

Diagnosing Obesity as a Disease:

How Modern Definitions Shape Treatment Intensities

Prof. Francesco Rubino, MD

Chair Metabolic and Bariatric Surgery

King's College London

Consultant (Hon) Bariatric Surgeon

King's College Hospital

Personal Disclosures

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Speaking honoraria: Medtronic, Johnson & Johnson, Novo Nordisk, Eli Lilly, Astra Zeneca

Lancet Commission on Clinical Obesity

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The Lancet Diabetes & Endocrinology Commission

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Definition and diagnostic criteria of clinical obesity



Francesco Rubino, David E Cummings, Robert H Eckel, Ricardo V Cohen, John P H Wilding, Wendy A Brown, Fatima Cody Stanford, Rachel L Batterham, I Sadaf Farooqi, Nathalie J Farpour-Lambert, Carel W le Roux, Naveed Sattar, Louise A Baur, Katherine M Morrison, Anoop Misra, Takashi Kadowaki, Kwang Wei Tham, Priya Sumithran, W Timothy Garvey, John P Kirwan, José-Manuel Fernández-Real, Barbara E Corkey, Hermann Toplak, Alexander Kokkinos, Robert F Kushner, Francesco Branca, Jonathan Valabhji, Matthias Blüher, Stefan R Bornstein, Harvey J Grill, Eric Ravussin, Edward Gregg, Noor B Al Busaidi, Nasreen F Alfari, Ebaa Al Ozairi, Lena M S Carlsson, Karine Clément, Jean-Pierre Després, John B Dixon, Gauden Galea, Lee M Kaplan, Blandine Laferrère, Martine Laville, Soo Lim, Jesús R Luna Fuentes, Vicki M Mooney, Joseph Nadglowski Jr, Agbo Urudinachi, Magdalena Olszanecka-Glinianowicz, An Pan, Francois Pattou, Philip R Schauer, Matthias H Tschöp, Maria T van der Merwe, Roberto Vettor, Geltrude Mingrone

Executive summary

Current BMI-based measures of obesity can both underestimate and overestimate adiposity and provide inadequate information about health at the individual level, which undermines medically-sound approaches

measurement of body fat, where available, or at least one anthropometric criterion (eg, waist circumference, waist-to-hip ratio, or waist-to-height ratio) in addition to BMI, using validated methods and cutoff points appropriate to age, gender, and ethnicity. In people with

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For the Arabic Chinese French

THE LANCET Diabetes & Endocrinology

Definition and diagnostic criteria of clinical obesity



"A reframing of the clinical effect of obesity is warranted, to explain how obesity can be both a risk factor for other diseases and a direct cause of illness."

Diagnosing clinical obesity

Limitations of the current definition of obesity

Obesity is currently defined solely by an individual's body mass index (BMI)

The criteria for populations of European descent are:



*Criteria for other ethnic groups are different

Relying on BMI alone to establish if someone has obesity is problematic as this can inaccurately classify a person as having or not having excess body fat, and also lead to under-diagnosis of many whose health is impaired and over-diagnosis of many who are healthy.

Video

Video 1 Video 2



Offline: Making obesity matter

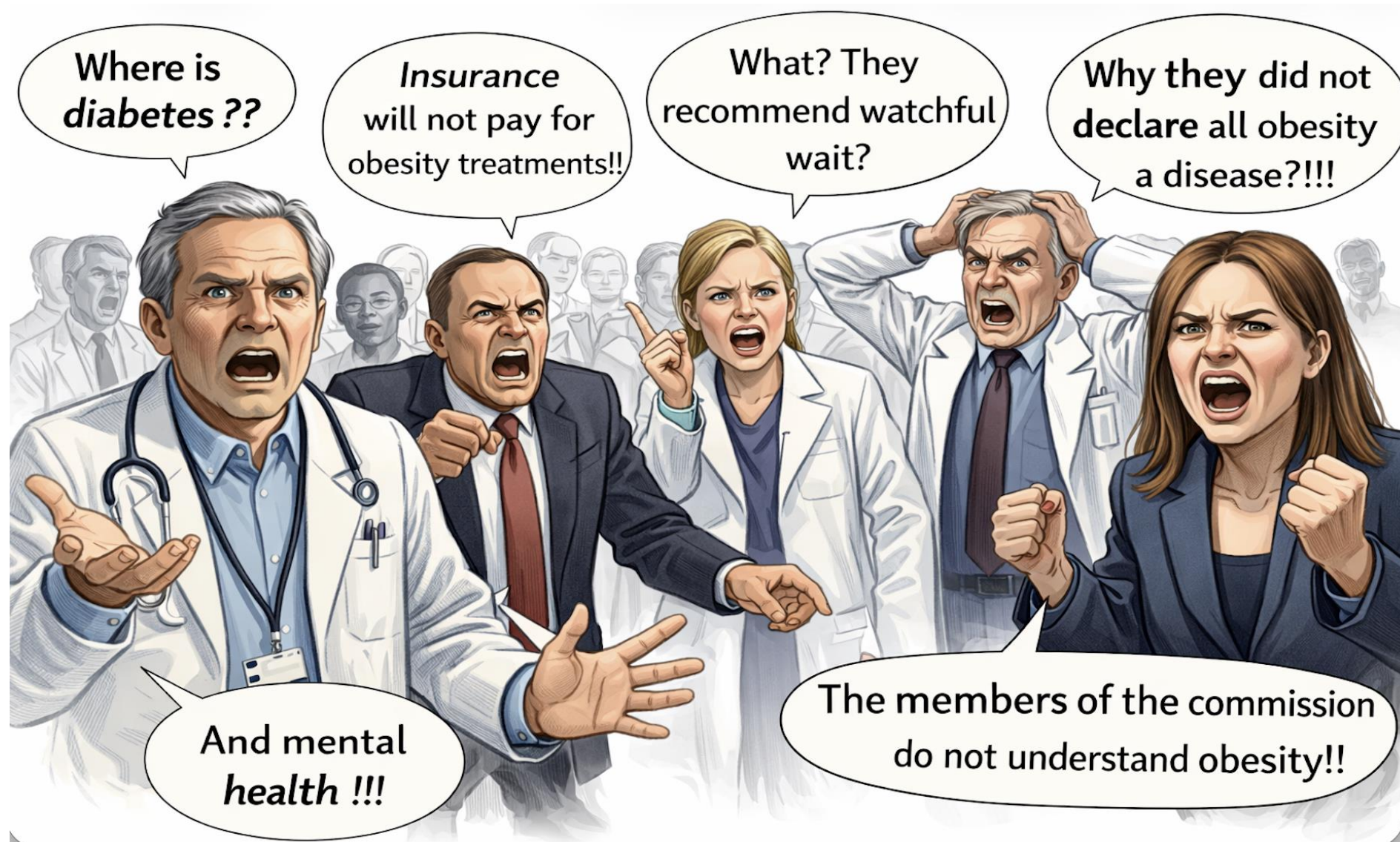


"None of us were entirely right, none of us were entirely wrong." That was Francesco Rubino's wry comment on his Commission, published by *The Lancet Diabetes and Endocrinology* on Jan 14, 2025, and launched at the Royal College of Physicians in London. The scope of the project was narrow—the definition of obesity—but the implications were colossal. The Commission identified a major and, in truth, surprising gap: the absence of a clinical definition of obesity. It is worth pausing for a moment and reflecting on the scale of the clinical challenge and why this omission matters so much. Donald Trump was this week inaugurated the 47th US President. He begins

definitions and diagnostic criteria for entities they call preclinical and clinical obesity. Instead of measuring obesity with an abstract number (body-mass index, BMI) that neither doctors nor the public find intuitive or meaningful, Rubino and colleagues have reframed obesity as a chronic illness characterised by excess adiposity, together with alterations in the functioning of tissues, organs, or the whole body. Preclinical obesity is an observable phenotype—excess adiposity, but with no symptoms or signs of organ damage. After more than 5 years of work, their Commission has radically rewritten our understanding of what it means to be obese.



Broad Endorsement but Quite a Few, Loud Objections...



OBESITY
SPECIALISTS

PRECLINICAL
OBESITY IMPLIES
WATCHFUL WAIT

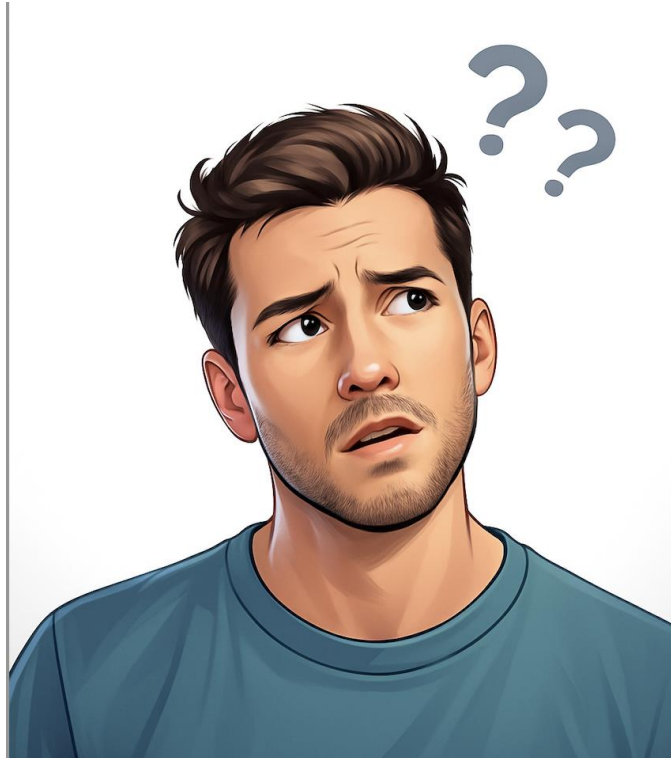
THE COMMISSION
IS DANGEROUS
BECAUSE IT
ADVOCATES FOR
"SICK CARE"

DEFINING
PRE-CLINICAL
OBESITY WILL
REDUCE INSURANCE
COVERAGE OF
OBESITY!!



Misinterpretations

**Eligibility Criteria
Risk Scoring
Management Frameworks**

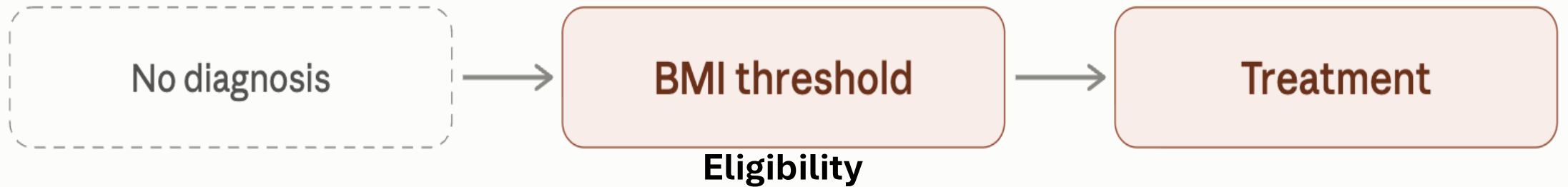


Disease Diagnosis



Obesity care vs the rest (most) of medicine

Obesity



What the sequence requires



A scene inside a boxing ring. Two boxers are in the center, one in red gear and one in blue gear, both with their backs to the camera. The boxer in red has 'EOSS' on his black shirt, and the boxer in blue has 'EASO' on his blue shirt. To the right, a man in a green soccer jersey with 'Lancet Commission' and the number '10' on the back is holding a football. The text 'Not Quite the Same Thing....' is overlaid in the center.

EOSS

EASO

Not Quite the Same Thing....

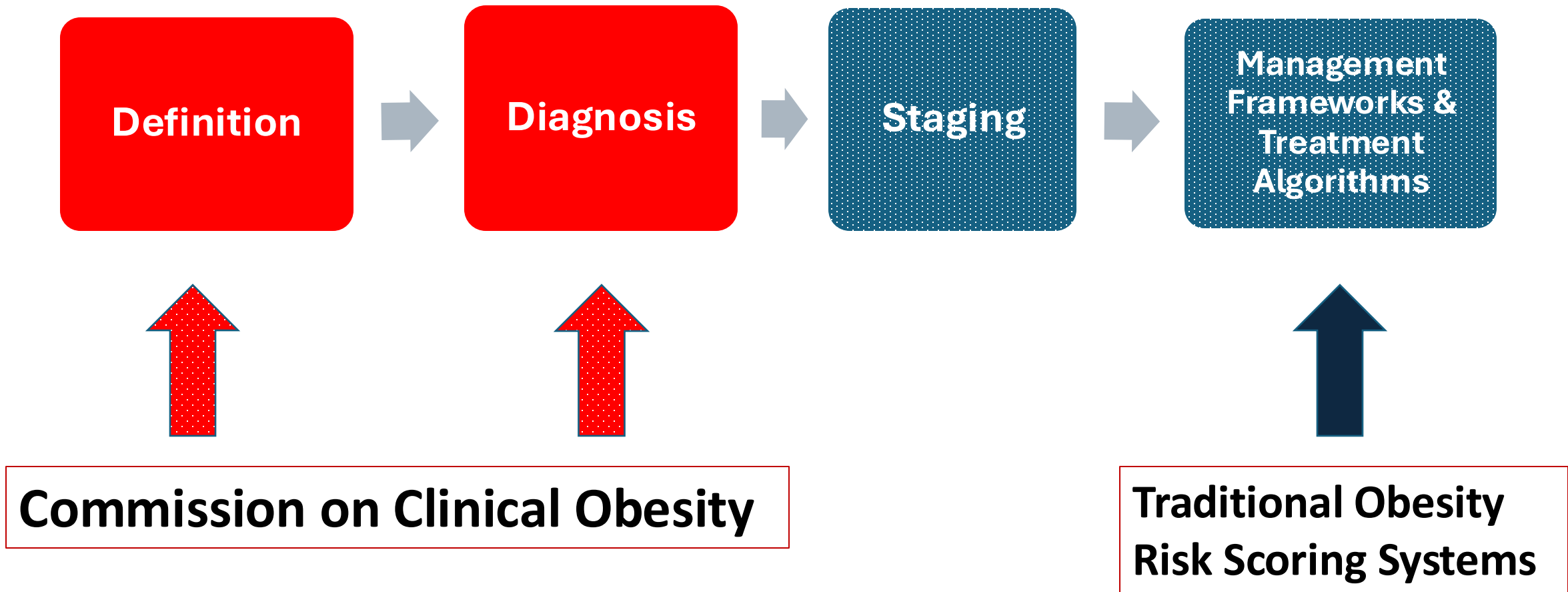
**Lancet
Commission**

10

Definition and Diagnosis of Clinical Obesity

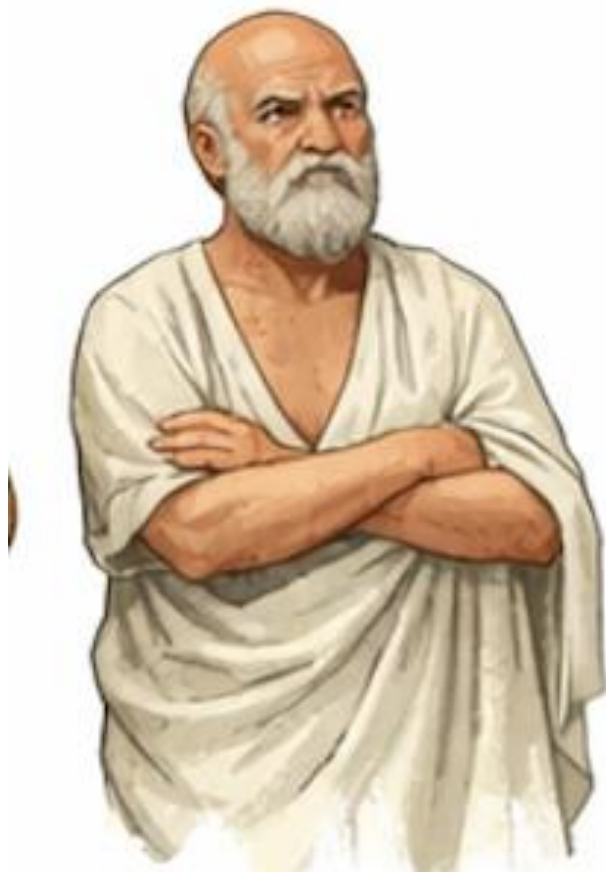
“The definition of Clinical Obesity is a sharp before and after moment”

(Richard Horton; *Editor-in-Chief, The Lancet*)



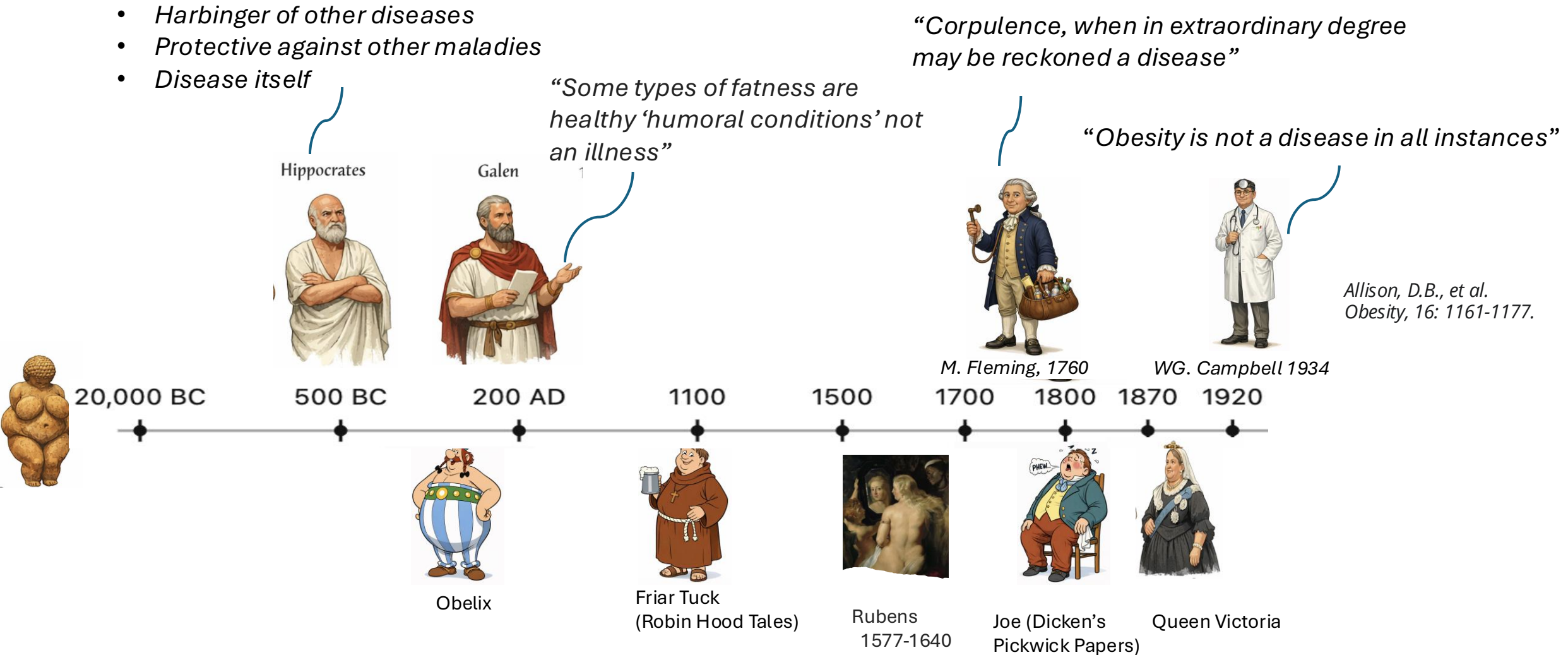


Hippocrates



The Heterogeneity of Obesity Across Medicine, Art and Society

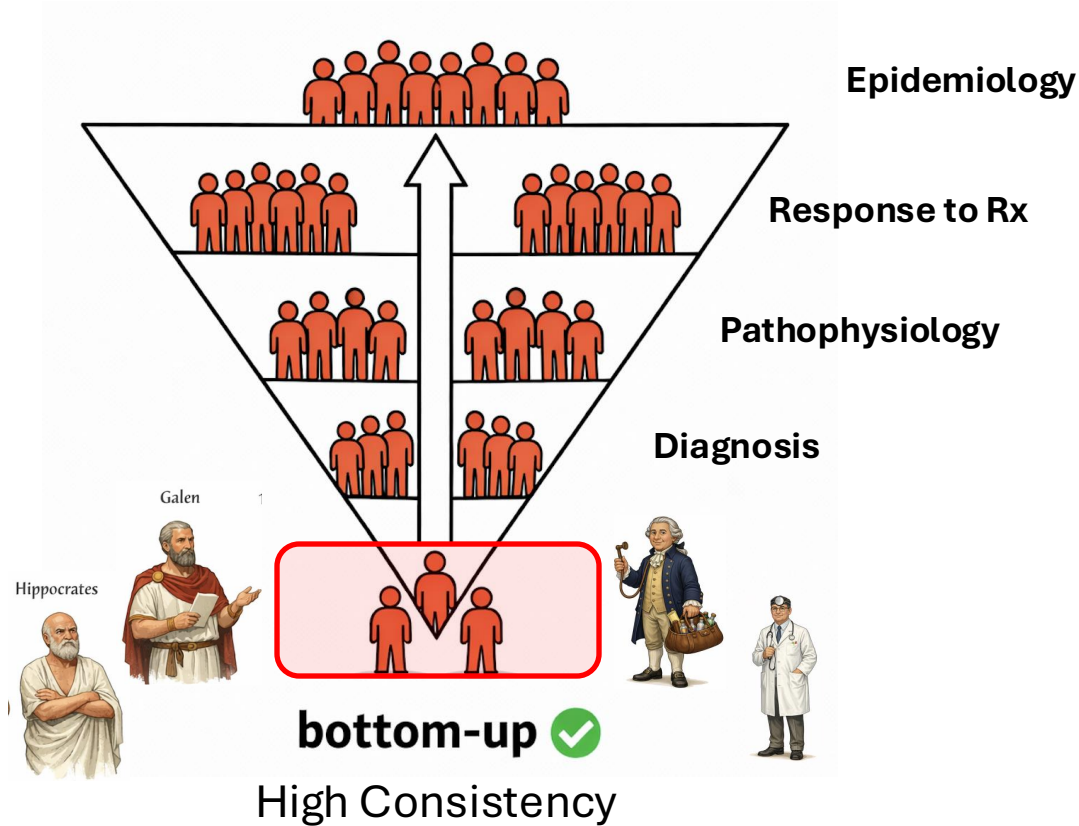
- Harbinger of other diseases
- Protective against other maladies
- Disease itself



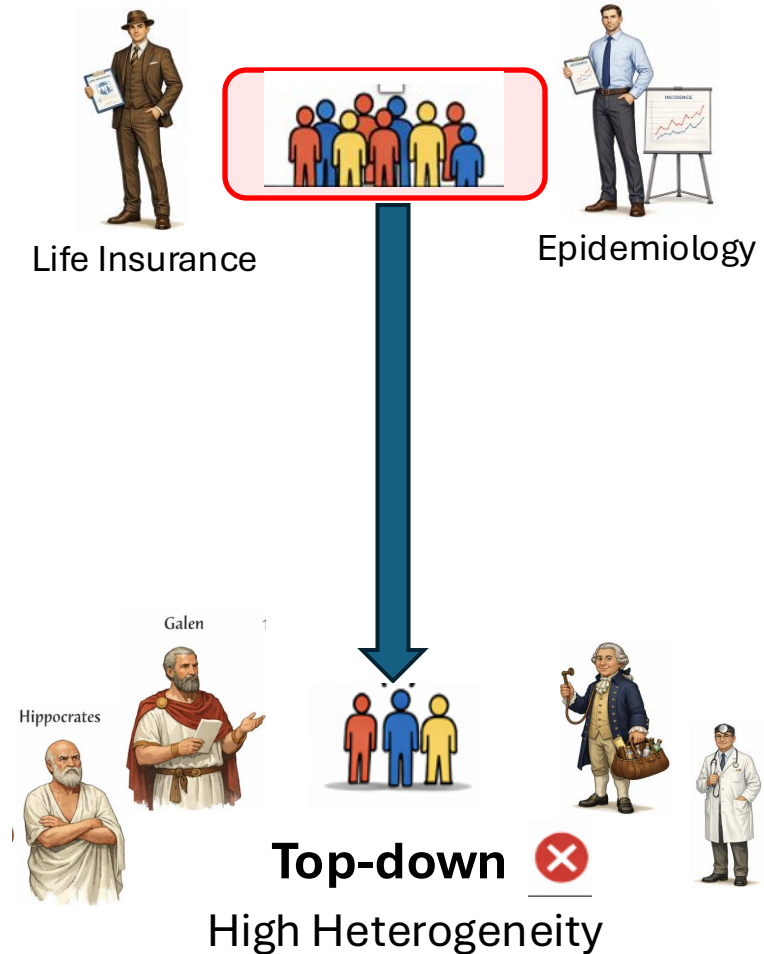
Practical Purpose of Disease Definition: Medicine vs Obesity

The health impact of obesity has been defined in reverse

Medicine



Obesity



Phenotype (risk) vs disease





People with the same body mass index can have radically different health statuses.

Why obesity shouldn't always be considered a disease

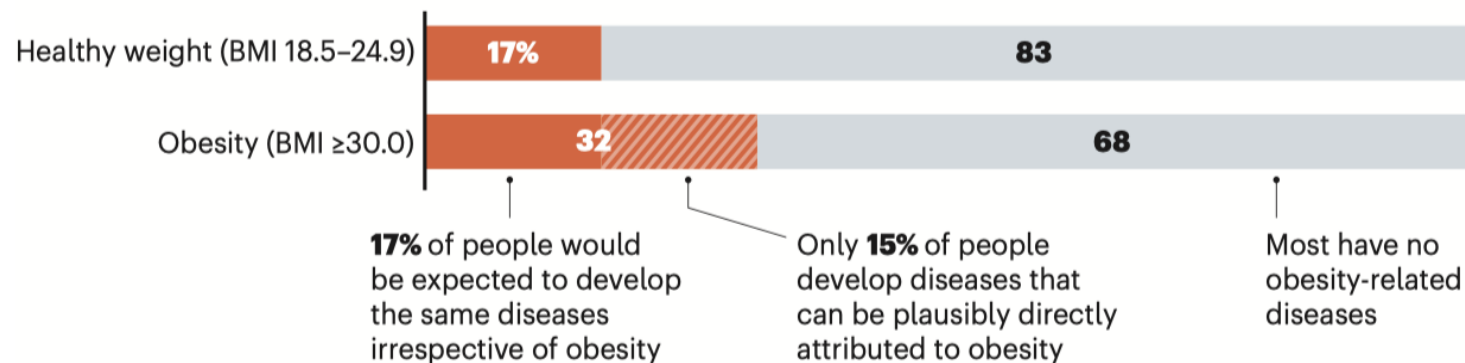
Francesco Rubino

Biological and clinical heterogeneity >>
Calling all obesity a disease serves no-one

A DIVERSE LANDSCAPE

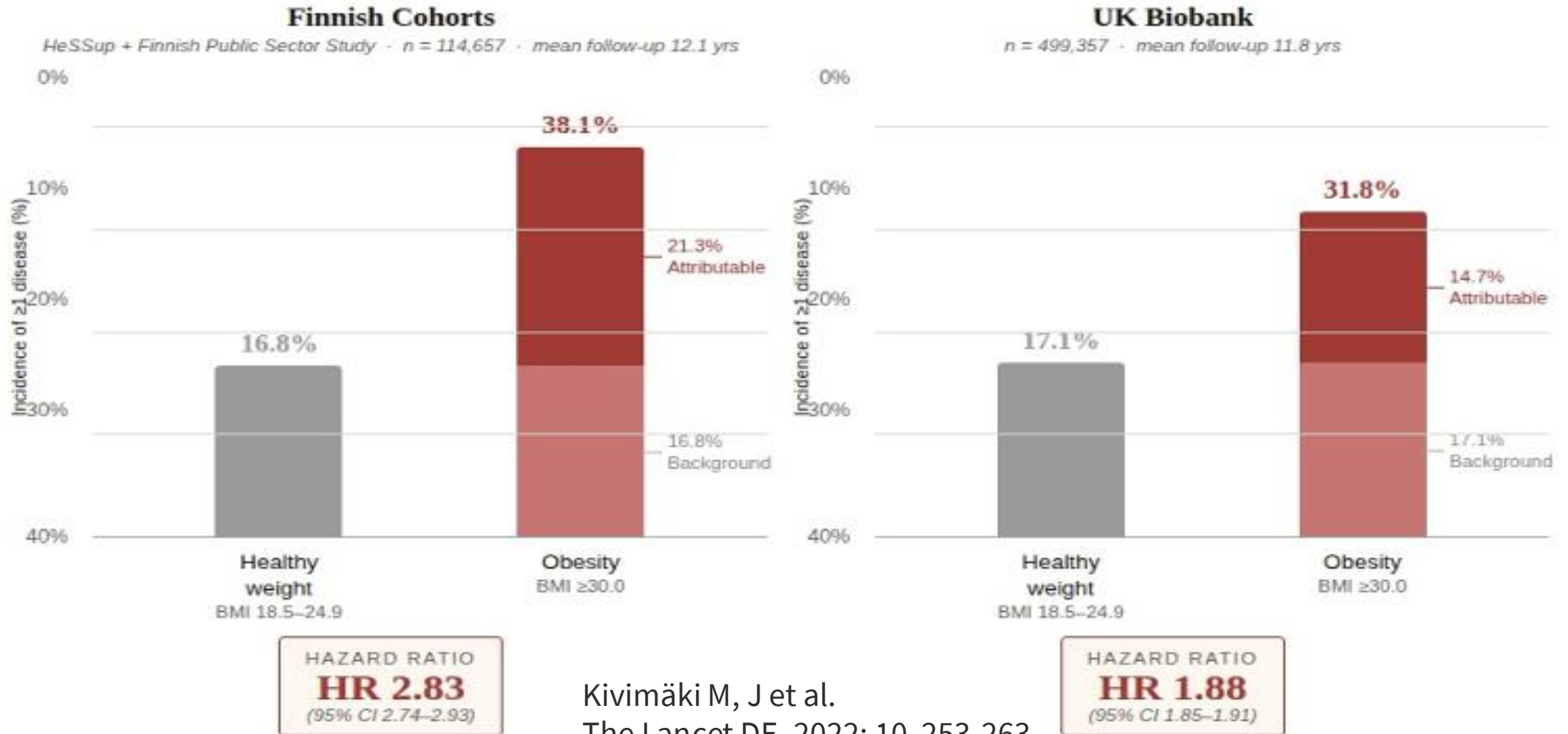
The risk of developing one or more of 21 common 'obesity related diseases' over 12 years is higher in people with obesity than in those with a healthy body mass index (BMI). But these population-level statistics obscure a varied clinical picture.

Incidence of obesity-related disease in UK Biobank data



Population-level perspective: 12-year incidence of 21 obesity-related conditions

Cohort replication across two independent populations



Kivimäki M, J et al.
The Lancet DE, 2022; 10, 253-263

Individual-Level Perspective

12-year incidence of ≥ 1 of 21 obesity-related diseases — 100 people with obesity*

Replication across two independent cohorts

Finnish Cohorts

Finnish Public Sector Study

n = 114,657 - mean follow-up 12.1 yrs

UK Biobank

n = 499,357 - mean follow-up 11.8 yrs

62

of 100

No obesity-related
disease

17

of 100

Background incidence

21

of 100

Attributable to obesity

68

of 100

No obesity-related
disease

17

of 100

Background incidence

15

of 100

Attributable to obesity



No obesity-related disease



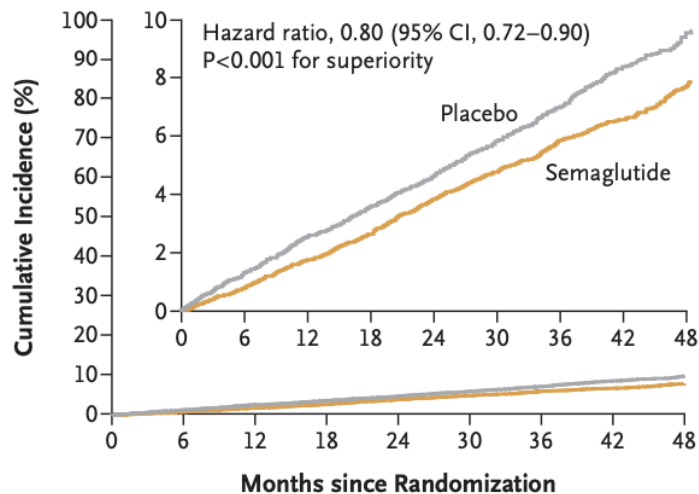
Background incidence



Excess incidence attributable to obesity

Semaglutide and Cardiovascular Outcomes in Obesity without Diabetes

A Primary Cardiovascular Composite End Point



No. at Risk										
Placebo	8801	8652	8487	8326	8164	7101	5660	4015	1672	
Semaglutide	8803	8695	8561	8427	8254	7229	5777	4126	1734	

Primary endpoint: death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke

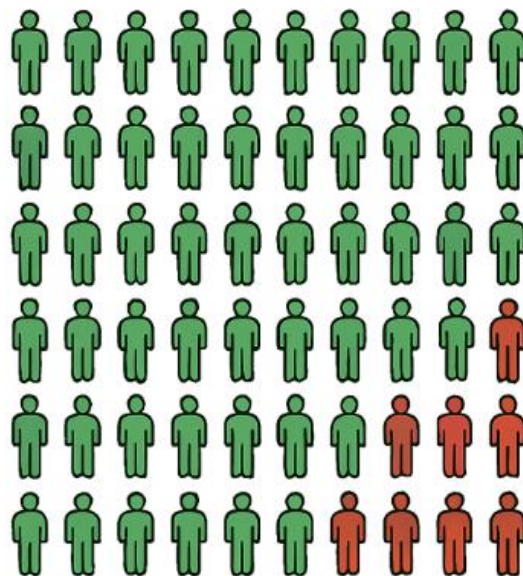
Primary cardiovascular end-point”

569 / 8803 patients (6.5%) in the semaglutide group

701 of the 8801 patients (8.0%) in the placebo group (HR, 0.80;; P<0.001)

8% have
MACE

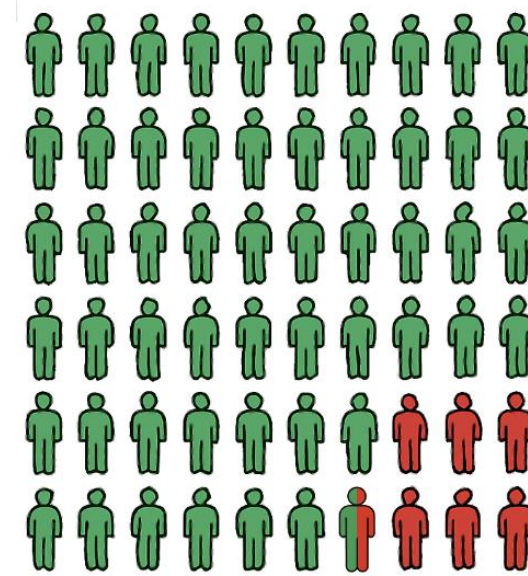
92% DO NOT have
MACE



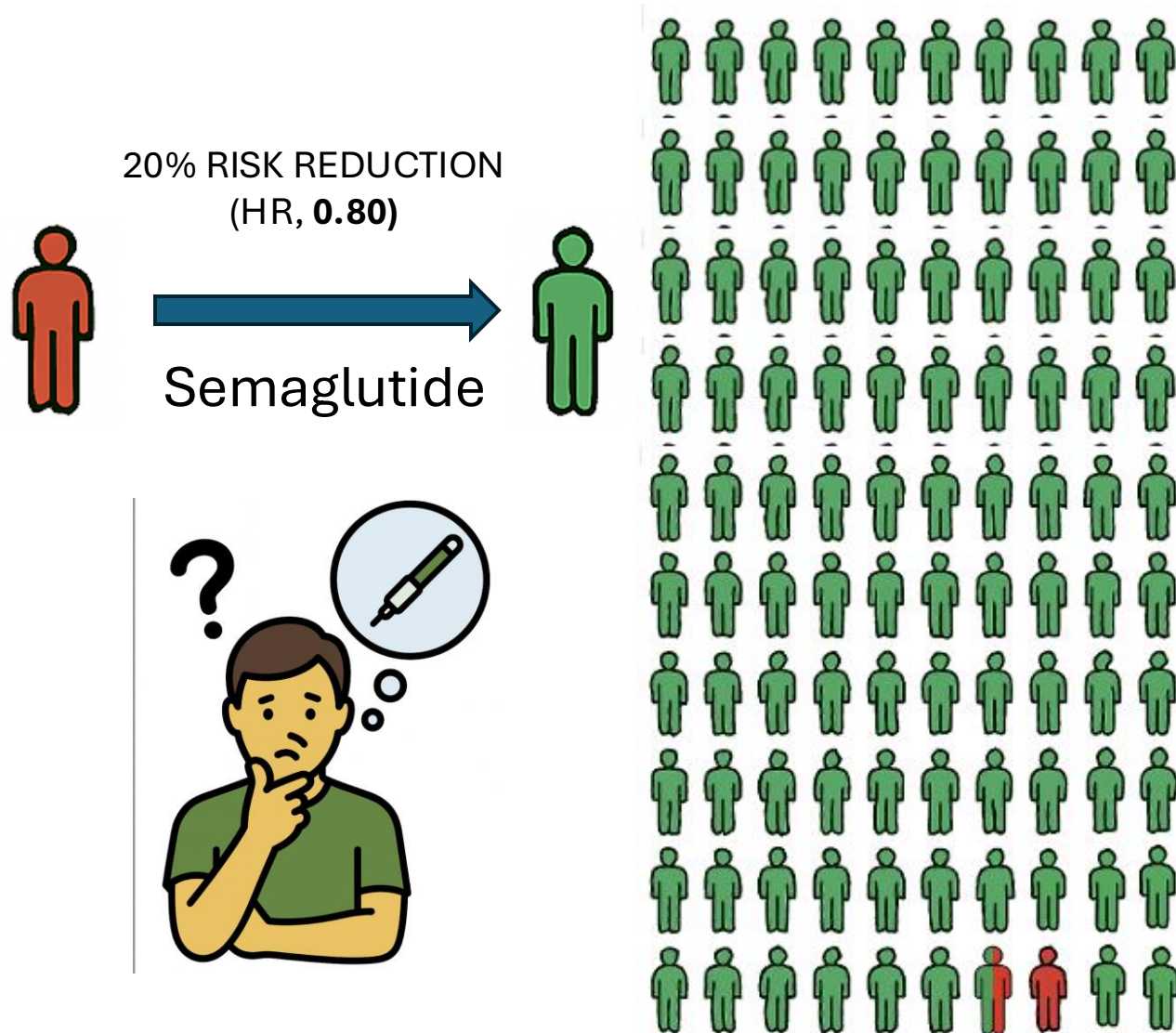
Semaglutide



20% MACE REDUCTION
(HR, 0.80)



MACE REDUCTION in PERSON WITH OBESITY AT HIGH CV RISK



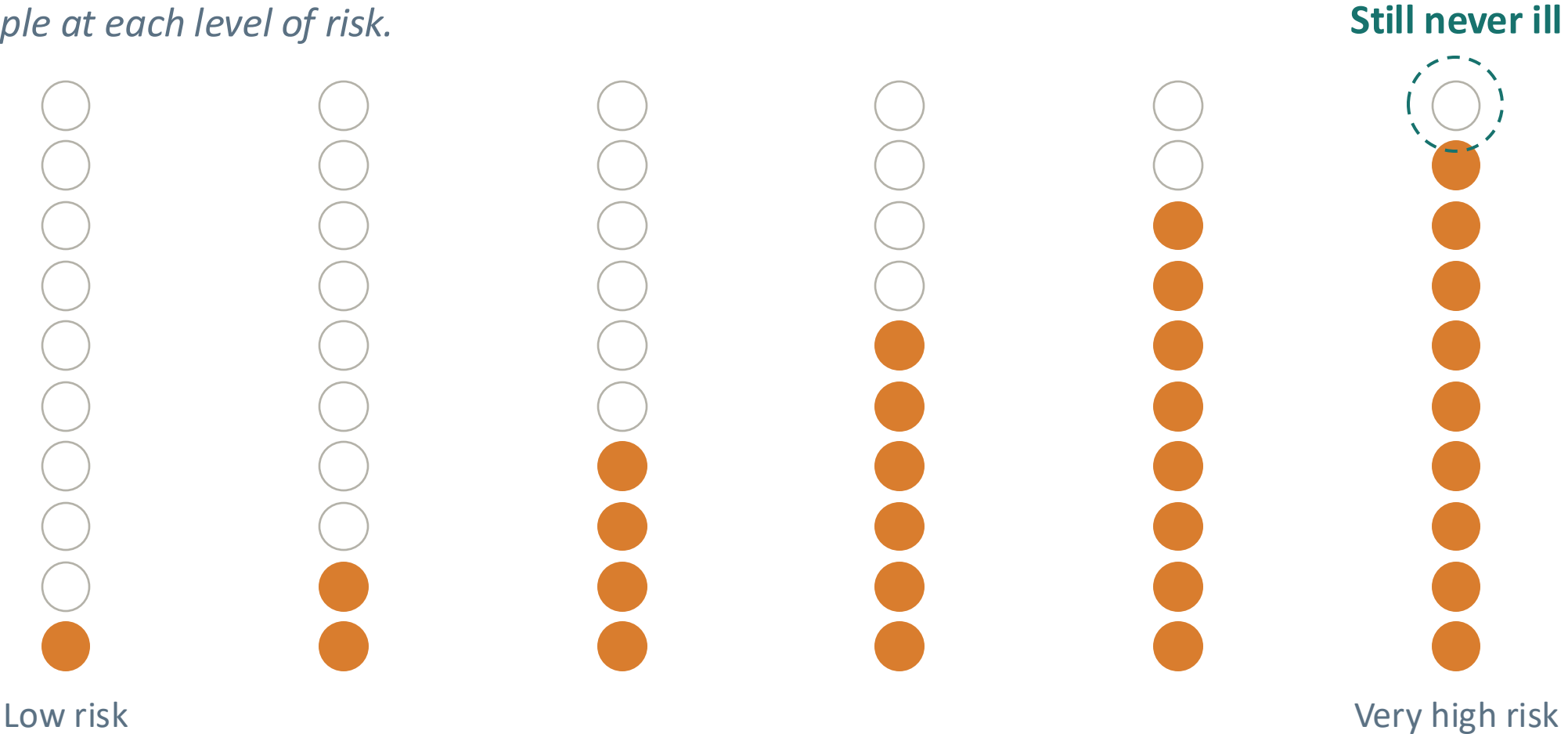
Games of chance:

- **Correctly guessing a specific number on two dice added together, twice in a row** ($\approx 1.4\%$)
- **Winning on a single roulette number**
1 in 37 —is *about twice as likely* as 1:67

ChatGPT

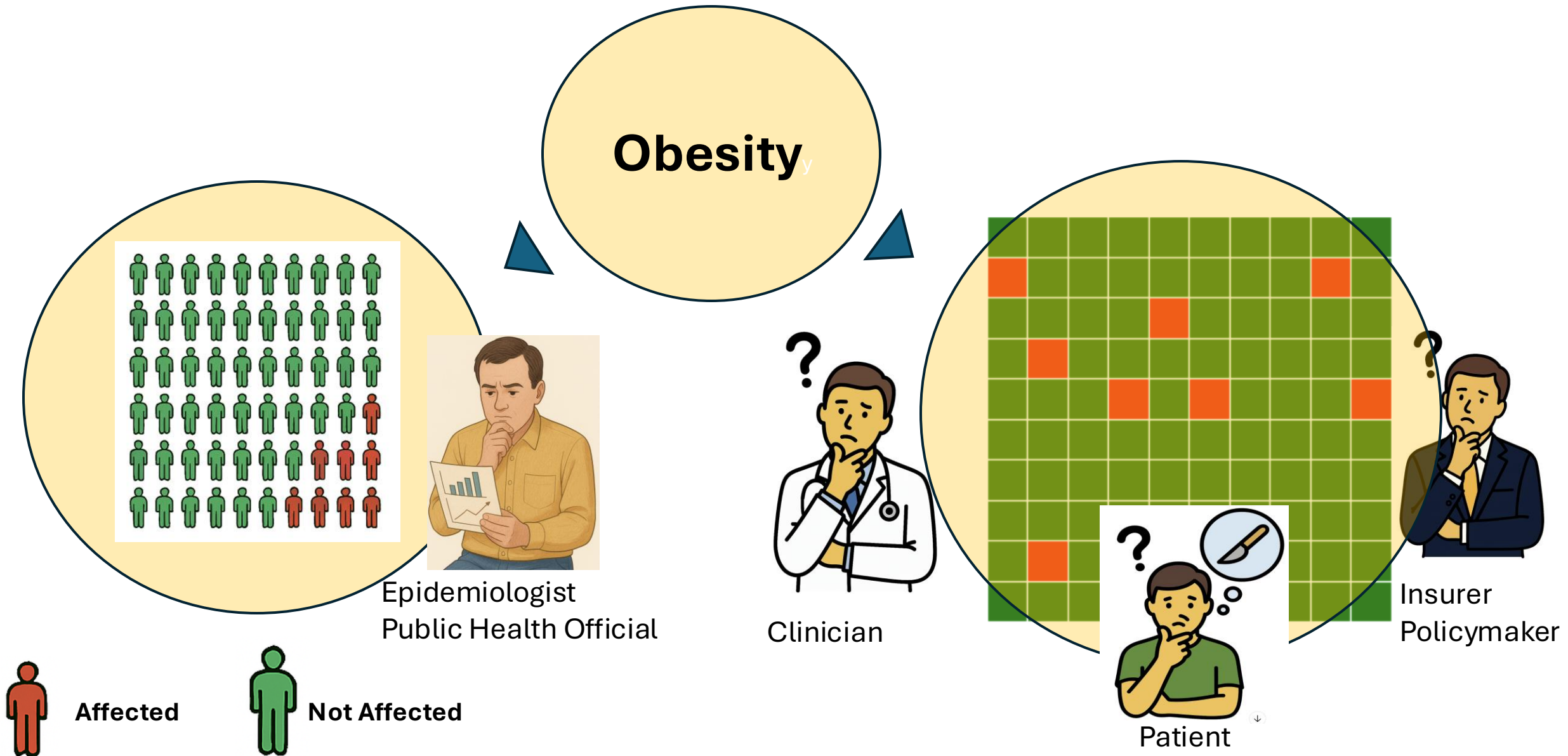
Risk is continuous. Disease is not.

Ten people at each level of risk.

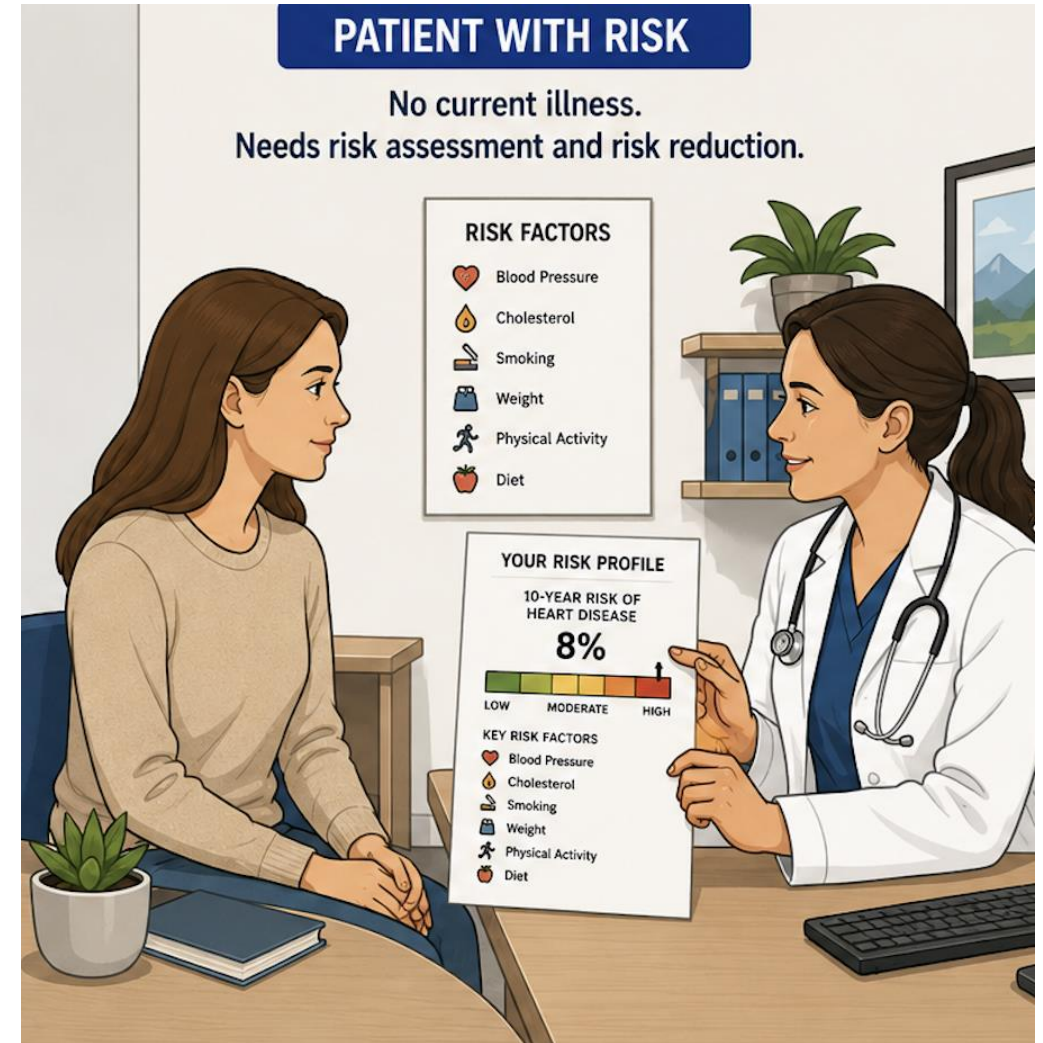
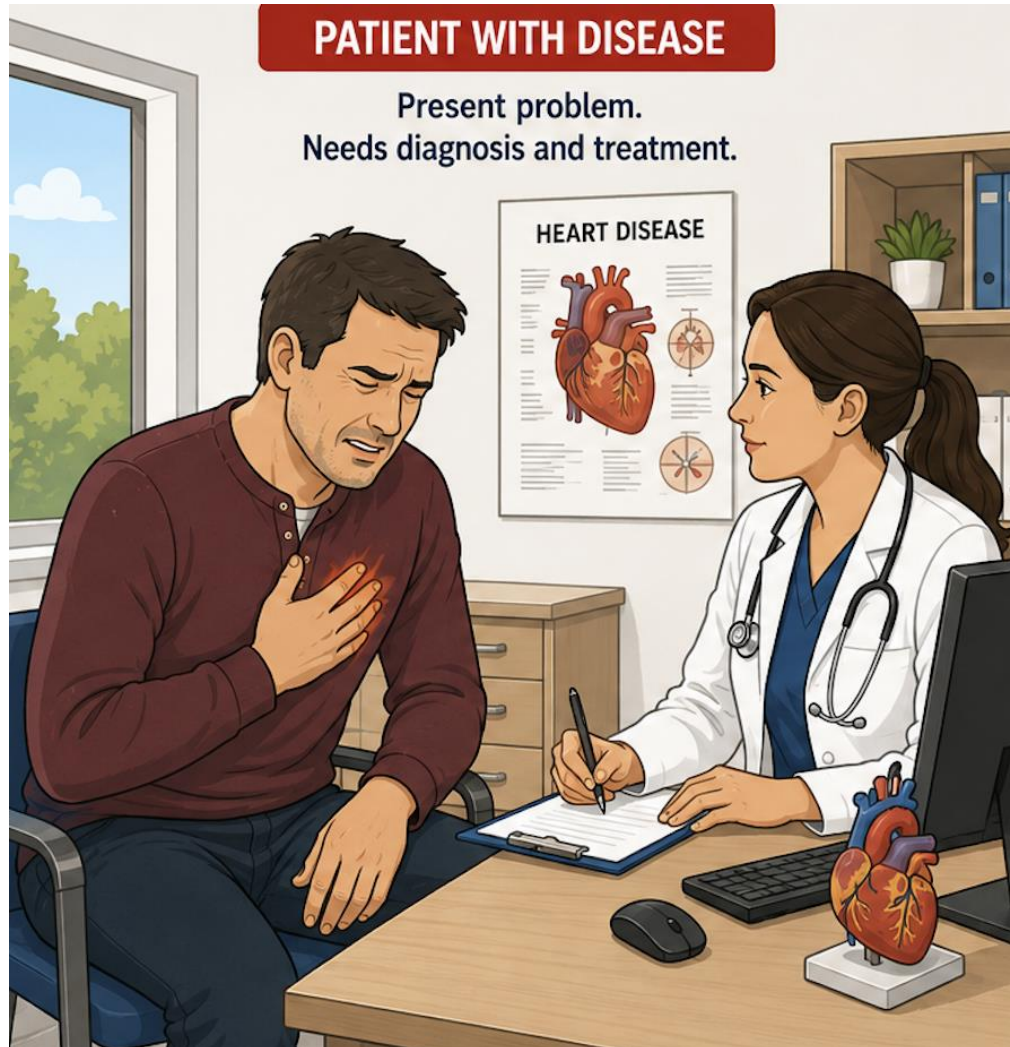


Across the group risk is continuous. Within any one person it is binary — and at the highest risk, some never become ill.

OBESITY: PUBLIC HEALTH vs CLINICAL APPROACH

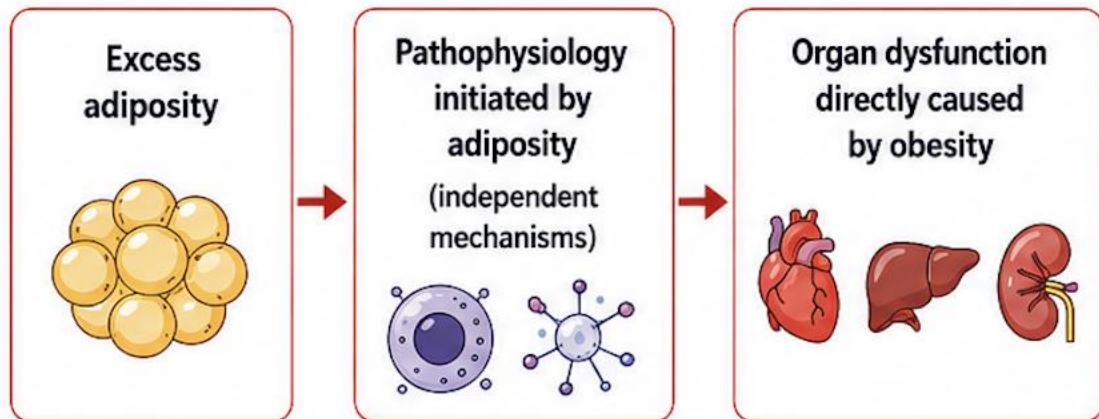


Disease Treatment vs Risk Management



CLINICAL OBESITY

Defined by organ dysfunction directly caused by obesity,
INDEPENDENT OF OTHER DISEASES



CLINICAL OBESITY EXISTS EVEN IF NO OTHER DISEASE IS PRESENT.

It is defined by organ dysfunction caused by obesity itself.

KEY CHARACTERISTICS



Direct causal pathway from obesity



Independent of other diseases



Specific organ dysfunction



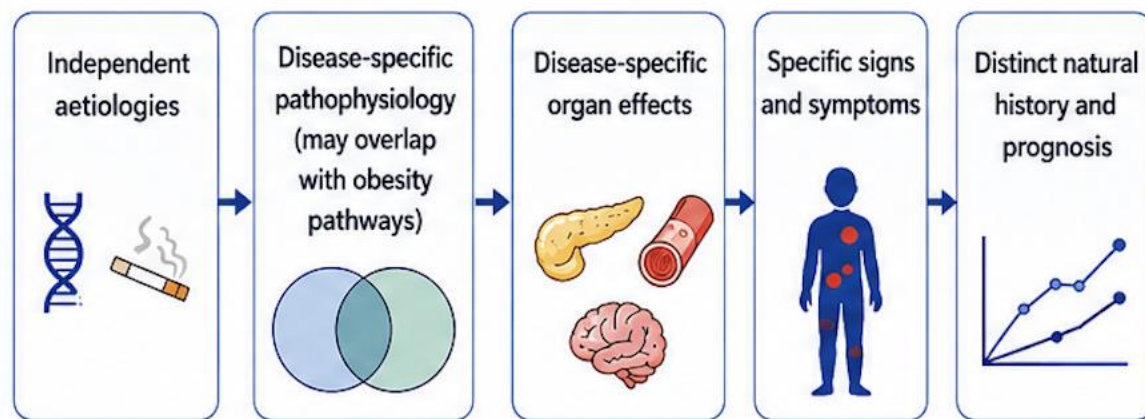
Requires its own definition and diagnosis



Has its own natural history and prognosis

OBESITY-RELATED DISEASES

Separate diseases that may share pathways with obesity,
BUT RETAIN THEIR OWN IDENTITY



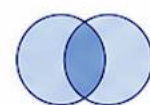
OBESITY-RELATED DISEASES ARE SEPARATE DISEASES.

They may share pathophysiology with obesity but have their own causes, clinical features, and prognosis.

KEY CHARACTERISTICS



Multiple causes beyond obesity



Pathophysiology may overlap with obesity



Distinct signs and symptoms



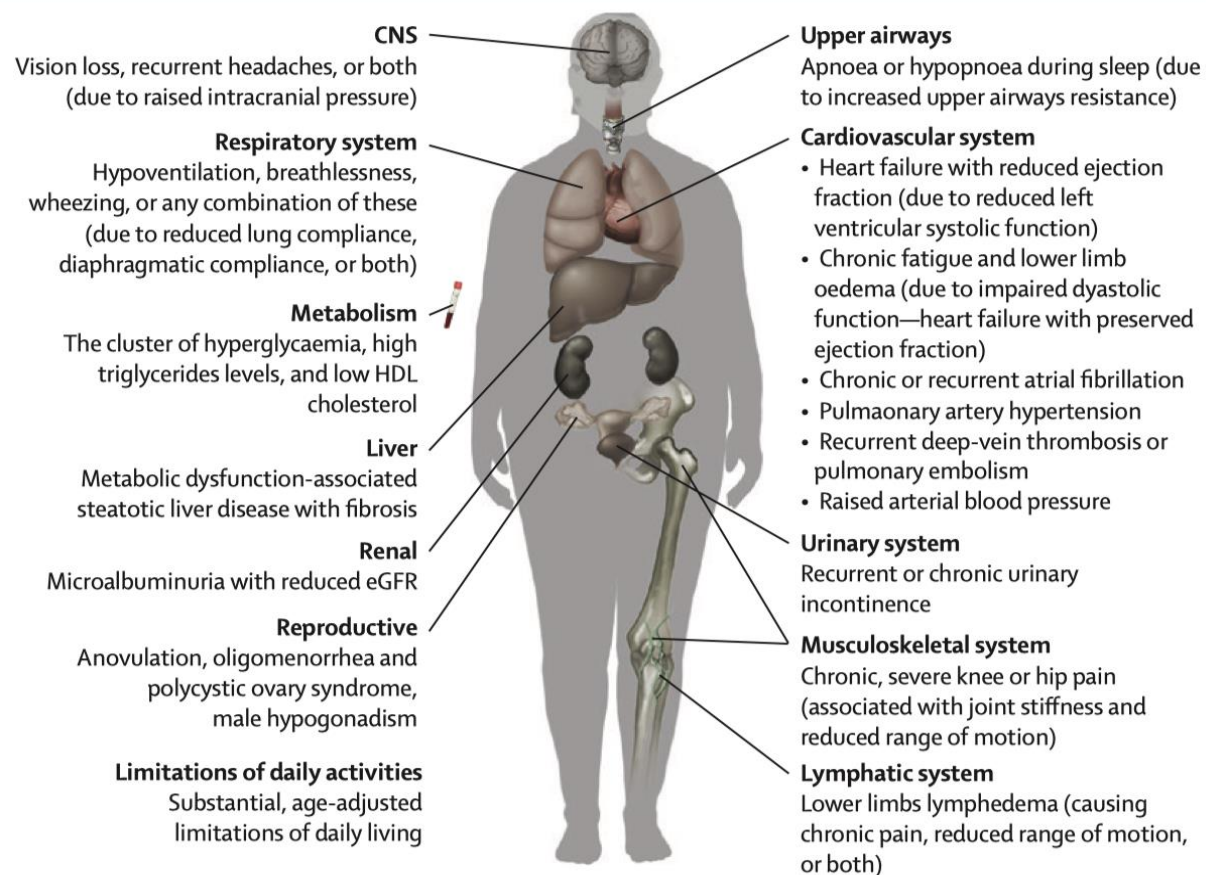
Require their own definition and diagnosis



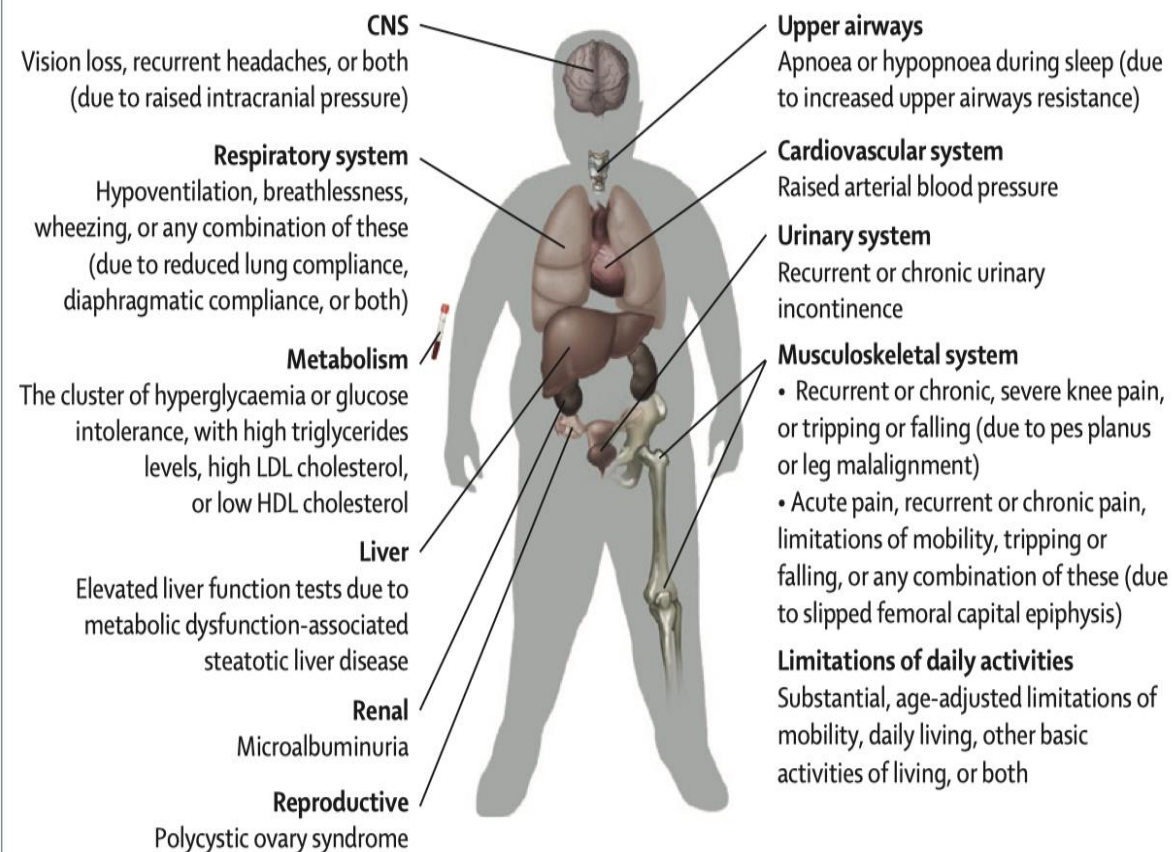
Have their own natural history and prognosis

Criteria for Diagnosis in Adults and in Children & Adolescents

ADULTS



CHILDREN & ADOLESCENTS

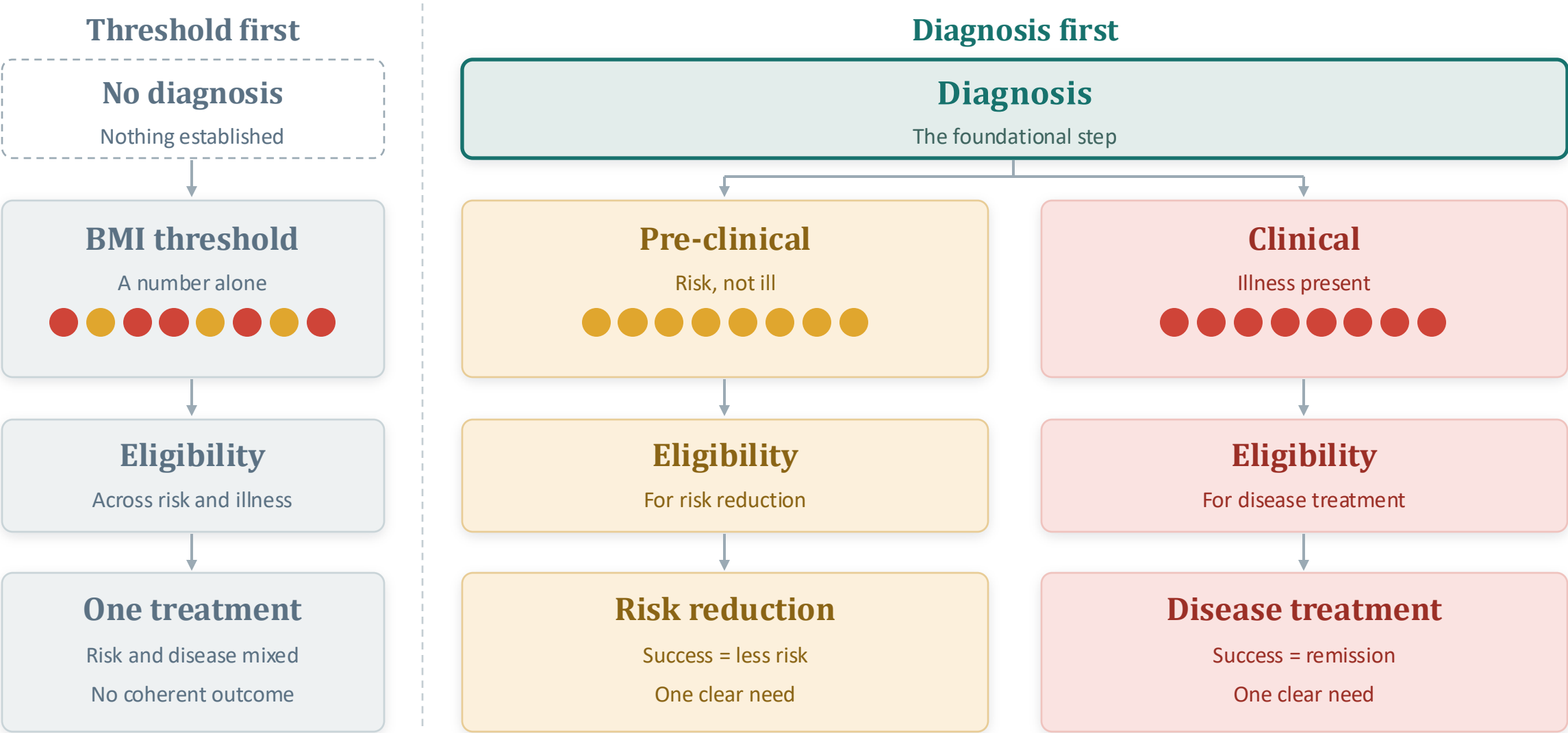


Preclinical Condition vs Disease

Defining pre-clinical conditions ALLOWS, not preclude. early intervention
Risk-reduction treatments for pre-clinical conditions are covered by insurance

<u>Pre-Clinical Conditions</u>	<u>Disease</u>
HIV Infection	AIDS
Hypercholesterolaemia	Heart Disease
Pre-diabetes	Diabetes
MGUS	Multiple Myeloma
Polyps	Colon Cancer

Threshold first, or diagnosis first



Pre-clinical Obesity is a Real Entity

Risk, not
Illness

Substantial Portion
of All Obesity

Significantly lower mortality than
Clinical Obesity (*JAMA Int Med* Oct 2025)



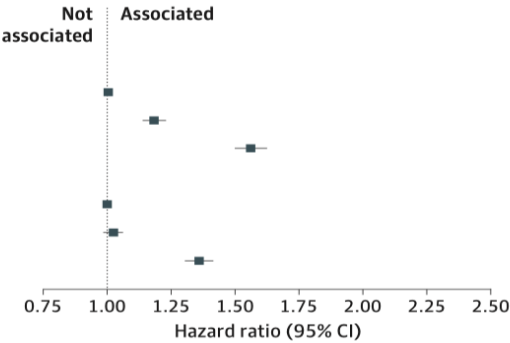
Prevalence estimates:
40-80% of obesity

No Impairment of
Organ function

Figure. Lancet Classification and Body Mass Index (BMI)-Based Classification of Obesity Associated With All-Cause and Cause-Specific Mortality

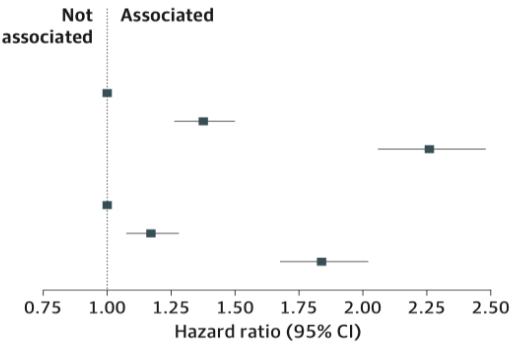
A All-cause mortality

Classification	Person-years/ cases, No.	Hazard ratio (95% CI)
Lancet classification		
No obesity	1 919 836/5818	1 [Reference]
Preclinical obesity	1 429 956/7054	1.18 (1.14-1.23)
Clinical obesity	573 710/4045	1.56 (1.50-1.63)
Traditional classification		
Normal weight	1 396 702/4885	1 [Reference]
Overweight	1 681 663/7345	1.02 (0.98-1.06)
Obesity	845 136/4687	1.36 (1.31-1.42)

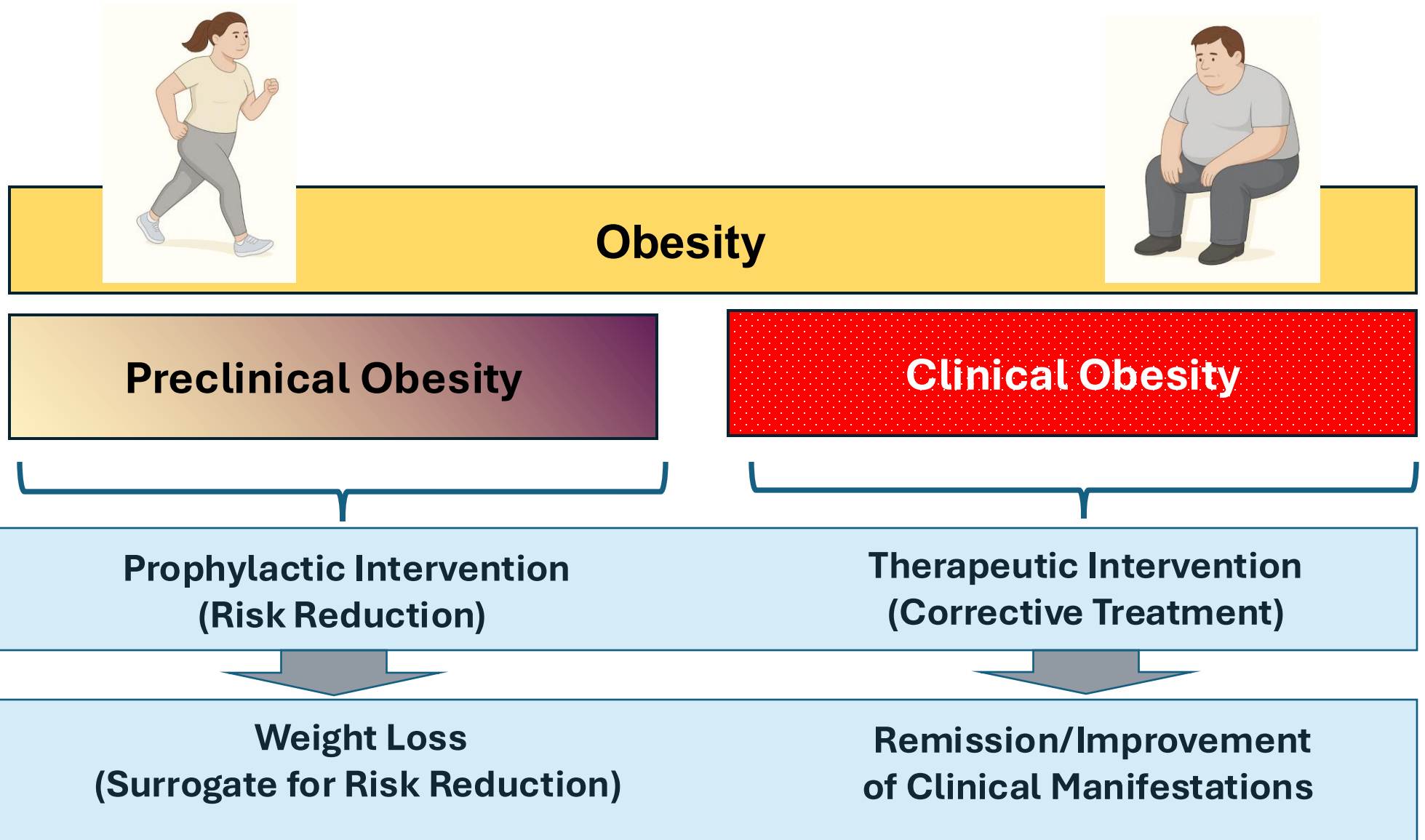


B CVD mortality

Classification	Person-years/ cases, No.	Hazard ratio (95% CI)
Lancet classification		
No obesity	1 919 836/910	1 [Reference]
Preclinical obesity	1 429 956/1448	1.38 (1.26-1.50)
Clinical obesity	573 710/1006	2.26 (2.06-2.48)
Traditional classification		
Normal weight	1 396 702/799	1 [Reference]
Overweight	1 681 663/1478	1.17 (1.07-1.28)
Obesity	845 136/1087	1.84 (1.68-2.02)



Implications: Care, Policy, Research





Original Investigation | Nutrition, Obesity, and Exercise

New Obesity Definition and Clinical Obesity Prevalence for Global Metabolic Bariatric Surgery

Simone Cremona, MD; Ricardo V. Cohen, MD; Francois Pattou, MD; Anna Casajoana, MD, PhD; Guilherme Sampaio Souza, RN; Violeta Raverdy, MD; Helene Verkindt, MD; Beatriz T. L. Blasio, MD; Pia Roser, MD; Robert Caiazzo, MD, PhD; David Benaiges, MD, PhD; Tarissa B. Zanata Petry, MD; Francesco Rubino, MD

Study Population

Multi-Center International Audit

An audit of routine practice at 4 high-volume tertiary centers located in the UK, Spain, France, and Brazil.



UK



Spain



France



Brazil

n = 2,316 Patients

adult candidates undergoing primary metabolic bariatric surgery (gastric bypass or sleeve gastrectomy)

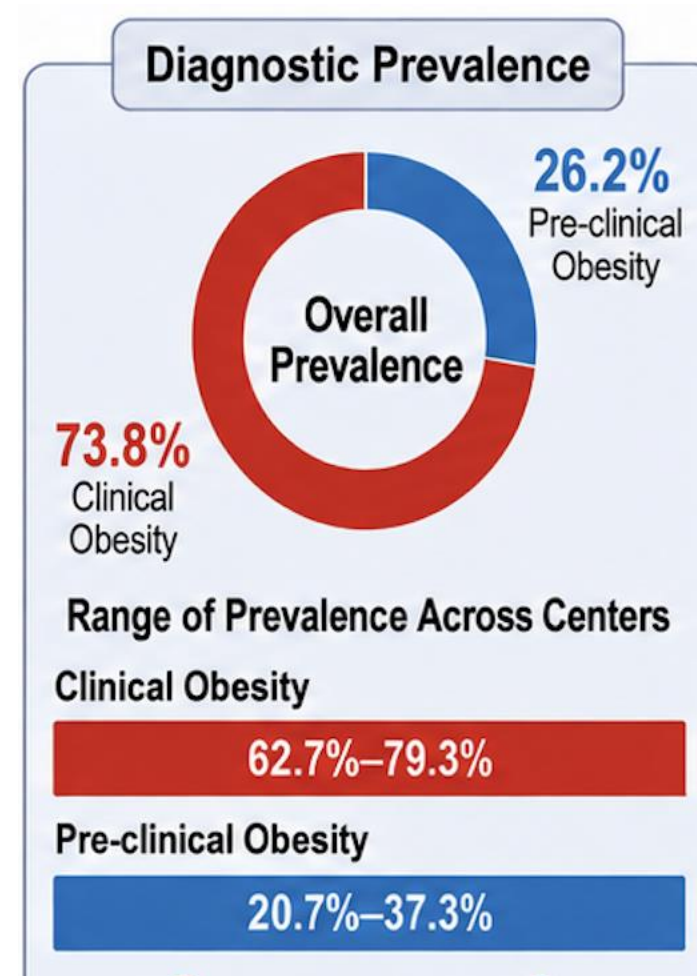
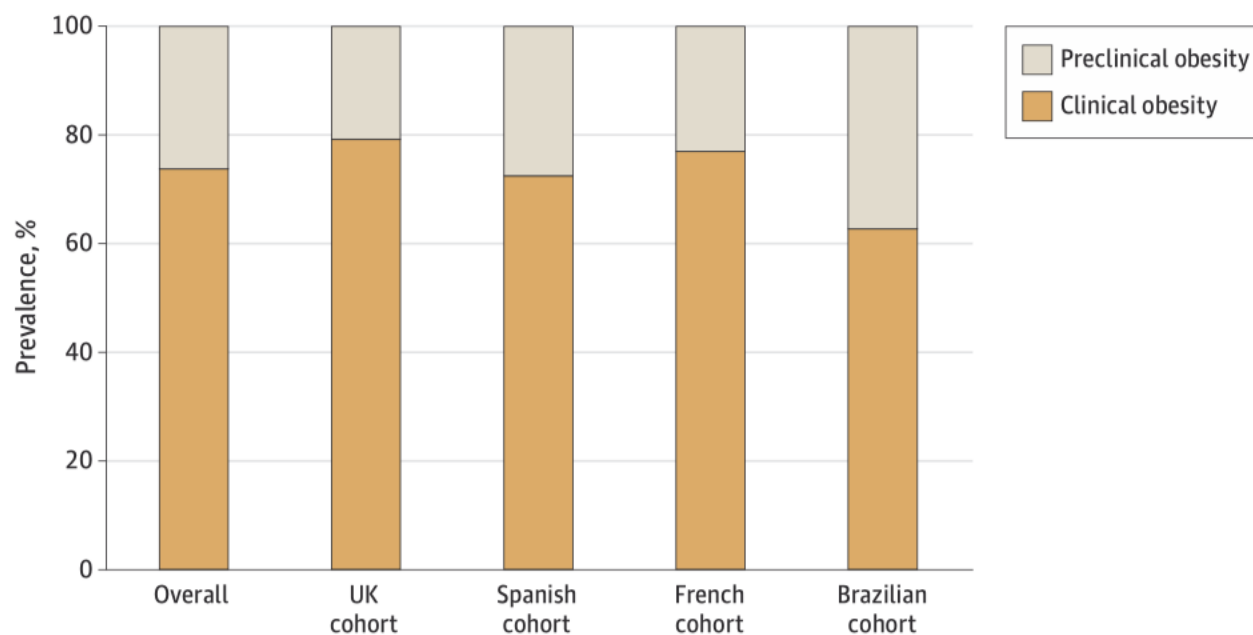


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Figure 1. Bar Graph of Prevalence of Clinical and Preclinical Obesity Among Metabolic Bariatric Surgery Candidates Across International Metabolic Bariatric Surgery Centers



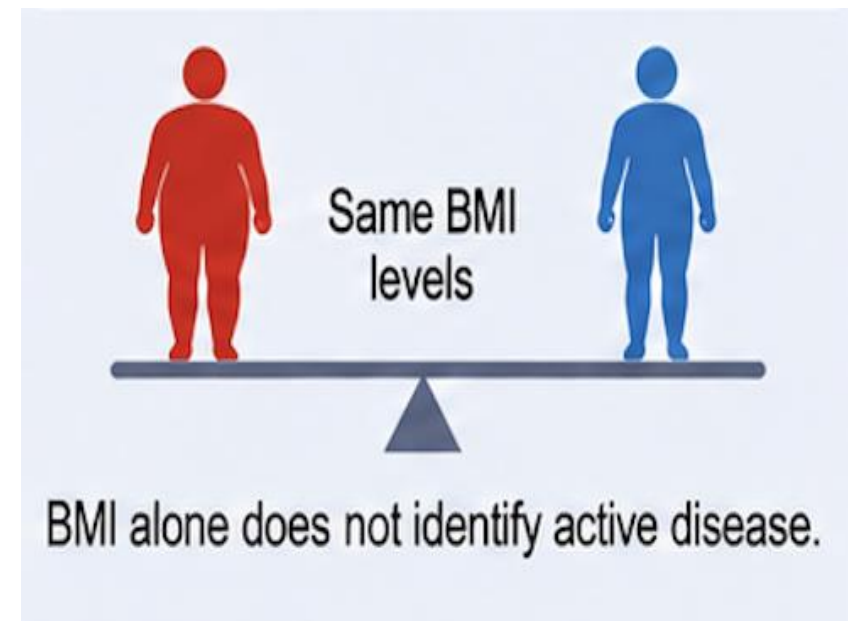
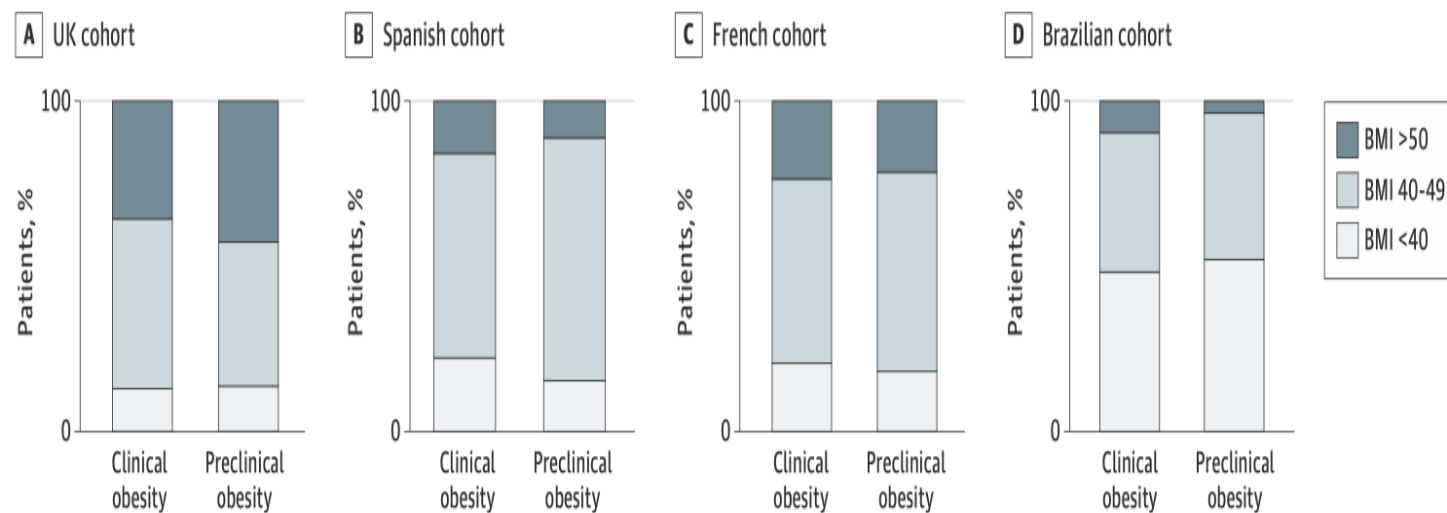


Original Investigation | Nutrition, Obesity, and Exercise

New Obesity Definition and Clinical Obesity Prevalence for Global Metabolic Bariatric Surgery

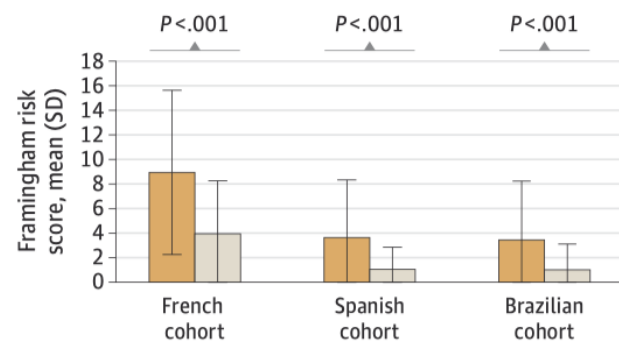
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Figure 2. Bar Graphs of the Distribution of Body Mass Index (BMI) Categories Among Patients With Clinical and Preclinical Obesity Across International Metabolic Bariatric Centers

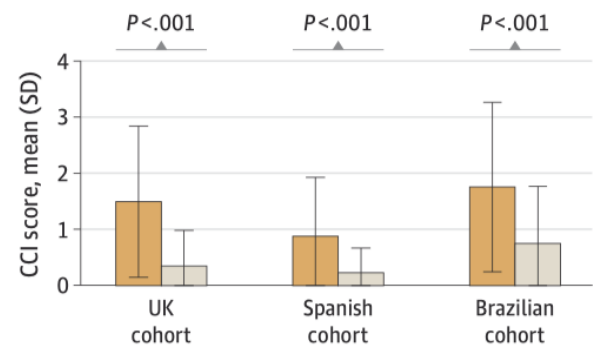


Proportion of patients within each BMI (calculated as weight in kilograms divided by height in meters squared) category.

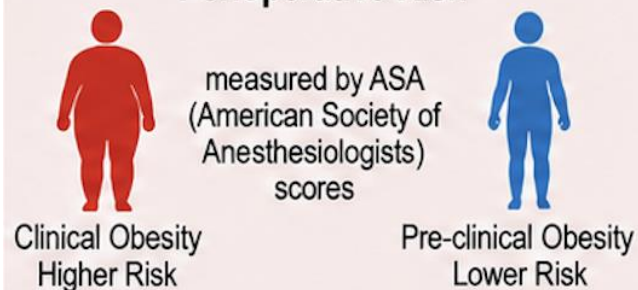
B Framingham risk score



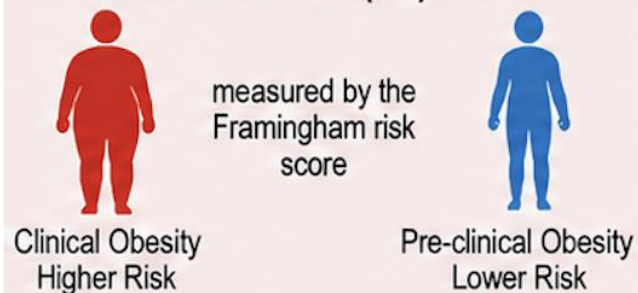
A CCI score



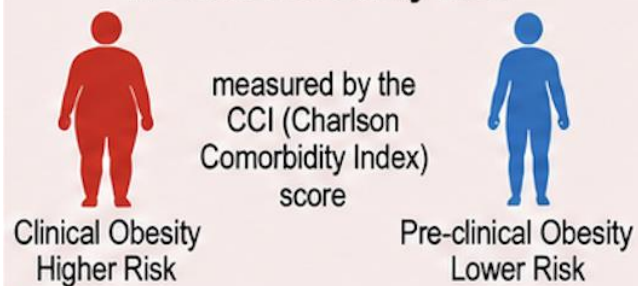
Perioperative Risk



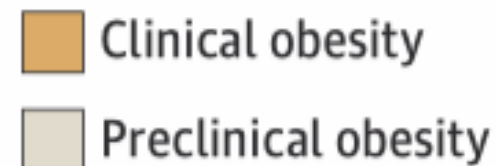
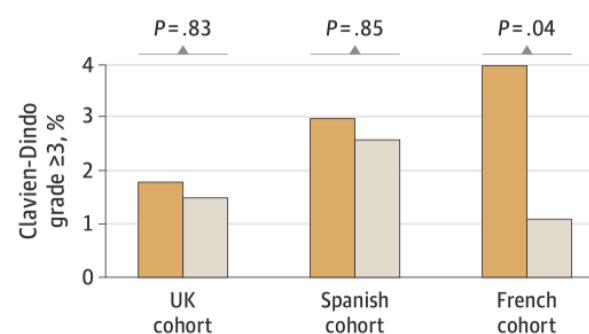
Cardiovascular (CV) Risk



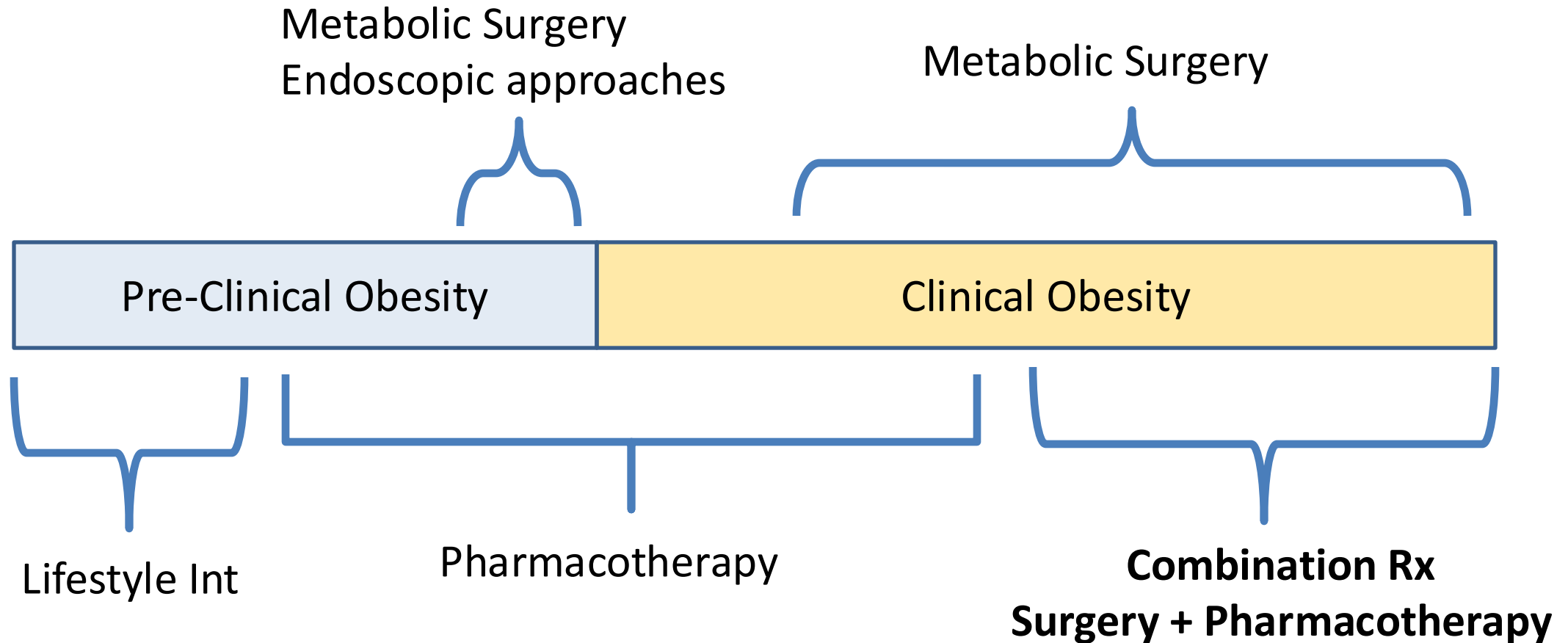
All-cause Mortality Risk



C Clavien-Dindo grade ≥ 3



The Future of Obesity Care



*The difficulty lies not so much in developing new ideas as
in escaping from the old ones.*

JOHN MAYNARD KEYNES *The General Theory of Employment, Interest and Money* (1936)