

A faded background image of the New York City skyline, featuring prominent skyscrapers like the Freedom Tower and the Empire State Building, viewed from across the water.

New Frontiers in Obesity. Insights Challenging Traditional Perspectives in the New GLP-1 Era

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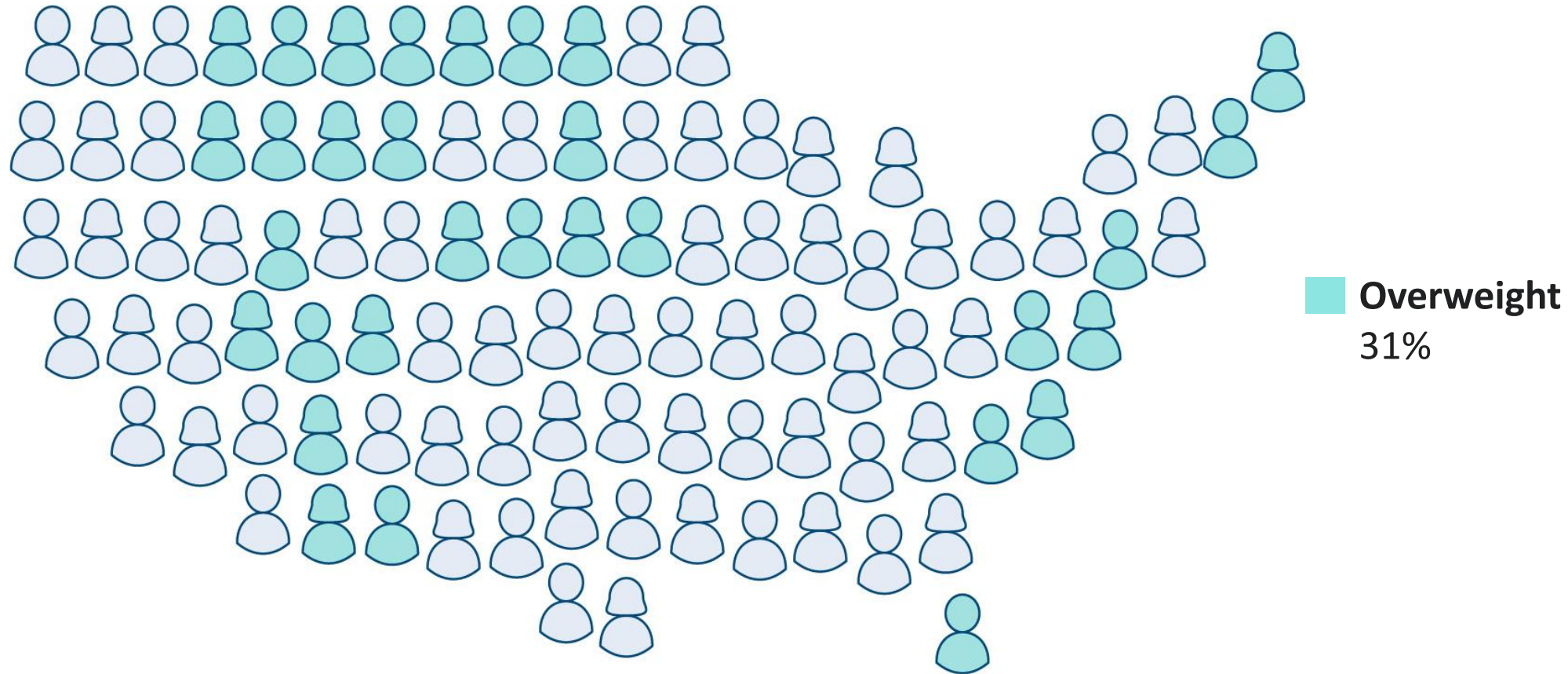
Disclaimers

- Kimberly Sapre
 - No disclaimer
- Jessica Braswell
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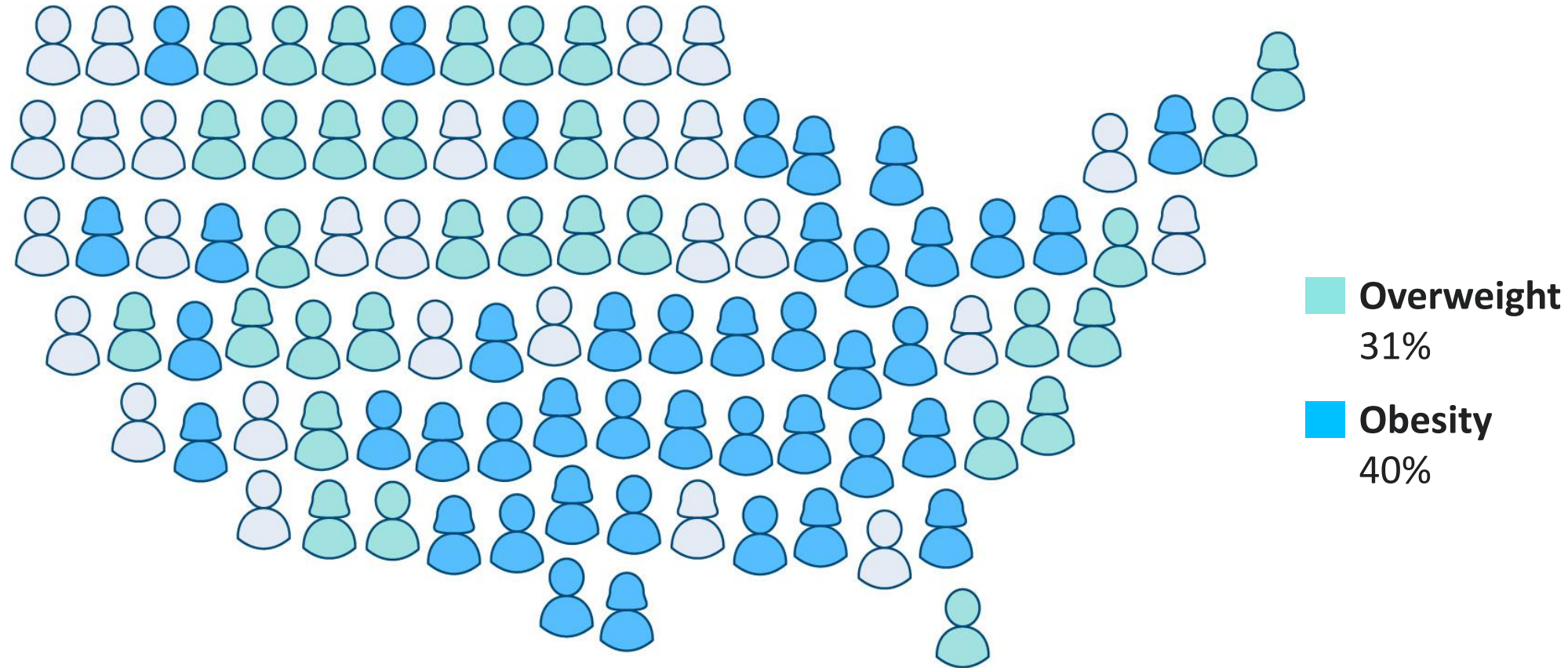
Agenda

- The obesity epidemic
- Obesity & chronic disease
- Risk stratification & severe obesity
- Obesity medication overview
- Approach to underwriting

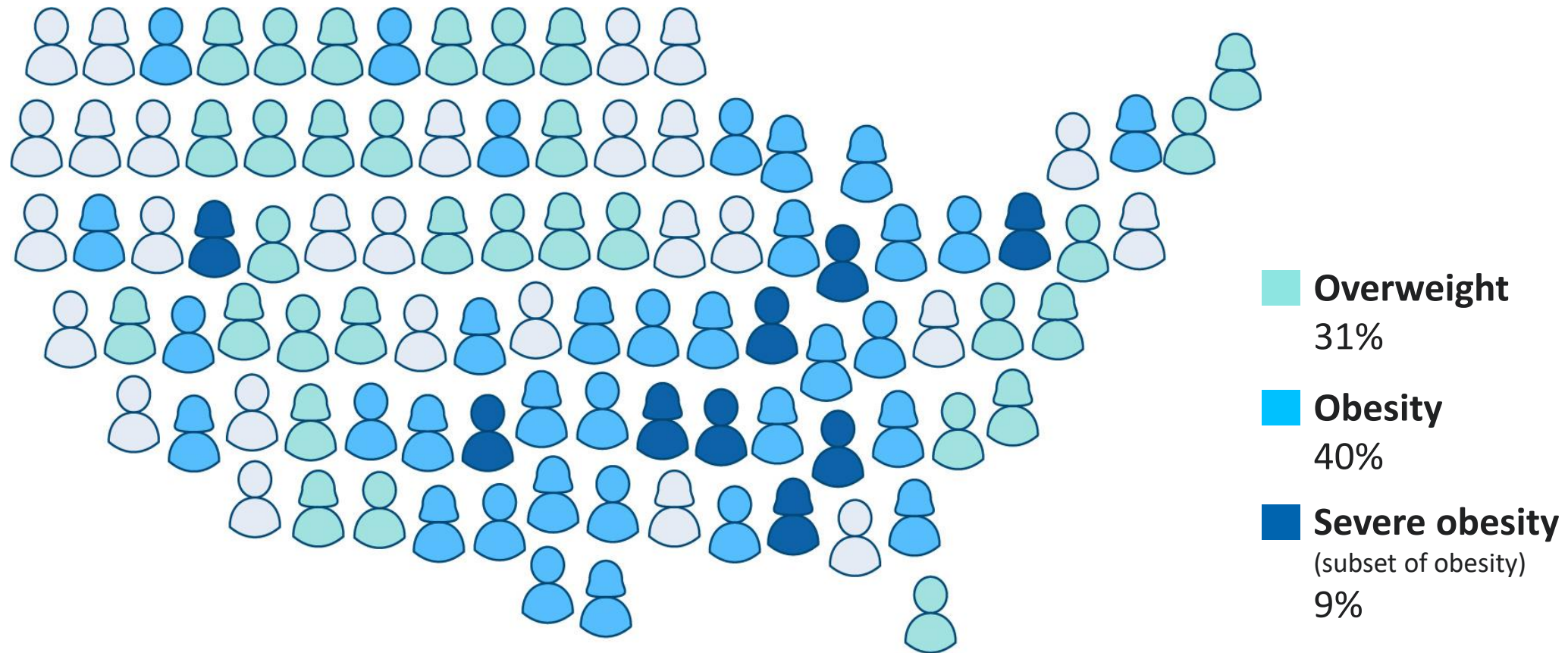
Nearly half of your customer base has obesity.¹



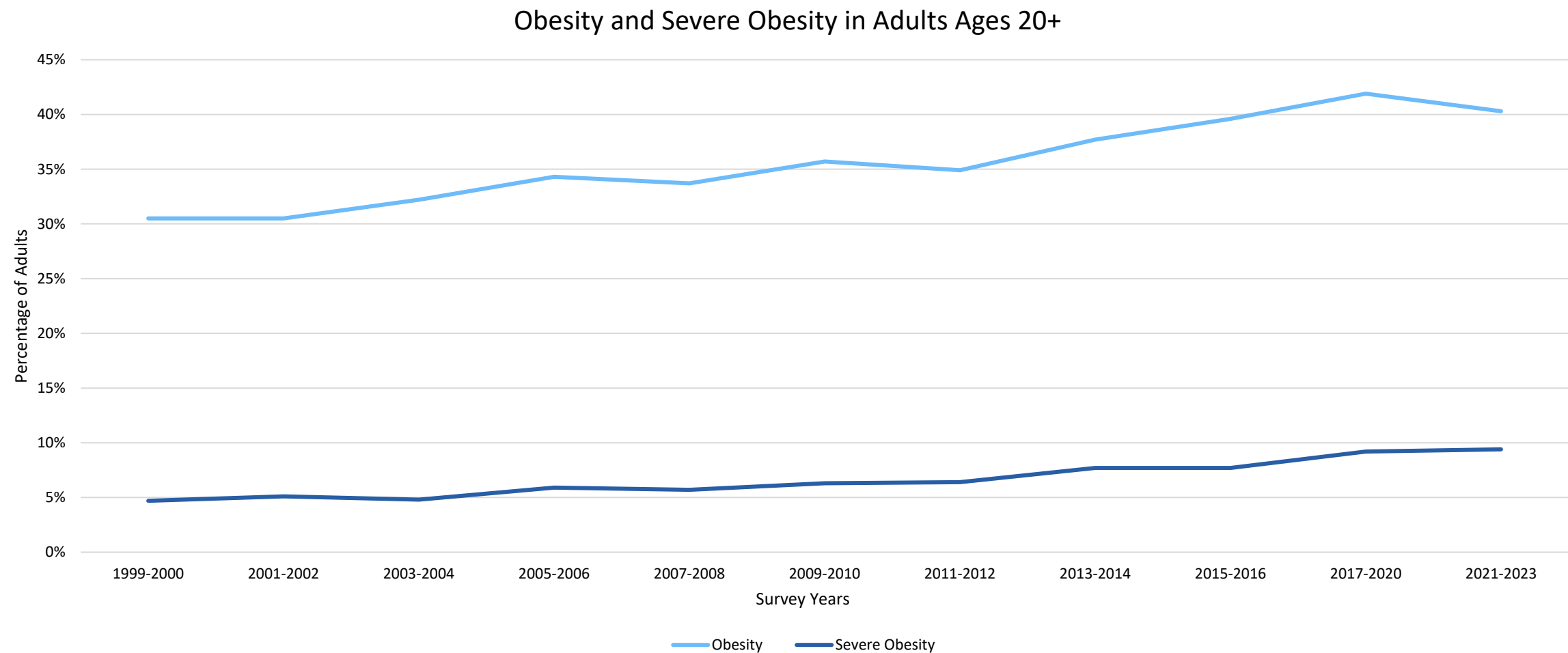
Nearly half of your customer base has obesity.¹



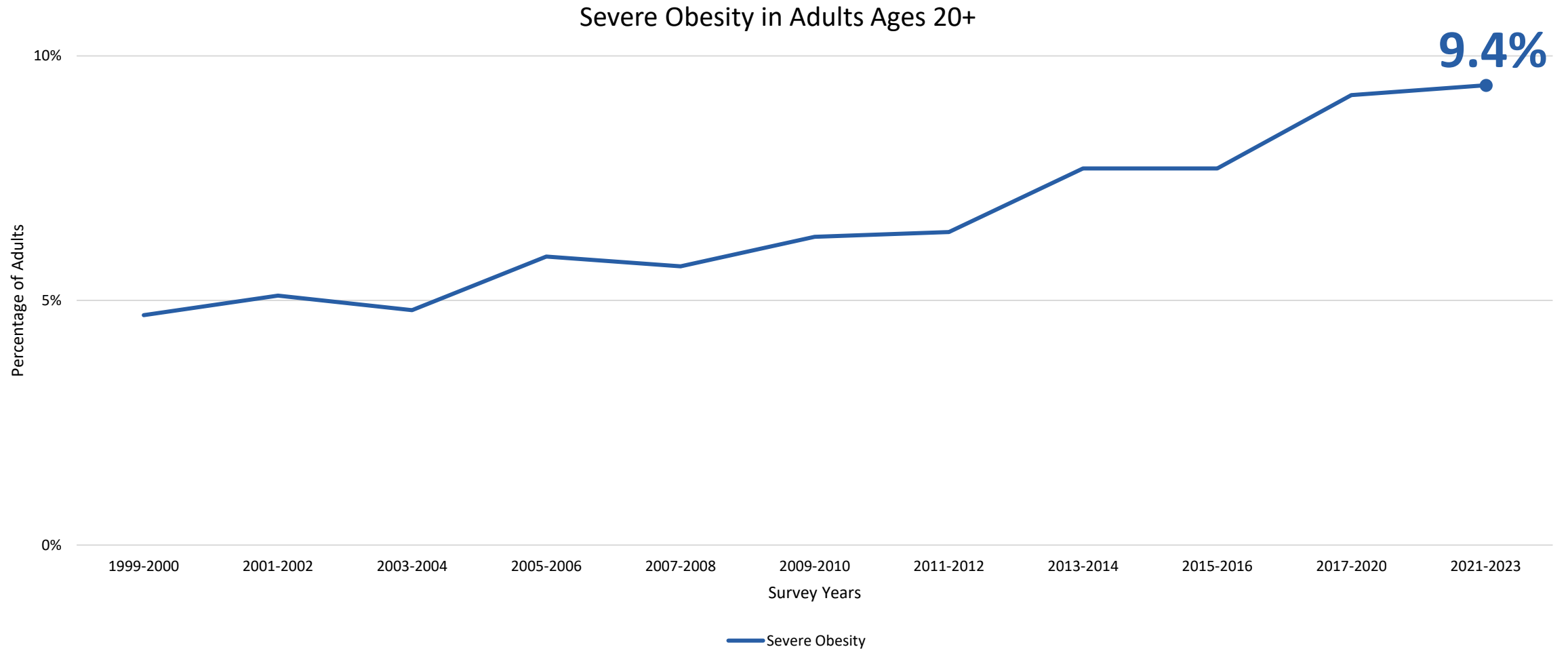
Nearly half of your customer base has obesity.¹

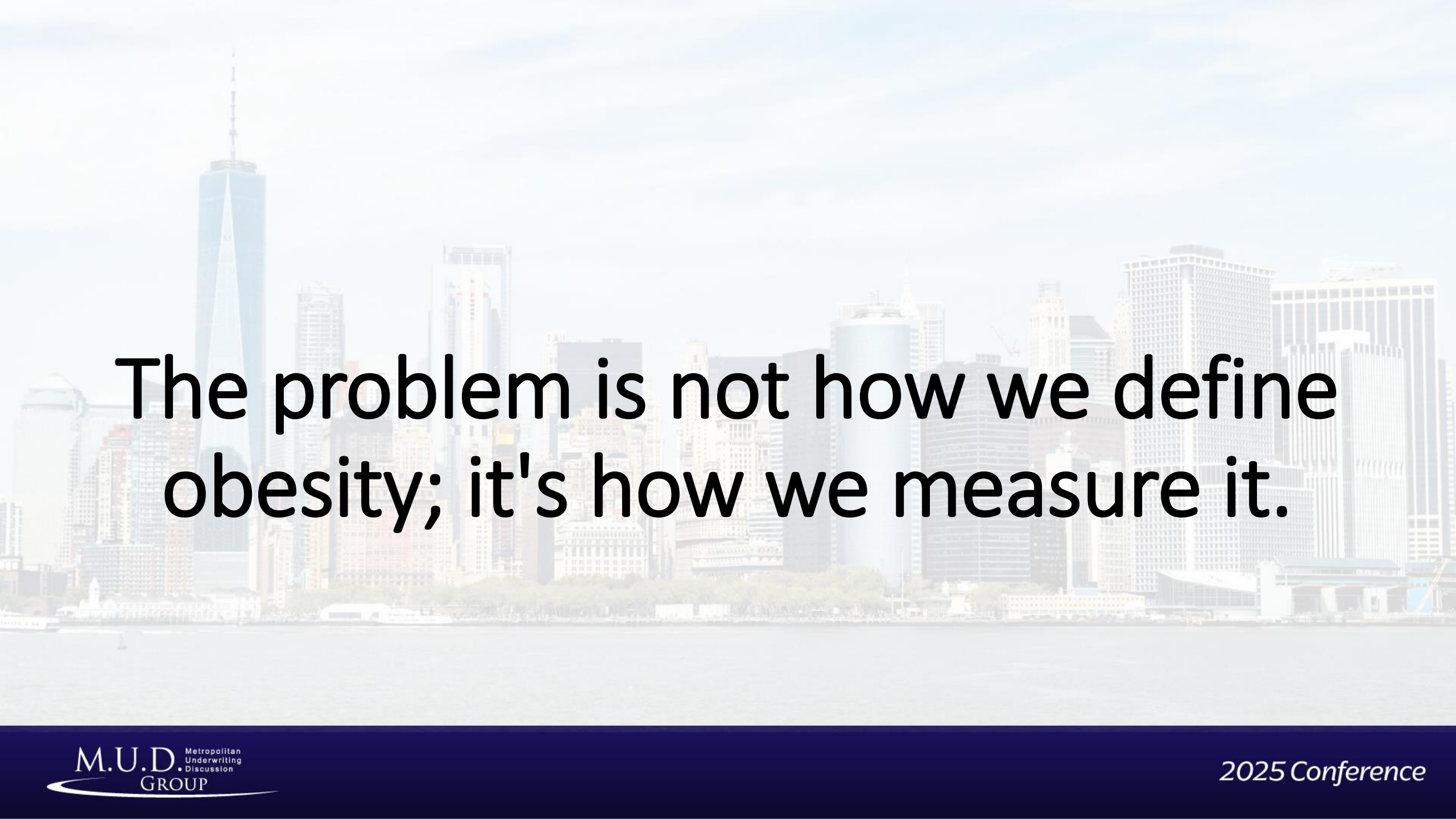


Obesity is prevalent...¹



... and severe obesity has doubled since 2000.¹



A faded background image of the New York City skyline, featuring the Freedom Tower and other skyscrapers along the waterfront.

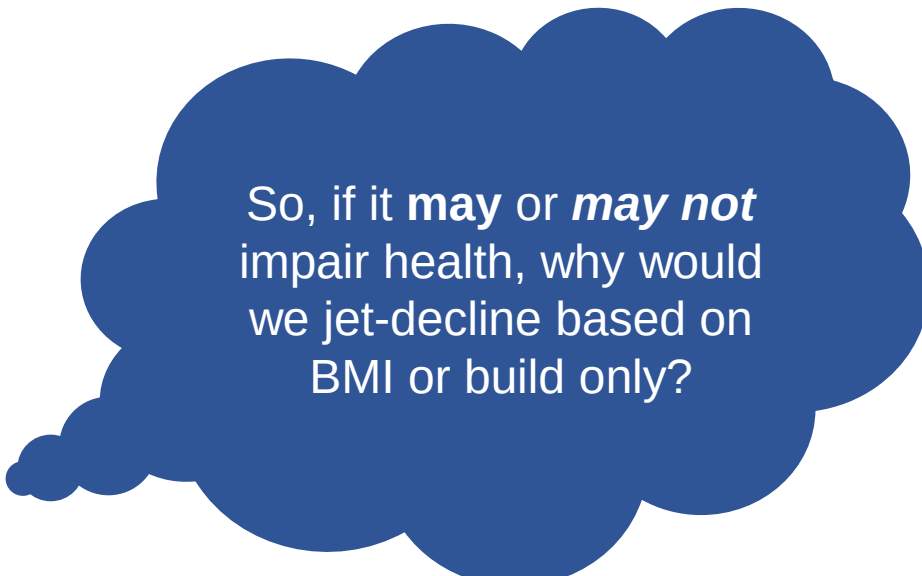
The problem is not how we define
obesity; it's how we measure it.

But there's good news: obesity doesn't always = high risk.

Obesity

[obe·si·ty] *noun*

Excess body fat accumulation that may impair health.^{2,3}



So, if it **may** or **may not** impair health, why would we jet-decline based on BMI or build only?

Part of the problem is BMI itself.^{4,5}



Adolphe Quetelet
1796–1874

$$BMI = \frac{\text{weight (kg)}}{\text{height}^2 (\text{m}^2)}$$



Ancel Keys
1904–2004

Height and weight alone can't identify risks.^{4,5}

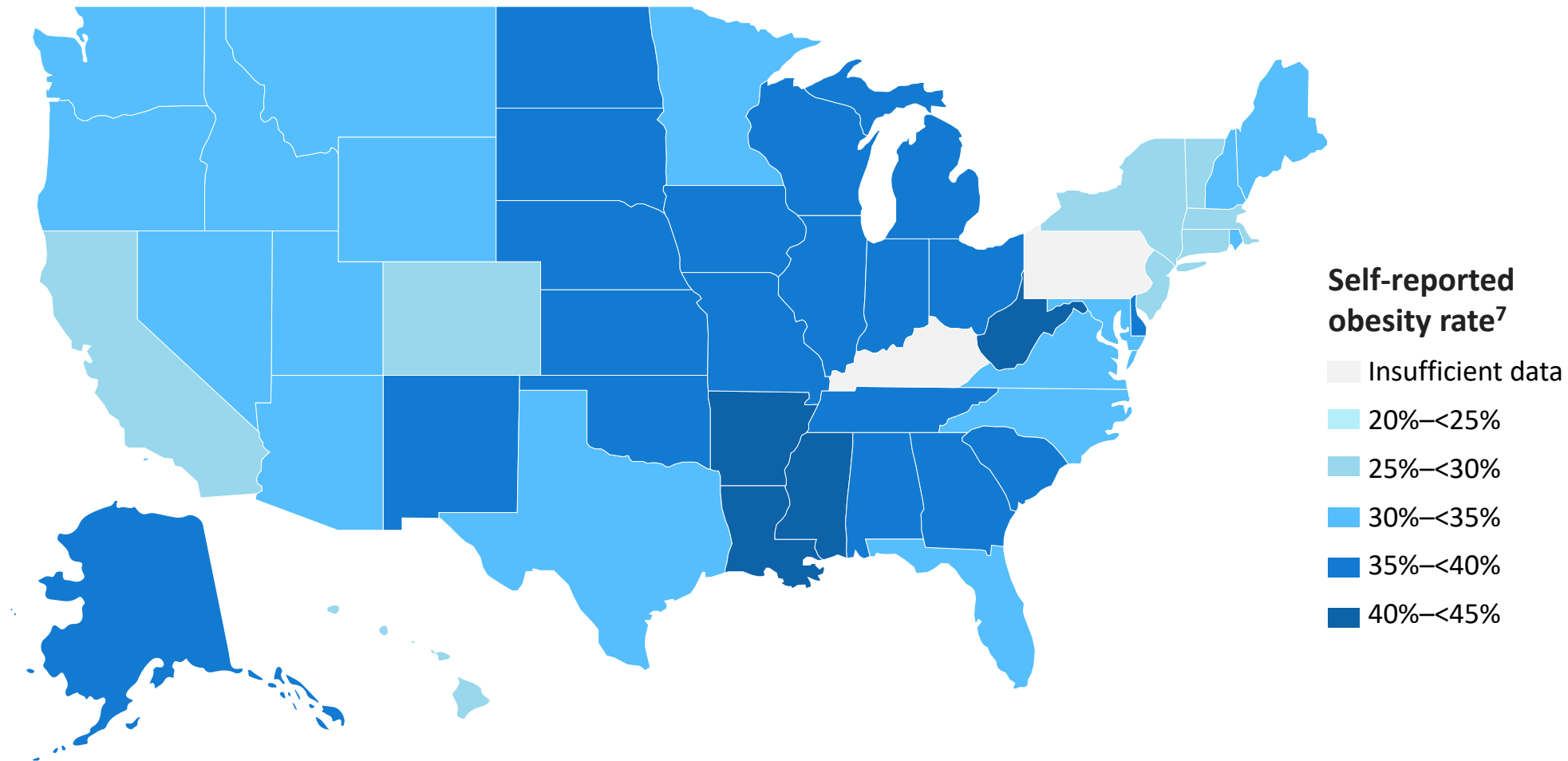
A simple ratio of height and weight can't define good health, but for now this remains the standard.

BMI	Category ⁶
<18.5	Underweight
18.5–24.9	Healthy weight
25–29.9	Overweight
30–34.9	Obesity/class 1
35–39.9	Obesity/class 2
>40	Severe obesity/class 3

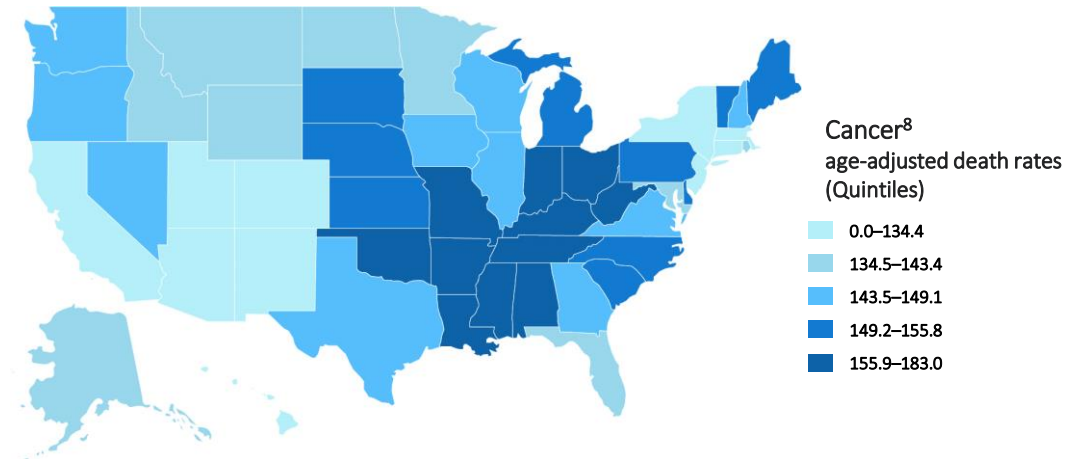
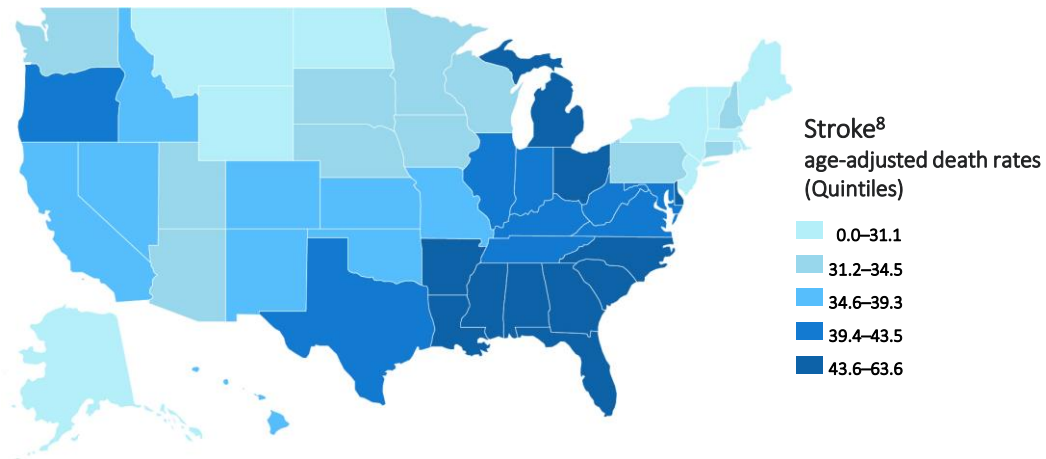
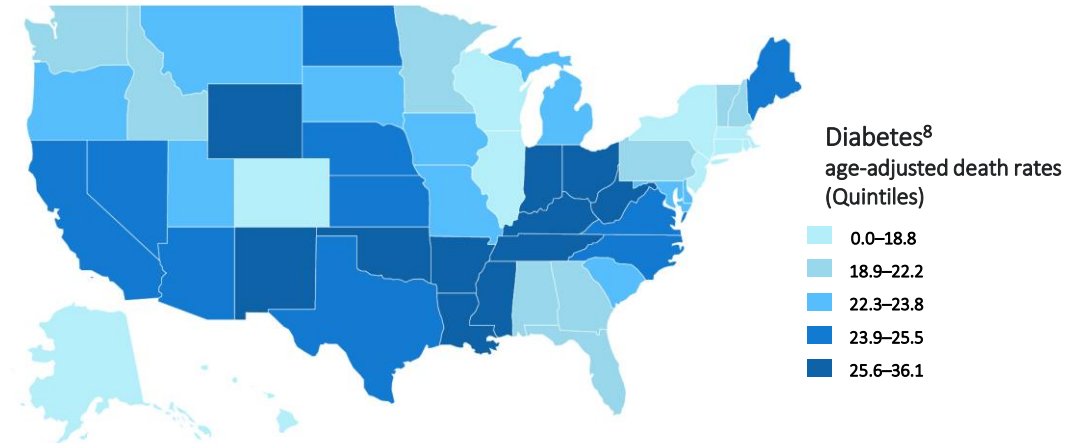
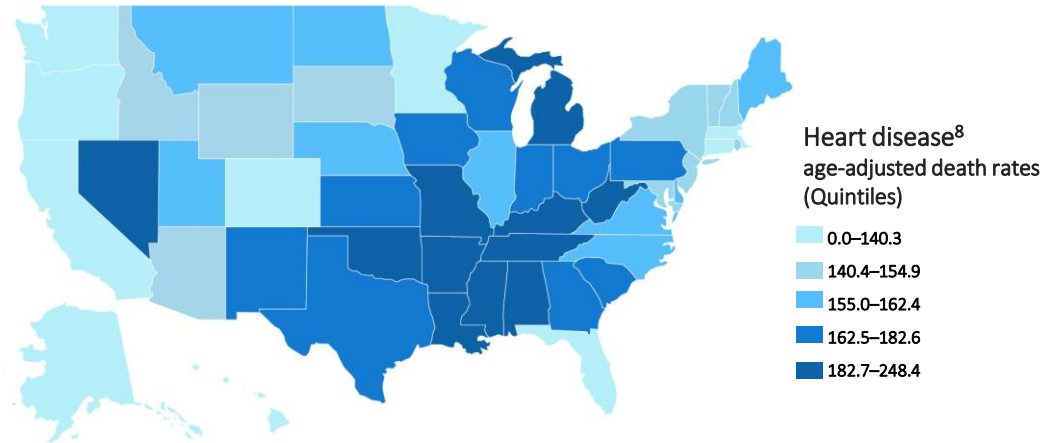
A faded background image of the New York City skyline, featuring the Freedom Tower and other skyscrapers along the waterfront.

Obesity is a risk factor for chronic diseases.

Where there are concentrations of obesity...

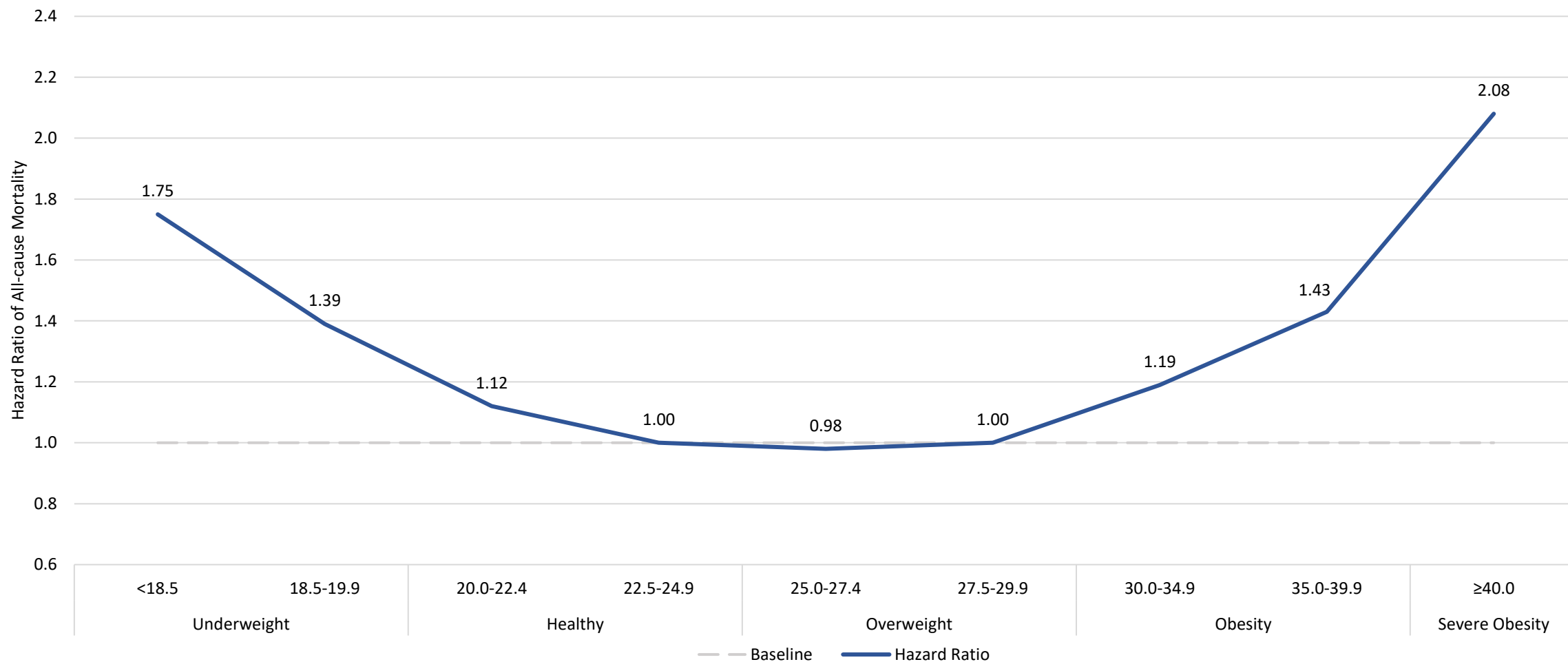


...there are also concentrations of key comorbidities.



No wonder severe obesity has seemed risky to insure.

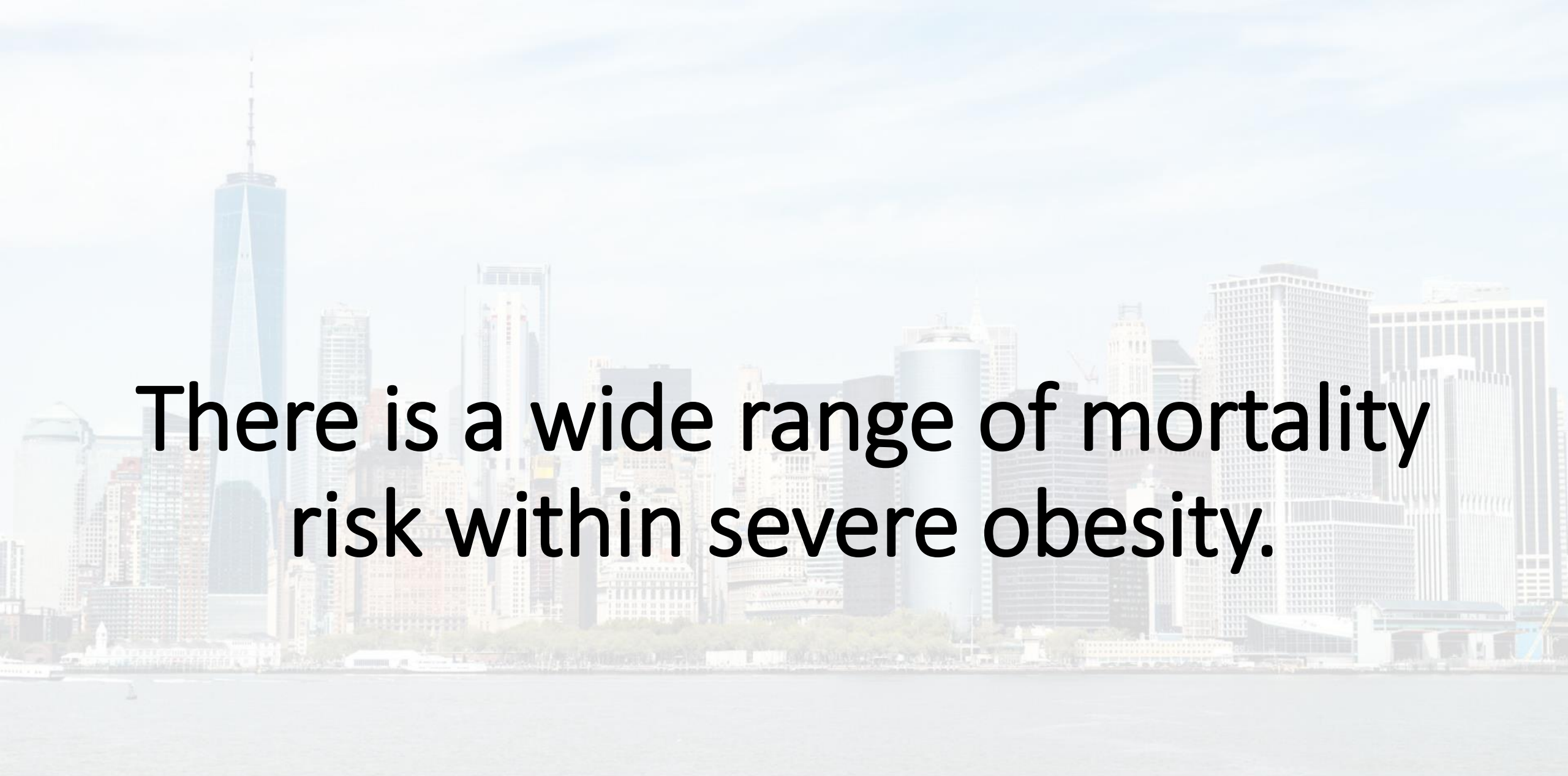
Population mortality data seems to support current practices, but there's more to this than meets the eye.



[Rutgers Institute for Health⁹](#)

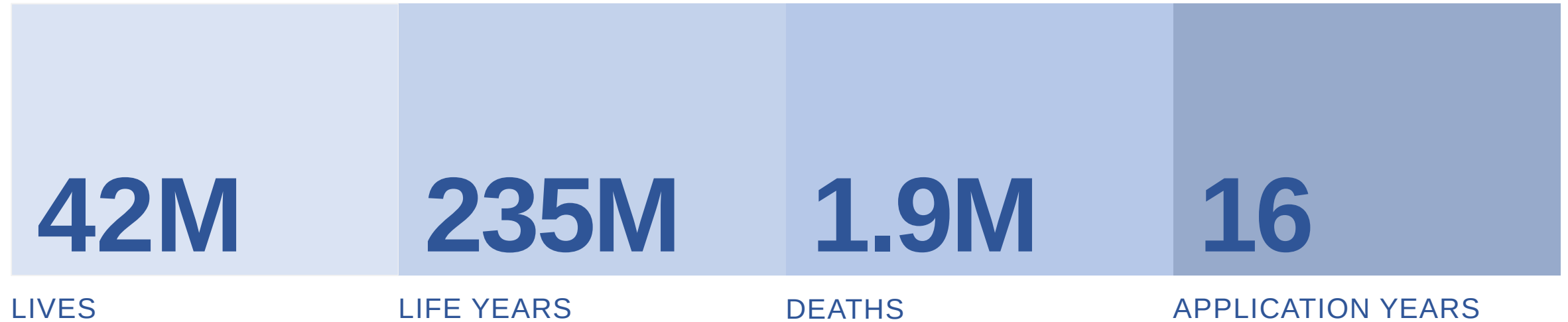
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New Frontiers in Obesity



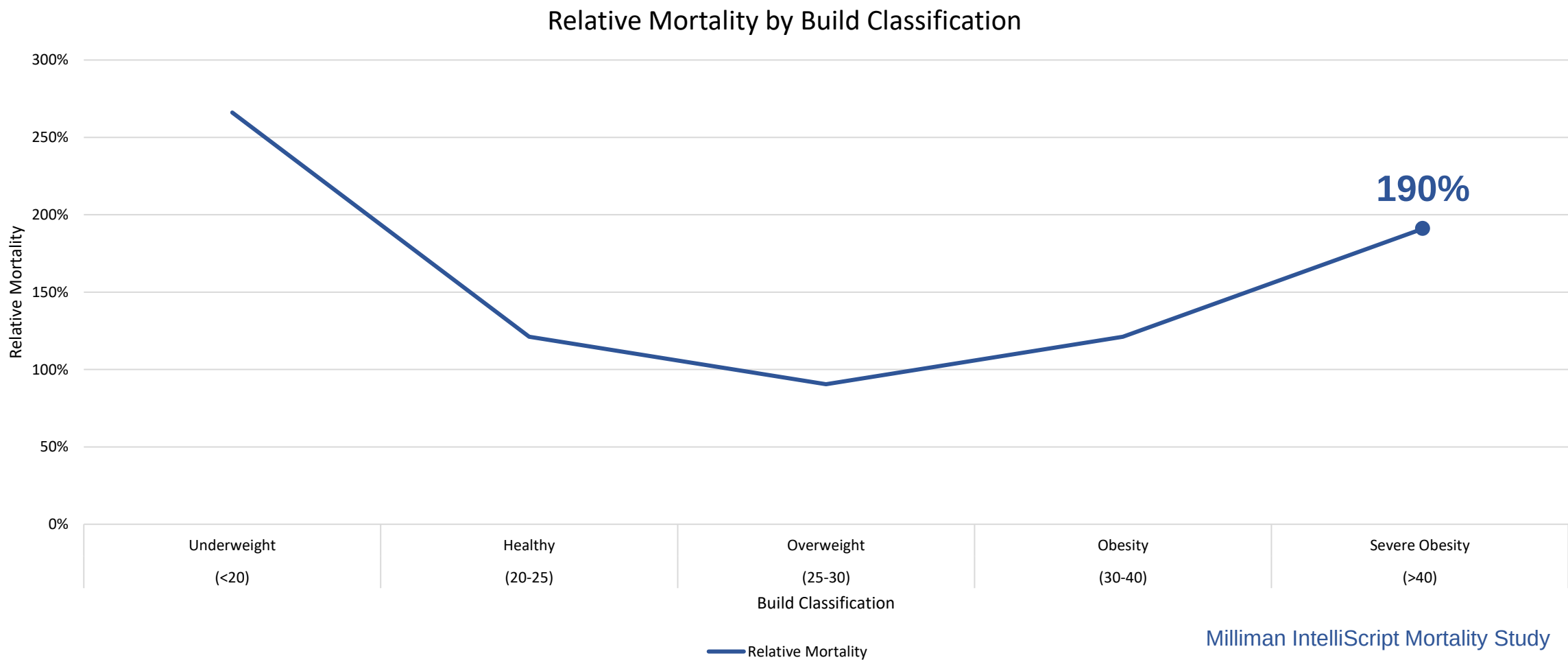
There is a wide range of mortality
risk within severe obesity.

Our mortality study is a rich source for insight.

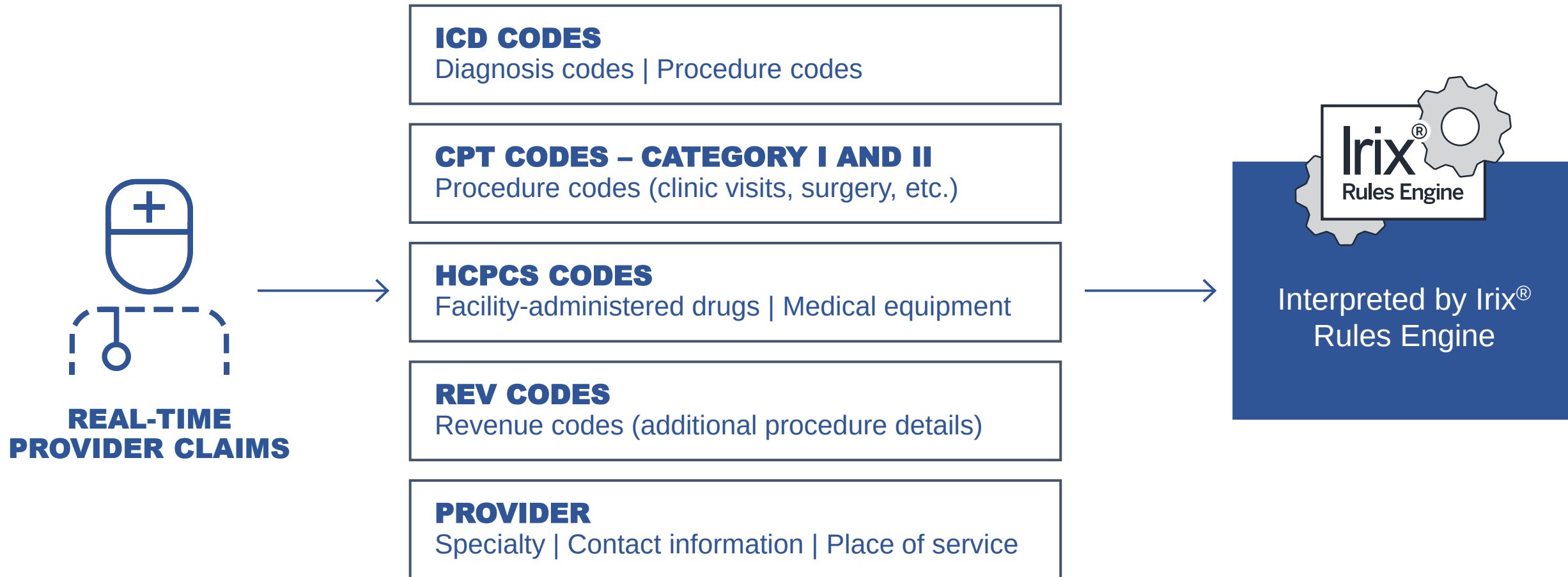


A similar pattern is seen in Irix Medical Data.

Medical Data aligns with external research showing mortality differs by build classification.



Claims codes reveal valuable health care info.

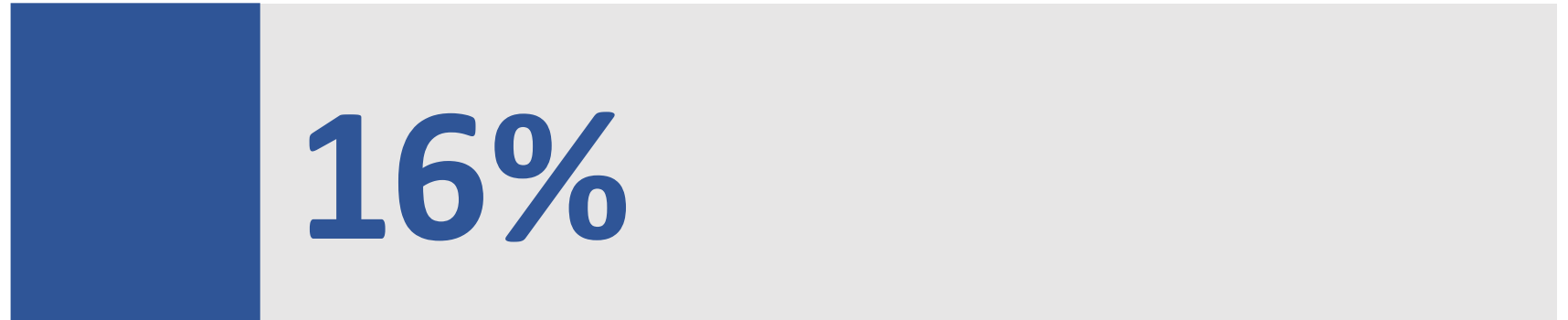


Chronic Conditions drive mortality.

Applicants with severe obesity are more likely to have concerning comorbidities.

Frequency of heart disease, diabetes, cancer, and/or stroke

APPLICANT POPULATION

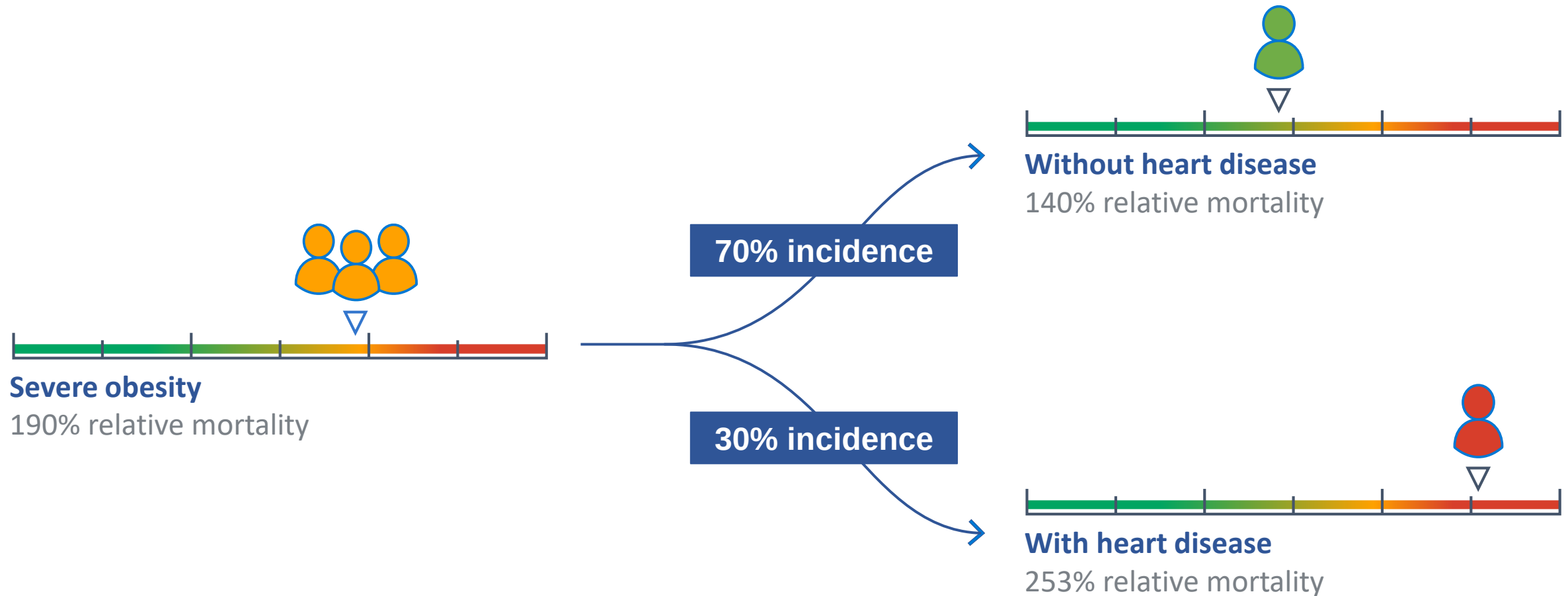


APPLICANTS WITH SEVERE OBESITY



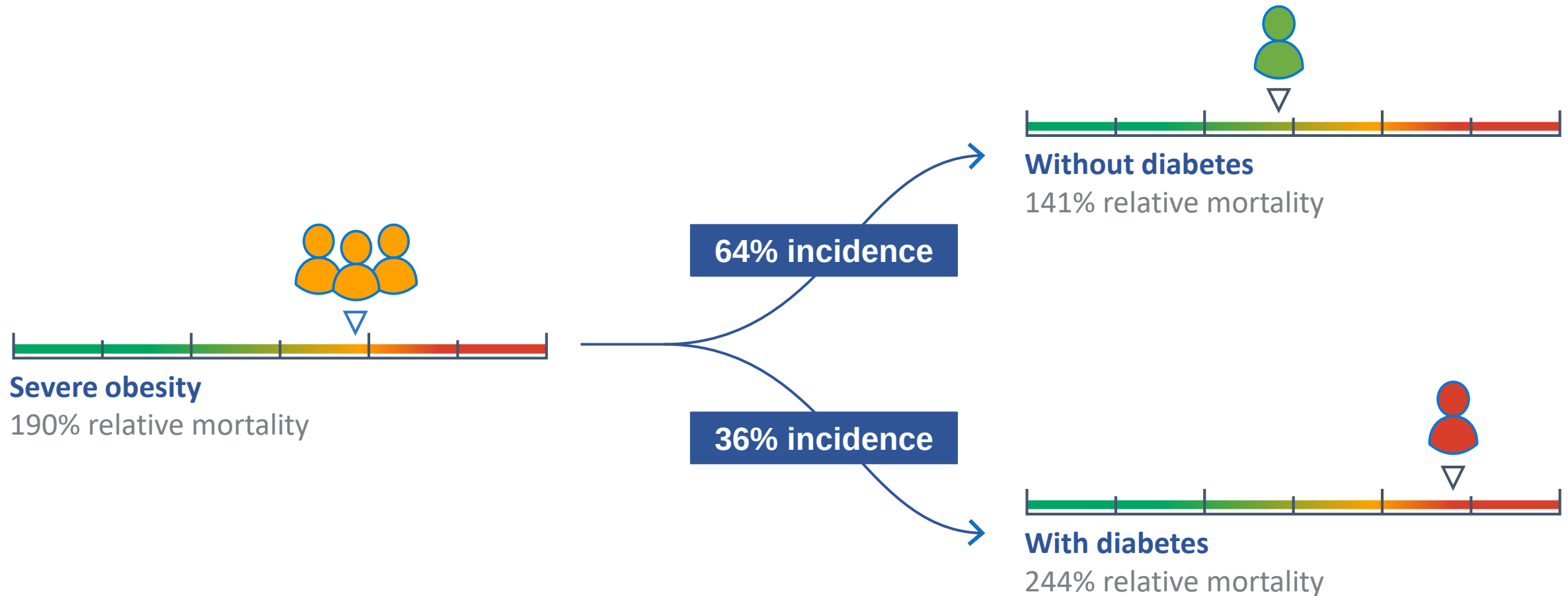
Mortality of severe obesity is driven by comorbidities.

Applicants with severe obesity but not heart disease carry significantly lower risk.



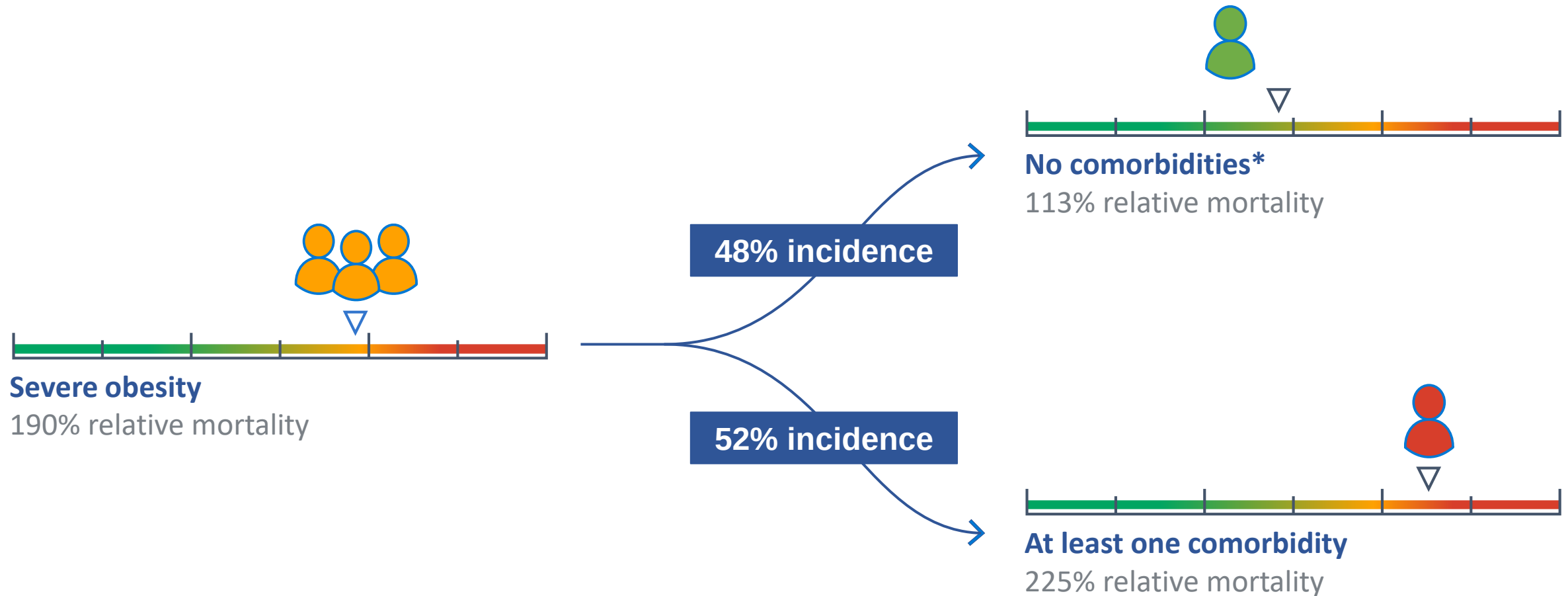
Mortality of severe obesity is driven by comorbidities.

Applicants with severe obesity but not diabetes carry significantly lower risk.



Mortality of severe obesity is driven by comorbidities.

Applicants with severe obesity and no concerning comorbidities carry significantly lower risk.



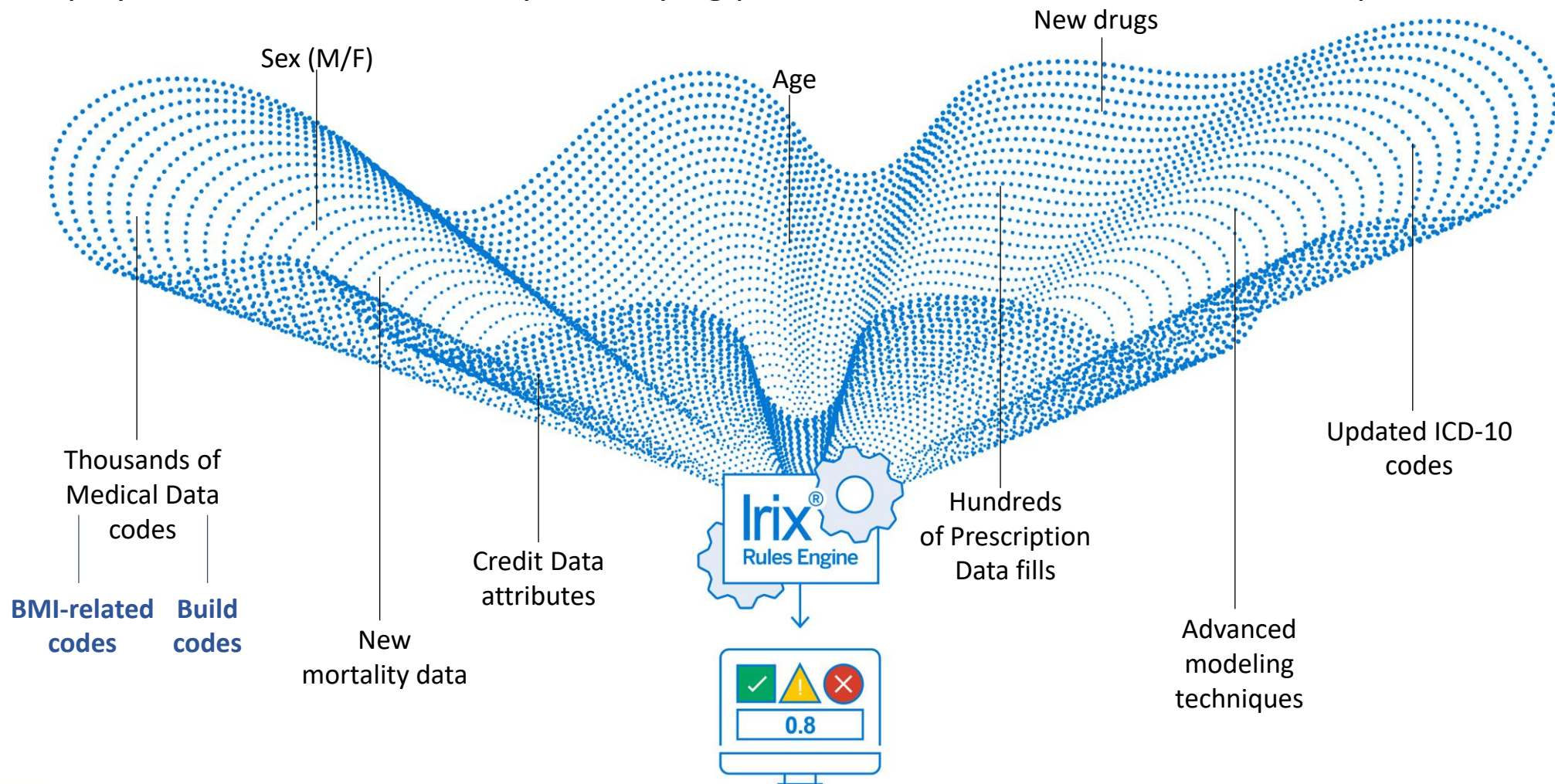
*Heart disease, diabetes, cancer, and stroke

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BMI/build correlate with
mortality, it's misleading when
used alone.

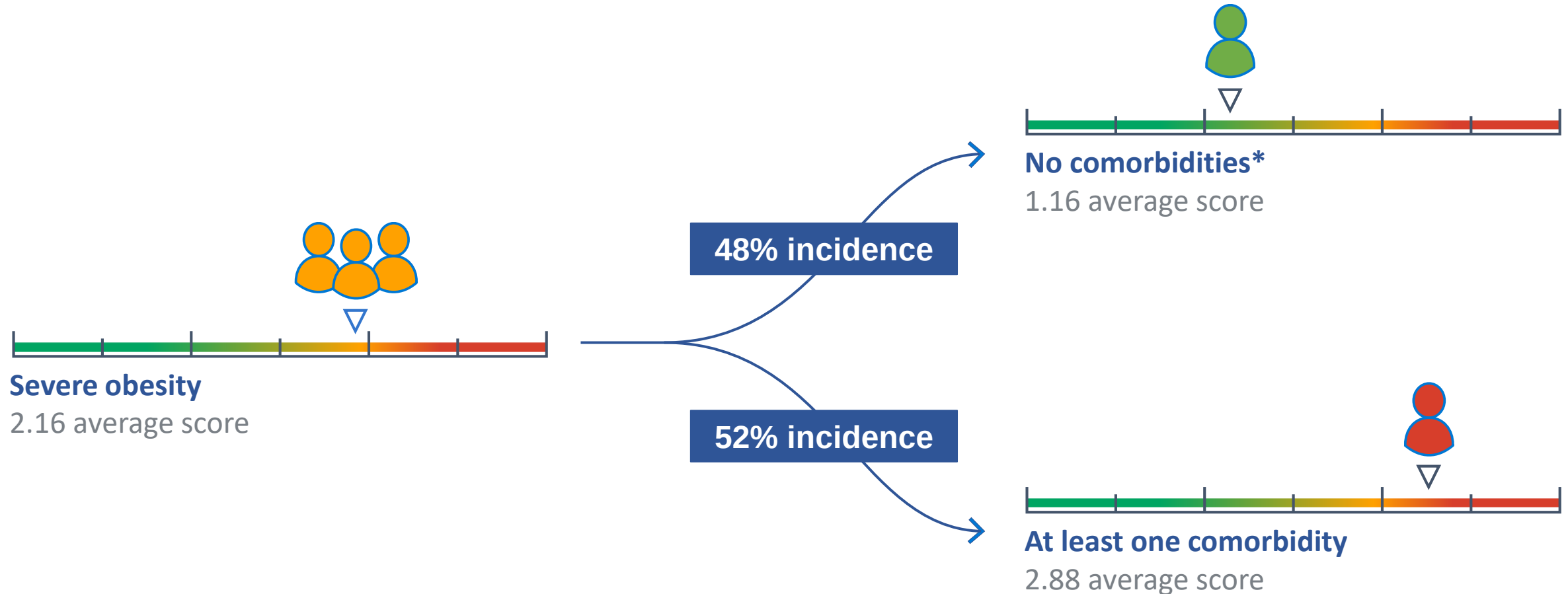
Irix Risk Score is a complex predictive model.

It helps you see the unseeable by identifying patterns observed in millions of data points.

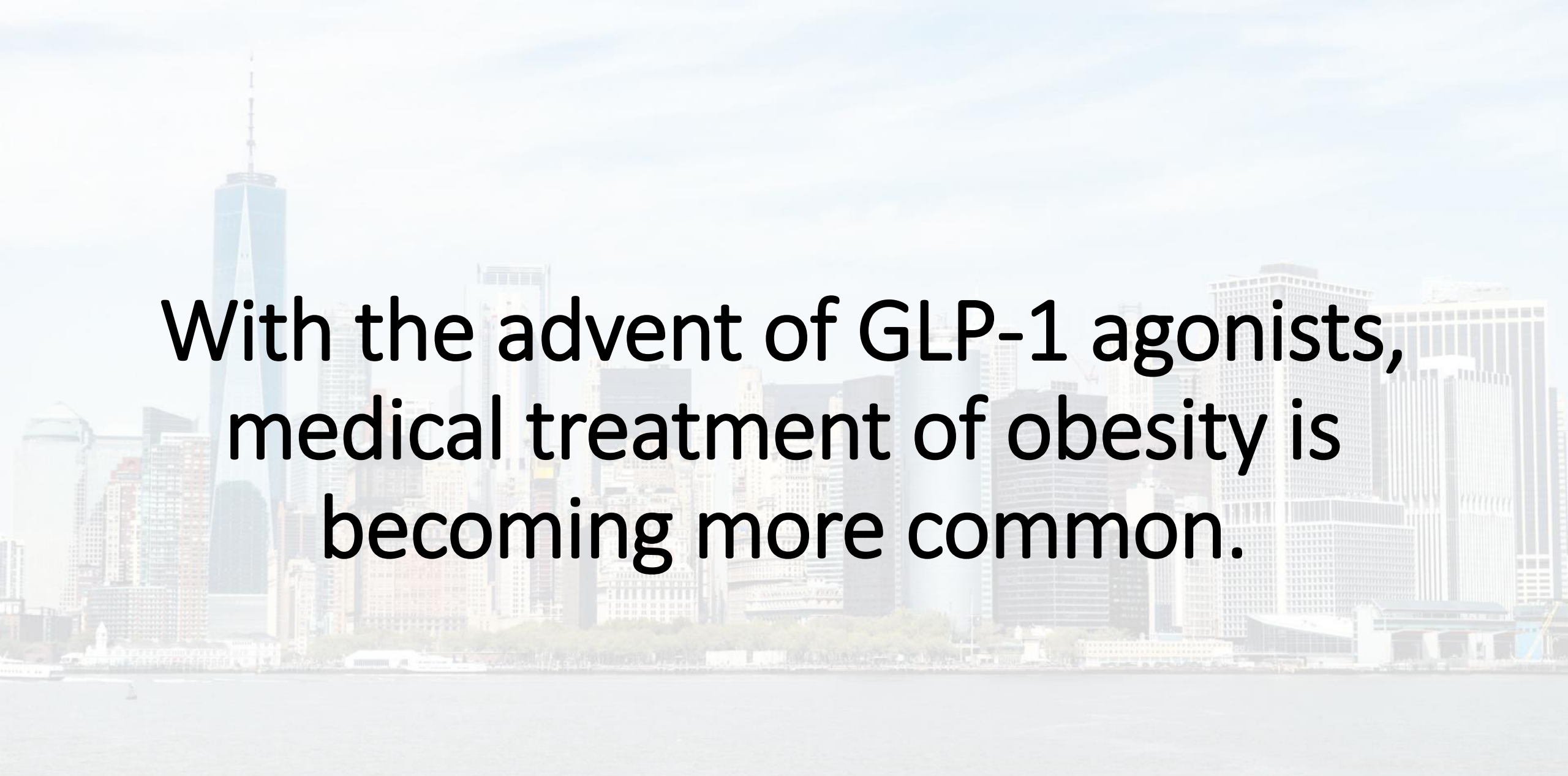


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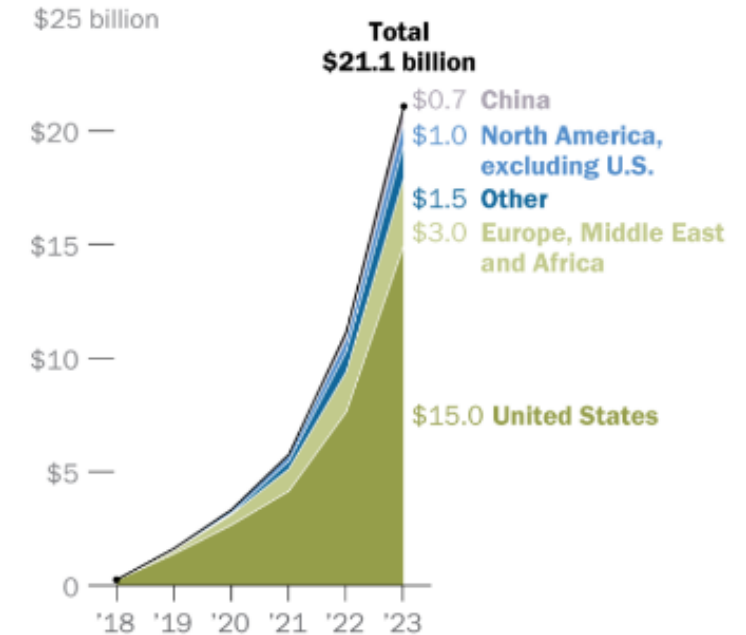
With the advent of GLP-1 agonists,
medical treatment of obesity is
becoming more common.



Weight loss drug sales have ALSO significantly increased

Weight-loss drug sales reach 5-year high

Combined annual sales for Ozempic, Rybelsus and Wegovy, in billions of U.S. dollars



Note: Figures converted from Danish kroner to U.S. dollars, at rate of 1 krone = \$0.145.

Source: Novo Nordisk annual reports, accessed through U.S. Securities and Exchange Commission's EDGAR database.

PEW RESEARCH CENTER

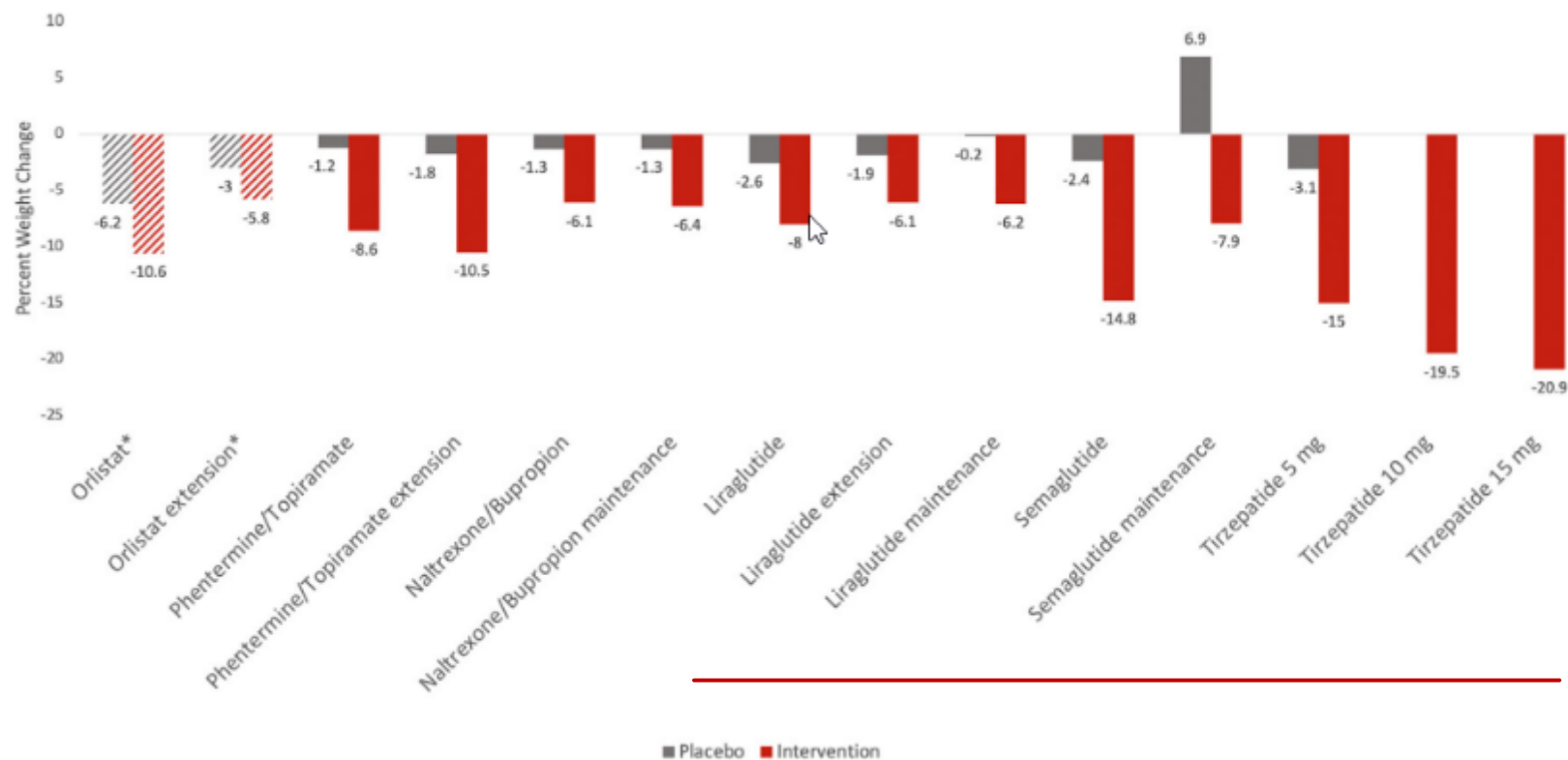
Obesity Medication Overview

Brand Name (Brand approved for DM)	Drug	FDA Approval
Alli, Xenical	Orlistat	1999
Qsymia	Phentermine/topiramate	2012
Contrave	Naltrexone/bupropion	2014
Saxenda (Victoza)	Liraglutide	2014
Wegovy (Ozempic, Rybelsus)	Semaglutide	2021
Zepbound (Mounjaro)	Tirzepatide*	2023

* GLP-1 AND GIP receptor agonist

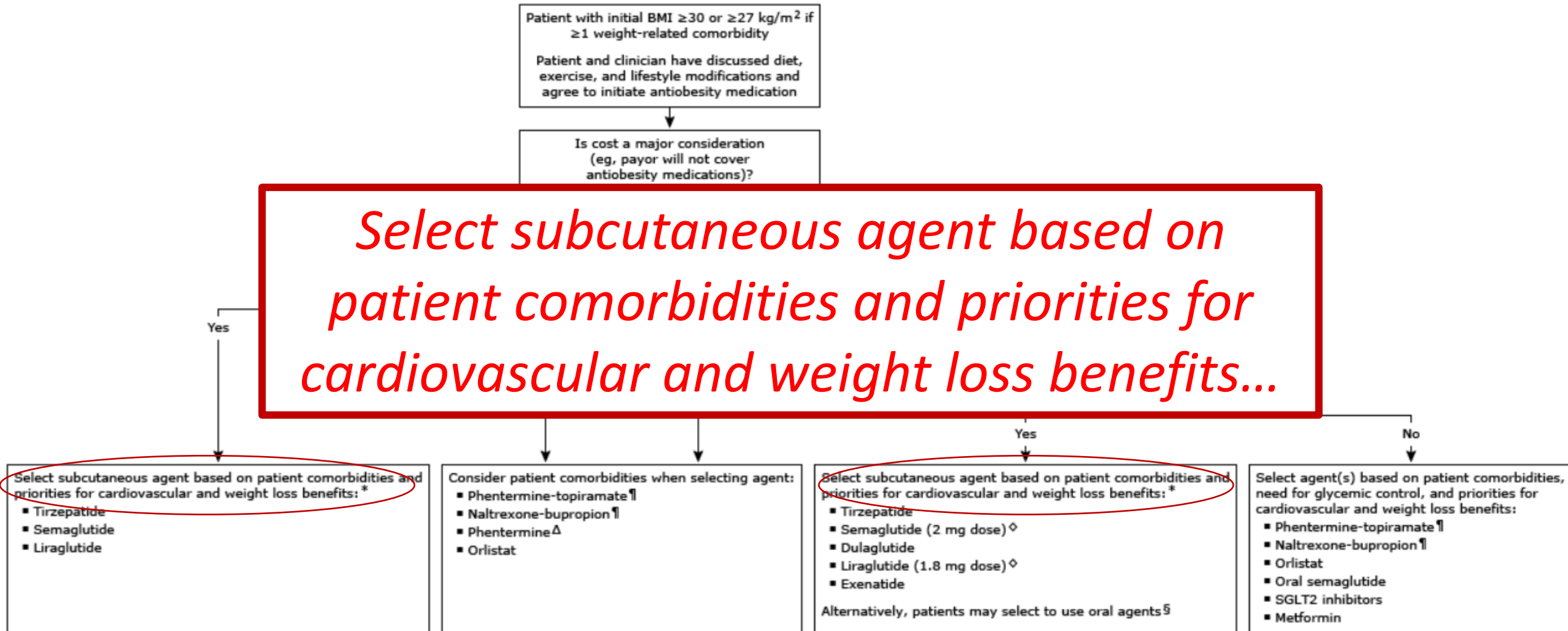
Efficacy Favors the GIP/GLP-1 Receptor Agonists

Mean percent (%) weight change reported in the main phase 3 and extension trials of the FDA approved anti-obesity medications.



EClinicalMedicine. 2023 Mar 20:58:101882

Indications for GLP-1s



Added Benefits



The OG: Glycemic control



Now we know: Weight loss



Makes sense: Improved lipid profiles

- Including nonalcoholic fatty liver disease & nonalcoholic steatohepatitis
-



New Indications: Cardiovascular and renal protection

- Beyond just downstream benefits of controlled blood sugar
-



New Frontiers:

- Dependency: Opioids, alcohol
- Parkinson's Disease

Cardiovascular Benefits

- **Reduce Major Adverse Cardiovascular Events (MACE)**
 - Cardiovascular death, nonfatal myocardial infarction, nonfatal stroke
- **Reduce All Cause Mortality**
- **Reduce Blood Pressure**
- **Improve Endothelial Function**
- **Anti-Inflammatory Effects**

	MACE in DM	All-Cause Mortality
Liraglutide*	13%	15%
Semaglutide*	26%	19%
Tirzepatide*	20%#	42%

*LEADER, SUSTAIN-6, & SURPASS trials



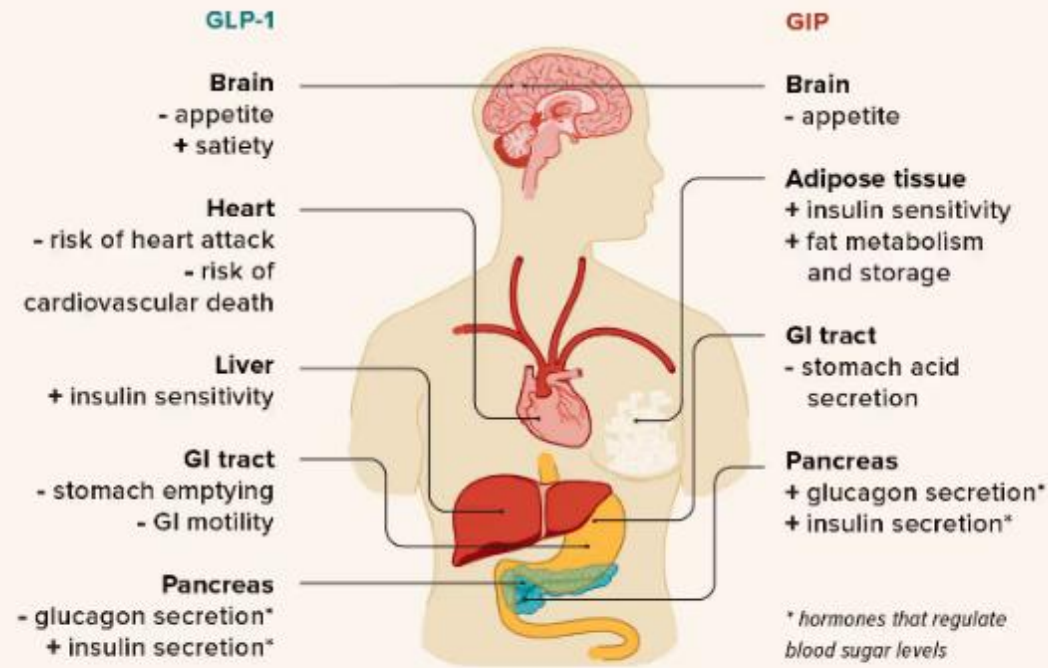


Renal (Kidney) Benefits

- **Reduce risk of nephropathy**
 - Onset and progression of albuminuria
 - Slow decline of GFR
 - Less progression to CKD
- **For Diabetics:**
 - + SGLT2 inhibitors = even greater nephroprotection
- **Improve renal hemodynamics**

How do GLP-1 Medications Work?

GLP-1 medications work by mimicking one or two naturally produced hormones: glucagon-like peptide-1 (**GLP-1**) and gastric inhibitory polypeptide (**GIP**).



Many GLP-1 drugs (like Ozempic and Wegovy) act by binding to GLP-1 receptors, resulting in the same effects of GLP-1 seen above.

However, some medications (like Mounjaro and Zepbound) are unique in that they bind to GLP-1 and GIP receptors, resulting in a combined effect.

healthline

Trends Endocrinol Metab. 2020;31(6):410-421. doi:10.1016/j.tem.2020.02.006

Access

- Insurance coverage is limited
 - Federal law prevents Medicare from covering weight loss drugs
 - 25% of people who took GLP-1s in 2023 were covered by insurance
- Cost is a major barrier to access
- Spiking demand outpaced supply



News Release

Lilly releases Zepbound® (tirzepatide) single-dose vials, expanding supply and access for adults living with obesity

August 27, 2024



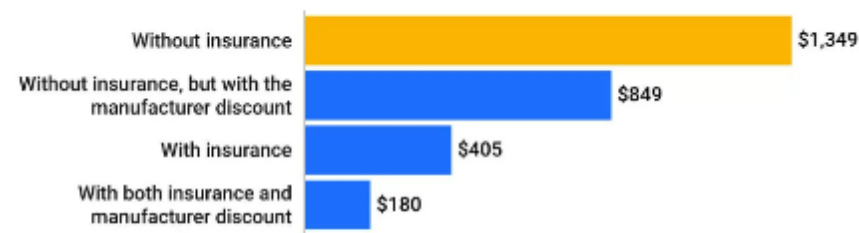
Distributed through LillyDirect® is Lilly's channel. Zepbound single-dose vials are at least 50% less than the list price of all other insulin medicines for obesity.

Wegovy costs with and without insurance

Wegovy costs \$1,349 per month if you pay full price or about \$405 per month if you have insurance coverage.

Wegovy could cost \$180 per month if you use insurance and a Wegovy coupon from the manufacturer.

Monthly cost of Wegovy



ValuePenguin | lendingtree

The Wegovy coupon from the drug manufacturer can help you save \$225 to \$500 per month, whether or not your insurance covers Wegovy.



Approach to Underwriting

- **If weight loss recent, follow company guidelines for recent weight loss**
- **Rate for underlying disease(s)**
 - Look for related evidence (i.e. build, A1c, cholesterol)
- **When considering the medication...**
 - Look at potential adverse effects
- **Consider additional favorable/unfavorable factors**
 - Acquired without Rx → no monitoring
 - Circumstances around starting med
- ***Surveillance is ongoing. If there is new information, guidelines will be revised.***

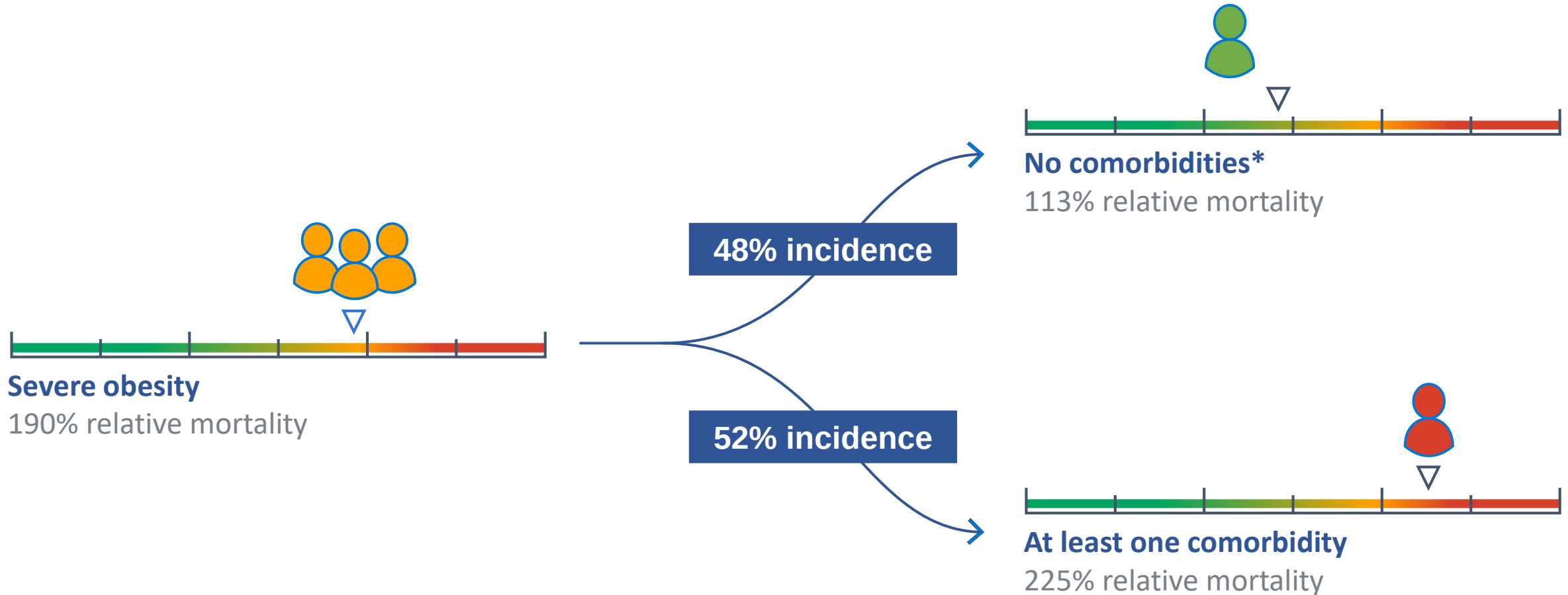


Case 1

- 40 y.o. female applies for life insurance coverage
- Disclosed
 - BMI ~39
 - Nonsmoker
- Paramedical Exam
 - BMI 41
 - BP: 124/77
 - Labs normal

Mortality of severe obesity is driven by comorbidities.

Applicants with severe obesity and no concerning comorbidities carry significantly lower risk.



*Heart disease, diabetes, cancer, and stroke

New Proposed Definition for Clinical Obesity

Traditional measurement of obesity vs new diagnostic method

#	1	2	3	4	5	6
BMI (kg/m ²)	23.7	28.8	28.8	32.4	39.2	39.2
Excess body fat?	No	No	Yes	No	Yes	Yes
Muscle mass	Normal / High	Normal	Normal / Low	High	Normal / Low	Normal / Low
Signs and symptoms?*	No	No	No	No	No	Yes
Old diagnosis	No obesity	Overweight	Overweight	Obesity	Obesity	Obesity
New diagnosis	No obesity	No obesity	Preclinical obesity	No obesity	Preclinical obesity	Clinical obesity

*Signs and symptoms of organ dysfunction due to excess body fat

Read the *Lancet Diabetes & Endocrinology* Commission on the definition and diagnostic criteria of clinical obesity online at: www.thelancet.com/commissions/clinical-obesity

THE LANCET Diabetes & Endocrinology

The best science for better lives

Case 2



- 33 y.o. male applies for life insurance coverage
- Disclosed
 - BMI ~35
 - Nonsmoker
 - Hypertension on losartan, hctz, and amlodipine
 - Mild OSA, uses CPAP 1 night per week
- Exam: BMI 37, BP & labs normal
- Medical Record: Confirms HTN and OSA.
 - ALSO depression on sertraline
 - Mild x 4 years, stable medication dosage x 2 years
 - No hospitalization, no SI
 - Began Wegovy (semaglutide) 2 months prior to application
 - Lost 7 lbs

ISSUE MORE LIVES... WITHOUT TAKING MORE RISK.

- America is experiencing an epidemic of severe obesity.
 - **9.4% of U.S. adults with BMI>40**
- Severe obesity correlates with mortality...
 - **190% relative mortality**
- ...but that correlation is driven by comorbidities.
 - **52% with key comorbidities**
- *Risk Score can identify insurable risks.*
 - **Millions of healthy Americans with BMI>40**

Takeaways

- **Fast and continuously growing area**
 - UWs will continue to see more people on these medications
 - Newer medications on the horizon
- **Research and monitoring for significant risk and additional benefit is ongoing**
 - Weight loss, cardiovascular and renal diseases are known so far
- **Understanding indications and contraindications can help underwriters understand how to assess a client's history**
 - Underwriting likely to be driven by build and related comorbidities
- ***Insights on long-term population level mortality is TBD***

QUESTIONS?

THANK YOU

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