

A close-up photograph of a person's hands using a blue and white glucose meter to test their finger. The person is wearing a dark patterned shirt. The image is partially obscured by a white diagonal shape on the left and a teal shape on the right.

# **Diabetes Study Contd.**

**Nutrition, Obesity and Lifestyle Management**

**State of Arkansas – Employee Benefits Division**

# Data Observations

## Observations From Data

The average diabetes prevalence for Plan members is around 8%. This is high when compared to Segal's SHAPE<sup>1</sup> benchmark of 6.1%.

Diabetic Rx spend has increased from about 35% in CY 2019 to 45% in CY 2022

Members with diabetes account for 21%, on average, of the total medical and prescription drug spend for the Plan. This is in-line with our SHAPE benchmark of 22%

Most diabetics are female

Most diabetics are age 50+

<sup>1</sup>SHAPE is Segal's internal data warehouse. Benchmarks are based on calendar year 2021 claims experience for 2.3M lives.



# Nutrition and Lifestyle Management

# Medical Nutrition Therapy

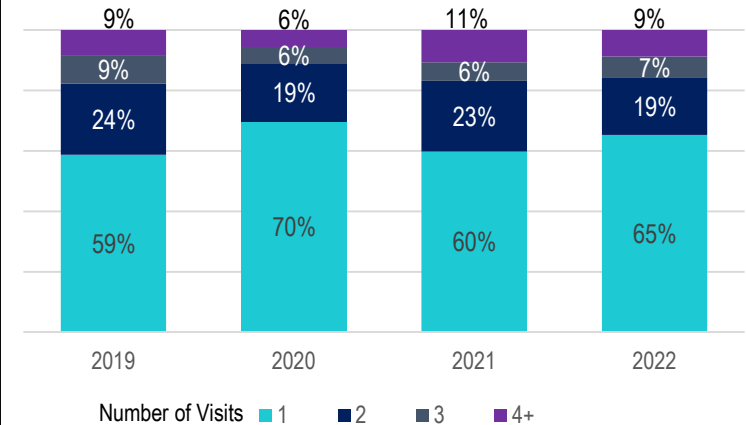
Active and Non-Medicare Retiree

Calendar Year	Medical Nutrition Therapy						
	Diabetics <sup>1</sup>	% Utilizers <sup>2</sup>	Visits per Utilizer	Cost per Visit	Member Paid per Visit	Total Cost	Total Visits
2019	7,689	4.7%	1.8	\$149	\$7	\$95,659	643
2020	8,452	5.3%	1.6	\$122	\$12	\$85,259	699
2021	9,041	4.7%	1.8	\$122	\$16	\$93,086	765
2022	9,183	4.1%	1.7	\$136	\$17	\$85,509	630

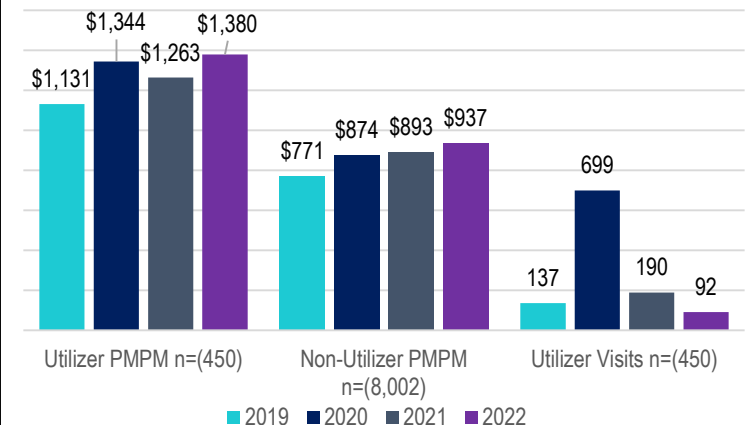
## Observations

- In CY 2022, 4.1% of diabetics had at least one medical nutrition therapy visits. The cost per visit was about \$136, of which \$17, or 13%, was paid by the member.
- The top right chart shows that the majority of utilizers had only 1 visit in a calendar year.
- The bottom right chart illustrates the cost, on a PMPM basis, of diabetics who utilized any nutrition therapy service in CY 2020. CY 2021 saw a drop in PMPM, however CY 2022 saw an increase in PMPM most likely due to lack of follow-up visits (as illustrated by the right most bars).

Utilizers by Number of Visits



CY 2020: Utilizers vs Non-Utilizer



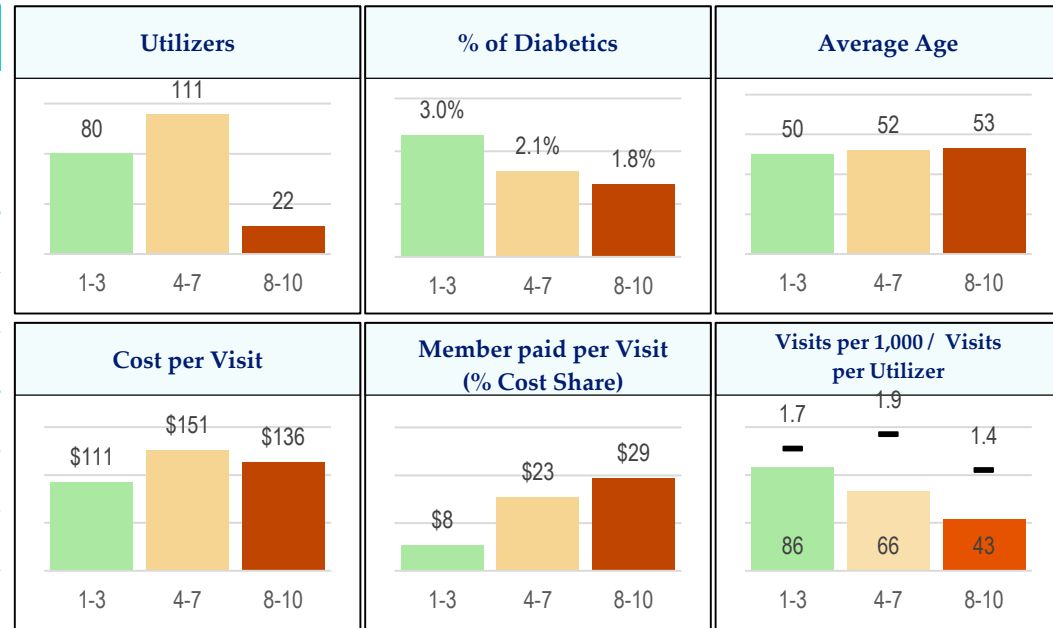
1. Type I diabetics are excluded from this analysis.

2. Utilizes are members who used medical nutrition therapy services during the specified calendar year.

# Medical Nutrition Therapy

Active and Non-Medicare Retiree

Area Deprivation Index (ADI) Levels <sup>1</sup>			
Categories	Least Disadvantaged (1-3)	Moderately Disadvantaged (4-7)	Most Disadvantaged (8-10)
Utilizers	140	201	36
Average Age	51	52	54
% of Diabetics	5.3%	3.8%	3.0%
Cost per Visit	\$126	\$145	\$119
Member Paid per Visit	\$10	\$21	\$25
% Cost Share	7.8%	14.3%	21.4%
Visits per Utilizer	1.6	1.7	1.4



## Observations

- Diabetics in the most disadvantaged areas are the least utilizer of medical nutrition therapy services.
- The cost per visit are comparable in each ADI group, however the member cost share appears higher in the most disadvantages areas due to lower significant lower utilization volume.

<sup>1</sup> Refer to end of this report for more details on Area Deprivation Index (ADI)

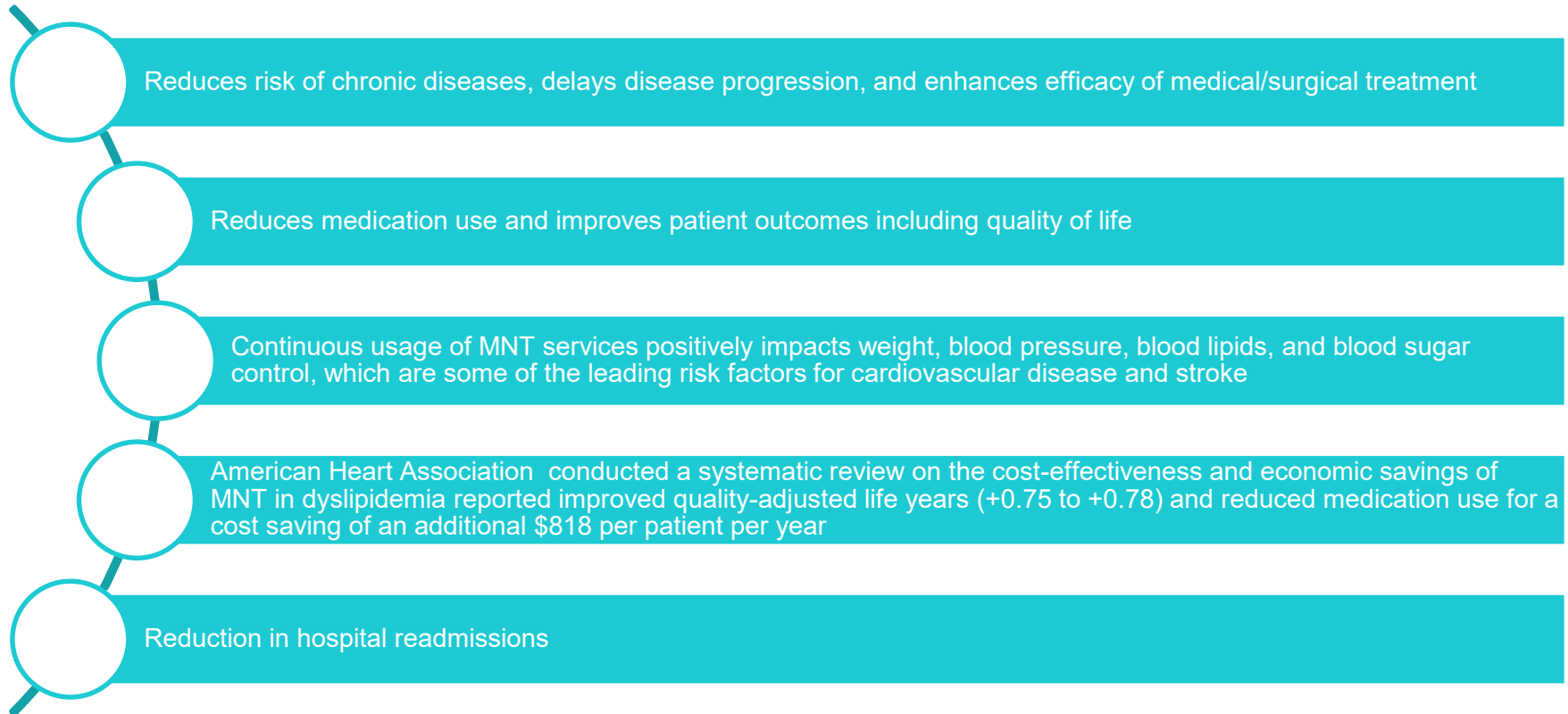
<sup>2</sup> Reflects adults only with valid BMI value (92% of Utilizers). Excludes adolescents (age < 18) and members with no BMI value

# Medical Nutrition Therapy (MNT)

## Cost Effectiveness and Reduction in Risk Factors

Medical Nutrition Therapy (MNT) proves to be cost effective by providing alternatives to more costly therapies. Studies show only one in ten adults meet the recommendations of the U.S. Dietary Guidelines for Americans (DGA) for fruits and vegetables while fewer than 10 percent met the guidelines for whole grains.

MNT provides the following interventions:



#### Sources:

<https://diabetesjournals.org/care/article/42/5/731/40480/Nutrition-Therapy-for-Adults-With-Diabetes-or>

<https://pubmed.ncbi.nlm.nih.gov/30055973/>

<https://pubmed.ncbi.nlm.nih.gov/37165278/>

[www.heart.org/-/media/Files/About-Us/Policy-Research/Policy-Positions/Access-to-Healthy-Food/Medical-Nutrition-Therapy-Policy-Statement-2022.pdf](http://www.heart.org/-/media/Files/About-Us/Policy-Research/Policy-Positions/Access-to-Healthy-Food/Medical-Nutrition-Therapy-Policy-Statement-2022.pdf)



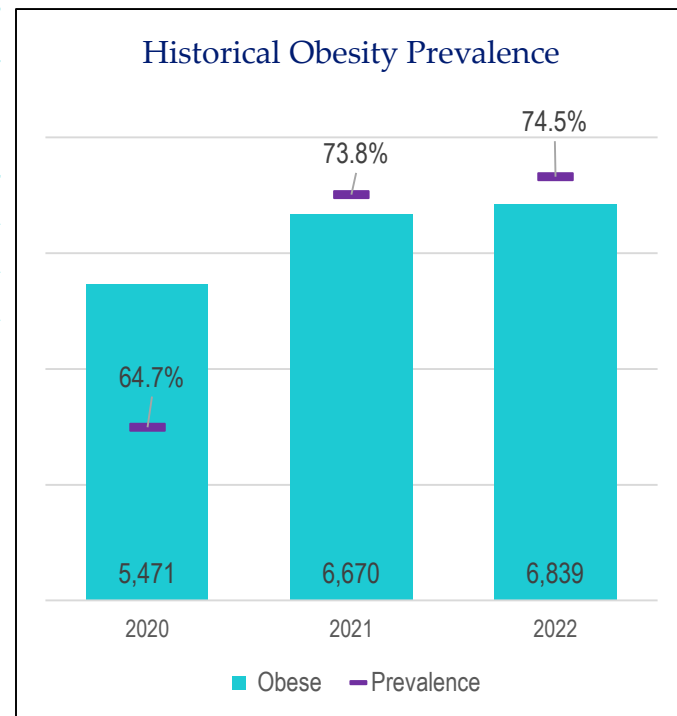
# Obesity

# Obesity

## Active and Non-Medicare Retiree

Obese Diabetics								
Calendar Year	Members	% of Diabetics	% MNT <sup>1</sup> Utilizers	Medical & Rx PMPM	Relative Cost <sup>2</sup>	Medical Cost	Rx Cost	Rx Cost (AOM <sup>3</sup> Only)
2020	5,471	64.7%	6.7%	\$989	2.5x	\$44,296,876	\$20,081,374	\$0
2021	6,670	73.8%	5.2%	\$950	2.2x	\$48,216,820	\$27,001,206	\$0
2022	6,839	74.5%	4.6%	\$990	2.4x	\$44,606,394	\$35,843,590	\$0

CY 2021: Obese Diabetics				
Obesity Class <sup>4</sup>	Members	% of Total	Medical & Rx PMPM	Relative Cost <sup>5</sup>
Class 1	2,174	31.8%	\$976	1.0x
Class 2	1,966	28.7%	\$935	0.9x
Class 3	2,527	36.9%	\$940	0.9x
Unknown	3	0.0%	\$220	0.2x
<b>Total</b>	<b>6,670</b>		<b>\$950</b>	



### Observations

- In CY 2022, 74.5% of diabetics were also classified as obese. 4.6% of obese diabetics had at least one medical nutrition therapy during the same time period.
- The prevalence of obesity within the diabetic population has increased over the past 3 year.
- The bottom table breaks down the CY 2021 diabetics by class. While class 3, the morbidly obese class, had the highest percentage of obese diabetics (about 37%), the cost comparison – on a PMPM basis – was almost identical for all classes.

<sup>1</sup> MNT means medical nutrition therapy.

<sup>2</sup> Relative cost compares the PMPM of obese diabetic to the PMPM of the overall population.

<sup>3</sup> AOM: anti-obesity medication

<sup>4</sup> Class 1: BMI 30-34, Class 2: BMI 35-39, Class 3: BMI 40+.

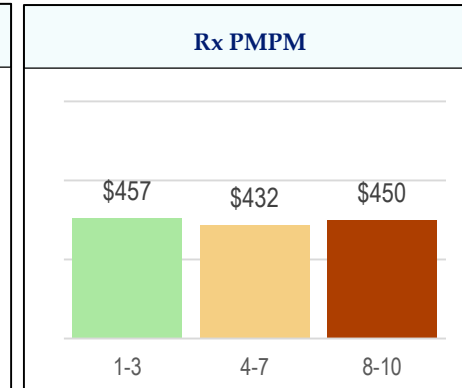
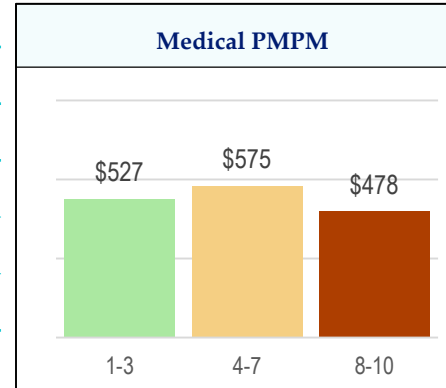
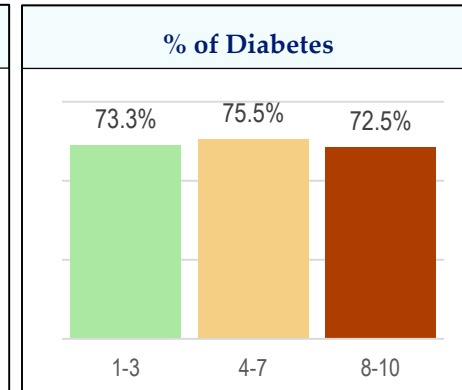
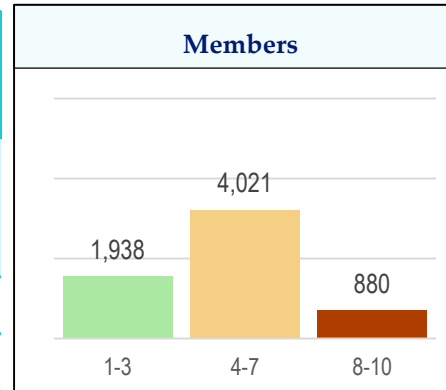
<sup>5</sup> Relative cost compares the PMPM of specified class to the PMPM of obese diabetics in CY 2022.



# Obesity

## Active and Non-Medicare Retiree

CY 2022			
Area Deprivation Index (ADI) Levels <sup>1</sup>			
Categories	Least Disadvantaged (1-3)	Moderately Disadvantaged (4-7)	Most Disadvantaged (8-10)
<b>Membership</b>			
Members	1,938	4,021	880
% of Total	28%	59%	13%
% of Diabetics	73.3%	75.5%	72.5%
<b>Claim Experience</b>			
Medical PMPM	\$527	\$575	\$478
Rx PMPM	\$457	\$432	\$450
Total PMPM	\$985	\$1,007	\$928



### Observations

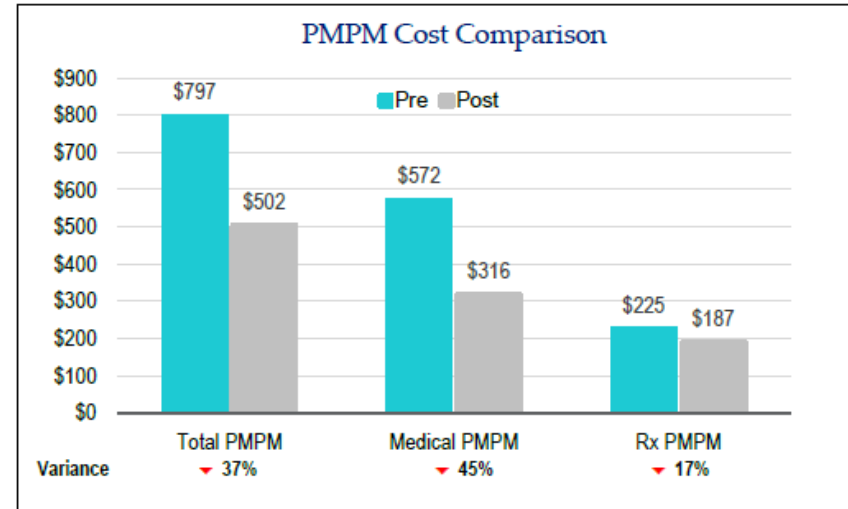
- Most obese diabetics, 59%, reside in moderately disadvantaged areas, they also have the highest obesity prevalence for the Plan diabetics at 75.5%.
- Medical and Rx cost, on a PMPM basis, are comparable between ADI groups.

<sup>1</sup> Refer to pages 2-3 for more details on Area Deprivation Index (ADI).

# Bariatric Surgery Spotlight

from 2021

Data Metrics (n=244)	12mo Prior to Surgery ("Pre") <sup>1</sup>	12mo Post Surgery ("Post") <sup>2</sup>	Variance (Post vs Pre)
<b>Claims Experience (PMPM)</b>			
Medical	\$572	\$316	-45%
Rx	\$225	\$187	-17%
<b>Total</b>	<b>\$797</b>	<b>\$502</b>	<b>-37%</b>
<b>Key Utilization (Services per 1,000)</b>			
Inpatient Admissions	57	74	29%
ER Visits	258	160	-38%
Urgent Care Visits	12	20	67%
Rx Scripts	33,291	25,926	-22%



## Observations

- The charts above identify bariatric surgeries performed in calendar year ("CY") 2019 and then compares the financial, and key utilization, variances of those members 12-months prior to their surgery and 12-months post-surgery.
- In CY 2019, 265 members had bariatric surgeries with an average cost per surgery of about \$12k. Of those 265 members, 244 had 12-months of claims experience pre and post surgeries.
- The cost impact, on a PMPM basis, is very favorable for members post-surgery. Total PMPM cost decreased 37% for those members largely driven by a reduction of 45% in medical PMPM cost.
- Key utilization metrics look also favorable with ER visits and Rx scripts down 38% and 22% respectively.
- We note that the increase in hospital inpatient admissions could be due to co-morbid condition of the affected members.



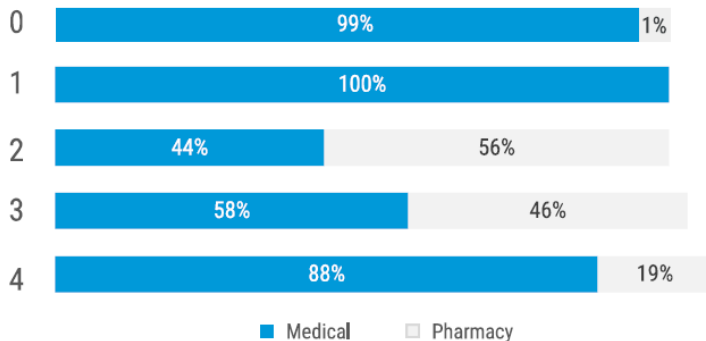
# State of AR Current Vendors

# Blue Cross Overall Report 2022

## RISK STRATIFICATION

RISK LEVEL	MEMBERS	MEMBER %	BENCHMARK MBRS %	TOTAL MEDICAL PAID	TOTAL RX PAID	TOTAL	PAID/MEMBER
0	3	0%	0%	\$2,477	\$20	\$2,497	\$0
1	2	0%	0%	\$1,232	\$0	\$1,232	\$616
2	1,220	9%	14%	\$651,615	\$838,074	\$1,489,689	\$1,221
3	8,483	60%	57%	\$18,200,263	\$13,469,803	\$31,670,066	\$3,733
4	4,525	32%	29%	\$62,743,652	\$14,365,166	\$77,108,818	\$17,041
<b>Total</b>	<b>14,233</b>	<b>100%</b>	<b>100%</b>	<b>\$81,599,239</b>	<b>\$28,673,063</b>	<b>\$110,272,303</b>	<b>\$7,748</b>

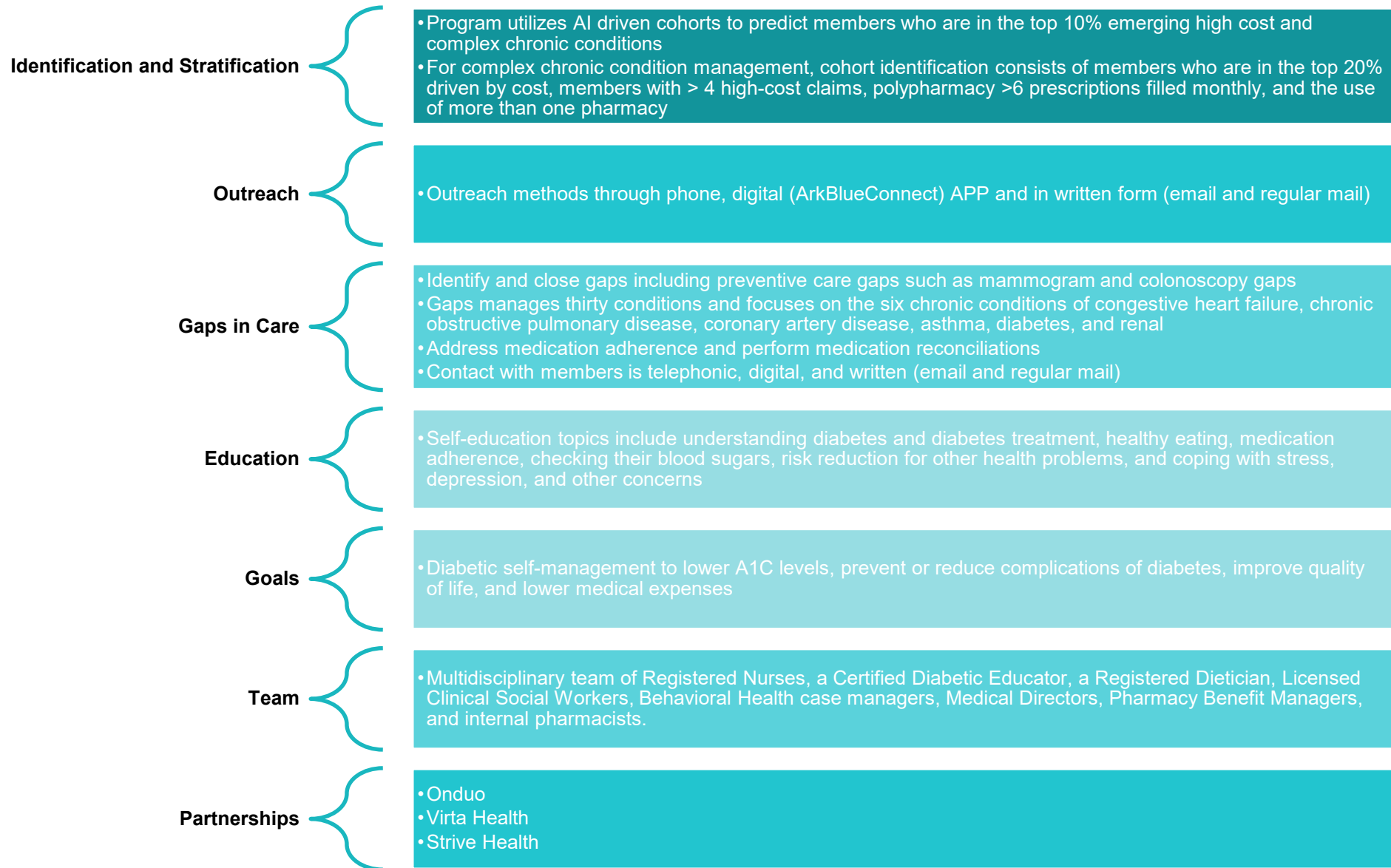
### RATIO OF MEDICAL TO PHARMACY SPEND



### TOP CONDITIONS FOR DIABETIC MEMBERS

CONDITION	DIABETIC MEMBERS	% OF MEMBERS WITH CONDITION	BENCHMARK %
Diabetes	14,233	100%	N/A
BH	8,656	2%	2%
CAD	4,970	16%	14%
Renal	3,042	8%	7%
Pre-Dialysis	2,896	0%	0.20%
Cancer	2,678	14%	10%
Asthma	1,825	4%	4%
CHF	1,729	5%	5%
COPD	1,487	4%	5%
>\$50k	249	5%	4%
PET	243	1%	1%
Dialysis	147	0.70%	0.60%

# Blue Cross Program Components



# Navitus Program Components

## Pharma Coadherence Program

- Identifies and measures outcomes for nonadherent members with diabetes
- Targets members with a Proportion of Days Covered (PDC) for diabetes medical (excludes insulin) of less than 0.80
- Mails intervention letters to members and their prescribers

## Concurrent Drug UR

- Point of sale alerts based on clinical severity
- Checks members prescriptions against active and historical medications for potential conflicts
- Diabetes-focused drug-drug interactions
  - Combinations with increased risk of low or high blood sugar
  - Combinations with increased or decreased adverse effects
  - Interactions that cause liver, heart or kidney damage
- Therapeutic duplication of diabetes medication
  - Identify claims for medications in the same drug class
  - Duplication of diabetes medication can increase risk of low blood sugar and adverse effects

## Retrospective Drug UR

- Duplicate Therapy Intervention
  - Identifies members using multiple drugs in the same therapeutic class consistently during the last four months
  - Duplicate therapy has the potential for additive toxicity or adverse effects, and may cause therapeutic redundancy without increased benefit to the patient
  - Simplifying the member's drug regimen to one drug may save the member money and lead to better adherence
- GLP-1 receptor antagonists and DPP-4 inhibitors
  - Drug classes used to treat Type 2 diabetes
  - Both work the same way in the body

## Reporting

- Identifies members with newly prescribed diabetes medication and who are filling a diabetes medication for the first time
- Enables clinical staff to perform outreach and case management for identified members

## Partnerships

- Virta Health



# Recommendations



# Obesity Causes and Risks

## Causes/Triggers of Severe Obesity

- Psychological
- Social
- Emotional
- Metabolic (Syndrome)
- Genetics (New information, and we keep learning more)

## High Risks of:

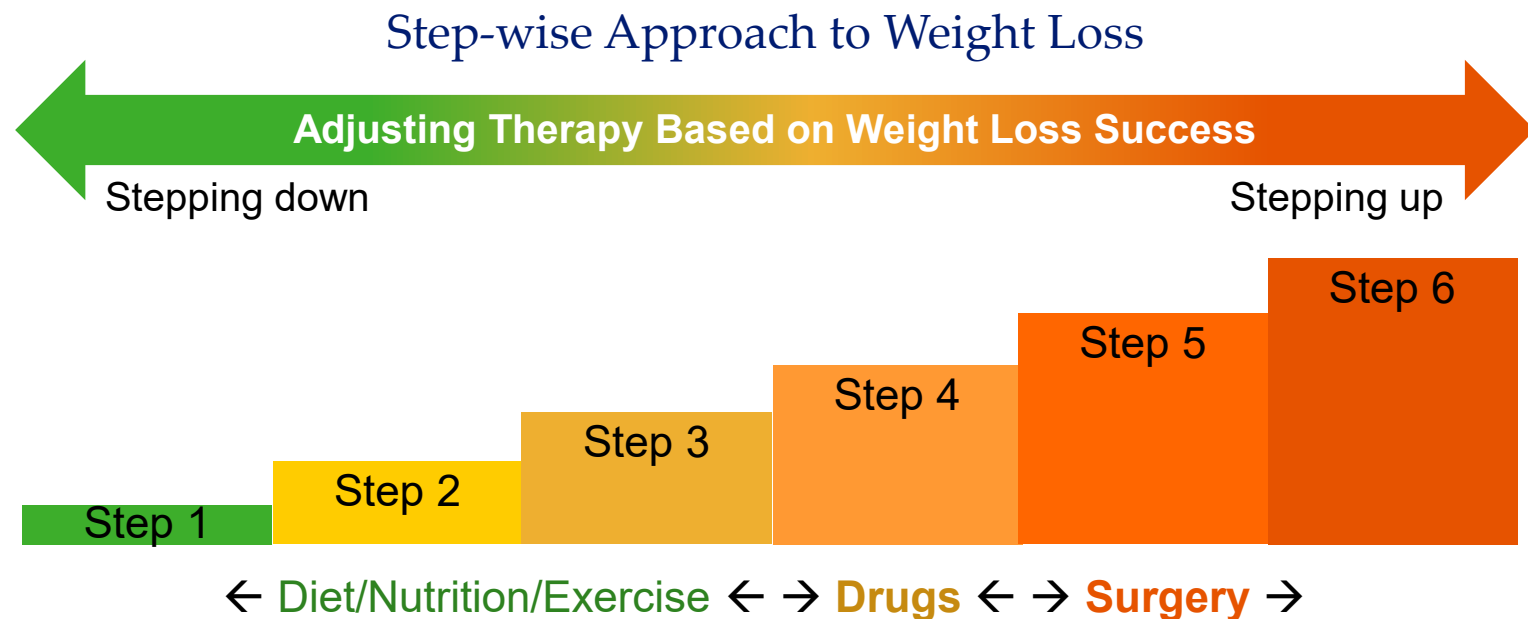
- Hypertension
- Diabetes
- Infertility
- Joint stress
- Sleep apnea
- Gallstones
- Coronary Artery Disease (CAD)
- Infertility
- Varicose Veins
- Gout
- Deep Vein Thrombosis (DVT)
- Degenerative arthritis/osteoarthritis





# Step Therapy Approach

First try in step-therapy type of order:



# Inventory of Options

- Wellness programs
  - Diet/Nutrition/Healthy Eating
  - Exercise/Physical Activity/Fitness
  - Behavior change (through counseling/support groups)
  - Lifestyle coaching programs
  - Lifestyle electronic devices to monitor health
  - Alternative medicine/therapies
- Disease management programs
  - Self-care coaching for Obesity
  - Pre-diabetic and Diabetes DM programs
  - Digital Therapeutics
- Step therapy approach to combat Obesity
- Prescription weight-loss meds
- Vagal Nerve Blockade - Avoid
- Bariatric surgery coverage

# | Vendor Options



# Digital Therapeutics

**Digital Therapeutics (DTx) deliver evidence-based therapeutic interventions to patients and are driven by high quality software programs.**

The focus is to prevent, manage, or treat a broad spectrum of physical, mental, and behavioral conditions

- Deliver reliable, evidenced-based interventions with a high control of quality
- Increase access to therapies that are clinically demonstrated as safe and effective
- Personalize care based on individual patients' needs and abilities
- Administer therapeutic interventions in an engaging and convenient way
- Provide care independent of a patient's schedule and in the privacy of their own environment (e.g., home, office, on-the-go, etc.)
- Reduce stigma associated with the delivery of certain traditional therapies
- Provide patients, caregivers, and select healthcare providers with secure progress updates on personalized goals and outcomes

Many companies have entered into the digital therapeutics market place and consolidation is happening quickly:

- Telemedicine
- Wellness Platforms/Hubs
- Behavioral Health
- Musculoskeletal
- Weight Management
- Diabetes Management
- Fitness
- Health Screenings
- Care Management
- Financial



# Top Point Solutions in Diabetes and Weight Loss

## Find out what exists in the carrier partnership before presenting a separate program

### Diabetes Prevention Program Options    Weight Loss

- [Virta](#)
- [Livongo](#) (also Hypertension)
- [Omada](#)
- [Lark](#) (also Hypertension and Behavioral)
- [Solera](#) (also Behavioral)

### Diabetes Options

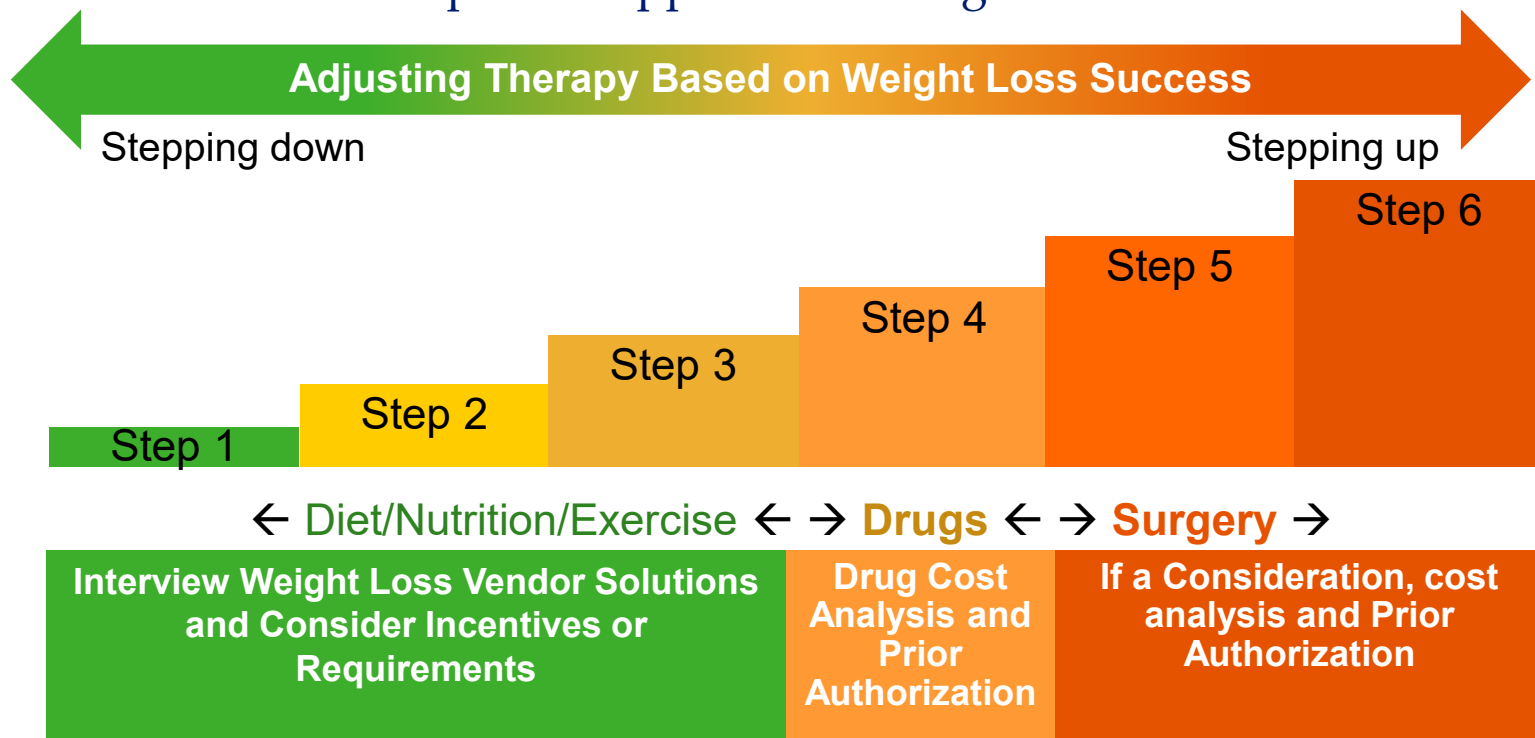
- [Virta](#)
- [Livongo](#)
- [Omada](#)
- [TrestleTree](#)
- [Onduo](#)

- [Wondr Health \(formerly Naturally Slim\)](#) (Behavioral/Eating Skills)
- [Burnalong](#) (Fitness/Physical Activity)
- [TrestleTree](#) (Health Coaching Focus, AR based)
- [Habitnu](#) (Community/Weight Coach)
- [Noom](#) (Diet & Chronic Cond. Coaching)
- [Burner](#) (Community/Point for Activities)
- [Wellable](#) (Challenges/Healthy Activities)
- [Vida](#) (Mental/Condition/Lifestyle Health)
- [Strive](#) (Community/Fitness/Activities)
- [WW](#) (formerly WeightWatchers) (Diet/Coaching)

# Next Steps

## Comprehensive Approach:

### Step-wise Approach to Weight Loss





# Obesity and Diabetes Statistics



# Obesity – Direct and Indirect Costs

## Costs of Obesity<sup>1</sup>

### Direct Costs of Obesity

- The cost of treating the five most common obesity-related conditions (stroke, coronary artery disease, diabetes, hypertension, and elevated cholesterol) resulted in roughly \$9,000 to \$17,000 higher costs annually compared to normal-weight adults.
- The cost of medical claims for patients with obesity is double that of those without obesity.
- Healthcare costs triple and quadruple as the obesity severity worsens from Class 2 (BMI 35-39) to Class 3 obesity (BMI >40).

### Indirect Costs of Obesity

- Recent studies show that patients with obesity miss more days of work and have twice as many workers' compensation claims than those without obesity.
- Employers pay higher life insurance premiums.
- Less than 30% of employers choose to offer coverage for the two most effective treatments for obesity: anti-obesity medications and bariatric surgery.

## Obesity is Common, Serious, and Costly

Obesity impacts our nation's health, economy, and military readiness.


  
About **1 in 5 children** and more than **1 in 3 adults** struggle with obesity.

  
The United States spends **\$147 BILLION** annually on obesity-related health care.

  
Only **2 in 5 young adults** are weight eligible and physically prepared for basic training.

Americans don't eat healthy enough or get the right amount of physical activity.

  
Fewer than **1 in 10 children and adults** eat the recommended daily amount of vegetables.

  
Fewer than **1 in 4 youth** get enough aerobic physical activity.

  
Just **1 in 4 adults** meet the physical activity guidelines.

Many Americans lack healthy, affordable foods and places to be active.

  
More than **half of Americans** don't live within half a mile of a park.

  
**40% of all US households** do not live within 1 mile of healthier food retailers.

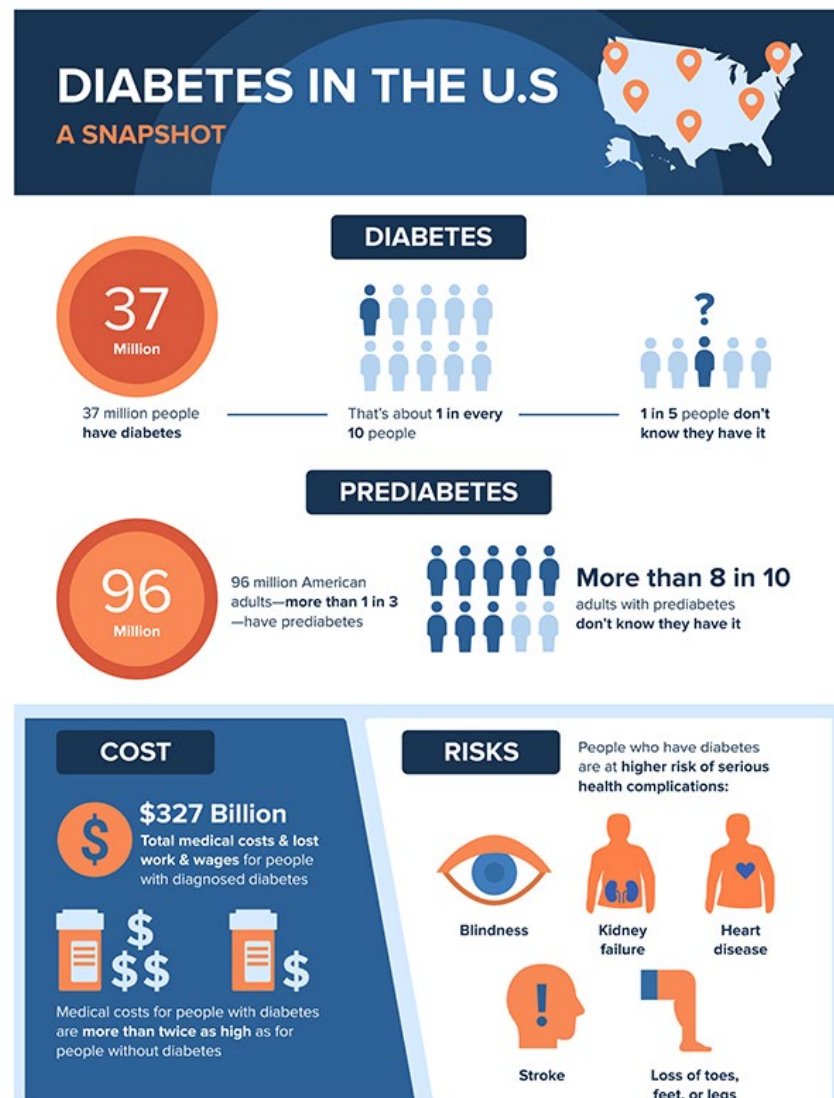
July 2022

<sup>1</sup><https://www.cdc.gov/obesity/data/adult.html>

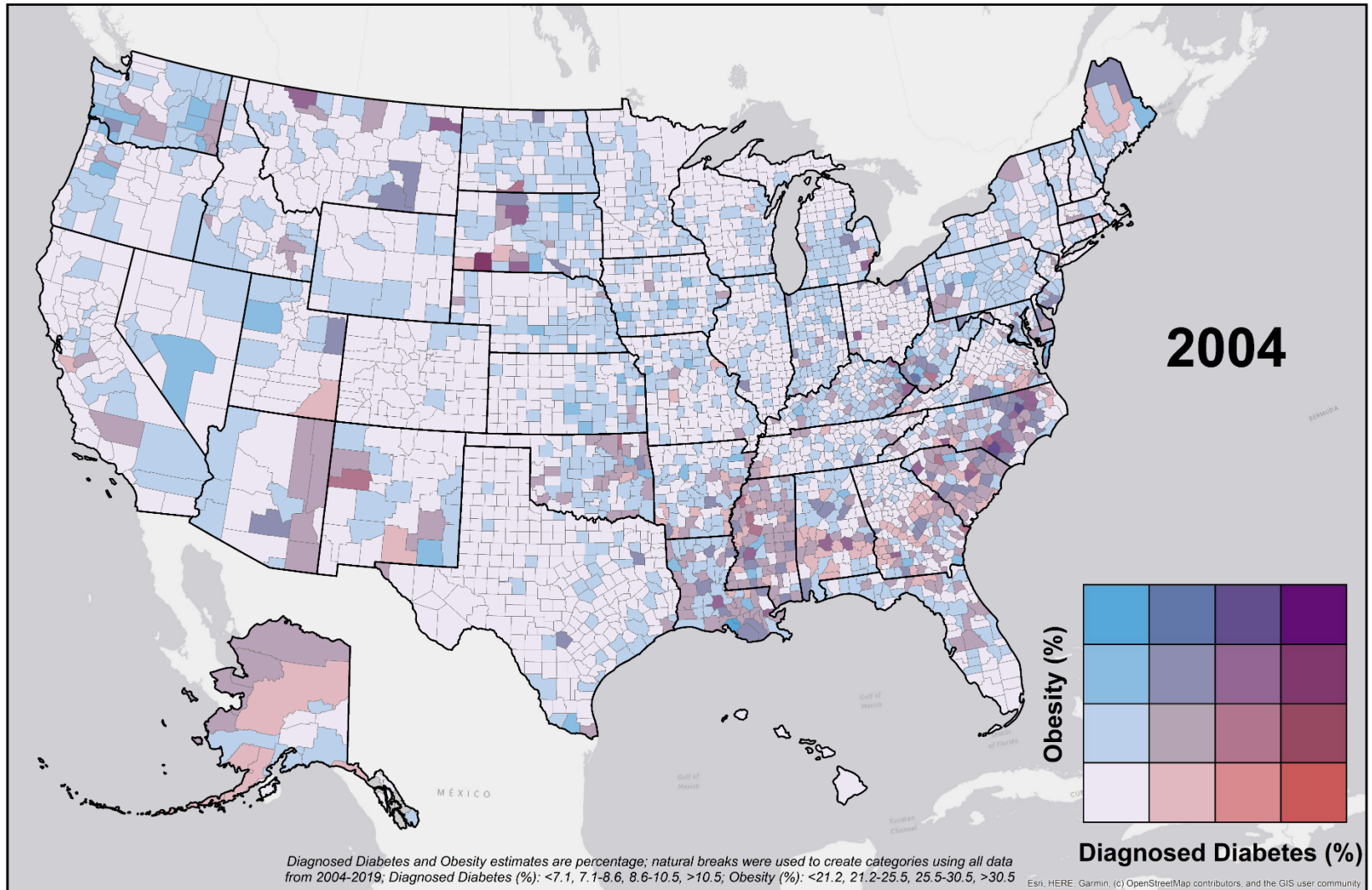
# Diabetes - Direct and Indirect Costs

- The total direct and indirect estimated costs\* of diagnosed diabetes in the United States in 2017 was \$327 billion.
- Total direct estimated costs of diagnosed diabetes increased from \$188 billion in 2012 to \$237 billion in 2017 (2017 dollars); total indirect costs increased from \$73 billion to \$90 billion in the same period (2017 dollars).
- Between 2012 and 2017, excess medical costs per person associated with diabetes increased from \$8,417 to \$9,601 (2017 dollars).

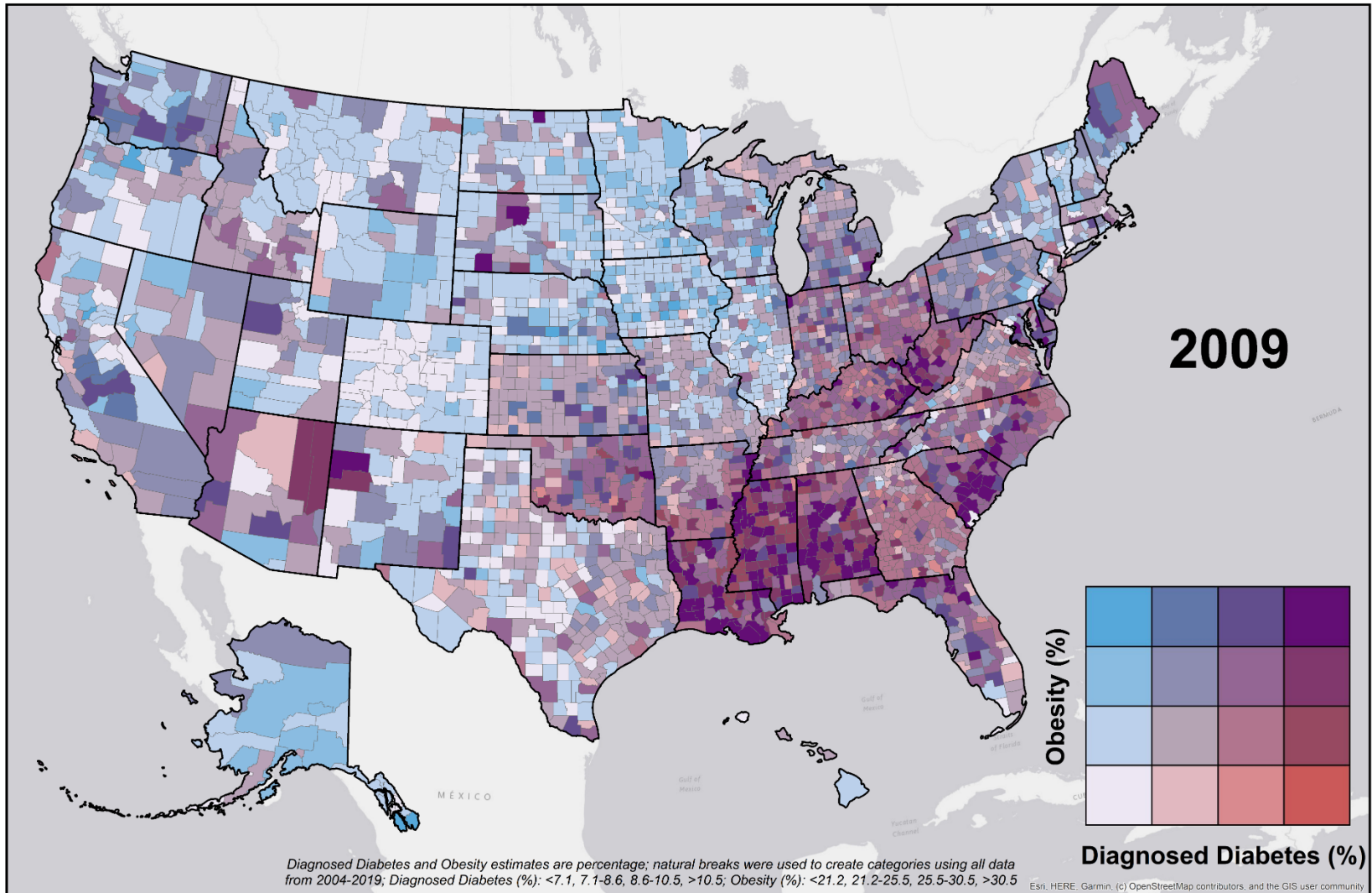
*\*Direct costs = medical costs; indirect costs = lost productivity from work-related absenteeism, reduced productivity at work and at home, unemployment from chronic disability, and premature mortality*



# Map of diagnosed diabetes vs. obesity by county among US adults, 2004

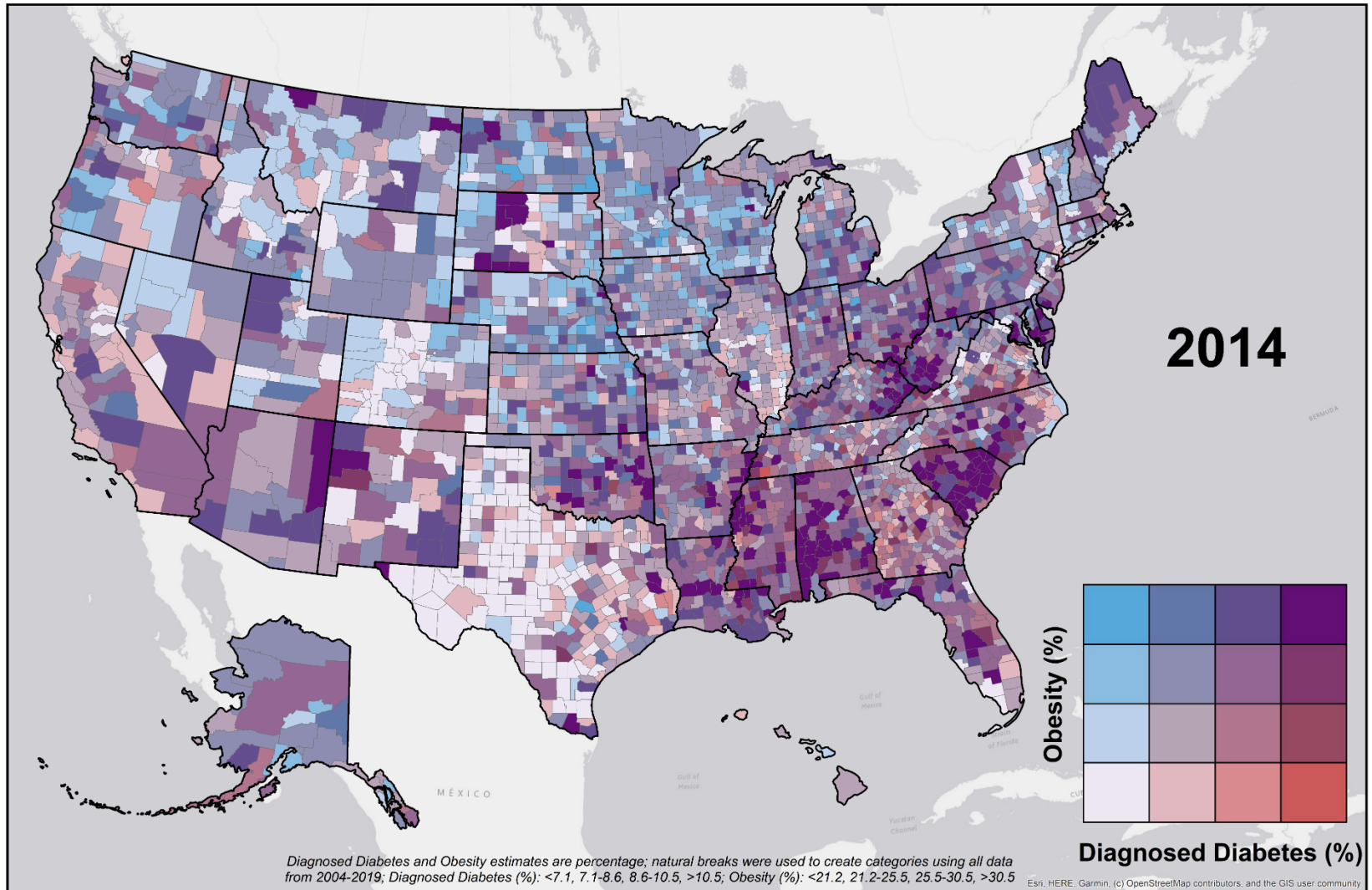


# Map of diagnosed diabetes vs. obesity by county among US adults, 2009

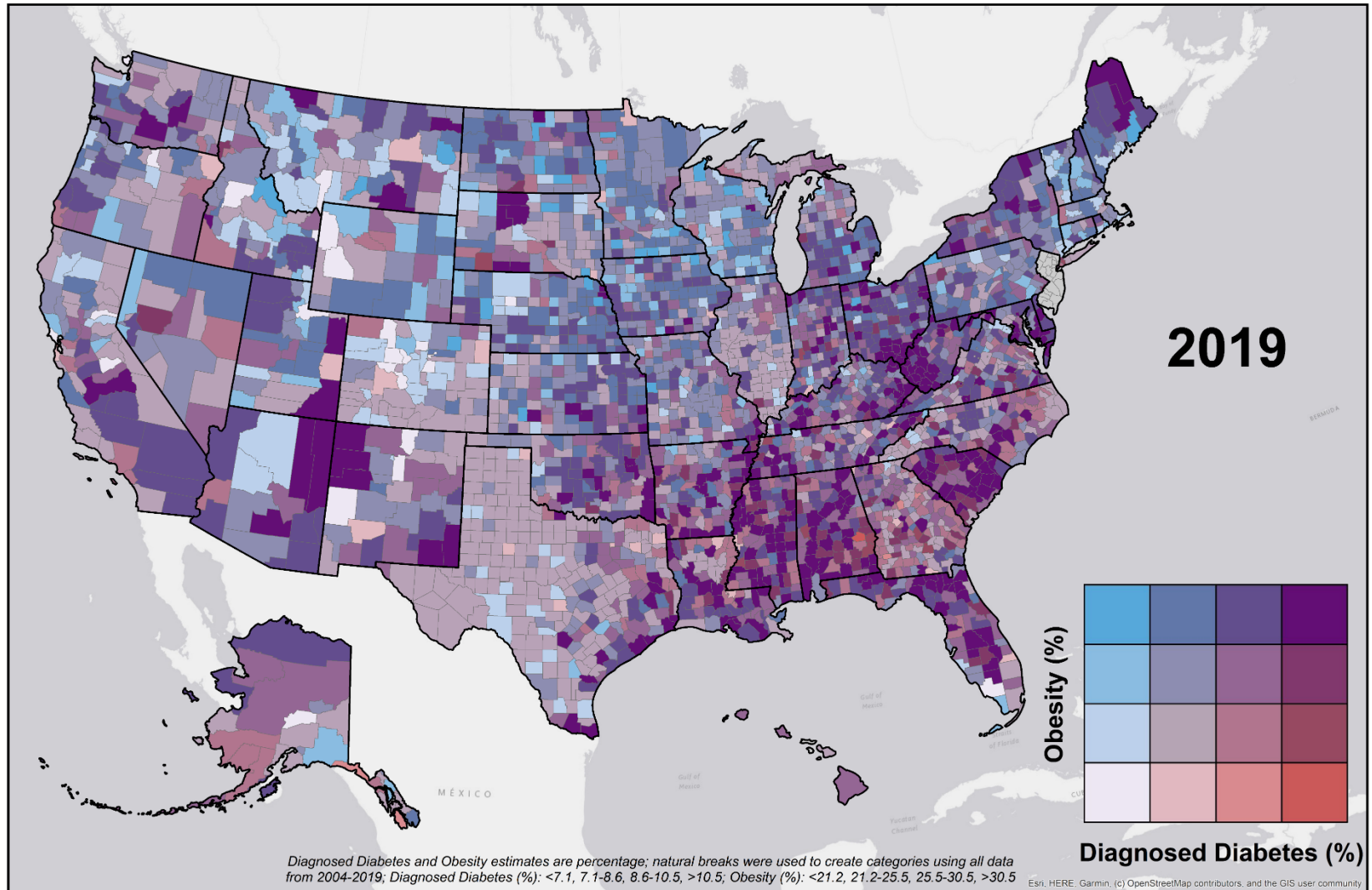




# Map of diagnosed diabetes vs. obesity by county among US adults, 2014



# Map of diagnosed diabetes vs. obesity by county among US adults, 2019



# Diabetes vs. Obesity by County in US Map Data Explanation

- Data from CDC's Behavioral Risk Factor Surveillance System (BRFSS) and from the US Census Bureau's Population Estimates Program were used for county-level estimates of diagnosed diabetes and obesity.
- Prevalence Definitions
  - Diagnosed diabetes: response of “yes” to the question, “Has a doctor ever told you that you have diabetes?” Women who indicated that they only had diabetes during pregnancy were excluded.
  - Obesity: body mass index of  $\geq 30$  derived from self-report of height and weight.
- Estimates were restricted to adults aged  $\geq 20$  years.
- Estimates were based on the power prior log-weights (PLOW) approach\*.
- Rates were age adjusted to the 2000 US standard population using age groups 20-44, 45-64, and  $\geq 65$  years.

\*Xie H, Barker LE, Rolka DB. Incorporating design weights and historical data into model based small area estimation. J Data Sci. 2020;18:115-131.

# Are of Deprivation Index

## About the Area Deprivation Index (ADI)

The Area Deprivation Index (ADI) is based on a measure created by the Health Resources & Services Administration (HRSA) over three decades ago, and has since been refined, adapted, and validated to the Census Block Group neighborhood level by Amy Kind, MD, PhD and her research team at the University of Wisconsin-Madison. It allows for rankings of neighborhoods by socioeconomic disadvantage in a region of interest (e.g. at the state or national level). It includes factors for the theoretical domains of income, education, employment, and housing quality. It can be used to inform health delivery and policy, especially for the most disadvantaged neighborhood groups.

<https://www.neighborhoodatlas.medicine.wisc.edu/>

## What do the ADI values mean?

The ADIs on this website are provided in national percentile rankings at the block group level from 1 to 100. The percentiles are constructed by ranking the ADI from low to high for the nation and grouping the block groups/neighborhoods into bins corresponding to each 1% range of the ADI. Group 1 is the lowest ADI and group 100 is the highest ADI. A block group with a ranking of 1 indicates the lowest level of "disadvantage" within the nation and an ADI with a ranking of 100 indicates the highest level of "disadvantage".

Similarly, ADIs are also available in deciles from 1 to 10 for each individual state. The state deciles are constructed by ranking the ADI from low to high for each state alone without consideration of national ADIs. Again, group 1 is the lowest ADI (least disadvantaged) and 10 is the highest ADI (most disadvantaged).



# Are of Deprivation Index

## Map of Area Deprivation Index

<https://www.neighborhoodatlas.medicine.wisc.edu/mapping>

