ZIP CODES & ADDRESS CHANGES

USING INNOVATIVE DATA ANALYTICS TO PREDICT AND IMPACT HEALTH OUTCOMES

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SANFORD HEALTH

- Goal: To better the health outcomes of our communities, impacting the day to day well-being of the patients and members we serve

Today's focus:

How does data science help achieve this goal?

YOUR LAST HEALTHCARE EXPERIENCE…

OUTLINE

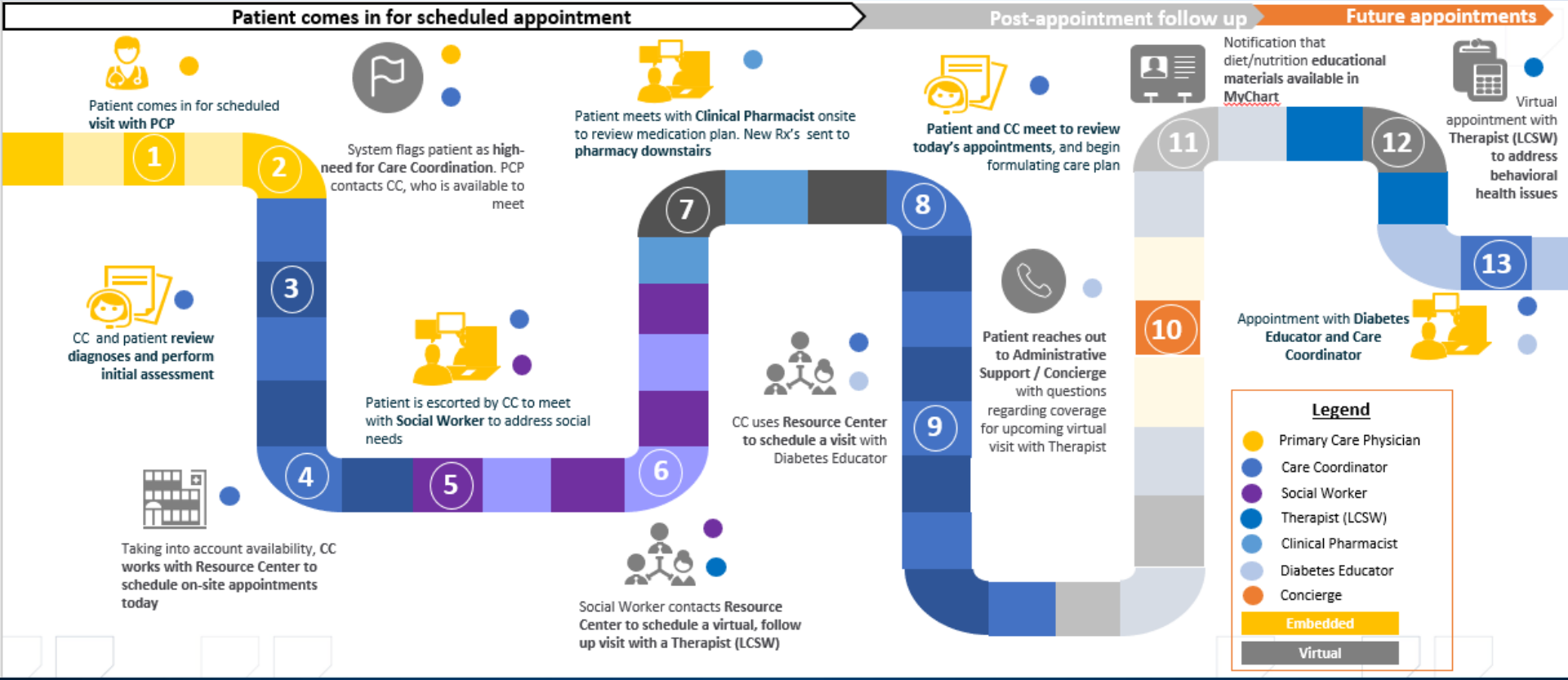
How do we take zip codes and address changes and make them meaningfully impact health outcomes?

Need to get to data that is:

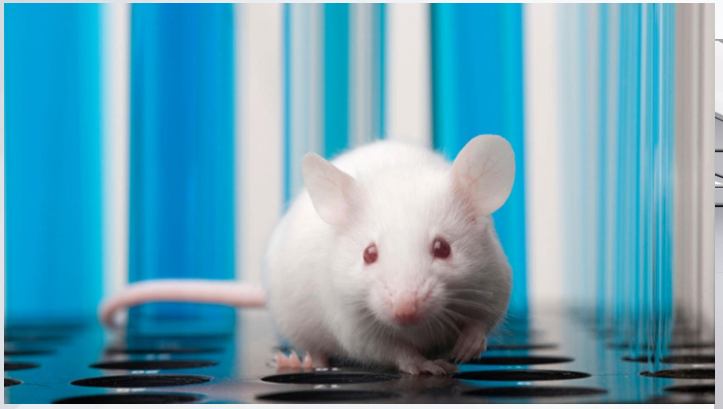
- Accurate
- Meaningful
- Actionable

DATA THAT’S ACCURATE

EXAMPLE: PATIENT JOURNEY



THIS ISN’T LAB RESEARCH



HEALTHCARE DATA ISN'T FOR THE FAINT OF HEART

- Healthcare data is super messy
- Science to making it meaningful and actionable
- 90/10 rule…sometimes 95/5
- But the impact…population level

DATA THAT’S MEANINGFUL

A STORY OF TWO PATIENTS

Laura

Shared

- Zip Code
- Age & Gender
- Elevated BMI
- High Blood Pressure
- High Blood Sugar & Pre-Diabetic

Maggie

A STORY OF TWO PATIENTS

Measuring Differences in Consumer Behavior

Laura

48 Years Old
Female
Married, 3 Children
Education: Bachelors Degree
Household Oncome: $100K
Household Net Worth: $500K
Fitness Level: Moderate
Traveling: Frequent
Regular Voter
Technically inclined & frequent online shopper
Preferred Communication Type: Email or Portal
Least Preferred Communication Method: Phone
Pet Owner: Cat

<$2,000

Shared

- Zip Code
- Age & Gender
- Elevated BMI
- High Blood Pressure
- High Blood Sugar & Pre-Diabetic

Annual Health Spend
900% Difference

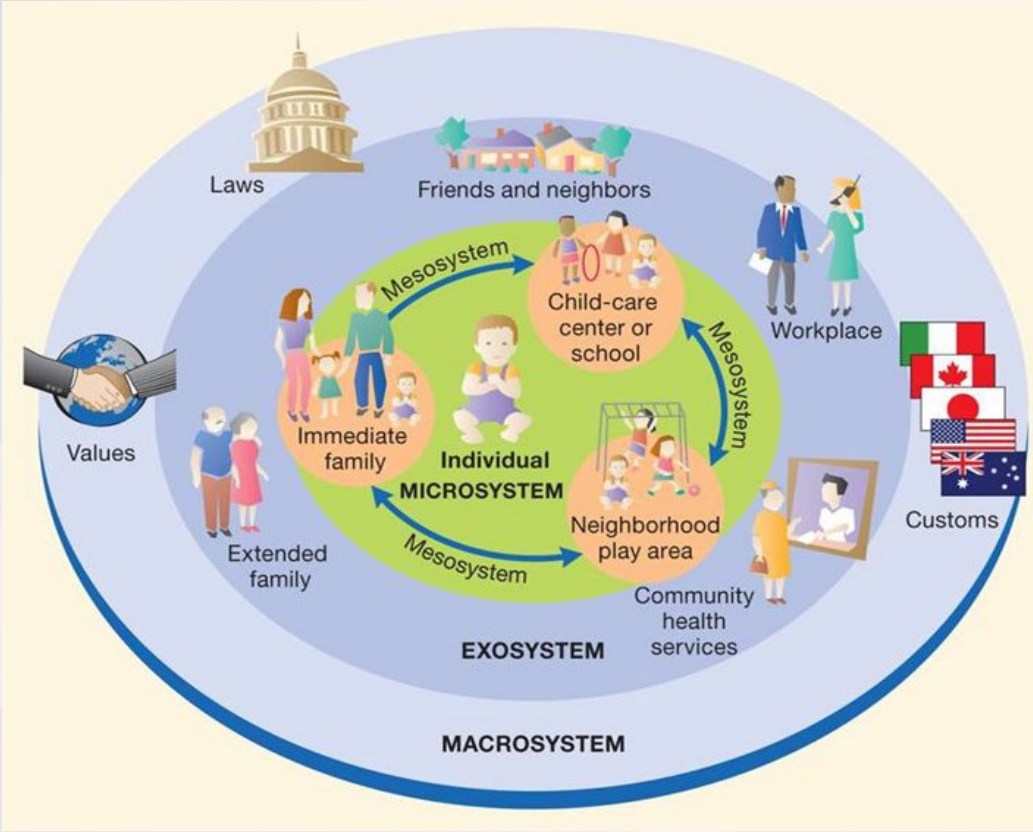
Maggie

48 Years Old
Female
Unmarried, 1 Adult Child
Education: Bachelors Degree
Household Oncome: $60K
Household Net Worth: $250K
Fitness Level: Low
Traveling: Infrequent
Infrequent Voter
Shops via Infomercials and Catalogs
Preferred Communication Type: Mail & Phone
Least Preferred Communication Method: Email
Pet Owner: None

>$18,000

DATA THAT'S MEANINGFUL

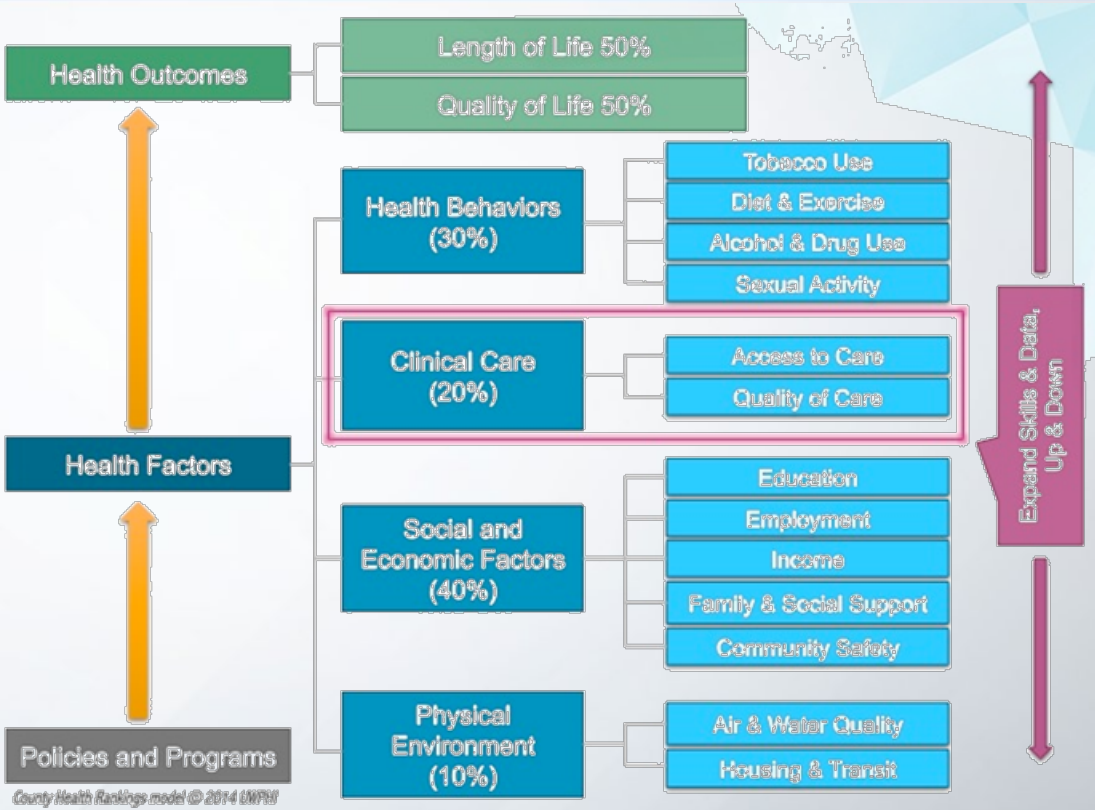
- If you're only looking at one piece of the data – you miss the big picture.
- Important to look at data as part of a dynamic system…


Laws
Friends and neighbors
Mesosystem
Child-care center or school
Workplace
Values
Immediate family
Individual
MICROSYSTEM
Mesosystem
Customs
Extended family
Neighborhood play area
Mesosystem
Community health services
EXOSYSTEM
MACROSYSTEM

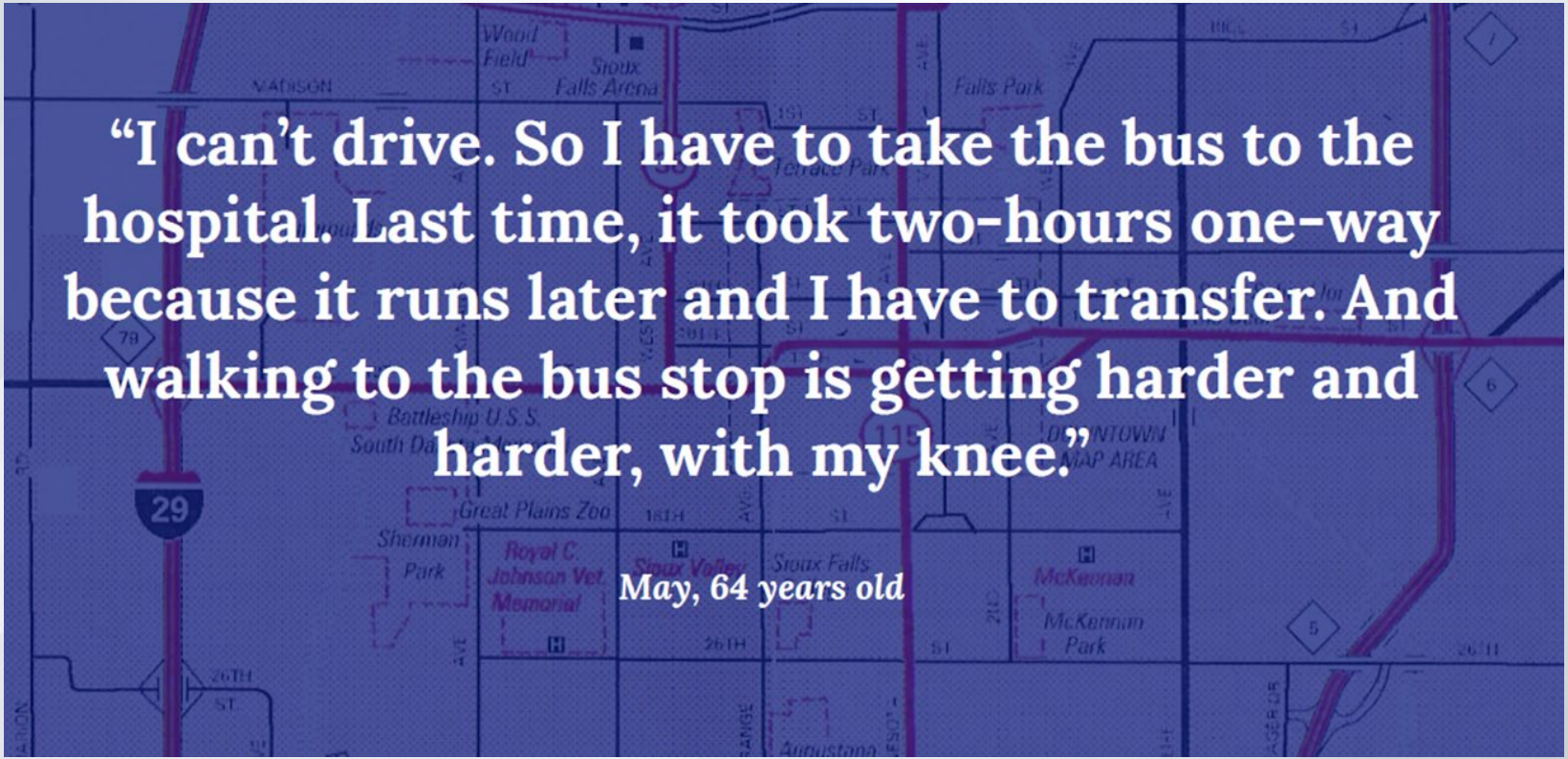
EXPANDING THE PICTURE OF HEALTH

Changing view of healthcare:

Up to 50% of patients' health can be attributed to their social, economic, & physical environment



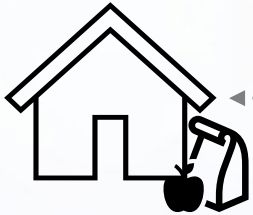
IDENTIFYING PATIENT BARRIERS



LOOKING UPSTREAM

Impact to the health system

- High rates of uninsured patients
- Inappropriate ED utilization
- More costly utilization



Social Determinants of Health

- Homelessness
- Food insecurity
- Lack of transportation

Root Causes

- Intergenerational poverty
- Structural Inequity

LOOKING UPSTREAM

Lagging ⟷ **Leading**

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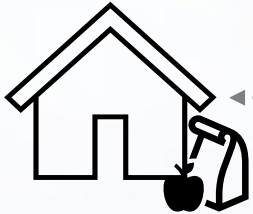

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PREDICTORS OF ER USE

What do you think?

CHANGING HEALTHCARE

The Value Equation

ONE AILMENT PER VISIT
DOCTOR'S OFFICE
OVER
6499
DING
SERVED
PLEASE LEAVE GOWN IN BIN

POPULATION HEALTH

a **systematic approach** to **health and wellness** efforts that aims to use **health care resources effectively and efficiently** to improve the **health of a population**.

Simply: RIGHT CARE, RIGHT PATIENT, RIGHT TIME

Terminal — ***Traumatic***

High risk care management in order to increase channeling of patients/ members to the right care, at the right place, with the right providers

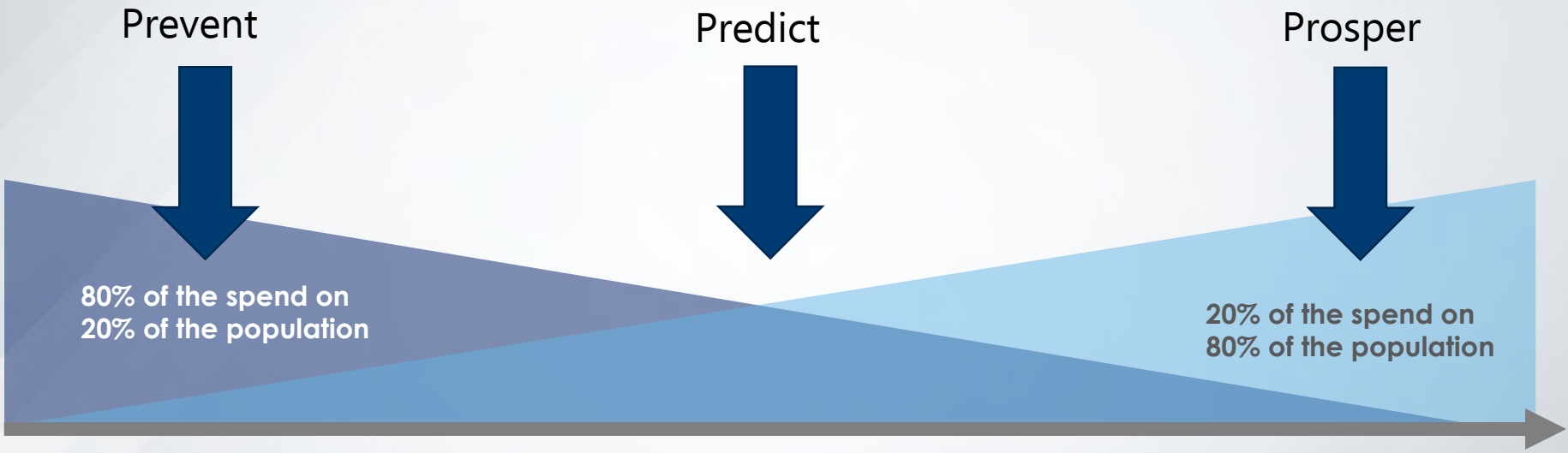
Acute — ***Chronic***

Focuses on appropriate utilization of resources across the care continuum, to enhance quality of life and health status, rather than managing only specific episodes

At Risk — ***Healthy***

Deploys prevention, wellness, and rising risk strategies including health coaching, behavior modification, and screening

POPULATION HEALTH



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OPTIMIZE

How do my members prefer to engage in health services?

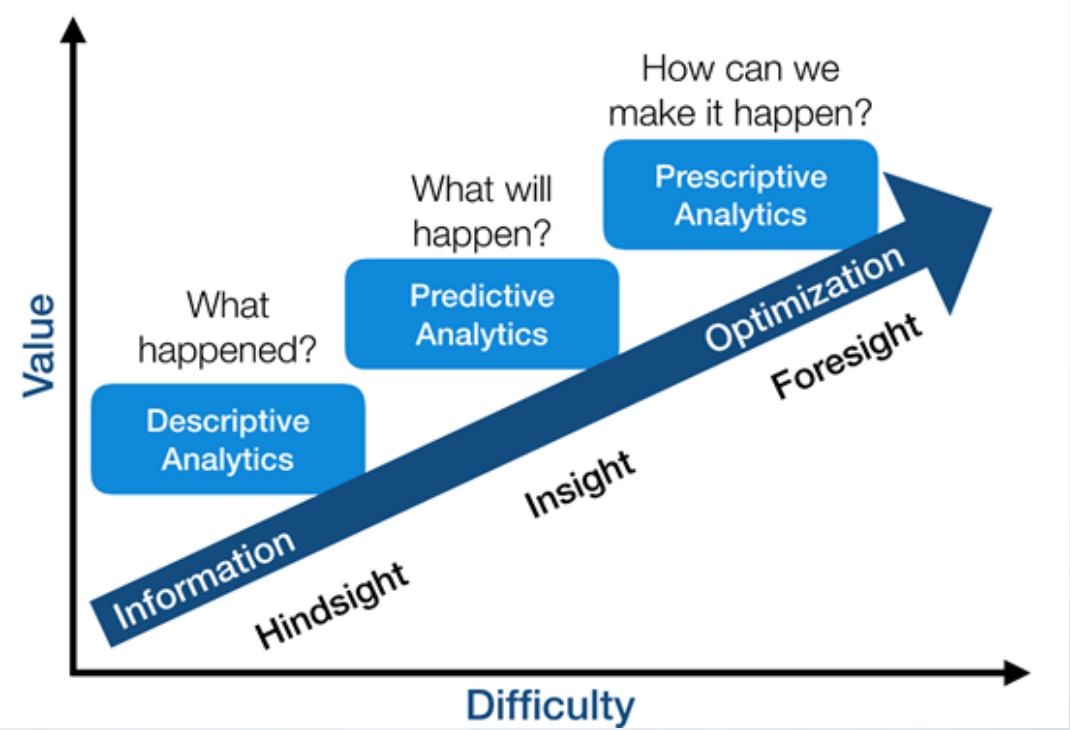
Who in my population is likely to be a high utilizer in the future?

What social determinants of health have the most impact on my members today?

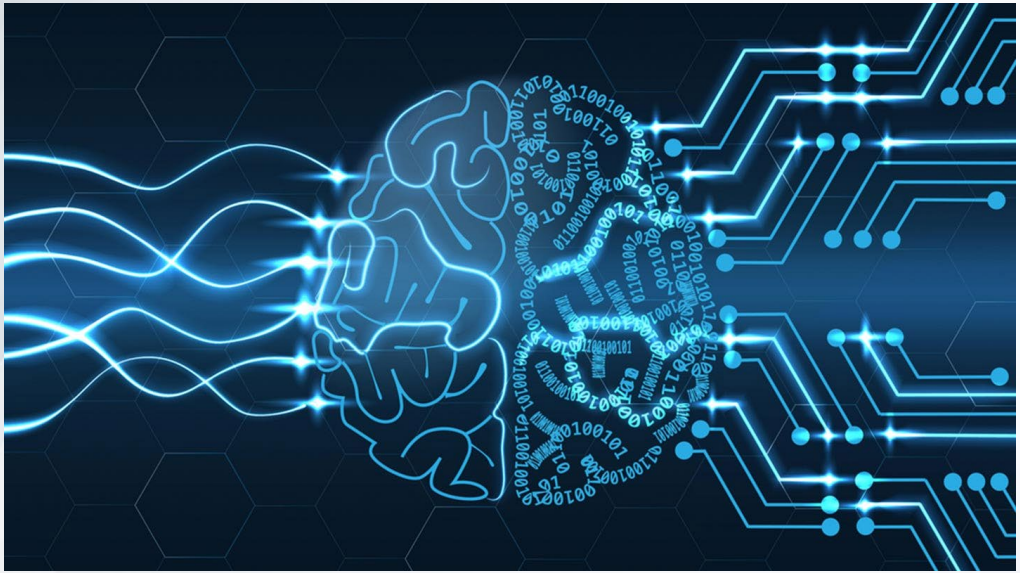
Where do I invest my limited resources – which members and which determinants of health? What interventions, channels and messaging?

DATA THAT’S ACTIONABLE

TAKING DATA FURTHER



EXAMPLES OF DATA-DRIVEN HEALTHCARE



CARE MANAGEMENT PREDICTOR

Weighted Average { $Risk, Clinical Needs, Adherence, SDoH } * Urgency

	$Risk	Clinical Needs	Adherence	SDoH	Urgency
Weight	***3***	***2***	***1***	***1***	***NA***
9/3 Source	McKesson Risk Manager	Epic General Risk Score	Minimum of Last 12 Month Adherence on 3 Stars Measures	Carrot Health	Epic Readmission Likelihood
Levels	Three levels: Top 10% (3), Next 40% (2) and Bottom 50%(1)	Three levels: >13 (3), 5 – 13 (2), <5 (1)	Three levels: <40% (3), 40-80% (2), >80% (1)	Three levels: 3+ (3), 1-2 (2), 0 (1)	Two levels: >33% (3), <33% (1)

- Low scores are assigned a value 1
- Medium scores are assigned a value 2
- High scores are assigned a value 3

Identifying those who need the right interventions and resources

PATIENT ENGAGEMENT

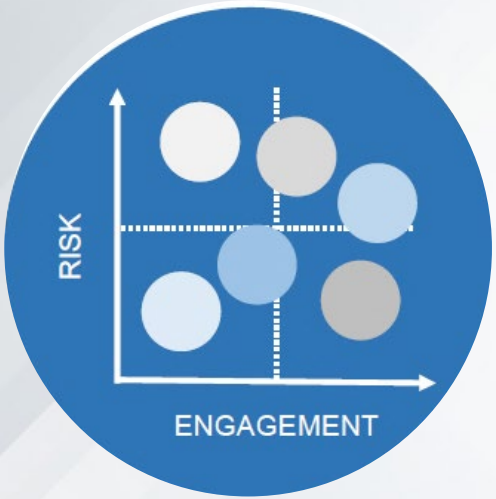
- Patient Engagement
  - PAM scores
  - Small N

Drivers:

- No Shows
- Prescription refills
- Immunizations
- MySanfordChart
- Income
- Avg. Education
- Avg. Household Size

Optimizing patient time; impacting engagement in healthcare…

PATIENT PERSONAS



*Risk & Engagement segment **personas** inform **HOW** to engage priority members*

Mosaic Project – giving insights in meaningful way to physicians in real-time

LEADING ANALYTICS AT THE POINT OF CARE

Member Profile

Illustrative

Maria, 55

Risk	2.5
Engagement Score	0.5

- **Stratification:** High Risk
- **Relationship Status:** Married
- **Household Income:** $65,000
- **Location:** Rural
- **Clinical Information**: Diabetes, Heart Disease
- **Risks / Needs:** Poor adherence, high likelihood of hospitalization, high receptivity to telephonic interactions, low participation in health

Sources

Member Generated Data

Medical & Rx Claims

Caregiver Reported

PHCM

EMR

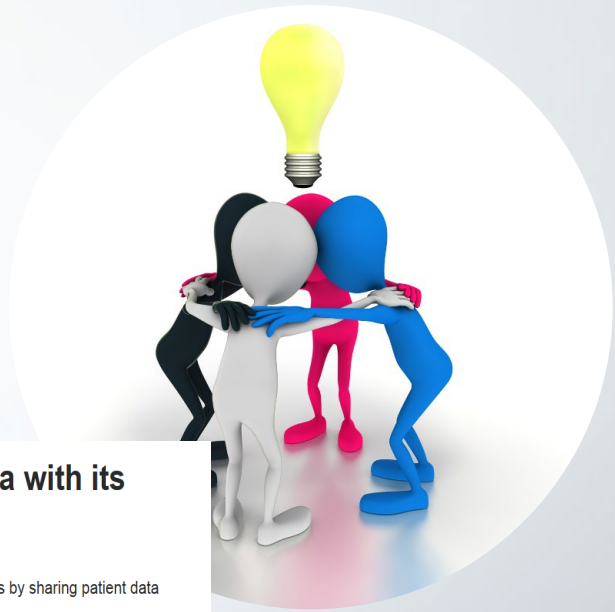
Provider Data

- **Prioritized Actions**
- **Optimization of Resources**
- **Optimal Experience**
- **Significant Impact**

CALL TO ACTION

Healthcare needs YOU!

COLLABORATION AS A FOUNDATION



Why Sanford Health is sharing patient data with its academic neighbors

Written by Jessica Kim Cohen | April 26, 2017 | Print | Email

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Sioux Falls, S.D.-based Sanford Health hopes to improve its own clinical outcomes by sharing patient data with nearby universities.

Through the Sanford Data Collaborative project, six institutions — including Sanford Research, the health system's research arm — will receive patient data stripped of private information. The data, including clinical, financial, operational and quality information, is gathered from patient visits to Sanford's 45 hospitals and almost 300 clinics.

Each of the six institutions pitched their own research project, and will work separately to conduct studies on cancer,