



A Conceptual and Analytical Framework for Identifying and Addressing the Social Determinants of Health in Medicaid Populations

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An HMA webinar in partnership with the Disability Policy Consortium

September 7, 2017



Introduction

The screenshot displays the Cisco WebEx Event Center interface for a meeting titled "Test". The top menu includes "File", "Edit", "Share", "View", "Communicate", "Participant", "Event", and "Help". The main content area shows the meeting title "Test", host information "Host: HMA Events" and "Event number: 666 221 939", and buttons for "Record" and "End Event". Below this are three large buttons: "I Will Call In", "Share My Desktop", and "Invite & Remind".

The right sidebar contains several sections: "Participants (1)", "Speaking:" (showing "HMA Events (Host, me)"), "Panelists: 1", and "Attendees: 0 (0 displayed)". Below these are icons for mute, video, and chat. The "Chat" section is expanded, showing a "Send to:" dropdown set to "All Panelists", a text input field with the placeholder "Select a participant in the Send to menu first, type chat message, and send...", and a "Send" button. Below the chat section is the "Q&A" section, which is currently empty, with a "Send" and "Send Privately..." button at the bottom.

The "Chat" icon in the top toolbar is highlighted with a red box. The bottom status bar shows the Cisco logo and "Connected" with a green indicator.

Introduction

The screenshot displays the Cisco WebEx Event Center interface for a meeting titled "Test". The interface includes a top navigation bar with "File", "Edit", "Share", "View", "Communicate", "Participant", "Event", and "Help" menus. Below the navigation bar, there are tabs for "Quick Start" and "Event Info". The main content area shows the meeting title "Test", host information "Host: HMA Events" and "Event number: 666 221 939", and buttons for "Record" and "End Event".

At the bottom of the main content area, there are three large buttons: "I Will Call In", "Share My Desktop", and "Invite & Remind". The "Invite & Remind" button has a sub-button labeled "Copy Meeting URL".

On the right side, there is a sidebar with icons for "Participants", "Chat", "Recorder", and "Q&A". Below these icons, there are sections for "Participants (1)", "Speaking:", "Panelists: 1" (listing "HMA Events (Host, me)"), and "Attendees: 0 (0 displayed)".

A red box highlights a dropdown menu for the Q&A section. The dropdown is titled "Send to:" and lists several options: "All Panelists", "Host", "Presenter", "Host & Presenter", "All Attendees", "All Panelists" (highlighted in blue), "All Participants", and "Select an Attendee...". There is a "Send" button to the right of the dropdown.

Below the dropdown, there is a text input field with the placeholder text "Select a question, and then type your answer here. There is a 256 character maximum." and "Send" and "Send Privately..." buttons.

The bottom of the interface shows the Cisco logo and a status bar indicating "Connected" with a green dot and a lock icon.

Introduction

Cisco WebEx Event Center

File Edit Share View Communicate Participant Event Help

Quick Start Event Info

Test

Host: HMA Events
Event number: 666 221 939

Record End Event

I Will Call In Share My Desktop Invite & Remind

Copy Meeting URL

Participants (1) x

Speaking:

Panelists: 1

HMA Events (Host, me) 📊

Attendees: 0 (0 displayed)

Chat x

Send to: All Panelists

Type your question here. Send

Q&A x

All (0)

Select a question, and then type your answer here. There is a 256 character maximum.

Send Send Privately...

Connected 🟢 🔒

- **Welcome**
- **Key Messages**
- **A Roadmap for Medicaid Programs**
- **Conceptual Framework**
 - **Medicaid Populations**
 - **Health Disparity Measures**
 - **Methods of Analysis**
- **Questions and Answers**
- **Contact Us**

Welcome federal and state officials, health plans, ACOs, behavioral health organizations, providers, community organizations, social services agencies, foundations, and trade associations!

- + The social determinants of health (SDOH) are key to addressing health disparities and achieving the goals of payment and delivery system reform.
- + We will present a roadmap for Medicaid programs to examine the relationship between SDOH and health disparities and costs.
- + We will advance an analytical framework including a set of measures and statistical methods to examine the importance of SDOH to health disparities and costs.

- + **Domain 1. Economic Stability**
- + **Domain 2. Education**
- + **Domain 3. Health and Health Care**
- + **Domain 4. Neighborhood and Built Environment**
- + **Domain 5. Social and Community Context**

"Although 95% of healthcare is devoted to direct medical services, roughly 50% of preventable deaths are attributable to non-medical indicators, such as social circumstances, environmental factors, and individual behaviors."

Source: Using Medicaid Resources to Pay for Health-Related Supportive Services: Early Lessons. CHCS Brief, December 2015.

We need a population-based examination of health disparities to advance the development of interventions, and payment mechanisms.

- + **The SDOH are REAL, and affect the lives of millions of people covered under Medicaid, and contribute to poor health outcomes.**
- + **Poor health outcomes and health disparities in Medicaid population have big COST implications for Medicaid programs.**
- + **The development of INTERVENTIONS should leverage both data and best practices from community-based and social services organizations, health plans and providers.**

SETTING FORTH A ROADMAP FOR MEDICAID

Step 1 Framework	Step 2 Analytical Plan	Step 3 Analytical File	Step 4 Statistical Methods
Bring together a multidisciplinary team to establish a conceptual framework , informed by interviews with thought leaders, consumers, and providers	Create an analytical plan that represents your plan for analysis based on the data that you have (with consideration of timeline and budget)	Build a data set to support the analytical plan; prepare an analytic file to define the populations and to measure health disparities and costs	Conduct the analyses using a variety of statistical methods to examine which SDOH matter most to health and cost outcomes
Step 5 Results	Step 6 Populations	Step 7 Interventions	Step 8 Payment
Interpret the results	Identify the populations and set goals for improving health outcomes	Design interventions and strategies to improve health outcomes	Develop the payment mechanism(s) to support the goals and the interventions

■ OUTLINING THE BIG PICTURE: POPULATIONS, MEASURES AND METHODS

Many choices are involved in the selection of Medicaid populations, measures and methods. There is a sea of data. The analysis is very detailed. A careful process of decision making is required.

Medicaid Populations

You can use a range of medical and social risk factors to define Medicaid populations

- + Poverty
- + Homelessness
- + Disability
- + Behavioral health conditions
- + Prior history of incarceration

Health Disparity Measures

You need a comprehensive set of measures to examine health disparities for Medicaid populations

- + Health: Mortality, morbidity, disability
- + Health care access and use
- + Health care quality
- + Costs may also be added

Methods of Analysis

You can use three common methods to examine health disparities for each Medicaid population

- + Univariate
- + Bivariate
- + Regression

IDENTIFYING THE KEY DATA SOURCES

The Medicaid data is foundational to an examination of Medicaid populations.

The data can be used to create a data set based on your plans for analysis.

Collaboration between Medicaid and public health and other sister agencies is essential.

A combination of qualitative and quantitative data will inform the development of a robust data set.

- + Medicaid eligibility files
- + Medicaid claims
- + Other sources:
- + Cash assistance
- + Children protection services
- + Correctional data
- + Other public sources
- + Private sources

- + Interviews with thought leaders, consumers, providers
- + Literature

TAKING THE KEY DATA SOURCES TO CREATE THE DATA SET

The key data sources will be used to create a useful set of variables for the data set.

Income data, for example, can be used to separate income groups using Federal Poverty Level (FPL). Medicaid populations with incomes < 50% FPL, 50-100% FPL, 100% FPL +.

Housing status, for example, can be used to identify people who are homeless.

- + Age
- + Gender
- + Race and ethnicity
- + Disability status
- + Geographic area
- + Immigration status
- + Income
- + Education
- + Language
- + Housing status
- + History of incarceration
- + Parents with mental illness
- + Parents' marital status
- + Parents with a history of incarceration

SDOH FACTORS THAT CAN BE USED TO CREATE MEDICAID POPULATIONS

We want to select population groups for analysis so that we can identify groups that are experiencing big health disparities and to help to develop the right interventions.

The nature of health disparities and possible interventions will vary from group to group.

Groups may vary from state to state too.

Children – Medicaid population examples based on medical and social risk factors



Adult – Medicaid population examples based on medical and social risk factors



EXAMPLE: EXPLORING MEDICAID POPULATIONS BY INCOME

We can examine health disparities among Medicaid populations by income.
How do health disparities compare? Which populations are most in need of interventions?

Under
50% FPL

50-100%
FPL

Over
100% FPL

■ CREATING A COMPREHENSIVE SET OF HEALTH DISPARITY AND COST MEASURES

Health disparities should be measured in a comprehensive fashion. We need a 360-degree view of health disparities to develop the right interventions.

Health:
Mortality, Morbidity,
Disability

Health Care
Access and Use

Health Care
Quality

Health Care
Costs

MEASURING HEALTH DISPARITIES IN MEDICAID POPULATION GROUPS

Medicaid Population =>	Adults Who Are Homeless	
	Yes	No
Health Disparity Categories		
Health		
Mortality		
Morbidity		
Disability		
Health care access and use (ex. potentially preventable emergency department visits)		
Health care quality (ex. preventive visits, annual dental visit)		
Health care costs		

Medicaid Population =>	Adults by Income Group		
	< 50% FPL	50-100% FPL	Over 100% FPL
Health Disparity Categories			
Health			
Mortality			
Morbidity			
Disability			
Health care access and use (ex. potentially preventable emergency department visits)			
Health care quality (ex. preventive visits, annual dental visit)			
Health care costs			

Medicaid data can be used to examine health disparity measures.

The data set should be built to include variables that capture outcomes, such as mortality, morbidity and disability and other measures.

Ex: Morbidity Measures.

- + Type 2 diabetes
- + Asthma
- + HIV
- + Hypertension
- + Many other measures

ANALYZING THE DATA USING COMMON METHODS OF ANALYSIS

What methods can be used to examine Medicaid populations and their health disparities?
To examine health disparities in Medicaid populations, different types of statistical analyses are needed.
Simple examples using variables such as homeless status and diagnosis of Type 2 diabetes.

Univariate = 1

Examine one variable at a time, such as:

- + Number of people who are homeless
- + Prevalence of Type 2 diabetes

Bivariate = 2

Examine the relationship between two variables, such as:

- + Number of people who are homeless who have Type 2 diabetes
- + Prevalence of Type 2 diabetes in people who are homeless

Regression = Many

Examine the relationship between many variables at a time, such as:

- + The statistical relationship between having Type 2 diabetes and many SDOH

PRODUCING BASIC DESCRIPTIVE STATISTICS FOR THE OVERALL POPULATION

Let's look at the most basic statistics about the overall population.

Variables	#	%
Homeless		
Mortality		
Type 2 Diabetes		

We want to understand the characteristics of the population.

Look at one variable at a time:

- Number of people who are homeless
- Percentage of the population that people who are homeless represent
- Number of people who have died (mortality rate)
- Percentage of the population with Type 2 Diabetes (prevalence)

Variables	Mean	Median	Range
Income			

- Average cost per person

ADVANCING TO MORE COMPLEX STATISTICS

For this example, let's examine the association between homelessness and Type 2 diabetes (2 variables).

	Type 2 Diabetes	
Social or Medical Risk Factors	<u>Yes</u> With Type 2	<u>No</u> Without Type 2
Housing status		
Adults who are homeless (yes)	a	b
Adults who are not homeless (no)	c	d

Odds Ratio (OR) to determine if there is an association between housing status and Type 2 diabetes.

$$\text{OR} = a \times d / b \times c:$$

- OR > 1 means a positive association
- OR = 1 means no association
- OR < 1 means a negative association

MOVING TO REGRESSION ANALYSIS: MODELING STRATEGY GUIDELINES

With regression analysis, you will need different strategies for different goals.
Compare two different goals and strategies below.

Goal:

To obtain a good homeless-diabetes estimate using the fewest variables, with the greatest explanatory power.

Strategy:

Use few variables with strong explanatory power.

Goal:

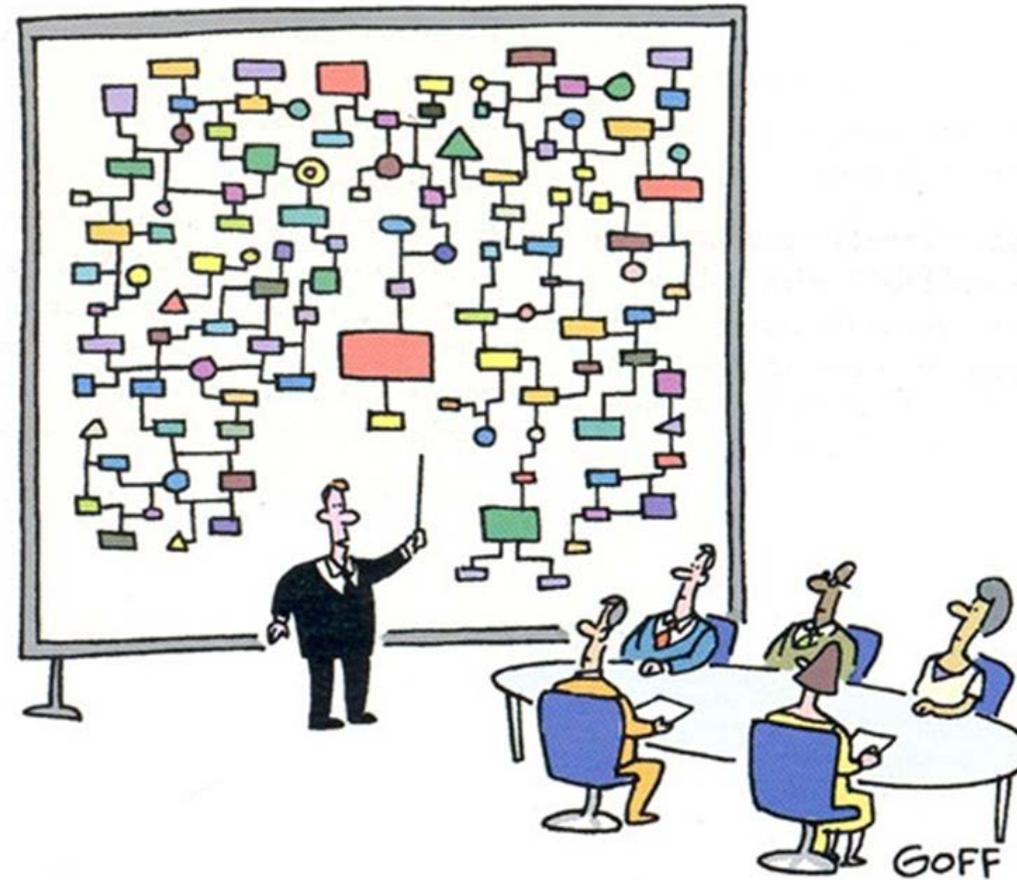
To obtain a good predictive model.

Strategy:

Use more variables to determine which factors are most important.

■ ACKNOWLEDGING THAT THERE ARE MANY MODELING ISSUES AND CHALLENGES!

After much whittling down, this is my most parsimonious model.



■ USING REGRESSION TO MEASURE THE RELATIVE IMPORTANCE OF EACH SDOH FACTOR

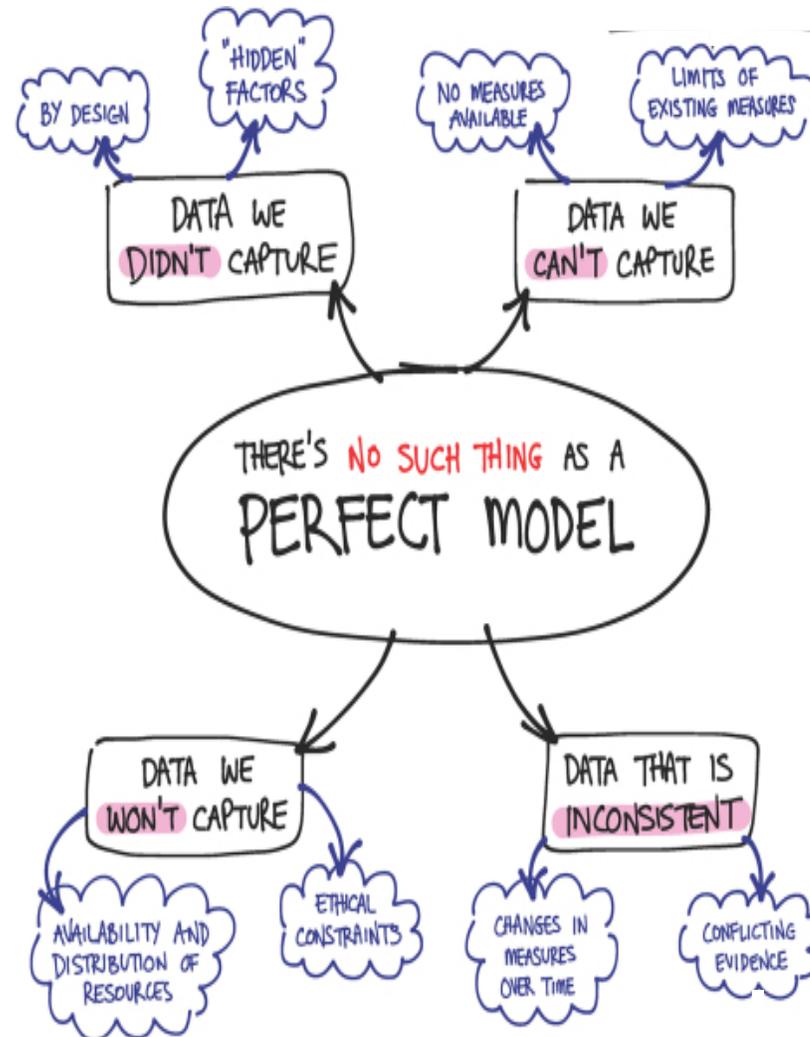
Ex: Let's examine associations of Type 2 diabetes and cost with SDOH factors.

Social or Medical Risk Factors	Type 2 Diabetes	Cost
	Logistic Regression	Linear Regression
Homeless Status	a	v
Disability	b	w
Age	c	x
Gender	d	y
Additional factors	e	z

By using regression analysis, we can find out how important each SDOH factor is to the outcome of interest. The results of the regressions, or coefficients, are represented by the letters on the table.

- **One outcome variable, for example, diabetes or cost, can be predicted from a set of social or medical risk factors.**
- **Which factors among the social or medical risk factors are the stronger predictors of the outcomes?**

DON'T LET THE PERFECT BE THE ENEMY OF THE GOOD



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■ IN THE END ... IT IS ALL ABOUT THE PEOPLE SERVED BY MEDICAID PROGRAMS



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HMA can bring its expertise and experience to develop and implement a roadmap for examining health disparities and costs in the Medicaid populations that is right for your organization.

See the recent action brief prepared by the presenters.

Robert Wood Johnson Foundation, July 2017. Medicaid and Social Determinants of Health: Adjusting Payment and Measuring Health Outcomes

http://www.statenetwork.org/wp-content/uploads/2017/07/SHVS_SocialDeterminants_HMA_July2017.pdf