

eHEALTH INITIATIVE



How to Quantify the Impact of SDOH

January 22, 2020



Agenda

- Welcome and Introductions
 - **Claudia Ellison**, Director of Programs, eHealth Initiative
- Presenters
 - **Ben Isgur**, Health Research Institute Leader, PwC
 - **Sam Burns**, Emerging Technology, Director, PwC
 - **Chris Culak**, Vice President, Chief of Strategy and Development, VNA Meals on Wheels
 - **Chezev Matthew**, Data Scientist, PwC



Today's Speakers



Ben Isgur

*Health Research
Institute Leader,
PwC*



Sam Burns

*Emerging Technology,
Director, PwC*



Chris Culak

*Vice President, Chief of
Strategy and
Development, VNA
Meals on Wheels*



Chezev

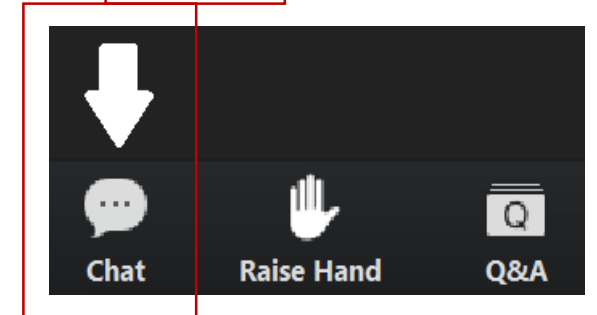
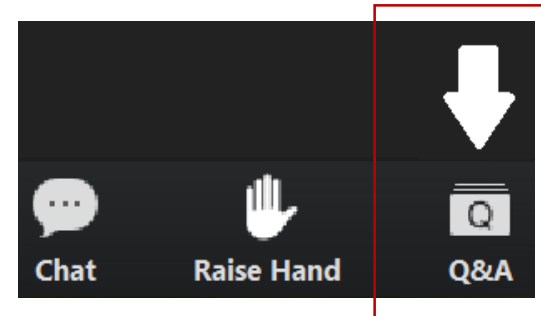
Matthew

Data Scientist, PwC



Housekeeping

- **All participants are muted**
- Use the **Q&A** box to ask a question related to the presentation
- Use the chat box is for *technical difficulties* and other questions / comments



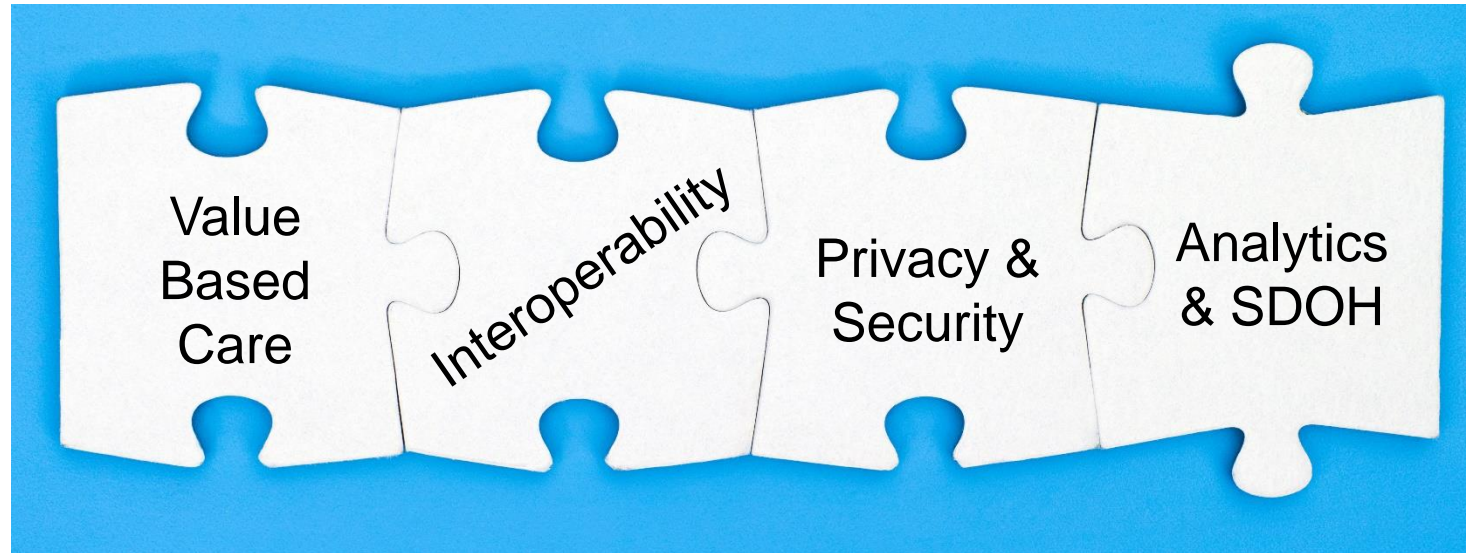
Presentation slides are in the eHI resource Center
<https://www.ehidc.org/resources>

eHI's Mission

To serve as the industry leader in **convening executives** and multi-stakeholder groups to **identify best practices** that **transform healthcare** through the use of **technology and innovation**



Current Areas of Focus

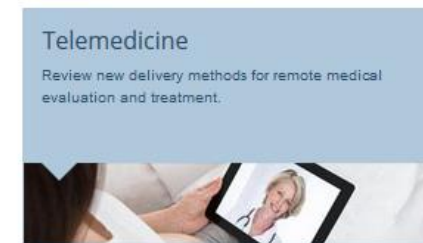


Cost Transparency	Understanding FHIR / APIs / Da Vinci	Protection vs. Access	Non-traditional data sources
Prior Authorization	Policy	HIPAA Part 2	SDOH & PGHD
	Workflow	Cybersecurity	EHR Data for Clinical trials
	Info Blocking	Medical Device Security	



Thousands of Resources

- Best Practices
- Reports
- Surveys
- Policy Briefings
- Comment Letters



Who does eHI work with?

In 2019 eHI worked with

- **1,400+ Payers & Providers**
- **3,000+ Stakeholders**

How do we reach stakeholders?

- Webinars
- Roundtables
- Task Forces / Work Groups
- Conferences
- Meetings
- HIMSS



eHI Leadership Council



Booz | Allen | Hamilton



eHI Events and Meetings

(<https://www.ehidc.org/events>)

- **Working with Government to Advance SDOH**

Tuesday, February 4, 2020 | 8:30 am - 5:00 pm

Barbara Jordan Conference Center, 1330 G Street NW,
Washington, DC, 20005

- **eHI VIP Networking Reception at HIMSS**

Tuesday, March 10, 2020 | 5:30 – 7:00 pm

OCCC, EF Overlook



We thank PwC for their support



Identifying and quantifying the impact of social determinants of health



Agenda

-
- Key findings from PwC's report – **The urgency of addressing social determinants of health**
 - How to lead in social determinants of health: Five steps for bold action
-
- A deeper dive – Applying technology and data analytics to tackle social determinants of health
-
- Case study – Quantifying the health impact and ROI of Meals on Wheels – how Visiting Nurse Association (VNA) of Texas applied technology to quantify their program's impact
-

For more on PwC's new report "Action required: The urgency of addressing social determinants of health," download the report at <http://pwc.com/sdoh>

Today's presenters

Speakers



Ben Isgur

Health Research Institute
Leader, PwC
benjamin.isgur@pwc.com



Sam Burns

Emerging Technology, Director, PwC
samuel.p.burns@pwc.com

Case study



Chris Culak

Vice President, Chief of Strategy
and Development, VNA Meals
on Wheels
culakc@vnatexas.org



Chezev Matthew

Data Scientist, PwC
chezev.z.matthew@pwc.com

Key findings from PwC's report – The urgency of addressing social determinants of health

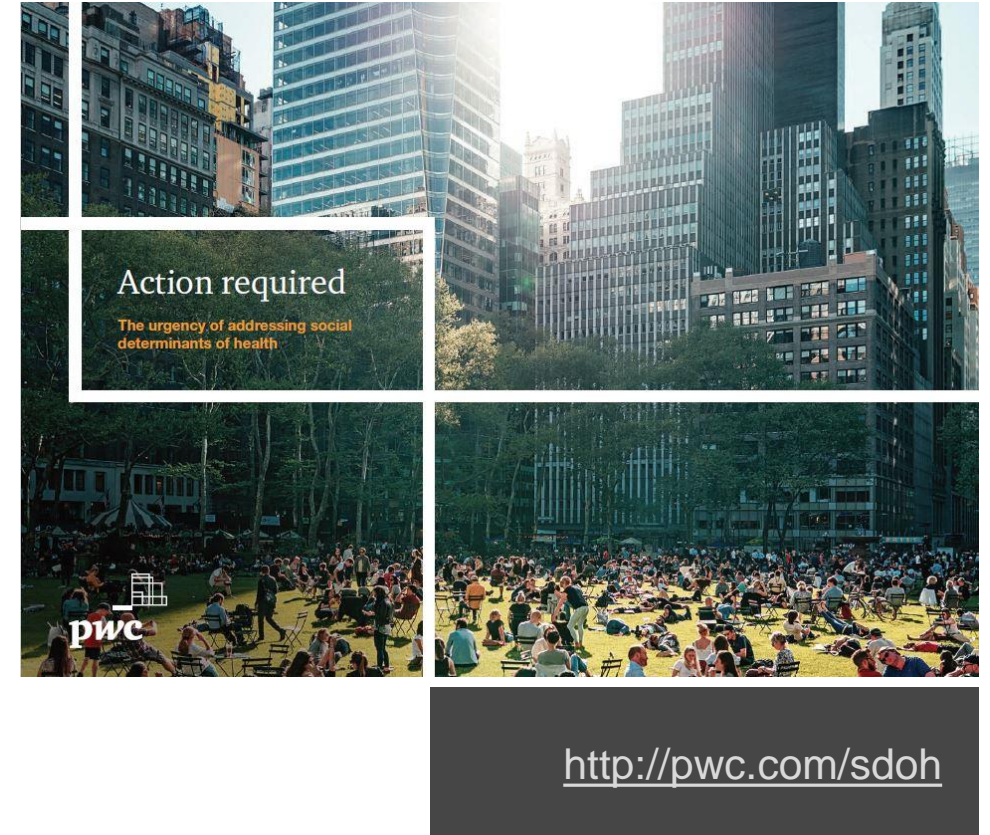
The urgency of addressing social determinants of health

Key learnings

- PwC's Health Research Institute (HRI) identified five key components for social determinants of health (SDOH) intervention
- The report describes key components that organisations should consider for social determinants of health interventions based on global case studies
- Many organisations have piloted or implemented a project to address the myriad of factors, but do not have a sustainable, long-term approach

Key research and data included

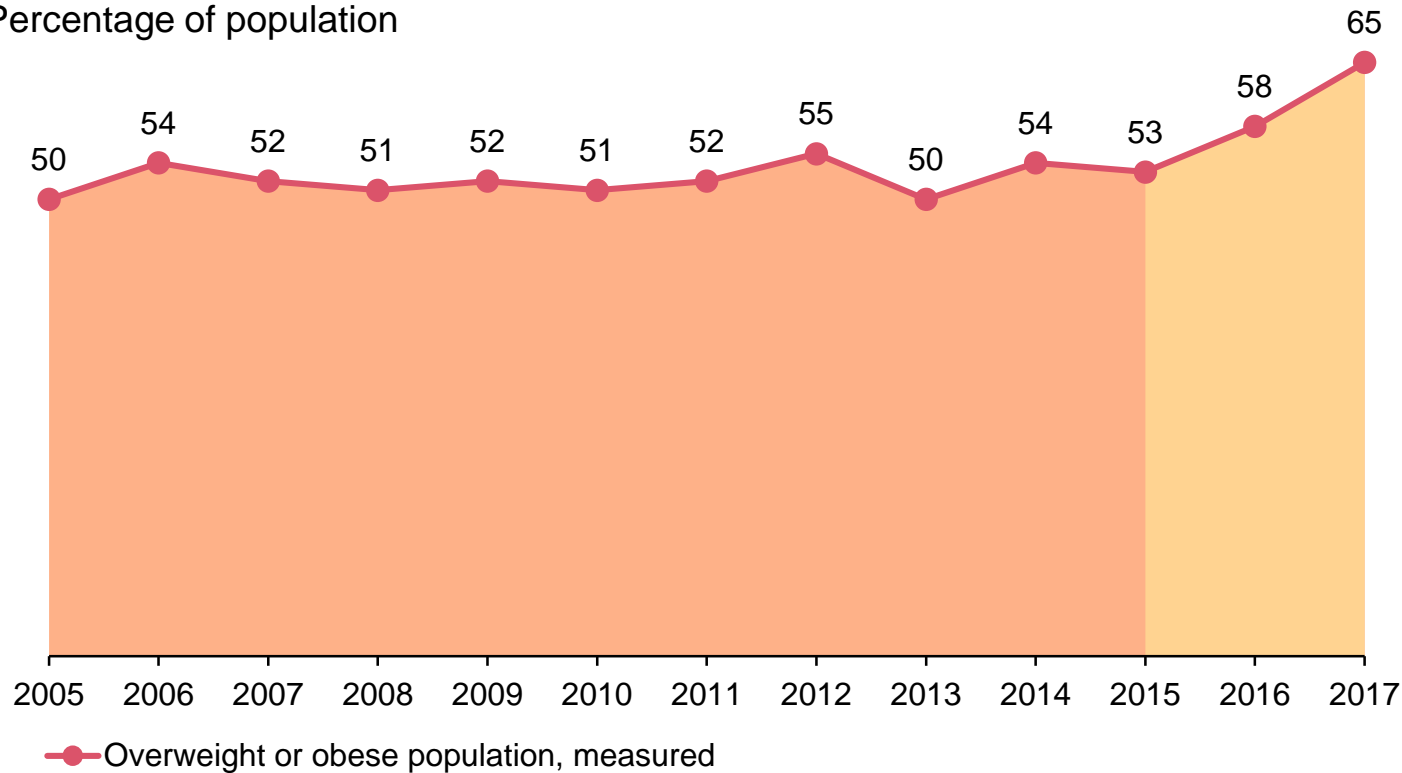
- Interviews from April to July 2019 with health industry executives, community organisations and government-funded health/social programs
- Findings from PwC's 2019 Global Social Determinants of Health Consumer Survey of roughly 8,000 consumers across Australia, China, Germany, India, Japan, UAE, the UK and the US
- Government data sources, journal articles and conference proceedings related to social determinants of health



Nowhere is the looming threat to public health clearer than in the growing rate of people considered overweight or obese

Evolution of overweight and obesity measurement averages for OECD countries, 2005–17

Percentage of population



Note: Obese and overweight measurement is an average of OECD countries where data was available.

Source: PwC Health Research Institute analysis of OECD Health Statistics, 2017

- Since 2014, there has been a more than 10 percentage point increase in the share of the population in OECD countries deemed overweight or obese.
- The epidemic of obesity isn't just a matter of optics. It makes people more prone to chronic health problems including diabetes, cardiovascular diseases and cancers.¹

This limited progress is cause for concern because clinical care, while vital, is responsible for only 20% of a person's health

Social determinants of health components



Relative impact of key categories of health determinants¹

40%
Social & Economic

30%
Health Behaviors

20%
Clinical Care

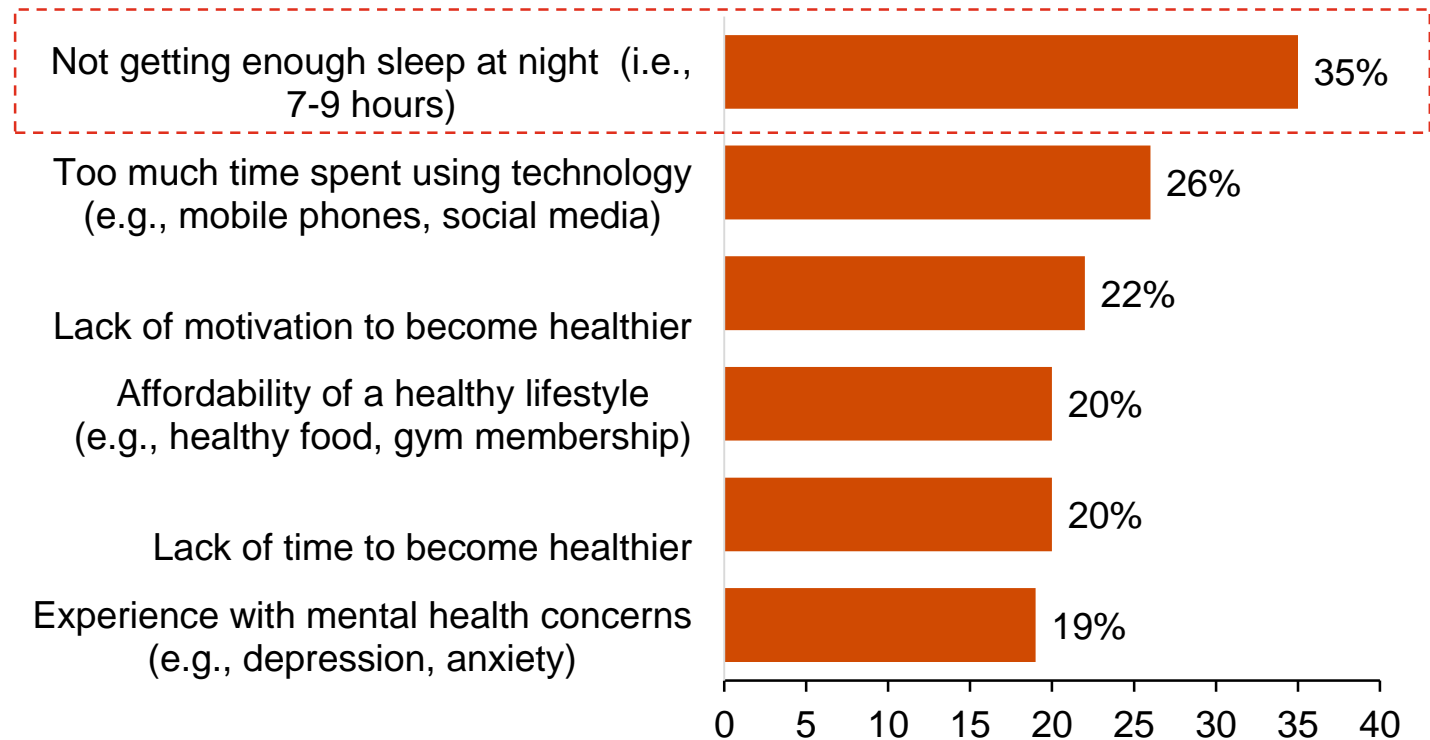
10%
Physical Environment

¹ PwC, "The case for intervening upstream," accessed February 2019, <https://www.pwc.com/us/en/health-industries/health-services/assets/the-case-for-intervening-upstream.pdf>

Improving our collective mind state may be key – Consumers say they are struggling mentally and, quite literally, losing sleep over it

Not getting enough sleep is the number one barrier to adopting a healthy lifestyle

Which, if any, of the following challenges do you face in your daily life that impact your ability to adopt a healthy lifestyle (e.g., diet, exercise)?



19% of respondents to HRI's 2019 global consumer survey who classified themselves as in poor or very poor health said mental health concerns such as depression kept them from a healthier lifestyle

Source: PwC Health Research Institute global consumer survey, June 2019

How to lead in social determinants of health – Five steps for bold action

Five steps can help health systems finally deliver a meaningful impact on the social determinants of health



- 1** Traditionally, social determinants of health have been outside the purview of the health system. But ownership and responsibility are clear when true costs are understood.
- 2** Coalition partners should adopt a common framework to clear obstacles and fast-track efforts to work together.
- 3** Data and analytics can guide plans by finding targets, predicting impacts, and demonstrating ROI
- 4** Social determinants of health programs must be grounded in the reality of how people live and work
- 5** Partners must use evidence to fine-tune and grow social determinants of health efforts and to keep partners accountable

Change must start now for those who want to be leaders in SDOH

Recommendations

01

Find a convener to bridge the gaps between SDOH partners

02

Be clear and remove confusion early on

03

Use technology as an accelerator by pairing it with process enablers

04

Find your 'voice of the community' and empower consumers to make change

05

Take action with the budgets you have

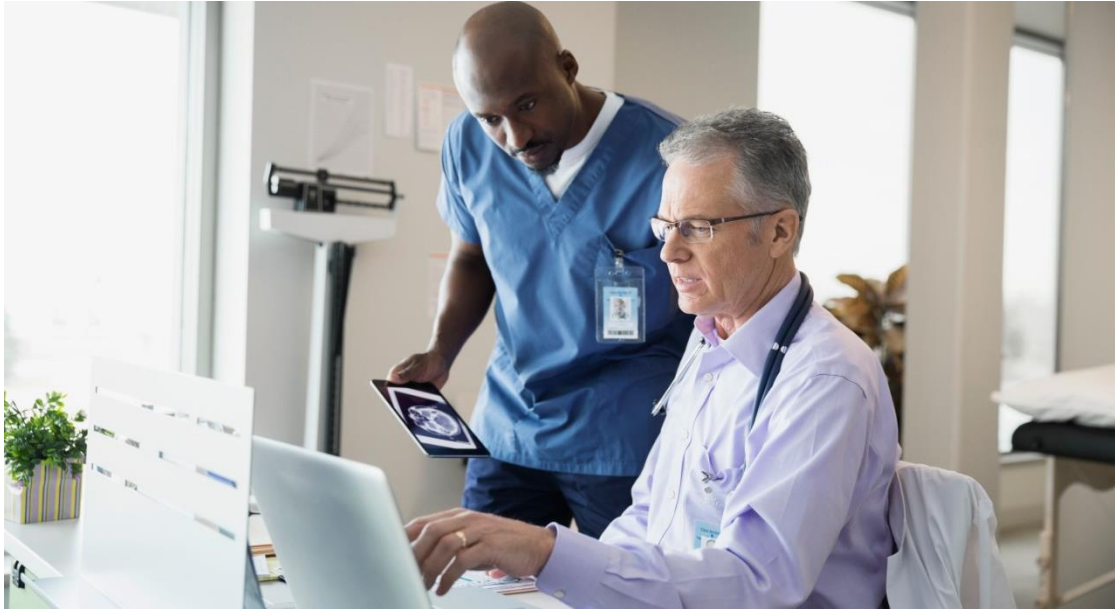
Key actions

- Identify a trusted organization from the community, the private sector or a government agency to be the convener
- Identify organizations that may be at risk for health outcomes to help fund social determinant efforts (build in incentives for all)
- Develop a framework with all participants and receive input from all levels of the organization – revisit/refine periodically
- Prioritize interventions, instead of trying to do everything at once
- Leverage consumer data and consumer segmentation to better identify the target population.
- If the analytic technology or staff is not available within the organization, consider partnering externally to build credibility quickly
- Tailor the intervention with the community in mind
- Deploy social listening campaigns to better understand the needs and desires of communities
- Develop a list of cost reduction opportunities and assess against fit with social determinant of health strategy
- Train staff in skills that are cross-functional and can be provided to multiple organization types (e.g., analytics)

A deeper dive – Applying technology and data analytics to tackle social determinants of health

PwC's digital twins – Accelerating an era of personalized health

Modern mandate



Individuals no longer **identify** as averages, they demand personalized recommendations and **contextually relevant interactions**.

Likewise, organizations demand **demonstrated value** and **quantifiable results**.

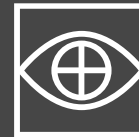
Our vision

Seeing the whole person

Enabling and sustaining positive change requires the **combination** of health and behavioral insight

Our team

Our purpose-built teams spans multiple disciplines and includes biomedical engineers, data scientists, product developers, experience designers, and industry veterans.



**Moonshot
focus**



**7 PhDs
18 Scientists**



**5 years of dev
\$10MM invested**

Digital twin

“

A crystal ball for health and behavior, delivered via a unified platform



Accurately forecast health and lifestyle impact

... via a scientifically-validated, mechanistic model that represents **human physiology at a systems level**



Predict how consumers will behave

... using likely preferences, behavioral motivators, and barriers to healthy living that can be assigned individually



Help organizations make the most of their **resources**

... by testing the behavioral response and resulting health impact of **myriad potential plans**, all before real-world implementation

Embrace a powerful new way of understanding health



Win with a clearer view into the future.

The digital twin provides a compass to help you shape your own destiny.



Recognize why health changes

Learn how the body responds to an environment, lifestyle and medical interventions. By becoming more engaged in the conversion, you'll find more options to be explored, health opportunities to be maximized and costs to be reduced.



Learn a lot from a little

Don't have a lot to go on in terms of medical history? Not a problem. Receive a "best first guess" for detailed consumer insights, even when primary source data isn't available



Go where you're needed

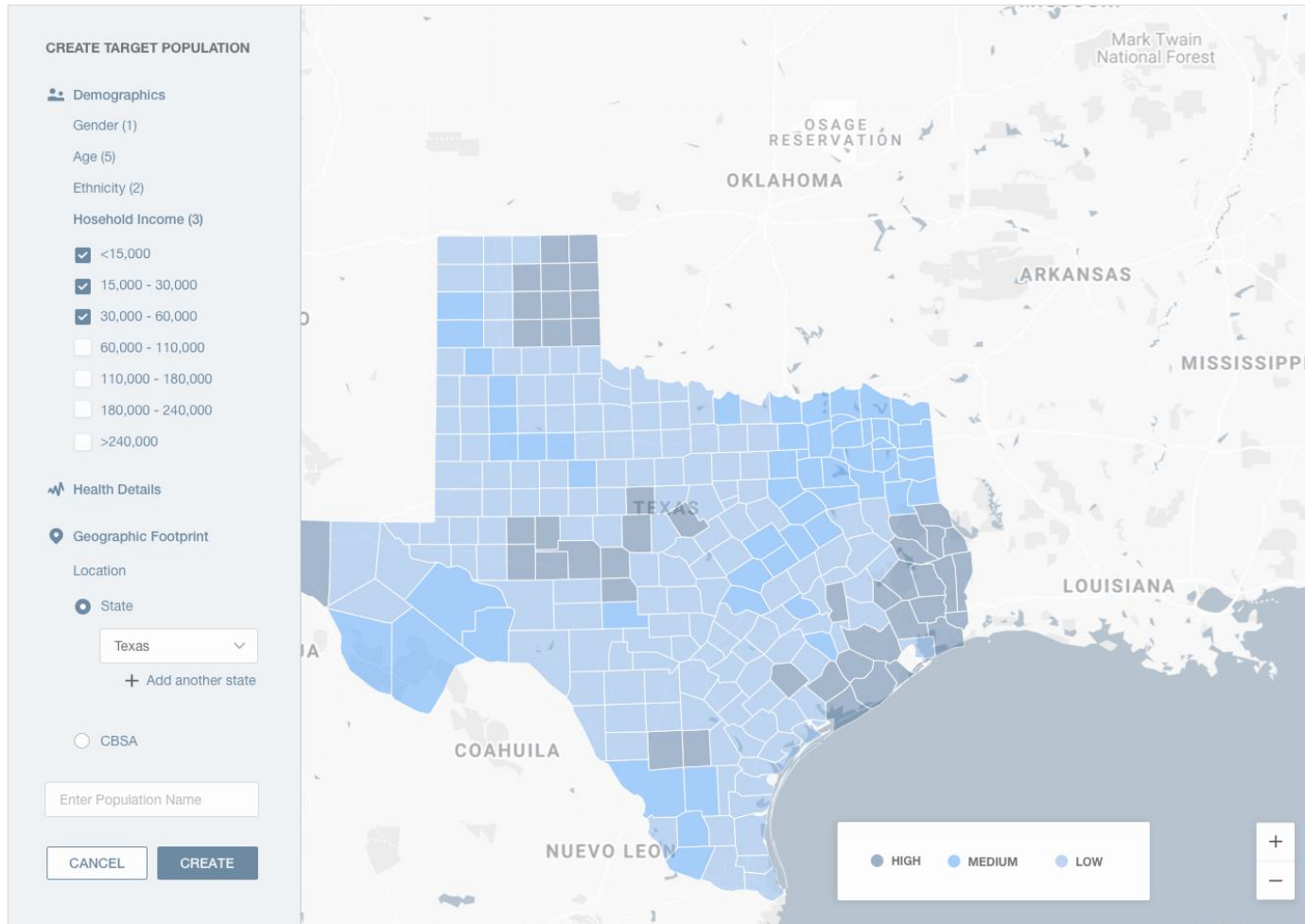
Planning for the future? With proactive population forecasting, discern where your efforts and abilities are needed most, right now.



Personalize wellness programs

Predict behaviour of high-risk consumers to create a wellness program fit to their needs, including more informed and productive interactions with coaches.

Explore: Hyper target key populations



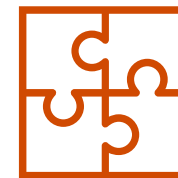
Define synthetic populations

Explore customized populations micro-targeted by zip code, demographics, health conditions, and known preferences.



Focus on what really matters

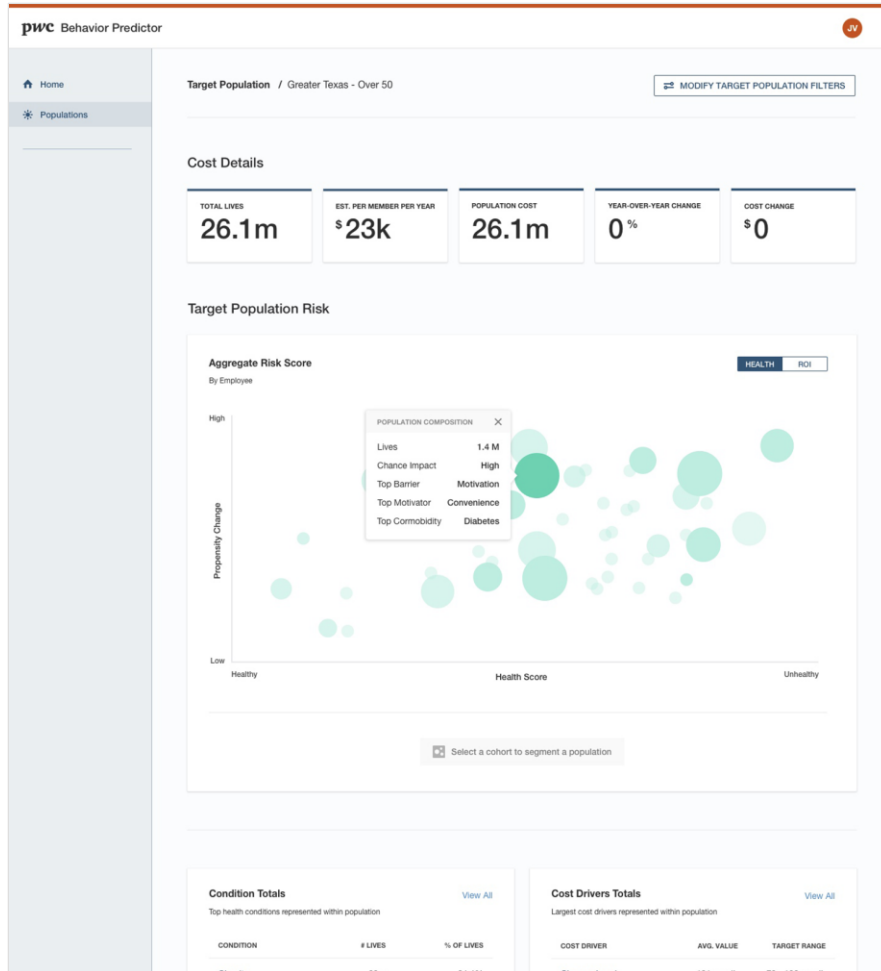
Improve the health of targeted populations by focusing on the components of segmentation and the insights into individual motivators, preferences, and social determinants.



Solve holistically

Factor in possible influences on a person or population's health to provide recommendations and help your consumers become their best selves.

Predict: See financial and health impacts over time



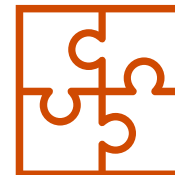
View current and future impacts in a single dashboard

Use digital twins – system dynamics algorithms engineered to mirror the physiology of the human body – to simulate a population’s health and understand the costs of care down to the individual level.



Prioritize and enable the right interventions

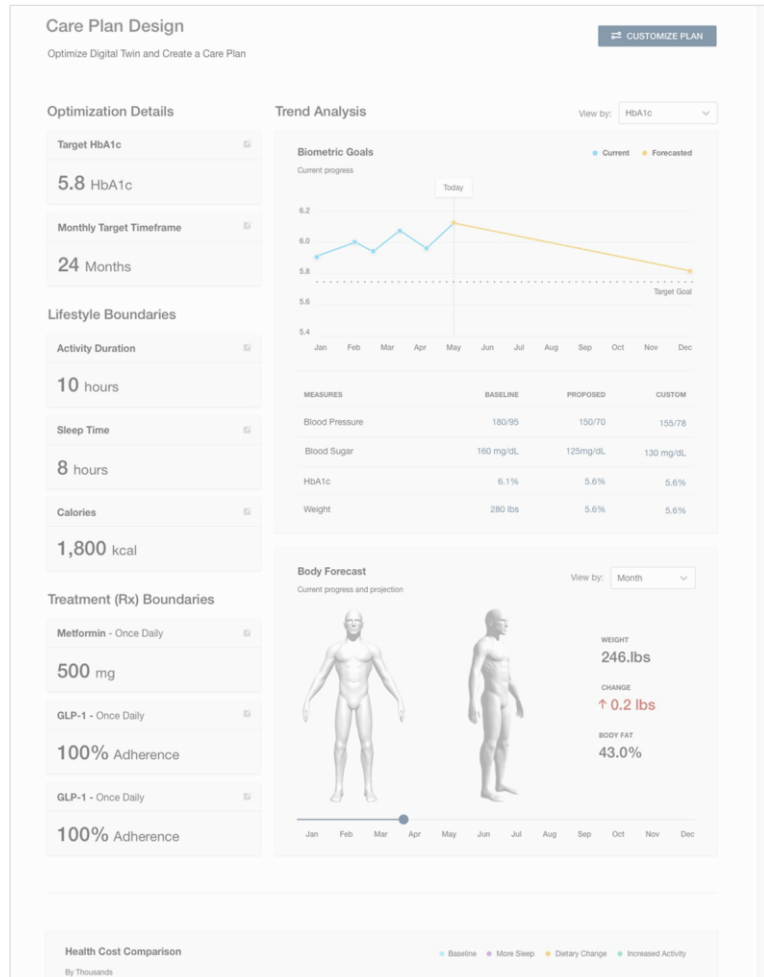
Quantify future health disparities and significant drivers to better predict future health impact and ROI on non-clinical interventions.



Reduce the burden of poor health

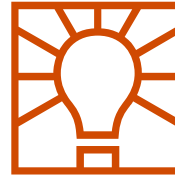
Prioritize your investments in order to reduce the human and economic burden of short- and long-term illness.

Intervene: Customize care plans with confidence



Understand how your actions affect the future

Realize what today's decisions mean for tomorrow's health through predictive health analysis.



Drive action to forge meaningful change

Produce powerful insights and create effective treatment plans through customized simulation health modeling. Individualized diet, sleep, and exercise regimens focus on the actual needs of the consumer to achieve results.



Manage population health in a more efficient manner

Determine the smallest changes possible from your current lifestyle that will have the most profound, positive impact on your health and allow you to reach your goals. By starting small, the likelihood of sustained change and overall health improvement greatly increases.

Case study – Quantifying the health impact and ROI of meals on wheels

Who we are



**The Visiting Nurse
Association of Texas**

Our mission

The mission of VNA is to help seniors age with dignity and independence at home.

VNA offers Meals on Wheels in Dallas County as well as palliative and hospice care in 14 north Texas counties.

On average each day, VNA provides more than 4,500 meals via Meals on Wheels to hungry homebound seniors and disabled adults.



Responsible business leadership

Driven by our purpose and values, we are making an impact in our communities and delivering business value by helping create a more equitable society.

Bodylogical □

A validated, scientific breakthrough in computational modeling of an individual human body that creates a “digital twin” to accurately simulate health predictions to help combat chronic disease.

What challenge did we face?

“What does it all mean? What’s the **impact?**”

What impact does this have on the
community at large?

How do I quantify the
real-world effect of
Meals on Wheels?

How do you differentiate and **signal the value** created by your organization?

Our mission – Analyze the MoW program to determine impact, quantify ROI, and ground donation discussions in data.

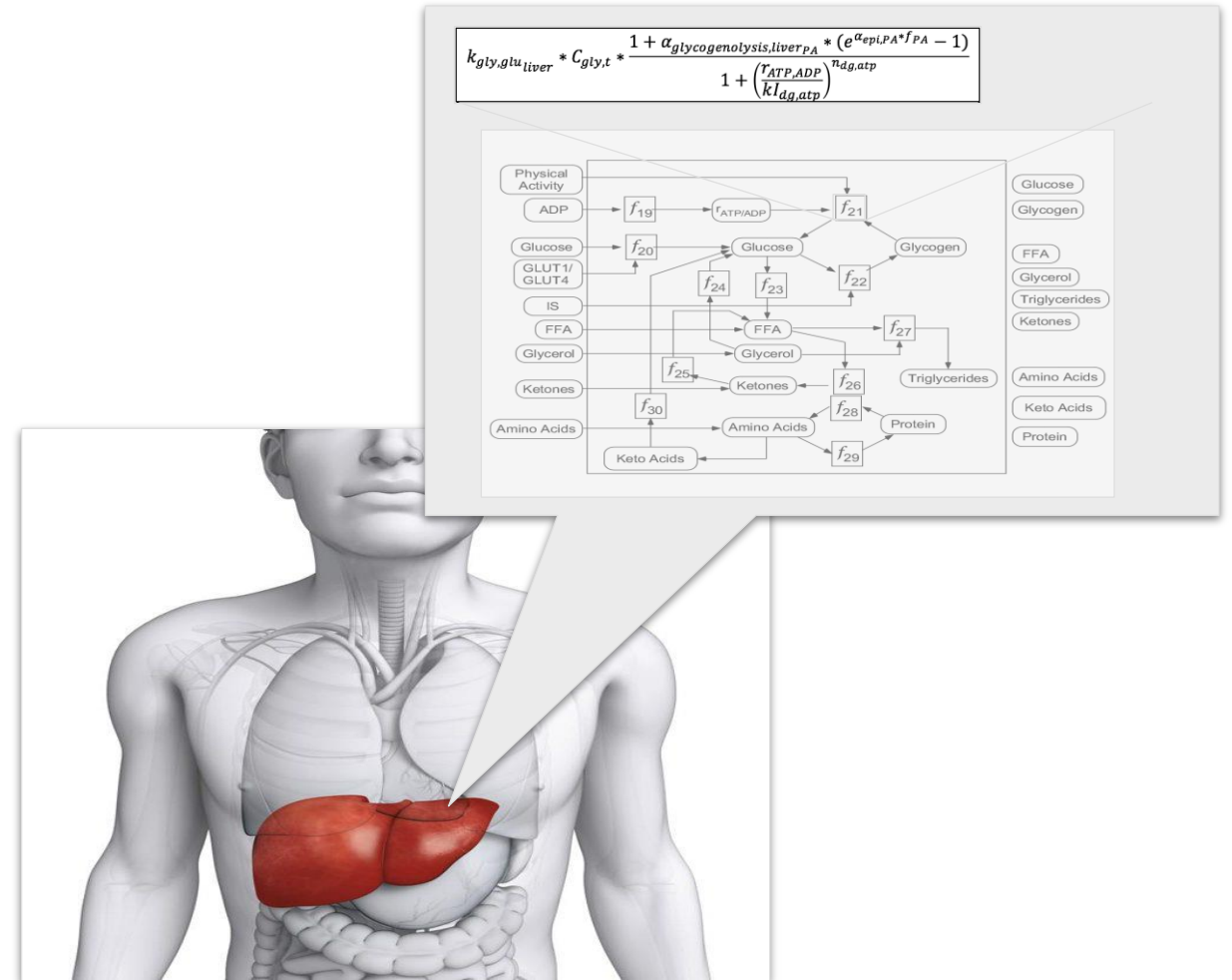
How did we quantify impact?

Creating a community of digital twins

Fusing science & analytics to create a “digital twin”

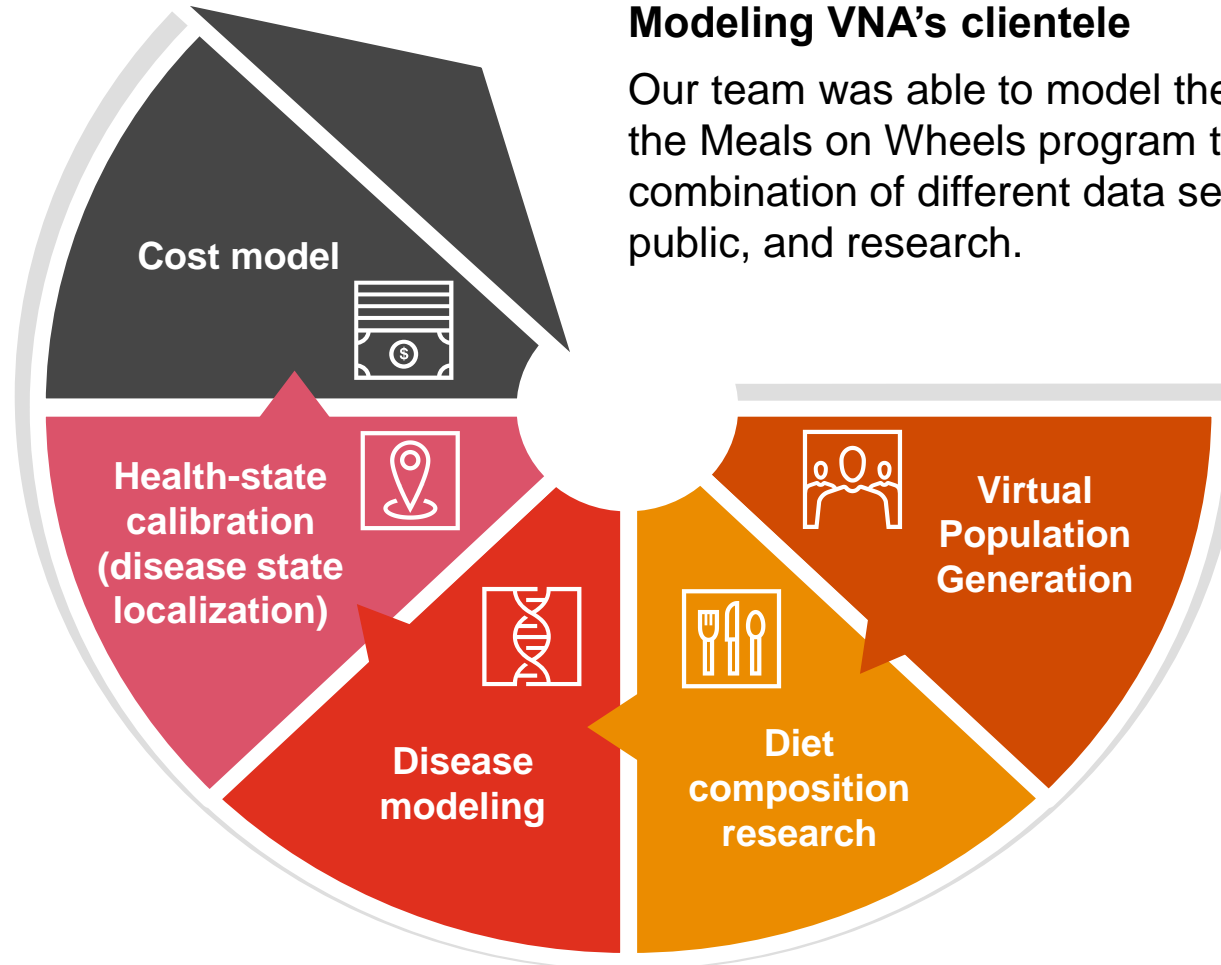
PwC’s patent-pending model unlocks science to manage health and understand costs

- Transformed academic and medical science into math model
- Replicated physiological systems and associated interactions
- Validated with numerous data sets
- Published results in peer-reviewed journal (PLOS ONE) and at various scientific conferences since 2016



How did we quantify impact?

Combining data for rich insights





Each
meal

provides a

~61%

ROI

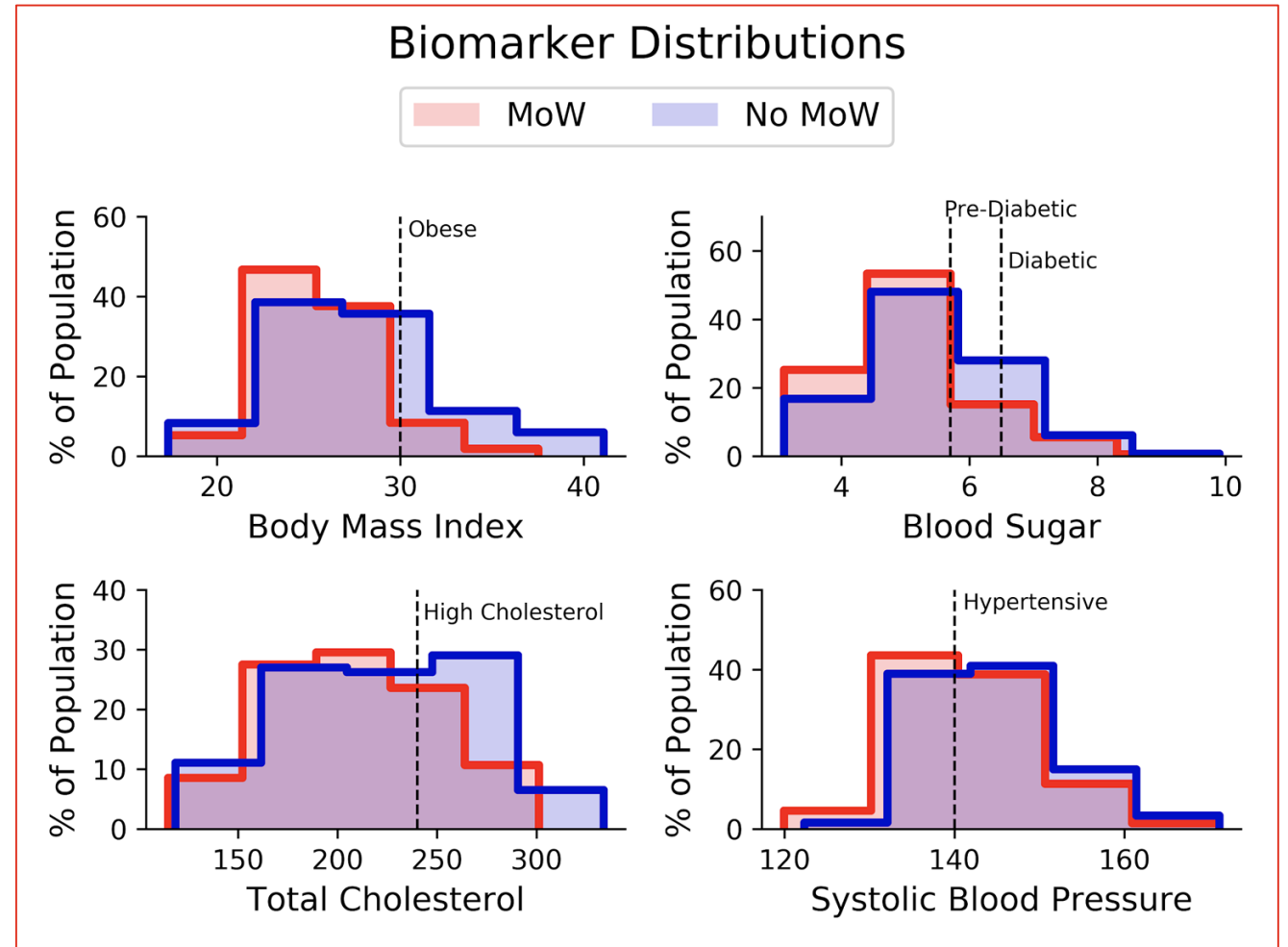
to the Dallas
community

Shifts indicate health improvement

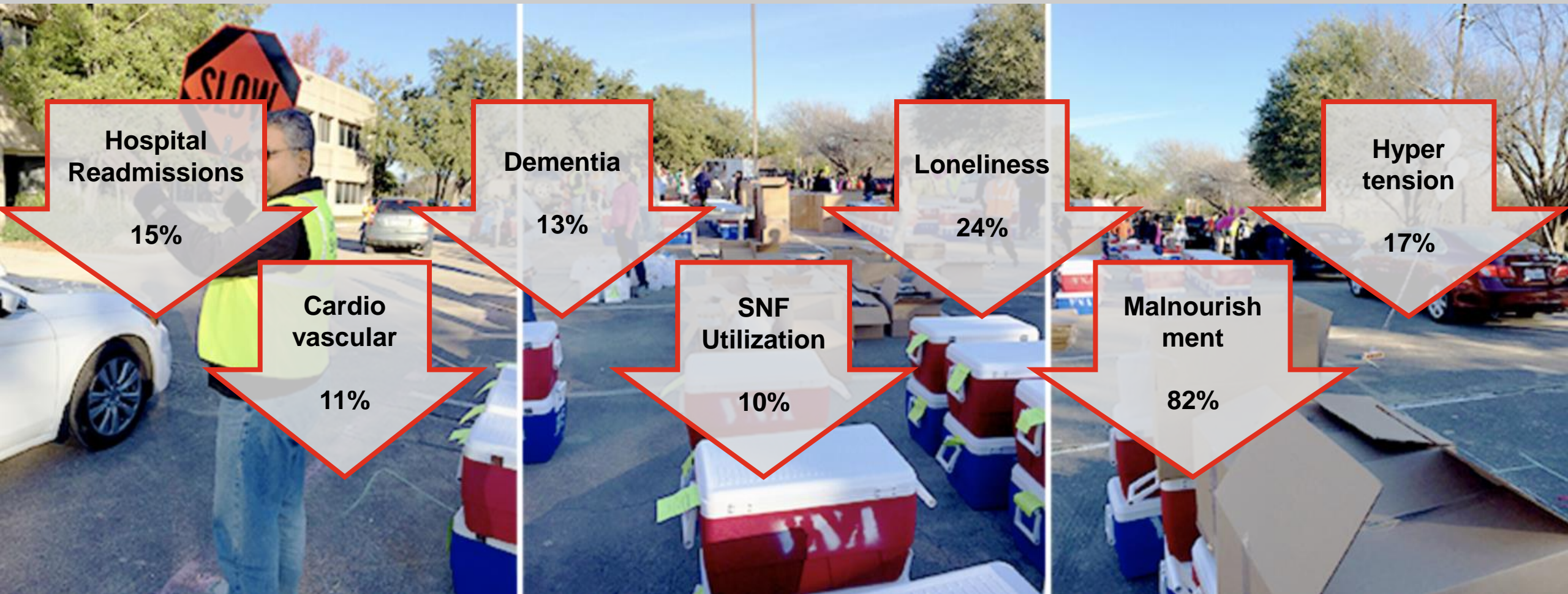
MOW positively impacts biomarkers which propagate health improvements across chronic conditions

- **Blood Sugar:** Reduction in uncontrolled diabetes
- **Blood Pressure:** Transition of people out of hypertension to normal/ pre-hypertensive

Most of malnutrition in Dallas is from sarcopenic obesity rather than being underweight, which reflected 98% of the 28% of the MOW malnourished population



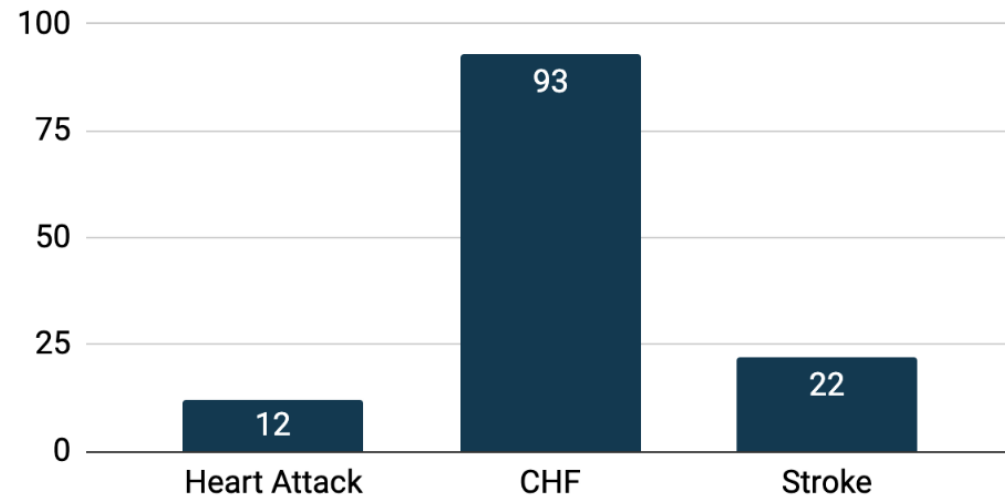
MoW impact on Dallas health



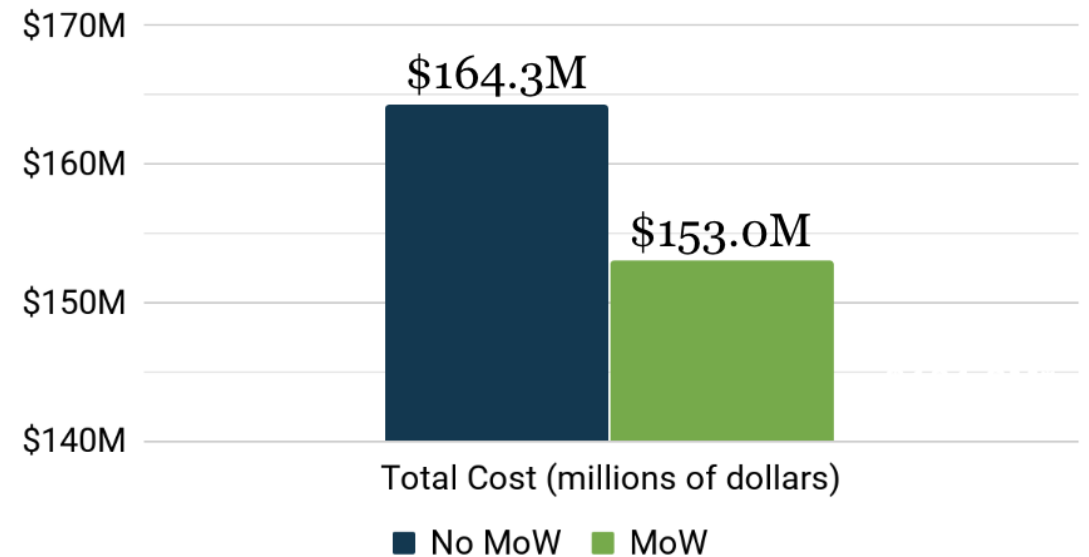
What did we discover?

MoW reduces healthcare costs by 7% in Dallas,
saving an estimated **\$11.3M** annually in health costs across the ecosystem

Reduction in number of hospitalizations with MoW




Total cost per year for Dallas MoW population (N=4700)




How are we engaging donors?

Delivering a powerful message, backed by data




1 800 CALL VNA | [Contact Us](#) | [Calendar](#) | [Login](#)

GET ASSISTANCE GET INVOLVED CAREERS GIVE



Independence and dignity start with a single meal

VNA Meals on Wheels nourishes the whole person by providing food, friendship, and a daily safety check to help our homebound neighbors age in place. See how your investment makes a real impact on our community and changes lives.



1 800 CALL VNA | [Contact Us](#) | [Calendar](#) | [Login](#)

GET ASSISTANCE GET INVOLVED CAREERS GIVE

Total individuals supported

7 individuals

Individuals supported for a full year

Community Benefits

Metric	No Meals on Wheels	Meals on Wheels	Improvement
Cost of cardiovascular disease	\$20,700	\$18,020	\$2,680 saved
Cost of dementia	\$30,980	\$27,110	\$3,870 saved
Cost of diabetes	\$15,490	\$14,890	\$600 saved
Cost of nursing home	\$142,530	\$135,090	\$7,450 saved
Re-admission rates (30 Day)	17.1%	14.3%	2.80% reduction
Total hospitalizations	0.47	0.40	0.07 fewer

Your investment can deliver cost savings of: **\$14,600**

For the full PWC Impact of Meals on Wheels Report please [click here](#). For any further questions please contact Chris Culak (214) 608-2160 or culakc@vnatexas.org.

Exploring the Full Impact of Meals on Wheels

VNA helps seniors stay in their own homes, where they want to be, which is far less costly than alternatives like nursing homes. A recent study by the Center for Effective Government showed that every \$1 invested in Meals on Wheels can result in up to \$50 in Medicaid savings. See how your investment makes a difference.

SELECT ANNUAL DONATION

\$10,000

\$25,000

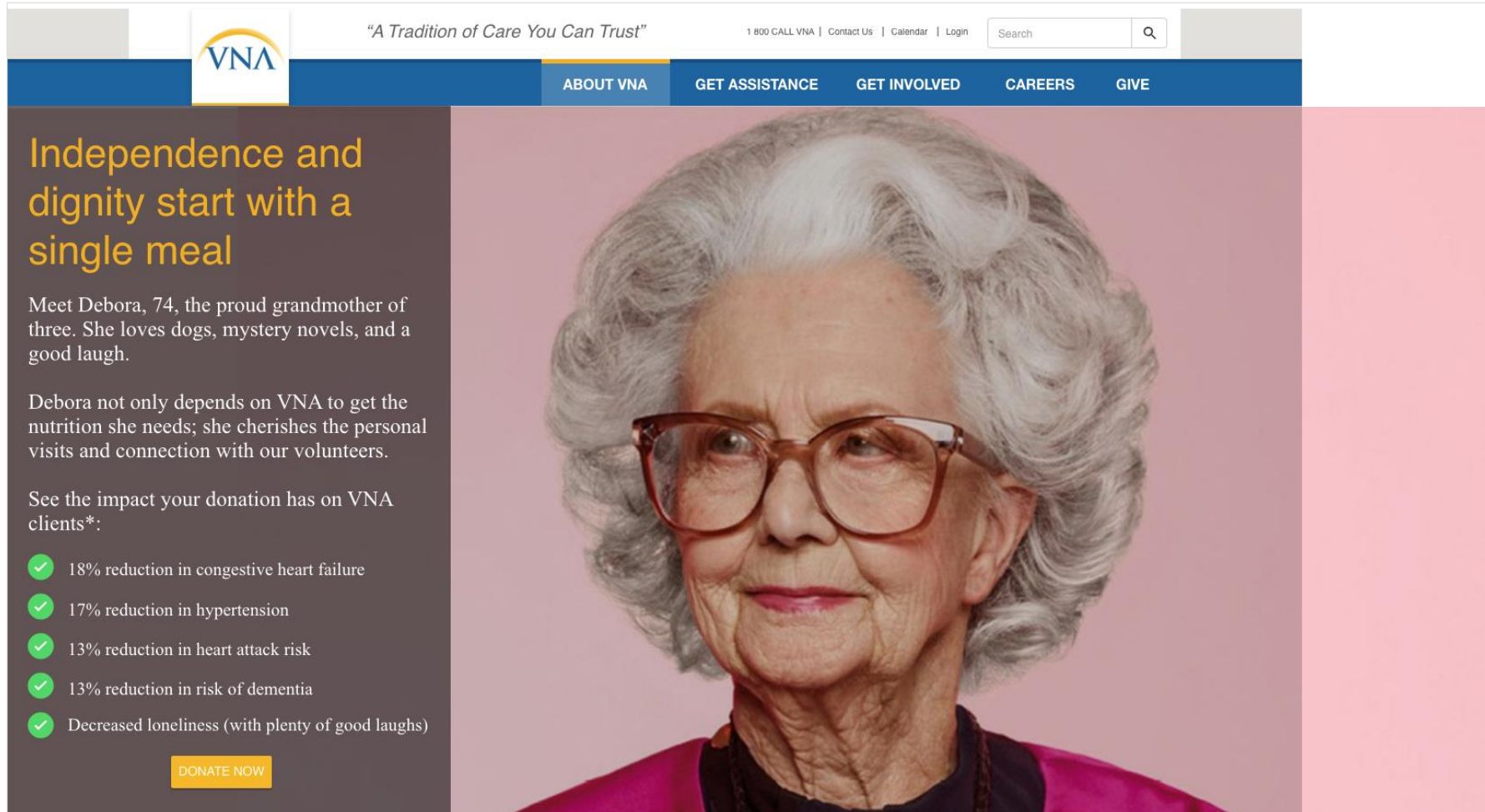
\$50,000

\$75,000

\$100,000

How are we engaging donors?

Introducing data need not sacrifice your client's powerful, personal message



The screenshot shows the VNA website header with the logo, tagline "A Tradition of Care You Can Trust", and navigation links: ABOUT VNA, GET ASSISTANCE, GET INVOLVED, CAREERS, and GIVE. A search bar is also present. The main content area features a large portrait of Debora, 74, an elderly woman with white hair and glasses, wearing a pink top. To the left of the portrait, the text reads: "Independence and dignity start with a single meal". Below this, it says: "Meet Debora, 74, the proud grandmother of three. She loves dogs, mystery novels, and a good laugh." Further down, it states: "Debora not only depends on VNA to get the nutrition she needs; she cherishes the personal visits and connection with our volunteers." Below this, it says: "See the impact your donation has on VNA clients*:". A list of outcomes follows, each preceded by a green checkmark: "18% reduction in congestive heart failure", "17% reduction in hypertension", "13% reduction in heart attack risk", "13% reduction in risk of dementia", and "Decreased loneliness (with plenty of good laughs)". At the bottom of this list is a yellow button that says "DONATE NOW".

VNA
"A Tradition of Care You Can Trust"
1 800 CALL VNA | Contact Us | Calendar | Login
Search

ABOUT VNA GET ASSISTANCE GET INVOLVED CAREERS GIVE

Independence and dignity start with a single meal

Meet Debora, 74, the proud grandmother of three. She loves dogs, mystery novels, and a good laugh.

Debora not only depends on VNA to get the nutrition she needs; she cherishes the personal visits and connection with our volunteers.

See the impact your donation has on VNA clients*:

- ✓ 18% reduction in congestive heart failure
- ✓ 17% reduction in hypertension
- ✓ 13% reduction in heart attack risk
- ✓ 13% reduction in risk of dementia
- ✓ Decreased loneliness (with plenty of good laughs)

[DONATE NOW](#)

How can you make data work?

Collecting and analyzing data uncovers new insights, which can guide your donor strategy

Five years...or 27 months?

Closer analysis of existing data revealed VNA had a been communicating a longer average length of service to donors

Do you have a primary care physician?

VNA is now asking MOW Clients how they access health care, and using that data to identify natural partners and connect clients to care

This initiative not only determined the value of a meal, it was a catalyst to review our current data and discover new insights

How can you make data work?

What opportunities does your organization have to evaluate & explore the power of data?

1. Start with a list of questions you would like answered

How many of your clients have a physician? Who is their provider? What percentage of your clients is that organization responsible for?

2. Start small...you'll be encouraged by what you find

Even a few, basic questions can help you to learn more about your population and their needs

3. Start backing discussions with data

Using real-world data helps validate your organization's messaging and elevate the demonstrated impact in conversations with donors, partners, staff, and volunteers alike

Thank you

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Q&A



Ben Isgur

*Health Research
Institute Leader,
PwC*



Sam Burns

*Emerging Technology,
Director, PwC*



Chris Culak

*Vice President, Chief of
Strategy and
Development, VNA
Meals on Wheels*



**Chezev
Matthew**

Data Scientist, PwC



We thank PwC for their support

