

Obesity is Key Risk Factor



~20% of ischemic heart disease

~25% of stroke

~45% of T2DM

Potential Methods to Assess Adiposity

Method	Clinical Use	Surrogate for Visceral Adiposity
BMI	+++	+
Waist circumference	+++	++
Waist-height ratio	++	++
Waist-hip ratio	++	++
Hypertriglyceridemic waist	+++	++
CT	???	+++
MRI	???	+++
DXA	???	+++



Obesity management as a primary treatment goal for type 2 diabetes: time to reframe the conversation

Ildiko Lingvay, Priya Sumithran, Ricardo V Cohen, Carel W le Roux

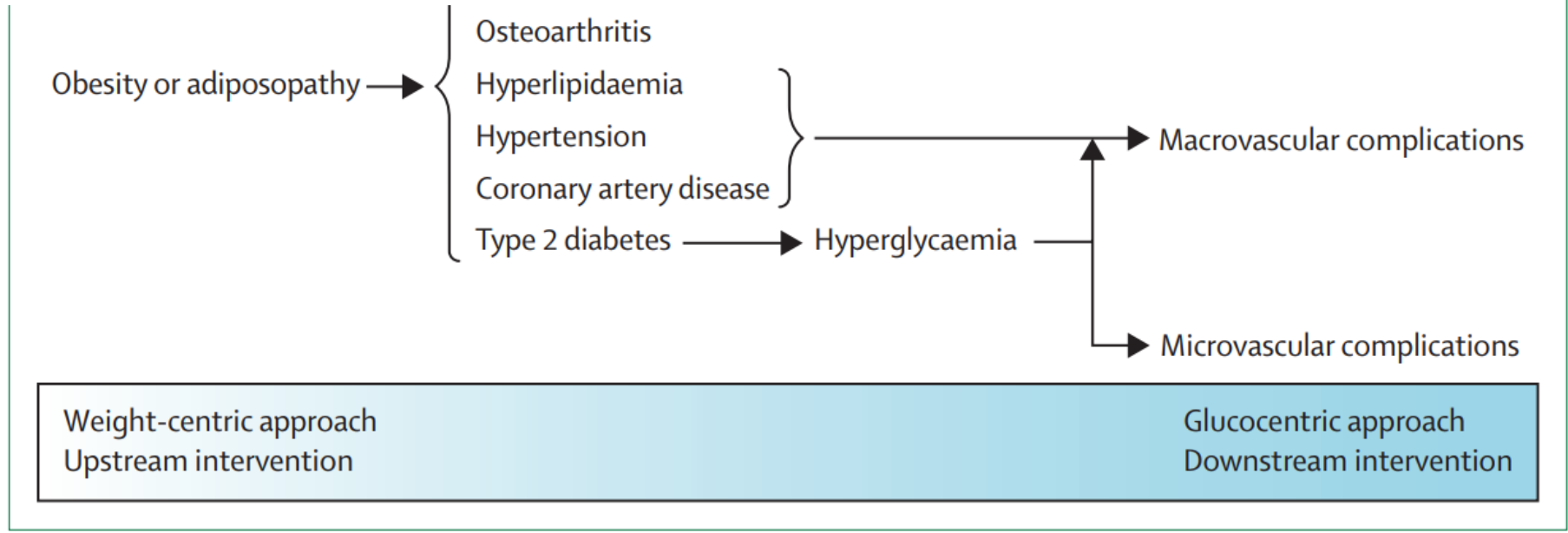


Figure 1: Illustration of the wide-ranging benefits of an upstream weight-centric approach versus a glucocentric management approach

“DIABESITY”

T2DM risk rises with
body weight

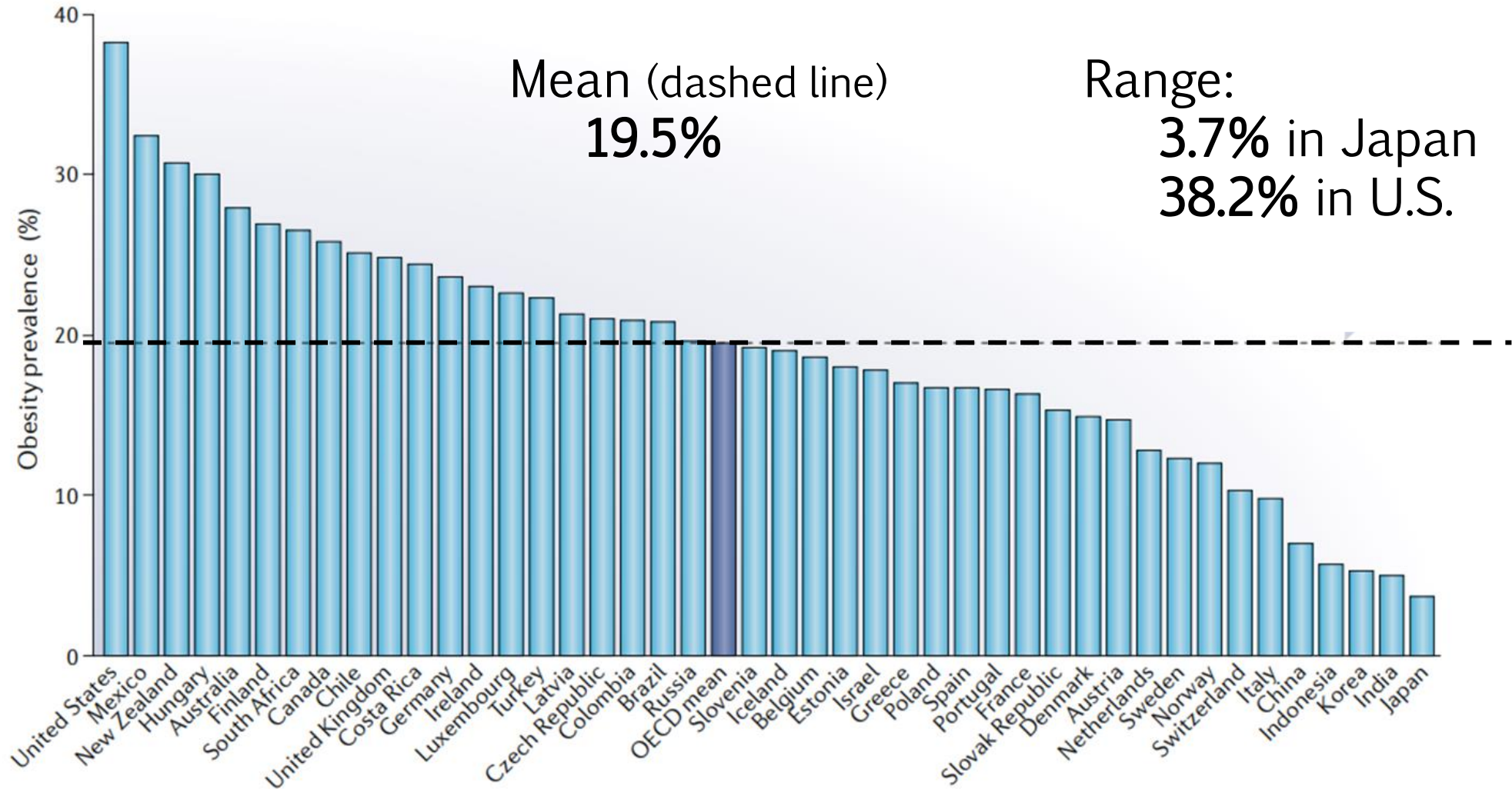
BMI >30: 3-7x higher*

BMI > 35: 20x higher*

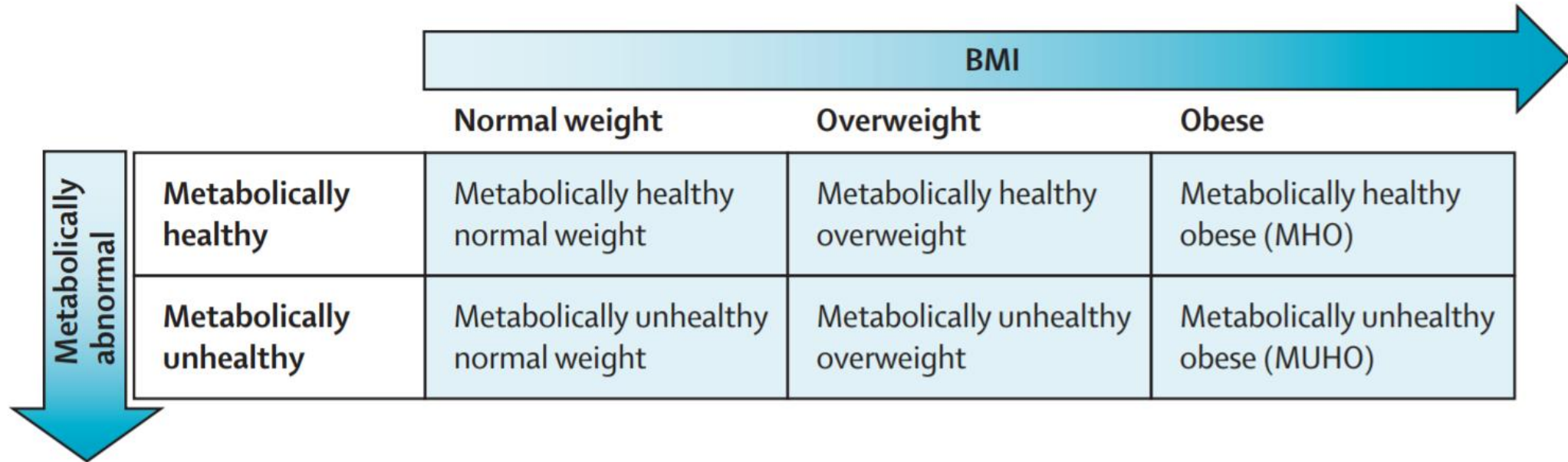
*than normal weight adults



Global Obesity Prevalence, 2015



Limitations of BMI



Metabolic **health** and **dysfunction** can exist across the BMI spectrum

Heterogeneity of Obesity and Its Consequences

Visceral adiposity (relative to BMI)

- Increased in South Asians
- Decreased in blacks

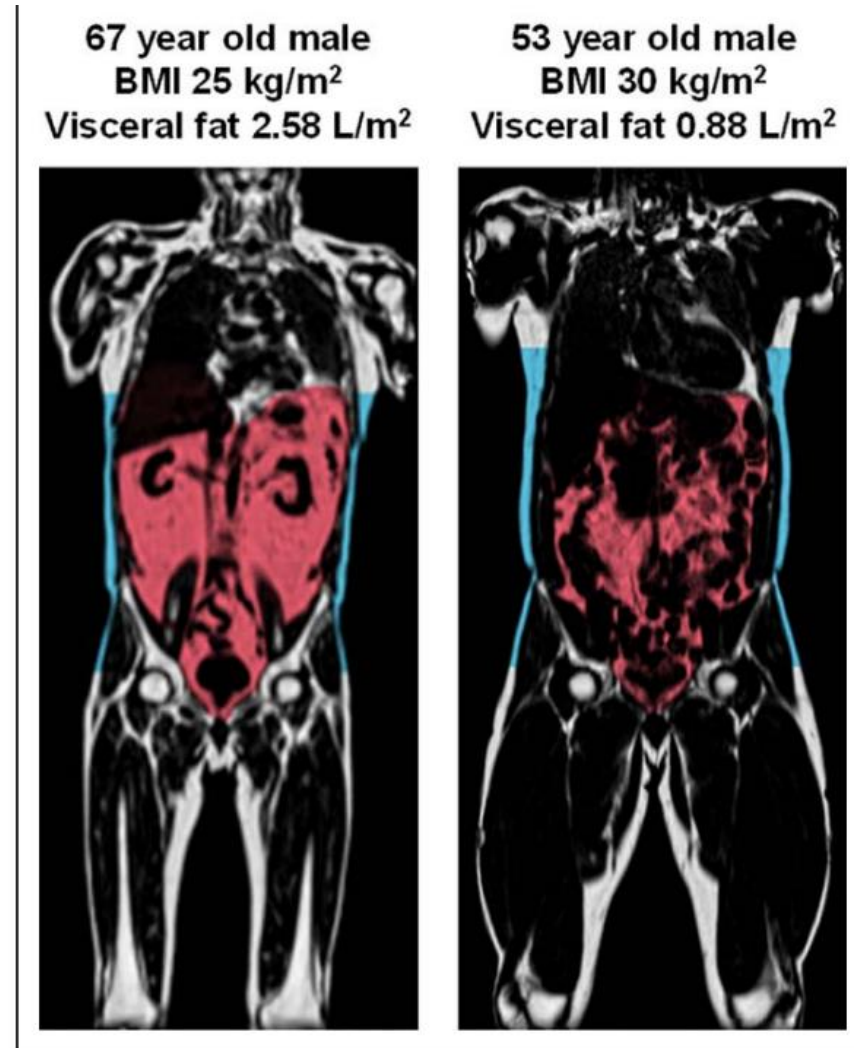


Figure 1. Extreme variation in abdominal fat distribution.



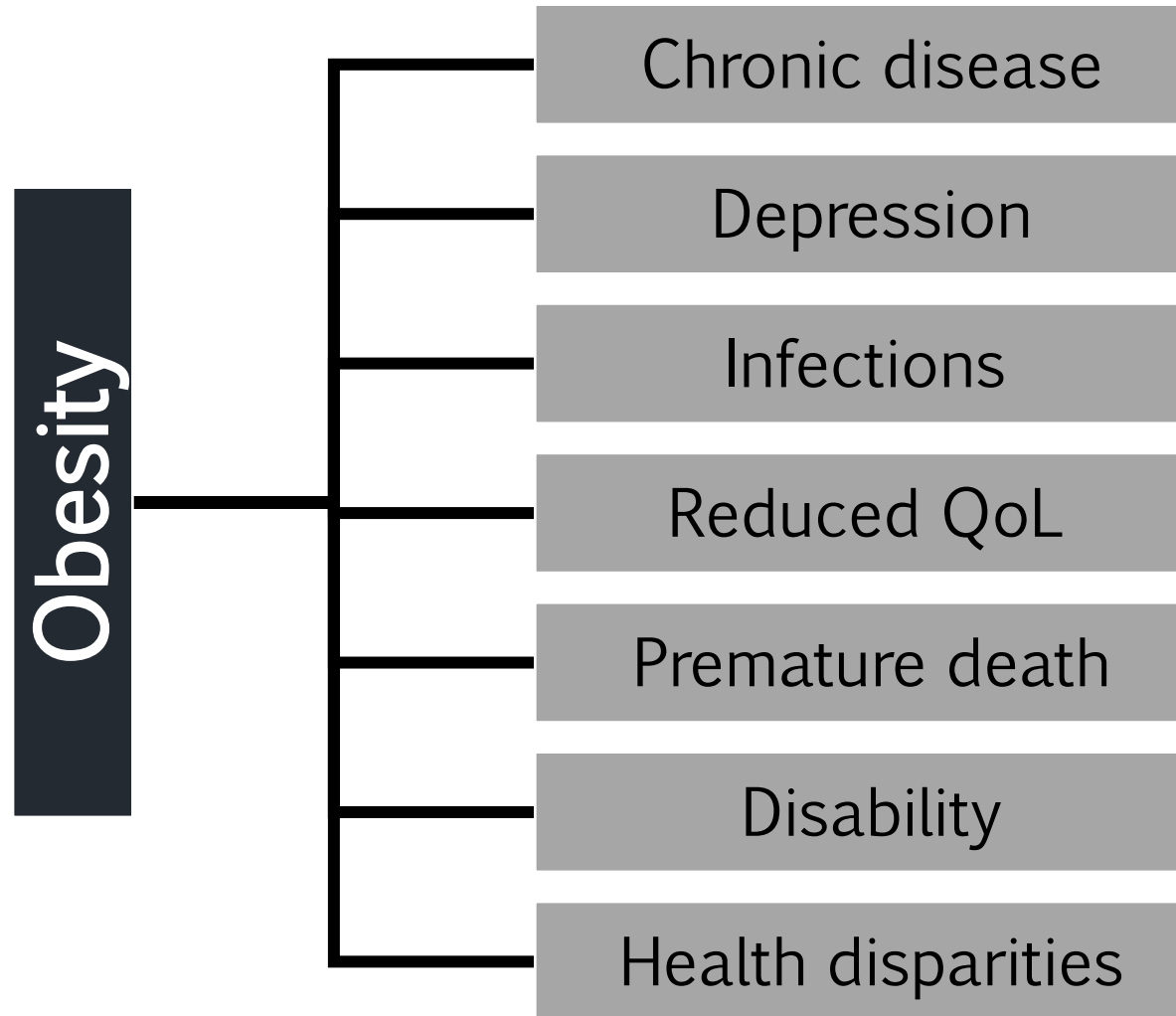
Wondering how national health objectives have changed in the new decade of Healthy People?

Reducing obesity is a key objective, though efforts are failing

2020: 35.7% → 30.6%

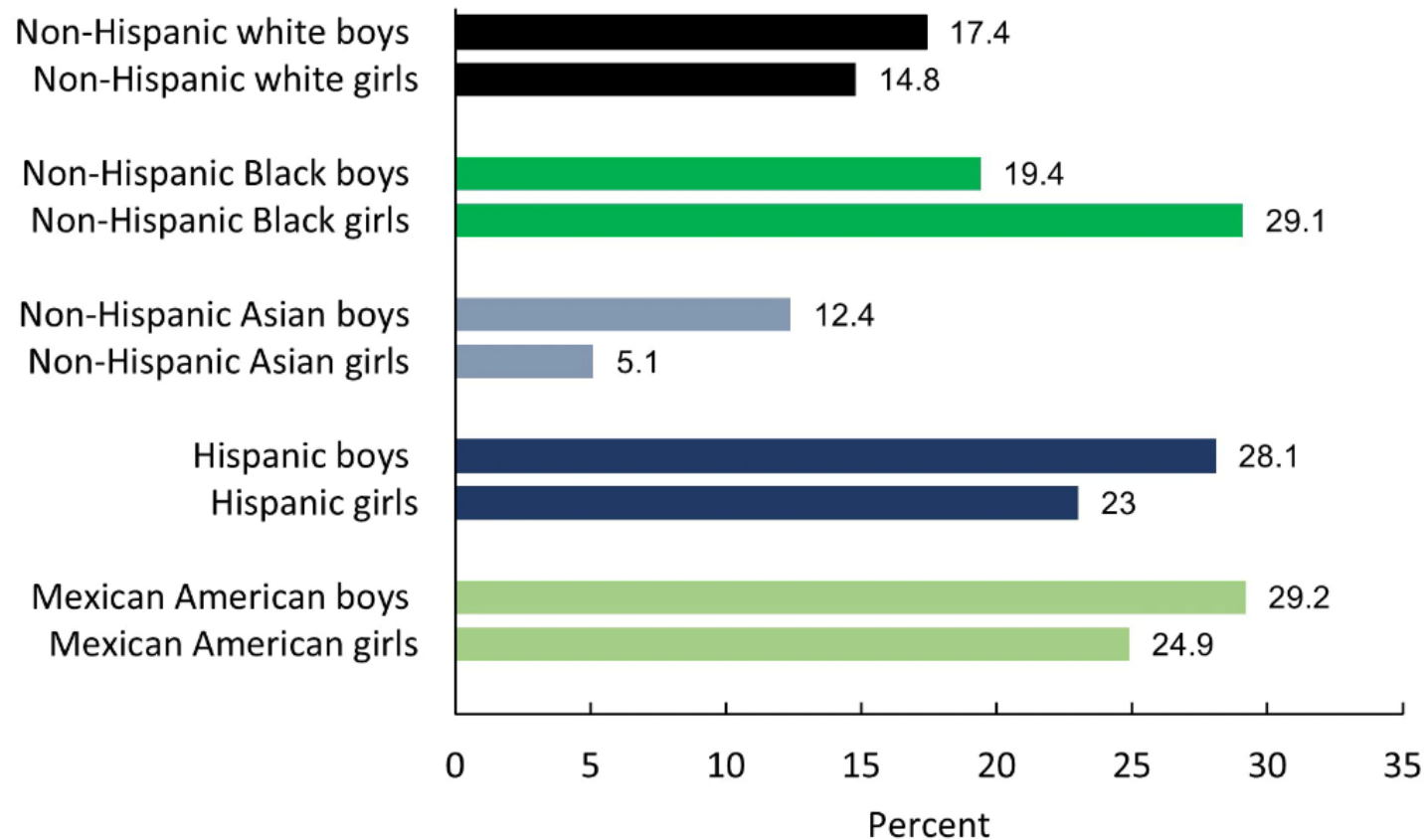
2030: 38.6% → 36%

Obesity is Key Risk Factor



Disparities in Childhood Obesity

Prevalence of obesity among children and adolescents ages 2 to 19 years, by sex and race and Hispanic origin: United States, 2017–2018 NHANES data³



PHYSIOLOGY OF OBESITY AND BARIATRIC SURGERY

1. How do we become obese?
2. Why do we become obese?
3. How does bariatric surgery work?
4. Next-gen therapy?

Robert W. O'Rourke, M.D.

William J. Fry Professor, Department of
Surgery
University of Michigan Medical School,
Michigan Medicine

Chief, Division of General Surgery, Director,
Bariatric Surgery Program Ann Arbor VA
Healthcare System
Ann Arbor, MI, USA

Dr O'Rourke has no conflicts of interest



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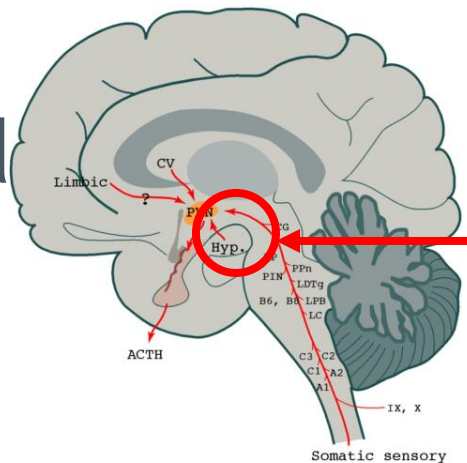
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Mechanisms that regulate body weight are:

- Variable
- Powerful
- Mid-brain-based



Hypothalamic
adipostat
vigorously defends
body weight

Physiology

How do humans become obese?

Why am I obese? Am I “weak-willed”? Is it my fault?

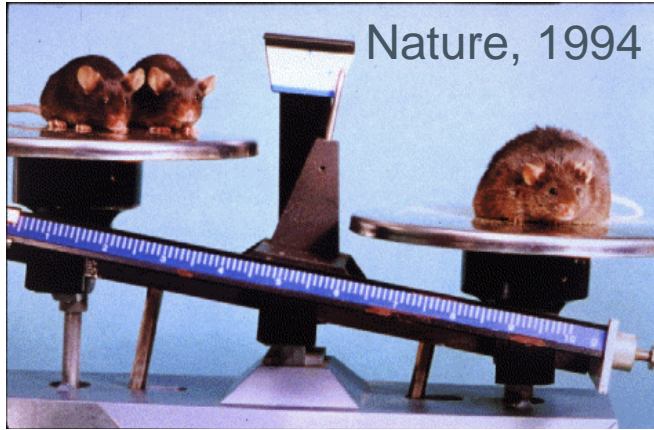
“Eat less, exercise more”

Intake:
Satiety, hunger



Burn rate:
Metabolic rate

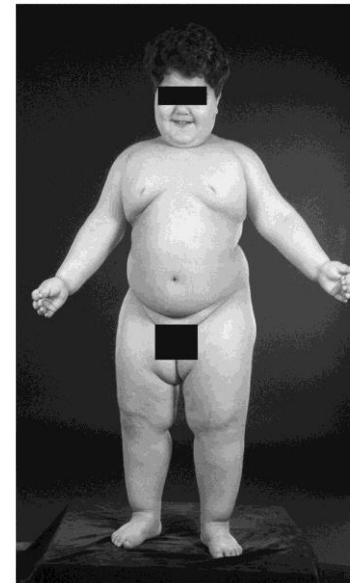
Leptos (gr) = thin



Positional cloning of the mouse obese gene and its human homologue

Yiying Zhang[†], Ricardo Proenca[†], Margherita Maffei[†], Marisa Barone[†],
Lori Leopold^{††} & Jeffrey M. Friedman^{††‡}

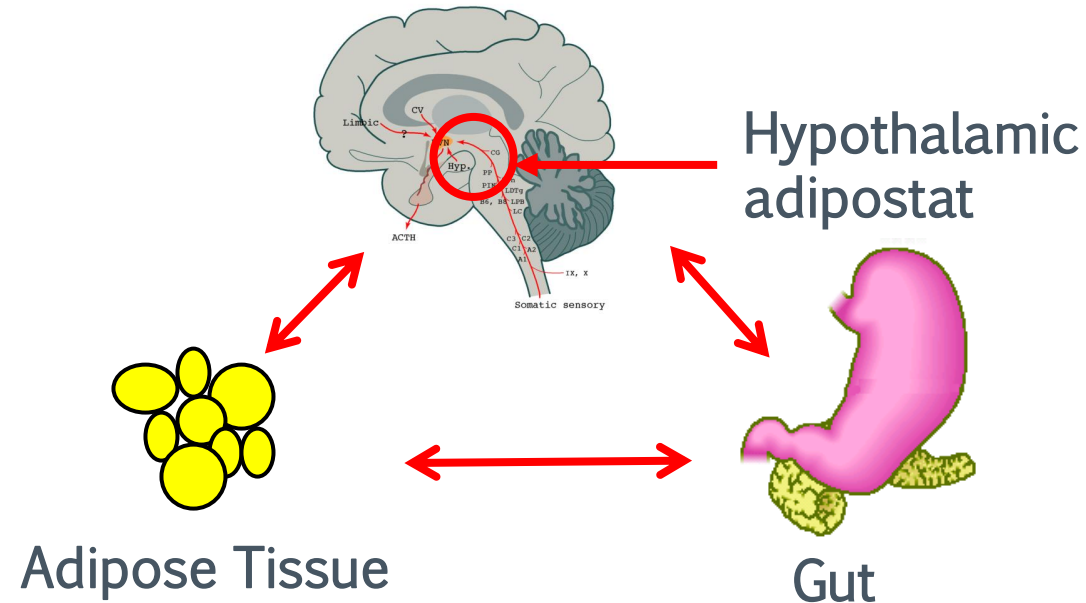
† Howard Hughes Medical Institute, †† The Rockefeller University, 1230 York Avenue, New York, New York 10021, USA



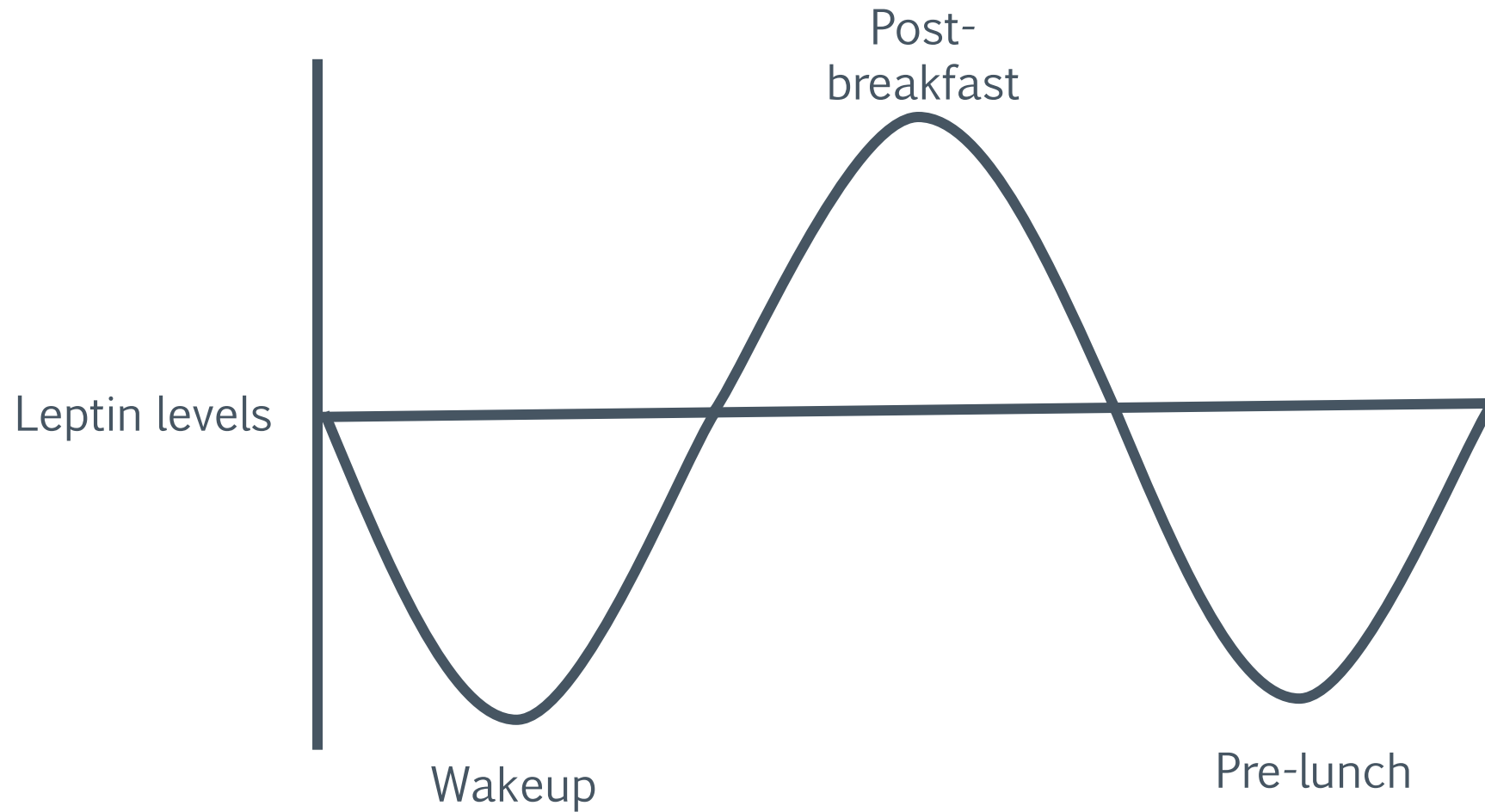
3yr old weighing 42kg



7yr old weighing 32kg



Short-term Food Intake



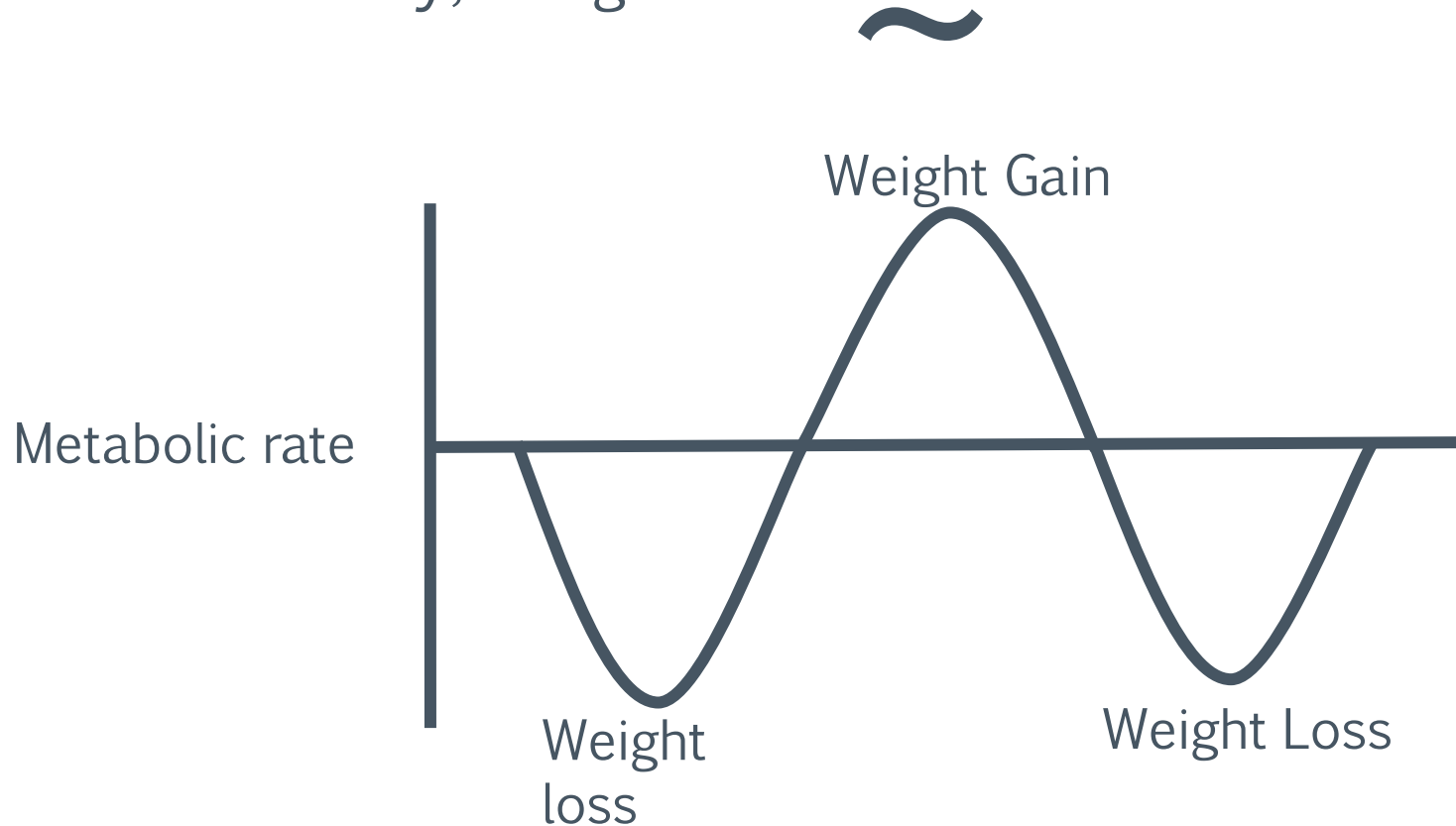
Long-term Weight Regulation



Energy In = Energy Out

Intake:
Satiety, hunger

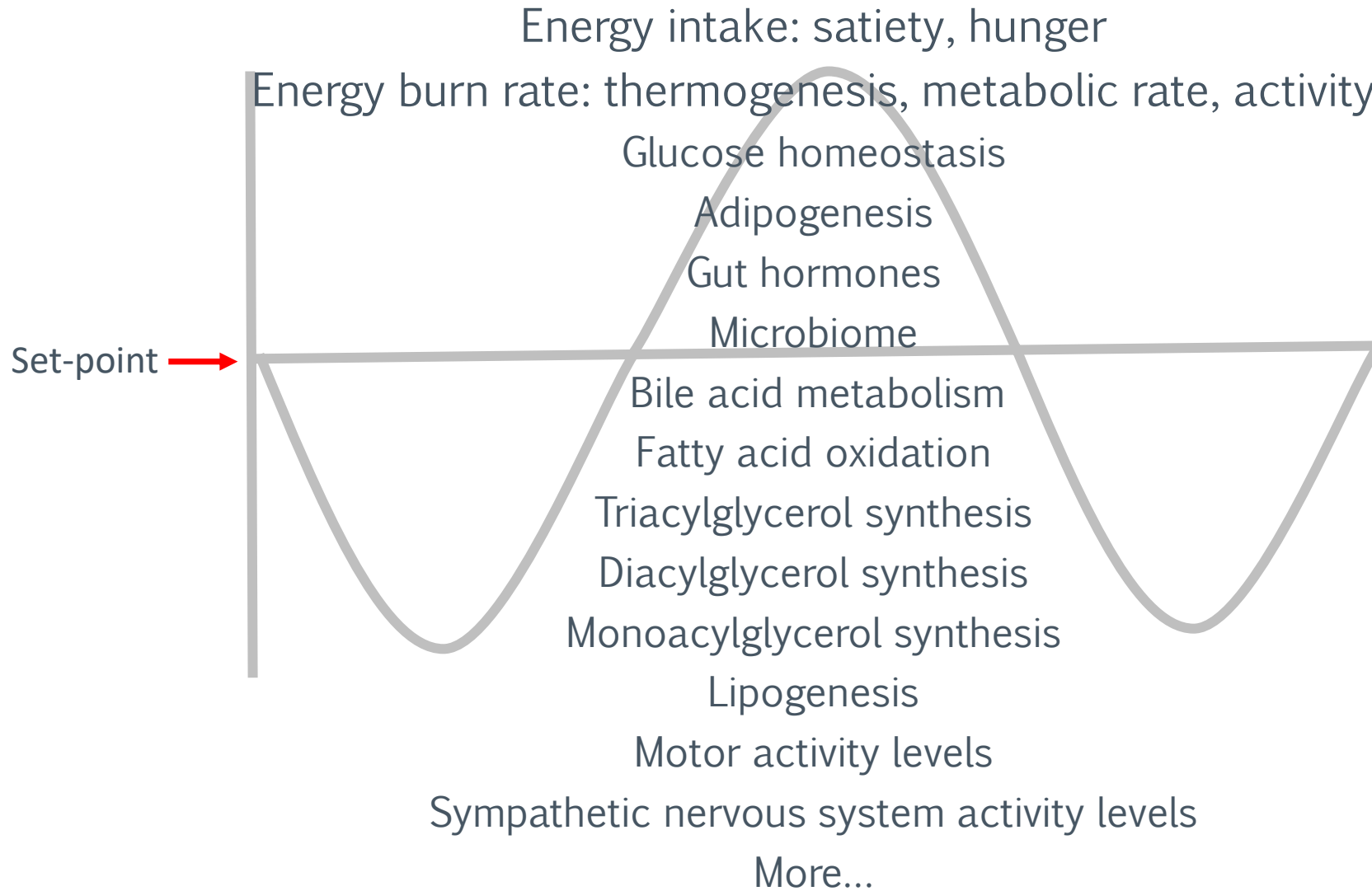
Burn rate:
Metabolic rate



Persistent Metabolic Adaptation 6 Years After “The Biggest Loser” Competition *Obesity* 2016

*Erin Fothergill¹, Juen Guo¹, Lilian Howard¹, Jennifer C. Kerns², Nicolas D. Knuth³, Robert Brychta¹, Kong Y. Chen¹,
Monica C. Skarulis¹, Mary Walter¹, Peter J. Walter¹, and Kevin D. Hall¹*

Allostatic deviation around a homeostatic mean



*“Obese people are...victimized by a social stigma predicated on the Hippocratic nostrum that weight can be controlled by '**deciding**' to eat less and exercise more.*

*This simplistic notion is at odds with substantial scientific evidence illuminating a **precise and powerful biologic system that maintains body weight within a relatively narrow range.**”*

-Jeffrey M. Friedman

Genetics:

Why do humans become obese?

Why are so many of us obese?

74% BMI > 25 (Overweight)

42% BMI ≥ 30 (Obesity)

Why is body habitus so variable in humans?

Diabetes Mellitus: A “Thrifty” Genotype Rendered Detrimental by “Progress”?

JAMES V. NEEL
*Department of Human Genetics,
University of Michigan Medical School,
Ann Arbor, Mich.*

Am J Hum Genet 1962



African Savannah, 50,000 BC



I-5, 2015



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Quantitative genetic model-fitting of twin studies: 70-80% of body habitus tendency due to genetics

THE BODY-MASS INDEX OF TWINS WHO HAVE BEEN REARED APART

ALBERT J. STUNKARD, M.D., JENNIFER R. HARRIS, PH.D., NANCY L. PEDERSEN, PH.D.,
AND GERALD E. MCCLEARN, PH.D. NEJM 1990

Causes and consequences of obesity: the contribution of recent twin studies

J Naukkarinen^{1,2,3}, A Rissanen¹, J Kaprio^{2,4,5} and KH Pietiläinen^{1,2,4}

Int J Obes 2012

A Twin Study of Human Obesity

Albert J. Stunkard, MD; Terry T. Foch, PhD; Zdenek Hrubec, ScD

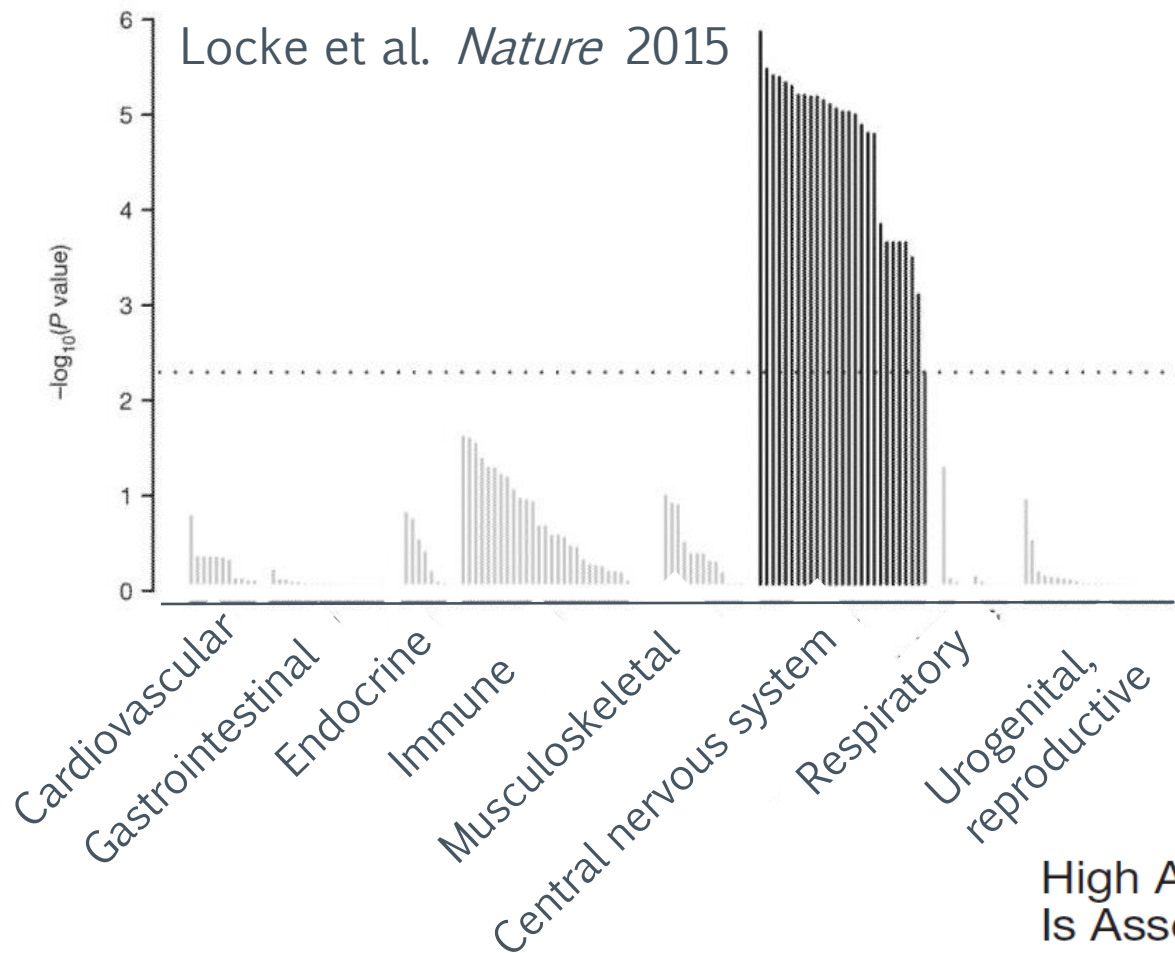
JAMA 1986



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The hunt for obesity genes: genome-wide association analysis



High Allelic Burden of Four Obesity SNPs
Is Associated With Poorer Weight Loss
Outcomes Following Gastric Bypass Surgery

Christopher D. Still¹, G. Craig Wood^{1,2}, Xin Chu³, Robert Erdman³, Christina H. Manney¹,
Peter N. Benotti⁴, Anthony T. Petrick⁵, William E. Strodel⁵, Uyenlinh L. Mirshahi³, Tooraj Mirshahi³,
David J. Carey³ and Glenn S. Gerhard³

Obesity 2011

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*“The current epidemic of obesity is caused by the fact that we all possess an ancient metabolism selected to protect us from starvation, and hence, quite unsuited to our modern lifestyle...the **metabolisms of humankind have been honed by famine and starvation...ever-present influences on genetic selection.**”*

-Andrew Prentice

Implications for therapy- can we reverse-engineer bariatric surgery?

How does bariatric surgery work?
Restriction, malabsorption out...

1. Smaller sleeves <40Fr associated with less weight loss
2. No substantial macronutrient malabsorption after GBP, Sleeve
3. Pre-meal hunger not increased, post-meal satiety not decreased
4. No increased intake with frequent, smaller meals, but ability to increase food intake in response to appropriate physiologic stimuli (e.g. pregnancy)
5. Shift in food preferences to low fat-, low sugar-, less calorie-dense foods

Bariatric surgery bypasses normal compensatory mechanisms that defend body weight and regulate metabolism

Satiety/hunger?

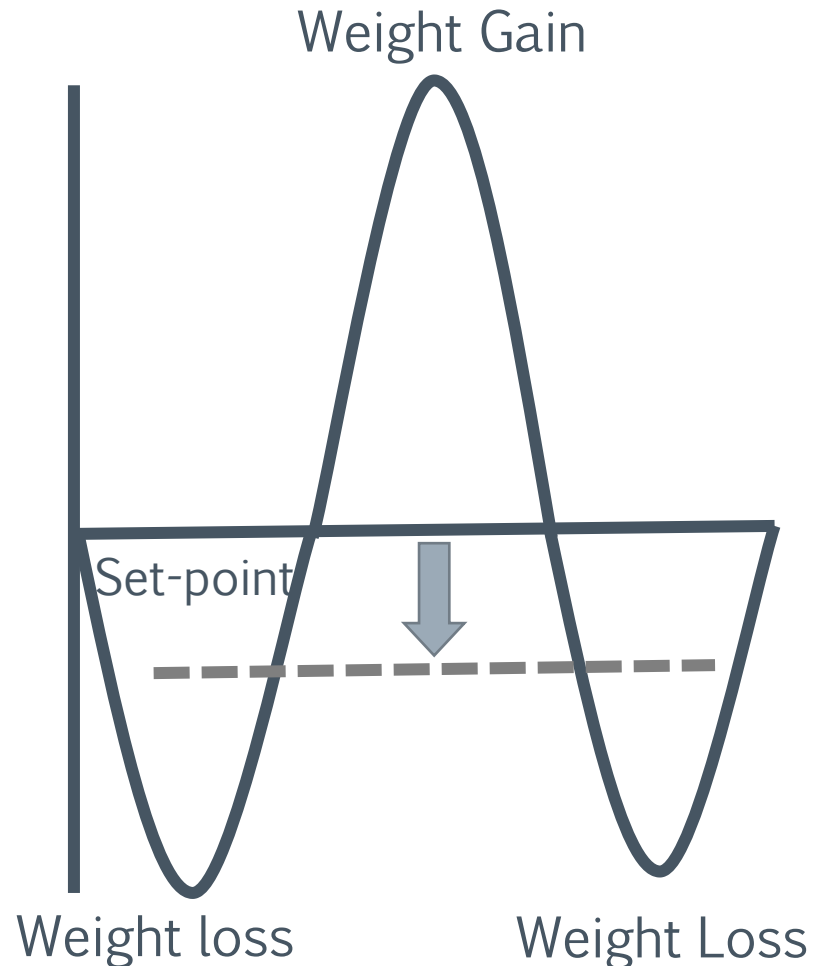
- Decreased hypothalamic activity by fMRI in GBP patients
- Decreased hedonic eating after GBP

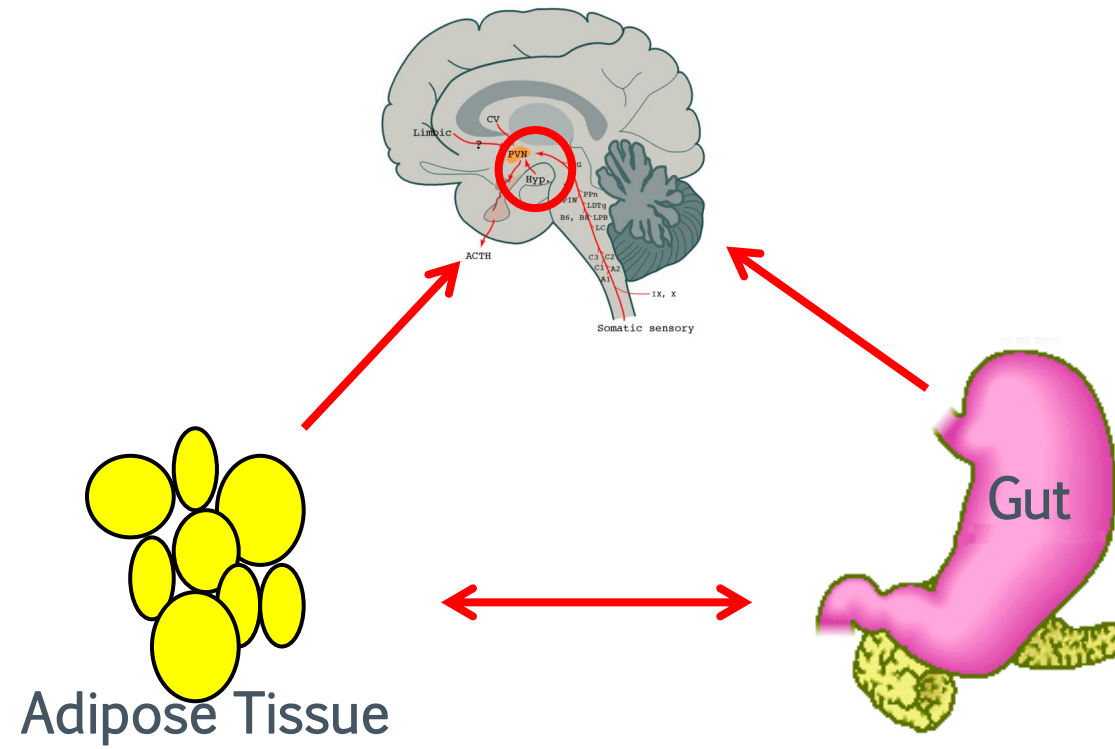
Metabolic rate?

- Increased REE persists for at least 12 mos after bariatric surgery
- Increased brown fat metabolic activity by PET-CT in GBP patients

Metabolism?

- Dramatic rapid changes in glucose homeostasis



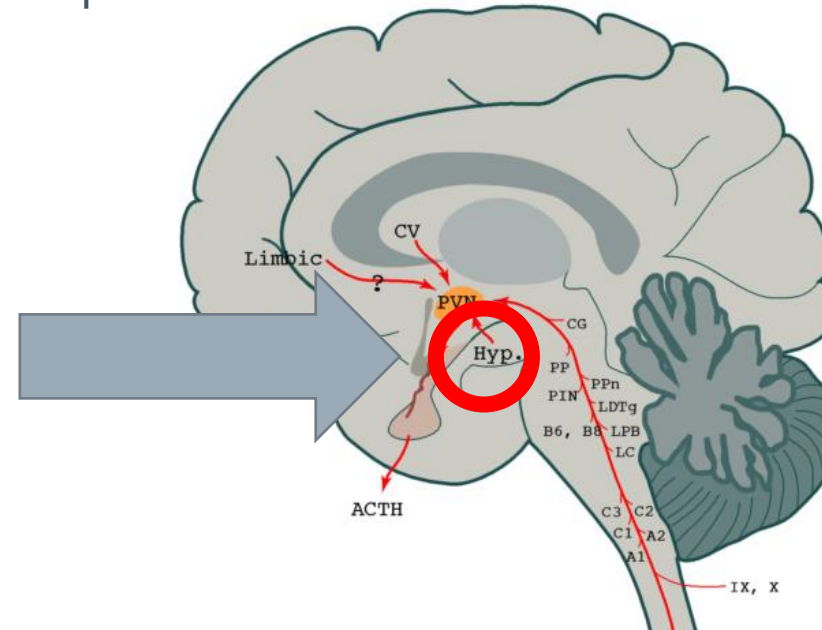


1. Entero-CNS, entero-enteric neural signaling
2. Gut hormones, adipokines
3. Microbiome
4. Bile acids

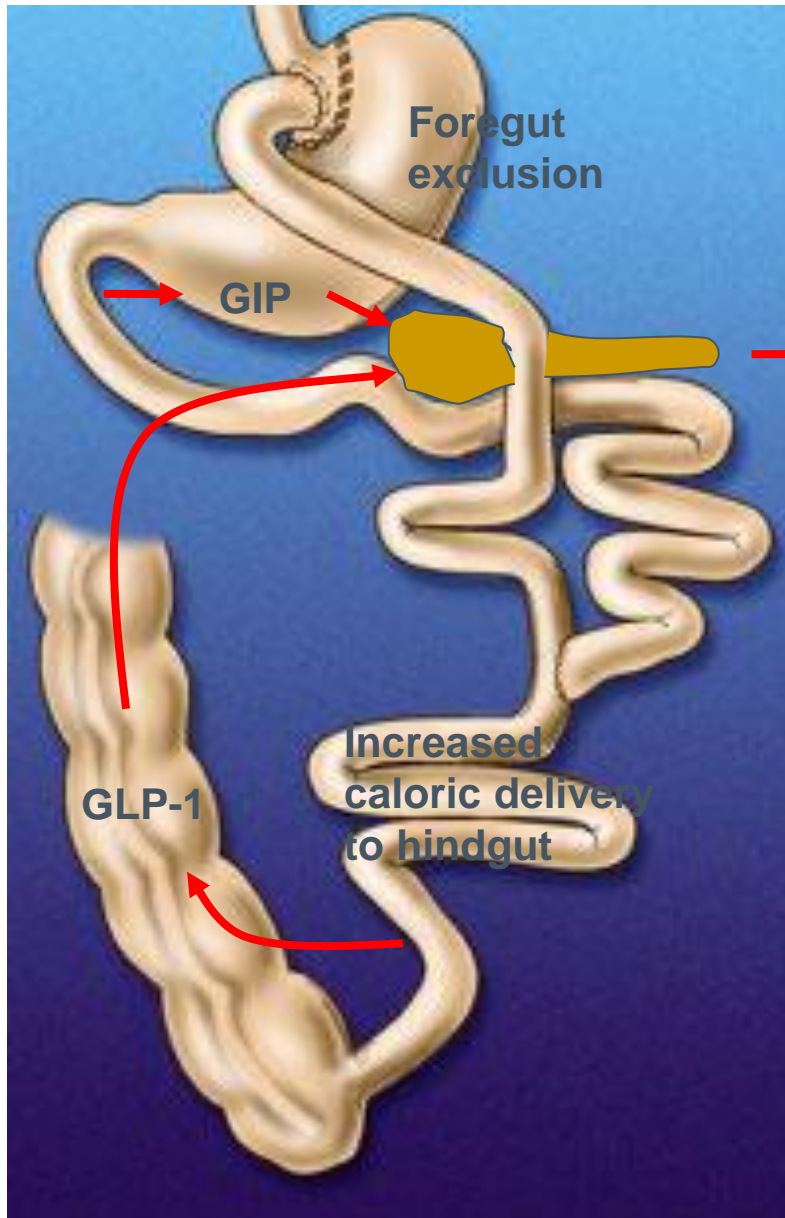
Implications for Next-Gen therapy

Serotonin/Norepi/Dopamine reuptake modulators:

Phenteramine/fenfluramine
Topiramate
Phenylpropanolamine
Sibutramine
Lorcaserin
Bupropion
Tesofensine



Gut Hormones (“incretins”)



GLP-1 agonists:

- Dulaglutide (Trulicity)
- Exenatide (Byetta, Bydureon)
- Semaglutide (Ozempic, Rybelsus)
- Liraglutide (Victoza)
- Lixisenatide (Adlyxin)

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

JULY 21, 2022

VOL. 387 NO. 3

Tirzepatide Once Weekly for the Treatment of Obesity

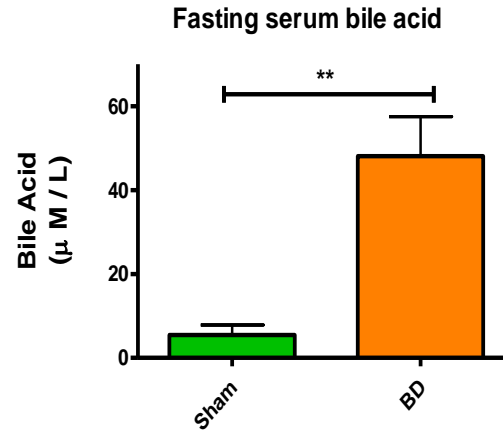
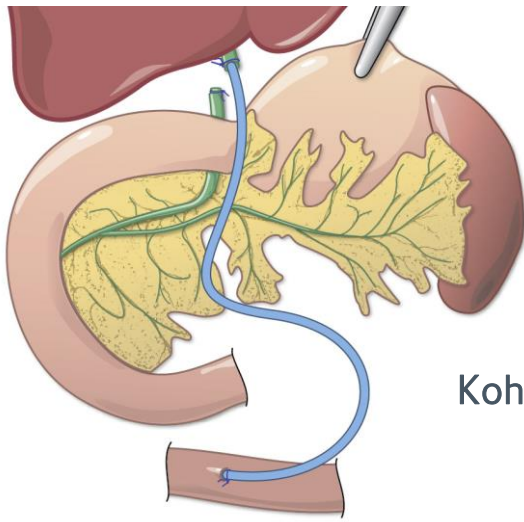
Ania M. Jastreboff, M.D., Ph.D., Louis J. Aronne, M.D., Nadia N. Ahmad, M.D., M.P.H., Sean Wharton, M.D., Pharm.D., Lisa Connery, M.D., Breno Alves, M.D., Arihiro Kiyosue, M.D., Ph.D., Shuyu Zhang, M.S., Bing Liu, Ph.D., Mathijs C. Bunck, M.D., Ph.D., and Adam Stefanski, M.D., Ph.D., for the SURMOUNT-1 Investigators*



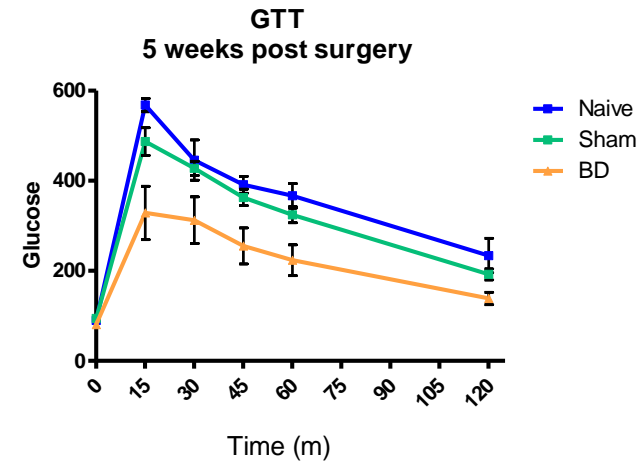
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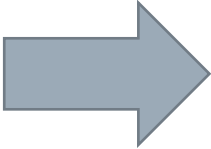
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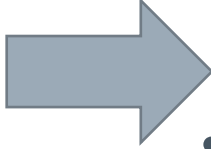
Bile acids



Kohli et al. *Endocrinology* 2013



- 
- Changes in food intake
 - Changes in energy expenditure
 - Changes in metabolism
 - Lots of other changes...

- 
- Biliary diversion surgical therapy
 - Bile acid receptor (FXR-, TGR5)-based pharmacotherapy

Microbiome

An obesity-associated gut microbiome with increased capacity for energy harvest

Peter J. Turnbaugh¹, Ruth E. Ley¹, Michael A. Mahowald¹, Vincent Magrini², Elaine R. Mardis^{1,2} & Jeffrey I. Gordon¹

Nature 2006

Transfer of Intestinal Microbiota From Lean Donors Increases Insulin Sensitivity in Individuals With Metabolic Syndrome

ANNE VRIEZE,* ELS VAN NOOD,* FRITS HOLLEMAN,* JARKKO SALOJÄRVI,† RUUD S. KOOTTE,§ JOEP F. W. M. BARTELSMAN,|| GEESJE M. DALLINGA-THIE,§ MARIETTE T. ACKERMANS,¶ MIREILLE J. SERLIE,# RAISH OOZEER,** MURIEL DERRIEN,** ANNE DRUESNE,** JOHAN E. T. VAN HYLCKAMA Vlieg,** VINCENT W. BLOKS,†† ALBERT K. GROEN,†† HANS G. H. J. HEILIG,§§ ERWIN G. ZOETENDAL,§§ ERIK S. STROES,§ WILLEM M. DE VOS,†,§§ JOOST B. L. HOEKSTRA,* and MAX NIEUWDORP*,§

*Department of Internal Medicine, §Department of Vascular Medicine and Experimental Vascular Medicine, ¶Department of Gastroenterology, ¶Department of Clinical Chemistry, Laboratory of Endocrinology, ¶Department of Endocrinology and Metabolism, Academic Medical Center, Amsterdam, The Netherlands; †Department of Basic Veterinary Medicine, University of Helsinki, Helsinki, Finland; **Danone Research, Center Daniel Carasso, Palaiseau, France; ††Center for Liver, Digestive, and Metabolic Diseases, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands; §§Laboratory of Microbiology, Wageningen University, Wageningen, The Netherlands

Gastro 2012

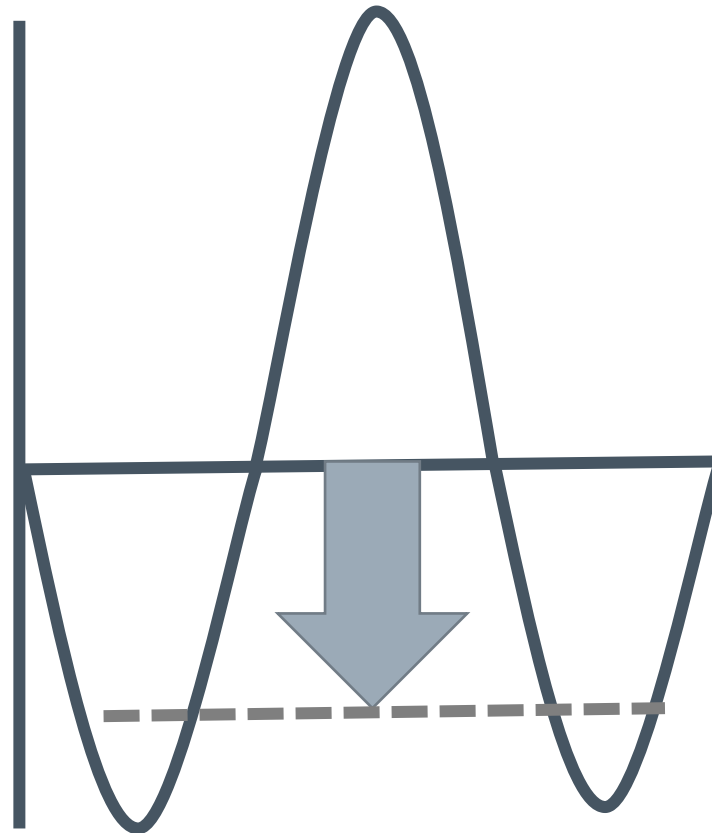
Modulation of the gut microbiome: a systematic review of the effect of bariatric surgery

Eur J Endo 2018

Yan Guo^{1,*}, Zhi-Ping Huang^{2,3,*}, Chao-Qian Liu^{3,*}, Lin Qi⁴, Yuan Sheng³ and Da-Jin Zou¹

“Reverse engineering physiological mechanisms of RYGB could lead to discovery of new, effective, less invasive treatments.”

Kucharczyk et al., J Surg Res 2013



Thank You

OBESITY: Metabolic and Health Consequences

Jennifer Sandy, D.O.

Medical Director, Medical Weight Loss
Grand Health Partners, Grand Rapids, MI

Director of Medical Weight Loss,
North Ottawa Community Hospital,
Grand Haven, MI

Diplomate American Board of Obesity
Medicine

Board certified Internal Medicine
(ABOIM)



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The World Health Organization (WHO) defines obesity as “abnormal or excessive fat accumulation that presents a risk to health” . In contrast to the view that obesity only represents a risk factor for diseases, the World Obesity Federation declared obesity itself as a chronic, relapsing progressive disease.

“Obesity is defined as a chronic, progressive, relapsing, and treatable multi-factorial, neurobehavioral disease, wherein an increase in body fat promotes adipose tissue dysfunction and abnormal fat mass physical forces, resulting in adverse metabolic, biomechanical, and psychosocial health consequences.”

The Obesity Medicine Association

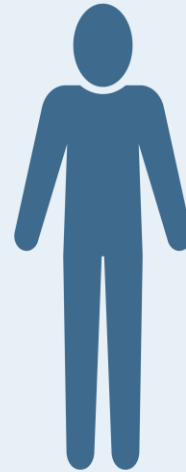


BODY MASS INDEX

- › Overweight: BMI 25-29.9
- › Obesity: BMI 30 or above
- › Severe Obesity/Morbid Obesity: BMI >40



UNDERWEIGHT
BMI < 18,5



NORMAL
BMI 18,5 - 24,9



OVERWEIGHT
BMI 25 - 29,9



OBESSE
BMI > 30

$$\text{BMI} = \text{kg} \setminus \text{m}^2$$

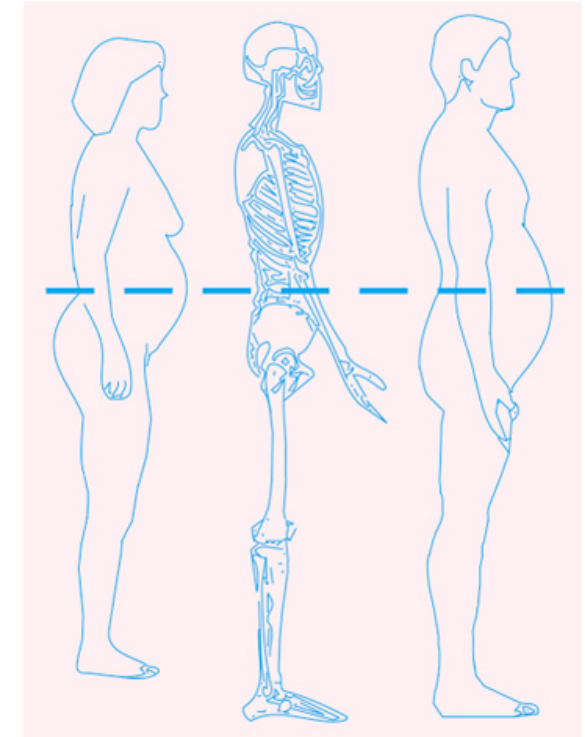
Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m²).

- › To better identify metabolic risk, we can use

Waist Circumference:

- Men >40in (>35 in Asians)
- Women >35in (>31 in Asians)
- This provides independent risk information for abdominal adiposity.
 - › increases risk for metabolic syndrome, heart disease, diabetes, hypertension, dyslipidemia, NASH, and overall higher mortality rates.
- Particularly useful in overweight range to indicate increased risk for morbidity and mortality

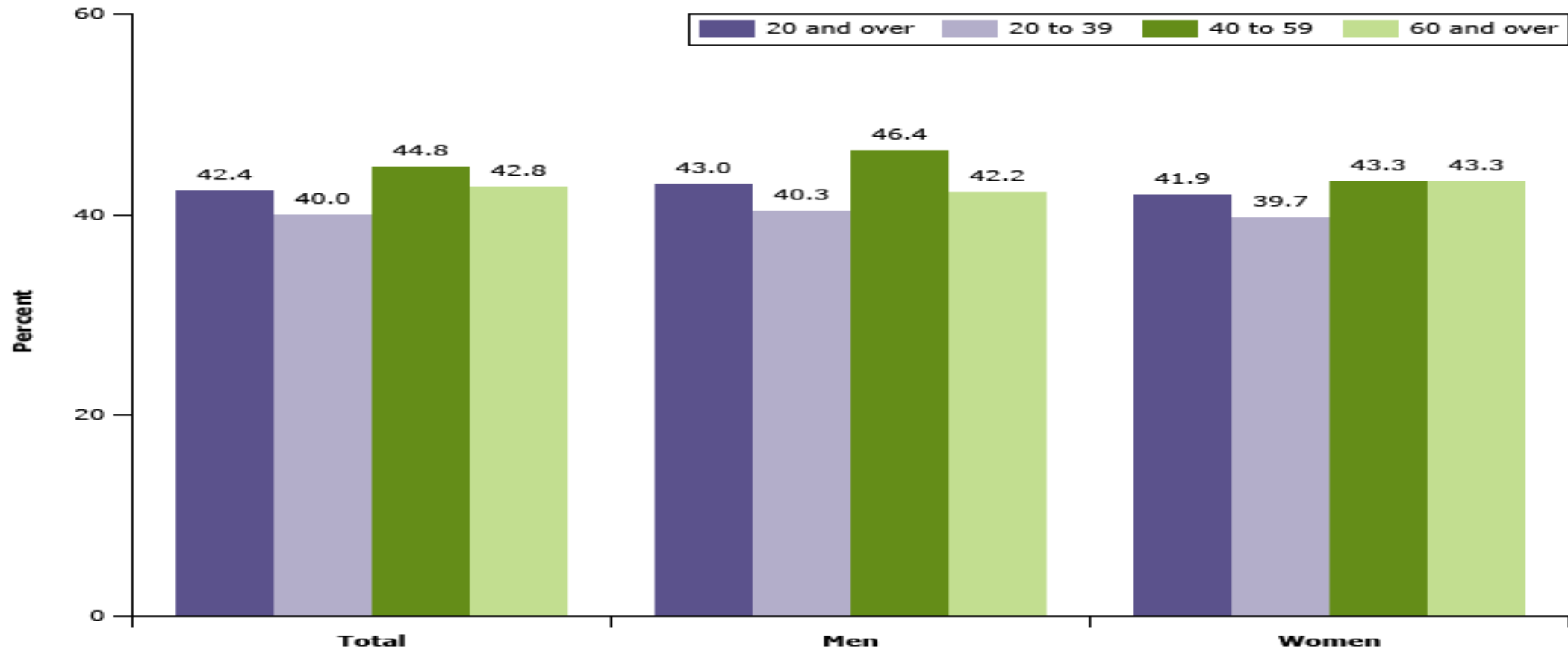
Waist circumference measurement



Measuring-tape position for waist (abdominal) circumference in adults. To measure waist circumference, locate the upper hip bone and the top of the right iliac crest. Place a measuring tape in a horizontal plane around the abdomen at the level of the iliac crest. Before reading the tape measure, ensure that the tape is snug, but does not compress the skin, and is parallel to the floor. The measurement is made at the end of a normal expiration.

Reproduced from: National Heart, Lung, and Blood Institute. *The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Heart Lung and Blood Institute, Bethesda, MD, October 2000.

Prevalence of obesity among adults aged 20 and over, by sex and age: United States, 2017 to 2018



Estimates for adults aged 20 and over were age-adjusted by the direct method to the 2000 U.S. Census population using the age groups 20 to 39, 40 to 59, and 60 and over. Crude estimates are 42.5% for total, 43.0% for men, and 42.1% for women.

Reproduced from: *Prevalence of obesity and severe obesity among adults: United States, 2017-2018*. Centers for Disease Control and Prevention. Available at: <https://www.cdc.gov/nchs/products/databriefs/db360.htm> (Accessed on August 5, 2021).

- › Data from NHANES 2009 – 2016 suggests that only around 20% of U.S. adults have “optimal” metabolic metrics: –
 - Waist circumference < 40in/35 in for men/women respectively
 - Fasting glucose < 100 mg/dL and hemoglobin A1c <5.7%
 - Blood pressure < 120/80 mmHg
 - Triglycerides <150 mg/dL
 - High-density lipoprotein cholesterol \geq 40/50 mg/dL for men/women respectively
 - Not taking any related medications for applicable metabolic diseases

Within Subsets of Patients with Overweight and/or Obesity

Deranged endocrine and immune responses



Sick Fat Disease (SFD) (Adiposopathy)

Endocrine/metabolic:

- Elevated blood glucose
- Elevated blood pressure
- Dyslipidemia
- Other metabolic diseases

Abnormal and pathologic physical forces



Fat Mass Disease (FMD)

Biomechanical/structural:

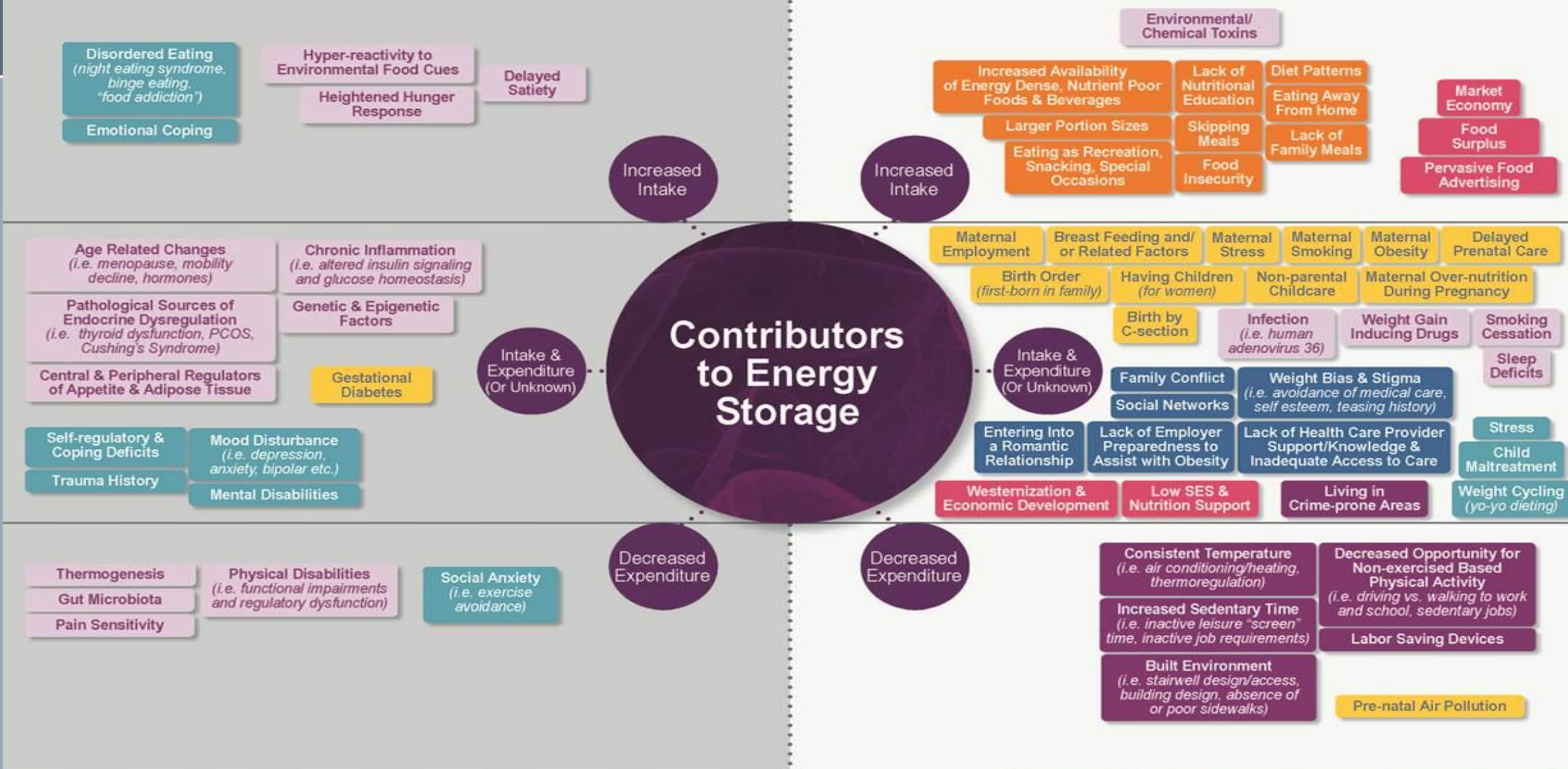
- Stress on weight-bearing joints
- Immobility
- Tissue compression (i.e., sleep apnea, gastrointestinal reflux, high blood pressure, etc.)
- Tissue friction (i.e., intertrigo, etc.)

POTENTIAL CONTRIBUTORS TO OBESITY

2015

Inside the Person

Outside the Person



DIABETES MELLITUS

HYPERCHOLESTEROLE

DIABETES MELLITUS

CIRRHOSIS

CIRRHOSIS

GOUT

DIABETES

HYPERCHOLESTEROLEMIA

DEPRESSION

PRESSURE

DISEASE

SWEATING

JOINT

ARTHRITIS BONE

OBESITY

STROKE

VARIC

DEPRESSION

HEART DISEASE

INFERTILITY

GALLBLADDER DISEASE

VARICOSE VEIN

HIGH BLOOD

OSTEOARTHRITIS IN JOINTS

STROKE

ARTHRITIS BONE

HIGH BLOOD PRESSURE

HEART DISEASE

DIABETES

SWEATING

METABOLIC SYNDROME

Defined internationally by WHO in 1998 and remains a predictor of ASCVD and correlates with obesity prevalence

› Insulin Resistance (Impaired fasting glucose, Impaired glucose tolerance, or type 2 diabetes)

AND 2 of the following:

› Elevated triglycerides

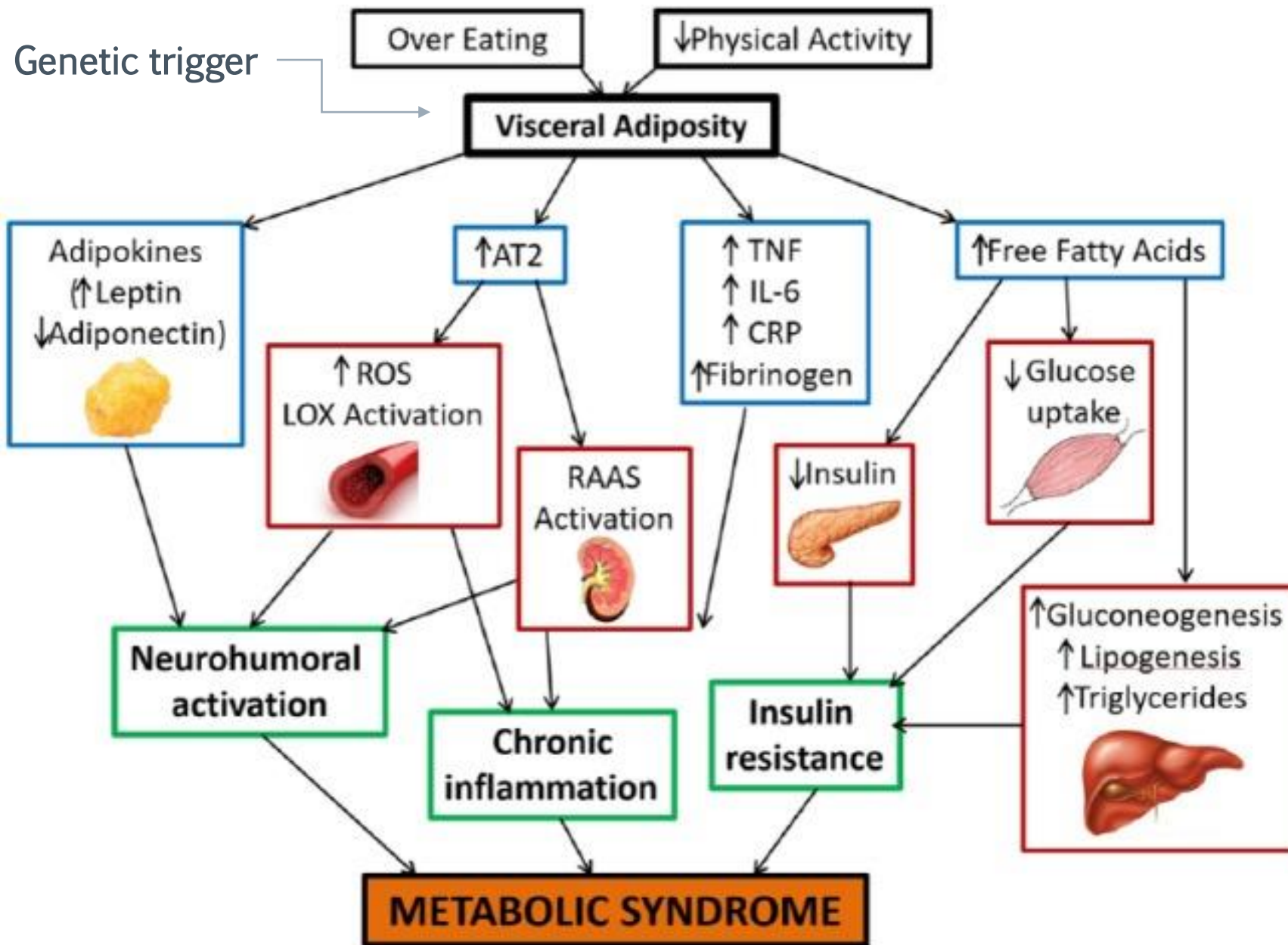
› Low HDL

› Central Obesity (waist to hip ratio or bmi)

› Hypertension

› Microalbuminuria (in WHO definition only)

Clinical measure	World Health Organization 1998 ⁷	European Group for the Study of Insulin Resistance 1999 ⁸	Adult Treatment Panel III of the National Cholesterol Education Program 2001 ¹⁰	International Diabetes Federation 2005 ¹¹	American Heart Association/National Heart, Lung, and Blood Institute 2005 ¹²
Criteria	IR + any other 2	IR + any other 2	Any 3 of 5	Increased WC (population specific) + any other 2	Any 3 of 5
Insulin resistance	IGT/IFG IR	Plasma insulin > 75th percentile	-	-	-
Blood glucose	IFG/IGT/T2DM	IFG/IGT (excludes diabetes)	≥ 110 mg/dL (includes diabetes)	≥ 100 mg/dL	≥ 100 mg/dL (includes diabetes)
Dyslipidemia	TG ≥ 1.69 mmol/L and HDL-C men < 0.90 mmol/L women < 1.01 mmol/L	TG ≥ 1.69 mmol/L and HDL-C < 1.01 mmol/L in men and women	TG ≥ 1.69 mmol/L HDL-C men < 1.03 mmol/L women < 1.29 mmol/L	TG ≥ 1.69 mmol/L or on TG treatment HDL-C men < 1.03 mmol/L women < 1.29 mmol/L Or HDL treatment	TG ≥ 1.69 mmol/L or on TG treatment HDL-C men < 1.03 mmol/L women < 1.29 mmol/L Or HDL treatment
Blood pressure	≥ 140/90 mmHg	≥ 140/90 mmHg or on antihypertensive medications	≥ 130/85 mmHg or on antihypertensive medications	≥ 130/85 mmHg or on antihypertensive medications	≥ 130/85 mmHg or on antihypertensive medications
Obesity	Waist: hip ratio men > 0.9 women > 0.85 and/or BMI > 30 kg/m ²	WC men ≥ 94 cm women ≥ 80 cm	WC men ≥ 102 cm women ≥ 88 cm	WC ≥ 94 cm	WC men ≥ 102 cm women ≥ 88 cm
Other	Microalbuminuria				



Pathophysiological mechanisms in metabolic syndrome. AT2, angiotensin II type 2 receptor; CRP, C-reactive protein; IL-6, interleukin 6; LOX, lectin-like oxidized low-density lipoprotein; RAAS, renin-angiotensin-aldosterone system; ROS, reactive oxygen species; TNF, tumor necrosis factor

Metabolic syndrome doubles the risk of CVD outcomes and increases all-cause mortality by 1.5 times.

Metabolic Syndrome Management

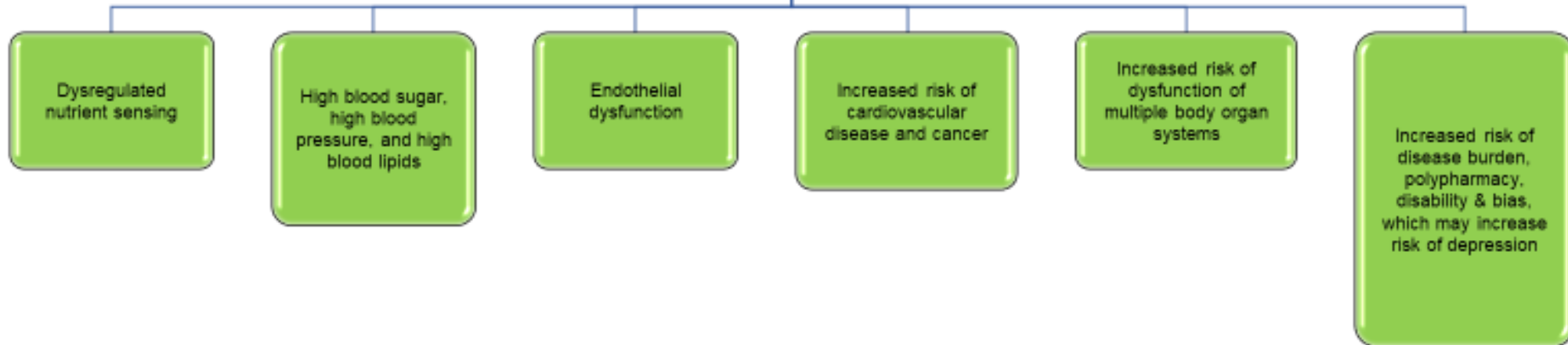
- › Weight reduction and maintenance of ideal body weight are essential preventive and management strategies.
- › The goal of weight reduction is a loss of 7–10% in baseline body weight over a period of 6–12 months
- › Dietary modification can also regulate other Metabolic syndrome components:
 - low intake of saturated fats, trans fats, cholesterol, sodium, and simple sugars is known to help with dyslipidemia, hyperglycemia and hypertension,
- › Bariatric surgery has shown benefit in the morbidly obese
- › 30–60 min of moderate intensity exercise and conscious efforts to alter a sedentary lifestyle
- › Pharmacotherapy for individual components of Metabolic syndrome is helpful. There is no single drug therapy for Metabolic syndrome.

- › More than 80% of people with DM2 also struggle with Obesity
- › Obesity seems to lead to a decrease in insulin sensitivity and beta cell dysfunction
- › There is a genetic predisposition with at least 39% of pts with at least 1 parent with diabetes

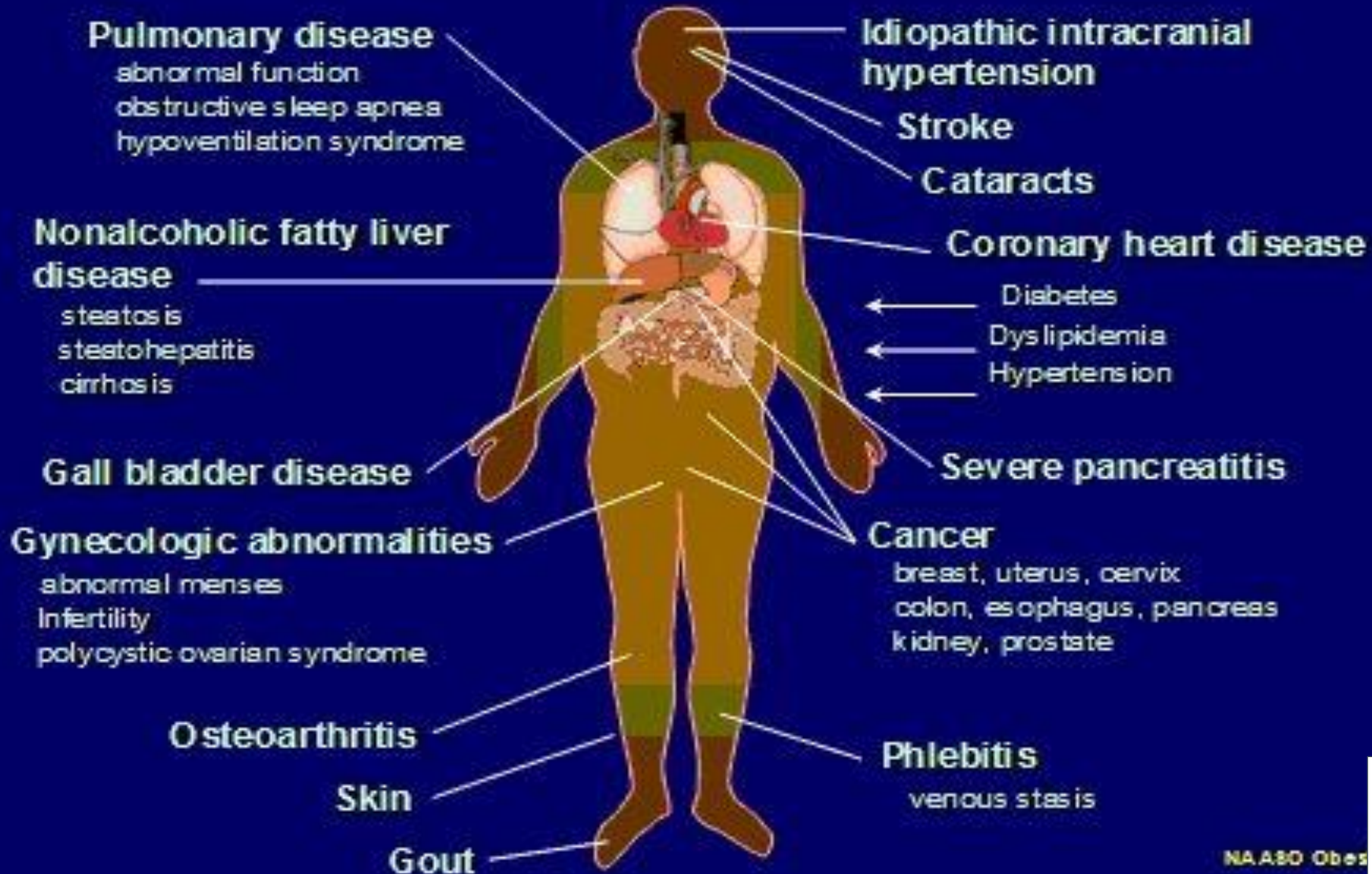


Obesity Promotes Adiposopathic “Aging” – Clinical Consequences

Obesity and Aging



Physiological Impact of Obesity



NAASO Obesity



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OBESITY and the Risk of Heart Disease



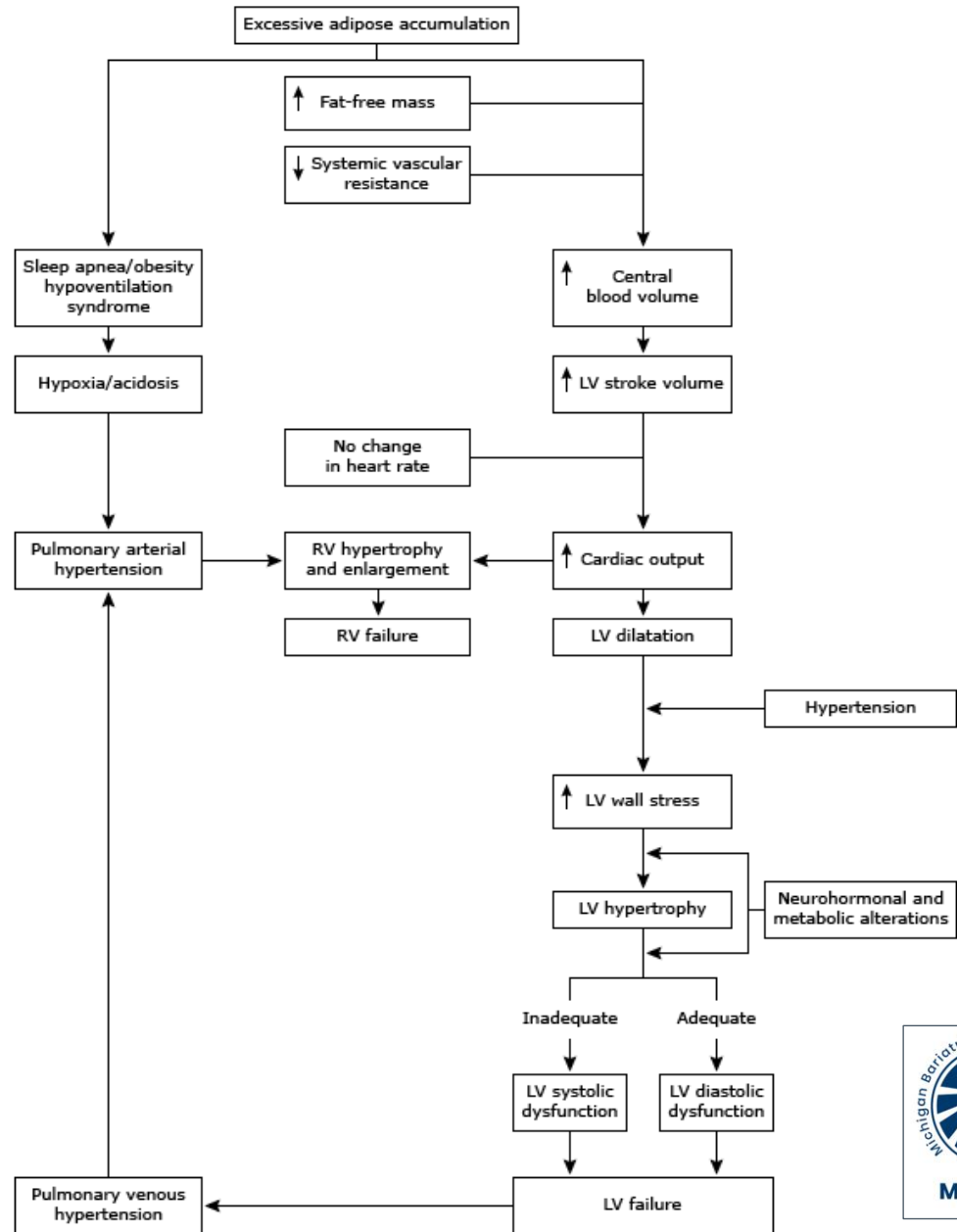
FOR EVERY 10 YEARS
THAT A PERSON SPENT OBESE



=

THEIR RISK OF HAVING HEART DAMAGE
↑ 1.25 TIMES

Cardiovascular physiologic changes in obesity



Metabolic Manifestations of Adiposopathy

- High blood glucose (prediabetes mellitus, type 2 diabetes mellitus)
- High blood pressure
- Metabolic syndrome
- Adiposopathic dyslipidemia
 - Increased triglyceride levels
 - Decreased high-density lipoprotein cholesterol levels
 - Increased atherogenic particle number (increased apolipoprotein B)
 - Increased proportion of small, dense, low-density lipoprotein particles
 - Increased triglyceride-rich lipoproteins
 - Increased lipoprotein-remnants
- Cardiovascular disease
- Cancer
 - Acanthosis Nigricans
- Asthma (due to adiposopathic immune and endocrine responses)
- Cholelithiasis
- Glomerulopathy
- Hepatosteatorsis (Nonalcoholic fatty liver disease)
- Hyperuricemia and gout
- Inflammatory diseases (osteoarthritis, atherosclerosis)
- Insulin resistance
- Nephrolithiasis
- Neuropsychiatric diseases (e.g., worsening depression or loss of gray matter due to adiposopathic immune and endocrine responses)
- Pro-thrombotic predisposition
- Sex hormone irregularities (e.g., polycystic ovary syndrome in women, hypogonadism in men)

Obesity and Adiposopathy Increase the Risk of Cancers: Men and Women

- Biliary tract cancer
- Bladder cancer
- Brain cancer (i.e., meningiomas)
- Breast cancer (postmenopausal)
- Cervical cancer
- Colorectal cancer
- Endometrial/uterine cancer
- Esophageal cancer
- Gallbladder cancer
- Head and neck cancer
- Kidney/renal cancer
- Leukemia
- Liver cancer
- Multiple myeloma
- Non-Hodgkin lymphoma
- Ovarian cancer
- Pancreatic cancer
- Prostate cancer (prognosis is worse, not necessarily increased risk)
- Stomach cancer
- Thyroid cancer



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SMOKING, DIET, EXERCISE AND CANCER

As smoking has decreased in the U.S., increased obesity has emerged as a major cancer risk.



20

Percentage of cancers as result of poor diet, physical condition, excess weight



30

Percentage of all U.S. cancer deaths caused by cigarette smoking



33

Percentage of decline in cigarette smoking, 2001-2015



50

Percentage of all cancer deaths that could be prevented with healthy lifestyle¹

¹ — Includes diet, exercise, weight, screenings, and vaccines.

SOURCE American Cancer Society
USA TODAY



Ticking timebomb of obesity

5

top causes of premature death

- 1) Obesity
- 2) Diabetes
- 3) Smoking
- 4) High blood pressure
- 5) High cholesterol

15

years ago smoking topped the list

47

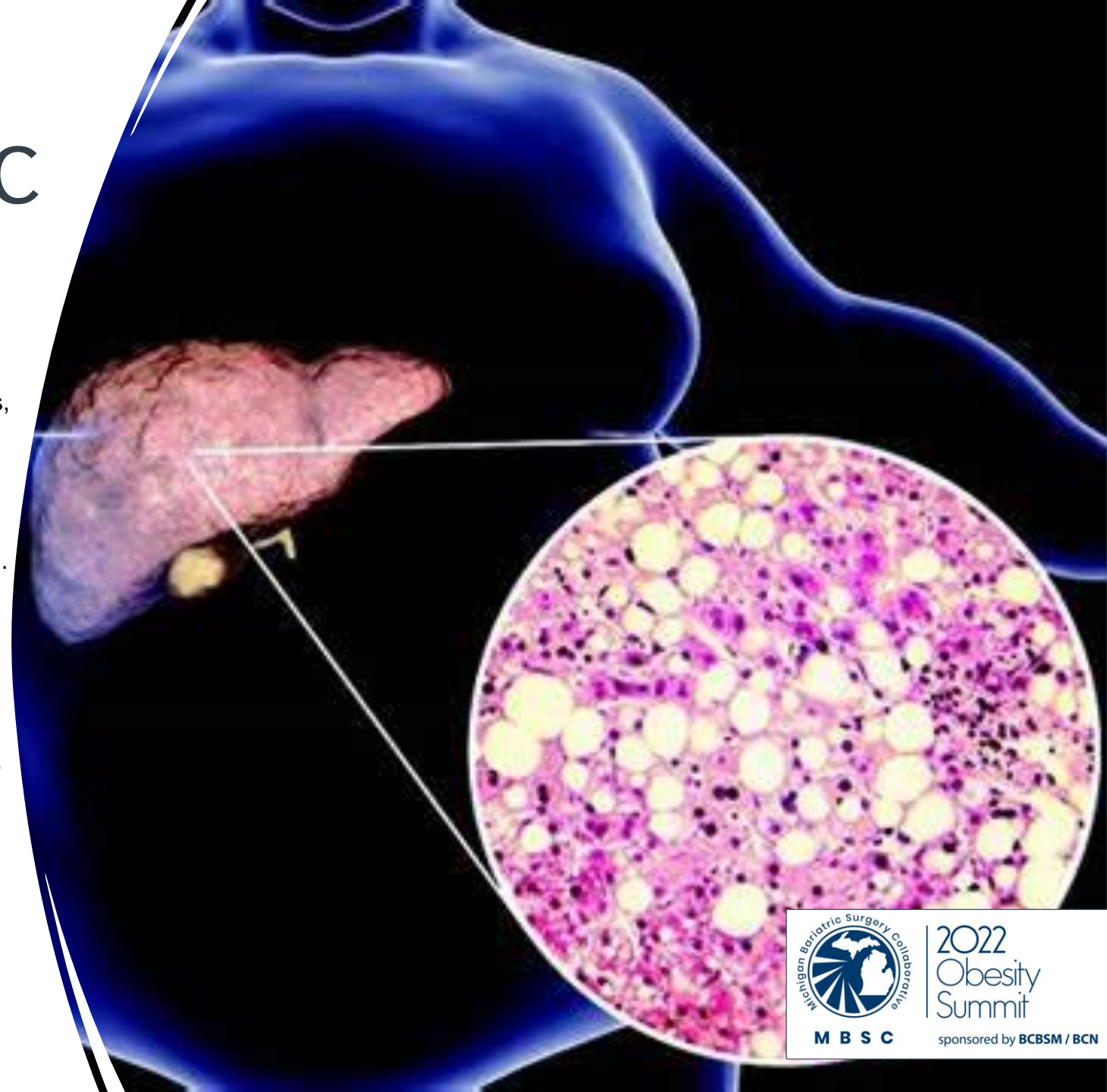
obesity leads to 47% more life-years lost than tobacco



π

Nonalcoholic Fatty Liver

1. NAFLD includes the spectrum of fatty liver diseases, and is the most common cause of chronic liver disease (~25% of adults)
2. More than 2/3 of patients with NAFLD have obesity; NAFLD is a risk factor for cardiovascular disease
3. Up to 30% of patients with NAFLD may have NASH. After 20-year follow-up, the risk of cirrhosis with hepatosteatosis is ~ 0 – 4%. After 9-year follow-up, the risk of cirrhosis with NASH = ~ 25%
4. NAFLD is an important cause of end stage liver disease, hepatocellular carcinoma and a leading indication for liver transplant
5. While some drugs are suggested to improve NASH, no drug has an approved indication to treat NASH



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When Thinner Means Sicker
and Heavier Means Healthier



The
**OBESITY
PARADOX**

CARL J. LAVIE, MD

with Kristin Loberg



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The Obesity Paradox

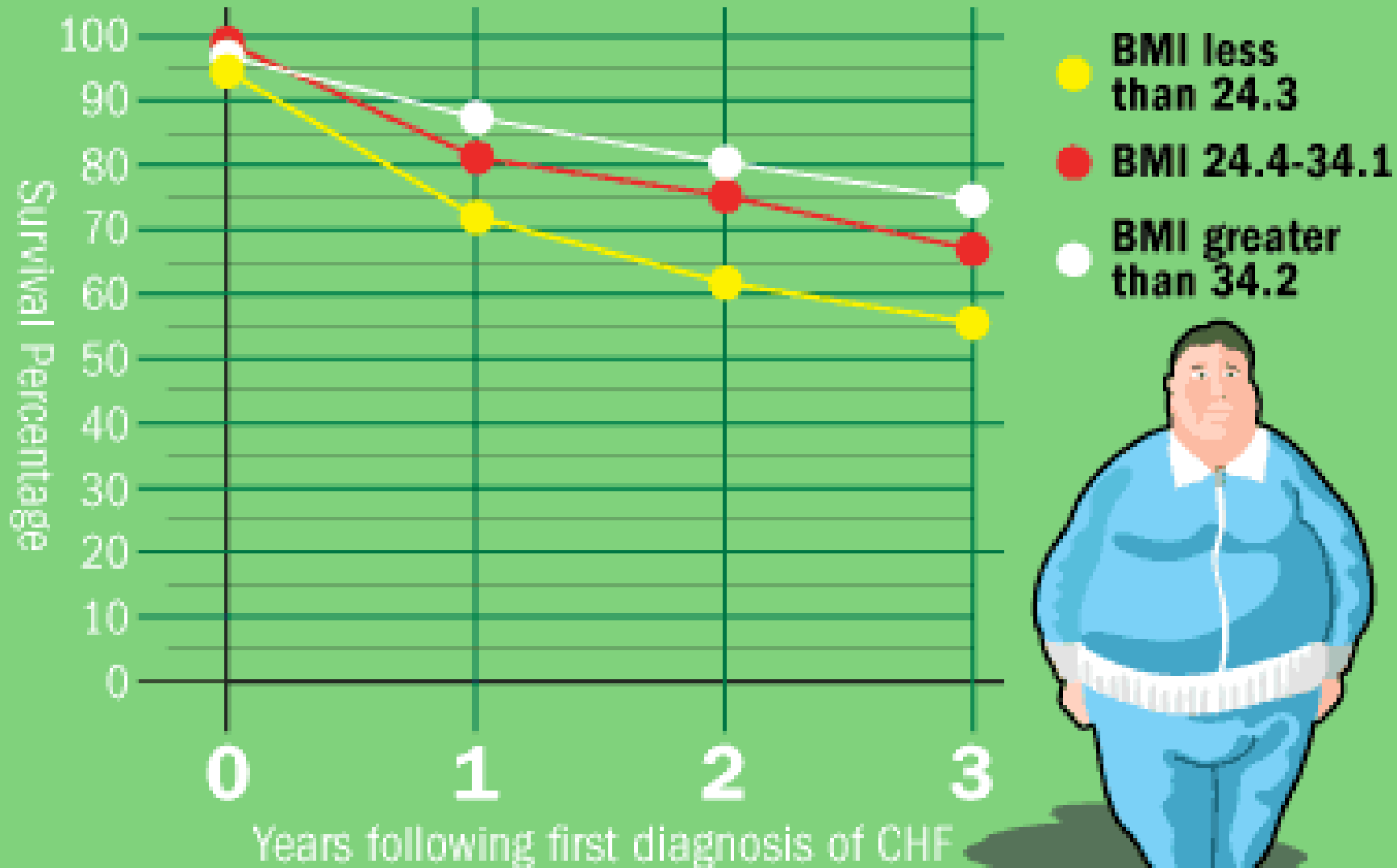
The term "obesity paradox" refers to the observation that, although obesity is a major risk factor in the development of cardiovascular and peripheral vascular disease, when acute cardiovascular decompensation occurs, obese patients may have a survival benefit.

Individuals with the highest body weight and lowest body weight have higher mortality

The increase in mortality with lower body weight is often due to the confounding effect of concurrent illnesses and cigarette smoking, that not only contribute to low body weight, but also to increased mortality

Survival Rate of Chronic Heart Failure Patients

©2007 HowStuffWorks





Metabolically Healthy Obesity?

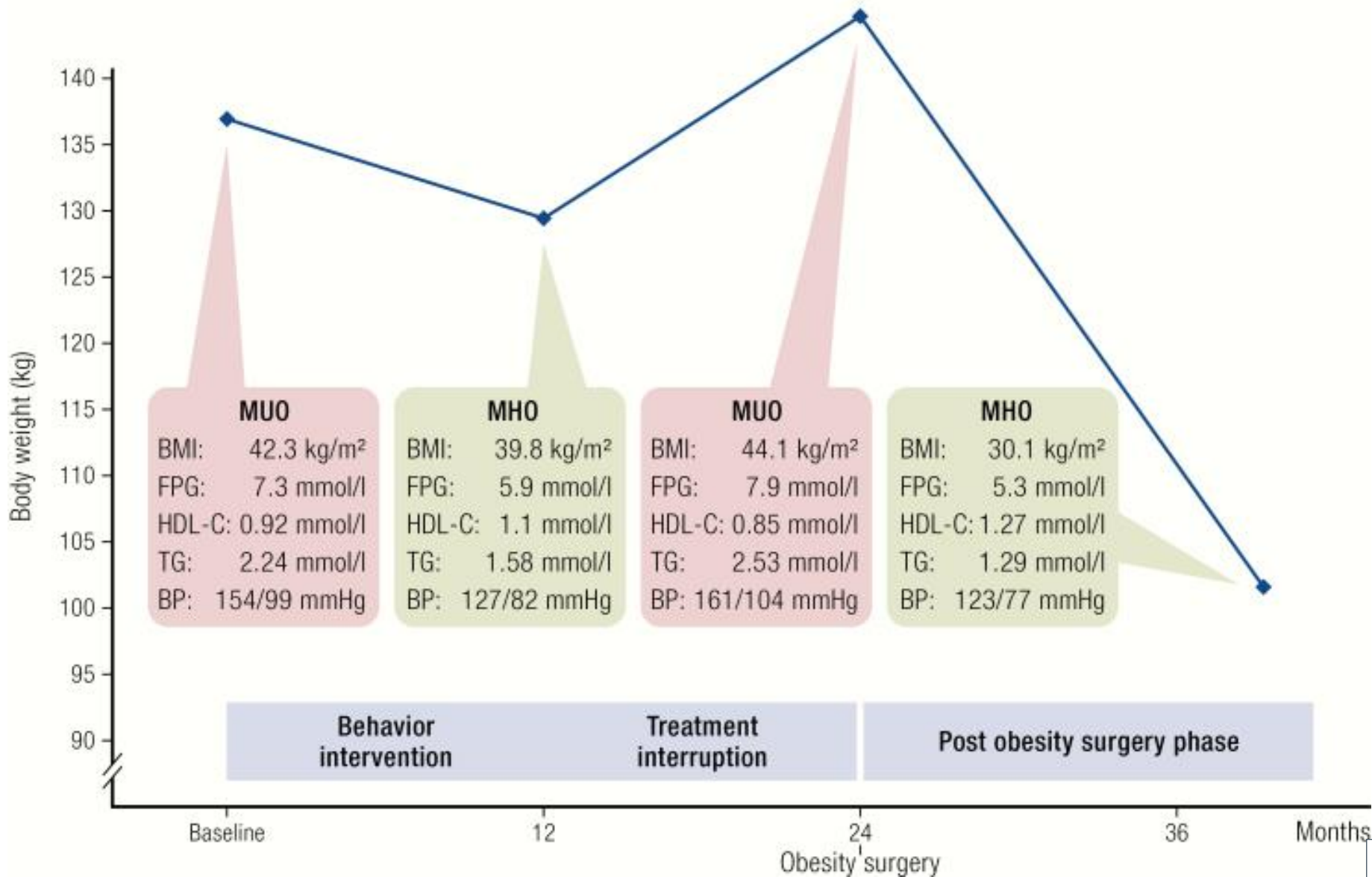
Metabolically Healthy Obesity

- › No universal definition for metabolically healthy obesity
 - Most studies included people with less than 2 of the metabolic syndrome components
 - › Nearly half of all people with obesity can be classified as metabolically healthy with this definition when you exclude waist circumference.
 - Thus, people reported as metabolically healthy may simply have fewer cardiometabolic abnormalities than those defined as metabolically unhealthy.
 - › This group has higher risks of type 2 diabetes, cvd and all cause mortality than those who are metabolically healthy and do not have obesity
 - › Approximately 30-50% of people in this group convert to metabolic syndrome/metabolically unhealthy over time.

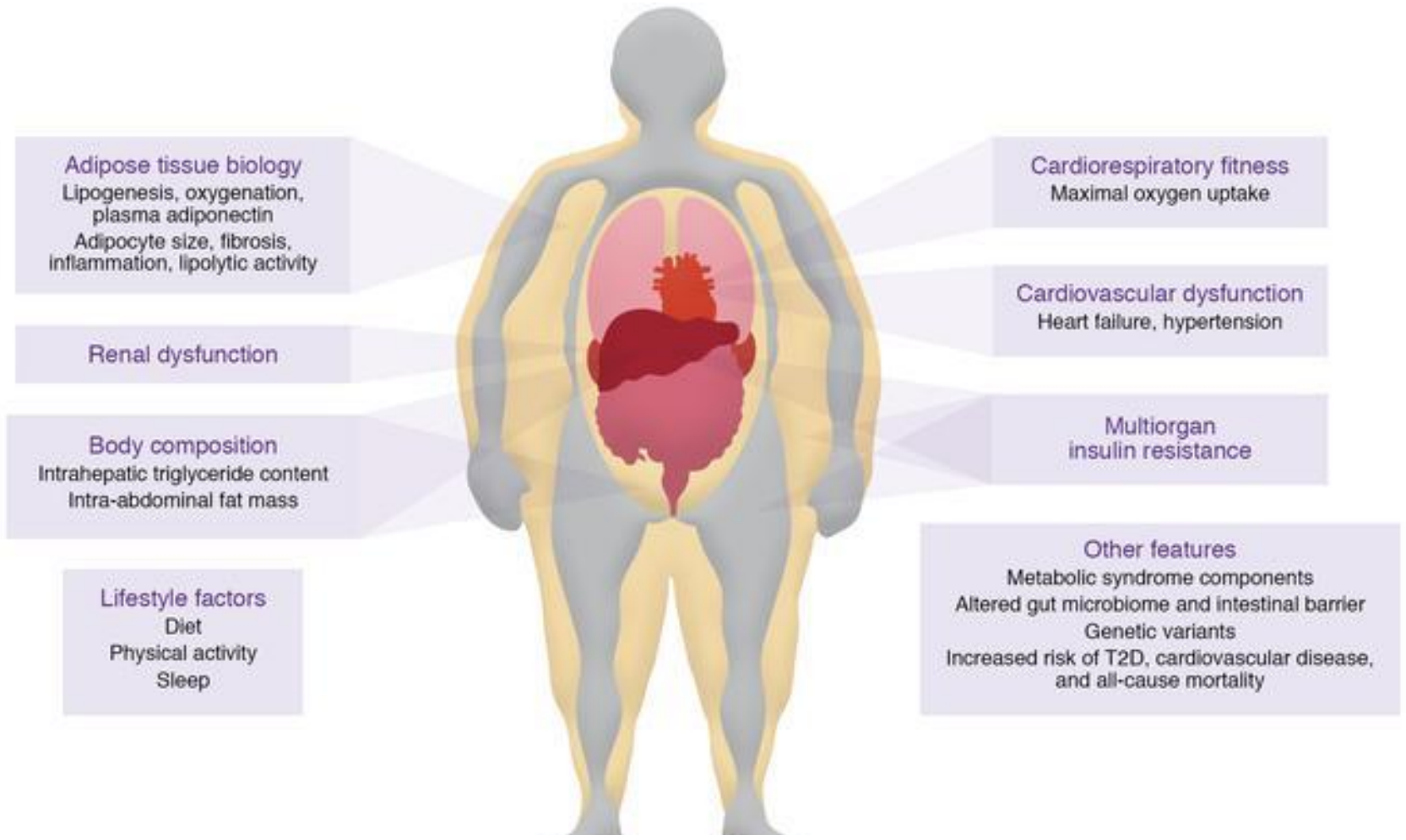
Metabolically Healthy Obesity

- › There is a small subset (<7% of patients studied) of patients who have obesity and no metabolic syndrome components
 - Combined data from 5 cohorts following patients for avg of 13 years found that people without metabolic syndrome components (excluding waist circumference) but with obesity did not have an increased all cause mortality compared to the metabolically healthy lean group
 - However, The risk of all-cause mortality increased in the metabolically healthy group with even one risk factor for metabolic syndrome (excluding waist circumference)
 - Metabolically healthy obesity most likely represents a transient phenotype, and individuals with MHO still have an indication for weight-loss interventions because their risk of developing cardiometabolic diseases may be lower compared to MUO, but it is still higher than in metabolically healthy lean people.

Case example (48-year-old man): Changes in body weight and transitions from MHO to MUO status upon obesity interventions



Metabolically healthy obesity: Characteristics of people with metabolically unhealthy obesity that are distinct from those of people with metabolically healthy obesity



J Clin Invest DOI: 10.1172/JCI129186

Conclusions

- › There is considerable heterogeneity in metabolic complications of obesity.
 - 50% of people with obesity are metabolically healthy when healthy is defined as the absence of the metabolic syndrome,
 - Less than 7% are considered metabolically healthy when healthy is defined as the absence of any metabolic syndrome and normal insulin sensitivity.
- › The number and severity of metabolic abnormalities in patients with obesity is directly related to risk of developing cardiometabolic disease.
- › Metabolically healthy obesity represents a model to study mechanisms linking obesity to cardiometabolic complications.
 - Metabolically healthy obesity should not be considered a safe condition, which does not require obesity treatment, but may guide decision-making for a personalized and risk-stratified obesity treatment.

- › The precise mechanisms responsible for preserved metabolic health in people with obesity are not known and cannot be accounted for by lifestyle factors alone in the limited studies that have been done.
 - There is likely a genetic component
 - Gut microbiome influence on metabolic health is rapidly emerging as an important area of research.
 - Inflammation and fibrosis of the adipose tissue is greater in people with metabolically unhealthy obesity compared to those with metabolically healthy obesity but it is unknown if this is a cause or consequence of insulin resistance and metabolic dysfunction

65% of American Adults Recommended for Weight-Loss Treatment*

Per 2013 Guideline for the Management of Overweight and Obesity in Adults



140 million

could be considered for behavioral
weight-loss treatment



Of those,

116 million

could be considered for adjunctive
pharmacotherapy along with behavioral treatment

Of those,

32 million

could be considered for bariatric surgery

* Stevens J. The 2013 Guideline for the Management of Overweight and Obesity in Adults Recommends Weight-Loss Treatment for Up to 140 Million Americans. Poster abstract presentation at The Obesity Society Annual Meeting at ObesityWeek™ 2014, November 2-7, 2014, Boston, MA. www.obesityweek.com.

Jensen MD, Ryan DH, Donato KA, Apovian CM, Ard JD, Comptee AG, Hu FB, Hubbard VS, Jakicic JM, Kushner RF, Loria CM, Miller DE, Nassis CA, Pi-Sunyer FX, Stevens J, Strasser VJ, Wadden TA, Wilfong SM, Yanovski SZ. Guidelines (2013) for managing overweight and obesity in adults. *Obesity* 2014;22(52):S1-S433.



IMPACT ON MENTAL HEALTH AND QUALITY OF LIFE

Maunda Snodgrass, PsyD
Henry Ford Health



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Disclosures

I have no actual or potential conflict of interest in relation to this program/presentation.

Learning Objectives

- › Enhance knowledge and understanding of the role of intersectionality as it relates to the social determinants of mental health and their impact on the quality of life on people who live in larger bodies.
- › Explore the consequences of weight stigma on mental and physical health and quality of life.
- › Discuss the relationship between obesity and various mental health conditions.

Social Determinants of Mental Health (Compton, 2015)

- › Racial discrimination and social exclusion
- › Adverse early childhood experiences
- › Poor education
- › Unemployment, under employment and job insecurity
- › Poor access to sufficient healthy food
- › Poor housing quality and housing instability
- › Adverse features of the built environment
- › Poor access to healthcare
- › Inadequate and unequal access to transportation
- › Exposure to violence, conflict, and war in childhood or adulthood
- › Mass incarceration and poor relations between law enforcement and communities
- › Environmental pollution (air, water, and land)
- › Climate change
- › Sexism and other forms of discrimination
- › Adverse or unsupportive features of the workplace

Weight Stigma

- › Weight stigma is defined as the negative attitudes and beliefs that devalue people based on their perceived weight status.
- › Weight stigma includes bias, discrimination, stereotyping, and social rejection that is primarily directed towards people identified as being obese (Brown et al., 2022).
- › Adults with higher weight report stigmatizing interactions in nearly every aspect of public life including interactions with medical professionals, potential employers and strangers (Harrison, 2019; Strings, 2019).
- › Weight stigma can lead to depression, low self-esteem, poor body image and suicidal thoughts (Hatzenbuehler et al., 2019).
- › Weight stigma undermines health behaviors and preventative care, causing disordered eating, decreased activity, healthcare avoidance and weight gain (Tomiyama, 2014) and increases the risk of mortality (Sutin et al., 2015).

Weight Stigma in Healthcare Settings

- › Physicians spend less time with obese patients, provide less intervention and engage in less discussion with them about their health (Brown et al., 2022).
- › Endorsing negative stereotypes of higher weight patients including the use of terms like “lazy, weak willed and bad,” feeling less respect for those patients who are in larger bodies and being more likely to characterize them as a “waste of time,” (Brown et al., 2022)
- › As a result, obese patients postpone seeking care or are reluctant to return for medical care based on their previous experiences. (Abrams, 2022)
- › Patients with obesity also receive fewer preventative health services, which results in greater severity of disease when they do receive care (Tomiyama, 2014).
- › Dieting is recommended to patients regardless of presenting complaint and patients with obesity indicate that they are not given clear recommendations about what to do to manage their weight (Brown et al., 2022)

The Psychological Consequences of Dieting

- › According to Cleveland Clinic about 80% of people who lose a significant portion of their body fat will not maintain the loss for a year. Dieters regain more than half of the lost weight within two years.
- › Keys (1950) found in their studies on semistarvation in college students that over the course of a starvation period, the subjects of their study became more fixated around food, revolving their day around meals and savoring each meal they were given. When they were able to eat without inhibition, they experienced a loss of control over their desire to gorge food.
- › Polivy & Herman (1985) found in their study of chronic dieters that college students who dieted had similar behaviors to those in Keys' experiment and with those diagnosed with anorexia and bulimia.
- › Ignoring hunger cues can lead to overeating and studies have shown that when dieters ignore their hunger signals, they are more susceptible to other signals that can lead to binge eating behaviors (Memon et al., 2020).

Eating Disorders

- › Eating disorders are consistently underrecognized and under treated in people with higher weight.
- › There is an association between binge eating disorder and obesity but the relationship between anorexia and obesity has largely been ignored because of the criteria for low BMI.
- › Dieting is often a precursor to eating disorders. The National Eating Disorders Association reports that 35% of “normal dieters” progress to pathological eating and that 20-25% of those individuals develop eating disorders.
- › Despite the rarity of eating disorders, disordered eating behaviors are very common and condoned in popular culture including fasting, skipping meals and extreme caloric restriction.
- › A 2019 study at the UCSF comparing weight loss and illness severity among two groups of patients with typical and atypical anorexia found that patients with atypical anorexia were as likely to suffer from bradycardia, amenorrhea, were susceptible to electrolyte imbalance and scored higher on a questionnaire that assessed eating psychopathology.



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Mental Health and Obesity

DEPRESSION

- › There appears to be a bidirectional relationship between depression and obesity (Simon et al., 2006).
- › The relationship between depression and obesity appears to be stronger for women than men because of the emphasis on thinness as a characteristic of beauty (Simon et al, 2006).
- › One third of bariatric surgery candidates report clinically significant depression at the time of surgery and 50% report a lifetime prevalence of depression (Sogg et al., 2016)

BIPOLAR DISORDER

- › There is an increased prevalence of obesity with bipolar disorder due to the weight gaining side effect associated with medications used to treat bipolar disorder (Goldstein et al., 2011).
- › Obesity is associated with greater severity of bipolar disorder.
- › There is evidence that obesity is associated with proxies for the burden of bipolar disorder including increased manic and depressive episodes, increased depressive symptom severity, suicidality and treatment use.

Mental Health and Obesity (cont'd)

ANXIETY

- › Evidence is mixed regarding the association between anxiety and obesity (Simon et al., 2006).
- › Rajan & Menon (2017) reported that a study found that people who were obese had a 27% increased lifetime risk of developing panic disorder.
- › Garipey, Nitka & Schmitz (2010) conducted a meta-analysis and found that obesity is positively associated with anxiety, and more than half the studies examined showed significantly higher odds of anxiety disorders in obese compared to non obese individuals.

TRAUMA

- › The CDC's ACE study, found that more than six million obese and morbidly obese people are likely to have suffered from physical, sexual, and or verbal abuse during their childhood.
- › One analysis of 57,000 women who participated in the Nurses Health Study II found that those who experienced physical or sexual abuse as a children and or adolescents were twice as likely to be addicted to food.
- › Women have said that they felt more physically imposing when they were bigger and that their size could ward off sexual advances from men (Khazan, 2015).

Severe Mental Illness (McElroy, 2009)

- › There is an increased risk of obesity from the illnesses themselves and their treatment.
- › Obesity produces serious health consequences and poor treatment outcomes for those who suffer from mental illness.
- › It is well established that some antipsychotic, mood stabilizing, and antidepressant medications cause weight gain. There is growing evidence to suggest that antipsychotic treatment may be associated with obesity in the severely mentally ill.
- › Obesity is also a risk factor for noncompliance with antipsychotic medications. In a study of schizophrenic patients, it was found that obese individuals were twice as likely as those with normal weight to report missing doses of medication.

Key Takeaways

- › The social determinants of mental health and intersectionality are useful tools in helping us understand the psychological and quality of life implications of what it means to exist in a larger body.
- › Weight stigma is pervasive and damaging to the health and well being of individuals living in larger bodies.
- › The relationship between obesity and mental health issues amplifies the need for comprehensive treatment to address both issues simultaneously.

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Q & A PANEL DISCUSSION



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REFRESHMENT BREAK



SESSION II

Non-Surgical Management of Obesity

Moderator:
Annie Ehlers
MD, MPH



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DIETARY
INTERVENTIONS
FOR THE
TREATMENT OF
OBESITY

Corey Shack
MS, RDN, CSOWM



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Objectives

- › Comprehensive Weight Management Interventions
- › Goals of Adult Obesity Treatments
- › Factors that Influence Intake
- › Assessment and Dietary Interventions
- › Role of the Nutrition Professional

Academy of Nutrition and Dietetics Position Statement

Successful treatment of overweight and obesity in adults requires adoption and maintenance of lifestyle behaviors contributing to both dietary intake and physical activity.

These behaviors are influenced by many factors; therefore, interventions incorporating more than one level of the socioecological model and addressing several key factors in each level may be more successful than interventions targeting any one level and factor alone.

Acad Nutr Diet.2016;116:129-147

Treatment Goals for Obesity

The Position Paper created by the Academy of Nutrition and Dietetics recommends that RDNs collaborate with individuals to create realistic weight-loss goals.

- › Ex: up to 2 lb/wk, up to 10% of baseline body weight, or a total of 3-5% of baseline weight if cardiovascular risk factors are present.

Treatment/Interventions should help to produce changes in lifestyle behaviors that contribute to both sides of energy balance.

- › Along with changes in intake, treatment should encourage increased energy expenditure.

Comprehensive Weight Management Interventions

- › Reduced Calorie Diet
- › Increased Physical Activity
- › Behavioral Strategies
- › Medication and/or surgery when indicated

EAL Intensity/Frequency Recommendation: For weight loss the RDN should prescribe at least 14 MNT encounters (individual or group) over a period of at least 6 months. For maintenance, the RD should prescribe monthly encounters for MNT at at least 1 year.

Factors Influencing Food Intake



Factors Influencing Food Intake

Eating behaviors are influenced by both internal and external systems

Internal Systems

- › **Homeostatic:** neural, nutrient, and hormonal signals allowing communication between the gut, pancreas, liver, adipose tissue, brainstem, and hypothalamus.
 - The arcuate nucleus of the hypothalamus integrates signals that regulate hunger and satiation.
- › **Hedonic:** “liking” and rewarding qualities of food and is regulated by the corticolimbic system.

External Systems

- › Environmental variables include food availability, energy density, portion size, socioeconomic status, cultural, etc.
- › Increased intake appears to be outside of awareness and is not associated with enhanced satiation.

Nutrition Assessment

Nutrition Care Process: assessment, diagnosis, intervention, monitoring and evaluation

- › If indirect calorimetry or bioelectrical impedance is not available, providers should use the *Mifflin-St. Jeor equation* using actual weight to estimate RMR in the overweight/obese population.

The *RMR* should be multiplied by an activity factor to better estimate total energy needs.

- › Sedentary: 1.0-1.3, Low active: 1.4-1.5, Active:1.6-1.8, Very Active:1.9-2.5

Nutrition Assessment

- › Collecting applicable information is essential for the development of the diagnosis and intervention.
- › Assess motivation, readiness and self-efficacy for weight management based on behavior change theories.
- › Anthropometrics/NFPA/Biochemical Data: Lipid profile, Glucose/endocrine profile, Ht, Wt, Wt Hx, Body composition (BIA) if able.
- › Review client history and appropriateness for weight management (hx of eating disorder, cancer treatments, pregnancy).

Dietary Interventions

RDNs should work with the patient to prescribe an individualized diet, that includes patient preferences, health status, to achieve a reduced calorie intake.

Categories of Interventions:

- › Small, food based changes
- › Large, energy, macronutrient, and/or dietary pattern-based interventions
 - Considered more efficacious for wt loss over small changes
 - 1200-1500 kcal/day for women, or 1,500-1,800 kcal/day for men
 - Energy deficit diet: Reduction of 500 kcal/day or 750 kcal/day

Small, Food-Based Changes

Small behavior changes that shift energy balance a few hundred calories per day may be helpful for long-term weight management.

- › Reducing intake of sugar sweetened beverages
 - Only small change that leads to significant weight loss (2-2.5% x 6 months)
 - Still below the recommended weight loss for cardiometabolic benefit
- › Increasing fruits and vegetables
 - Reduced energy density, enhance satiation, and assist with decreased overall intake
 - With no other dietary change, increased fruits and vegetables do not produce significant weight loss.
- › Reduced fast food intake
 - No RCT has been conducted to review if this change alone produces wt loss.

Energy Focused

1200-1500 kcal/day for women or 1,500-1,800 kcal/day for men

Energy deficit diet: $MSJ \times \text{Activity Factor} - 500 \text{ kcal/day}$ or 750 kcal/day

- Negative energy balance helps produce at least 3% weight loss for cardiometabolic benefits.

No one diet approach or dietary pattern is considered to be more efficacious than another for weight loss when combined with a negative energy balance.

- Consider specific individual cardiometabolic effects and individual patient history and preferences when determining ideal dietary pattern.

Energy Focused

Low Calorie Diet (LCD): >800 kcal/day and ranges typically between 1,200-1,600 kcal/day.

- › Use of meal replacements, usually liquid shakes and bars, that contain a known amount of energy/macronutrients increase the structure and help with adherence. These replacements help with portion control, problematic food selection, and improve convenience.
- › RDNs should recommend portion control, structured meal plans and meal replacements as part of a comprehensive program.

Very Low Calorie Diet (VLCD) : ≤ 800 kcal/day

- › Provide a high degree of dietary structure and commonly are comprised of liquid meal replacement shakes.
- › Designed to preserve lean muscle mass and provides 70-100 gm/day of protein (0.8-1.5 gm/kg IBW).
- › Only appropriate for BMI ≥ 30 ; Used for patients having bariatric surgery to reduce surgical risk with severe obesity.

RCT comparing VLCD and LCD found although VLCD produced greater weight loss short term, there was no difference in weight loss between diets in long-term follow-up >1 year.



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Macronutrient Focused

Macronutrient-focused diet prescriptions that alter one macronutrient, means there will be a change in other macronutrients to meet needs. Thus, macronutrient-focused diet have often targeted just one macronutrient within the diet.

Low Carbohydrate

- › <20 gm CHO per day. Once desired weight is achieved, CHO intake is increased to 50 gm per day for maintenance.
- › A low fat, low carb diet produced a greater reduction in LDL cholesterol than just a low CHO diet. While a low CHO diet products a greater reduction in Trigs and a larger increase in HDL than a low fat, LCD.

Low - Glycemic Index

- › No standard definition. The effectiveness without energy restriction on weight loss is poor. If it is coupled with energy restriction; a low glycemic diet can improve glucose and insulin metabolism more than a low fat/high glycemic diet.

High Protein

- › >20% energy from protein, with no standard defined amount of fat or carbohydrate. For weight loss, it is recommended this be combined with energy restriction.



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Dietary Pattern Focused

- › Dietary pattern prescriptions focus on overall diet by providing recommendations about TYPES of foods to consume, rather than providing recommendations about amount of energy or macronutrients to consume.
- › As these diets focus on types of foods, it may not produce greater weight loss than other diets. They primarily enhance consumption of foods that are beneficial to the overall quality of the diet.



Dietary Pattern Focused

- › **Energy Density:** Ratio of energy of a food to the weight of a food (kcal/g). Largely determined by water content, fiber content and fat content.
- › **DASH (Dietary Approaches to Stop Hypertension) :** Encourages fruits, vegetables, whole grains, nuts, legumes, seeds, low fat dairy, lean meats. A daily energy limit is not a component of the original DASH diet, but when combined with energy restriction, weight loss does occur.
- › **Mediterranean:** Not a standard definition; but reflects dietary patterns of Crete, Greece and southern Italy in the 1960s. Focuses on plant-based foods, minimal processed foods, olive oil and low-fat protein sources (limiting red meats). When combined with energy restriction, weight loss does occur. Improves cardiovascular risk factors (Blood pressure, glucose, lipids).
- › **Eating Frequency:** The number of eating occasions (meals and snacks) occurring daily. Few RCTs have found that higher eating frequency produces greater weight loss.
- › **Timing of Eating:** “When and how much you eat”. Potentially consuming more energy earlier in the day, rather than later, can assist with weight management by influencing the circadian rhythm. It helps synchronize the peripheral oscillators with the suprachiasmatic nucleus, assisting with maintenance of the correct circadian rhythm.
- › **Breakfast Consumption:** No investigation found greater weight loss with breakfast consumption specifically.



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Evidence-Base for Dietary Interventions

	RCT Evidence Supportive	RCT Evidence - Not Supportive	Lacking RCT Evidence
Increasing Fruits & Vegetables		X	
Decreasing Sugar-Sweetened Beverages	X		
Decreasing Fast Food			X
Low-calorie Diet	X		
Meal Replacement/Structured Meal Plans	X		
Very Low-calorie Diet	X		
Low-Carbohydrate Diet	X		



Evidence-Base for Dietary Interventions

	RCT Evidence Supportive	RCT Evidence - Not Supportive	Lacking RCT Evidence
Low Glycemic Index		X	
High Protein with Energy Restriction	X		
Energy Density Approach			X
Dash with Energy Restriction	X		
Mediterranean with Energy Restriction	X		
Eating Frequency/Timing of Eating			X
Breakfast Consumption			X



Emerging Trends

- › Intermittent fasting
 - The dietary practice in which periods of regular consumption of foods and beverages are interspersed with periods of severe energy restriction or by fasting, typically lasting 1-3 days per week. The main objective is to create a negative energy balance.
 - Current research does not provide conclusive evidence of greater benefits from intermittent fasting on weight when compared with a diet of calorie restriction.
- › Ketogenic diet
 - A meta-analysis of 13 studies lasting >1 year found that the ketogenic diet was associated with <1kg of additional weight loss over low fat dietary interventions. Although statistically significant, it may not be clinically significant. Similar outcomes were found with 32 controlled feeding studies. Ultimately, this meta-analysis concluded that any diet that results in weight loss does so because of calorie reduction.
 - Ketogenic diet has been indicated in the use for morbidly obese diabetic patients or management of severe obesity before bariatric surgery.

Dietary Interventions Summary

- › As long as the dietary intervention helps reduce energy intake by 500 to 750 kcal/day, there is no one diet that is more efficacious than another at producing clinically meaningful weight loss.
- › Review the patient's full medical history and comorbid conditions to help determine the best dietary intervention for their specific needs.
- › **EAL Recommendation:** “For weight loss and weight maintenance, the RDN/Provider should individualize the meal pattern to distribute calories at meals and snacks throughout the day, including breakfast”.
- › **Monitoring/Evaluation:** Continue to monitor and evaluate total energy needs and consider re-calculating estimated needs/activity factors as weight loss occurs. The provider should also monitor the effectiveness of the weight management program through biochemical data, anthropometric measurements, and nutrition related history.

Weight Regain

- › **Rationale for Regain:** The fall in energy expenditures (out of proportion to reduction in body mass) and increase in appetite that are observed after weight loss are associated with hormonal changes encouraging weight regain.
- › Increased hunger/decreased satiety after weight loss are associated with an increase in circulating levels of orexigenic hormones (ghrelin) and reductions of anorexigenic hormones PYY, CCK, Leptin, Insulin.
- › These are adaptive responses to weight loss and result in altered physiology that promotes weight regain.

Responsibility of Practitioners

- › Individuals with overweight/obesity encounter *weight bias* throughout daily life, including the healthcare setting.
- › It has been demonstrated that when healthcare professionals have beliefs that those with obesity are lazy, noncompliant and lack self-control, patients are more likely to avoid health screenings or avoid treatment due to fear of this misperception or judgements.
- › Providers should ensure that health care experiences for individuals are free of weight bias and understand the complex etiology of obesity that there are contributors to obesity outside of personal control and the difficulties around achieving and sustaining weight loss.

Questions???

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EXERCISE & WEIGHT LOSS MAINTENANCE FOR THE BARIATRIC PATIENT

Pam Webert
Henry Ford Health-Detroit, MI



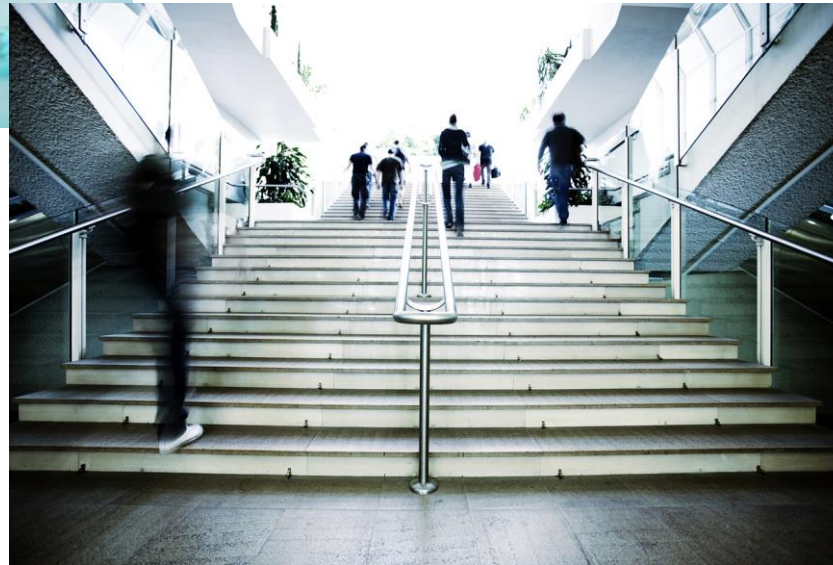
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OVERVIEW

- › Exercise vs. Physical Activity
- › Role in Weight Loss Maintenance
- › Exercise Prescription
- › Body Composition
- › Research



EXERCISE VS. PHYSICAL ACTIVITY

Exercise = Planned & Structured

- › Cardiovascular benefit
- › Calorie burn

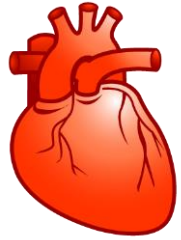
Physical Activity = Daily Movement

- › Tracking daily steps
- › Being more creative w/movement

BOTH needed for success!



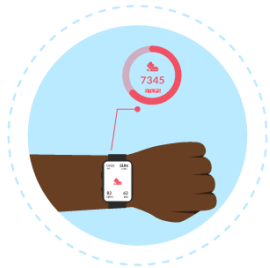
COMPONENTS OF SUCCESS



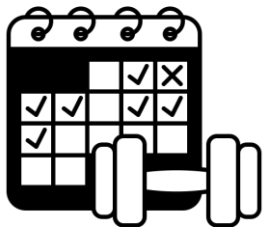
250 MINUTES/WEEK
OF CARDIO EXERCISE



INCORPORATE
STRENGTH TRAINING



COUNT STEPS



KEEP AN
EXERCISE DIARY

INTENSITY

Borg RPE Scale

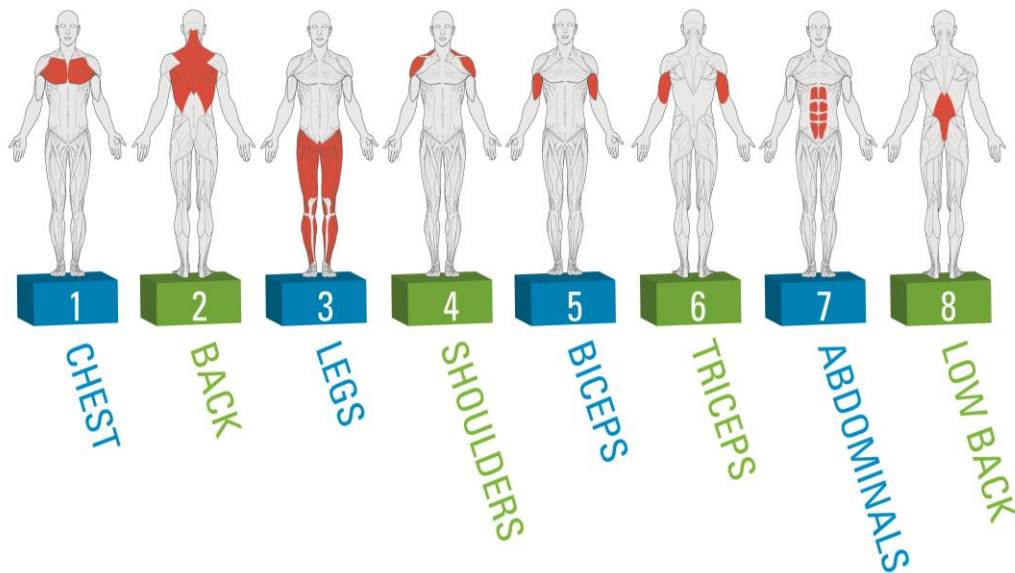
6 7 Very, Very , Light 8 9 Very Light 10	How you feel when you are sitting on the couch-no effort
11 Fairly Light 12 13 Somewhat Hard 14	Target range; How you should feel with exercise or activity
15 Hard 16 17 Very Hard 18 19 Very, Very, Hard 20 Maximum Exertion	How you felt with the hardest work you have ever done. Don't work this hard!

GOAL



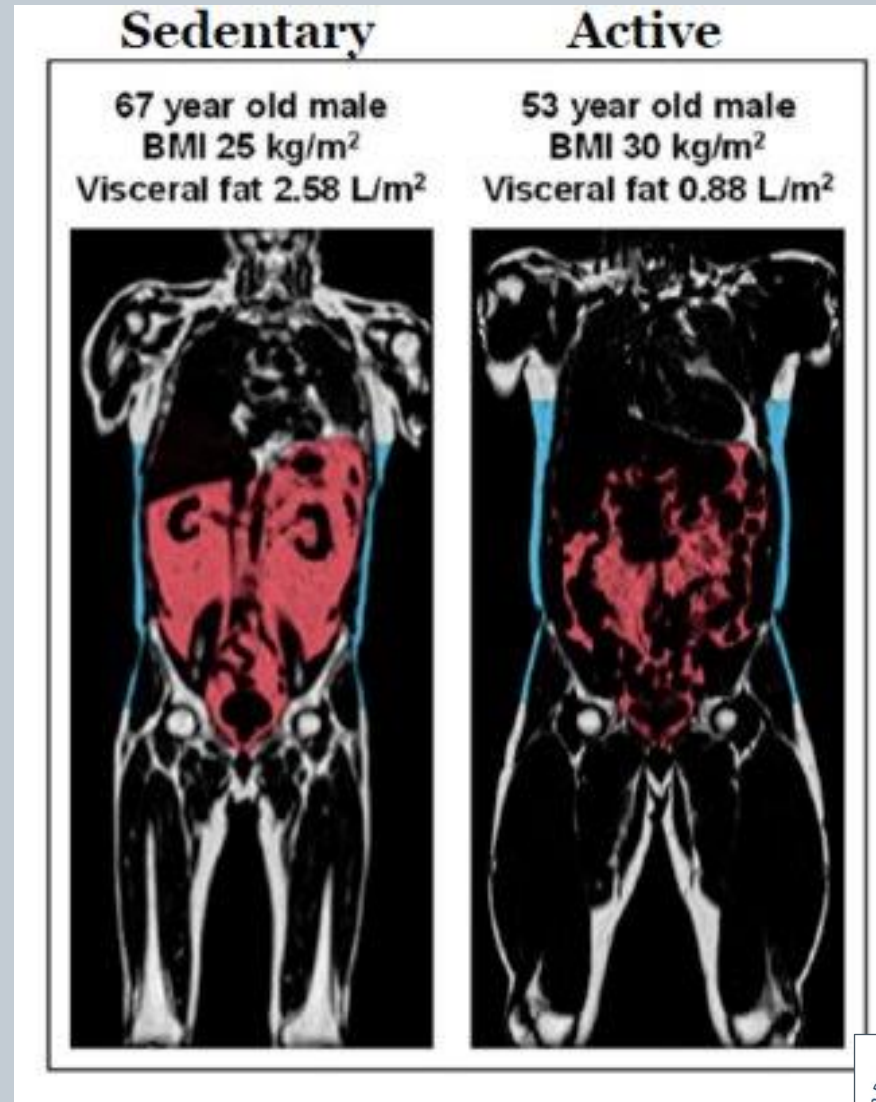
STRENGTH TRAINING

- › Frequency
 - 2-3 nonconsecutive days/wk
- › Intensity/Load
 - Challenging, but “doable”
- › Volume
 - 1-3 sets; 8-15 reps; 6-8 exercises
- › Type
 - full ROM, total body, multi-joint movements



Looking Beyond the Scale

- › BMI vs. Body Fat %
- › Muscle
 - › Weight Loss
 - › Exercise Capacity
 - › Functional Fitness
 - › Orthopedic Pain



Body Composition

- › Not all lost weight is “good” weight
- › Tool for goal setting & progress checks



REAL LIFE PATIENT RESULTS

Pre-Surgery

Weight: 321.6 lb

Fat Mass: 150.8 lb

Fat-Free Mass: 170.8 lb

Body Fat: 46.9%

Waist Circumference: 53.5”

Est RMR: 2275 Kcals

BMI: 38.2

8 Months Post-Surgery

Weight: 223.8 lb

Fat Mass: 58 lb

Fat-Free Mass: 165.8 lb

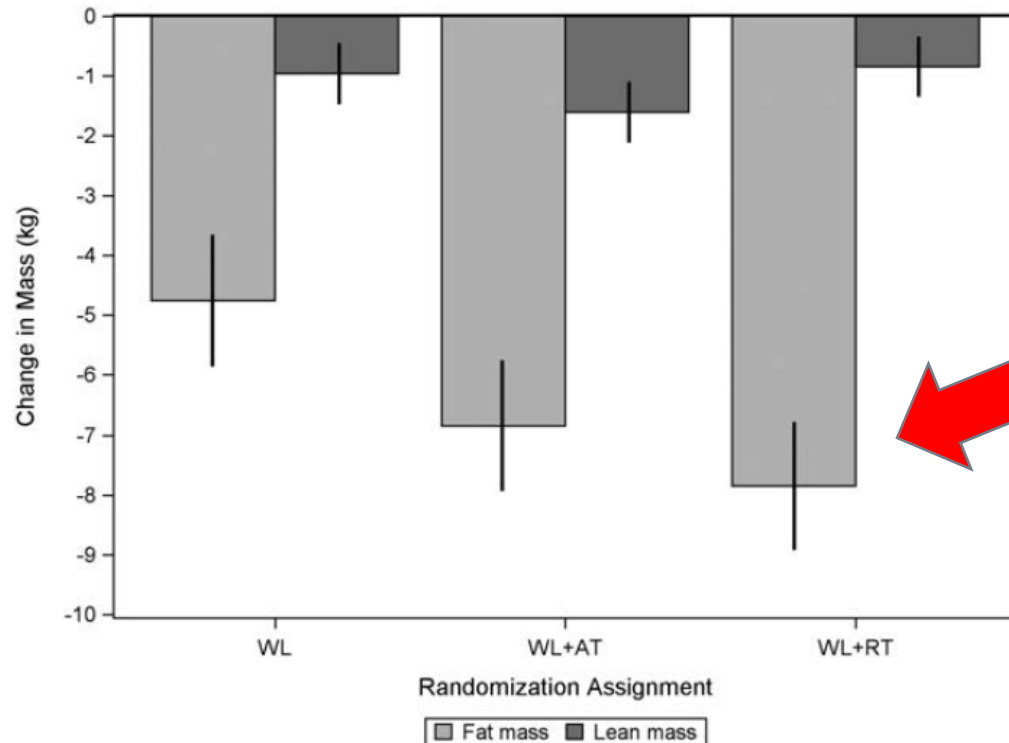
Body Fat: 25.9%

Waist Circumference: 39.5”

Est RMR: 2046 Kcals

BMI: 26.6

The effects of exercise type during weight loss on body composition in adults with obesity



Resistance training group had the least amount of muscle loss, and the greatest amount of total weight loss.

249 subjects

Age = 67 ± 5

71% women

Three groups

- (WL)=Weight loss
- (WL+AT)=Weight loss + Aerobic Ex
- (WL+RT)=Weight loss+ Resistance Ex

Obesity Journal Symposium | [Free Access](#)

Increased Physical Activity Associated with Less Weight Regain Six Years After “The Biggest Loser” Competition

Jennifer C. Kerns, Juen Guo, Erin Fothergill, Lilian Howard, Nicolas D. Knuth, Robert Brychta, Kong Y. Chen, Monica C. Skarulis, Peter J. Walter, Kevin D. Hall [✉](#)

First published: 30 October 2017 | <https://doi.org/10.1002/oby.21986> | Citations: 28

Funding agencies:: This research was supported by the Intramural Research Program of the National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases.

Disclosure:: JCK was previously a contestant on another season of “The Biggest Loser” as well as a medical consultant. The other authors declared no conflict of interest.

Clinical trial registration:: ClinicalTrials.gov identifier NCT02544009.



“Weight regain was inversely associated with absolute changes in PA”

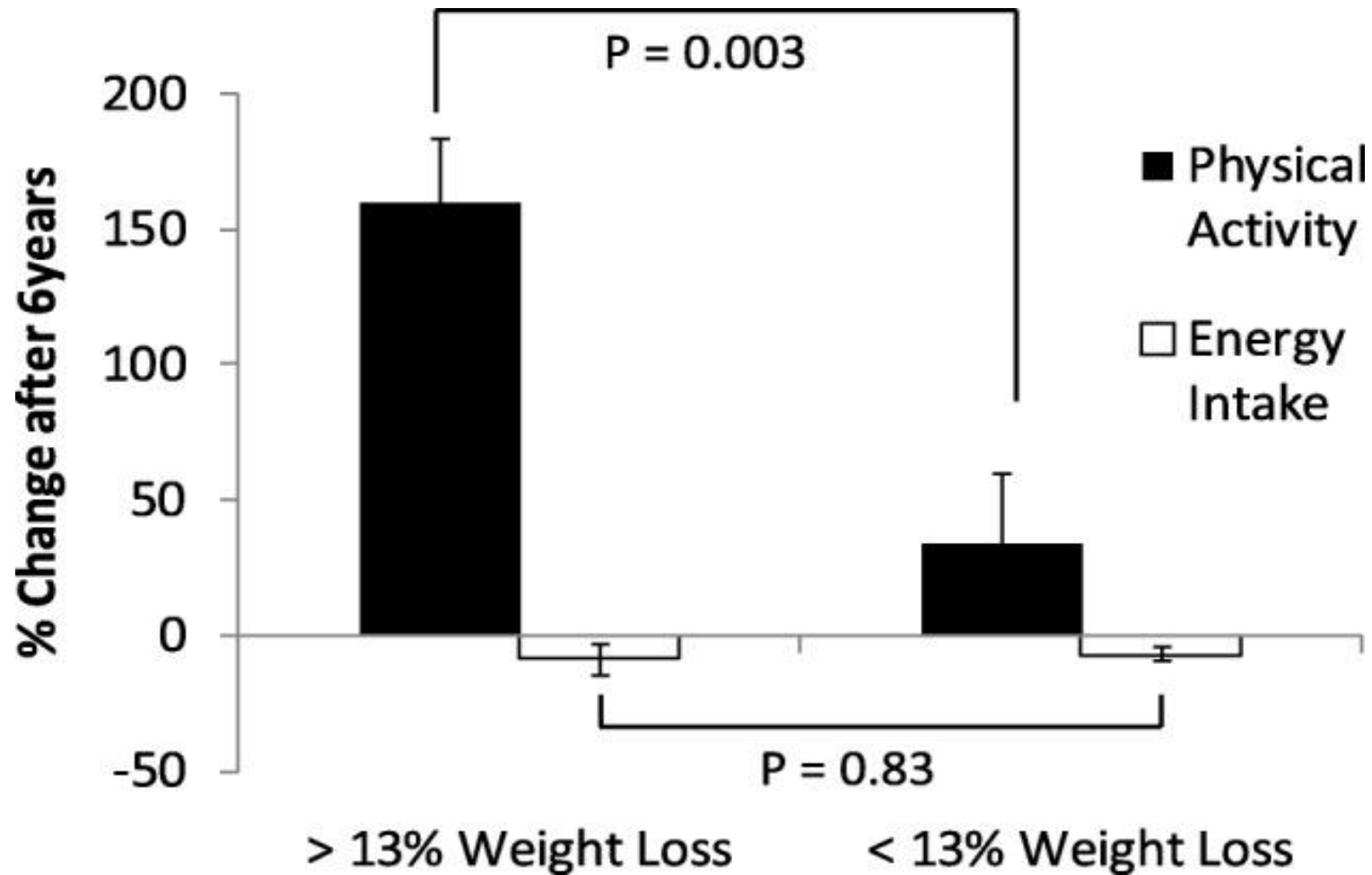
Results

Six years after the competition, median weight loss in 14 of “The Biggest Loser” participants was 13%, with those maintaining a greater weight loss (mean \pm SE) of $24.9\% \pm 3.8\%$ having increased PA by $160\% \pm 23\%$, compared with a PA increase of $34\% \pm 25\%$ ($P = 0.0033$) in the weight regainers who were $1.1\% \pm 4.0\%$ heavier than the precompetition baseline. EI changes were similar between weight loss maintainers and regainers ($-8.7\% \pm 5.6\%$ vs. $-7.4\% \pm 2.7\%$, respectively; $P = 0.83$). Weight regain was inversely associated with absolute changes in PA ($r = -0.82$; $P = 0.0003$) but not with changes in EI ($r = -0.15$; $P = 0.61$). EI and PA changes explained 93% of the individual weight loss variability at 6 years.

Conclusions

Consistent with previous reports, large and persistent increases in PA may be required for long-term maintenance of lost weight.

Increased Physical Activity Associated with Less Weight Regain Six Years After “The Biggest Loser” Competition



CLINICAL PEARLS FOR SUCCESS

- › Exercise Diary-constant visual reminder
- › Writing down goals = ↑ success
- › Sharing goals = ↑ accountability/support
- › Exercise Prescription

www.exerciseismedicine.org



HOW TO MOTIVATE CHANGE

- › Meet patients where there are
- › Change is HARD...one small change at a time
- › Nothing is perfect
- › Get a taste of success



THANK YOU TO OUR ENTIRE HENRY FORD
HEALTH BARIATRIC TEAM & MBSC!



WEIGHT CONTROL

MEDICATIONS



M B S C

2022
Obesity
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WEIGHT CONTROL

MEDICATIONS

An Introduction

ANDREW KRAFTSON MD



DISCLOSURES

NONE

NOTE

OFF-LABEL treatment options
will be mentioned

AGENDA

- Define the problem scope
- Characterize goals
- Identify patient needs
- Review treatment options

ABOUT ME

Clinical Efforts

Post-Bariatric

Weight
Management
Program

Weight
Navigation
Program

General
Endocrinology

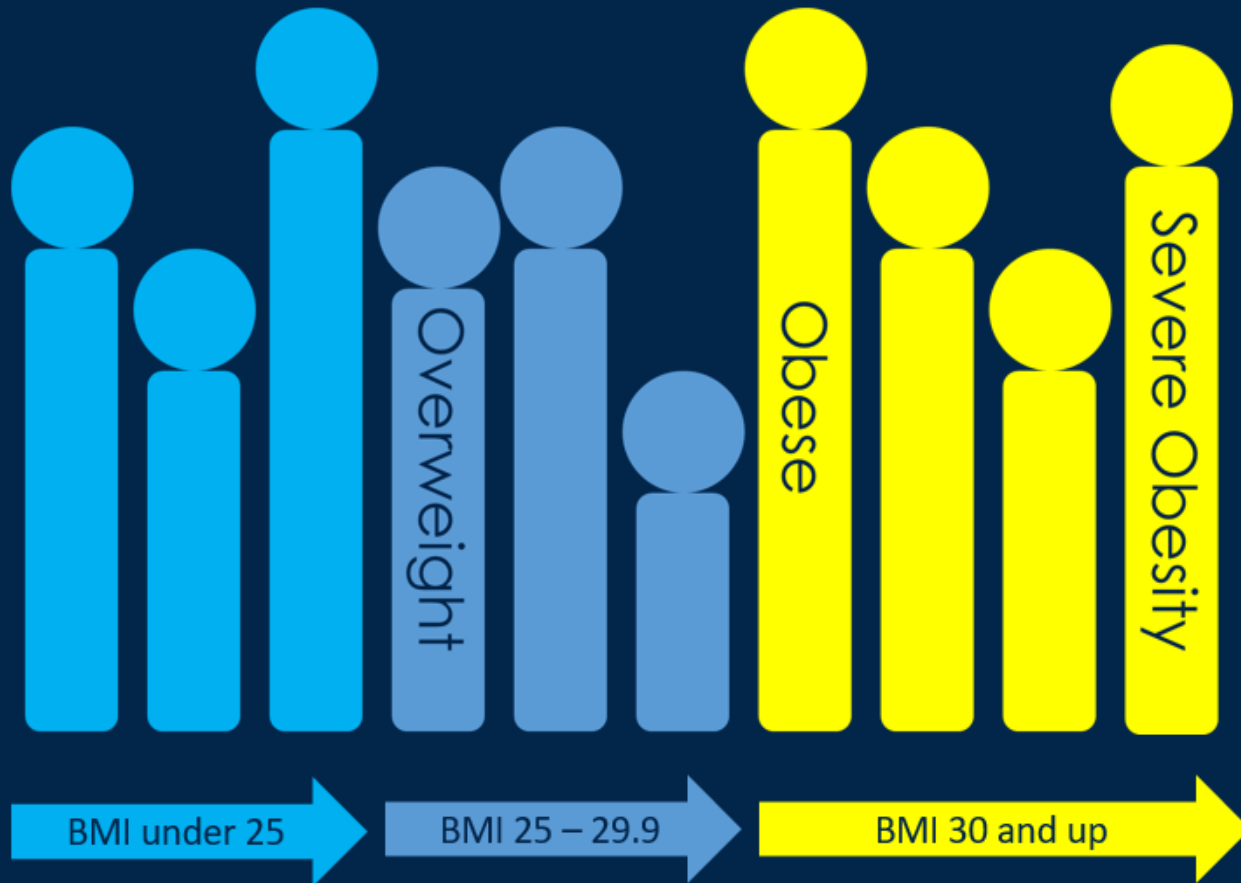


MBSC

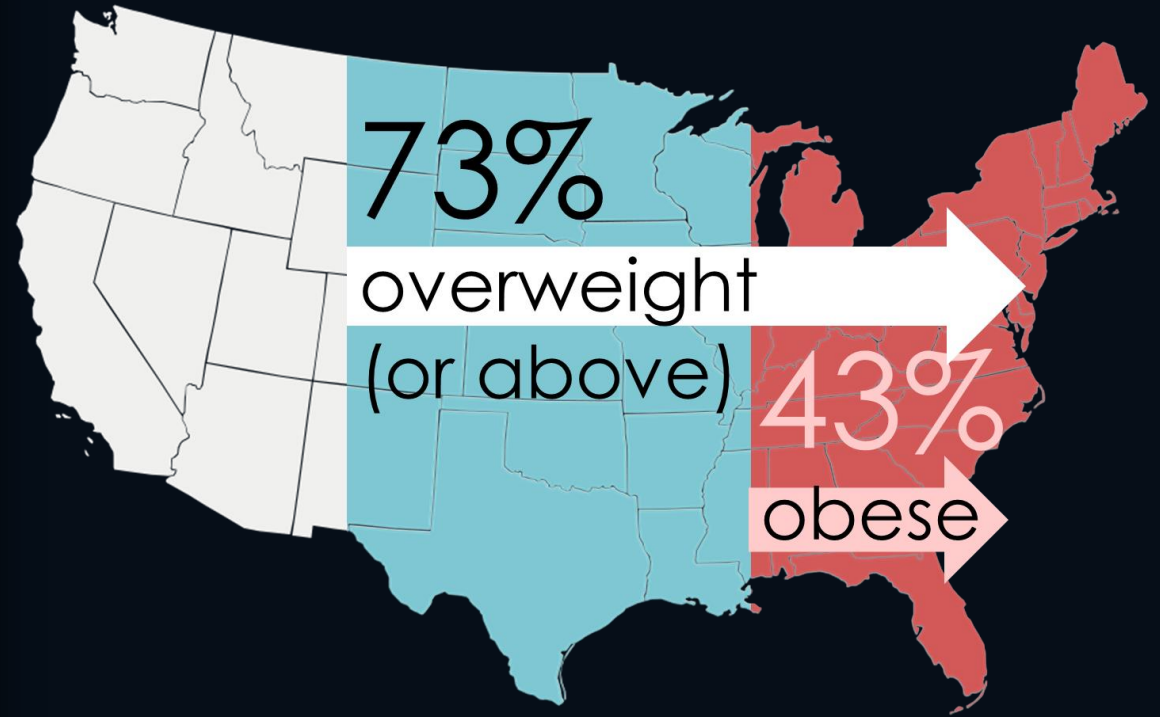
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Adults in the United States



Source: <https://www.cdc.gov/nchs/data/hus/2018/021.pdf>



CANCER

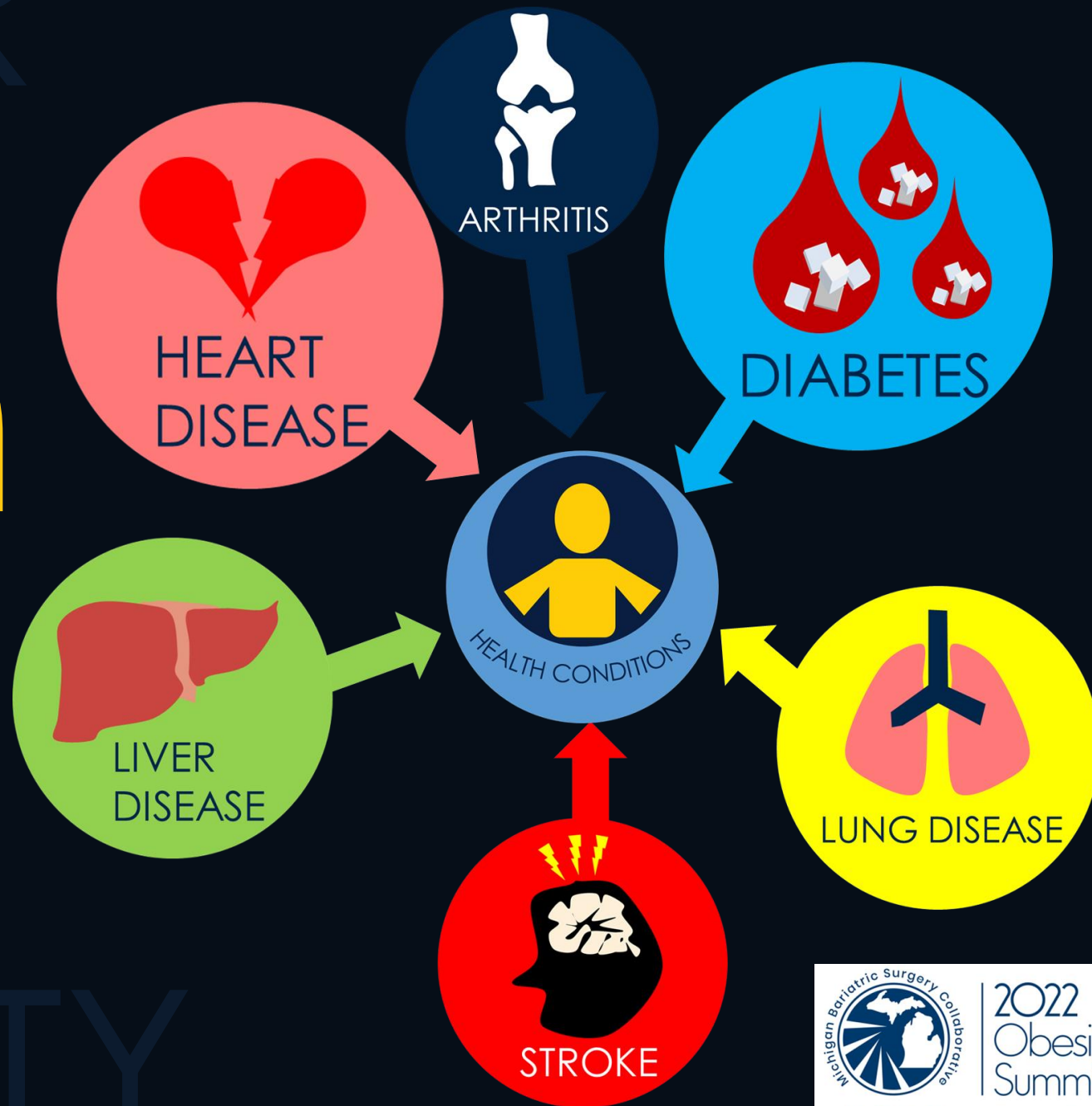
PCOS

OSA

INFERTILITY

Health

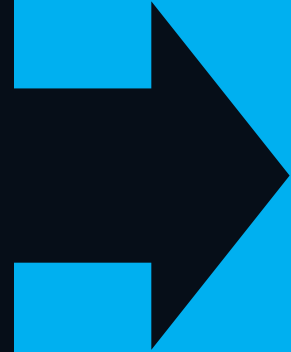
impact?



OTHER impacts?



HOW
are we
doing?



Are we
WINNING
the WAR on
obesity

???

HOW
are we
doing?



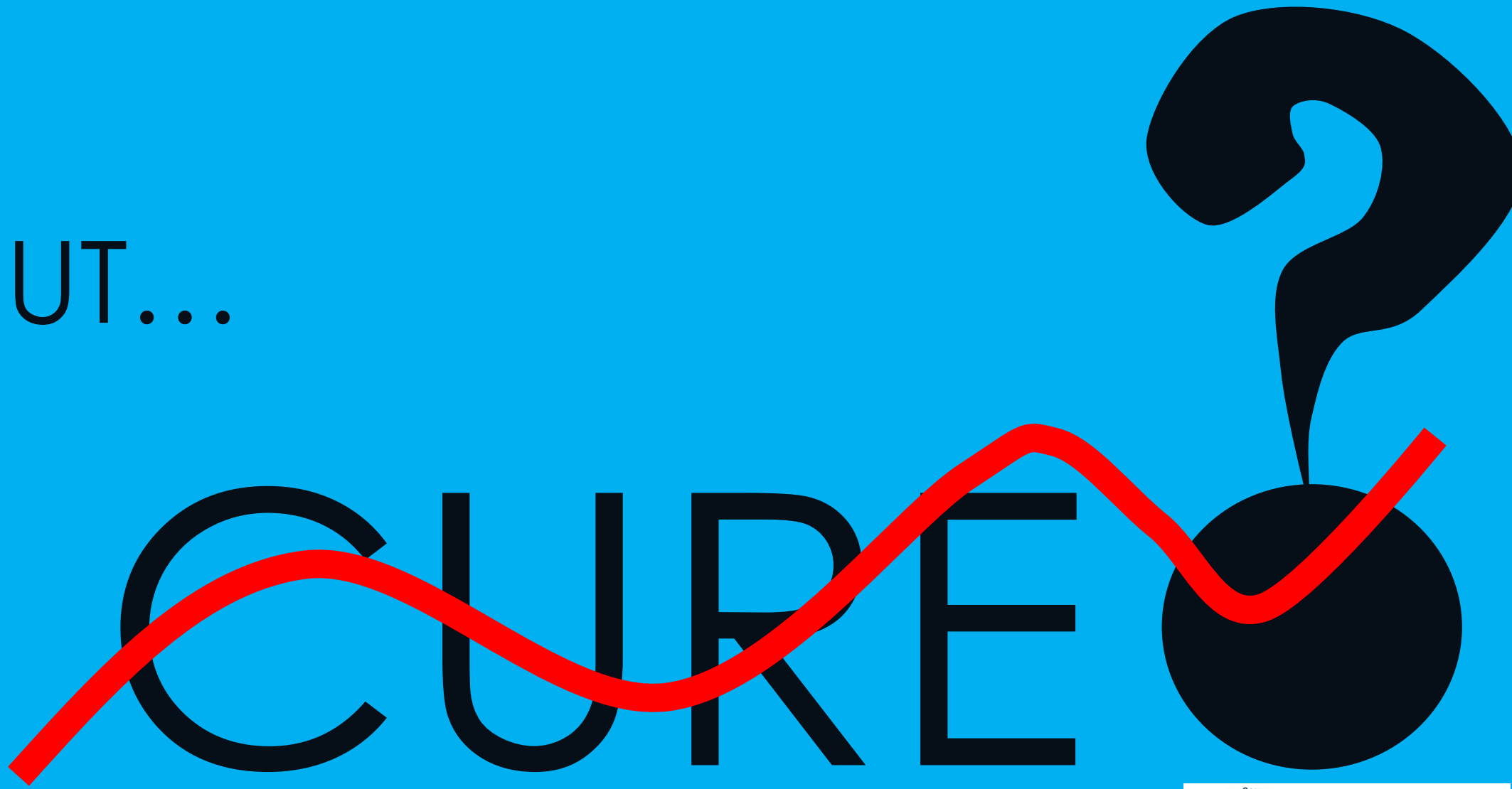
- What does that even **mean**?
- How are we **defining** “success”?
- What **metrics** are we using?

IS IT
ABOUT...

CURE



IS IT
ABOUT...



CURE

IS IT
ABOUT...

REDUCED CLAIMS
CONFIDENCE
SURGERY ELIGIBILITY
FERTILITY



WEIGHT
LOSS

WEIGHT
MAINTENANCE

COMORBID
IMPROVEMENT

RISK
REDUCTION

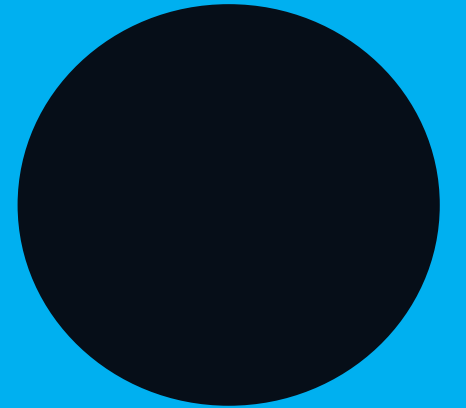
MED
REDUCTION

LONGEVITY

IS

ABOUT:

- disease prevention
- disease control



REGARDLESS of the
metric, we are not
doing “well”...



CRITICAL issues

- GENERAL lifestyle advice is ineffective for significant weight loss and/or maintenance
- EVIDENCED-based therapies are underutilized
- High intensity treatments are used for LATE-STAGE disease

van Dillen SME, van Binsbergen JJ, Koelen MA, Hiddink GJ. Nutrition and physical activity guidance practices in general practice: A critical review. *Patient Education and Counseling*. 2013;90(2):155-169. doi:10.1016/j.pec.2012.10.022

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CONSIDER THIS...

Lager C, Esfandiari N, Subauste A, Kraftson A, Brown M, Cassidy R, Bellers D, Lockwood A, Varban O, Oral E. **Milestone Weight Loss Goals (Weight Normalization and Remission of Obesity) after Gastric Bypass Surgery: Long-Term Results from the University of Michigan.** *Obes Surg* (2017) 27:1659-1666.

GASTRIC BYPASS

- 220 patients at Michigan Medicine
- Mean baseline BMI 47 kg/m²
- Surgery 2008 – 2010
- Data analyzed 7 years post-surgery



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~5%

achieve a BMI under 25 kg/m² –and– sustain at 5 years post-surgery



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WE NEED TO IMPROVE....

- DEFINING GOALS
- ASSESSING NEEDS
- CHOOSING TREATMENTS
- TRACKING PROGRESS
- REVISING PLANS

(YIKES!)



WE NEED TO
IMPROVE....

- Due to the focus of THIS talk, we are reviewing treatment – specifically: pharmacotherapy

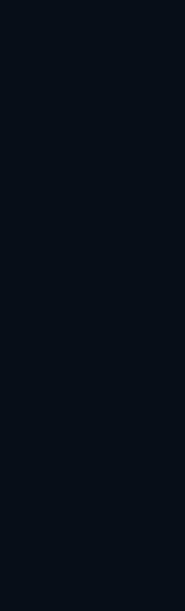
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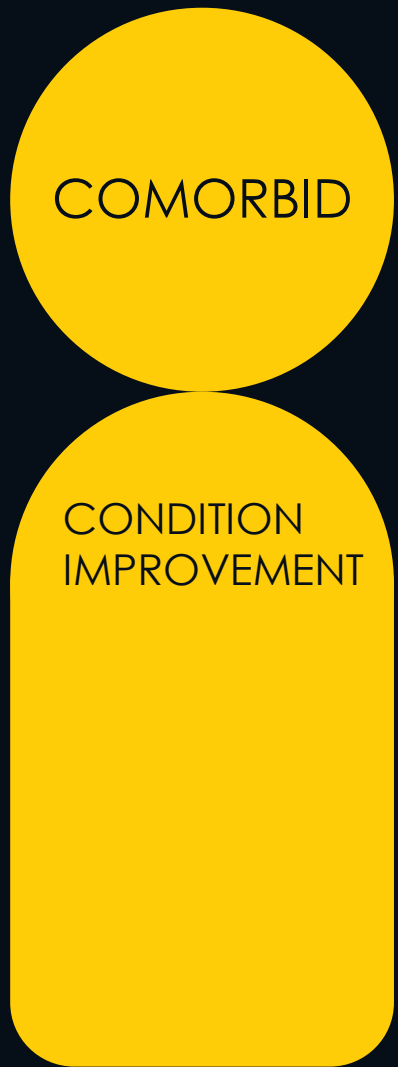
(one) GOAL



COMORBID
CONDITION
IMPROVEMENT

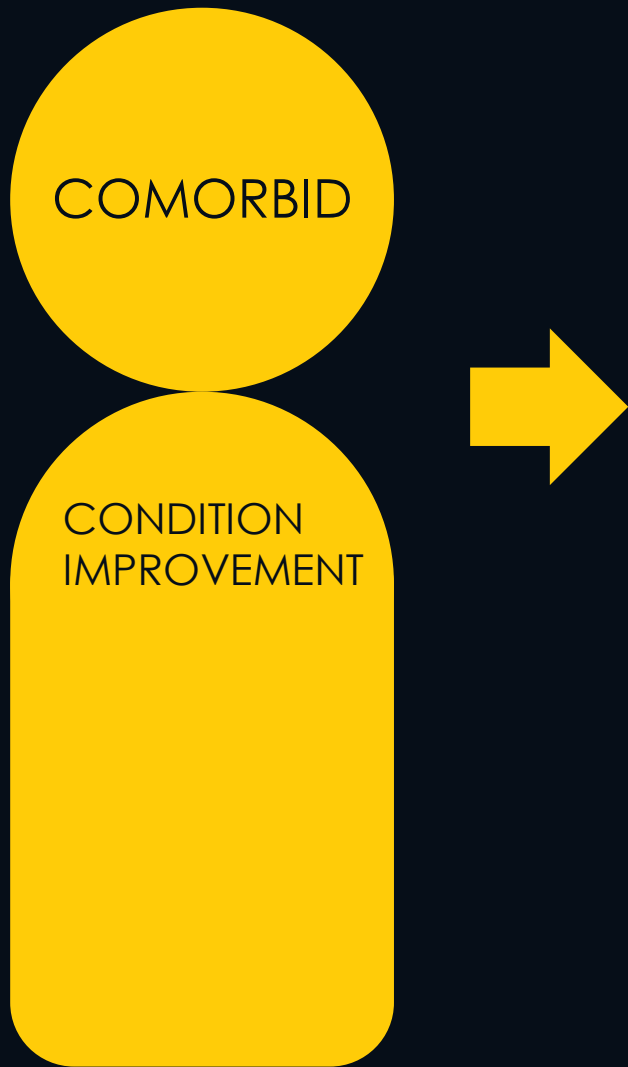


(one) GOAL



RESONATES with our
role (and expertise)
as medical
physicians/ providers

(one) GOAL



Therapeutic Weight Loss Reduces Complications

OBESITY COMPLICATION	% weight loss required for therapeutic benefit	Notes	References
Diabetes Prevention	3% to 10%	Maximum benefit 10%	DPP (Lancet, 2009) SEQUEL (Garvey et al, 2013) Rothberg et al. 2014; 2017
Hypertension	5% to >15%	BP still decreasing >15%	Look AHEAD (Wing, 2011) Rothberg et al. 2014, 2017
Dyslipidemia	3% to >15%	TG still decreasing at >15%	Look AHEAD (Wing, 2011) Rothberg et al. 2014, 2017
HbA1c	3% to >15%	HbA1c still decreasing at >15%	Look AHEAD (Wing, 2011) DPP (Lancet 2009) Rothberg et al. 2014, 2017
NAFLD	10%	Improves steatosis, inflammation, mild fibrosis	Assy et al, 2007; Dixon et al, 2004; Anish et al, 2009
Sleep Apnea (AHI)	10%	Little benefit at ≤ 5%	Sleep AHEAD (Foster, 2009) Winslow et al, 2012
Osteoarthritis/Pain Syndromes	5-10%	Improves symptoms and joint stress mechanics	Christensen et al, 2007 Felson et al, 1992; Aaboe et al, 2011 Schrepfet al. 2017
Stress Incontinence	5-10%		Burgio et al, 2007 Leslee et al, 2009
GERD	5-10% women 10% men		Singh et al, 2013 Tutujian R, 2011
PCOS/Fertility	5-15% (>10% optimal)	Lowers androgens, improves ovulation, increases insulin sensitivity	Panidis D et al, 2008 Norman et al, 2002 Moran et al, 2013 Rothberg et al. 2016

courtesy of Amy Rothberg, MD, PhD

(one) GOAL

COMORBID

CONDITION
IMPROVEMENT



For many of our patients, a

5-10%



weight loss/
maintenance goal
is worth pursuing

RECALL

- GENERAL lifestyle advice is INEFFECTIVE for achieving even modest weight loss/ maintenance of 5%
- “General advice” is essentially recommending an ineffective ‘treatment’ without full exploration of the issues

van Dillen SME, van Binsbergen JJ, Koelen MA, Hiddink GJ. Nutrition and physical activity guidance practices in general practice: A critical review. *Patient Education and Counseling*. 2013;90(2):155-169. doi:10.1016/j.pec.2012.10.022

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WE NEED TO IMPROVE....

- DEFINING GOALS
- ASSESSING NEEDS
- CHOOSING TREATMENTS
- TRACKING PROGRESS
- REVISING PLANS

“BUCKETS” of need

- Have we approached the patient in a systematic way that helps **ascertain** the needs?



MENTAL HEALTH
CONCERNS



EATING
DISORDER



IATROGENIC
CONTRIBUTORS



DIET/ HEALTH
LITERACY



HUNGER
AND/OR
CRAVINGS

WE NEED TO IMPROVE....

- DEFINING GOALS
- ASSESSING NEEDS
- CHOOSING TREATMENTS
- TRACKING PROGRESS
- REVISING PLANS

LIFESTYLE

- For purposes of THIS talk – we are going to assume that the foundational lifestyle recommendations have been provided and facilitated



DIET/ HEALTH
LITERACY

Gudzune e al. Efficacy of Commercial Weight-Loss Programs – An Updated Systematic Review. *Ann Intern Med* (2015) 162:501-512.



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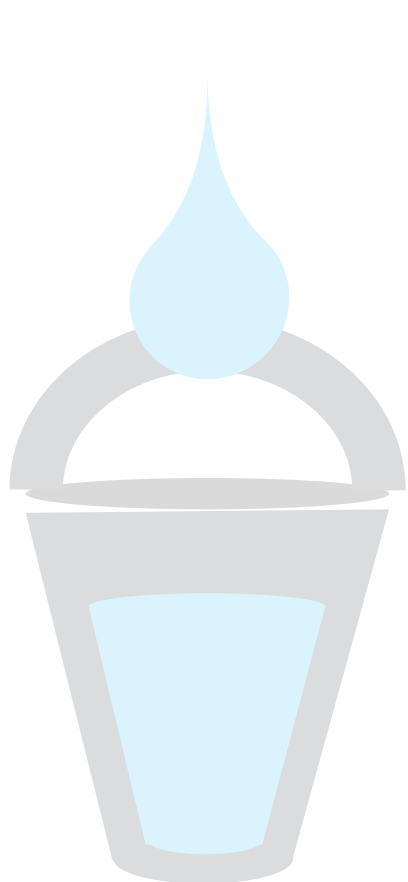
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“BUCKETS” of need

- Do we know HOW to **FILL** the buckets?



MENTAL HEALTH
CONCERNS



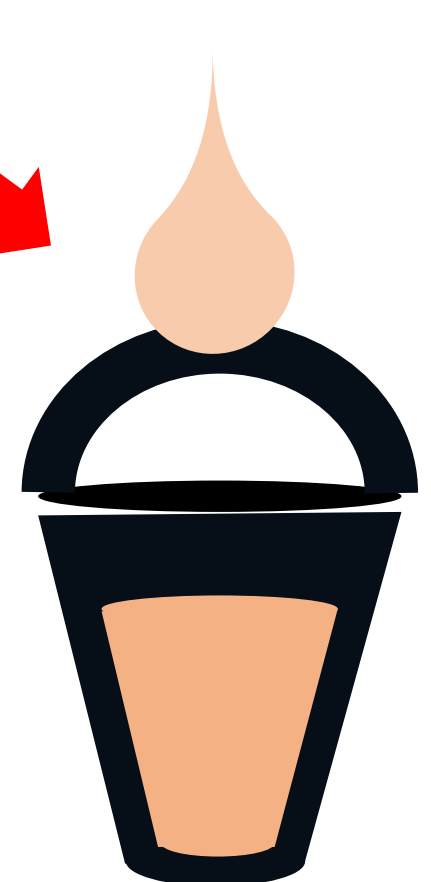
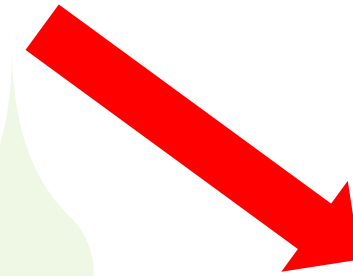
EATING
DISORDER



IATROGENIC
CONTRIBUTORS



DIET/ HEALTH
LITERACY



HUNGER
AND/OR
CRAVINGS

HUNGER

SATIATION

SATIETY

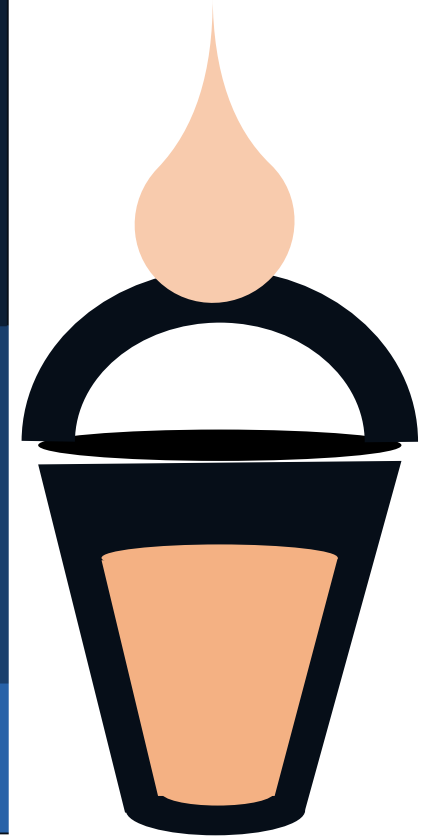
METABOLIC

CRAVINGS

WANTING

LIKING

HEDONIC



HUNGER
AND/OR
CRAVINGS

Sumithran et al. Long-Term Persistence of Hormonal Adaptations to Weight Loss. *N Engl J Med* 2011;365:1597-604

Morton et al. Central nervous system control of food intake and body weight. *Nature* 2006;443:21:289-295.

Berridge K, Robinson T. Liking, Wanting, and the Incentive-Sensitization Theory of Addiction. *American Psychologist*. 2016(71):8:670-679.

HUNGER

SATIATION



Activation of signals promoting termination of eating

- “While eating, does the food seem to satisfy hunger?”
- “Do you have trouble knowing when to stop eating?”
- “Do you eat to the point of feeling uncomfortable?”



Sumithran et al. Long-Term Persistence of Hormonal Adaptations to Weight Loss. N Engl J Med 2011;365:1597-604

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Duration of fullness and time to re-initiation of eating

↑
SATIETY

METABOLIC

- “For how long after a meal do you feel satisfied?”
- “Do you find yourself hungry soon after finishing a meal?”
- “Do you tend to snack in between meals?”



Sumithran et al. Long-Term Persistence of Hormonal Adaptations to Weight Loss. *N Engl J Med* 2011;365:1597-604

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CRAVINGS

WANTING



Desire for food triggered by reward cue pulses

- “Do you find yourself wanting food even though you aren’t hungry?”
- “Do you go out of the way to get particular foods – even if inconvenient?”
- “Do you have trouble stopping if having a favorite food?”



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CRAVINGS

WANTING



NOTE: an increase in
WANTING is not
correlated with an
increase in LIKING



Sumithran et al. Long-Term Persistence of Hormonal Adaptations to Weight Loss. *N Engl J Med* 2011;365:1597-604

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ADDRESSING: Multimodal

- Behavioral/ structural
- Psychological
- Dietary
- Pharmacologic



HUNGER
AND/OR
CRAVINGS

ADDRESSING: Multimodal

- Behavioral/ structural
- Psychological
- Dietary
- Pharmacologic



HUNGER
AND/OR
CRAVINGS

CLINICAL TRIALS

(by name)

- DURATION-1, 5, 6
- LEAD-6
- GETGOAL-X
- HARMONY-7
- AWARD-1, 6, 11
- SCALE
- EQUIP
- CONQUER
- SEQUEL
- STEP
- SURPASS
- SURMOUNT

PHARMACOTHERAPY INDICATIONS:

DESPITE lifestyle-modification education, specific dietary counseling, and physical activity efforts, there is:

- Progressive weight gain
- Lack of weight loss
- Weight regain

-AND-

BMI is greater than 27 kg/m² with at least one weight-related comorbid health condition –OR– BMI 30+.



PHARMACOTHERAPY INDICATIONS:

DESPITE lifestyle-modification education, specific dietary counseling, and physical activity efforts, there is:

- Progressive weight gain
- Lack of weight loss
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-AND-

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**That's a
LOT of
people!**

WEGOVY

(semaglutide)



SAXENDA

(liraglutide)



QSYMIA

(phentermine + topiramate):



CONTRAVE

(Bupropion +Naltrexone)

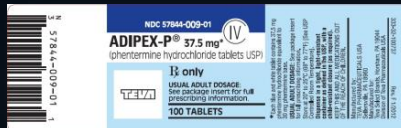


LOMAIRA

(low-dose phentermine)



PHENTERMINE



PLENITY



ALLI

(orlistat)



OFF-LABEL

- metformin
- generic phentermine + generic topiramate
- generic bupropion + generic naltrexone
- GLP-1 RA + other
- Other combos

WHY are we NOT
prescribing
MORE?!?

COMMON REASONS FOR PRESCRIBING HESITANCY

FALLACIOUS REASONING

- “Meds should be reserved for ‘true’ disease”
- “Does not cure disease – effect is not durable”
- “Individuals could lose weight if they just want it badly enough”
- “Meds remove personal responsibility”
- “Meds don’t work and are not safe”

LACK-OF-TRAINING (COMFORT LEVEL)

- Not familiar with the options
- Dislike of stimulant-based regimens
- Unsure how to monitor
- “When I trained, we were told not to use meds for weight”

LOGISTICAL BARRIERS/ COST- CONCERNS

- Navigating cost/ coverage can be tricky and time-consuming
- “I can never get any medicine covered”
- “All the meds are too expensive for my patients”

PATIENT RESERVATIONS

- Fen-Phen, Meridia, Belviq...
- “I want to do it the ‘natural’ way”
- “What’s the point if just switching one med for another?”

(almost) ALL of these concerns are **surmountable**

FALLACIOUS REASONING

- “Meds should be reserved for ‘true’ disease”
- “Does not cure disease – effect is not durable”
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- Not familiar with the options
- Dislike of stimulant-based regimens
- Unsure how to monitor
- “When I trained, we were told not to use meds for weight”

LOGISTICAL BARRIERS/ COST- CONCERNS

- Navigating cost/ coverage can be tricky and time-consuming
- “I can never get any medicine covered”
- “All the meds are too expensive for my patients”

PATIENT RESERVATIONS

- Fen-Phen, Meridia, Belviq...
- “I want to do it the ‘natural’ way”
- “What’s the point if just switching one med for another?”

PHARMACOTHERAPY

SUGGESTED APPROACH

- CONSIDER **MEDICAL** FACTORS (what would be the IDEAL?)
 - MECHANISM + “Need” match (satiety, satiation; cravings)
 - Weight loss target
 - Comorbid conditions
 - Contraindications
- CONSIDER **FINANCIAL/COVERAGE** FACTORS
- *(Consider patient preference → but do not underestimate your ability to influence)*

PHARMACOTHERAPY

SUGGESTED APPROACH

- CONSIDER **MEDICAL** FACTORS (what would be the IDEAL?)
- **MECHANISM + “Need” match (satiety, satiation; cravings)**
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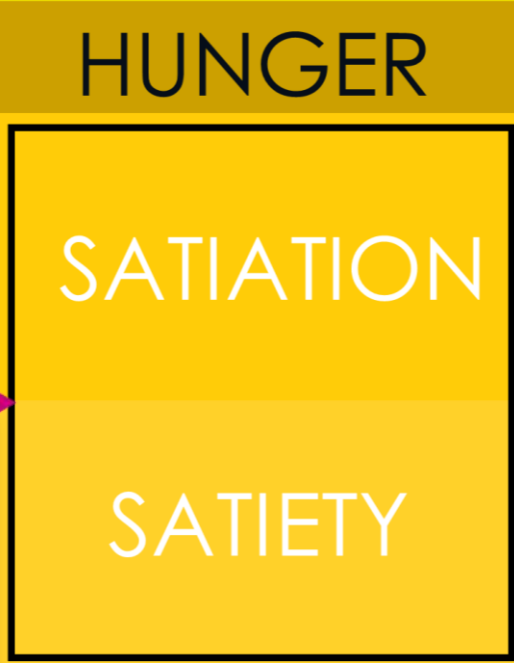
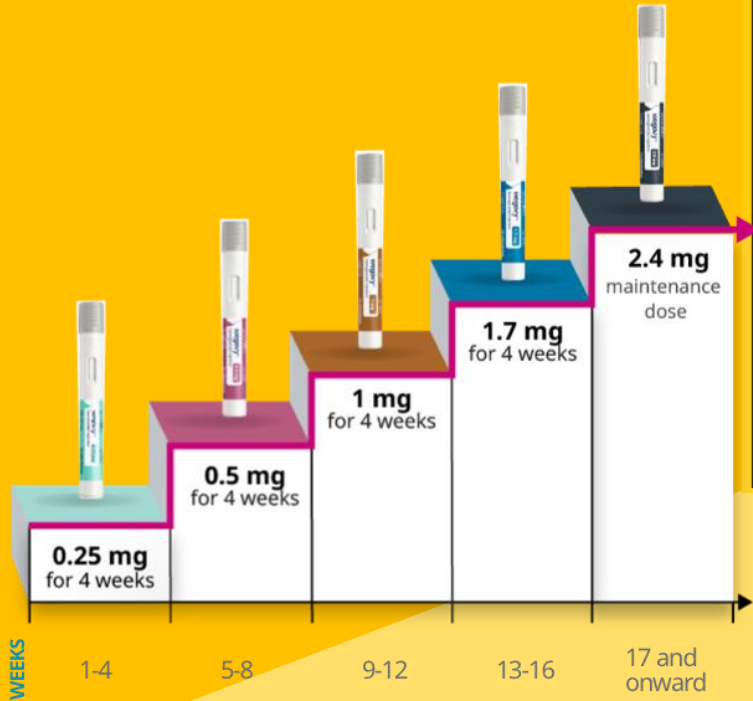
PHENTERMINE-TOPIRAMATE (QSYMIA)

	Week 1	Week 2	Week 3	Week 4 and Beyond
AM Tip: Take with breakfast	1 pill in AM	1 pill in AM	2 pills in AM	2 pills in AM
PM Tip: Take before dinner		1 pill in PM	1 pill in PM	2 pills in PM

BUPROPION-NALTREXONE (CONTRAVE)



LIRAGLUTIDE (SAXENDA)



CRAVINGS



SEMAGLUTIDE (WEGOVY)

OFF-LABEL MEDICATION USE

LOW-DOSE PHENTERMINE (LOMAIRA),
GENERIC MID-DOSE PHENTERMINE +/-
GENERIC TOPIRAMATE

GENERIC BUPROPION + NALTREXONE

HUNGER

CRAVINGS

SATIATION

WANTING

SATIETY

LIKING

METFORMIN

LIRAGLUTIDE (VICTOZA)

SEMAGLUTIDE (OZEMPIC)

TIRZEPATIDE (MOUNJARO)

PHARMACOTHERAPY

SUGGESTED APPROACH

- CONSIDER MEDICAL FACTORS (what would be the IDEAL?)
 - MECHANISM + “Need” match (satiety, satiation; cravings)
- Weight loss target (i.e., POTENCY)
- Comorbid conditions
- Contraindications

PHENTERMINE-TOPIRAMATE

LIRAGLUTIDE

BUPROPION-NALTREXONE

PHENTERMINE

SEMAGLUTIDE

ORLISTAT

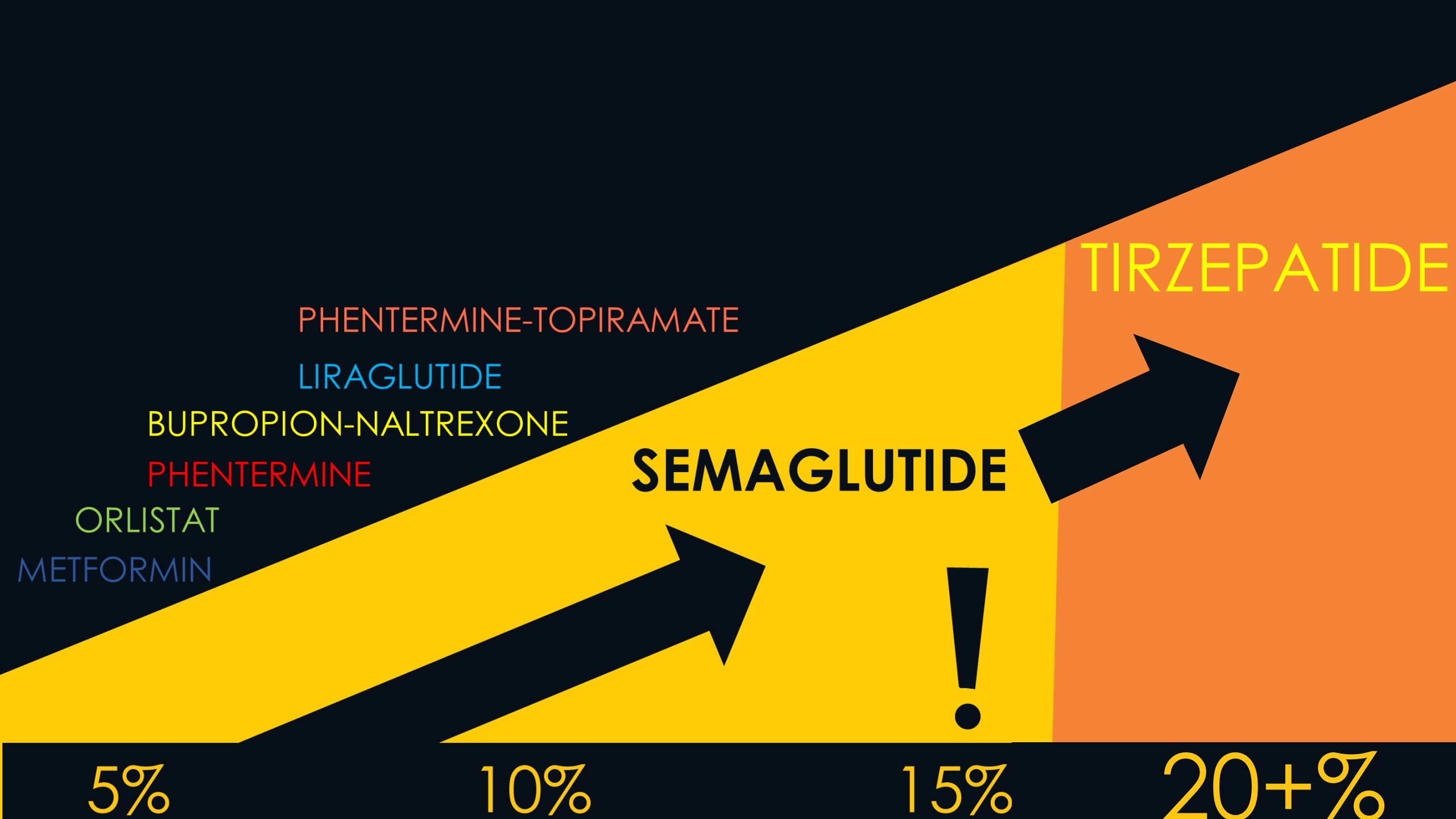
METFORMIN



5%

10%

15%



5%

10%

15%

20+%

SEMAGLUTIDE

TIRZEPATIDE



- DIET: 500-600 cal/d deficit
- EXERCISE: 150 min/week

% Individuals achieving at least 5% weight loss

JAMA June 14, 2016 Volume 315, Number 22

QSYMIA
(phentermine +
topiramate):

SAXENDA
(liraglutide)

CONTRAVE
(Bupropion
+Naltrexone)

ALLI
(orlistat)

PLACEBO

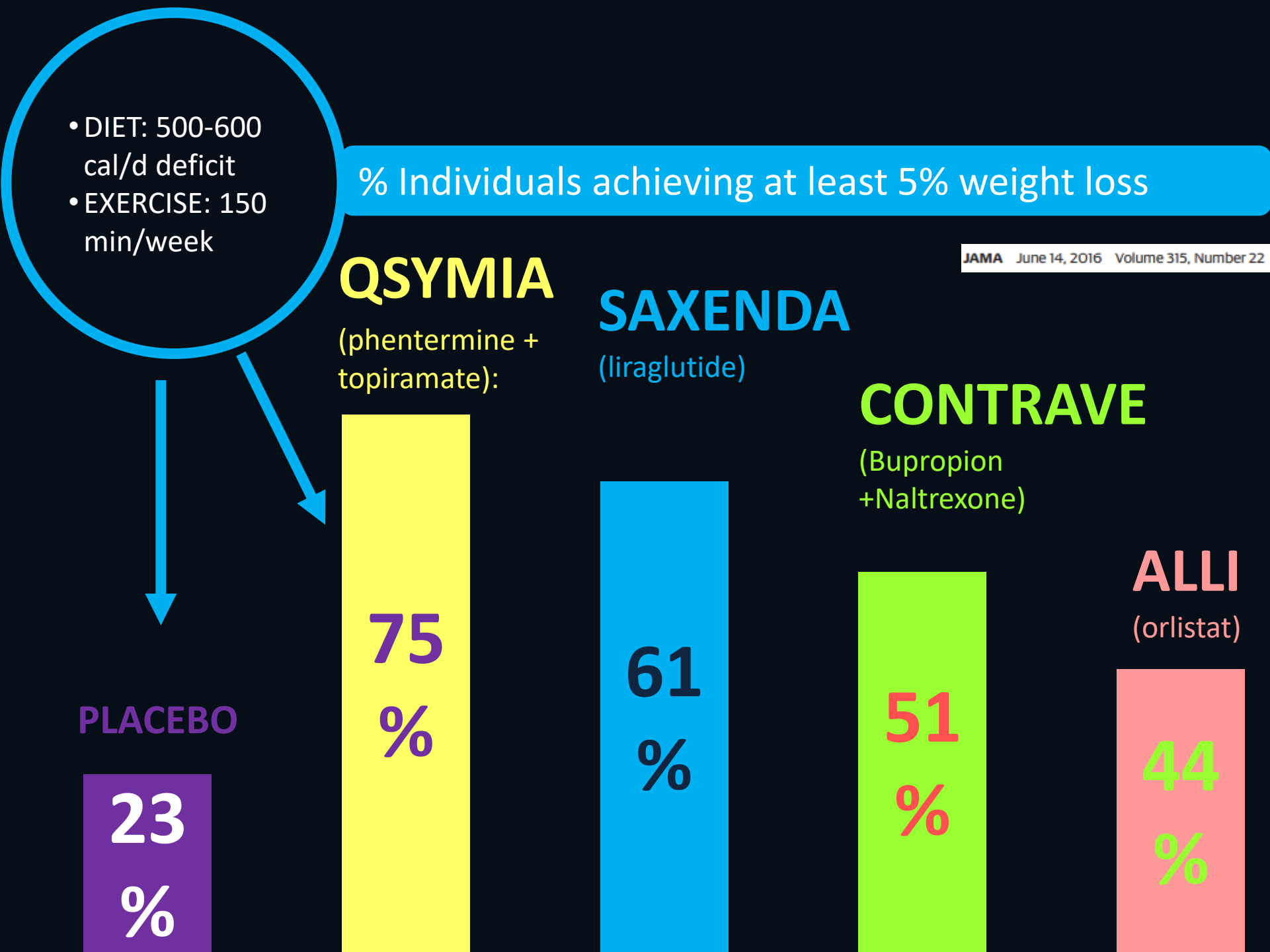
23
%

75
%

61
%

51
%

44
%



WEGOVY

(semaglutide)

92%



% Individuals achieving at least 5% weight loss

QSYMIA

(phentermine + topiramate):

75%

SAXENDA

(liraglutide)

61%

CONTRAVE

(Bupropion + Naltrexone)

51%

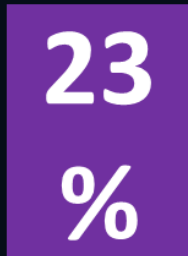
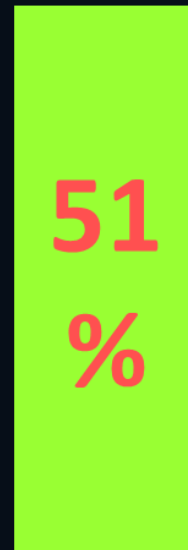
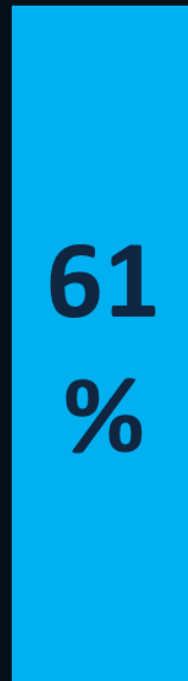
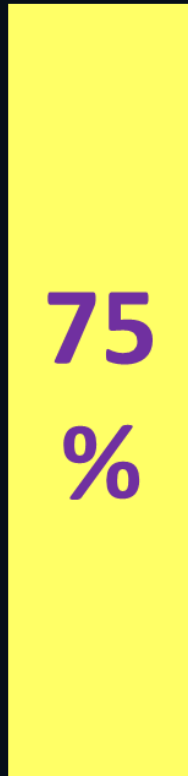
PLACEBO

23%

ALLI

(orlistat)

44%



MOUNJARO

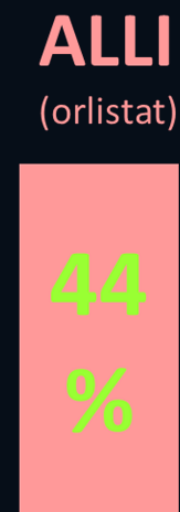
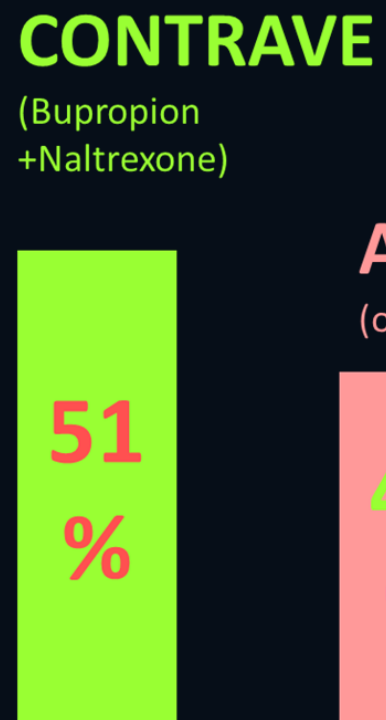
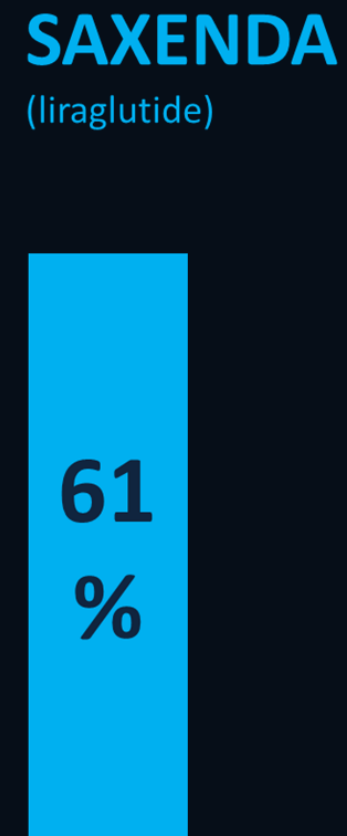
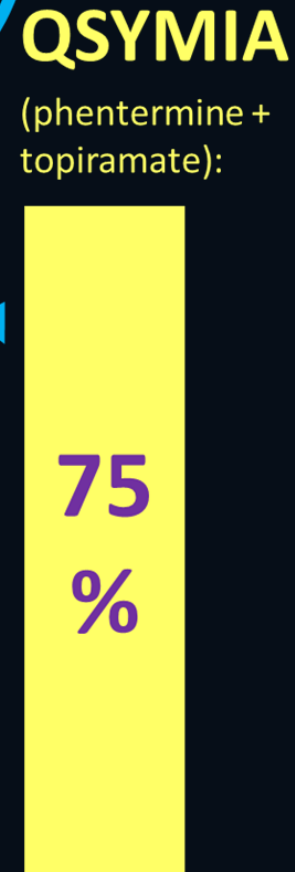
(tirzepatide)

WEGOVY

(semaglutide)



% Individuals achieving at least 5% weight loss



NOTE: patients with diabetes were EXCLUDED

N ENGL J MED 387;3 NEJM.ORG JULY 21, 2022

MOUNJARO

(tirzepatide)



N ENGL J MED 384;11 NEJM.ORG MARCH 18, 2021

WEGOVY

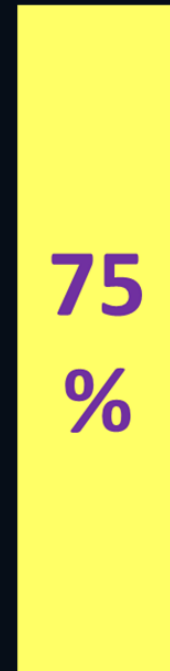
(semaglutide)



% Individuals achieving at least 5% weight loss

QSYMIA

(phentermine + topiramate):



SAXENDA

(liraglutide)



JAMA June 14, 2016 Volume 315, Number 22

CONTRAVE

(Bupropion + Naltrexone)

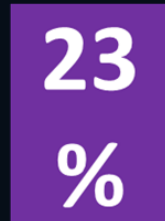


ALLI

(orlistat)



PLACEBO

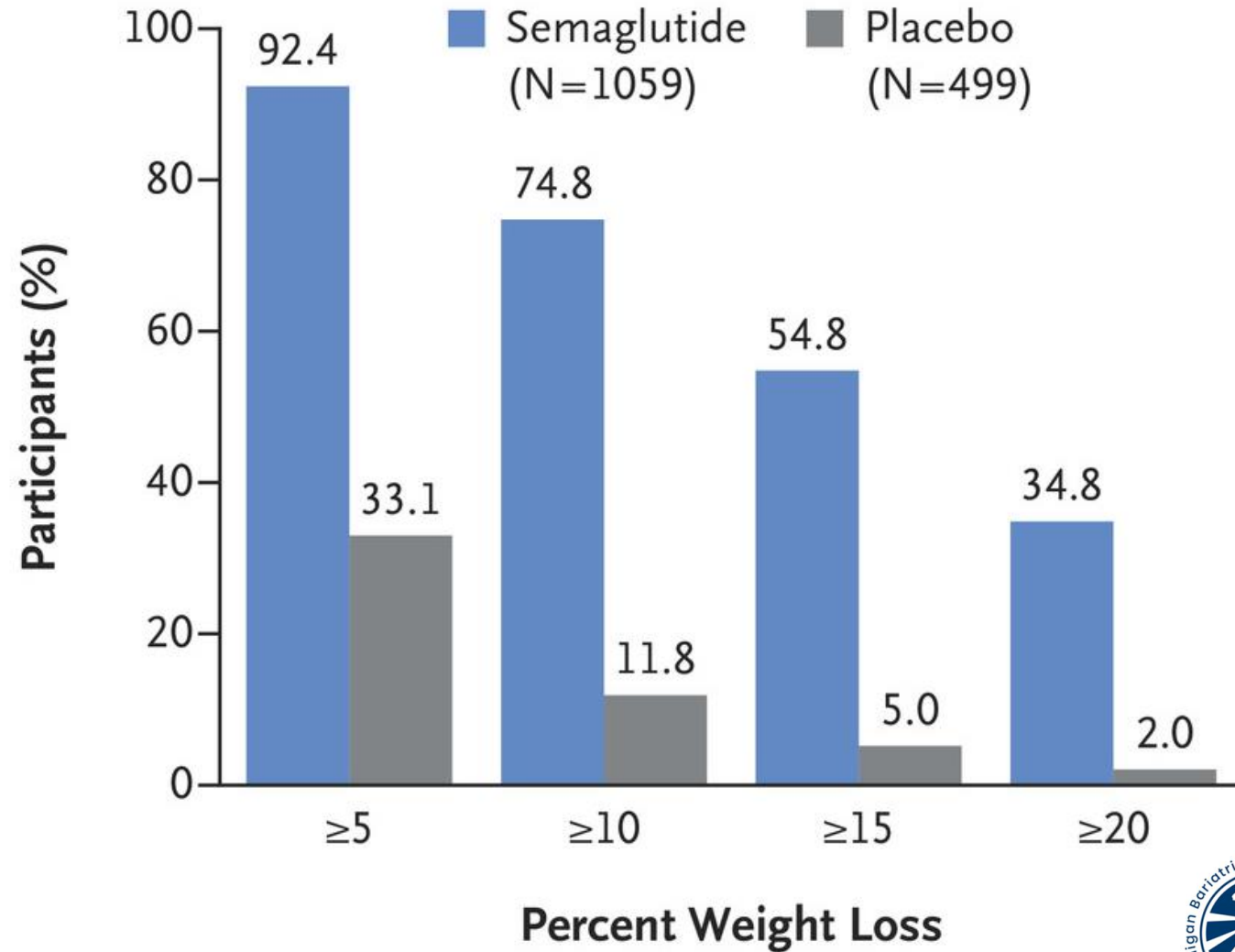


WEGOVY

(semaglutide)

92%

D On-Treatment Data at Wk 68



MBSC

2022
Obesity
Summit

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The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

JULY 21, 2022

VOL. 387 NO. 3

Tirzepatide Once Weekly for the Treatment of Obesity

Ania M. Jastreboff, M.D., Ph.D., Louis J. Aronne, M.D., Nadia N. Ahmad, M.D., M.P.H., Sean Wharton, M.D., Pharm.D., Lisa Connery, M.D., Breno Alves, M.D., Arihiro Kiyosue, M.D., Ph.D., Shuyu Zhang, M.S., Bing Liu, Ph.D., Mathijs C. Bunck, M.D., Ph.D., and Adam Stefanski, M.D., Ph.D., for the SURMOUNT-1 Investigators*

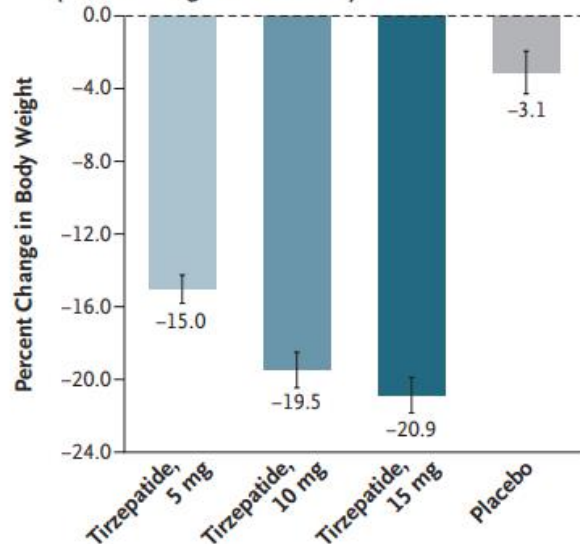
MOUNJARO

(tirzepatide)

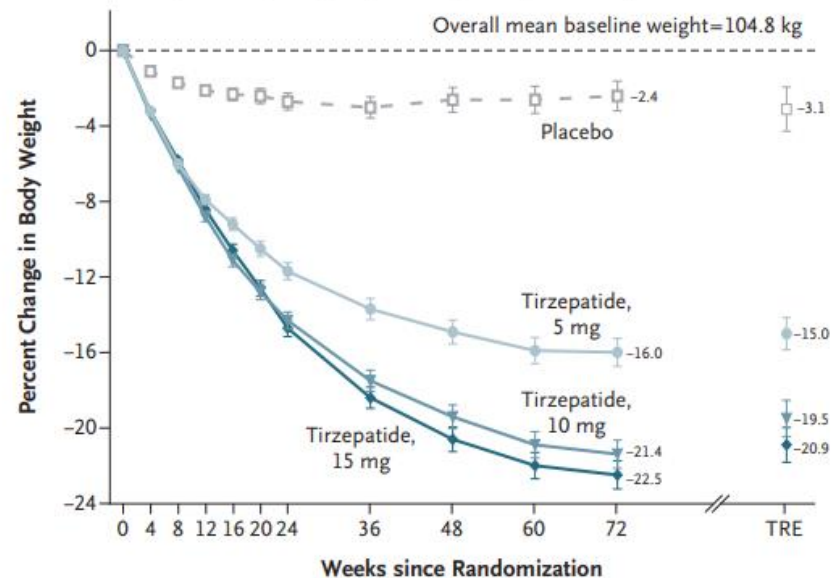
96%

■ Tirzepatide, 5 mg ■ Tirzepatide, 10 mg ■ Tirzepatide, 15 mg ■ Placebo

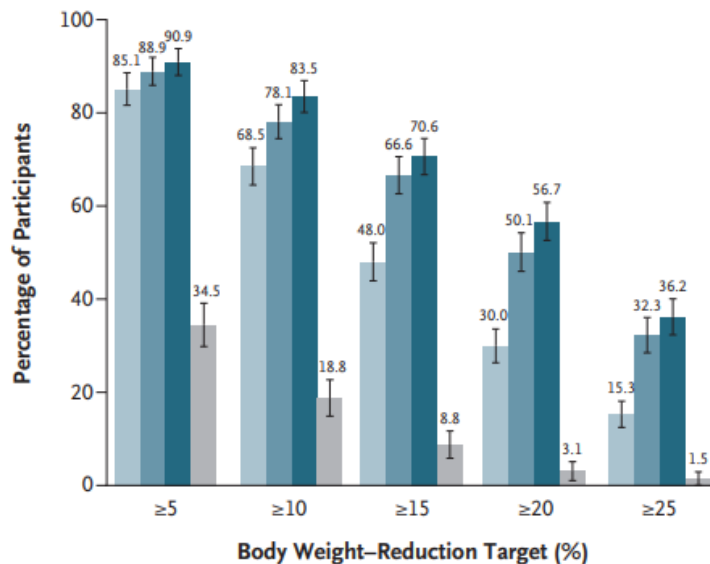
A Overall Percent Change in Body Weight from Baseline (treatment-regimen estimand)



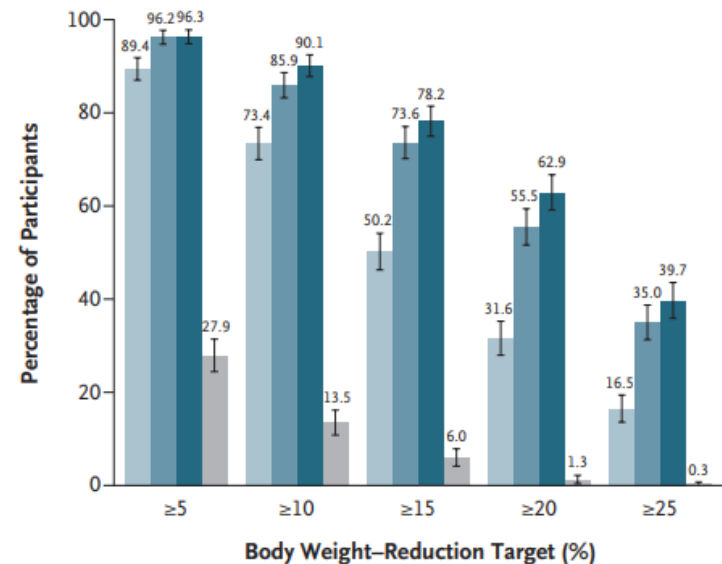
B Percent Change in Body Weight by Week (efficacy estimand)



C Participants Who Met Weight-Reduction Targets (treatment-regimen estimand)



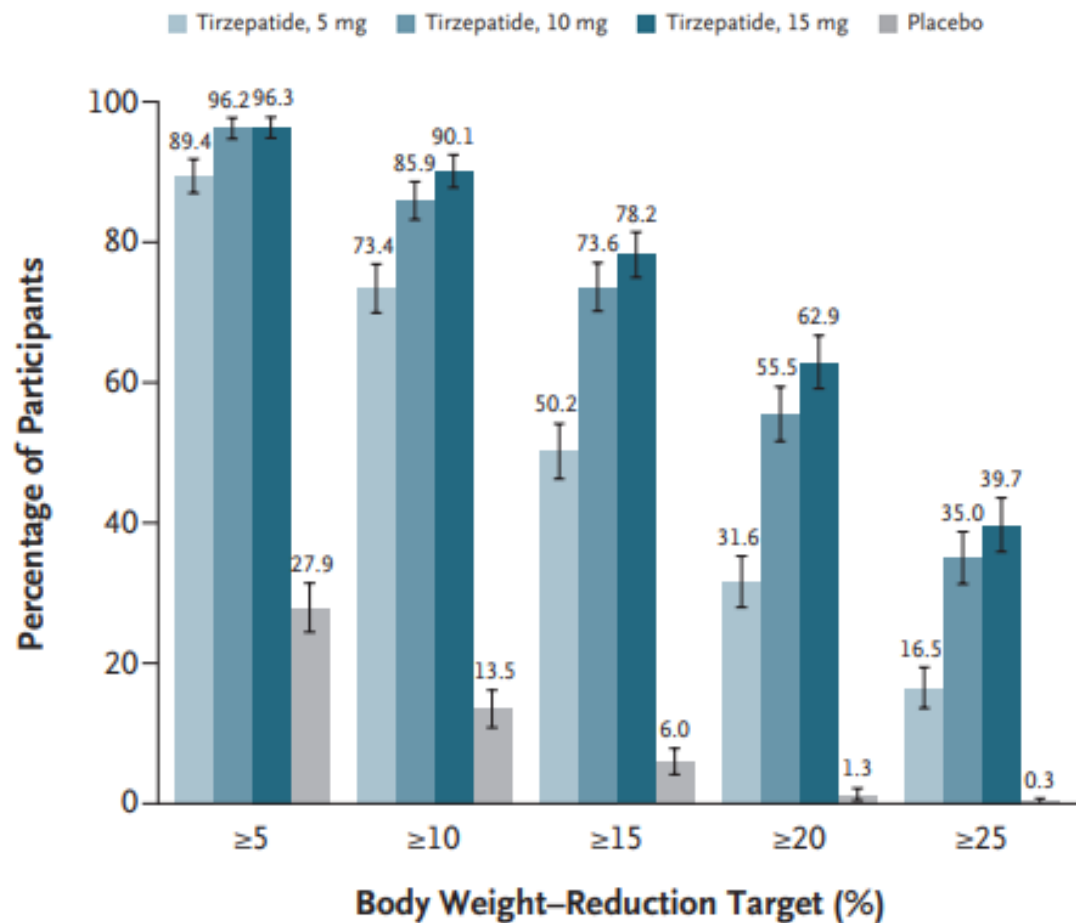
D Participants Who Met Weight-Reduction Targets (efficacy estimand)



MOUNJARO

(tirzepatide)

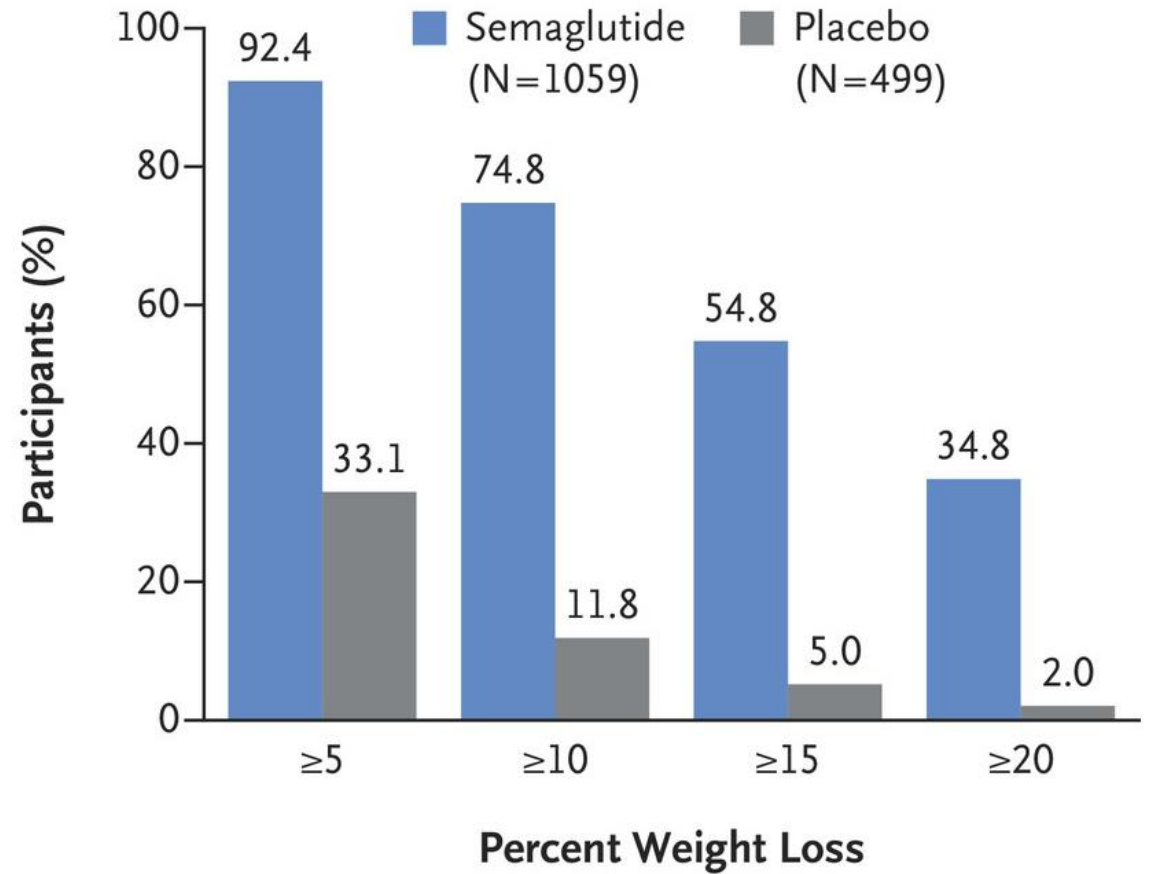
D Participants Who Met Weight-Reduction Targets (efficacy estimand)

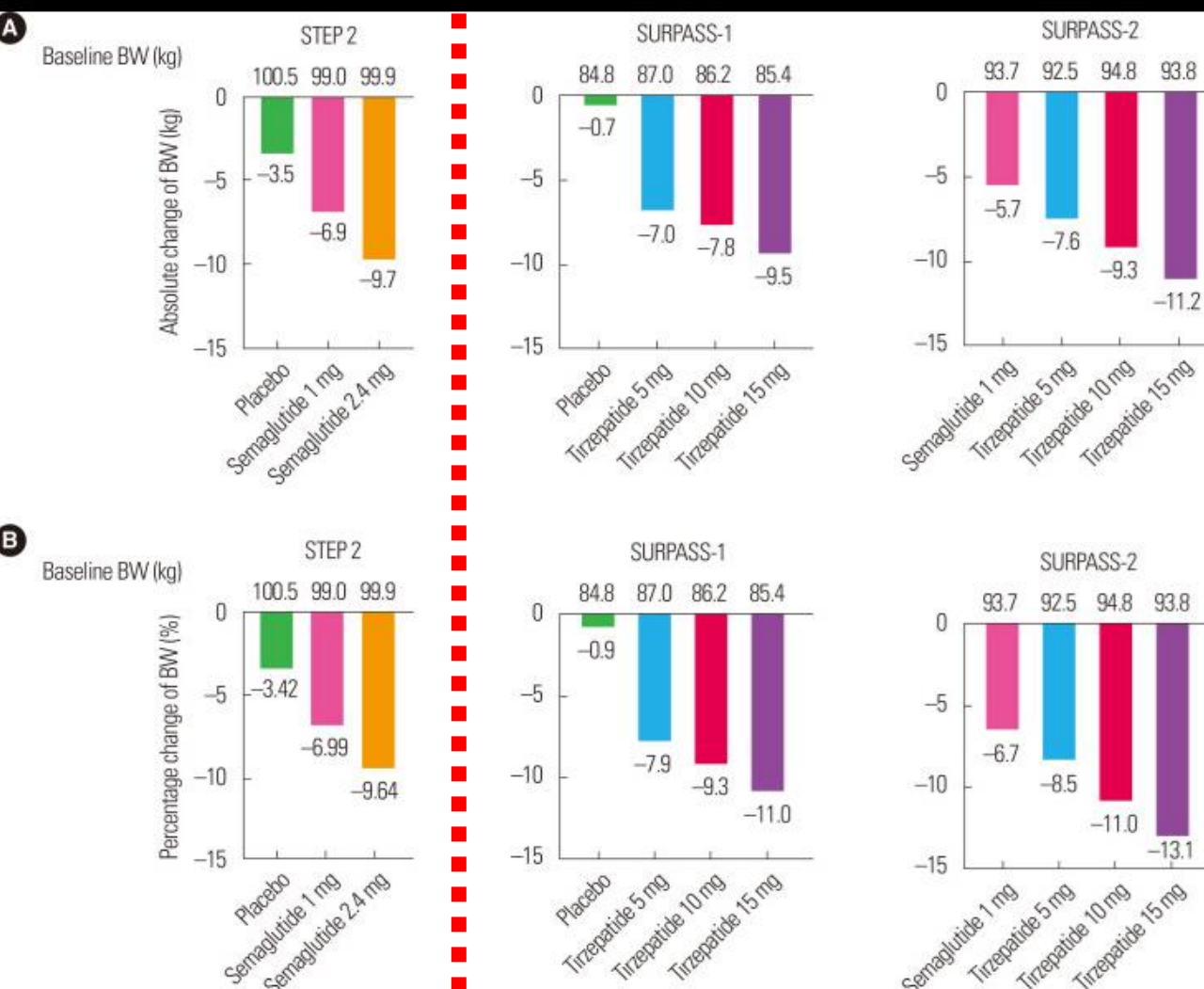


WEGOVY

(semaglutide)

D On-Treatment Data at Wk 68





Results in patients with diabetes

Jung HN, Jung CH. The Upcoming Weekly Tides (Semaglutide vs. Tirzepatide) against Obesity: STEP or SURPASS? J Obes Metab Syndr. 2022 Mar 30;31(1):28-36.

[See this image and copyright information in PMC](#)

Figure 1 Comparison of the mean change in body weight (BW) in Semaglutide Treatment Effect in People with Obesity (STEP) 2, SURPASS-1, and SURPASS-2. (A) Absolute change of BW (kg) from baseline. (B) Percentage change of BW (%) from baseline.

CASE EXAMPLES

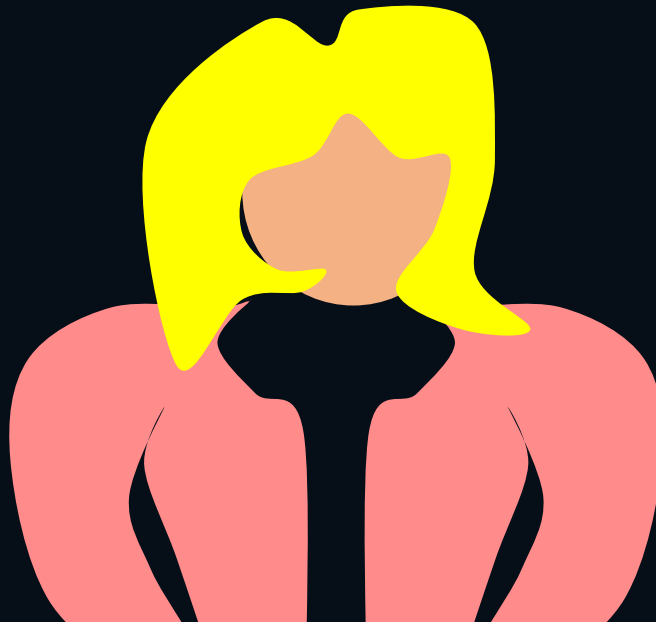
52-year-old woman with obesity, type 2 DM, dyslipidemia, and PCOS:

- 297 lbs. (BMI 44.5)
- Sleeve gastrectomy 2019
- 12 mo. post: 188 lbs. (BMI 28)
- 24 mo. post: 207 lbs. (BMI 31.5)



53-year-old woman with obesity, prediabetes, and HTN:

- 305 lbs. (BMI 46)
- Sleeve gastrectomy 2013
- 15 mo. post: 174 lbs. (BMI 26.6)
- 60 mo. post: 202 lbs. (BMI 30)



64-year-old woman with obesity, prediabetes, NAFLD, and OSA:

- 263 lbs. (BMI 40.3)
- Enrolled in UM Weight Management Program
- Nadir weight: 210 lbs.
- 2-year Program
“completion” weight: 228 lbs.



52-year-old woman with obesity, type 2 DM, dyslipidemia, and PCOS:

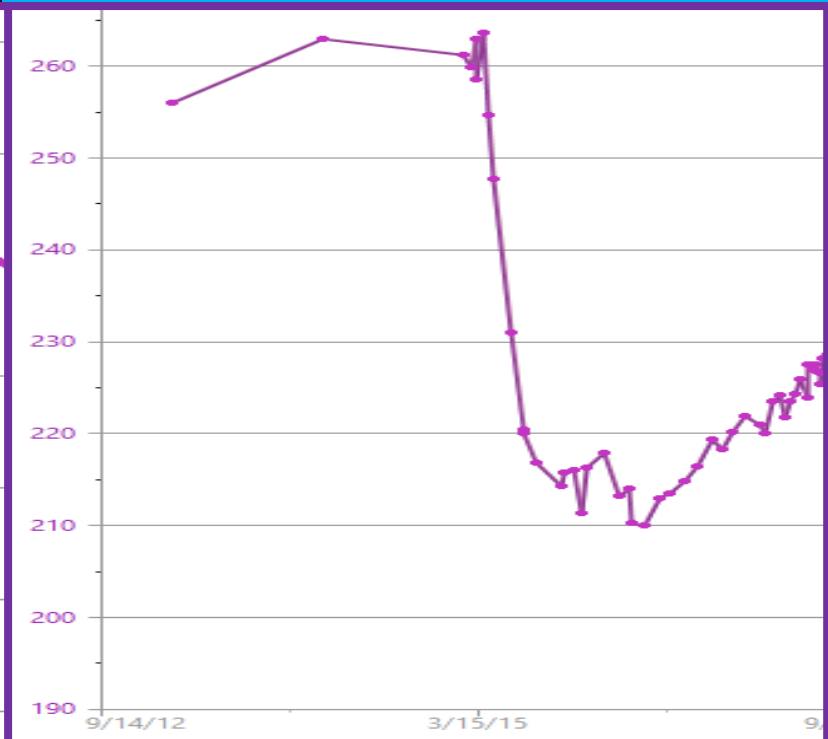
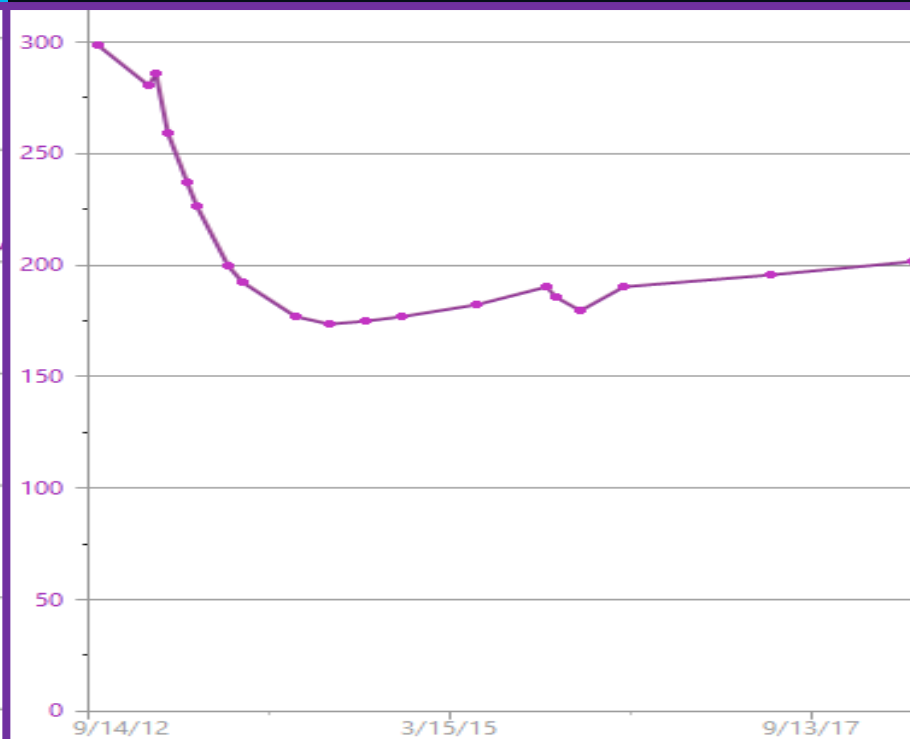
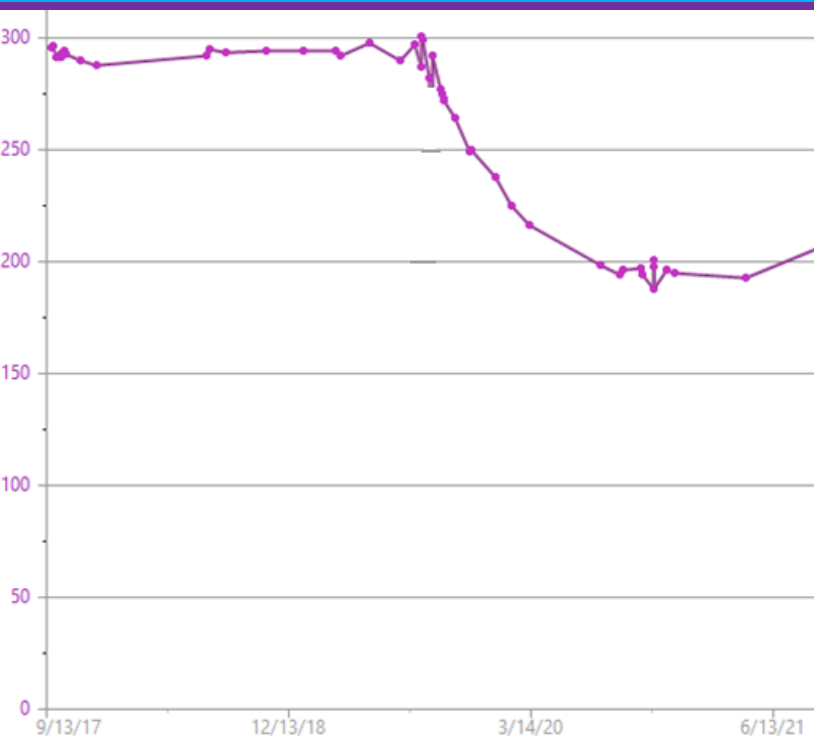
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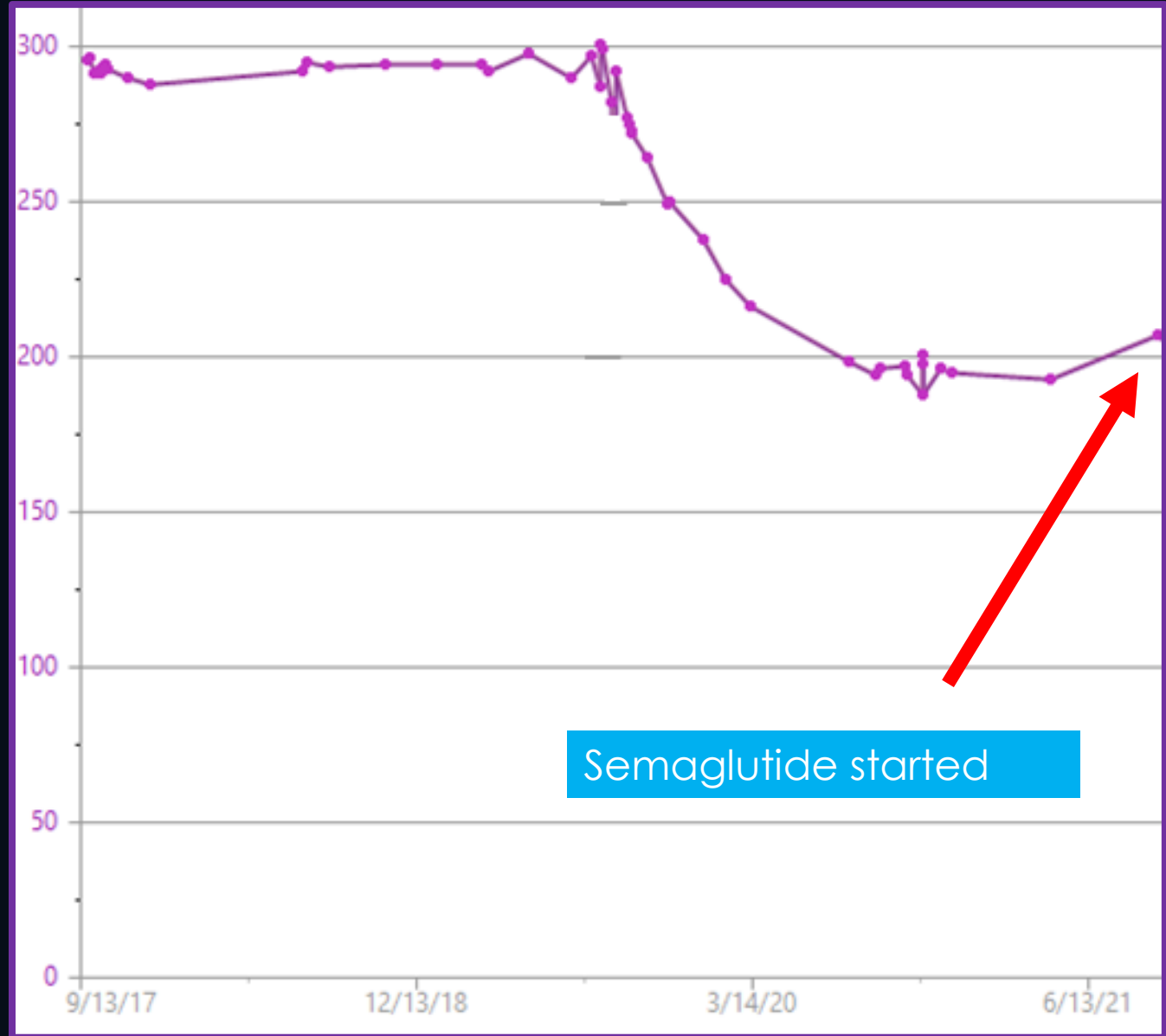
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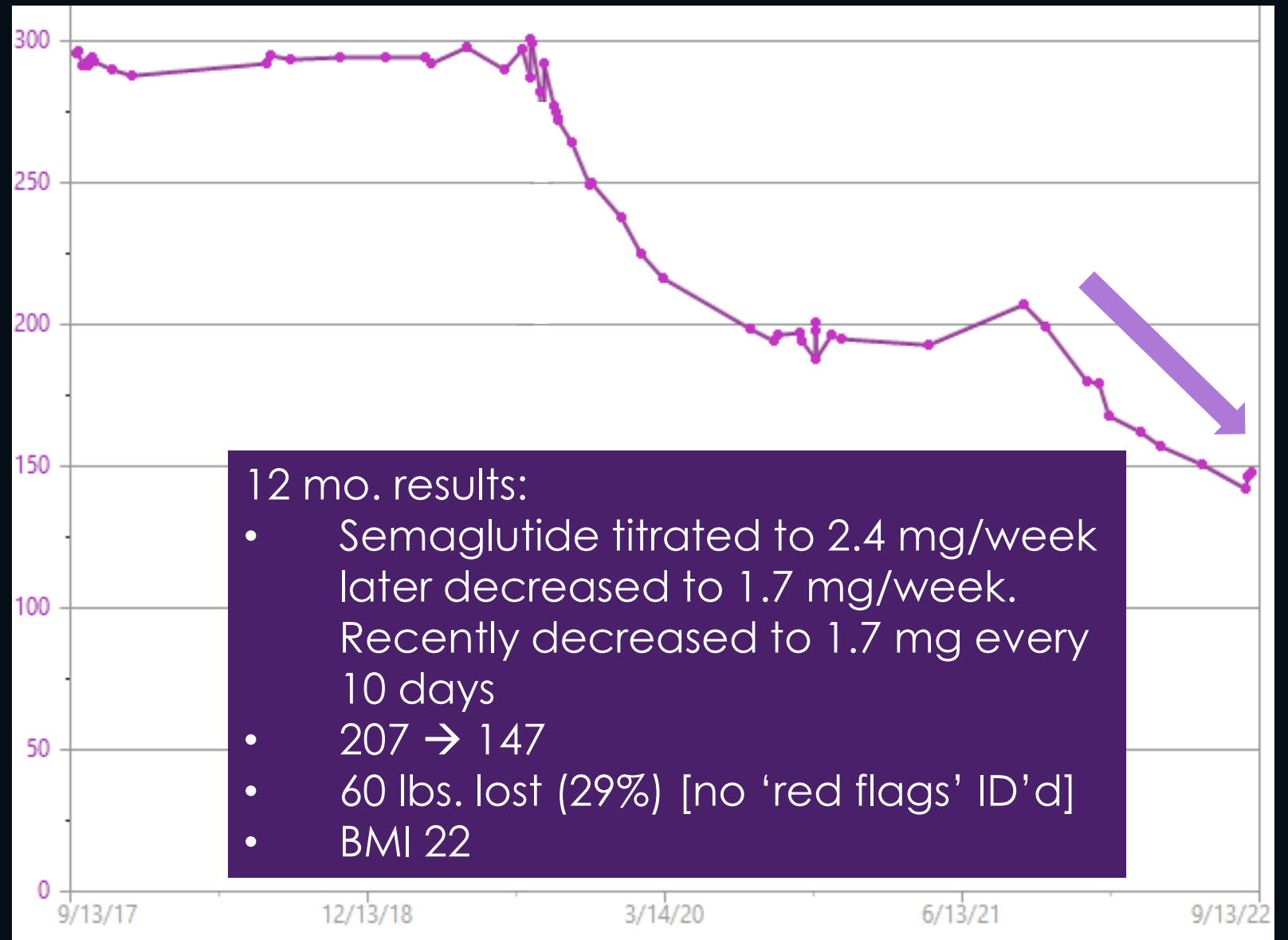
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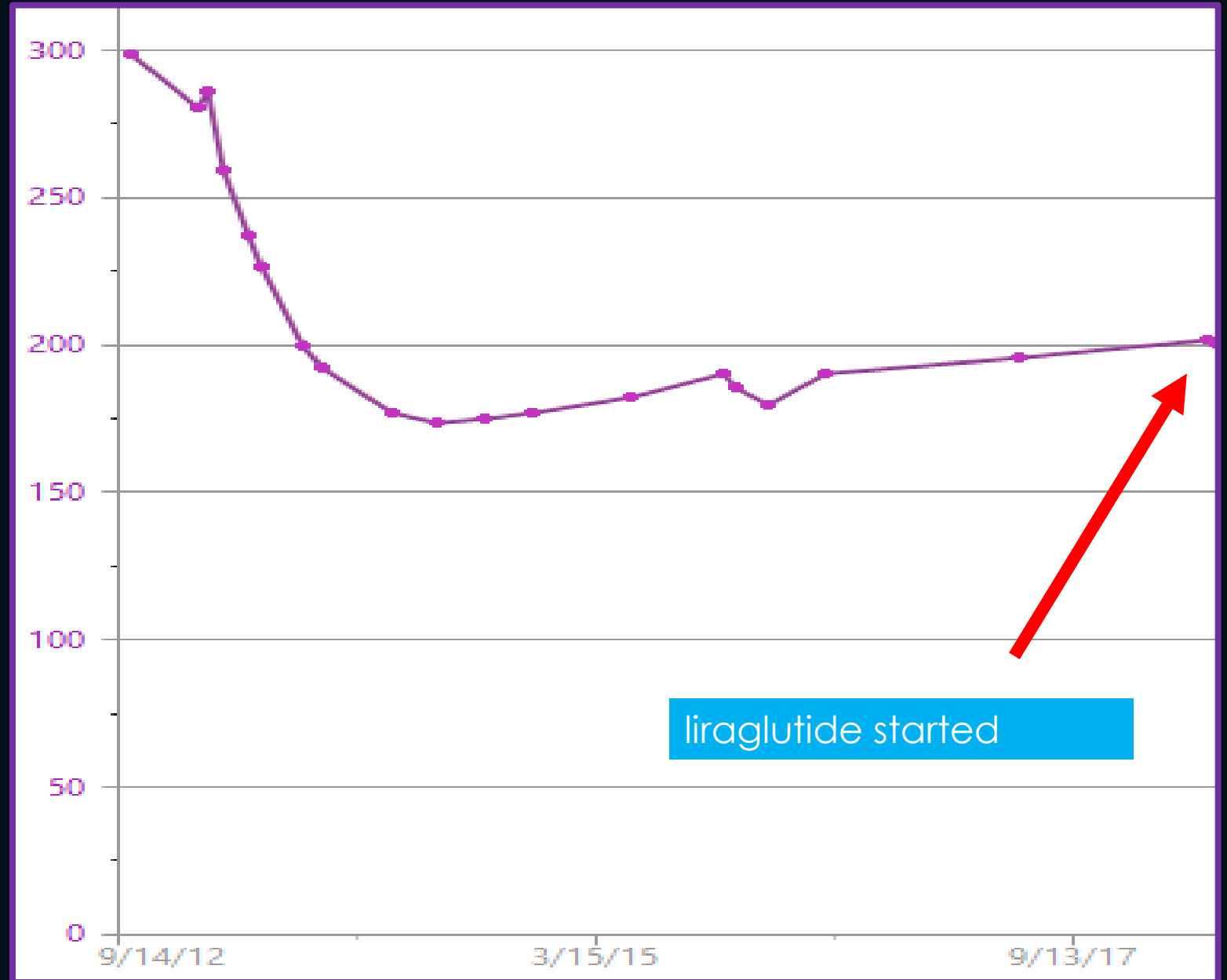
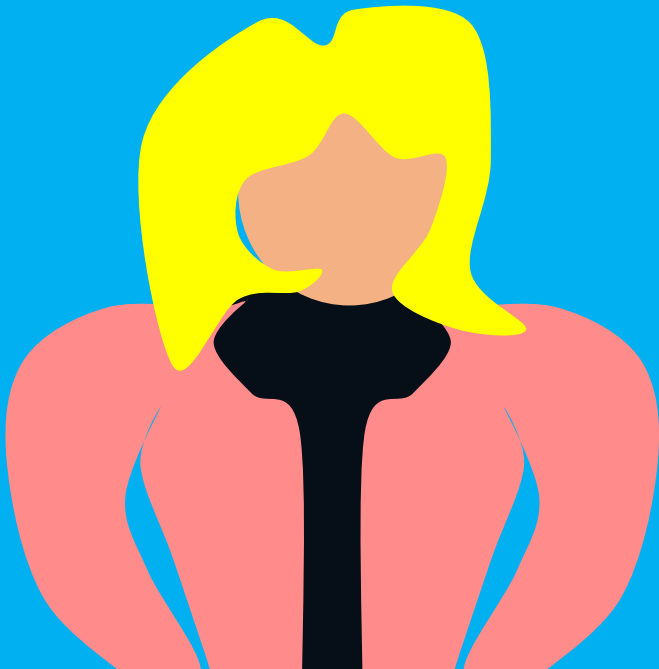
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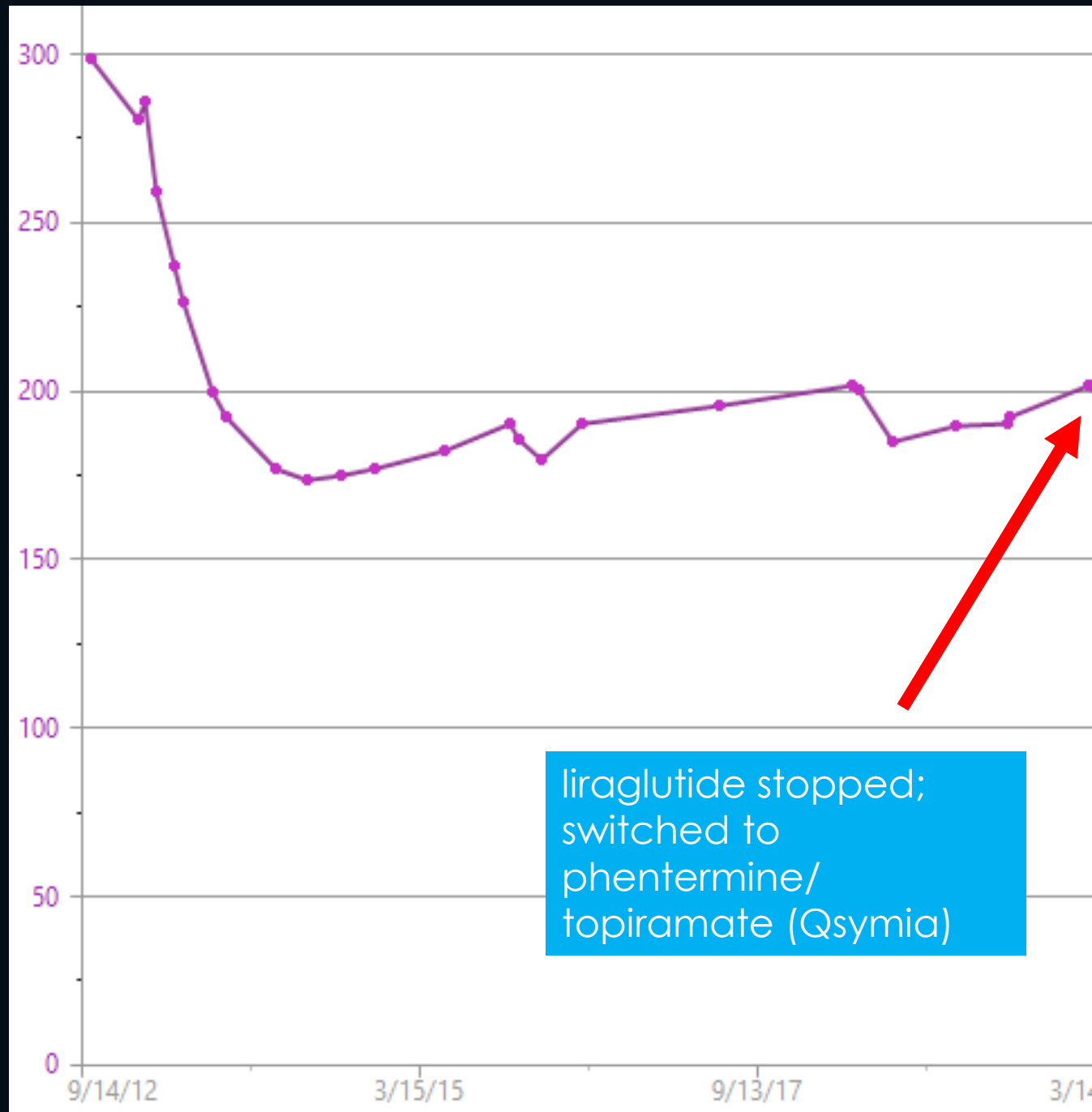
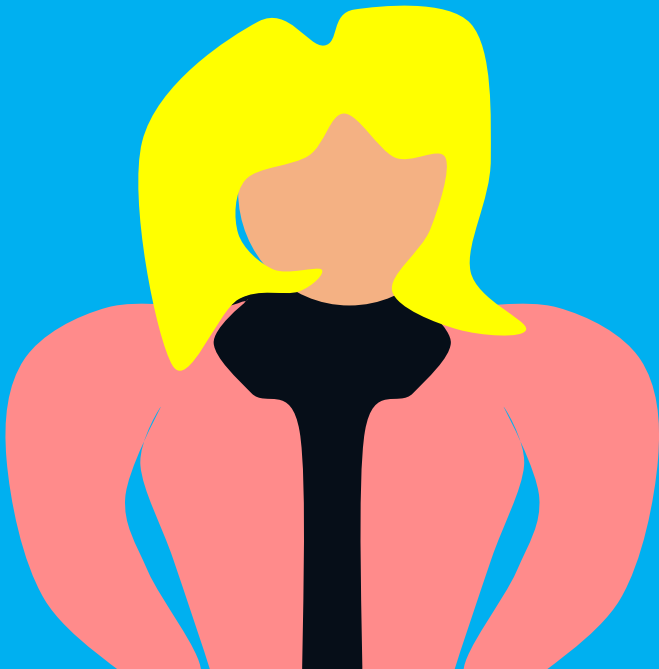
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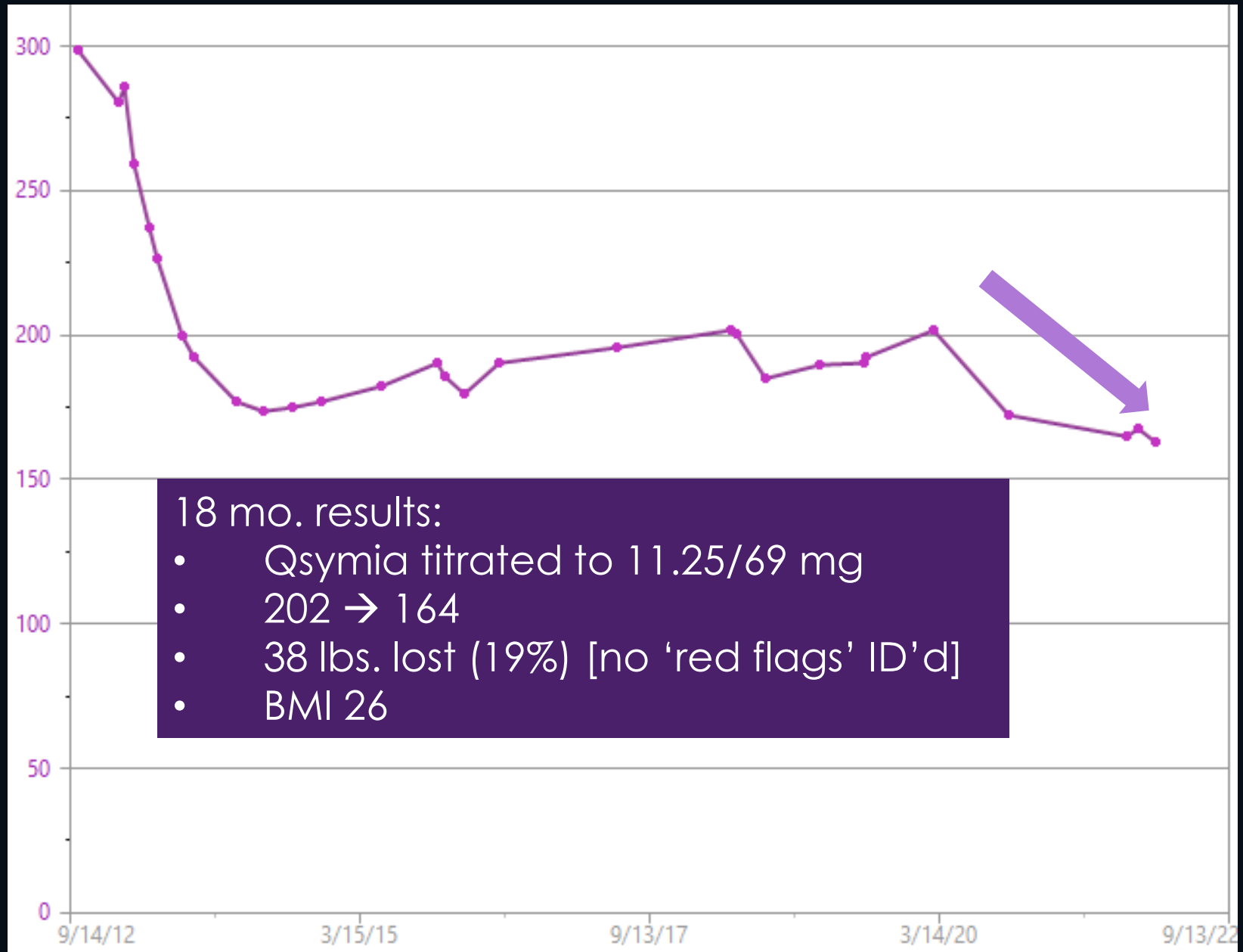
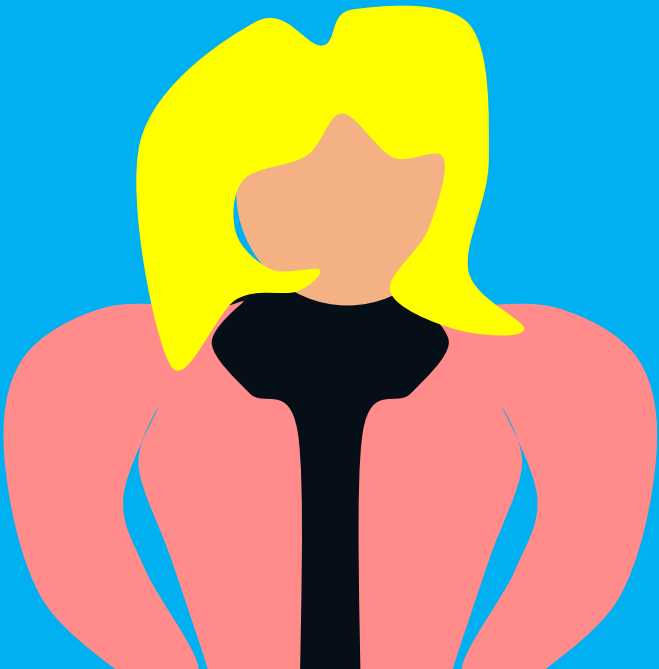
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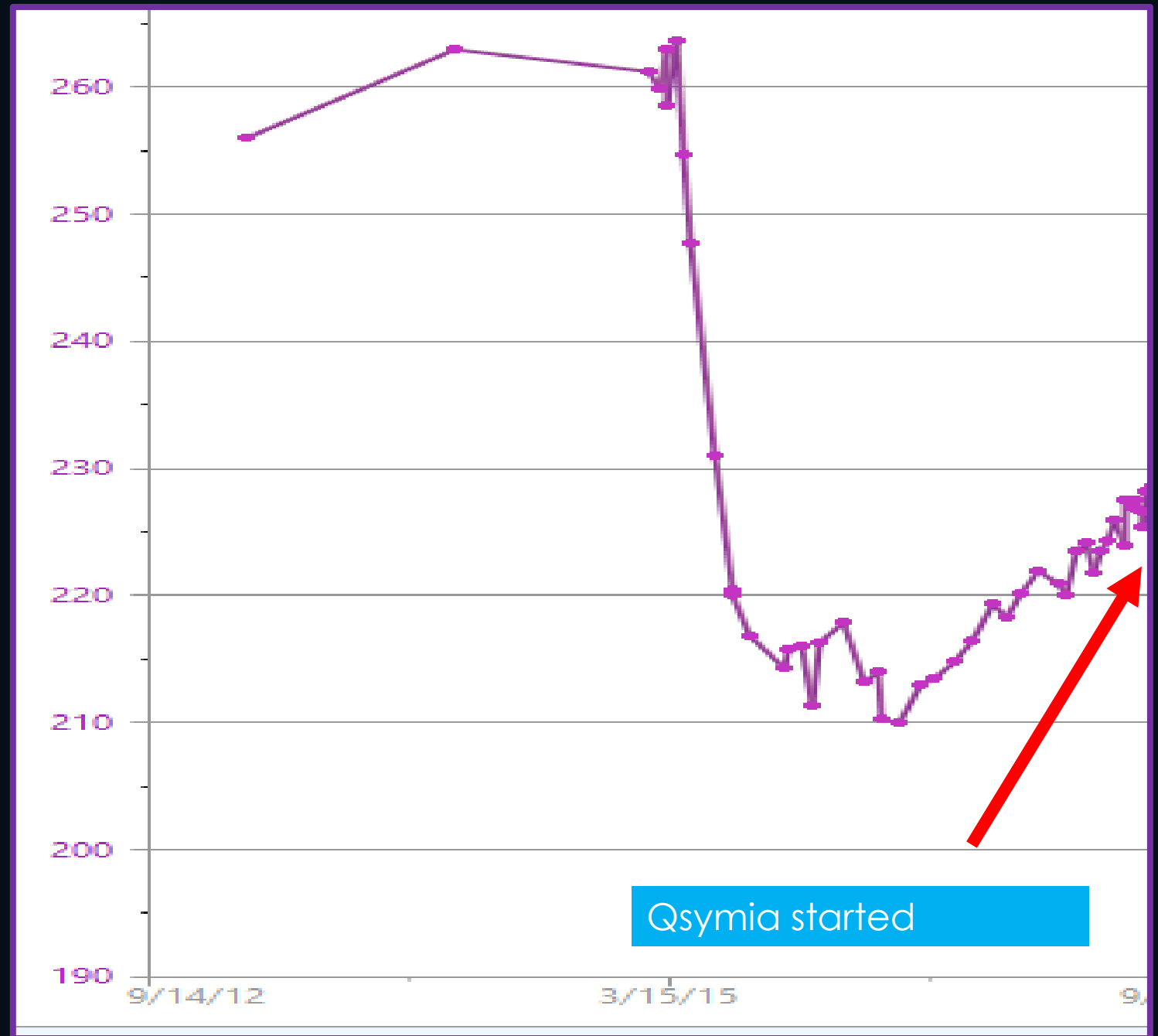
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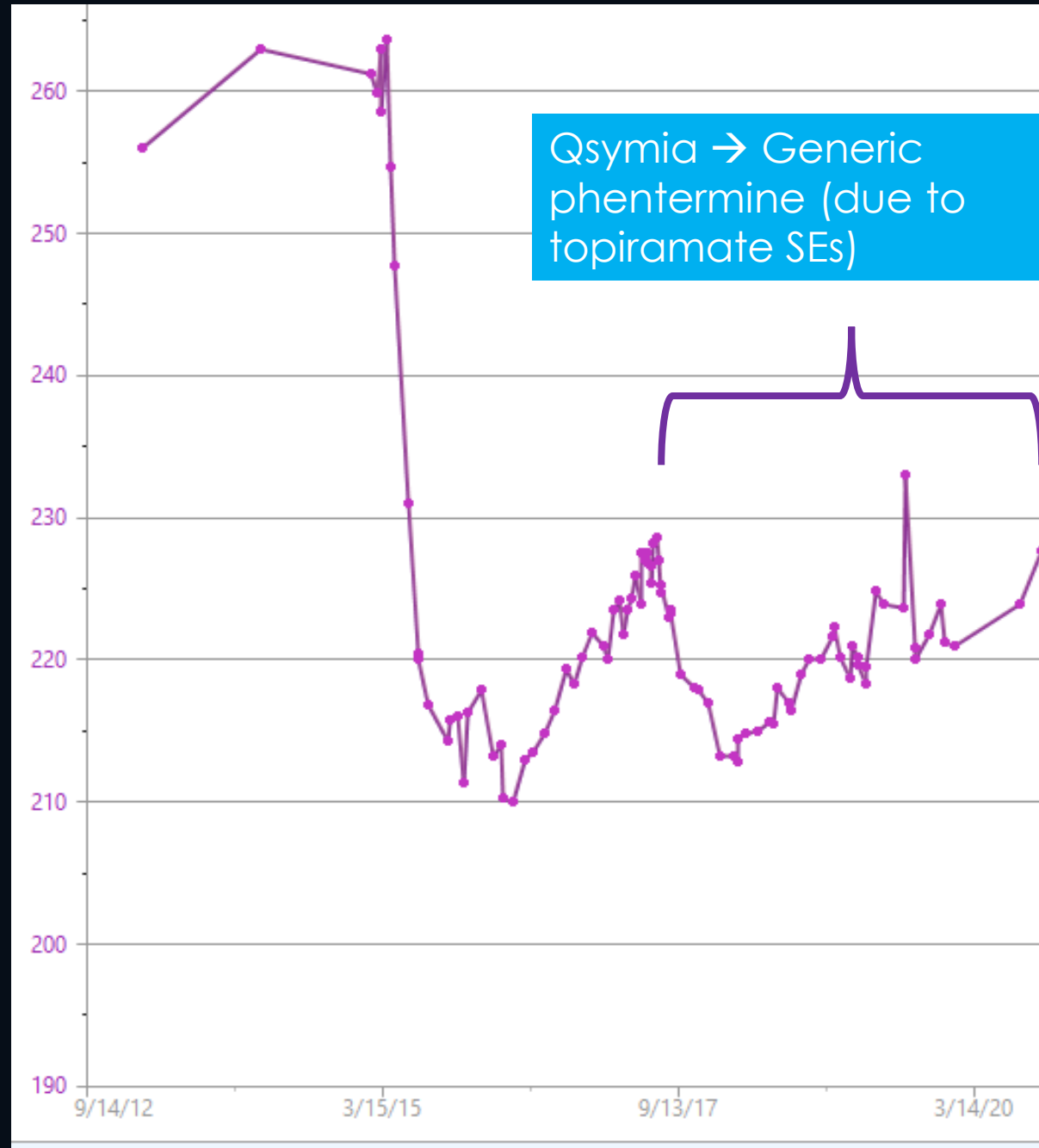
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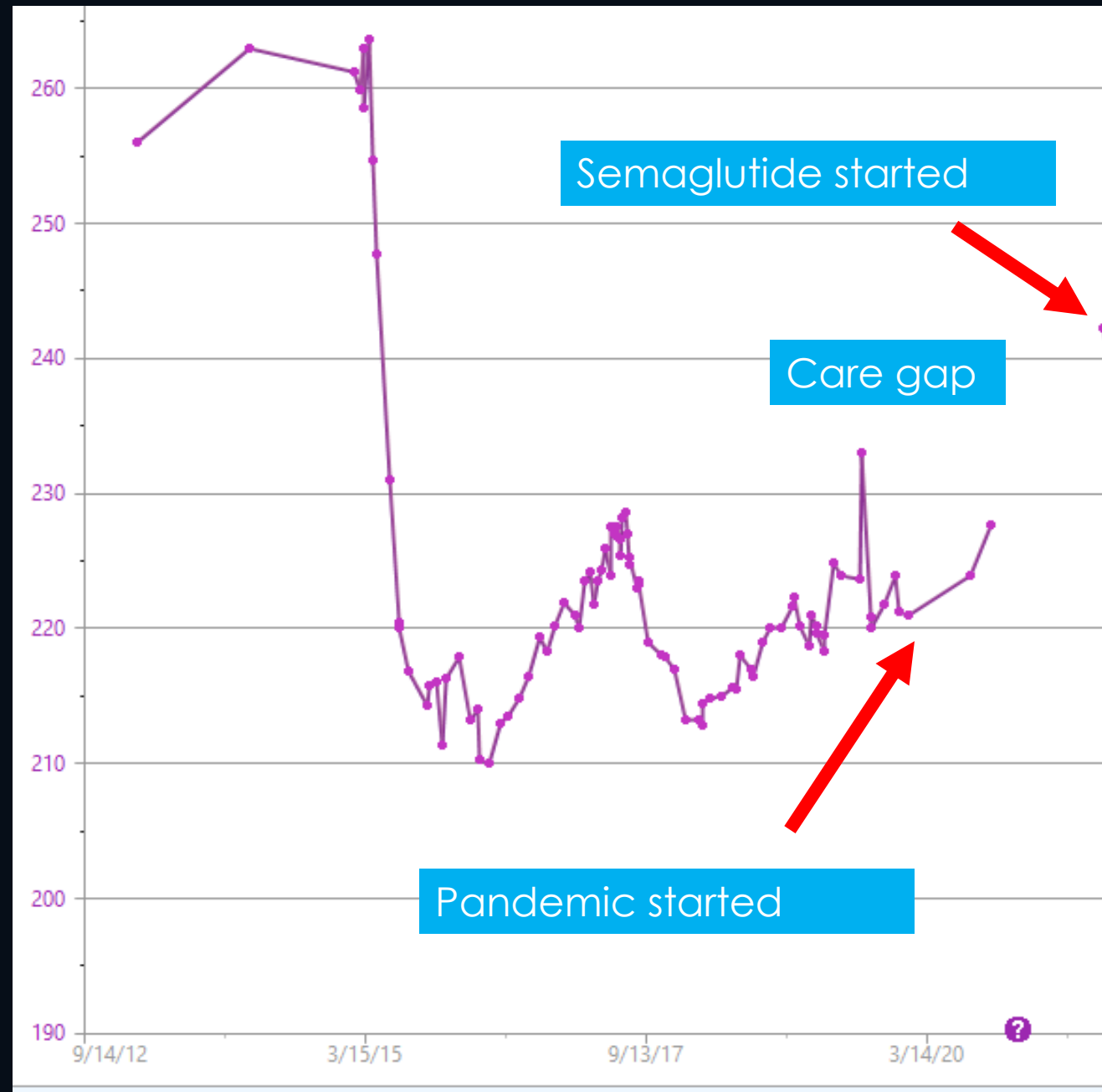
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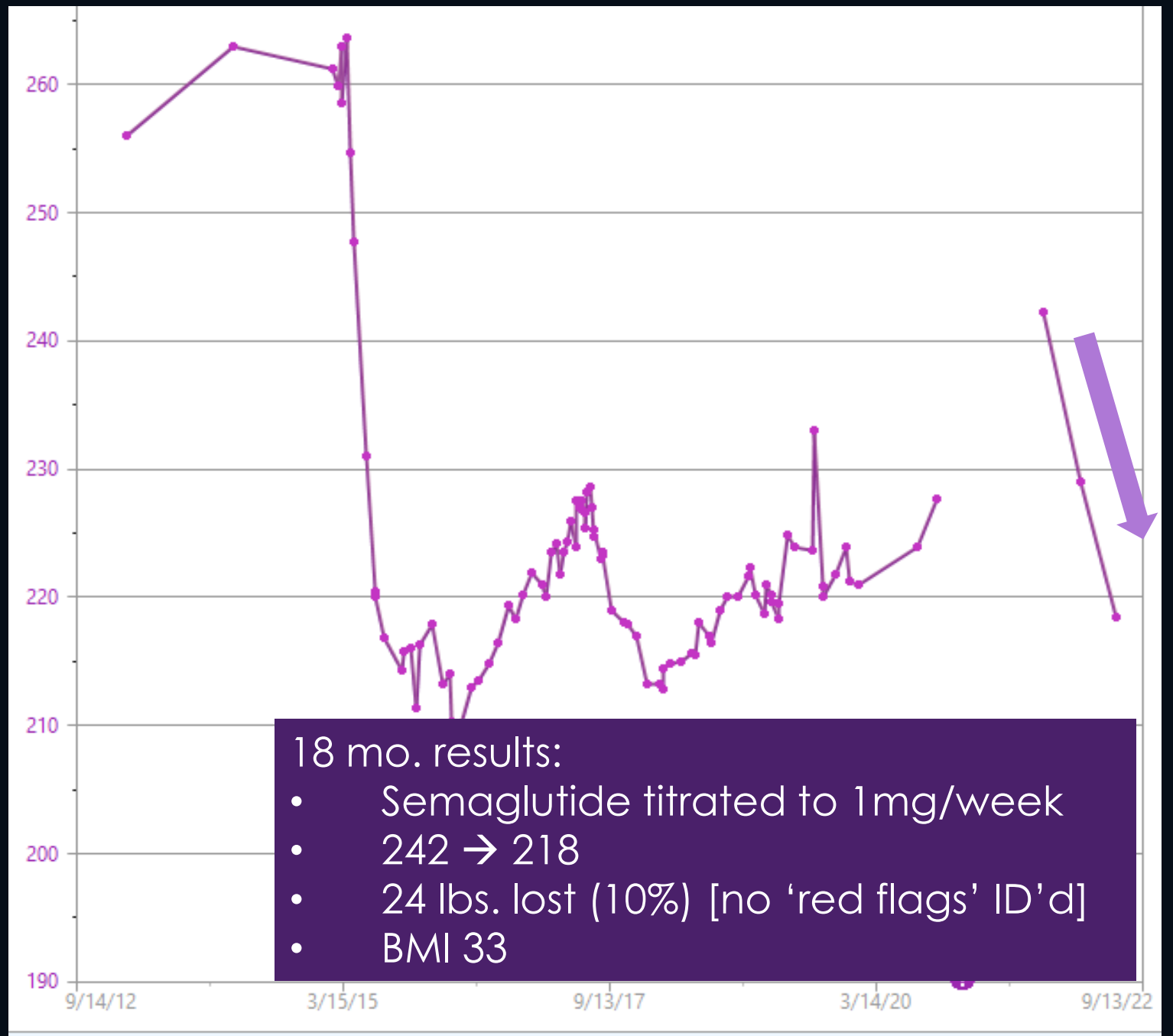
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WEIGHT CONTROL MEDICATIONS

- Recognize that obesity is a complex disease that can be treated by evidenced-based therapies
- Understand and define the goals of care
- Know the indications for pharmacotherapy and the expectations of treatment
- Patient's progress should be tracked, and redirection should be provided if goals are not being met

THANK YOU FOR
LISTENING!



Q & A Panel Discussion



M B S C

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LUNCH BREAK

TIME FOR

LUNCH



Session III

Surgical Management of Obesity

Moderator:

Jonathan Finks, MD



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Bariatric Surgery & When to Refer



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Paul Kemmeter MD FACS

Grand Health Partners

Chair ASMBS CIP Committee

MBSC Executive Council



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Disclosures

Speaker:

W. L. Gore & Associates



I am a Bariatric Surgeon



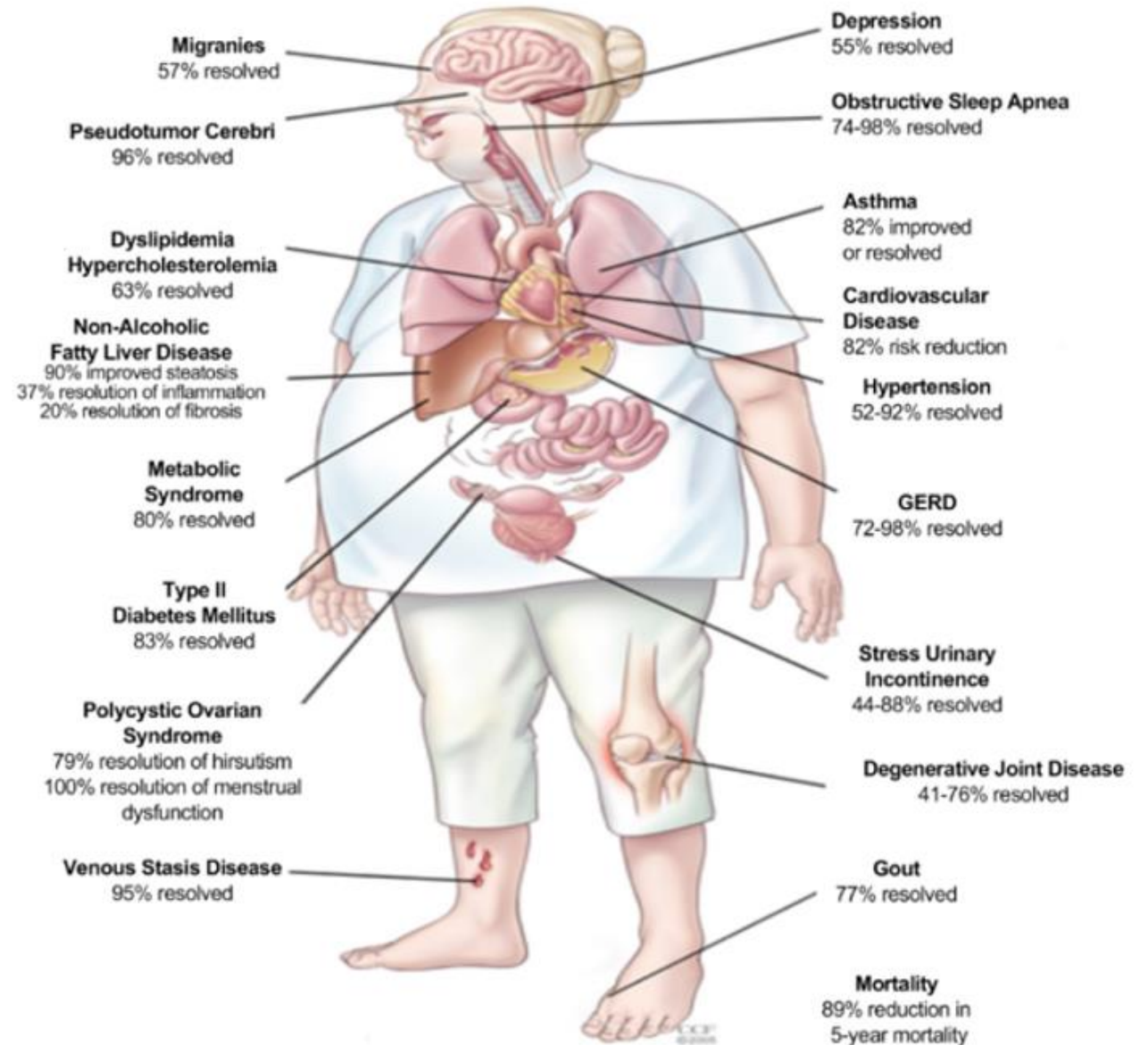
Objectives

- Discuss the Impact of Metabolic Surgery
- Discuss the Limitations of Metabolic Surgery
- Discuss Bariatric Surgery Options
- Discuss the Criteria for Bariatric Surgery
- Discuss the Future of Metabolic Surgery

Although Metabolic Surgery is effective ...

Quality of Life= 95% Improved!!

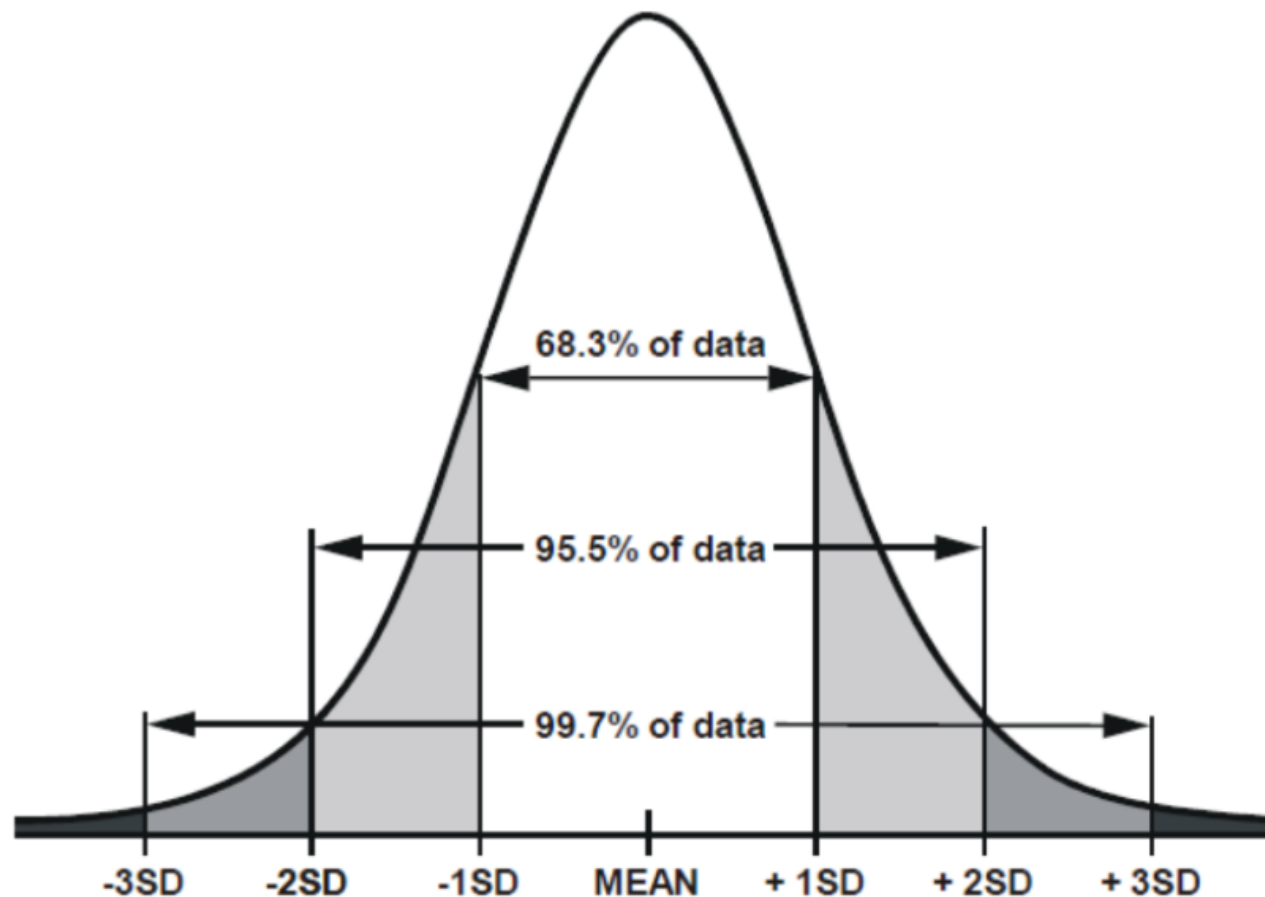
Mortality Reduced= 30-40% at 10 years



Variable response

- All treatments have variation of response within individuals
- This includes response to metabolic bariatric surgical procedures.
- There is a bell shaped curve distribution

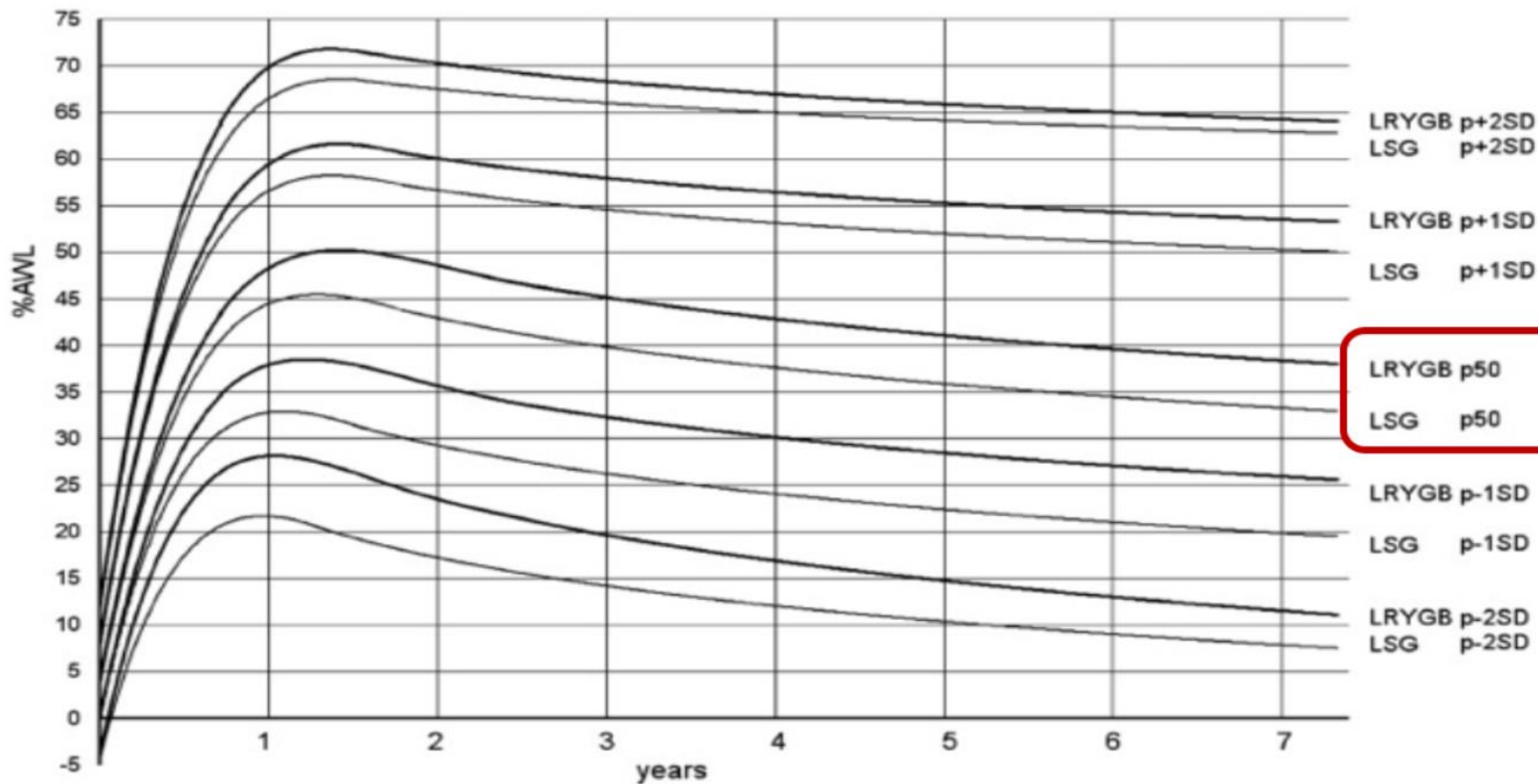
Areas under the normal curve that lie between 1, 2, and 3 standard deviations on each side of the mean



The Dutch bariatric weight loss chart: A multicenter tool to assess weight outcome up to 7 years after sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass

Arnold W. van de Laar, M.D.^{a,*}, Simon W. Nienhuijs, Ph.D.^b, Jan A. Apers, M.D.^c, Anne-Sophie van Rijswijk, M.D.^a, Jean-Paul de Zoete, M.D.^b, Ralph P. Gadiot, Ph.D.^c

16% Poor Responders after RYGB



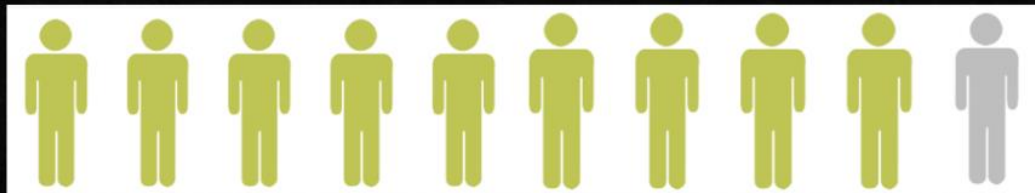
We can't HEAL Chronic Conditions with Steel

Truth

9 out of 10
are better
off than if
they did not
have
surgery

How successful is bariatric surgery?

- ◆ 1 out of 10 people will regain most or all the weight a few years after surgery
- ◆ 2 out of 10 people will regain significant amount of weight a few years after surgery
- ◆ **7 out of 10 people will maintain a significant amount of weight loss long term >10 years**

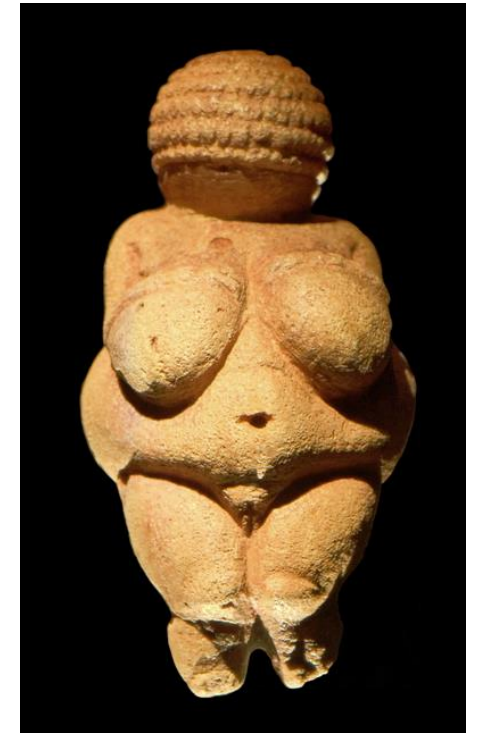


BOLD Database

- 75% of RYGB reach < 25 kg/m²
- >25% of RYGB reach < 30 kg/m²

History of Obesity Surgery

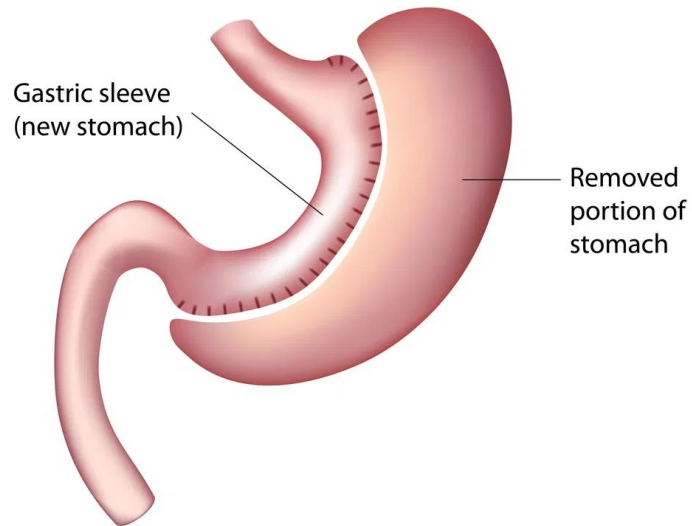
- 10th Century Sancho (King of Leon) – Lips sutured
- 1954 Kremen – JJ Bypass
- 1966 Mason – Loop Gastric Bypass
- 1976 Scopinaro – Biliopancreatic Diversion
- 1977 Rodgers et al – Jaw Wiring
- 1977 Griffen et al – Roux Gastric Bypass
- 1982 Mason – Vertical Banded Gastroplasty
- 1986 Kuzmac & Yap – Gastric Band
- 1992 Cadiere – Laparoscopic Band
- 1993 Hess & Marceau – Duodenal Switch (DS)
- 1994 Wittgrove – Laparoscopic RYGB
- 1997 Rutledge – Loop Gastric Bypass
- 2000 Gagner – Sleeve Gastrectomy (First Stage DS)



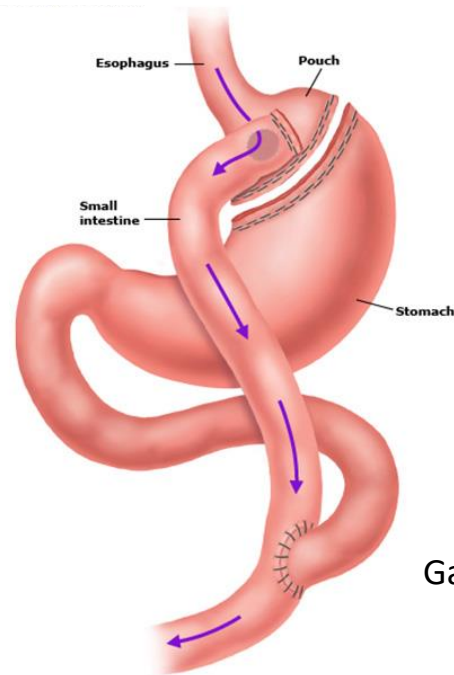
Venus of Willendorf 30,000 BC

Surgical Options - Metabolic

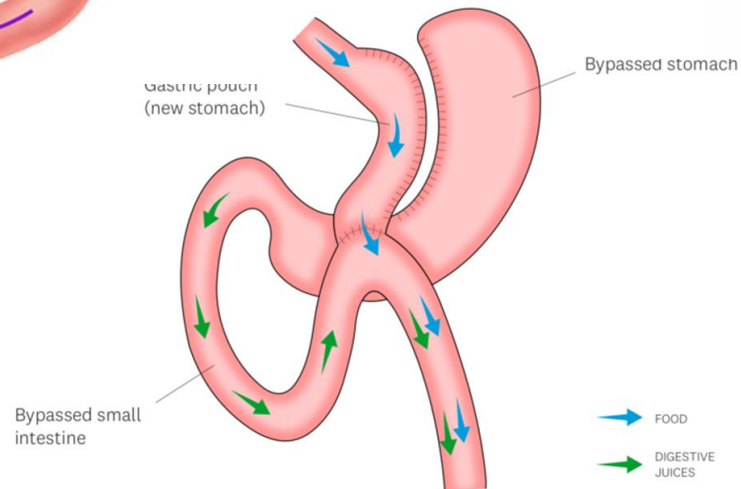
Vertical Sleeve Gastrectomy



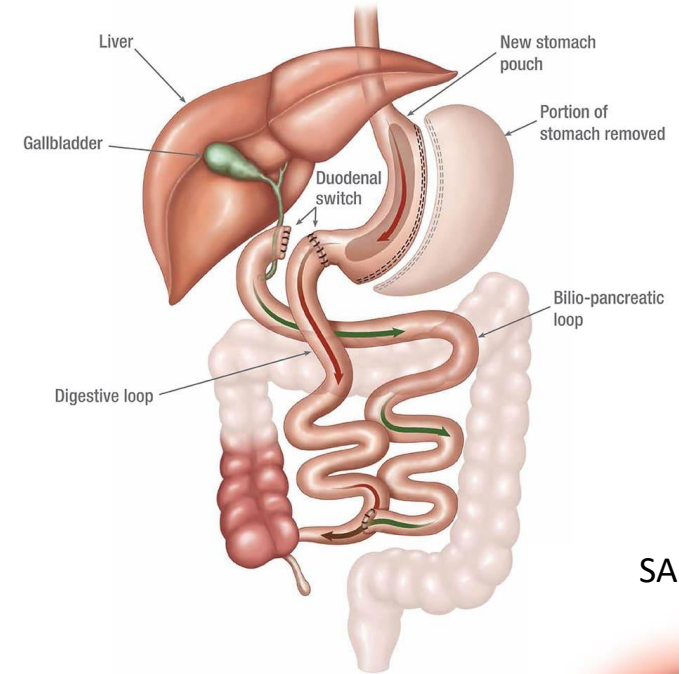
Roux-en-Y Gastric Bypass



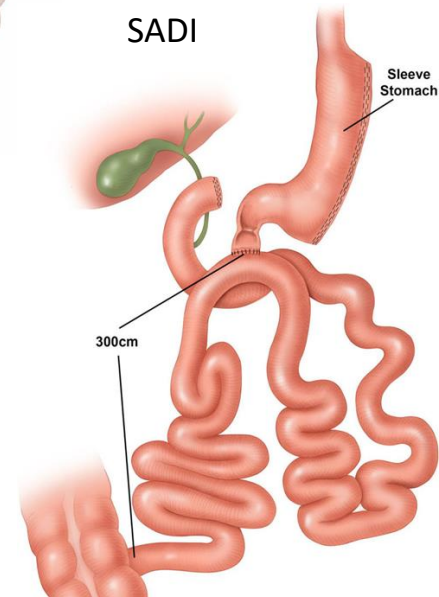
One Anastomosis Gastric Bypass (OAGB)



Biliopancreatic Diversion with Duodenal Switch



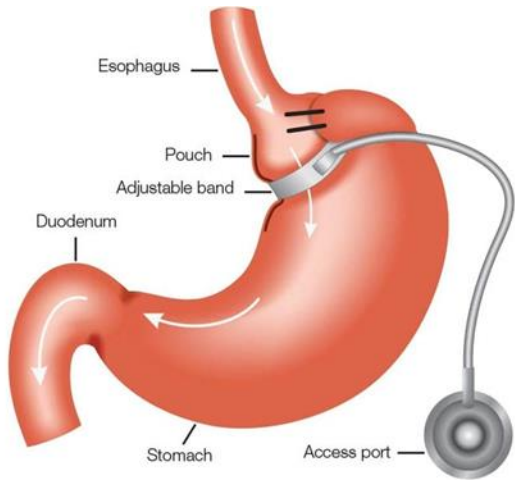
SADI



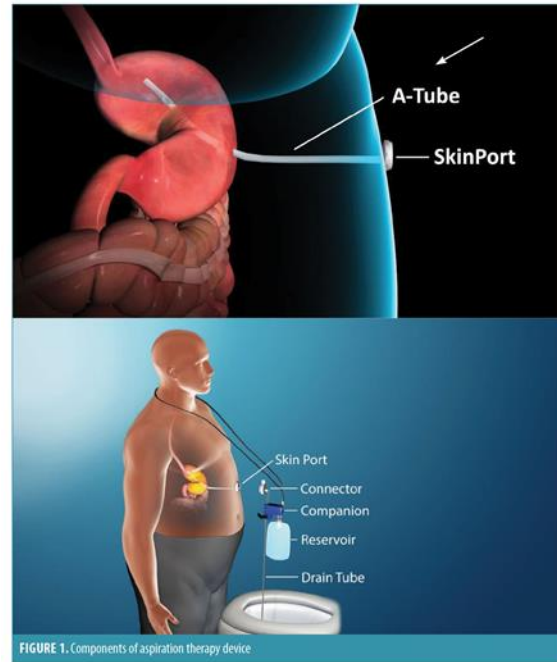
 FOOD
 DIGESTIVE JUICES

Surgical Options – Minimally Metabolic?

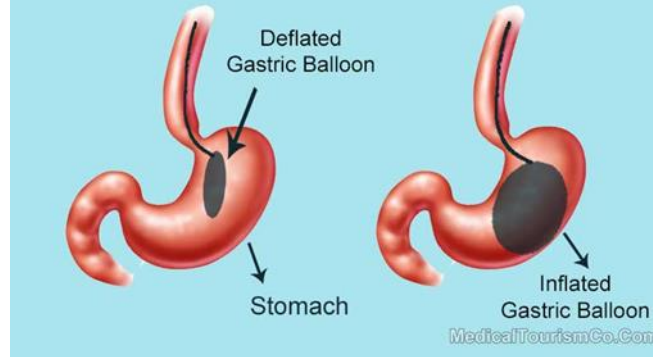
Adjustable Gastric Band



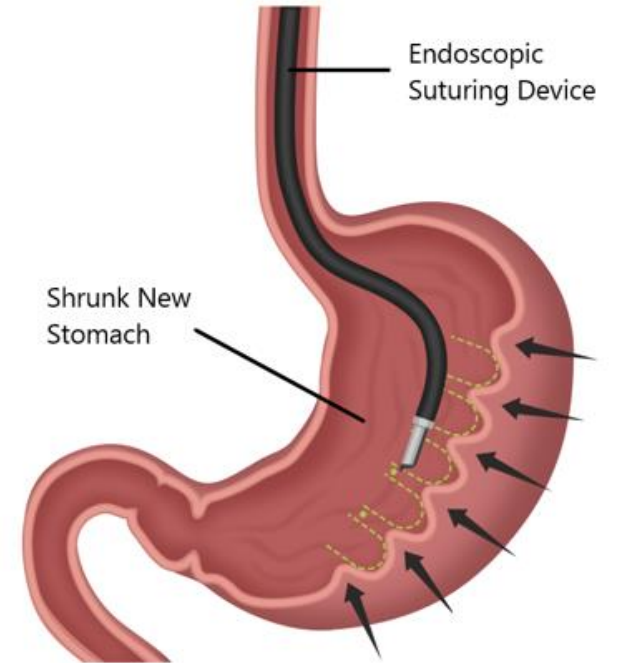
Aspire



Non-Surgical Approach to Weight Loss - Gastric Balloon



Endoscopic Sleeve Gastroplasty (ESG)



Hormonal Changes

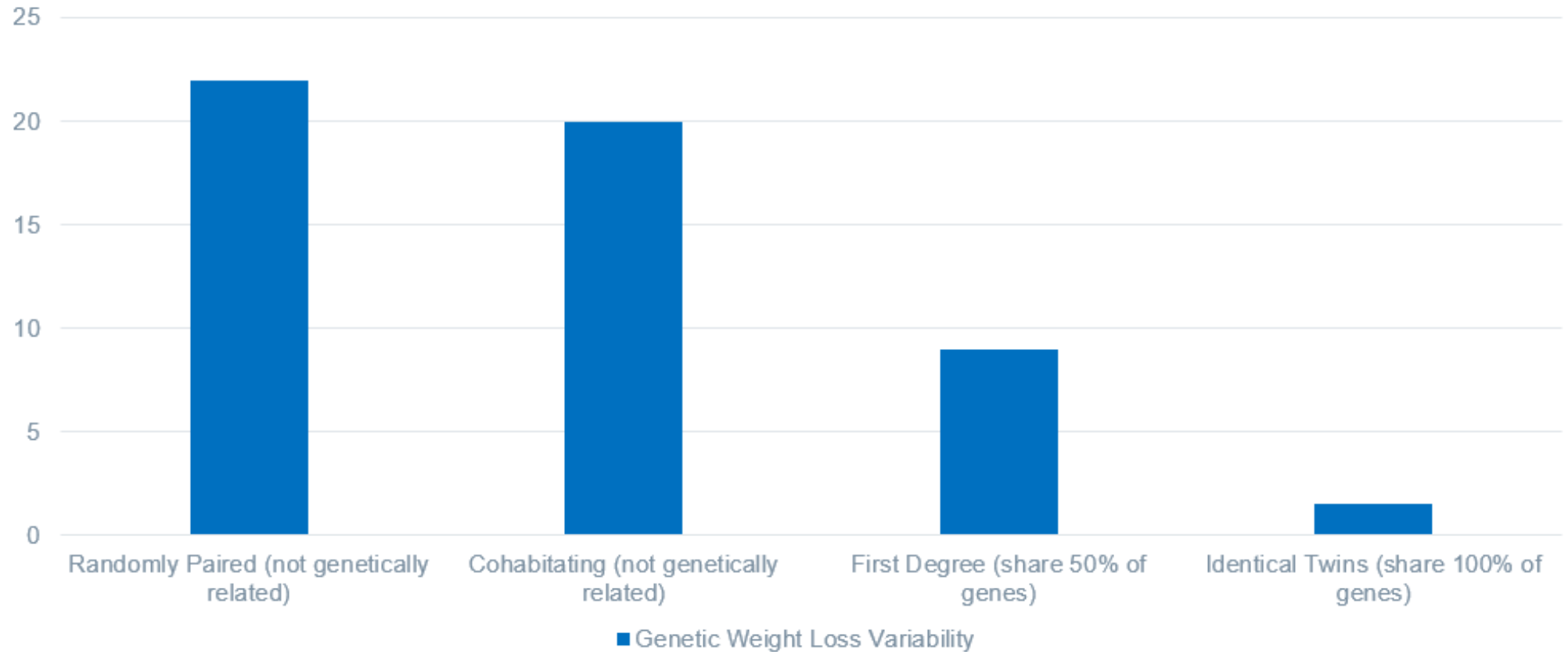
	Ghrelin	GLP-1	Insulin	Leptin	PYY	OXM
Dieting	↑ ↑		↓	↓		
Lap Band	↑ ↑	◊	↓	↓	↑	◊
Sleeve	↓ ↓ ↓	↑	↓	↓	↑	?
RYGB	↑ ◊ ↓	↑ ↑	↓	↓	↑	↑

Ochner et al. Changes in neurohormonal gut peptides following bariatric surgery. Int J Obesity 2011; 35:153-166.

Response Varies by Procedure and Patient

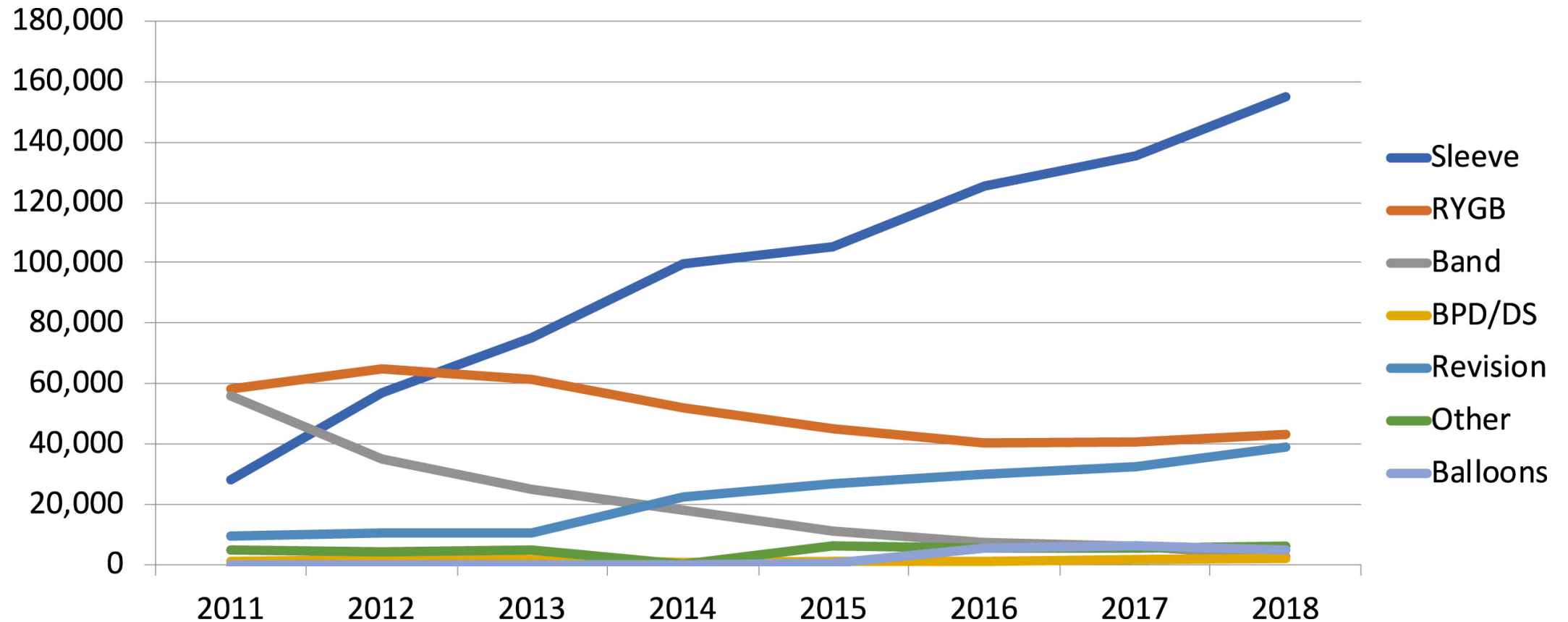
Genetic Variations

Genetic Weight Loss Variability

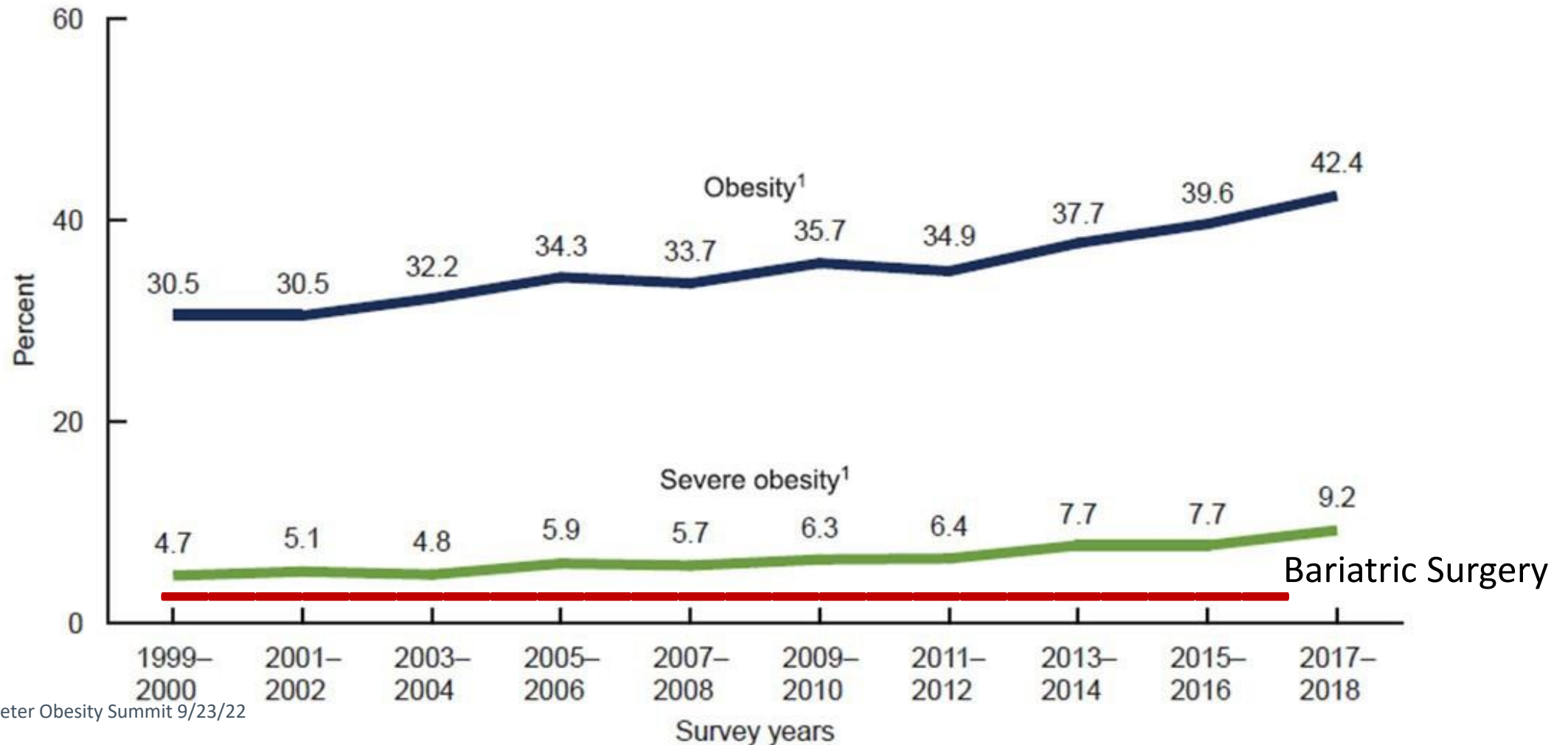


Adapted from: Hatoum IJ, Greenawalt DM, Cotsapas C, et al. Heritability of the weight loss response to gastric bypass surgery. *J Clin Endocrinol Metab.* 2011;96(10):E1630–E1633. and Hagedorn JC, Morton JM. Nature versus nurture: identical twins and bariatric surgery. *Obes Surg.* 2007;17(6):728–731.

Trends of Metabolic Procedures



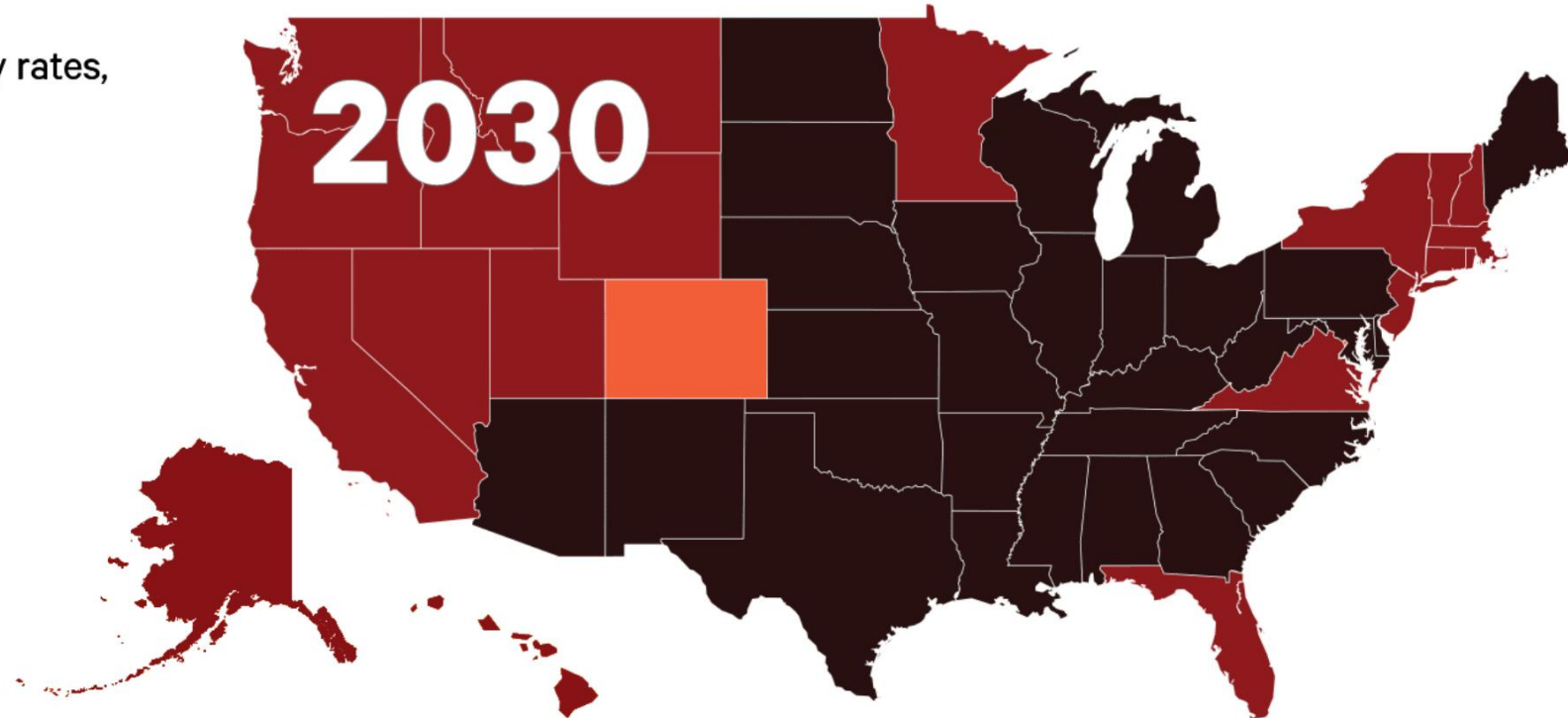
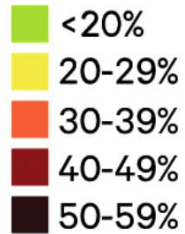
Obesity Rates vs Surgical Growth



We're Losing the Battle!

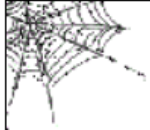
Nearly half of Americans will have obesity by 2030

U.S. Obesity rates,
1990-2030



Childhood Obesity Intervention
Cost-Effectiveness Study

Ward ZJ, Bleich SN, Cradock AL, Barrett JL, Giles CM, Flax CN, Long MW, Gortmaker SL. Projected U.S. State-Level Prevalence of Adult Obesity and Severe Obesity. *N Engl J Med.* 2019;381:2440-50. doi: 10.1056/NEJMsa1909301



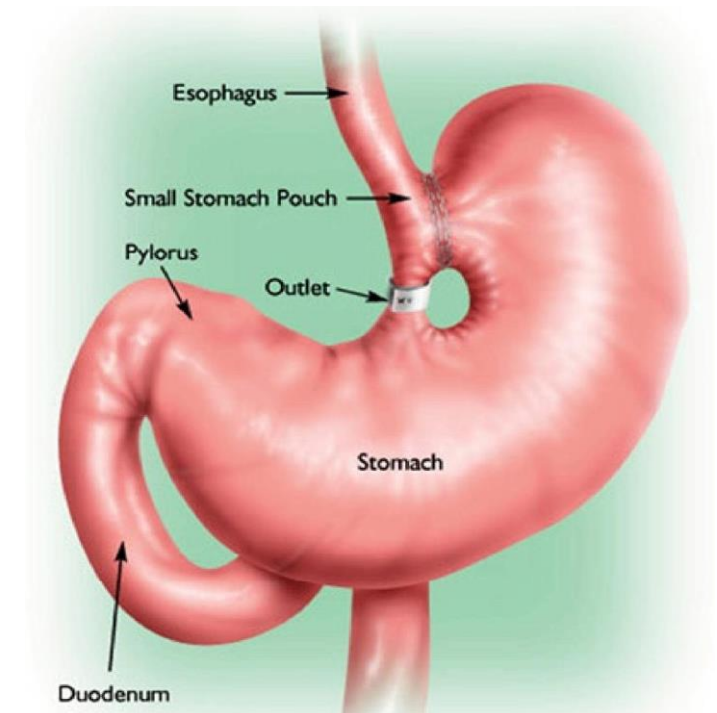
The programs listed are provided for reference purposes only. They were current when produced, but are no longer maintained and may now be outdated. Persons with disabilities having difficulty accessing information on this page may **contact us** for assistance. Please select the **ODP's home page** to access current information.

Gastrointestinal Surgery for Severe Obesity

National Institutes of Health
Consensus Development Conference Statement
March 25-27, 1991

- BMI > 40 or > 35 kg/m² w/ comorbidities
- Attempts at non-surgical weight loss
- Psychologically Stable

Vertical Banded Gastroplasty





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Obesity
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ASMBS/IFSO Criteria for surgery

BMI > 35 kg/m²

BMI > 30 kg/m² with metabolic comorbidity

Asian Population: 27.5 kg/m²



Future of Surgery?



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COST ANALYSIS OF ROBOTIC ASSISTED SURGERY VS LAPAROSCOPY IN GENERAL SURGERY

Chetna Bakshi, MD¹, Andrew Godwin, MD², Julio Teixeira, MD³. ¹General Surgery at

Conclusions: Robotic surgery has been associated with higher costs and longer operative times. In this economic climate of increased cost awareness with institutions under increasing financial pressures, judicious use of resources becomes important when determining surgical approach. Although cost of robot assisted surgery may decrease with time, other quality factors may be important in patient selection. Although there is no clear evidence that institutions lose money with robot assisted surgery, in our experience the contribution margin is lower with robot assisted surgery as compared to conventional laparoscopy.

contribution margin of \$14,149 for laparoscopic vs \$6,165 for robot assisted.

Intuitive's Sales Force is Great

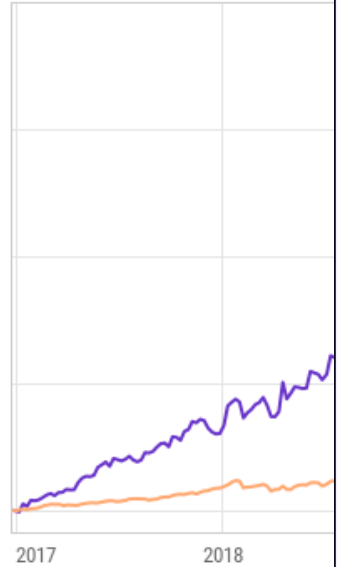
PRECEDENCE RESEARCH

SURGICAL ROBOTICS MARKET SIZE, 2021 TO 2030 (USD BILLION)



Select/Unselect All
 International
 US

● Intuitive Surgical Inc Total Return
 ● SPDR® S&P 500 ETF Trust Total R



The Motley Fool

Outpatient Surgery

> [Adv Surg.](#) 2006;40:99-106. doi: 10.1016/j.yasu.2006.05.006.

Can bariatric surgery be done as an outpatient procedure?

Review

> [Curr Opin Anaesthesiol.](#) 2007 Dec;20(6):508-12. doi: 10.1097/ACO.0b013e3282f09443.

Todd M McCarty ¹

Bariatric procedures as day/short stay surgery: is it possible and reasonable?

Johan Raeder ¹ [JSLs](#). 2009 Jan-Mar; 13(1): 50–55.

PMCID: PMC3015916

PMID: [19366541](#)

Outpatient Weight Loss Surgery: Initiating a Gastric Bypass and Gastric Banding Ambulatory Weight Loss Surgery Center

[Kent C. Sasse](#), MD, MPH, [John H. Ganser](#), MD, [Mark D. Kozar](#), MD, [Robert W. Watson, II](#), MD, [Dionne C. L. Lim](#), MPH, BA, [Laurie McGinley](#), MS, CNS-BC, APN, CBN, [Curtis J. Smith](#), PA-C, [Vicki Bovee](#), MS, RD, and [Jenna Beh](#), PA-C

> [Surg Endosc.](#) 2016 Dec;30(12):5596-5600. doi: 10.1007/s00464-016-4933-7. Epub 2016 May 3.

Shorter than 24-h hospital stay for sleeve gastrectomy is safe and feasible

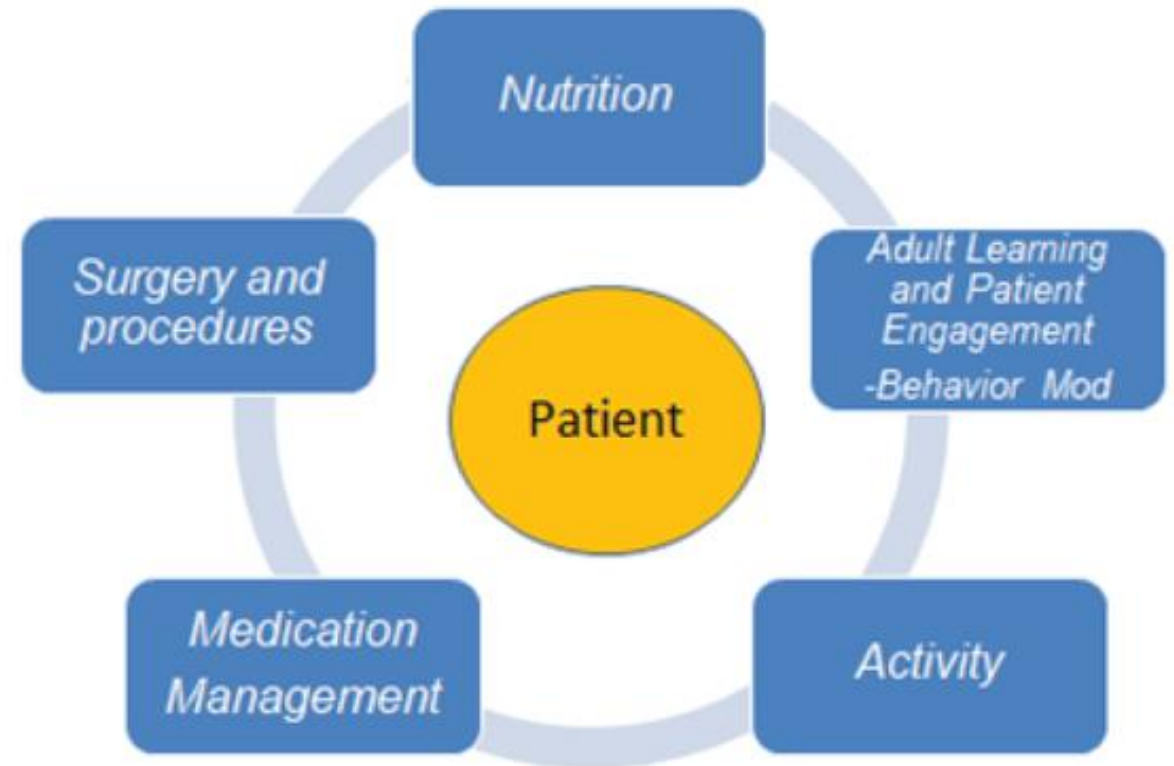
Tomás Jakob ¹, Patricio Cal ², Luciano Deluca ², Ezequiel Fernández ²

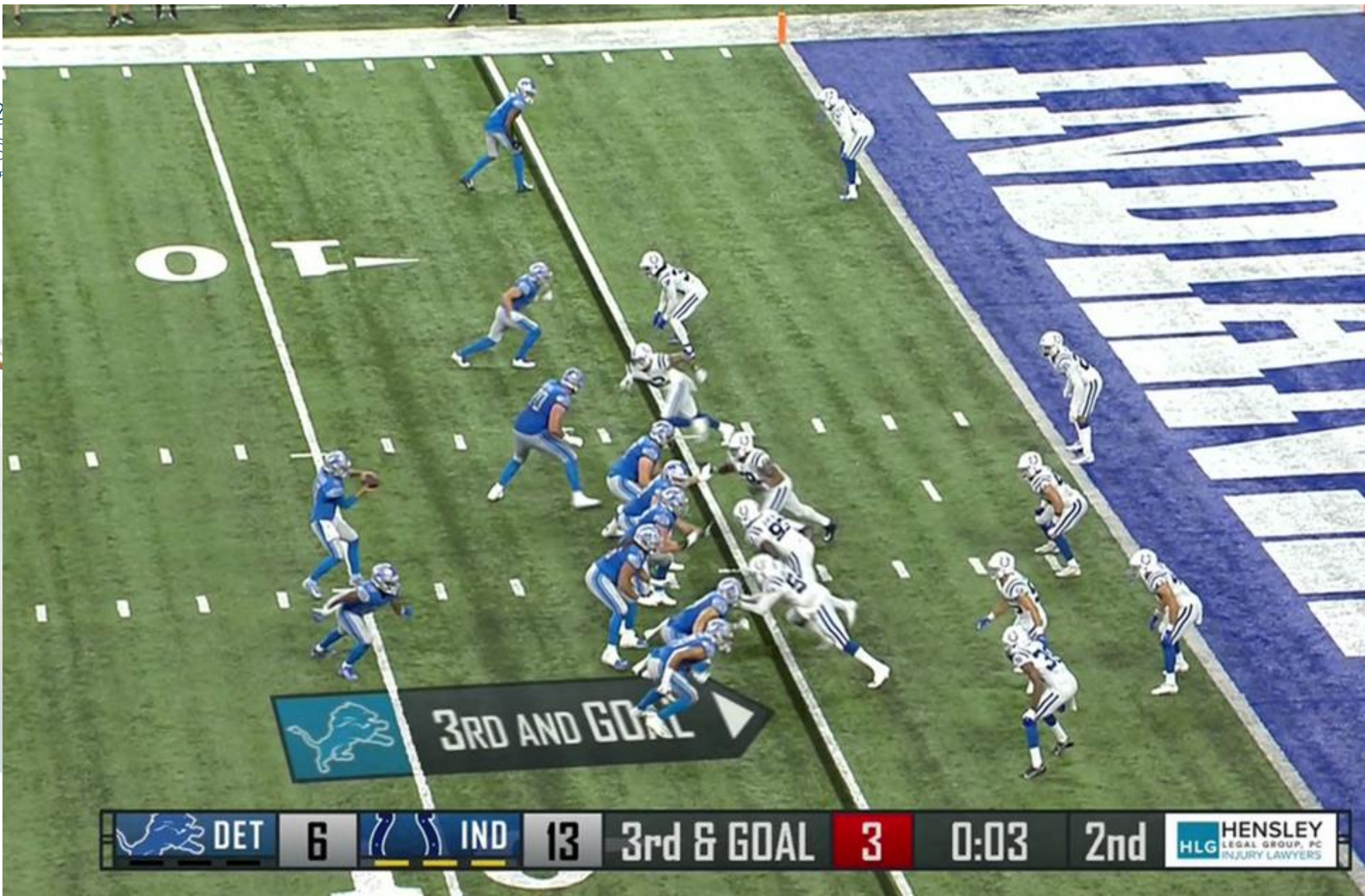
If we don't...



Current Multimodality Care Team and Continuum

PCP's/Bariatricians
Surgeons/OR Staff
Dietitians
Exercise Physiologists
Behaviorists
Families/Friends/Support
Bariatric Coordinators/Hospitals
Insurance Companies





	DET	6		IND	13	3rd & GOAL	3	0:03	2nd	 HENSLEY LEGAL GROUP, PC INJURY LAWYERS
---	-----	---	---	-----	----	------------	---	------	-----	--



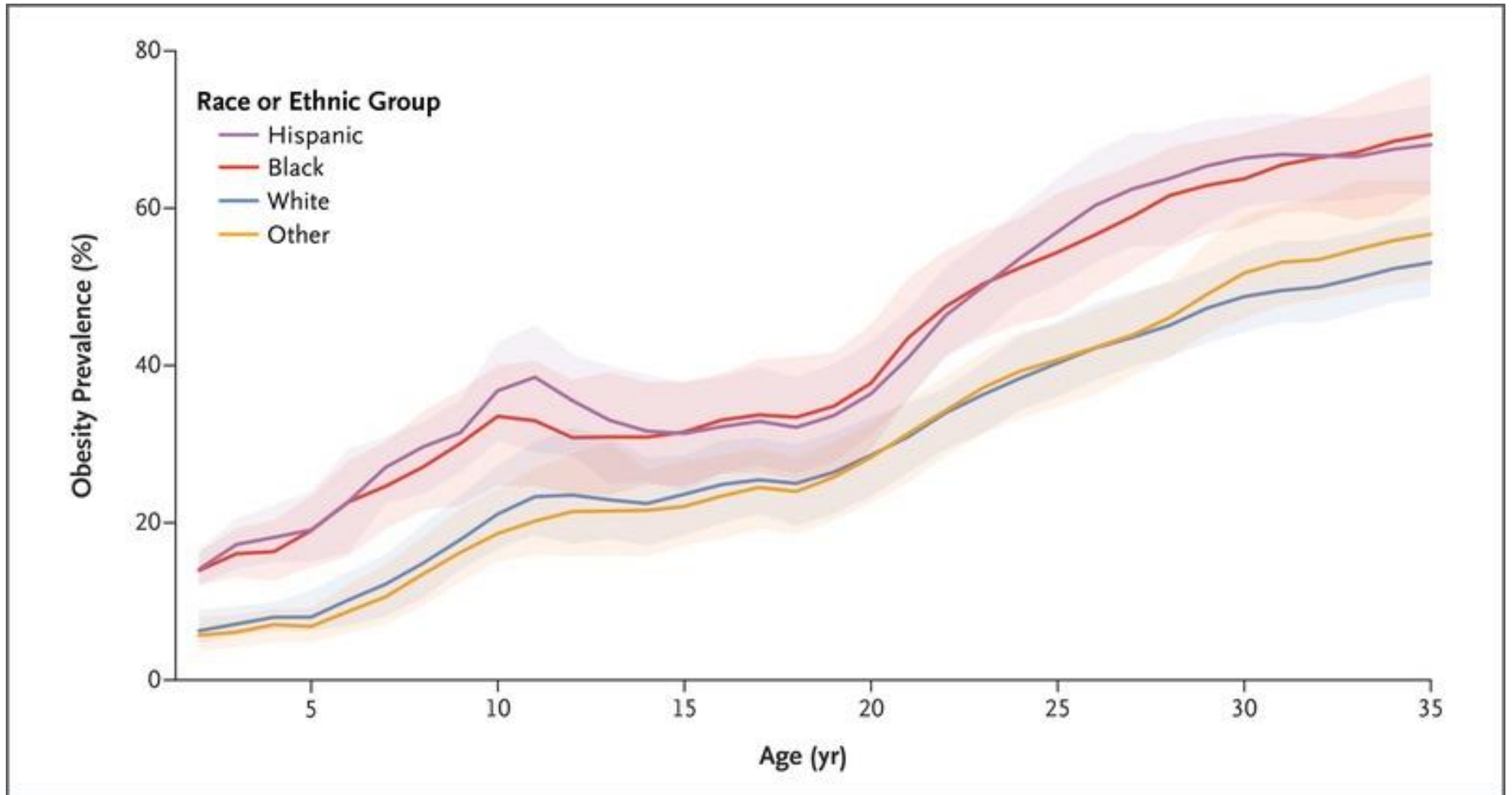
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and another Goal?



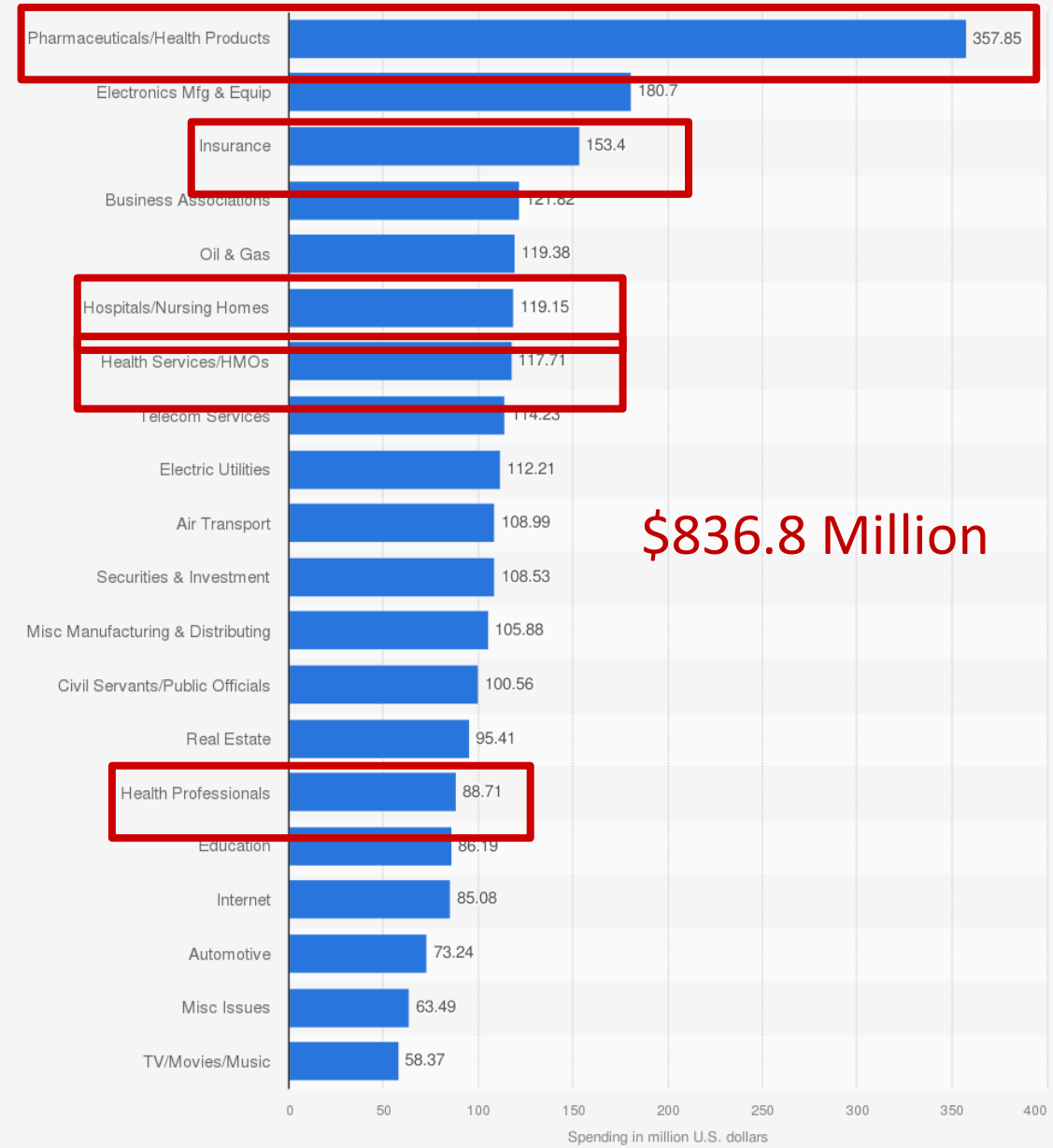
Children Grow into Adults

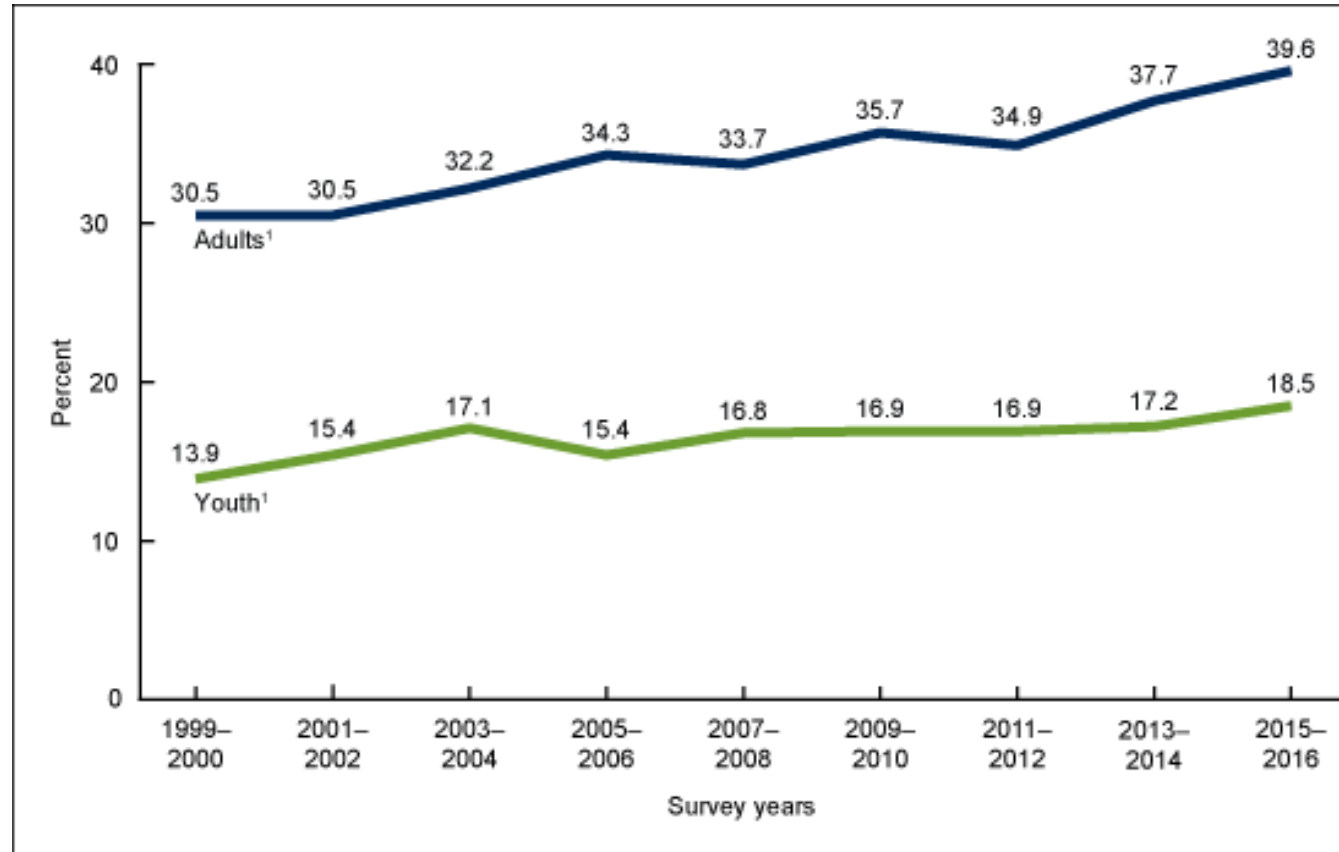


National influence, but



Leading lobbying industries in the United States in 2021, by total lobbying spending (in million U.S. dollars)







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...need a Multimodality Care Team Movement

Medical Education

PCP's/Surgeons/Industry

Public School System/Boards

Curriculum/Exercise/Food

Dietitians/Exercise Physiologists/
Behaviorists/Social Workers

Family/Friends

Food Industry

Government Support/Lobbyists

Hospital, Insurance, Food



M B S C

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Different Outcomes Require Different Strategies



national leader

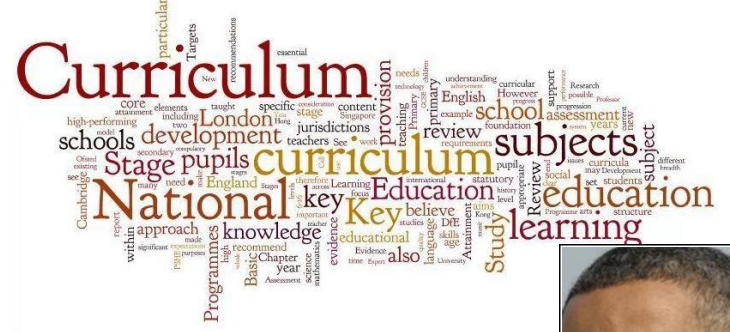
Blue Cross Blue Shield Blue Care Network of Michigan

Nonprofit corporations and independent licensees of the Blue Cross and Blue Shield Association

MBSC

Michigan Bariatric Surgery Collaborative

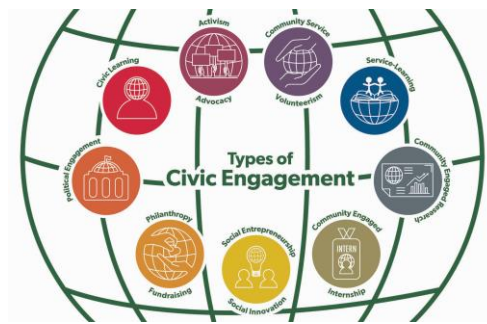
enhancing the care for bariatric surgery throughout the state



Lobbyist influence comes from access, not money.

— Barack Obama —

AZ QUOTES



Collaboration and Not Silo



Motivation for Change



Thank You



**Blue Cross
Blue Shield
Blue Care Network**
of Michigan



Reducing the risk of bariatric surgery complications

**Arthur M. Carlin, MD, FACS,
FASMBS**

Division Head of General Surgery

Henry Ford Health

Metabolic and Bariatric Surgery Director

Associate Program Director of General Surgery

Henry Ford Macomb Hospital

Professor of Surgery, Clinician-Educator

Wayne State University School of Medicine



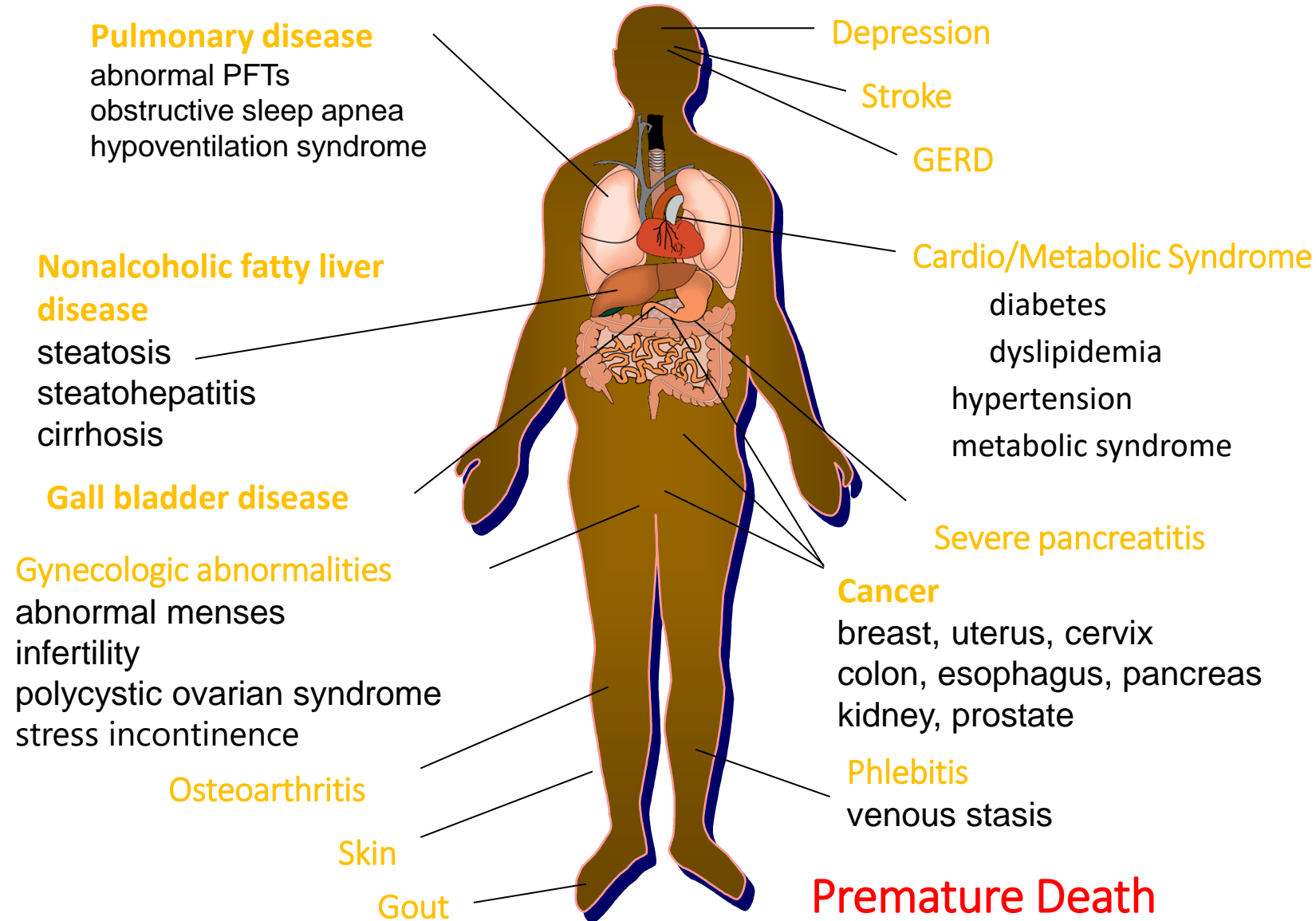
M B S C

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Risk of Obesity Impacts Every Organ System



Original article

Use of laparoscopy in general surgical operations at academic centers

Ninh T. Nguyen, M.D.^{a,*}, Brian Nguyen, B.S.^a, Anderson Shih, B.S.^a, Brian Smith, M.D.^a,
Samuel Hohmann, Ph.D.^b

^a*Department of Surgery, University of California, Irvine, Medical Center, Orange, California*

^b*University HealthSystem Consortium, Chicago, Illinois*

Received May 16, 2012; accepted July 6, 2012

- **University Health System Consortium database**
 - contains data from all major teaching hospitals in the United States
- 2008 - 2012
- Compared 7 of the most common general surgical operations
- Laparoscopic only
- All elective cases except appendectomy included urgent also

Bariatric Surgery SAFER than Cholecystectomy

Table 3

Use of laparoscopy, rate of conversion to open surgery, and outcomes of laparoscopic procedures

Operations	Patients (n)	Laparoscopy (%)	Conversion rate (%)	LOS (d)	Overall complication rate* (%)	In-hospital mortality rate* (%)
Bariatric surgery	53,958	94.0	.89	2.26 ± 3.19	2.2	.06
Antireflux surgery	13,918	83.7	2.66	2.80 ± 3.25	4.1	.15
Appendectomy†	8654	79.2	2.35	1.66 ± 1.38	.8	.01
Cholecystectomy	8512	77.1	14.6	2.03 ± 2.29	3.6	.27
Colectomy	29,934	52.4	13.5	5.34 ± 4.26	6.4	.38
Ventral hernia repair	17,749	28.1	6.55	3.05 ± 2.66	2.6	.20
Rectal resection	4729	18.3	16.4	7.04 ± 4.68	10.0	.58

LOS = length of stay.

* Outcome of laparoscopic operations.

† Urgent and elective cases.





MBSC - Weigh
the Odds

OPEN



Available on the
App Store



GET IT ON
Google Play

- › Outcomes calculator
 - weight loss
 - comorbidity remission
 - **risk of complications**
- › Venous thromboembolism calculator



MBSC - Weigh the Odds

OPEN



Available on the
App Store



GET IT ON
Google Play

- › 48 year old female
 - Hypertension
 - Hyperlipidemia
 - Obstructive sleep apnea
 - Arthritis
 - › Weight 300 pounds
 - › Height 5 ft 6 in
- = BMI 48.4

3:45 📶 🔋

Outcomes Calculator Clear

Procedure Demographics Comorbidities Other

Procedure *

- Sleeve Gastrectomy
- Roux-en-Y Gastric Bypass
- BPD/DS
- Lap Band

Demographics

Weight *

Height (ft) *

Height (in) *

Age *

Gender *

Race *

Outcomes VTE Guidelines App Info



MBSC - Weigh the Odds

OPEN



Available on the
App Store



GET IT ON
Google Play

- › 48 year old female
 - Hypertension
 - Hyperlipidemia
 - Obstructive sleep apnea
 - Arthritis
- › Weight 300 pounds
- › Height 5 ft 6 in
= BMI 48.4

3:45 3:47

Outcomes Calculator Clear

Procedure Demographics **Comorbidities** Other

Comorbidities

GERD	<input type="checkbox"/>
Hernia	<input type="checkbox"/>
Liver Disorder	<input type="checkbox"/>
Hyperlipidemia (*)	<input checked="" type="checkbox"/>
Urinary Incontinence	<input type="checkbox"/>
Cholelithiasis	<input type="checkbox"/>
PUD	<input type="checkbox"/>
Psychological Disorder	<input type="checkbox"/>
Sleep Apnea (*)	<input checked="" type="checkbox"/>
Renal Function Disorder	<input type="checkbox"/>
Musculoskeletal	<input type="checkbox"/>

Procedure Demographics Comorbidities **Other**

Heart Rhythm Disorder	<input type="checkbox"/>
Chronic Heart Failure	<input type="checkbox"/>
Hypertension (*)	<input checked="" type="checkbox"/>
Coronary Artery Disease	<input type="checkbox"/>
Lung Disease	<input type="checkbox"/>
Diabetes (*)	<input type="checkbox"/>

Other Risk Factors

Mobility Aids	<input type="checkbox"/>
VTE History	<input type="checkbox"/>
Smoker *	<input type="radio"/> Yes <input checked="" type="radio"/> Never

Calculate

Outcomes VTE Guidelines App Info



MBSC - Weigh the Odds

OPEN



- > 48 year old female
 - Hypertension
 - Hyperlipidemia
 - Obstructive sleep apnea
 - Arthritis
- > Weight 300 pounds
- > Height 5 ft 6 in
= BMI 48.4

2:33
2:41

Patient Outcome

SEX	AGE	WEIGHT	HEIGHT	RACE
F	48	300	5' 6"	White

WEIGHT (LOST) AT YEAR 1

226 (74)

Sleeve Gastrectomy

Sleep Apnea 51.83%

Complications

Sleeve Gastrectomy	
Any	3.64%
Severe	1.04%
Death	0.02%

Legend

* Required Questions
 (*) Co-Morbidities with resolution models
 LMWH: Low Molecular Weight Heparin
 (P) Prophylactic Dosing
 (T) Therapeutic Dosing

Patient Outcome

SEX	AGE	WEIGHT	HEIGHT	RACE
F	48	300	5' 6"	White

VTE RISK: PREDICTED

0.35%

Sleeve Gastrectomy

VTE Risk

Sleeve Gastrectomy

Predicted	0.35%
Risk Stratification	Low

Risk-Stratified Treatment Guidelines

Sleeve Gastrectomy

Pre-Operative	LMWH (P)
Post-Operative	LMWH (P)
Post-Discharge	None

Legend

Outcomes

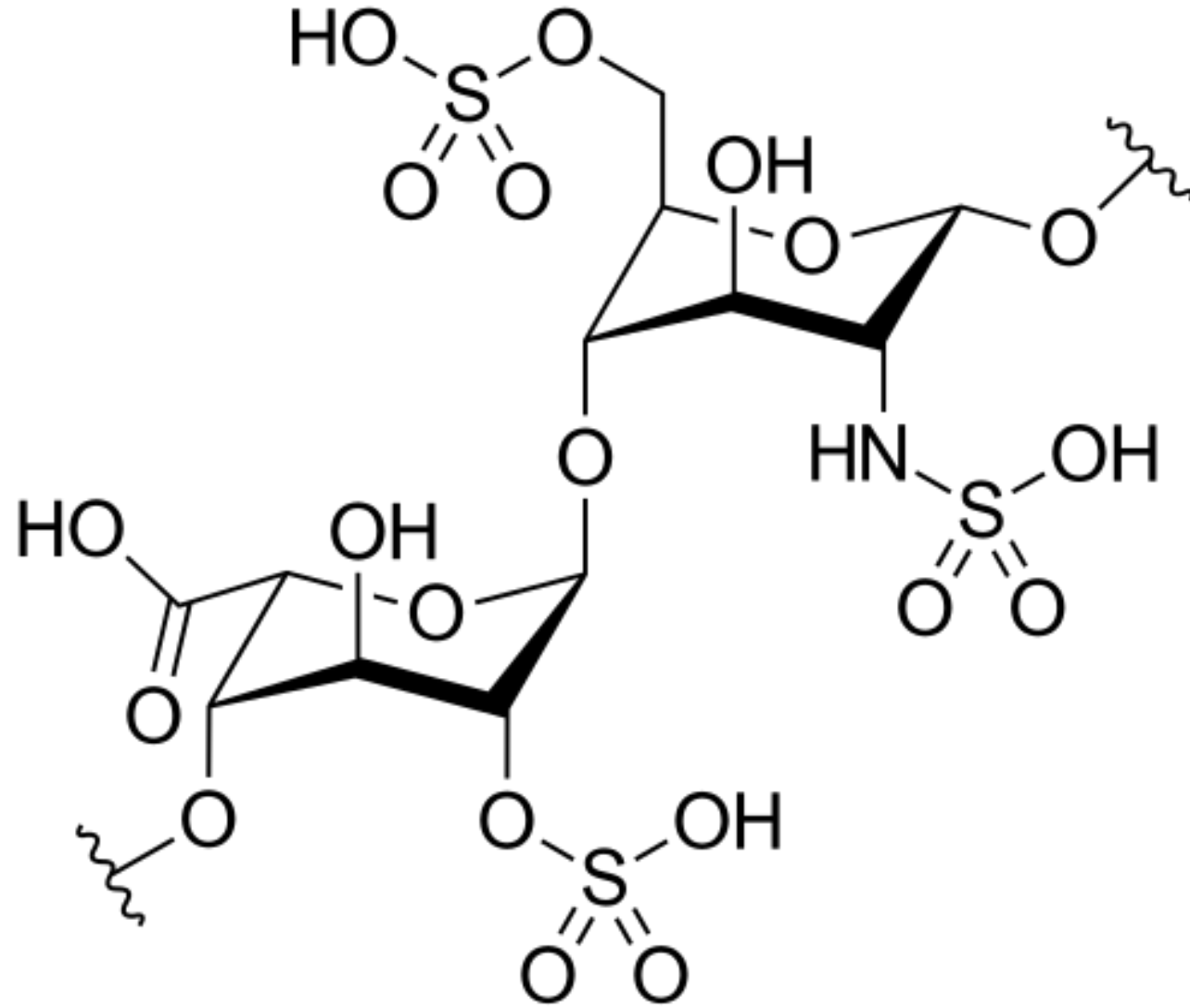
VTE Guidelines

App Info

Outcomes

VTE Guidelines

App Info



Comparative Effectiveness of Unfractionated and Low-Molecular-Weight Heparin for Prevention of Venous Thromboembolism Following Bariatric Surgery

Nancy J. O. Birkmeyer, PhD; Jonathan F. Finks, MD; Arthur M. Carlin, MD; David L. Chengelis, MD; Kevin R. Krause, MD; Abdelkader A. Hawasli, MD; Jeffrey A. Genaw, MD; Wayne J. English, MD; Jon L. Schram, MD; John D. Birkmeyer, MD; for the Michigan Bariatric Surgery Collaborative

Arch Surg. 2012;147(11):994-998

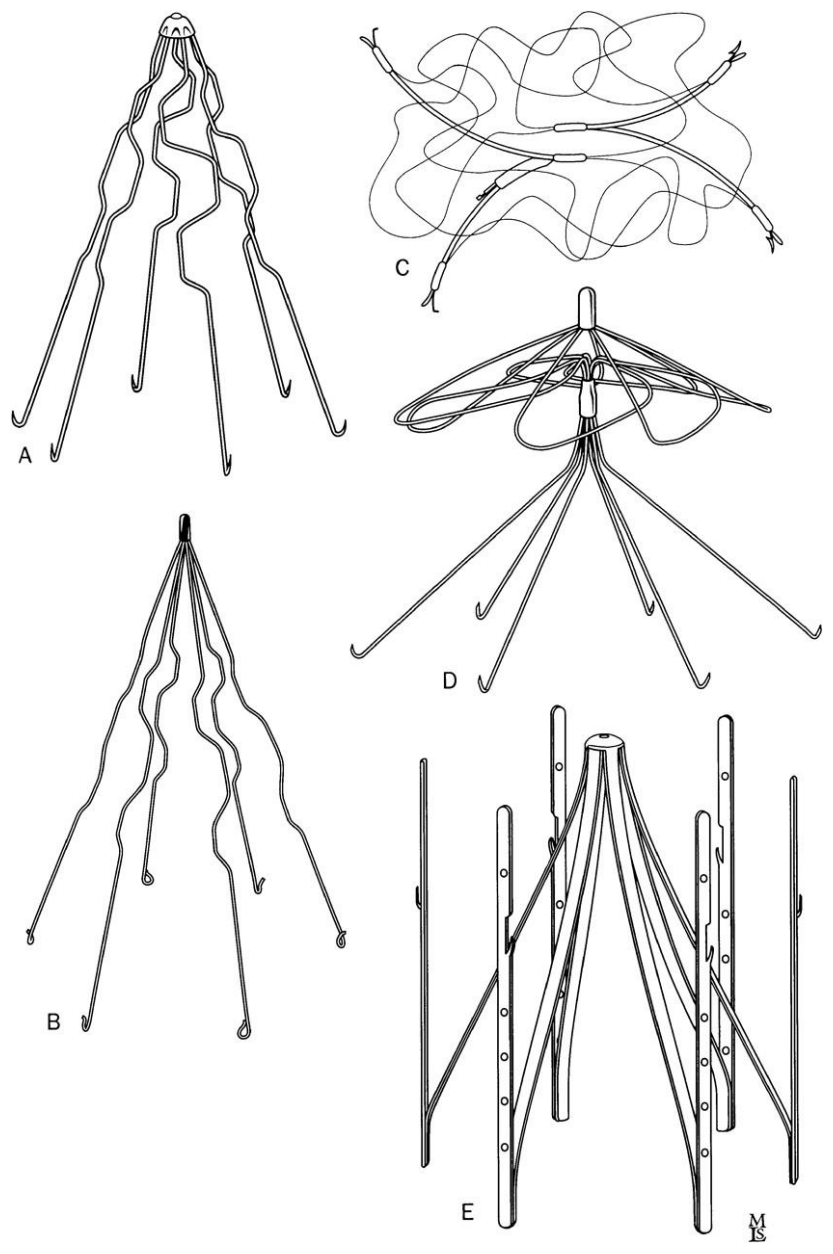
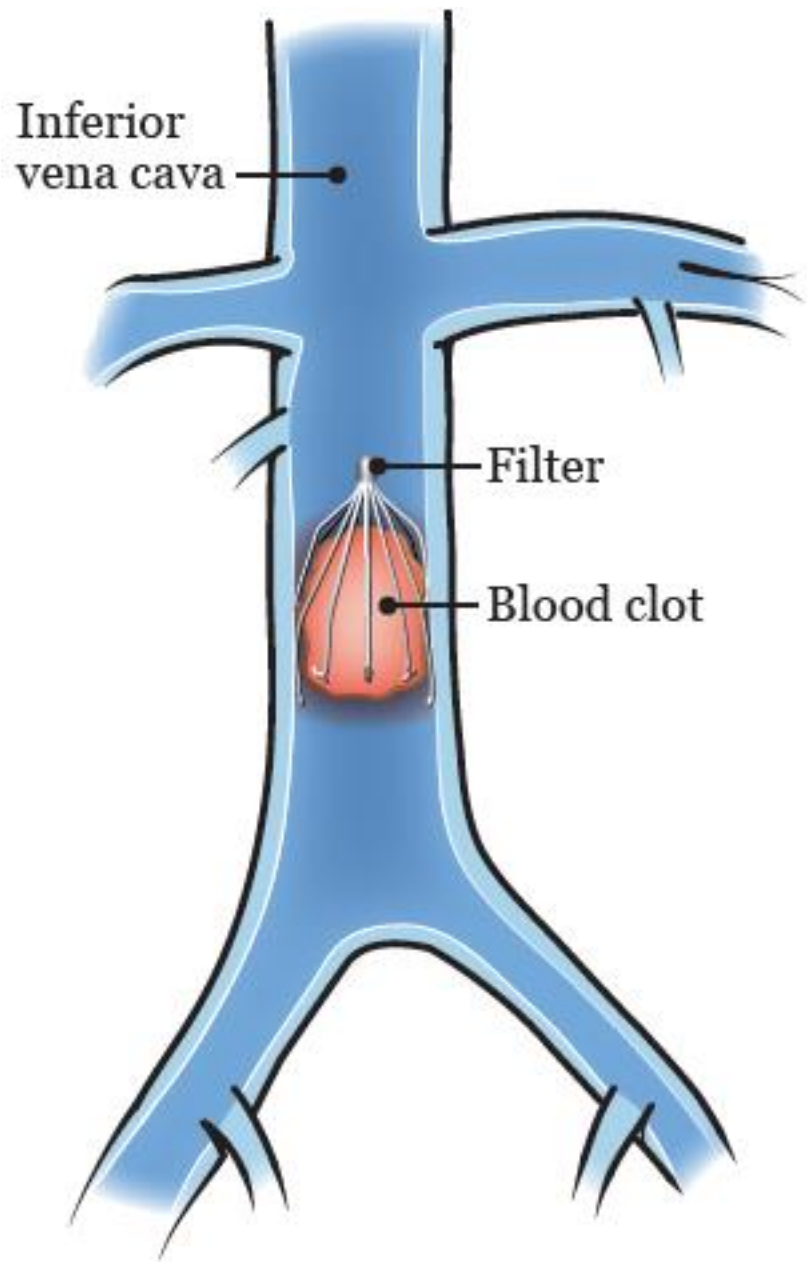
LMW Heparin

Significantly better than unfractionated heparin at preventing VTE when given both preop and postop

No difference in rates of hemorrhage

Table 2. Multivariate Comparison of VTE Prophylaxis Groups on Risks of VTE and Hemorrhage

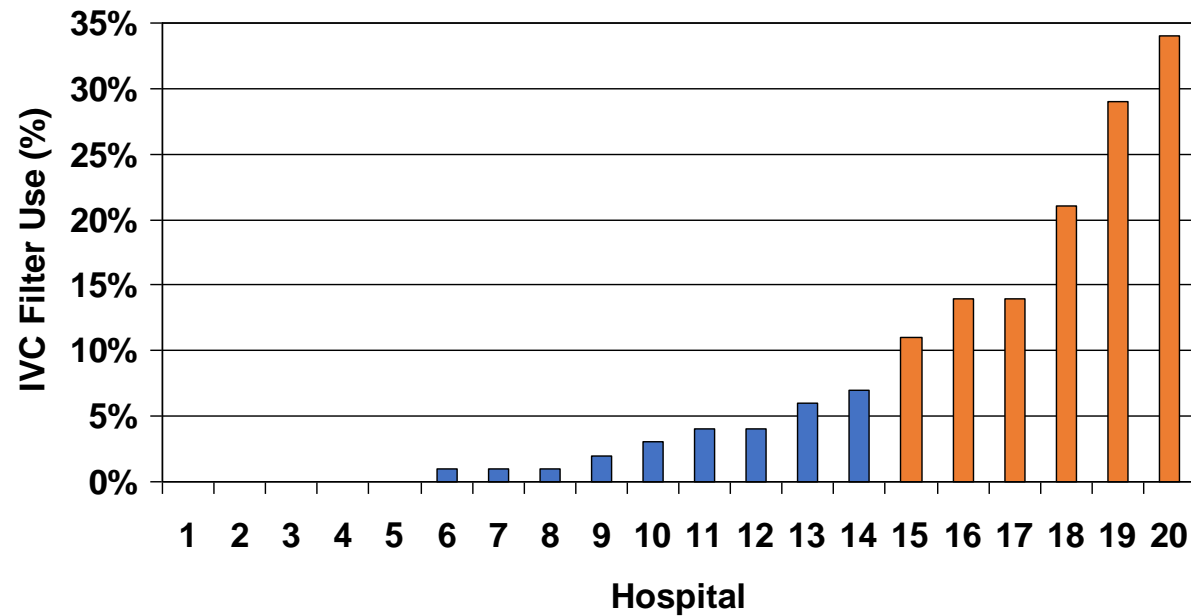
Outcome by Treatment Category	Adjusted Rate	Adjusted OR (95% CI)	P Value
VTE			
UF/UF	0.68	1 [Reference]	
UF/LMW	0.29	0.43 (0.21-0.91)	.03
LMW/LMW	0.25	0.34 (0.19-0.62)	<.001
Low-risk subgroup (predicted risk of VTE <1%)			
UF/UF	0.59	1 [Reference]	
UF/LMW	0.22	0.31 (0.13-0.72)	.006
LMW/LMW	0.21	0.30 (0.16-0.56)	<.001
High-risk of subgroup (predicted risk of VTE ≥1%)			
UF/UF	2.12	1 [Reference]	
UF/LMW	2.36	1.09 (0.27-4.32)	.90
LMW/LMW	1.46	0.37 (0.11-1.22)	.10
Hemorrhage			
UF/UF	1.69	1 [Reference]	
UF/LMW	1.86	1.02 (0.66-1.59)	.93
LMW/LMW	1.65	0.94 (0.63-1.41)	.78
Serious hemorrhage			
UF/UF	0.46	1 [Reference]	
UF/LMW	0.60	1.05 (0.51-2.15)	.90
LMW/LMW	0.38	0.75 (0.38-1.47)	.40



Preoperative Placement of Inferior Vena Cava Filters and Outcomes After Gastric Bypass Surgery

Nancy J. O. Birkmeyer, PhD, David Share, MD, MPH,† Omur Baser, PhD,* Arthur M. Carlin, MD,‡
Jonathan F. Finks, MD,* Carl M. Pesta, DO,§ Jeffrey A. Genaw, MD,‡ and John D. Birkmeyer, MD*; for the
Michigan Bariatric Surgery Collaborative*

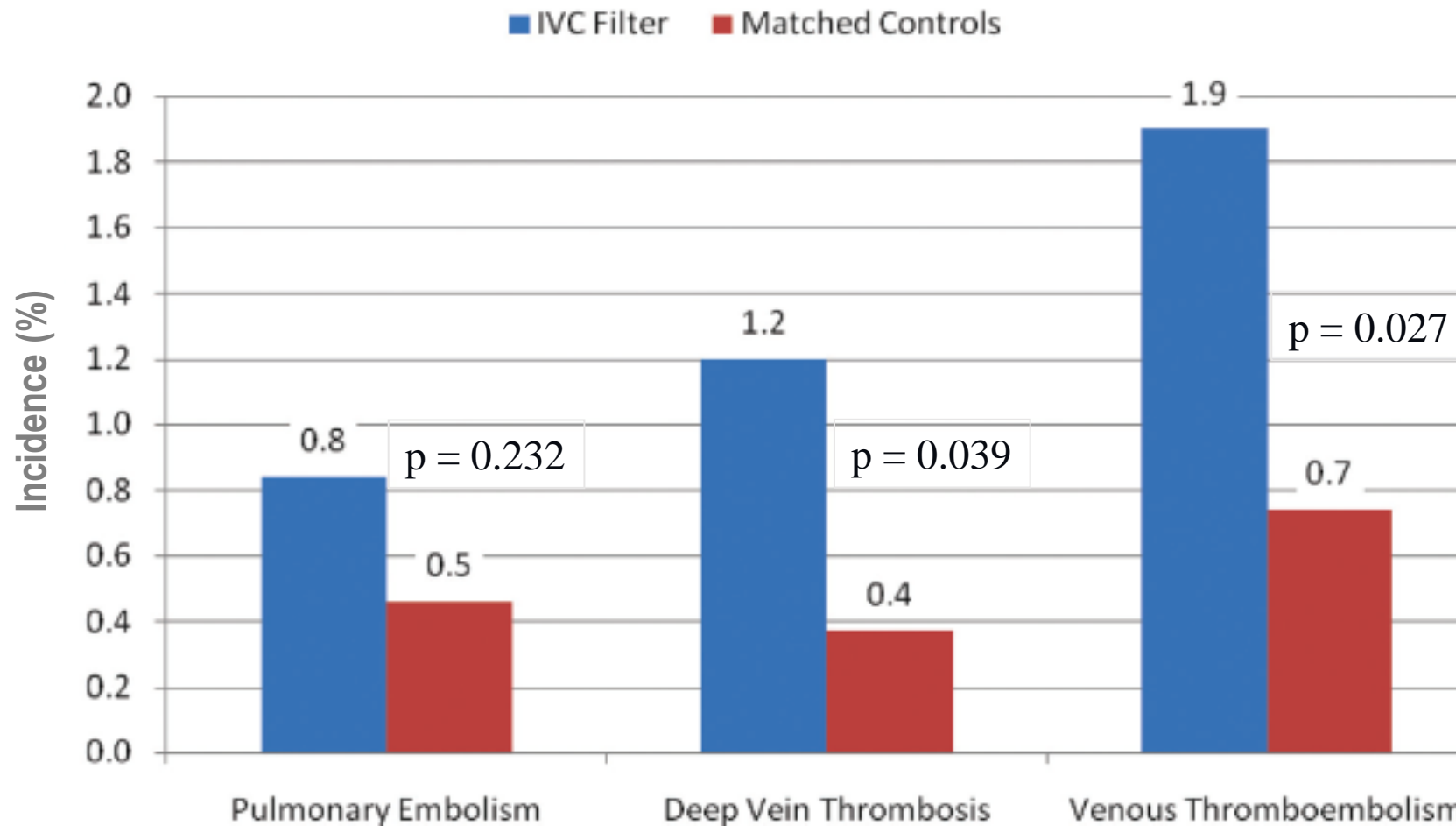
Annals of Surgery • Volume 252, Number 2, August 2010



Risks and Benefits of Prophylactic Inferior Vena Cava Filters in Patients Undergoing Bariatric Surgery

Nancy J. Birkmeyer, PhD^{1*}, Jonathan F. Finks, MD¹, Wayne J. English, MD², Arthur M. Carlin, MD³, Abdelkader A. Hawasli, MD, FASMBS⁴, Jeffrey A. Genaw, MD³, Michael H. Wood, MD⁵, David A. Share, MD⁶, John D. Birkmeyer, MD¹, for the Michigan Bariatric Surgery Collaborative

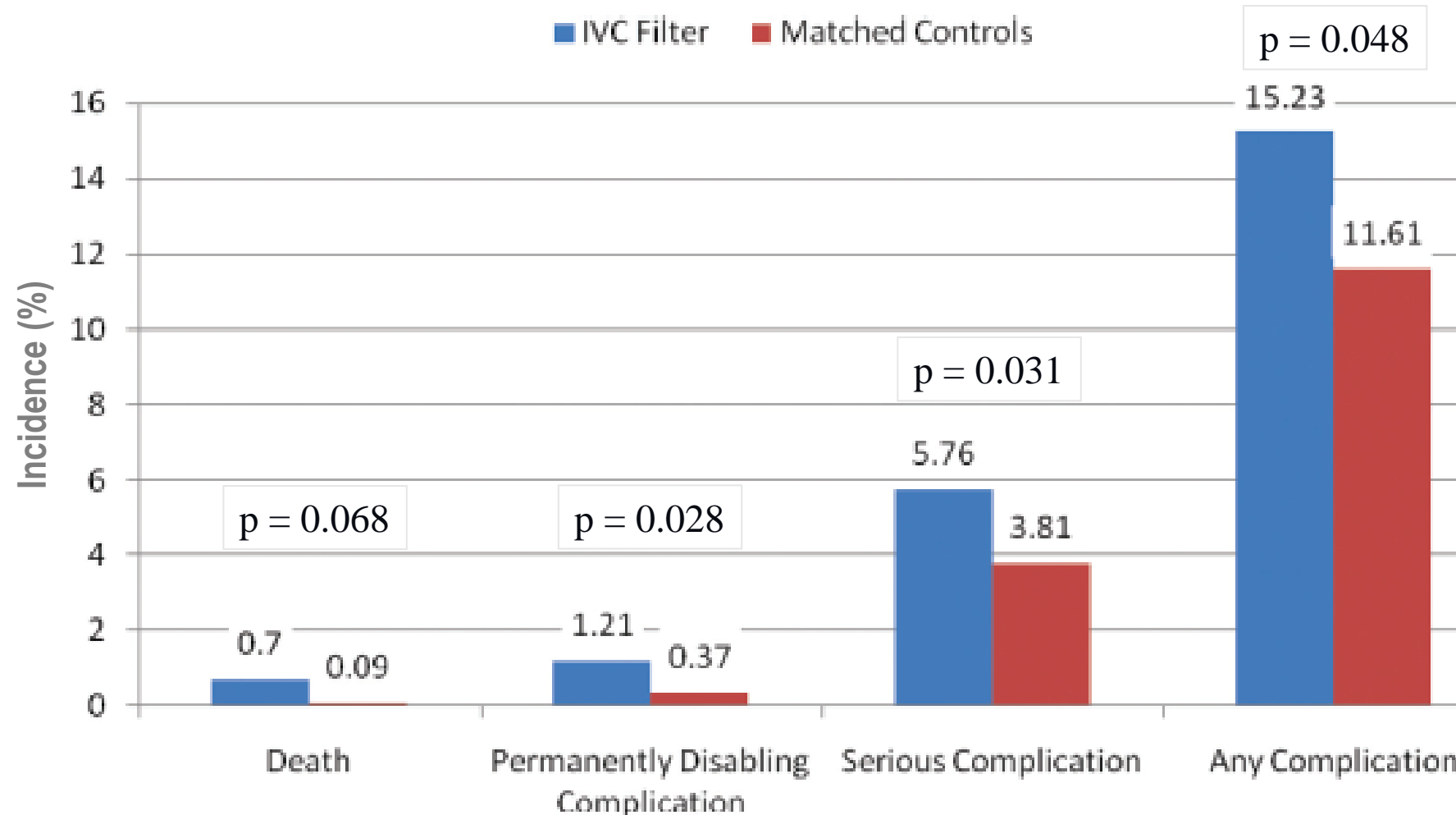
Journal of Hospital Medicine Vol 8 | No 4 | April 2013



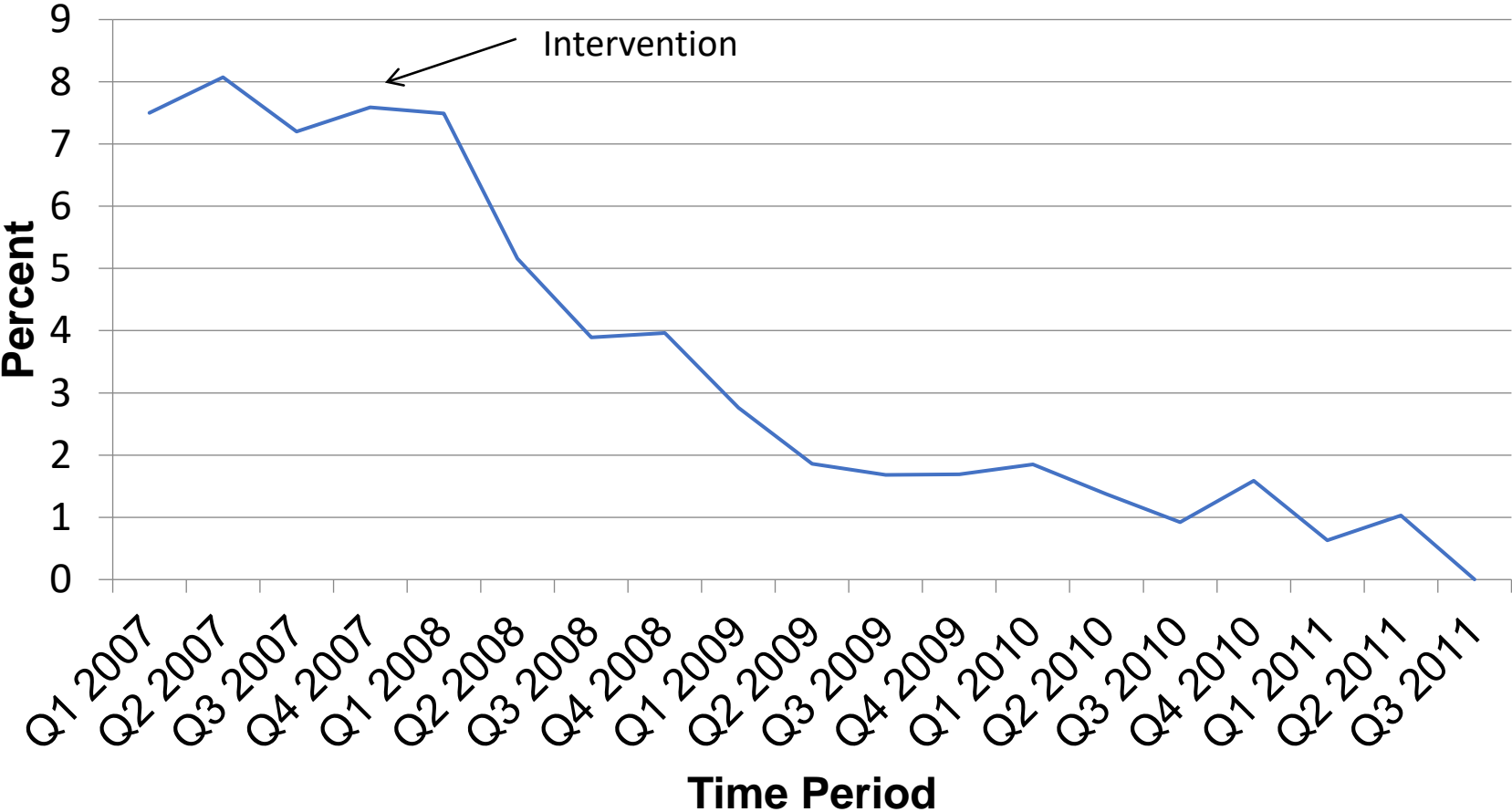
Risks and Benefits of Prophylactic Inferior Vena Cava Filters in Patients Undergoing Bariatric Surgery

Nancy J. Birkmeyer, PhD^{1*}, Jonathan F. Finks, MD¹, Wayne J. English, MD², Arthur M. Carlin, MD³, Abdelkader A. Hawasli, MD, FASMBS⁴, Jeffrey A. Genaw, MD³, Michael H. Wood, MD⁵, David A. Share, MD⁶, John D. Birkmeyer, MD¹, for the Michigan Bariatric Surgery Collaborative

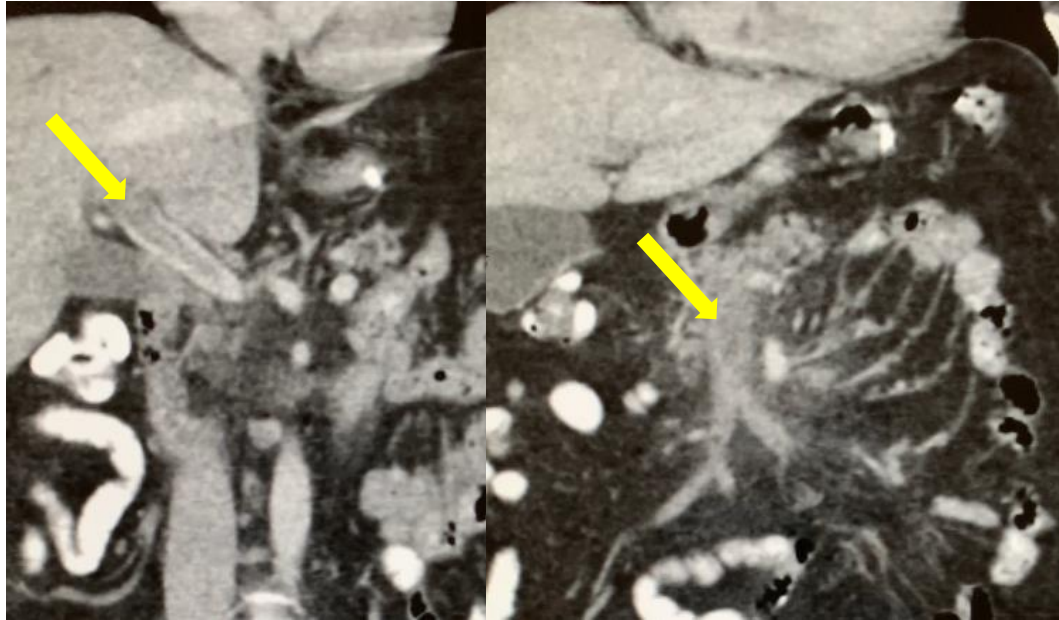
Journal of Hospital Medicine Vol 8 | No 4 | April 2013



Trends in the Use of Prophylactic IVC Filters in Bariatric Surgery in Michigan



Portomesenteric Vein Thrombosis



Independent Predictors and Timing of Portomesenteric Vein Thrombosis after Bariatric Surgery



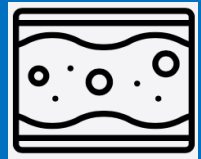
Sleeve
Gastrectomy

Liver
Disorder

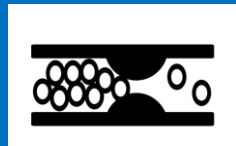


Risk
Factors

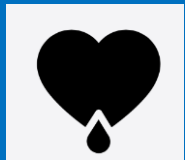
Prior VTE



Leak

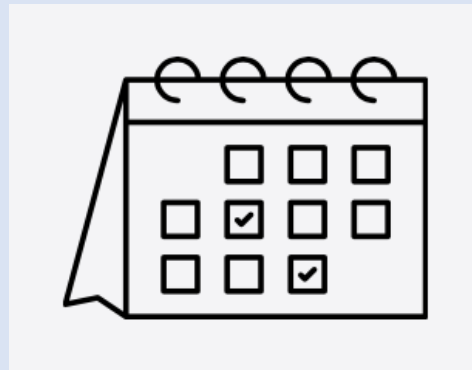


Obstruction



Hemorrhage

56%
occurred
> 2 weeks
after surgery



High risk patient?



Post-discharge
chemoprophylaxis
for 1 month

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

Surgical Skill and Complication Rates after Bariatric Surgery

John D. Birkmeyer, M.D., Jonathan F. Finks, M.D., Amanda O'Reilly, R.N., M.S.,
Mary Oerline, M.S., Arthur M. Carlin, M.D., Andre R. Nunn, M.D.,
Justin Dimick, M.D., M.P.H., Mousumi Banerjee, Ph.D.,
and Nancy J.O. Birkmeyer, Ph.D., for the Michigan Bariatric Surgery Collaborative

2013



Video



Rating Surgical Skill (07:37)

Table 1. Characteristics of Surgeons, Patient Volume, and Surgery, According to Peer Rating of Surgical Skill.*

Variable	Level of Surgical Skill			P Value
	Quartile 1	Quartile 2 or 3	Quartile 4	
Surgeons (no.)	5	10	5	
Mean peer rating of technical skill*				
Gentleness	3.3	3.9	4.4	
Time and motion	2.6	3.4	4.3	
Instrument handling	2.9	3.7	4.4	
Flow of operation	3.1	3.8	4.5	
Tissue exposure	3.0	3.9	4.4	
Overall technical skill	2.7	3.6	4.4	
Summary rating	2.9	3.7	4.4	

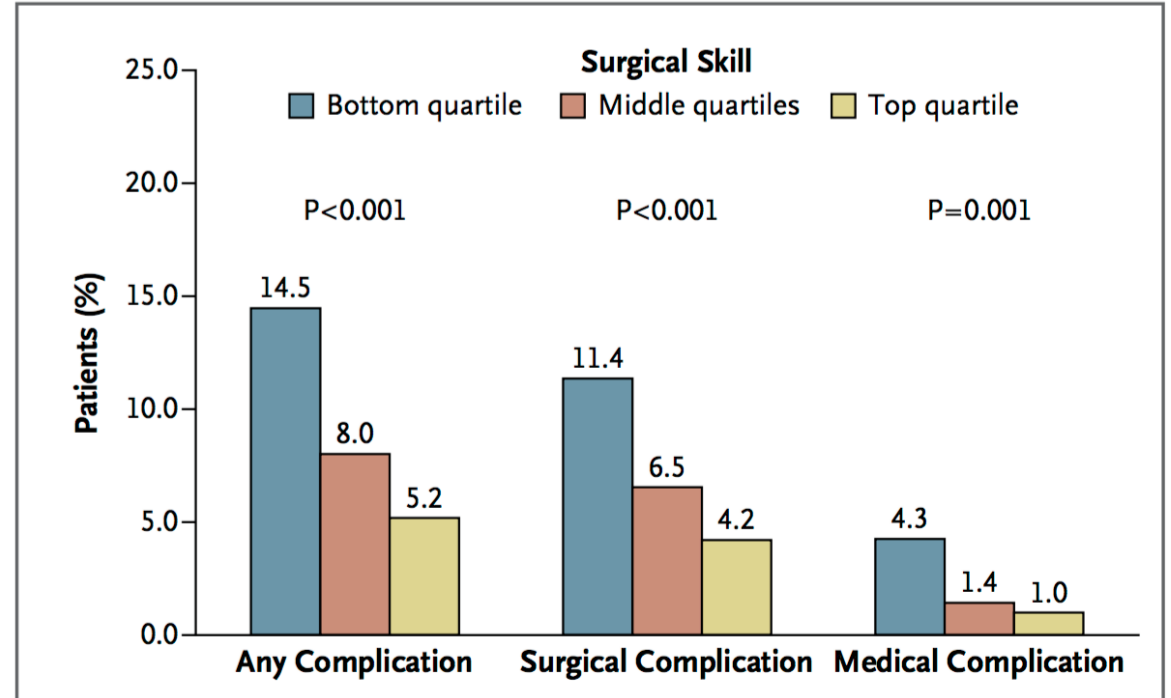
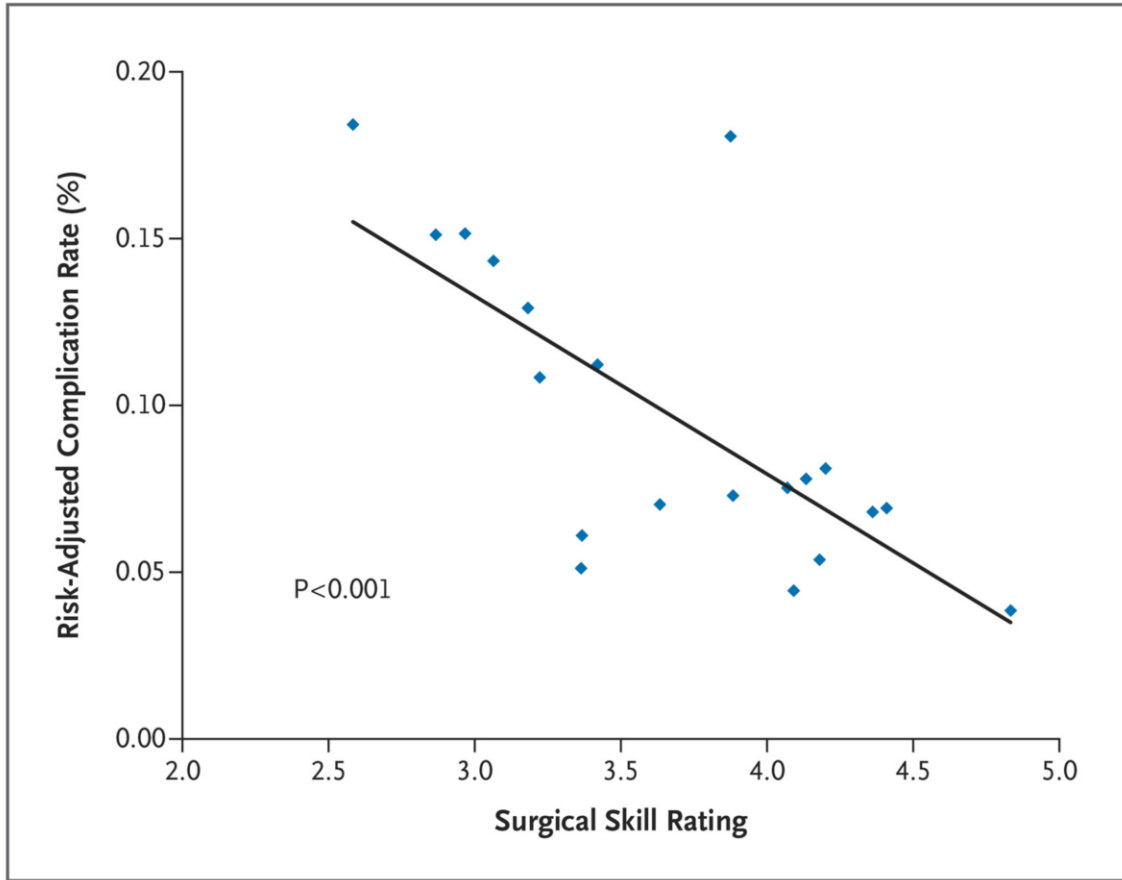
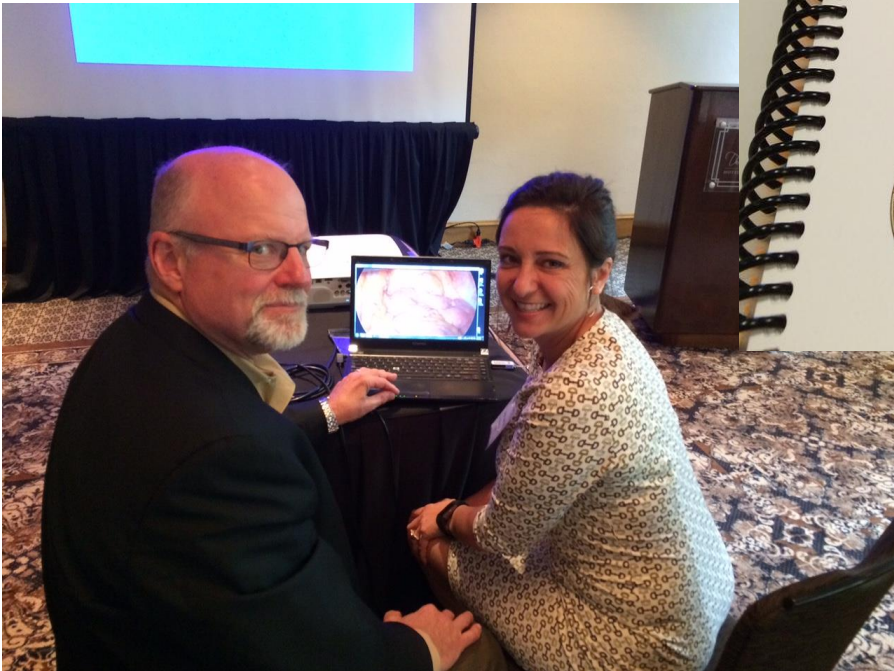
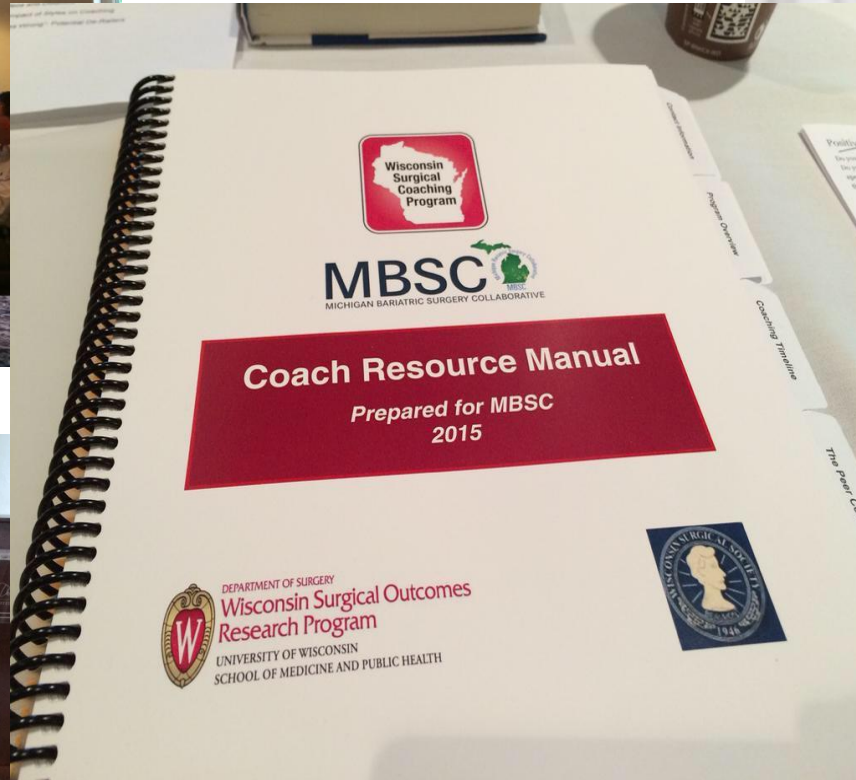
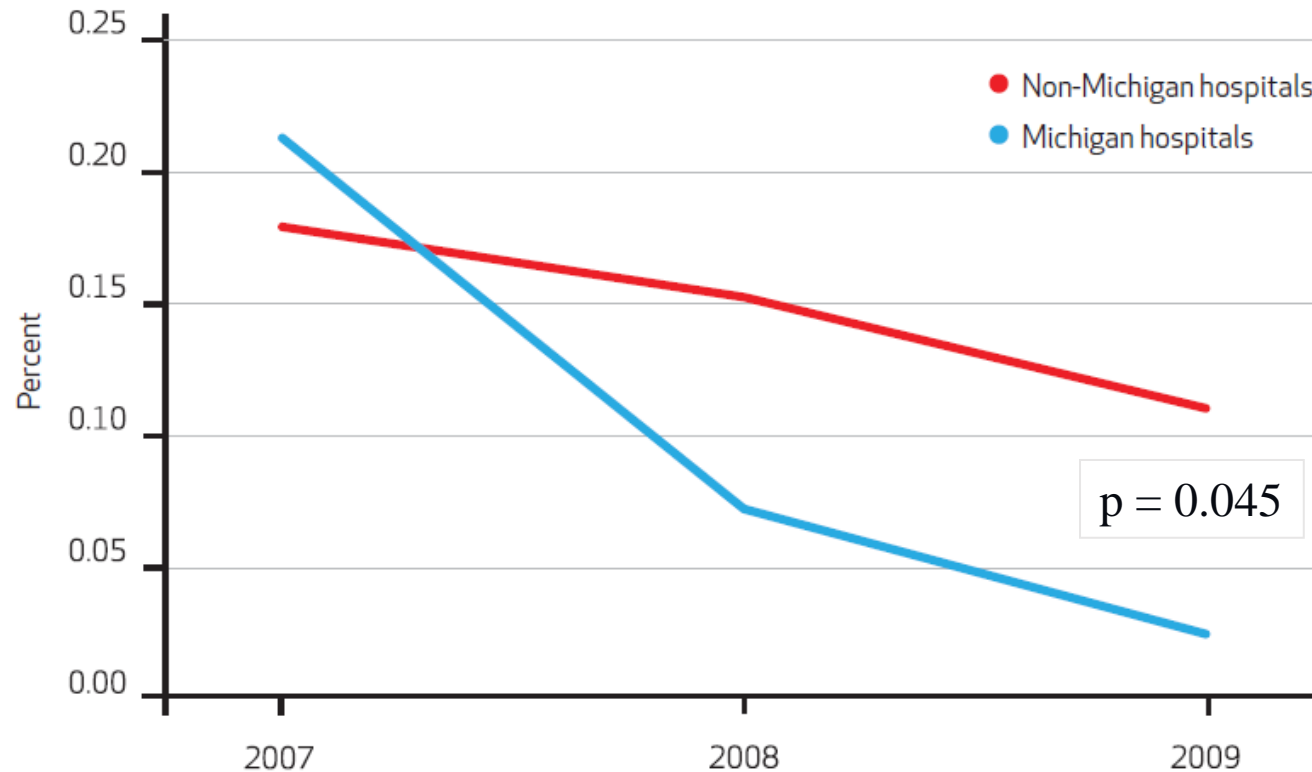


Figure 2. Risk-Adjusted Complication Rates with Laparoscopic Gastric Bypass, According to Quartile of Surgical Skill.



Michigan vs. other US hospitals - Mortality

Thirty-Day Mortality After Bariatric Surgery: Hospitals In Michigan Versus Hospitals Outside Of Michigan, 2007-09

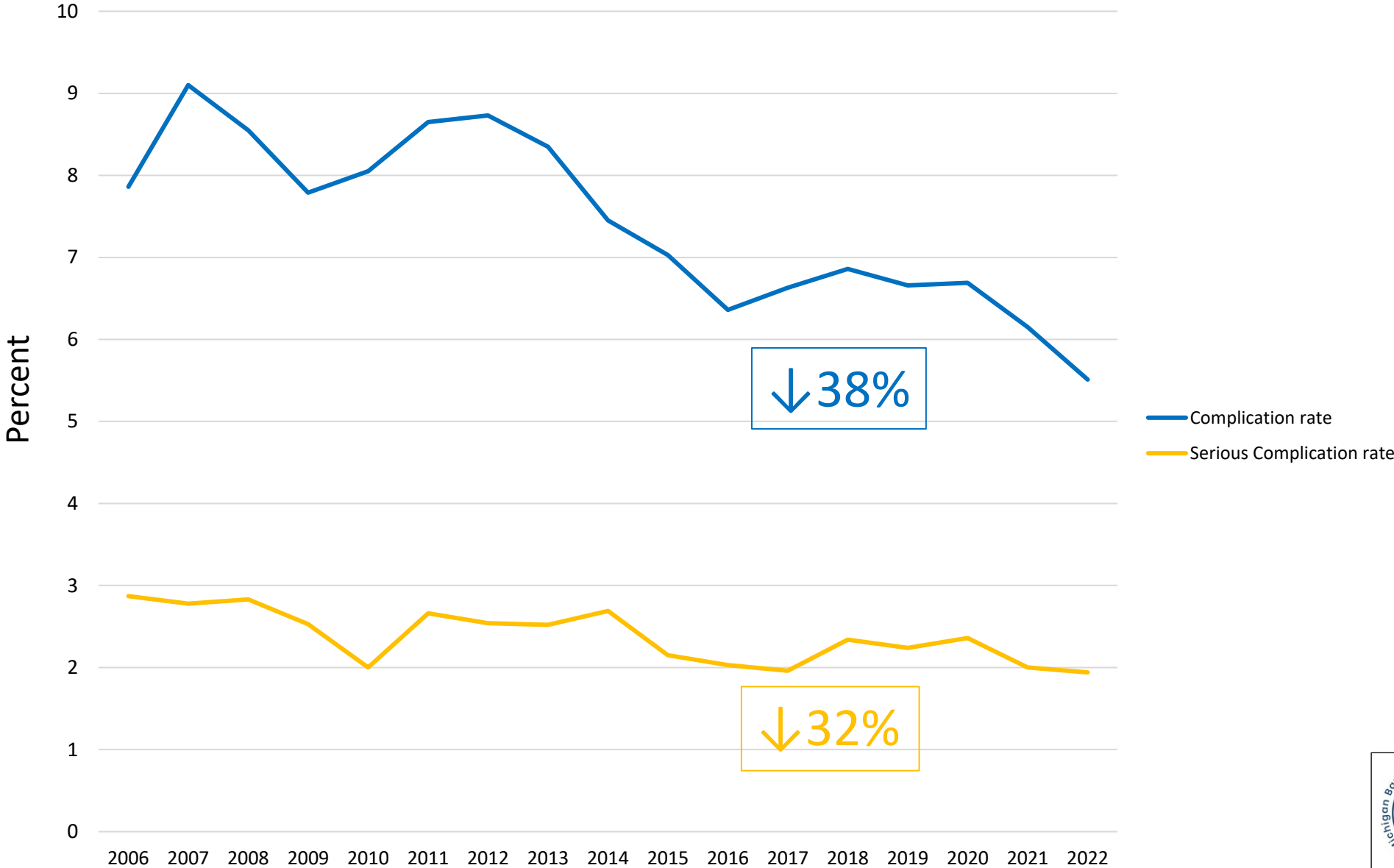


MBSC
60%
2008 – 2021
Decrease in post-surgical death rate

SOURCE Michigan Surgical Quality Collaborative and National Surgical Quality Improvement Program registries, 2007-09. **NOTES** Thirty-day mortality rates declined faster in Michigan hospitals than in other hospitals participating in the National Surgical Quality Improvement Program ($p = 0.045$).

Share et al. Hospital Affairs 2011

Reduction in Complications - MBSC



M-PIRRE

MICHIGAN PERIOPERATIVE INITIATIVE
TO REDUCE READMISSIONS & ED VISITS

A Quality Initiative from the MBSC

- Patient education on lower acuity alternatives to the ED
- 24-hour help line for patients
- Standardized protocol for managing patient calls
- Provide patients with a pathway for urgent concerns
- Periodic team review of ED visits

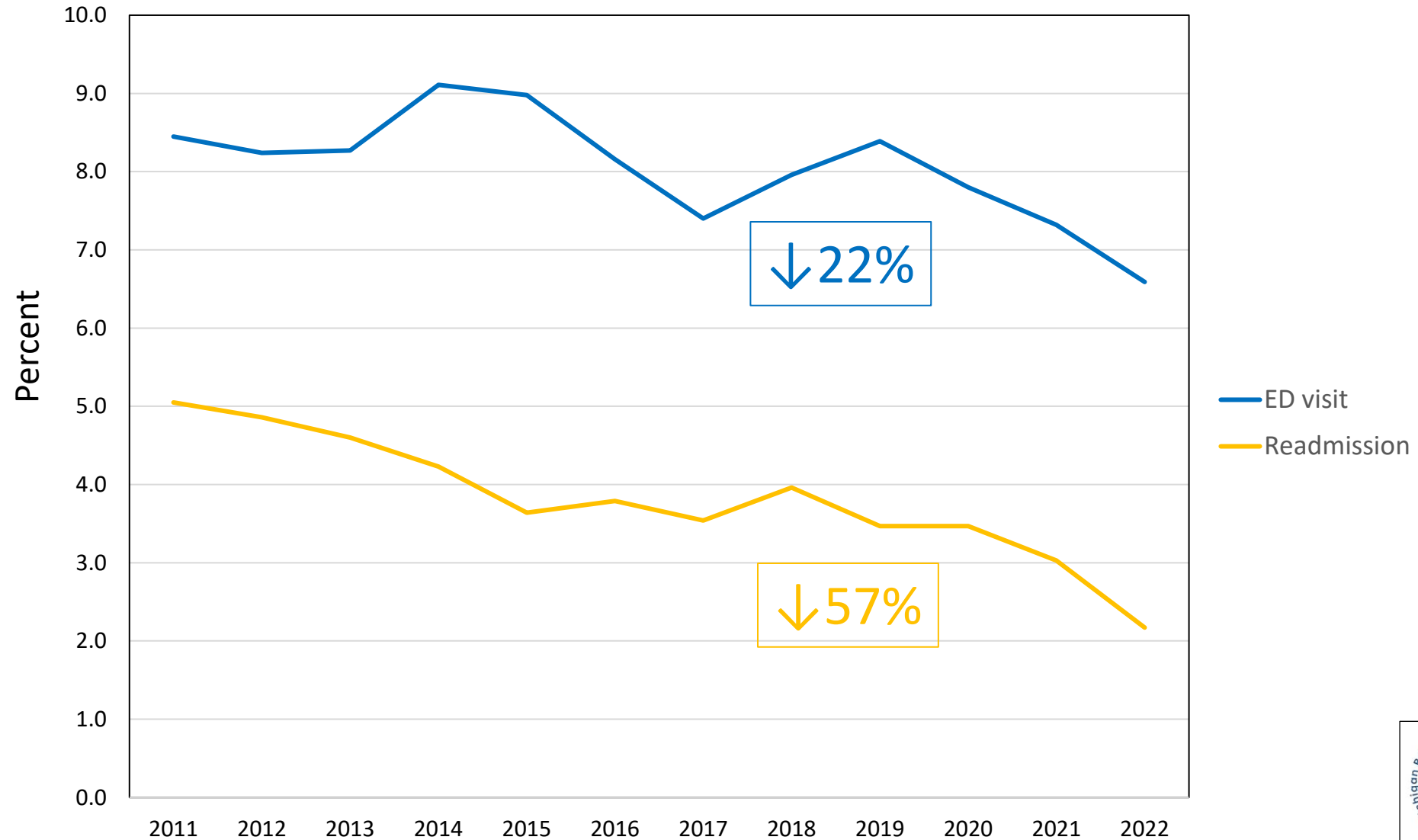
Increase
communication
with patients

- Wristband and wallet cards

Alternatives to
the ED

- Urgent care centers

Reduction in ED visits and Readmissions - MBSC





[Surgical Endoscopy](#)

pp 1-8 | [Cite as](#)

Effect of new persistent opioid use on physiologic and psychologic outcomes following bariatric surgery

Authors

[Authors and affiliations](#)

Margaret E. Smith , Jay S. Lee, Aaron Bonham, Oliver A. Varban, Jonathan F. Finks, Arthur M. Carlin, Amir A. Ghaferi

New Persistent Opioid Use & Surgical Outcomes after Bariatric Surgery



21,823 Patients



June 2006 – Dec 2016



6.3% New Persistent Use



1-Year Outcomes

Decreased Excess
Body Weight Loss



57.6% vs 60.3%

(avg. % excess body weight lost / patient)

Less Improvement in
Psychologic Outcomes



Body Image

18.0 vs 19.9

(Body-Q Scores)

Depression

5.0 vs 2.4

(PHQ-8 Scores)



Decreased Overall
Satisfaction



75.1% vs 85.7%

(Overall Satisfaction with Bariatric Surgery)

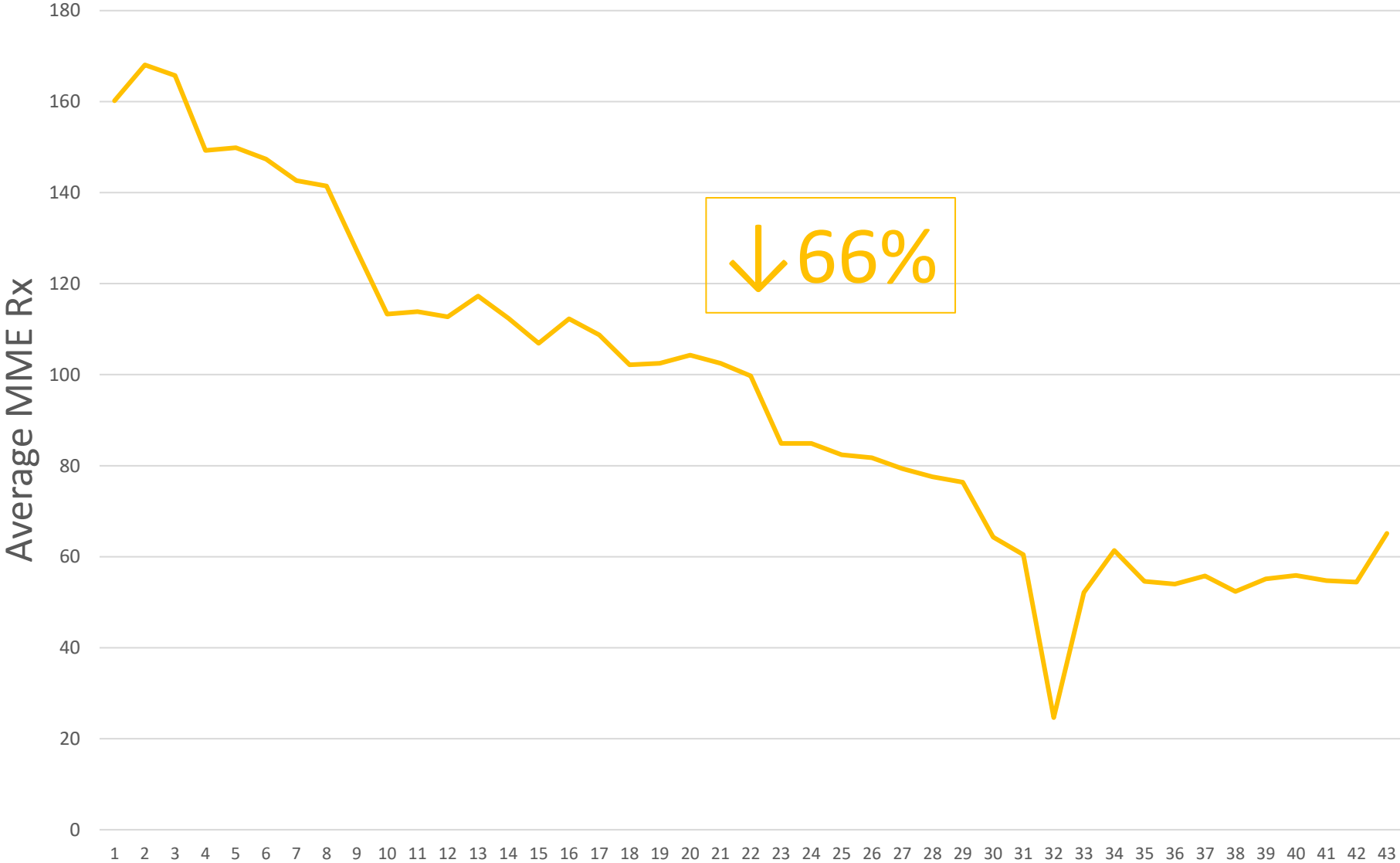
Citation: Smith et al, *Surg Endo.* Month 2018



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MME Prescribing Trendline by Month

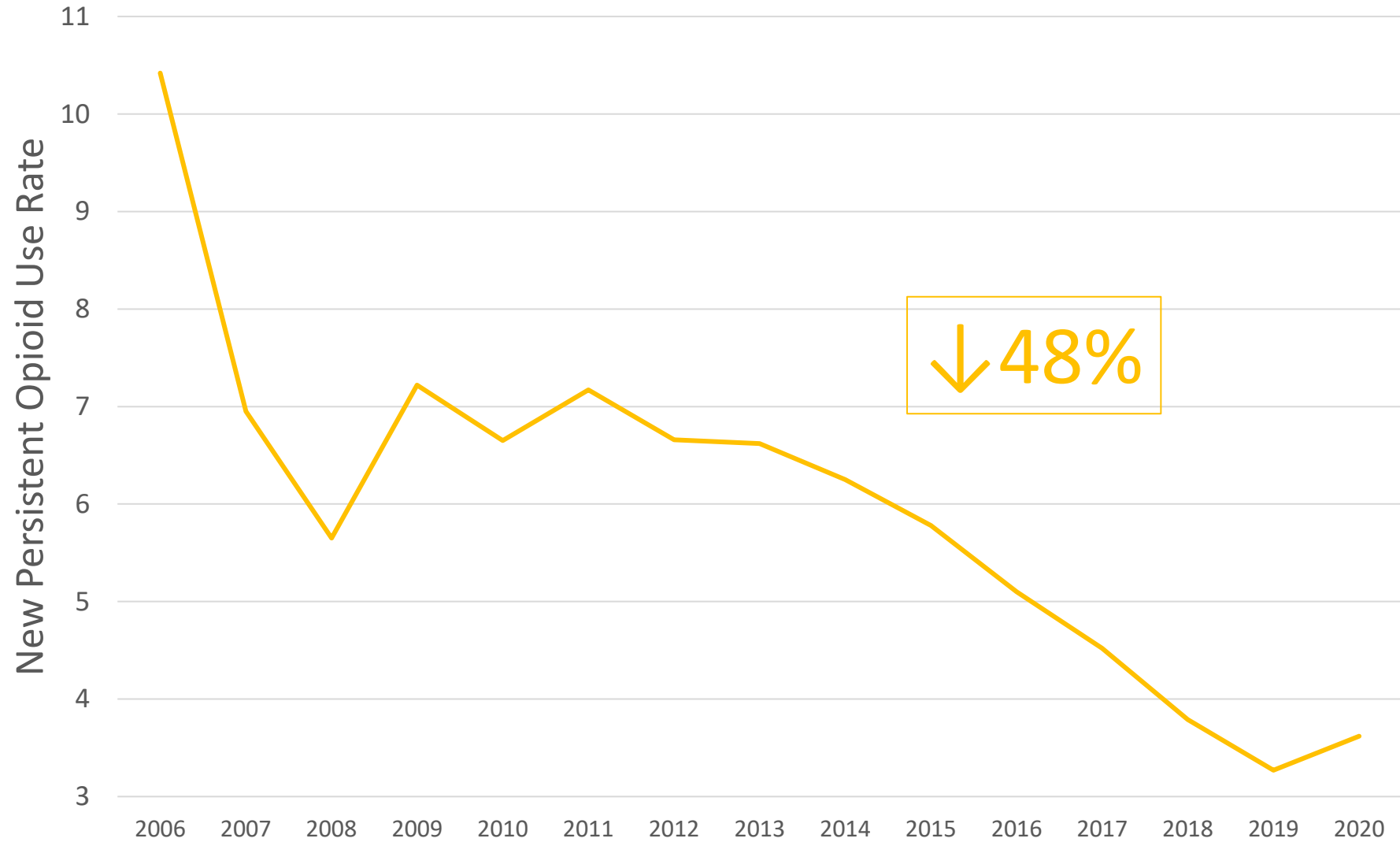


Sept 2017

Mar 2021



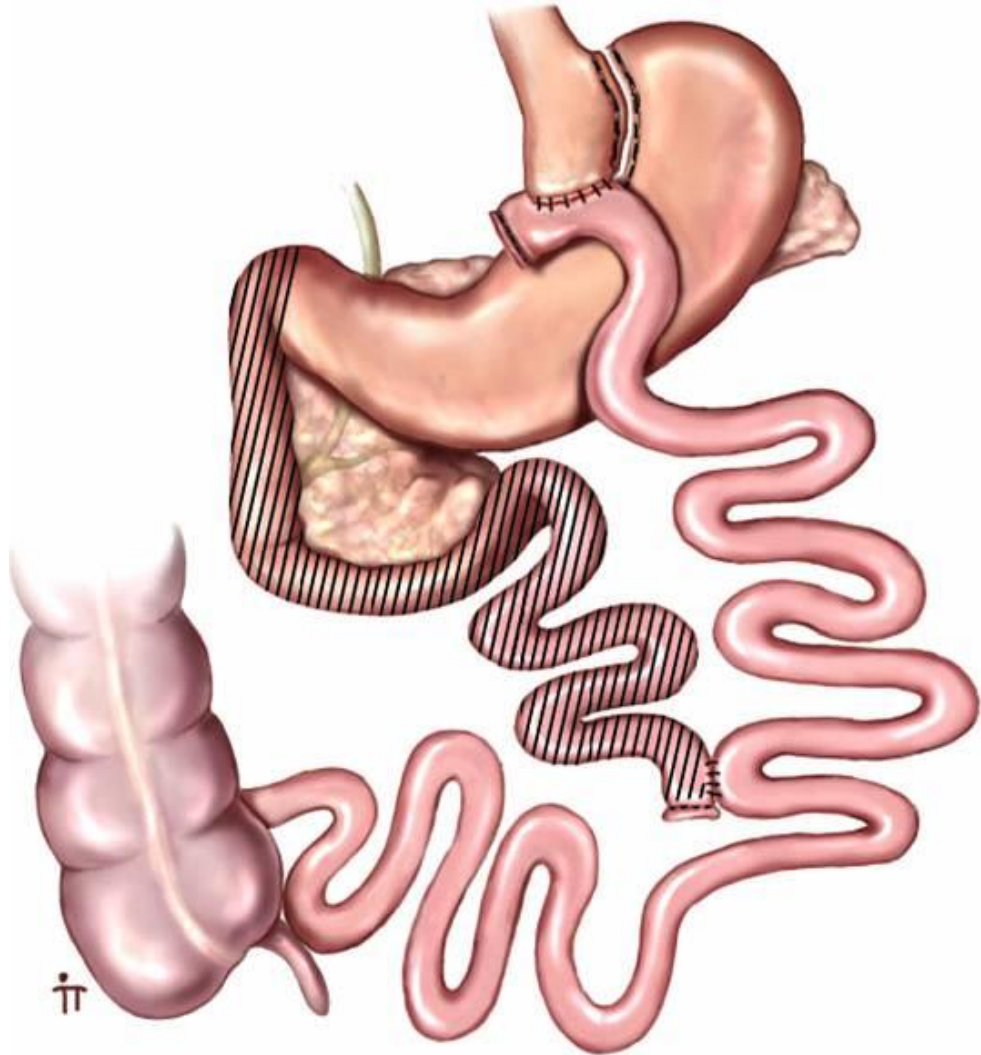
New Persistent Opioid Use – Rate by Year



Reducing the Risk of Long-Term Complications



Roux-en-Y Gastric Bypass



Advantages:

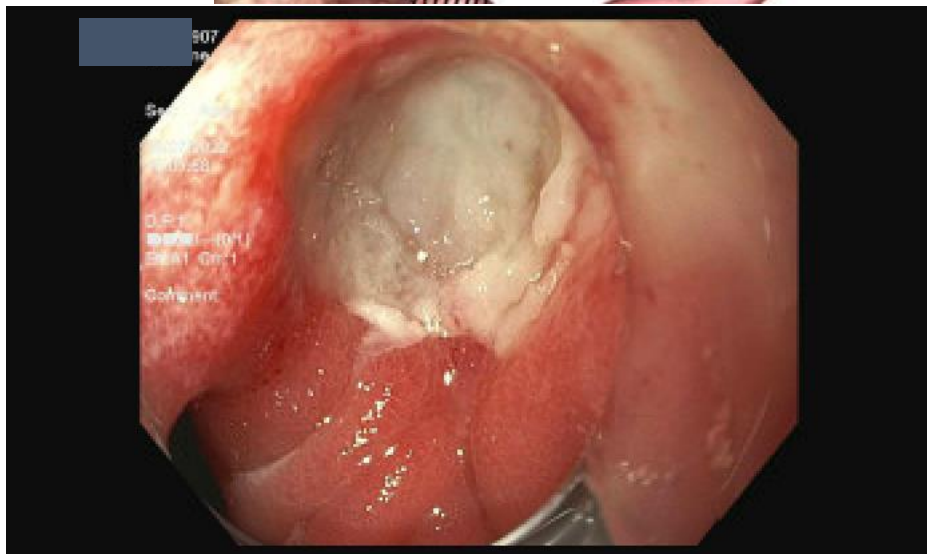
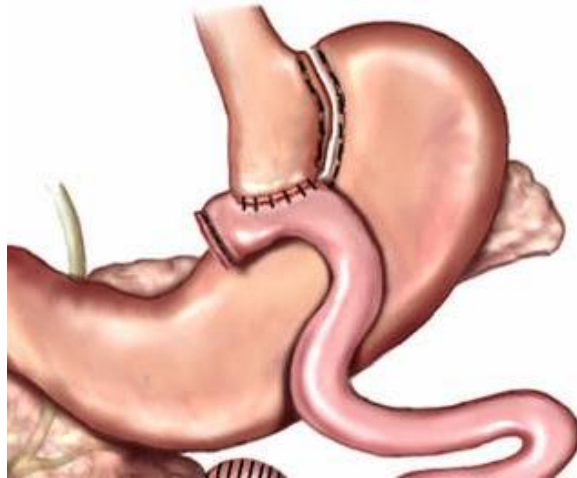
- 60 to 70% EWL
- Remission of comorbidities
- Excellent for GERD
- Metabolic effects

Disadvantages:

- Marginal ulceration
- Iron deficiency
- Kidney stones
- Internal hernia
- No access to biliary tract
- Dumping syndrome

Roux-en-Y Gastric Bypass

› Marginal ulcer



Avoid for life:

Nicotine
Alcohol

Steroids
NSAIDS
Aspirin

IRON

Deficiency Symptoms



Fatigue



Weakness



Dizziness



Headache



Pale Skin



Brittle Nails



Chest Pain



Fast Heartbeat



Shortness of Breath



Cold Hands and Feet



Trouble Concentrating



Inflammation of the tongue



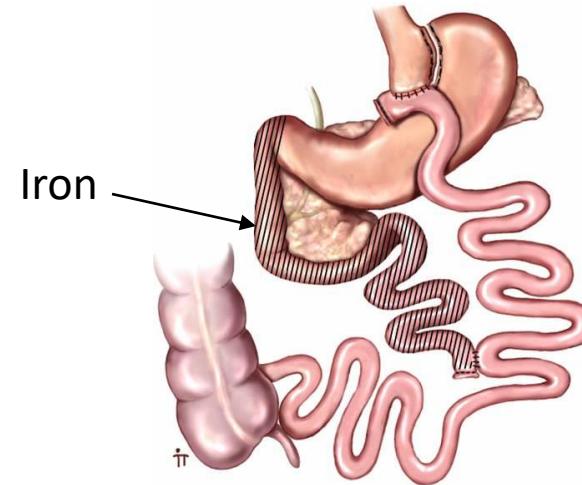
Unusual Cravings (paper, ice)

Reduce risk:

Iron supplement daily

Add Vitamin C

Avoid caffeine

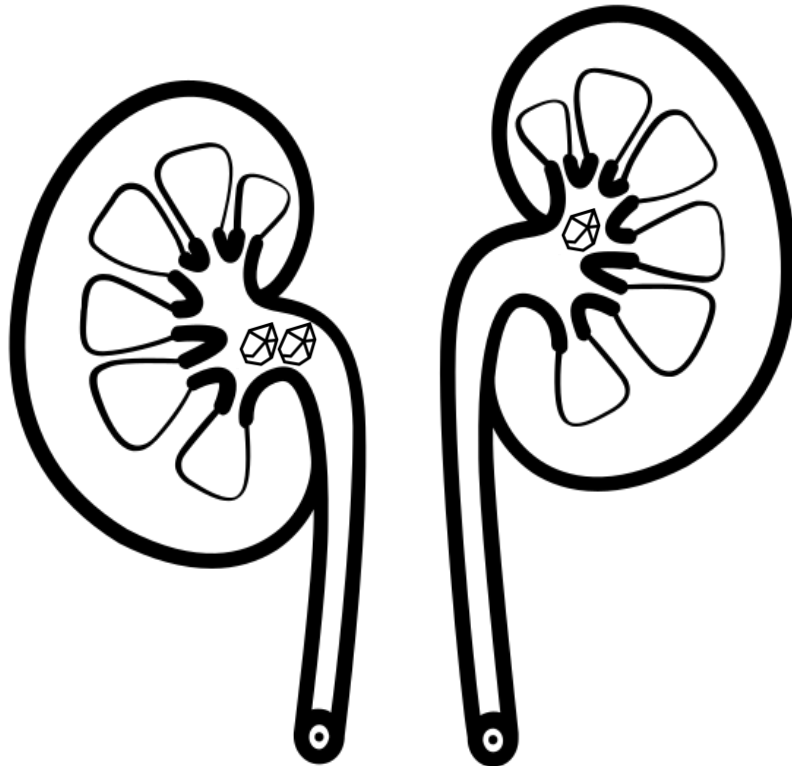


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Calcium Oxalate Kidney Stones



Reduce risk:

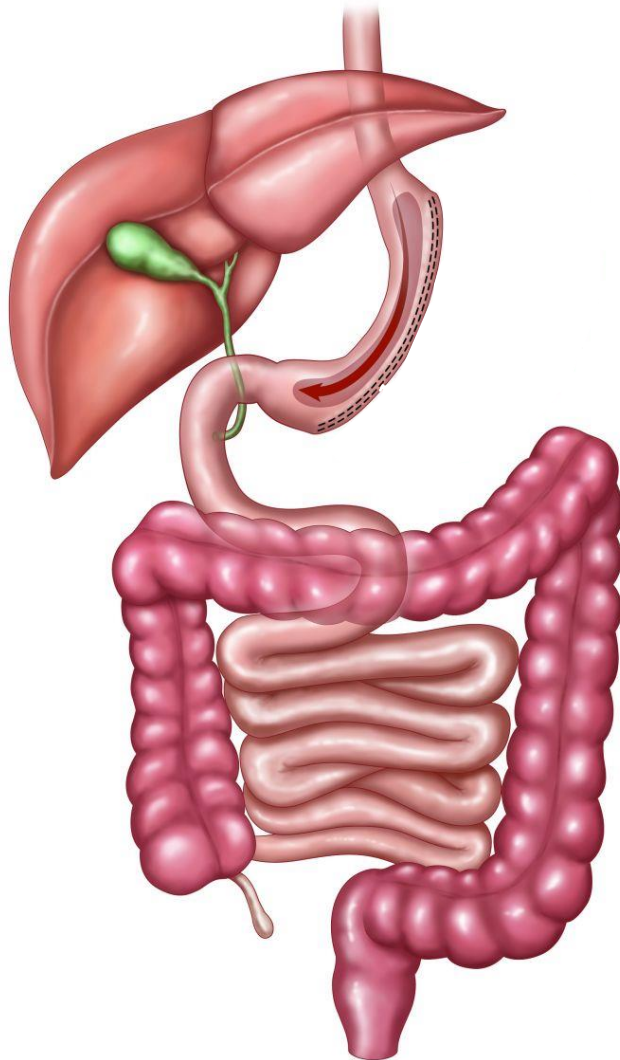
Increase water intake

Calcium citrate

Limit high oxalate foods

- spinach
- almonds
- soy products

Sleeve Gastrectomy



Advantages:

- 50 to 60% EWL
- Metabolic effects
- No increased ulcer risk
- No iron deficiency anemia
- Pylorus intact
- Access to biliary tract
- No internal hernia

Disadvantages:

- Weight loss vs GBP
- Comorbidity remission vs GBP
 - IDDM
 - Hyperlipidemia

GERD – Barrett's

Evaluation of Patient Reported Gastroesophageal Reflux Severity at Baseline and at 1-year After Bariatric Surgery

Anne P Ehlers^{1 2}, Jyothi R Thumma², Jonathan F Finks^{1 3}, Arthur M Carlin⁴,
Amir A Ghaferi^{1 2 3}, Oliver A Varban^{1 3}

Findings:

- Both SG + RYGB approx. 30% improvement
- Worse symptoms
SG 17.8%
RYGB 7.5% p<0.0001
- Overall: 80% no change or improvement

TABLE 2. Gastroesophageal Reflux Disease (GERD) Outcomes of Patients by Procedure Type

	Sleeve Gastrectomy N = 8680	Roux-en-Y Gastric Bypass N = 1771	All N = 10,451	P-value
Improved score	2636 (30.4)	546 (30.8)	3182 (30.4)	0.7015
Mean score at baseline in patients with improvement	2.2	2.2	2.2	0.9303
Mean score at 1 year in patients with improvement	0.6	0.3	0.5	<0.0001
Mean overall decrease in score	1.65	1.94	1.70	<0.0001
Worsening of score	1546 (17.8)	133 (7.5)	1679	<0.0001
Mean score at baseline in patients with worsening	0.6	0.5	0.6	0.2962
Mean score at 1 year in patients with worsening	2.3	1.9	2.2	0.0008
Mean overall increase in score	1.64	1.41	1.62	0.0049
No change in score	4498 (51.8)	1092 (61.7)	5590 (53.5)	<0.0001
Baseline antacid use	3967 (45.7)	930 (52.5)	4,897 (46.9)	<0.0001
1 yr antacid use	1102 (12.7)	197 (11.1)	1299 (12.4)	0.0748

ASMBS position statement on the rationale for performance of upper gastrointestinal endoscopy before and after metabolic and bariatric surgery

Guilherme M Campos¹, Guilherme S Mazzini², Maria S Altieri³, Salvatore Docimo Jr⁴,
Eric J DeMaria³, Ann M Rogers⁵,

Clinical Issues Committee of the American Society for Metabolic and Bariatric Surgery

- › Routine preoperative EGD is justifiable
- › LA grade C and D esophagitis or severe GERD symptoms
 - RYGB may be better than SG
 - Other compelling reasons to offer SG
- › *de novo* Barrett's Esophagus has been reported after SG but not RYGB
 - all short segment and non-dysplastic
 - requires further study to determine clinical implications
- › postop EGD
 - consider if symptoms
 - reasonable to perform 3 years after SG then surveillance every 5 years until studies available

Weight Recurrence



Reduce risk:

Healthy nutrition and
exercise program

Eliminate medications
with weight gain side
effects

Nutritional supplementation - Lifelong

Sleeve Gastrectomy

- 1) Bariatric multivitamin (taken as directed)
- 2) Calcium citrate 1200-1500 mg
- 3) Elemental iron 45 to 60 mg (low risk patients without history may take 18 mg/day)

Gastric Bypass

- 1) Bariatric multivitamin (taken as directed)
- 2) Calcium citrate 1200-1500 mg
- 3) Elemental iron 45 to 60 mg
- 4) Vitamin D 50,000 IU weekly

Thank you!



Health outcomes
after bariatric
surgery: A data
driven approach

Oliver Varban, MD FACS

Bariatric Surgery & Weight
Management Henry Ford Health
Detroit, MI



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Disclosures

“I receive salary support from Blue Cross Blue Shield of Michigan for leadership and participation in the Michigan Bariatric Surgery Collaborative”



BIG DATA







OBESITY INCREASES THE RISK OF DISEASE

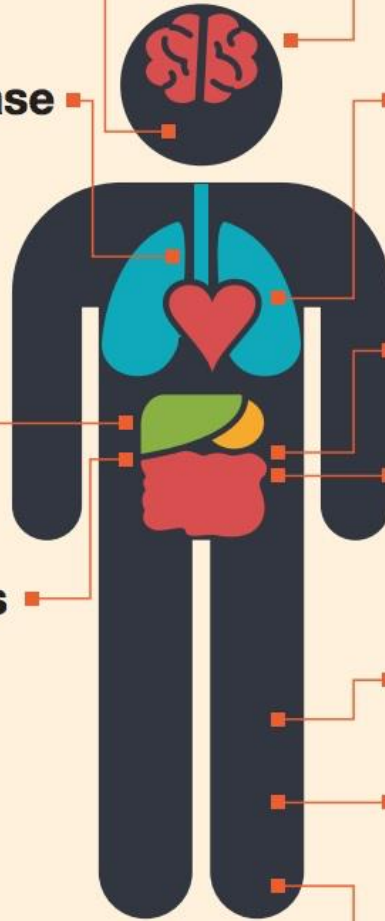
Sleep Apnea & Snoring

Lung Disease
Asthma
Pulmonary
Blood Clots

Liver Disease
Fatty Liver
Cirrhosis

Gall Stones

Cancer
Breast
Uterus
Colon
Esophagus
Pancreas
Kidney
Prostate



Stroke

Heart Disease
Diabetes
Abnormal Lipid Profile
High Blood Pressure

Pancreatitis

Female Disorders
Abnormal Periods
Infertility

Arthritis

Inflamed Veins,
often w/ blood clots

Gout

ORIGINAL ARTICLE

Bariatric Surgery versus Conventional Medical Therapy for Type 2 Diabetes

Geltrude Mingrone, M.D., Simona Panunzi, Ph.D., Andrea De Gaetano, M.D., Ph.D.,
Caterina Guidone, M.D., Amerigo Iaconelli, M.D., Laura Leccesi, M.D.,
Giuseppe Nanni, M.D., Alfons Pomp, M.D., Marco Castagneto, M.D.,
Giovanni Ghirlanda, M.D., and Francesco Rubino, M.D.

ORIGINAL ARTICLE

The NEW ENGLAND JOURNAL of MEDICINE

**Bariatric
Medical**

Geltrude Mingrone, M.D.,
Caterina Guidicci,
Giuseppe Nanni,
Giovanni

ORIGINAL ARTICLE

**Bariatric Surgery versus Intensive Medical
Therapy for Diabetes — 5-Year Outcomes**

Philip R. Schauer, M.D., Deepak L. Bhatt, M.D., M.P.H., John P. Kirwan, Ph.D.,
Kathy Wolski, M.P.H., Ali Aminian, M.D., Stacy A. Brethauer, M.D.,
Sankar D. Navaneethan, M.D., M.P.H., Rishi P. Singh, M.D., Claire E. Pothier, M.P.H.,
Steven E. Nissen, M.D., and Sangeeta R. Kashyap, M.D.,
for the STAMPEDE Investigators*

ORIGINAL ARTICLE

The NEW ENGLAND JOURNAL of MEDICINE

Bariatric Medical

Geltrude Mingrone, M.D.,
Caterina Guidicci,
Giuseppe Nanni,
Giovanni

Bariatric Surgery as Therapy for Diabetes

Philip R. Schauer, M.D., Dee
Kathy Wolski, M.P.H.,
Sankar D. Navaneethan, M.D.,
Steven E. Nissen, M.D.,
for the

ORIGINAL ARTICLE

The NEW ENGLAND
JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 23, 2004 VOL. 351 NO. 26

Lifestyle, Diabetes, and Cardiovascular Risk Factors 10 Years after Bariatric Surgery

Lars Sjöström, M.D., Ph.D., Anna-Karin Lindroos, Ph.D., Markku Peltonen, Ph.D., Jarl Torgerson, M.D., Ph.D.,
Claude Bouchard, Ph.D., Björn Carlsson, M.D., Ph.D., Sven Dahlgren, M.D., Ph.D., Bo Larsson, M.D., Ph.D.,
Kristina Narbro, Ph.D., Carl David Sjöström, M.D., Ph.D., Marianne Sullivan, Ph.D., and Hans Wedel, Ph.D.,
for the Swedish Obese Subjects Study Scientific Group*



ORIGINAL ARTICLE

The NEW ENGLAND JOURNAL of MEDICINE

Bariatric Medical

Geltrude Mingrone, M.D.,
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Bariatric Surgery Therapy for Diabetes

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The NEW ENGLAND JOURNAL of MEDICINE

Lifestyle, Diabetes

Lars Sjöström, M.D., Ph.D.,
Claude Bouchard, Ph.D., Björn
Kristina Narbro, Ph.D., Carl

ORIGINAL ARTICLE

Weight and Metabolic Outcomes 12 Years after Gastric Bypass

Ted D. Adams, Ph.D., M.P.H., Lance E. Davidson, Ph.D., Sheldon E. Litwin, M.D.,
Jaewhan Kim, Ph.D., Ronette L. Kolotkin, Ph.D., M. Nazeem Nanjee, Ph.D.,
Jonathan M. Gutierrez, B.S., Sara J. Frogley, M.B.A., Anna R. Ibele, M.D.,
Eliot A. Brinton, M.D., Paul N. Hopkins, M.D., M.S.P.H., Rodrick McKinlay, M.D.,
Steven C. Simper, M.D., and Steven C. Hunt, Ph.D.



ORIGINAL ARTICLE

The NEW ENGLAND JOURNAL of MEDICINE

Bariatric Medical

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The NEW ENGLAND JOURNAL of MEDICINE

Ted D. Adam,
Jaewhan Kim,
Jonathan
Eliot A. Brinton

ORIGINAL ARTICLE

Life Expectancy after Bariatric Surgery in the Swedish Obese Subjects Study

Lena M.S. Carlsson, M.D., Ph.D., Kajsa Sjöholm, Ph.D.,
Peter Jacobson, M.D., Ph.D., Johanna C. Andersson-Assarsson, Ph.D.,
Per-Arne Svensson, Ph.D., Magdalena Taube, Ph.D.,
Björn Carlsson, M.D., Ph.D., and Markku Peltonen, Ph.D.







How much weight will I lose?





Will my diabetes go away?











MICHIGAN BARIATRIC SURGERY COLLABORATIVE

Advancing the Science and Practice of Bariatric Surgery

The Michigan Bariatric Surgery Collaborative is a regional group of hospitals and surgeons that perform bariatric surgery in Michigan. Formed in 2005, MBSC aims to innovate the science and practice of metabolic and bariatric surgery through comprehensive, lifelong, patient-centered obesity care-in Michigan and across the United States.

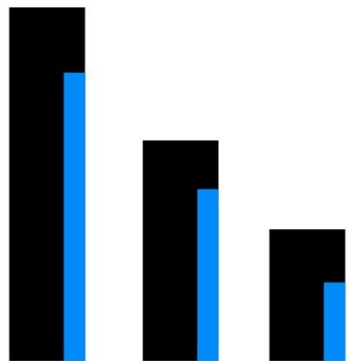
[MBSC Fact Sheet](#)



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BY THE NUMBERS



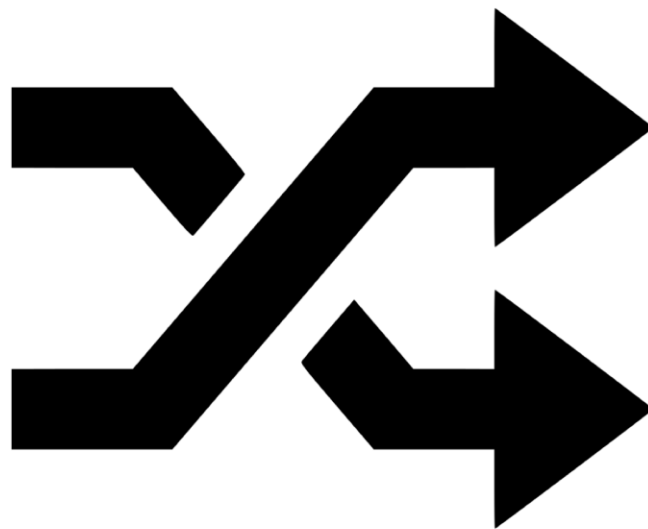
>100K Procedures
(2006-present)

1-Year Outcomes

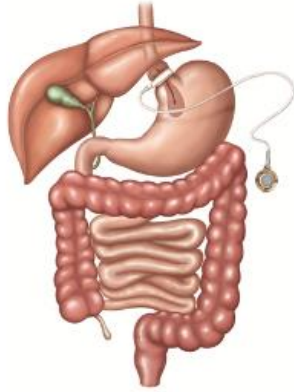
- › Mean Weight loss – 78 lbs
- › EBWL – 57%
- › TBWL – 30%

Improvement:

- › Diabetes – 69%
- › Hypertension – 52%
- › Hyperlipidemia – 54%
- › Sleep Apnea – 56%



Outcomes



Lap Band



Roux-en-Y
Gastric Bypass



Gastric Sleeve



Biliopancreatic Diversion/
Duodenal Switch
(BPD-DS)



Single Anastomosis
Duodenal-ileal Bypass
With Sleeve
(SADI-S)

Patient Characteristics

- › Age
- › Sex
- › Race
- › Comorbidities





Hyperlipidemia
NIDDM
Sleep Apnea



35 yo F White
225 lbs, BMI 37



55 yo M AA
375 lbs, BMI 62



MBSC Outcomes Calculator

Outcomes Calculator

Procedure *

Lap Band Sleeve Gastrectomy RYGB -Open RYGB - Lap BDP/DS

Demographics

Weight (pounds) *

Height (feet) *

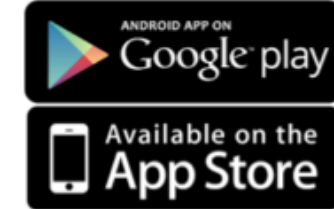
Height (inches) *

Private Insurance

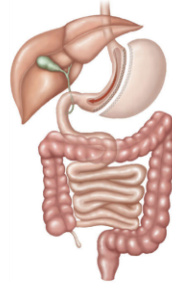
Age *

Gender *

Number of Days After Surgery



163 lbs
BMI 27
(62 lbs lost)
28% TWL



Gastric Sleeve



75% - Hyperlipidemia - 74%
85% - NIDDM - 81%
74% - Sleep Apnea - 48%

3.40% - Any complication - 4.76%
0.99% - Severe Complication - 1.48%

35 yo F White
225 lbs, BMI 37

265 lbs
BMI 44
(110 lbs lost)
29% TWL



55 yo M AA
375 lbs, BMI 62

150 lbs
BMI 25
(75 lbs lost)
33% TWL



Gastric Bypass



85% - Hyperlipidemia - 85%
85% - NIDDM - 85%
83% - Sleep Apnea - 60%

7.01% - Any complication - 9.66%
2.05% - Severe Complication - 3.04%

35 yo F White
225 lbs, BMI 37

242 lbs
BMI 40
(133 lbs lost)
35% TWL



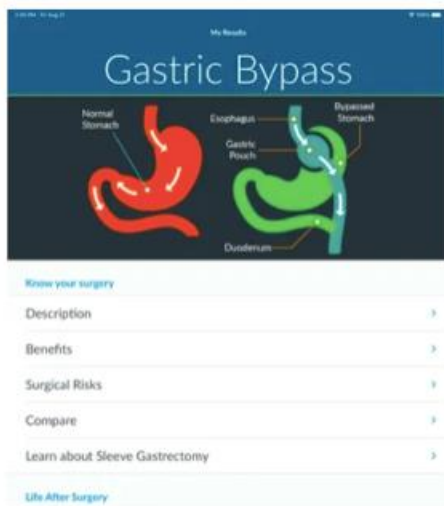
55 yo M AA
375 lbs, BMI 62

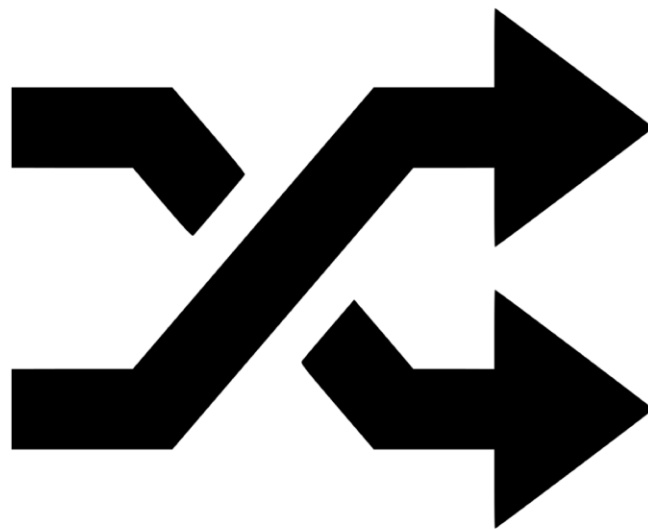




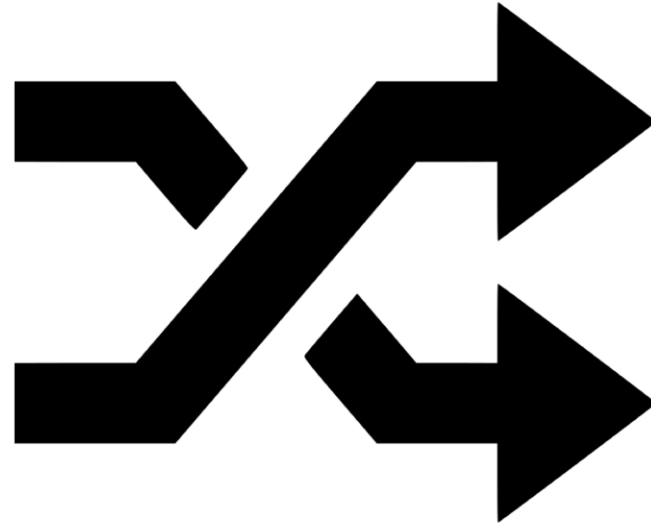
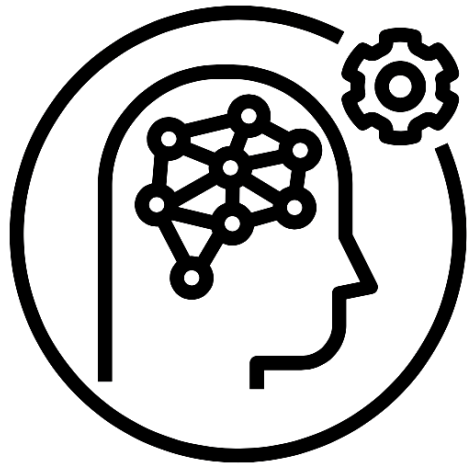
My Weight Loss Journey

Screenshots iPad iPhone





Outcomes



Outcomes



Obesity and Metabolic Disease



Low Severity
Low Chronicity

Time

High Severity
High Chronicity



JAMA Surgery | **Original Investigation**

Factors Associated With Achieving a Body Mass Index of Less Than 30 After Bariatric Surgery

Oliver A. Varban, MD; Ruth B. Cassidy, MA; Aaron Bonham, MS; Arthur M. Carlin, MD; Amir Ghaferi, MD, MS; Jonathan F. Finks, MD; for the Michigan Bariatric Surgery Collaborative

RESULTS A total of 9713 patients (36%; mean [SD] age, 46.9 [11.3] years; 16.6% male) achieved a BMI of less than 30 at 1 year after bariatric surgery. A significant predictor for achieving this goal was a preoperative BMI of less than 40 (odds ratio [OR], 12.88; 95% CI, 11.71-14.16; $P < .001$). Patients who had a sleeve gastrectomy, gastric bypass, or duodenal switch were more likely to achieve a BMI of less than 30 compared with those who underwent adjustable gastric banding (OR, 8.37 [95% CI, 7.44-9.43]; OR, 21.43 [95% CI, 18.98-24.19]; and OR, 82.93 [95% CI, 59.78-115.03], respectively; $P < .001$). **Only 8.5% of patients with a BMI greater than 50 achieved a BMI of less than 30 after bariatric surgery.** Patients who achieved a BMI of less than 30 had significantly higher reported rates of medication discontinuation for hyperlipidemia (60.7% vs 43.2%, $P < .001$), diabetes (insulin: 67.7% vs 50.0%, $P < .001$; oral medications: 78.5% vs 64.3%, $P < .001$), and hypertension (54.7% vs 34.6%, $P < .001$), as well as a significantly higher rate of sleep apnea remission (72.5% vs 49.3%, $P < .001$) and higher satisfaction rate (92.8% vs 78.0%, $P < .001$) compared with patients who did not.

JAMA Surgery November 2017 Volume 152, Number 11

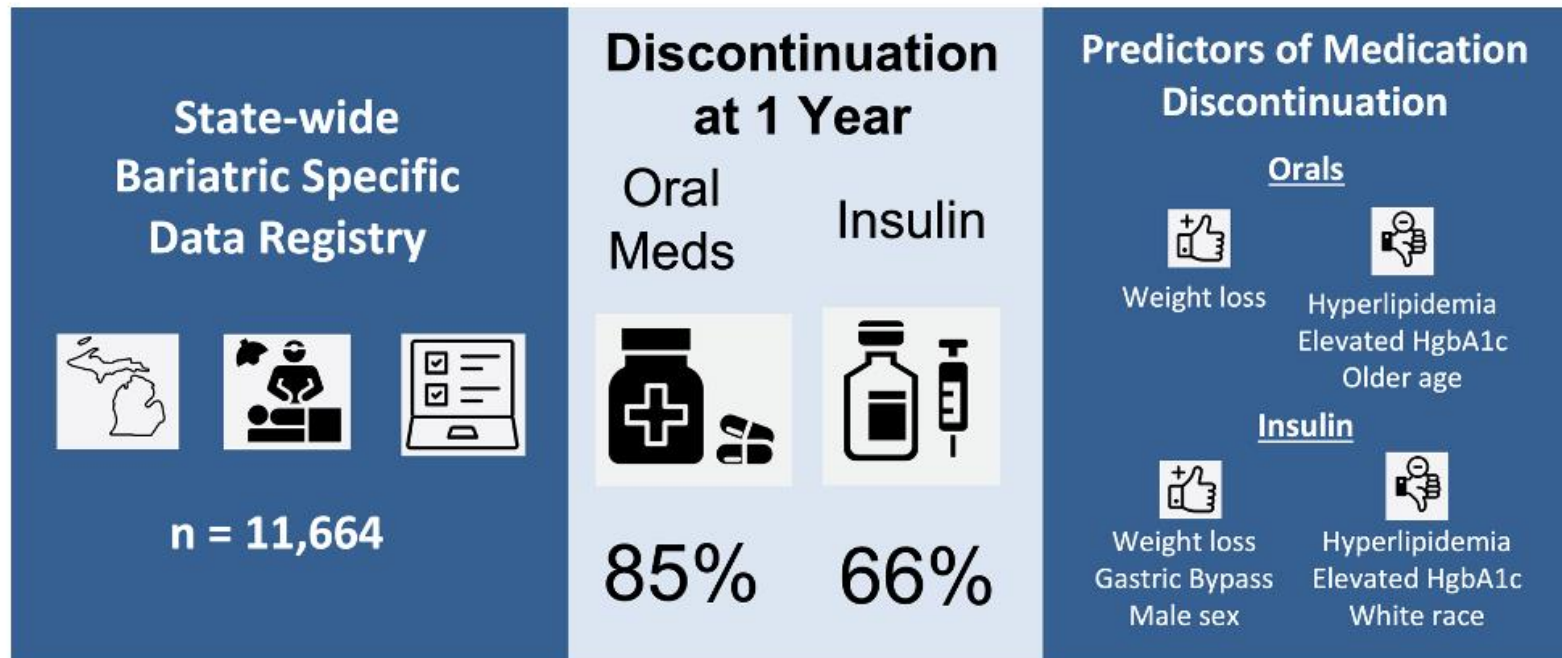




> J Am Coll Surg. 2022 Jun 24. doi: 10.1097/XCS.0000000000000306. Online ahead of print.

Independent Predictors of Discontinuation of Diabetic Medication after Sleeve Gastrectomy and Gastric Bypass

Oliver A Varban¹, Aaron J Bonham², Arthur M Carlin³, Amir A Ghaferi^{1 2},
Jonathath F Finks^{1 2}, Anne P Ehlers^{2 4}





CrossMark

Long-term Microvascular Disease Outcomes in Patients With Type 2 Diabetes After Bariatric Surgery: Evidence for the Legacy Effect of Surgery

Karen J. Coleman,¹ Sebastien Haneuse,² Eric Johnson,³ Andy Bogart,⁴ David Fisher,⁵ Patrick J. O'Connor,⁶ Nancy E. Sherwood,⁶ Steve Sidney,⁵ Mary Kay Theis,³ Jane Anau,³ Emily B. Schroeder,⁷ Rebecca O'Brien,⁵ and David Arterburn³

Diabetes Care 2016;39:1400–1407 | DOI: 10.2337/dc16-0194

CONCLUSIONS

Our results indicate that remission of type 2 diabetes after bariatric surgery confers benefits for risk of incident microvascular disease even if patients eventually experience a relapse of their type 2 diabetes. This provides support for a legacy effect of bariatric surgery, where even a transient period of surgically induced type 2 diabetes remission is associated with lower long-term microvascular disease risk.





10-year Individualized Diabetes Complications Risk Scores

BETA

Demographics


Medical History

Clinical and Lab Data

Current Medications

DON'T KNOW YOUR NUMBERS? DON'T WORRY!

If you don't know one of these values, leave the field **blank** and default numbers will be used. However, to calculate a more accurate and personalized risk, your exact numbers should be entered.

Clear the Defaults 

Blood pressure (mm Hg)

Systolic

130

Diastolic

80

HbA1c (%)

7


Creatinine (mg/dL)


1

Triglycerides (mg/dL)

150

Reset 

Next 

Find My Risk 



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10-year Individualized Diabetes Complications Risk Scores




BETA

Demographics Medical History Clinical and Lab Data **Current Medications**

Current medications (check all that apply):

- Insulin**
- Other diabetes medications (non-insulin)**
- Lipid (cholesterol) lowering medications**
- Angiotensin converting enzyme inhibitors or angiotensin-receptor blockers**
- Other antihypertensive medications**
- Aspirin**
- Warfarin**

Progress bar: []

Reset  **Next**  **Find My Risk** 

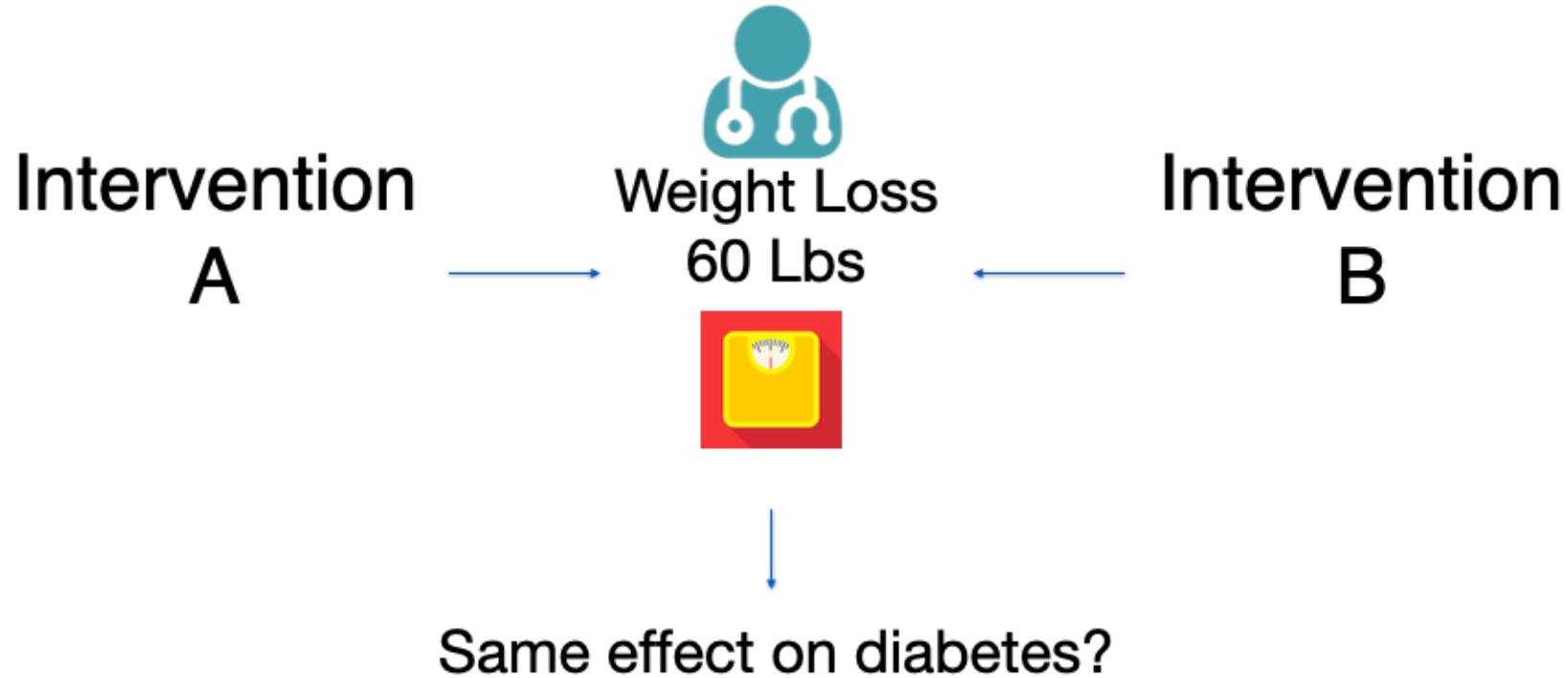


Complication	Your Current 10-Year Risk	10-Year Risk After Surgery	Absolute Change in 10-Year Risk	Relative Change in 10-Year Risk
Death (all-cause)	6.4%	3.3%	▼ 3.1%	▼ 49%
<i>Your 10-year risk of death (all-cause) would be 49% lower after surgery for diabetes.</i>				
Heart Failure	10.4%	3.4%	▼ 7.0%	▼ 67%
<i>Your 10-year risk of heart failure would be 67% lower after surgery for diabetes.</i>				
Coronary Heart Disease	6.4%	4.4%	▼ 2.0%	▼ 31%
<i>Your 10-year risk of coronary heart disease would be 31% lower after surgery for diabetes.</i>				
Diabetic Kidney Disease	30.0%	9.2%	▼ 20.7%	▼ 69%
<i>Your 10-year risk of diabetic kidney disease would be 69% lower after surgery for diabetes.</i>				
Cerebrovascular Disease (Stroke)*	7.7%	4.1%	▼ 3.6%	▼ 47%
<i>Your 10-year risk of cerebrovascular disease (stroke)* would be 47% lower after surgery for diabetes.</i>				



Comparing Diabetes Outcomes: Weight-independent Effects of Sleeve Gastrectomy Versus Matched Patients With Similar Weight Loss

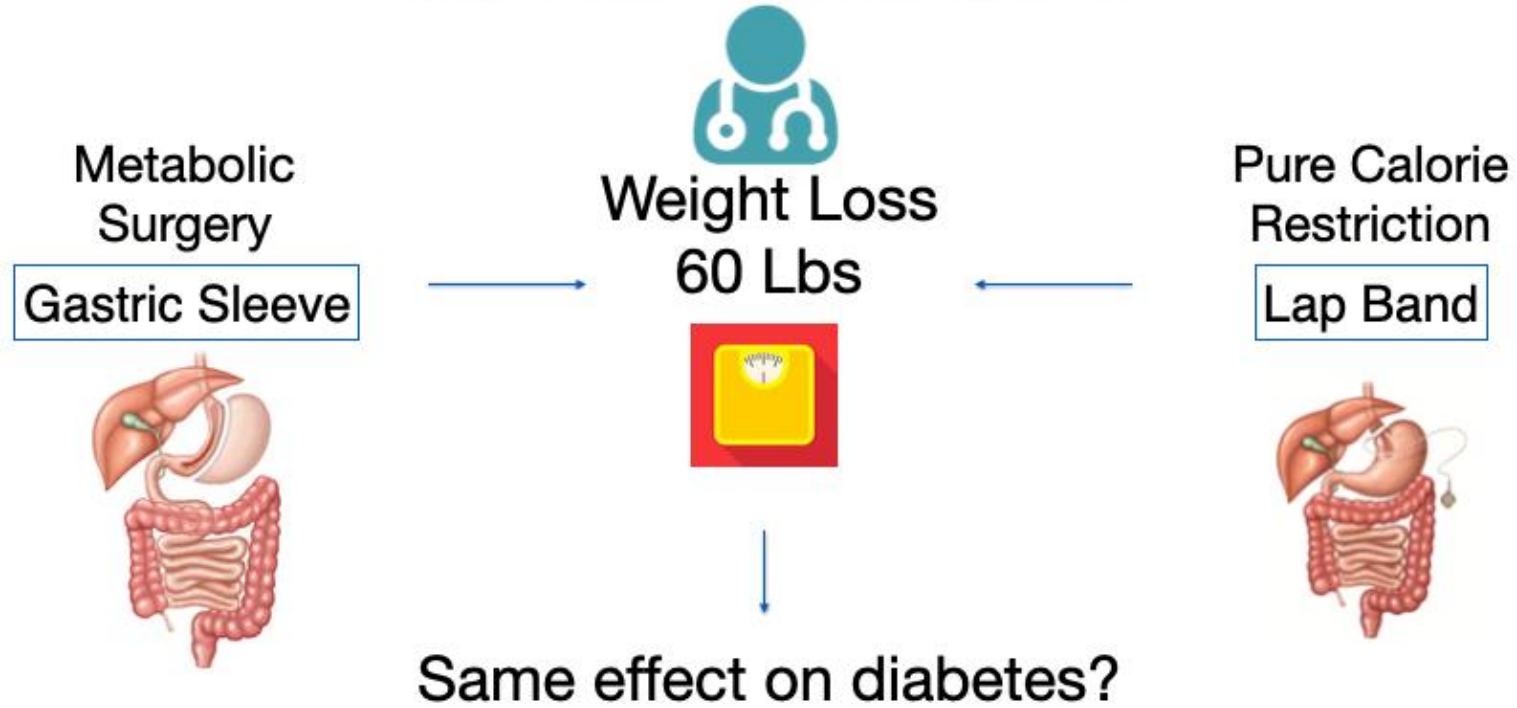
Phillip Yang ¹, Aaron J Bonham ², Amir A Ghaferi ², Oliver A Varban ²



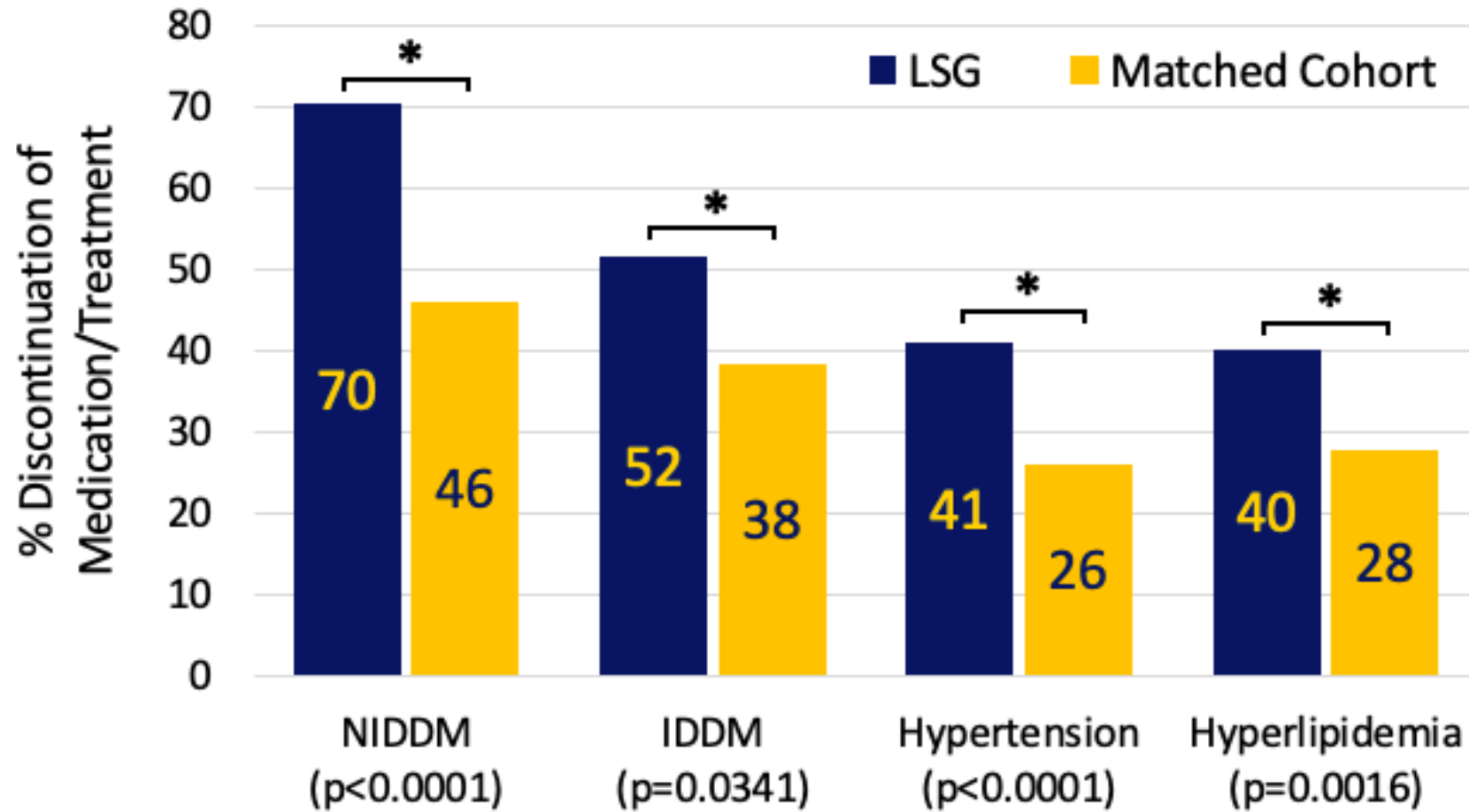


Comparing Diabetes Outcomes: Weight-independent Effects of Sleeve Gastrectomy Versus Matched Patients With Similar Weight Loss

Phillip Yang¹, Aaron J Bonham², Amir A Ghaferi², Oliver A Varban²



Comorbidity Resolution



Final Thoughts...

- › Outcomes vary by:
 - Procedure Type
 - Patient Characteristics
 - Paradigms and Practice Patterns

- › Data informs providers and patients

- › Driven by quality collaboratives



Acknowledgements

MBSC Project Coordinators

- *Amanda Stricklen, RN MS*
- *Rachel Ross, RN MS*



MBSC Participating Hospitals

- ✓ Beaumont Hospital, Dearborn
- ✓ Beaumont Hospital, Grosse Pointe
- ✓ Beaumont Hospital, Royal Oak
- ✓ Beaumont Hospital, Troy
- ✓ Beaumont Hospital, Wayne
- ✓ Borgess Medical Center
- ✓ Bronson Methodist Hospital
- ✓ Chippewa County War Memorial Hospital
- ✓ Covenant Healthcare
- ✓ Forest Health Medical Center
- ✓ Mid Michigan Medical Center – Gratiot
- ✓ Harper University Hospital
- ✓ Henry Ford Hospital
- ✓ Henry Ford West Bloomfield
- ✓ Henry Ford Wyandotte Hospital
- ✓ Hurley Medical Center
- ✓ Huron Valley-Sinai Hospital
- ✓ Lakeland Community Hospital
- ✓ Marquette General Hospital UP Health System Marquette
- ✓ McLaren Macomb Hospital
- ✓ McLaren Regional Medical Center
- ✓ Mercy Health Partners
- ✓ Mid Michigan Medical Center – Midland
- ✓ Munson Medical Center (Grand Traverse Surgery)
- ✓ North Ottawa Community Health System
- ✓ Oakland Regional Hospital
- ✓ Port Huron Hospital McLaren Port Huron
- ✓ Providence Park Hospital
- ✓ Sparrow Health System
- ✓ Spectrum Health System
- ✓ Spectrum Health Zeeland
- ✓ St. John Hospital and Medical Center
- ✓ St. John Oakland
- ✓ St. Joseph Mercy Livingston
- ✓ St. Joseph Mercy Oakland
- ✓ St. Joseph Mercy – Port Huron Lake Huron Medical Center
- ✓ St. Mary's Health Care – Grand Rapids
- ✓ St. Mary's of Michigan (Saginaw)
- ✓ St. Mary Mercy Hospital (Livonia)
- ✓ University of Michigan



Q & A Panel Discussion



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REFRESHMENT BREAK



Session IV

Care of the Post Bariatric Surgery Patient

Moderator:
Arthur Carlin, MD



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Nutritional
considerations in the
post-operative
bariatric surgery
patient

Alissa Dandalides MS, RD

Registered Dietitian
Henry Ford Macomb Hospital



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Objectives

- › The role of the Registered Dietitian after surgery
- › Diet advancement back to “normal”
- › Portion control
- › Common post-operative nutrition challenges
- › Accountability
- › Vitamins and minerals
- › Successful nutrition habits of the weight loss surgery patient

Role of the Dietitian in Post-Operative Care

- › No set standard for nutrition counseling before or after surgical intervention
- › Diet advancement
- › Follow up
 - 2 day/1 week phone call
 - 2 week nutrition education class
 - 3 month class
 - 9 month appointment
 - Clinic availability/provider referral to RD to help capture patients who need nutrition assistance.
- › Vitamins and minerals
- › Food tracking/accountability check-in available
- › Addressing weight loss stalls

Diet Advancement After Surgery

- › Day of surgery: Ice chips
- › Day after surgery: Bariatric clear
 - Water, Gatorade Zero (protein added), bone broth
- › After returning home
 - Days 1-6: Clear liquid diet
 - Days 7-13: Full liquid diet
 - Days 14-20: Pureed diet
 - Days 21-34: Soft diet
 - Transition to regular diet



Behavioral/Lifestyle Changes for Success After Surgery

- › Avoid caffeine, carbonation, sugary beverages, and alcohol
- › Small frequent meals and snacks, eating 4-6 times a day (or every ~3-4 hours)
- › Eat off of a small side plate, ~5-6” diameter
- › Use small, toddler sized utensils if taking larger bites is an issue
 - Aiming for bites the size of the tip of the pinky finger
 - Chewing 20-30 times before swallowing

Behavioral/Lifestyle Changes for Success After Surgery

› Law of 30s

- No drinking before, during, or after meals
- Hold off on liquids to prevent stretching or washing effect
- Non compliance may lead to larger portions, and increased hunger

› Support group participation

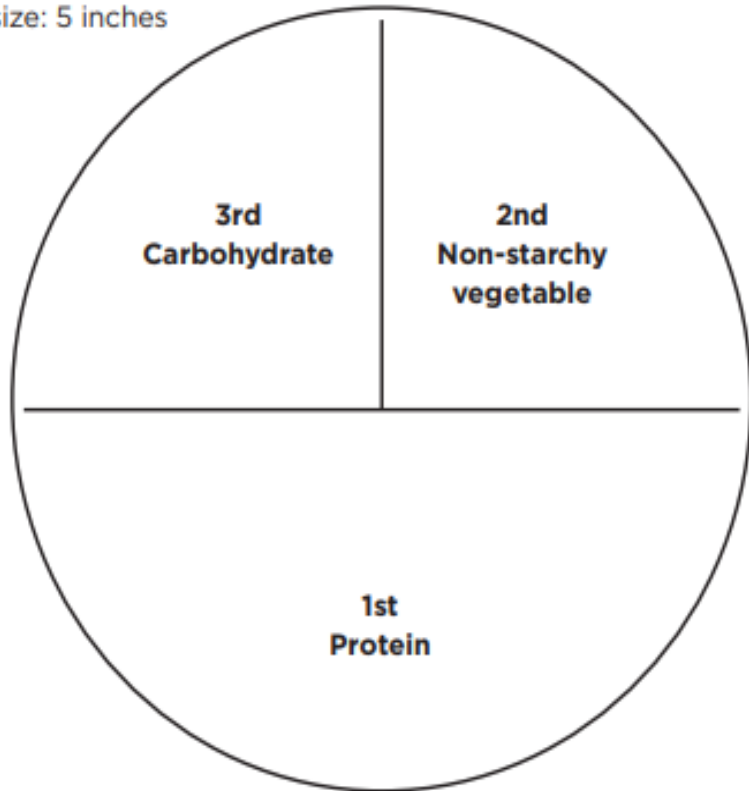


Portion Control

Once on a Regular Diet:

- › Encourage ½-1cup of food per meal
 - ½ cup lean protein
 - ¼ cup non-starchy vegetable
 - ¼ cup whole grain carbohydrate choice
- › 3-2-1 bite rule for eating

Actual plate size: 5 inches



Macronutrient Goals

- › Calories: 1000-1200 calories per day on the regular diet stage
- › Protein:
 - Women: 60-80g protein/day
 - Men: 80-100g protein/day
 - High protein to promote a faster feeling of fullness, protect lean muscle mass, and support metabolism
 - Choosing a protein shake: Encourage the 15 – 5 – 5 rule
- › Can I have carbs?
 - Yes, moderation, whole grains, dairy, and fruit
 - 50-75g per day

Accountability

- › Studies suggest that more weight loss is achieved when patients are held accountable through daily food tracking on an app.
- › Food tracking
 - Analysis
 - Accountability
 - Adjustment
- › Apps
 - Baritastic
 - MyFitnessPal
 - Lose It
 - Smartphone apps



Common Post Operative Challenges/Complaints

- › Dehydration
- › Dumping syndrome
- › Constipation
- › Diarrhea
- › Alopecia

Dehydration

- › Goal to achieve 64oz of fluids daily
 - Spacing fluids throughout the day
 - Caffeine intake
 - Exercise too early
 - Advancing to solids too quickly

- › Help patients recognize early signs of dehydration to avoid hospital visits.

Dumping Syndrome

- › Food choices- high consumption of carbohydrates without protein, fried foods, and/or simple sugars.

2 Types of Dumping

– **Early Dumping:** 30-60 minutes after eating

- › Symptoms: sweating, flushing, lightheadedness, tachycardia, palpitations, desire to lie down, upper abdominal fullness, nausea, diarrhea, cramping, and active audible bowels sounds

– **Late Dumping:** 1-3 hours after eating

- › Symptoms from reactive hypoglycemia (low blood sugar) which include: sweating, shakiness, loss of concentration, hunger, and fainting or passing out.

– What to do?

- › Refocus on lean protein choices first at meals and snacks
- › Avoid simple carbohydrates, large carb portions, and high fat foods

Constipation

› Why?

- Decreased fluid and fiber intake
- Reduced physical activity
- Iron or calcium supplementation
- Narcotics for pain
- Protein supplements

› How?

- Stay hydrated – 64oz non-carbonated, zero calorie beverages
- Small, frequent walking breaks
- Consume adequate fiber
- Avoid caffeine
- 2-3oz prune juice
- Smooth Move tea
- Fiber supplement if meeting hydration goals

Diarrhea

- › May be early dumping syndrome
 - Address food choices
- › Lactose intolerance
 - Handle with elimination of dairy from diet and change to lactose free protein shakes
- › Probiotics
 - Temporary use for restoring gut bacteria to normal state
 - Research suggests better weight loss with probiotic use

Alopecia

- › 3-6 months out of surgery – likely part of the process
- › More than a year out of surgery – vitamin deficiencies?
- › Calorie/protein intake?
- › Biotin and collagen
- › Approximately 57% of patients experience hair loss after metabolic and bariatric surgery
- › Younger age, female, low folic acid levels, low zinc levels, and low ferritin levels were associated with hair loss

Vitamins and Minerals

- › Both the Sleeve Gastrectomy and RNY Gastric Bypass may display vitamin and micronutrient deficiencies.
 - Sleeve gastrectomy – ***restrictive*** procedure
 - › Stomach size is reduced to reduce food intake and therefore deficiencies can happen due to limited quantities of food
 - RNY Gastric Bypass – ***malabsorptive*** procedure
 - › The amount of calories absorbed by the body is reduced by bypassing the food route
 - › Main cause of vitamin, mineral, and trace element deficiencies is bypassing the main sites of absorption of micronutrients occurs

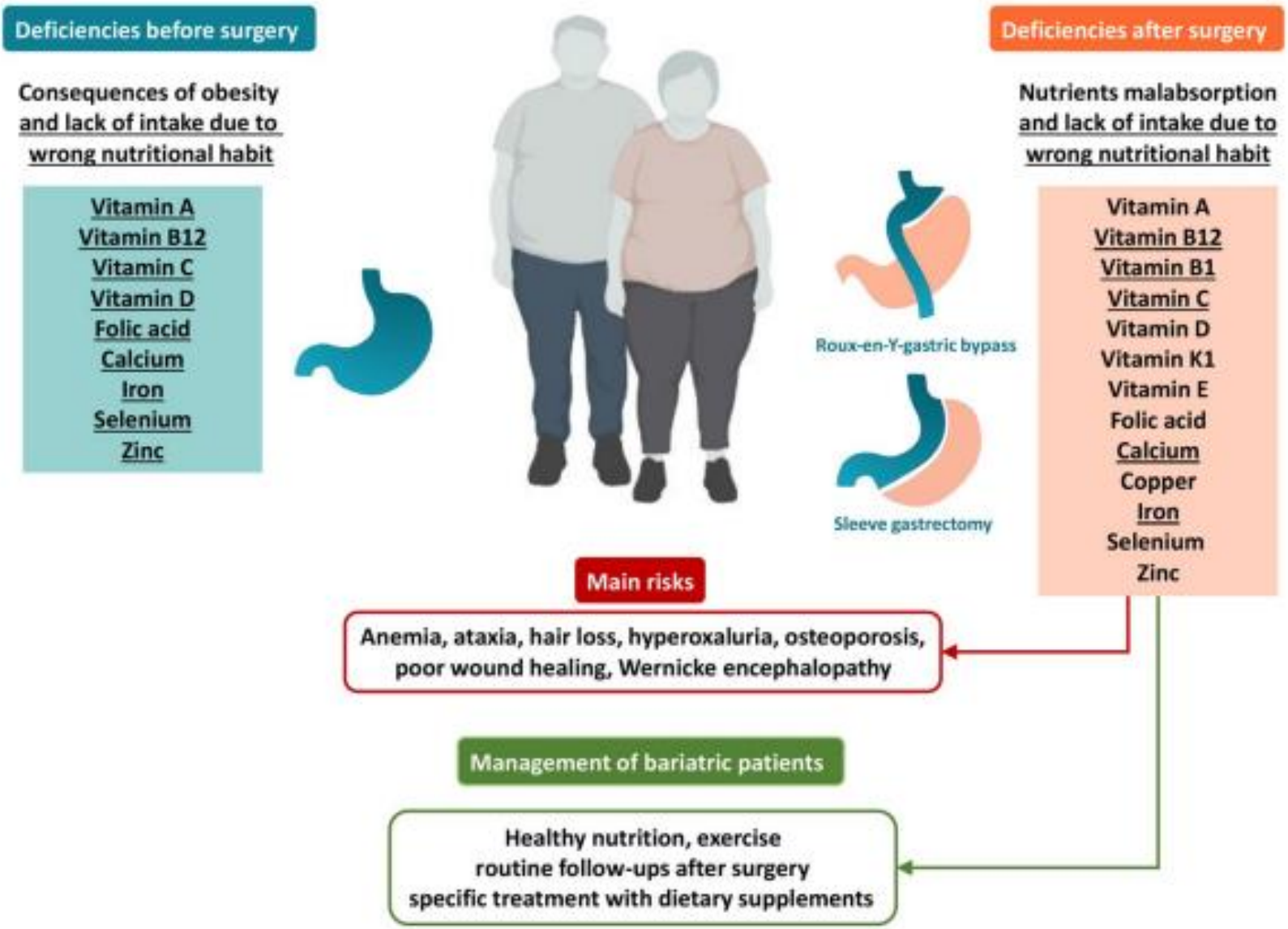


Fig. 1 Micronutrient deficiencies in obesity and after bariatric surgery, risks and management

Vitamins and Minerals

› Common Deficiencies

– Vitamin B-12

- › Sore tongue, smooth and “beefy” red tongue, pale skin, fatigue, numbness and tingling in extremities.
- › **Repletion Recommendations:** 1000mcg/day orally until normal levels are achieved
 - Consider nasal therapy if patient does not respond to oral

– Iron

- › Anemia occurs in 33-49% of cases within the first 2 years
- › Most common cause is vitamin B-12 deficiency
- › Fatigue, decreased work performance, enteropathy, dysphagia, spoon-shaped nails
- › **Repletion Recommendations:** Increase to provide 150-200mg

Vitamins and Minerals

› Common Deficiencies

- Folic acid – affects up to 39% of patients after bariatric surgery
 - › Deficiency of folate has a direct correlation to vitamin B-12 deficiency
 - › Vitamin B-12 is required for the inactive form of folate to be activated
 - › **Repletion Recommendations:** 1000 mcg/day (take separately from Calcium by 2 hours)
- Vitamin D
 - › About 50% of RNY gastric bypass patients have deficiency after surgery
 - › In a 2009 study by Dr. Arthur Carlin, his group found that an additional 50,000IU vitamin D weekly, in addition to the standard 800IU vitamin D and 1500mg calcium, nearly doubled vitamin D levels in 3 months after RYGB.
 - › **Repletion Recommendations:** 50,000IU (may increase to 2-3x weekly)

Vitamins and Minerals

› Common Deficiencies

- Calcium – essential for bone and teeth health.
 - › Vitamin D deficiency can play a role
 - › **Repletion Recommendations:** 1500mg/day Calcium Citrate in divided doses

- Copper
 - › Deficiency may cause symptoms of iron deficiency, such as anemia.
 - › Studies have shown that copper deficiency affects 10-15% of individuals
 - › **Repletion Recommendations:** 3-8mg/day as copper gluconate or sulfate

- Zinc
 - › 42-65% of patients develop a zinc deficiency within 6-18 months post surgery
 - › **Repletion Recommendations:** 60mg elemental 2x/day

Vitamins and Minerals

- › Patients started on vitamins and minerals at two weeks post op
 - Provided education and instruction on vitamins at the two week nutrition class
 - Hands on demonstration
 - Start with chewable or “chewy” bariatric formulated vitamins for the first month
- › Assist patients in deciding on a longer term plan for vitamins – bariatric choices encouraged but discuss over-the-counter options as well
- › Encourage compliance

› American Society for Metabolic and Bariatric Surgery (ASMBS):

Recommendations for post-op micronutrient supplementation

Vitamins:	Vertical Sleeve Gastrectomy:	Gastric Bypass:
Thiamin	12 mg/day	12 mg/day
Thiamin (at risk patients)	50-100 mg/day	50-100 mg/day
Folic Acid	400-800 mcg/day	400-800 mcg/day
Folic Acid (female, child bearing age)	800-1,000 mcg/day	800-1,000 mcg/day
B12	Oral: 350-500 mcg/day	Oral: 350-500 mcg/day
Vitamin D	3,000 IU (75 mcg)/day	3,000 IU (75 mcg)/day
Vitamin A	5,000-10,000 IU (1,500-3,000 mcg/day)	5,000-10,000 IU (1,500-3,000 mcg/day)
Vitamin E	15 mg/day	15 mg/day
Vitamin K	90-120 mcg/day	90-120 mcg/day
Copper	1 mg/day	2 mg/day
Zinc	8-11 mg/day	8-22 mg/day
Iron	45-60 mg/day	45-60 mg/day
Calcium Citrate	1,200-1,500 mg/day	1,200-1,500 mg/day

Vitamin and Mineral Supplementation

› Sleeve Gastrectomy:

- Bariatric multivitamin (taken as directed)
- 12-1500mg calcium citrate
- 45-60mg elemental iron (low risk patients without history may take 18mg/day)

› RNY Gastric Bypass

- Bariatric multivitamin (taken as directed)
- 1200-1500mg calcium citrate
- 45-60mg elemental iron
- 50,000IU vitamin D weekly

Vitamin and Mineral Monitoring

Lab work recommended annually with PCP

- CBC
- Comprehensive metabolic panel
- Iron studies
- Ferritin
- Vitamin B-12
- 25-hydroxy vitamin D
- Parathyroid hormone (PTH)
- Hemoglobin A1c
- Lipid panel
- Folate
- Vitamin B1 (thiamine)

In summary

- › Key points to nutrition and overall success after bariatric surgery:
 - PROTEIN first
 - Portion control
 - Food Tracking to hit goals
 - Frequency of eating (4-6 times per day)
 - Hydration
 - Vitamin and mineral compliance
 - Physical activity

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A top-down view of a wooden cutting board with various fresh vegetables. On the left side, there are green tomatoes, a red tomato, and a cucumber. At the top, there are red and yellow bell peppers. On the right side, there are leeks and a bunch of fresh rosemary. At the bottom, there are two more red tomatoes. The text "THANK YOU" is centered on the board in a red, sans-serif font.

THANK YOU

Bariatric mindset recovery

Mental health treatment
to support long term post-surgical
success

Kelly Queen MA, LPC, CBC, CAADC, RD

Licensed Professional Counselor

Certified Bariatric Counselor

Certified Advanced Alcohol and Drug Counselor

Registered Dietitian

Henry Ford Health System



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Objectives:

- **My role in the Henry Ford Bariatric Team**
- **Building trusting relationships with clients**
- **Exploring the role of the dieting mentality**
- **Understanding Adverse Childhood Experiences**
- **Examining history of emotional development**
- **Emotional recovery and expanding coping skills**
- **Investing in committed action**



RECOVERY
IS A JOURNEY
THAT TAKES
TIME,
INTENTION, AND
EFFORT

Engaging clients in therapy

- **Eager: interested – this will help**
- **Willing: hesitant – this could help**
- **Fearful: avoidant – this may not help**
- **Angry: rejecting – this will not help**

“I don’t need to see you because I know what I need to do!”

MY GOAL IS TO HELP YOU PREPARE FOR SURGERY:

- To achieve and sustain your desired weight loss goal longterm
- To recover from the dieting mentality and practice mindful eating
- To reframe your thinking that will support desired outcomes
- To be emotionally healthy by embracing, experiencing and coping with ALL emotions
- To establish a habitual pattern of new lifestyle behaviors
- To stay committed to the time and effort self-care requires





Hey! there
is a “leak”
in your
basement!

Obesity Treatment

is about mopping AND fixing the source of the leak



► **MOPPING:** is about the changes we make in behaviors to support weight loss. It typically is a new diet and/or exercise plan. Surgery is also a form of mopping. HEALTHY mopping is essential, but if it is the only approach longterm success is unlikely.

► **FIXING THE LEAK:** is about self-examination and gaining insight into our thoughts, beliefs, emotions and behaviors. It is exploring our past and how it impacts our self perception and current beliefs about our emotions. It is recognizing that our current coping skills are not working well to manage our lives. It is identifying unhelpful thoughts that create distress. It is understanding the underlying contributors to our disordered eating issues.



Disordered Eating Patterns:

- Emotionally Reactive Disordered Eating
- Compulsive Overeating
- Avoidant/Restrictive Chronic Dieter
- Graze-Binging Disordered Eating
- Binge Eating Disorder
- Bulimia Nervosa Binge/Purge

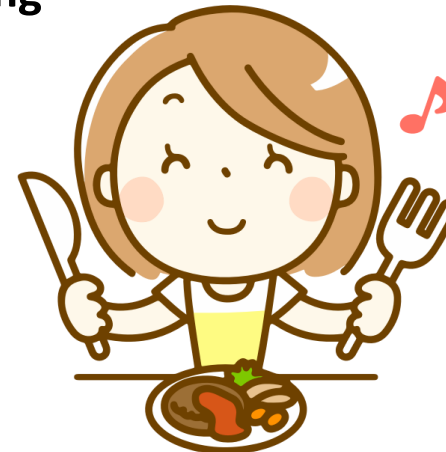
Outlining the Dieting Mentality



1. You label a food as **“good”** or **“bad”** (healthy, unhealthy, junk, garbage...)
2. You have created a belief that it is wrong if you eat a **“bad”** food
3. You mentally struggle with efforts to never eat that **“bad”** food
4. When you choose to eat a **“bad”** food you feel like you have failed
5. When you feel like you have failed, you feel down, discouraged, frustrated and depressed
6. Since you have chosen to eat this food, you disconnect and eat more than intended or desired related to being “off” the diet... ONCE THE RULE IS BROKEN, A BACKLASH IN EATING HABITS OFTEN OCCURS!
7. When you feel discouraged or down, you also want to stop these painful feelings and will engage in eating more to suppress the emotions in the moment
8. You develop a pattern of eating **“bad”** foods in a destructive way, eating the food with a level of disconnect. You eat the food rapidly without giving much attention given to taste and satisfaction, in addition to eating far beyond fullness. You now feel you can’t control yourself with this food.
9. The guilt related to eating the **“bad”** food, compounded with overeating the **“bad”** food, creates intense negative, painful emotions. This tends to reinforce that the food is “bad” because I have “no control” over eating it, which is another reason why you label it as **“bad”**

Recovery from the dieting mindset

- ▶ We have tried to simplify nutrition by labeling foods as good or bad, healthy or unhealthy versus the facts of foods having different nutrient values
- ▶ We can label foods as **nutritious** which is factually stating that there is significant nutrients found in the food. We do not need to ONLY eat nutritious foods to maintain good health
- ▶ You can label the balance of your food choices over a 1-2 week period as good or bad, but not individual foods
- ▶ Your belief is that labeling a food as “bad” is going to help you avoid eating “bad” foods and help you to eat more “good” foods. Research reveals this is not true: rigid restriction and active avoidance tends to promote overeating, in addition to being in an “off” diet mode more often than an “on” diet mode
- ▶ **Reframe thinking to be positive surrounding food and eating**



EXCEPTION: 3 categories of BAD foods:

- ✓ Foods that are poisonous
- ✓ Foods you are allergic to (bariatric intolerances)
- ✓ Foods that are rotten/spoiled



Distracted/Disconnected Eating

- ▶ The movement of eating meals from the kitchen table to in front of a screen.
- ▶ Disconnected Eating: our concentration is given to something that is sustaining our full attention or that is cognitively demanding such as work
- ▶ **We are eating while we are watching TV, on the computer, on our phones/internet, working our jobs, driving our cars, doing chores at home, reading a book, studying for school...**
- ▶ Research supports that we eat more not only in the moment of distraction, but also later in the day. We also tend to prolong the time period that we are eating.
- ▶ We miss the early cues of satiety, which is boredom with eating. We even miss out on the next cues of early fullness, often only stopping when we feel discomfort or when we have “finished” our plate.
- ▶ We are not present to satisfaction and enjoyment of food, therefore we seek out eating before we are hungry again to feed that need for this satisfaction.
- ▶ **We have also trained our brains to want to eat when we are engaged with a screen due to the frequency and repetition of doing it.**

Mindful Intentional Eating:

Being fully present to the eating process

- ✓ evaluate your hunger levels
- ✓ how much food you put on your plate
- ✓ if the food looks appealing
- ✓ does it smell appetizing
- ✓ how big of a bite are you taking
- ✓ how well are you chewing
- ✓ how fast are you eating/swallowing
- ✓ what does the food taste like
- ✓ are you bored with eating
- ✓ how satisfied or full are you all along the way

Adverse Childhood Experiences

- Adverse Childhood Experiences are stressful and traumatic events occurring before the age of 18 shown to cause mental and physical health problems, including increased risk of obesity.
- ACE Questionnaire assesses 10 types of childhood trauma
- Systematic Review by D. Wiss and T. Brewerton found a 46% increase in the odds of adult obesity following exposure to multiple ACEs.
- Efforts to improve screening and detection of past childhood trauma is important to effective treatment for obesity. This is “fixing the leak”.

ACE Questionnaire

10 measurements of childhood trauma

▶ Abuse

- ▶ Physical
- ▶ Emotional
- ▶ Sexual

▶ Neglect

- ▶ Physical
- ▶ Emotional

▶ Household Dysfunction

- ▶ Mental illness of family member
- ▶ Substance abuse of family member
- ▶ Mother treated violently
- ▶ Separation/Divorce/Abandonment/Death
- ▶ Incarcerated family member



Signs of past childhood emotional neglect



- Inability to ask for or accept help or support from others
- Self sacrificial helping of others
- Poor compassion for self (and too much for others)
- A tendency toward guilt and shame
- Self-directed anger and self-blame
- Heightened sensitivity to rejection
- A deep sense of being flawed, or different from everyone else
- Feelings of emptiness
- Struggles with prioritizing self-care
- Struggles with regulating emotions
- Lack of language for describing and communicating feelings
- Higher rates of anxiety in adulthood

Childhood Emotional Neglect

- ▶ Emotional neglect is the absence of necessary emotional interactions such as nurture, connection, and adequate responses to distress. In essence, a parent's ongoing pattern of behaviors that fail to meet the emotional needs of a child.
- ▶ Examples are a parent who
 - ▶ consistently ignores or dismisses their child's distress or feelings
 - ▶ sweetly tells the child not to worry and that everything will be ok, which is telling them to stop feeling
 - ▶ demeans the child for their emotions with phrases like "crybaby"
 - ▶ refuses to ever listen to the child's feelings with "stop crying or I will give you something to cry about"
 - ▶ Has so much distress in their life, they do not provide adequate emotional attention to their child
- ▶ This failure will teach a child that their emotions are wrong, weak and unimportant. The child learns that it is not ok to have certain emotions and they must stop them from happening at all costs. This belief pattern follows the child into adulthood.
- ▶ This emotional neglect is traumatic in that overtime it becomes overwhelming to a child's developing emotional system, which leads to many children moving into adulthood with symptoms of Complex Trauma and difficulties coping with life stressors.

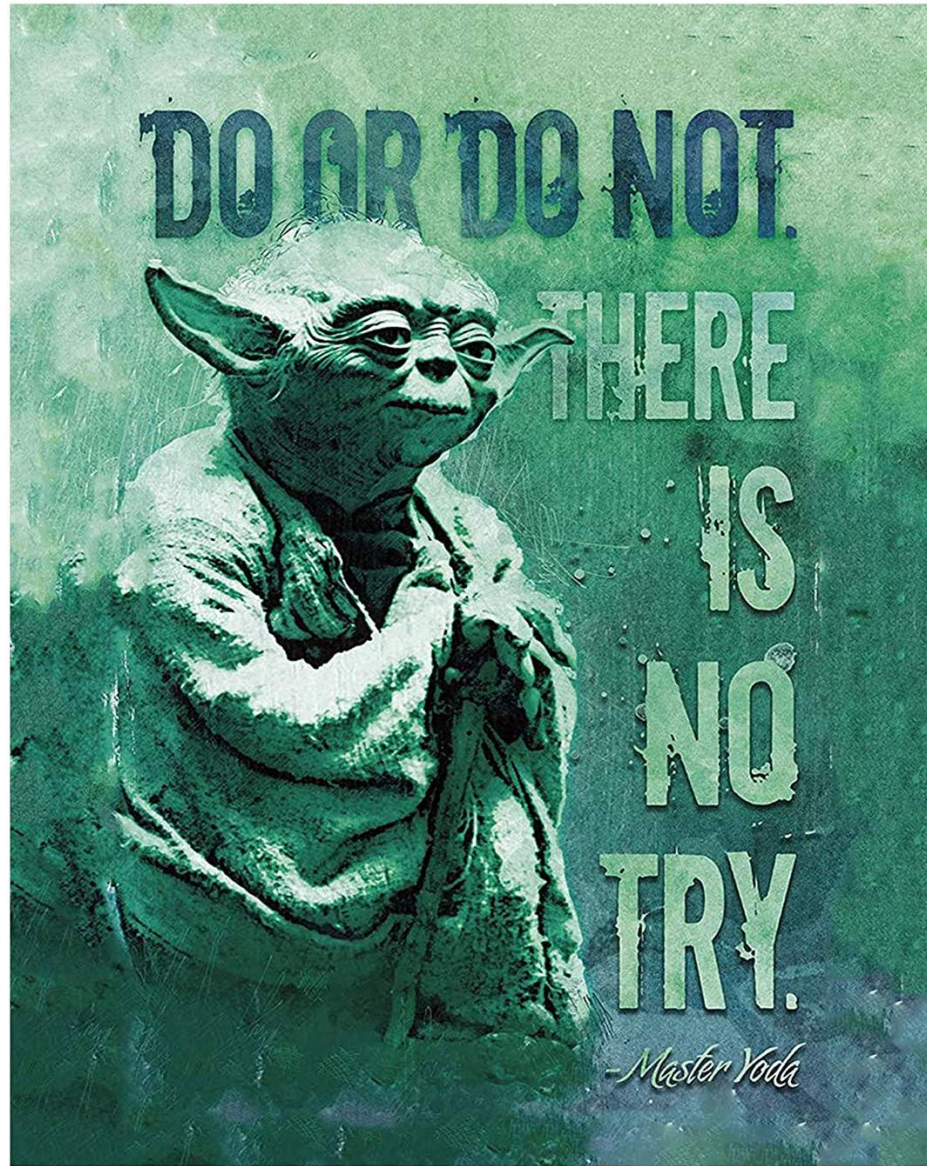
Evaluate childhood emotional neglect/abuse

- ▶ What did your family teach or model to you on how to cope with feelings?
- ▶ How do you believe you currently cope with your emotions?
- ▶ Do you suppress or avoid your emotions? How do you do that?
- ▶ How do you see emotional pain?
 - ▶ **Do not like it therefore I avoid feeling it...** who convinced you life should be free from pain?
 - ▶ **I don't like to cry...** well then to be fair, it is forbidden for you to laugh
 - ▶ **Feeling emotional pain is a problem that I must immediately fix...** your convinced you can't cope?
- ▶ Help clients “**reframe**” emotional pain and start to embrace and respond to it:
 - ▶ Normalize emotional pain like you accept physical pain
 - ▶ Accept that emotional pain is something you experience in living your life according to your values rather than just the negative experience itself
 - ▶ Learn to feel comfortable with uncomfortable emotions so there is no need to “run” or avoid
 - ▶ Emotional pain can motivate you to make changes to live according to what matters to you
 - ▶ Believe that your feelings matter as much as others in your life
- ▶ Assist client in expanding healthy distress tolerance and emotional regulation skills versus the goal of eliminating emotional eating.

Emotional Recovery



- › Recovering from childhood abuse/neglect
- › Committing to reframing unhelpful thoughts about myself and my emotions: creating new stories
- › Believing my feelings matter
- › Embracing and experiencing ALL my emotions
- › Communicating my needs and wants
- › Believing I am worthy and good enough
- › Establish healthy helping behaviors
- › Commit to investing and scheduling the time for self-care



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Taking Committed Action

- Your success with change depends on actions you take between sessions. What are you intentionally DOING consistently.
- Self-care is first dedicating the time for the practice of committed actions leading to change. I forgot, did not have time or was too busy is not commitment.
- Changes in behaviors such as mindful eating, tracking, meal prep, exercise...
- Changes in unhelpful thoughts such as “I am fat and disgusting” to “I am not happy with my current weight and I want to do something about it”.
- Changes in being present to, embracing and communicating ALL feelings.
- Expanding emotional coping skills beyond eating.
- Changes to support recovery from past abuse/neglect like setting boundaries.
- Help clients understand what are their barriers to taking action versus seeing themselves as failures.

In conclusion

- Obesity treatment is much more than changing eating behaviors or having surgery... fix the leak AND mop
- Addressing and reframing the dieting mindset is essential
- We must understand the role of past childhood abuse and/or neglect in obesity treatment. Just because it is in the past does not mean it does not impact clients today... even if they verbally tell you it doesn't.
- Assisting clients in reframing unhelpful self-destructive thoughts into helpful supportive thoughts.
- Educate clients in the necessity of investing time in committed actions for the long term.

Thank you!



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- ▶ **Certified Bariatric Counselor**
- ▶ **Certified Advanced Alcohol and Drug Counselor**
- ▶ **Registered Dietitian**



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Management and Prevention of Weight Regain in the Post- Bariatric Patient

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4 Pillars of Obesity Treatment

- › Dietary Intervention
- › Physical Activity
- › Medication*
- › Behavioral Intervention

Why do patient's gain weight after Bariatric Surgery?

Most common causes...

LACK OF FOLLOW UP!

-Patients slip into old habits

- Ghrelin (hunger hormone) starts to increase the further out after surgery occurs

- Behavioral challenges

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REMEMBER

*** Follow up with bariatric surgery in combination with medical management of obesity is the best way to prevent weight regain***

Many Bariatric surgery programs have postop group classes, meetings with dietician or meeting with Obesity Medicine specialists for follow up



Dietary Principles for Post-bariatric surgery

- 3-5 small meals per day is appropriate
- 1.2-1.5 gram/kg of protein per lean body mass per day (at least 60 gram per day)
- Minimize concentrated sweets to lower risk of dumping syndrome and cut down weight regain



DIET INVENTORY

It takes 3 minutes (OR LESS) in an encounter to find out what a patient eats on a regular day

Find out what your patient have for breakfast, lunch, snacks, dinner and what they DRINK

If you don't have time, consider evaluating one meal per session

EXERCISE AFTER BARIATRIC SURGERY

Exercise is VERY IMPORTANT for weight maintenance

Encourage 150-300 min/week of moderate intensity activity (75-150 of vigorous exercise) in combination with at least 2-3 sessions of strength training

-Loss of lean muscle mass can lower the resting metabolic rate, which is why strength training and protein is SO IMPORTANT



Obesity Medication

-BMI >30 OR BMI 27-29 with comorbidities and have “failed” dietary, lifestyle intervention

-If patients have not met goal of 5% body weight loss at 3 months then discontinue medication



Behavioral Considerations

- › Screen all patients for Depression, Anxiety, eating disorders- we must treat mental health first!
- › Discuss Mindful eating with ALL patients
- › Address stress eating, night time eating and overeating (give other tools for coping)
- › Consider Food Addicts Anonymous
- › **ADDRESS SLEEP!**



Counseling Considerations

- › Advice of “Diet and Exercise” is of very limited benefit
- › Goal setting is important
- › Encourage self monitoring (**weekly weigh ins, tracking food**)



TAKE HOME POINTS FOR MANAGING WEIGHT REGAIN

- › Weight gain is commonly multifactorial. Genetics, Hormones, Stress, Unhealthy eating and Inactivity are the largest contributors.

- › **MAKE SURE TO ENCOURAGE REGULAR FOLLOW UP**

- › It may take multiple conversations to help motivate your patients. **SMALL CHANGES** make large differences and may seem less overwhelming.

QUESTIONS? CONCERNS?

- › Contact me at wiseweightmd@gmail.com with more questions or if you you'd like to learn more about Obesity Medicine!



THANK YOU!

Follow me on Instagram @ Fitfinamd

Facebook Page- Wise Weight Management



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“Weight No More”

Choosing to
participate in my
own rescue.

Felicia McGee



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It's Decided!

In October 2020, I arrived at the McLaren Bariatric Institute for my initial visit to discuss Bariatric surgery.

I'd spent the past 8 months, recovering from nearly succumbing to COVID earlier in the year, along with caring for my husband who narrowly escaped death due to the virus.

Up until this point, we'd spent our days immersed in a consistent schedule of regular doctor & specialist appointments, pharmacy visits to retrieve prescriptions, and visiting home health care professionals. Our new normal consisted of managing the intersection of Covid-19 onset health challenges plaguing our daily lives.



The Realization...

The personal and collective trauma of the Pandemic brought me face to face with a sobering reality...I could NOT wait any longer to take charge of my health!

Peering closer into my personal family history, I identified these frightening realities:

- My maternal grandmother passed away before my mom's adolescence (history unknown)...
- My mother passed away at the age of 67 due to several comorbid factors...including but not limited to-obesity, diabetes, blood pressure, and cancer...
- My Father passed in his early 50's due to heart disease and blood pressure...

This year, my oldest sister passed away due to stroke complications...she was only 65...

Needless to say, it isn't lost on me...there's a pattern of shortened Lifespan in my card deck.

Playing the “Dealt Hand”

In recent years, I'd made efforts (with some success at times) to lose weight. From walking and weight training to radical diet changes, I'd achieved a nearly 90 pound loss when I entered an unrelenting cycle of heart break, tragedy, and loss. These successive events, created ongoing challenges leading from 2017 up to the door of a devastating and disastrous 2020.

My highest weight at the height of the Pandemic-341 pounds! I attempted to resume a workout routine, unfortunately without success.

Due to the blood clots I'd developed from previously contracting COVID at the beginning of 2020, my legs swelled consistently. I struggled with breathing & fatigue constantly. Anxiety and depression became exacerbated. I found it difficult some days to just get out of bed. Caring for my husband full-time and transporting him to dialysis after returning home from a 6 week hospital stay, where he'd also need to relearn to walk, wouldn't allow me to lay sunken in the depths of my own sorrow.

Looking for the Light

As the recovery process for my husband and I progressed, it became apparent that in order to do more than survive, I would need to place my own health front and center.

Keeping my initial consultation visit with Dr. Kia, gave me hope and reassurance I could reclaim my health and live joyfully again. As I gave myself permission to pursue surgical obesity reduction as a health intervention strategy, support from my family and closest network strengthened the resolve to pursue my health, lifestyle, and wellness goals.

Over the next 6 months, I committed to my insurance company's requirement to participate in medically supervised weight loss. Arriving as scheduled, I attended appointments with the dietician along with making adjustments to my current nutrition plan to lose the weight, which allowed for my surgery approval.

Support Resources Matter

One of the components of the process I feel gave me the greatest benefit on the pathway to surgery: The Psyche Evaluation and Therapy Sessions.

I've learned more than ever expected during my sessions with Dr. Franklin and it was through working with her, I felt allowed the space to explore my relationship with food:

- How eating intertwined the traumas I've experienced in childhood,
- Identifying my use of food to anesthetize emotional and physical pain
- Recognizing the connection between anxiety & depression in relation to food consumption.

Having someone to facilitate & provide emotional support as I uncovered these issues, proved helpful for me in more instances than I can articulate.

Getting to surgery

Every individual has a different experience on the way to surgery. I must acknowledge, things progressed for me rather smoothly, with little to no hiccups.

I lost weight or remained stable at each visit with the nutritionist at weigh in. All the pre-op testing came back without coincidence. Therapy sessions were enlightening and I gathered insight to remain actionable toward my goals.

I'm happy to report my husband, family, and closest friends gave me whatever affirmation, empathy, and kindness they could offer to help me follow through on my decision. I'm deeply grateful to this very day, for such gifts in my life. I'm aware it isn't the experience of all who seek surgical obesity intervention as an option.

By the time I made it to my surgery date, I was down 31 pounds from my initial recorded weight at intake for the Bariatric Institute.



Started from the bottom now we're here...

Post operation was a bit tough for me. I stayed over an additional night past required admission time because the first couple of days took a toll of sorts. The pain appeared excruciating and I suffered "anesthesia nightmares" after surgery. The nursing staff were attentive and compassionate.

My first week post-op I felt a heightened sense of regret. Wondering if I made the right choice surfaced alongside the intense pain I experienced. It gnawed away at my consciousness with each pang I felt.

Working to sip a shot glass of water every few minutes seemed like the most arduous task and the thought that I would ever eat food again felt intensely terrifying. Nevertheless, as promised, things improved with passing days and the potency of my pain diminished.

Learning to live life post-op proved exciting, once I shifted gears from recovery into resuming a sense of normalcy after the RNY surgery procedure. Although I felt afraid to eat at times, I rarely had issues with the exception of occasional discomfort when I ate too quickly or forgot to chew food well. Bearing witness to non-scale victories such as reaching behind my back, crossing my legs over the knee, and increased mobility were encouraging.



No Cakewalk

It's disheartening to me to know there's a perspective floating around regarding surgical obesity reduction as an "easy way out."

Personally, I now know nothing could be further from the truth. This isn't a decision most make lightly. There's still a great deal of stigma to pulverize with education and awareness. For many, the outdated paradigms around eating healthy & portion control within their families and communities leave a gaping hole when it comes to support. You're left to face others' projection onto you around your personal choice. I remember my first outing with friends involving food: identifying my feelings as an experience similar to leaving rehab to enter a world where food was being passed around—the temptation to relapse into overeating behaviors felt overpowering. Consistently having food offered to you that you know it's better to decline for your well-being yet battling within because you WANT to eat it!

Not to mention our lives and bodies are forever changed. Complications arise. Questioning your choice when you hit a roadblock or stall in your weight loss, "Is the choice I've made worth what I'm experiencing at this moment?"



My Essential Practices

I'm a year out now and while I lost a significant amount of weight, I've also gained a few pounds and needed to remind myself to practice some key actions to continue utilizing surgical obesity reduction as the tool which it's intended to be.

A few of these practices are:

- Self-Compassion-Be Kind and Give yourself grace for doing the best you're able
- Radical Self-acceptance ***Embrace your humanity*** you won't meet all of your expectations or others...and it isn't required!
- Self-Worth (the difference is understanding your core belief regarding your value/worthiness i.e. deserving) vs. Esteem (how you think and feel about yourself) *
There will be days you may not think or feel good about yourself but it doesn't change your worth!

My Self-Worth Affirmation-I deserve to live well & be healthy
I am worthy to enjoy health & wellness

- Celebration- Enjoy your process, celebrate your wins, acknowledge the challenges but know you've done well to "Choose You!"



Let me give you this for Free!

Obesity reduction is about far more than weight loss for me!

I'm reclaiming a life where the joy of living takes center stage. For me, It's a matter of willingly participating in my own rescue by take actionable steps toward my wellness goals. It's embracing my humanity and giving myself grace while realizing I'm worthy of the health & wellness I desire.

If there's anything I'd want any of you to leave with from what I shared today it's this:

Health and wellness are true treasures and worth pursuing without apology!

Weight No More!

With gratitude I celebrate everyone involved in my health recovery!
Thank you for your audience and this opportunity.

Felicia McGee



Closing Remarks

Amir Ghaferi, MD, MSc, MBA

Director, MBSC
Moses Gunn, MD Professor of Surgery,
University of Michigan



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Thank You





Meeting Follow-up

- › CME

- An email will be sent in the next couple of days with instructions

- › Any questions or ideas, please email us at mbsc.help@umich.edu