CITY OF MINNEAPOLIS

(Local) Public Health 3.0: Subcounty analysis implementation successes, frustrations, and plans

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Overview

- Subcounty data analysis
  - Response and nonresponse matter
- Chronic disease and opioid use assessment
  - MN Hospital Association data
- Health historian vs health strategist
  - Predicting violence
  - Predicting lead exposure
- Lessons learned
- The way ahead

Public Health 3.0

Public Health 3.0: A Call to Action for Public Health to Meet the Challenges of the 21st Century

K. DeSalvo et al, https://www.cdc.gov/pcd/issues/2017/17_0017.htm

Recommendations:

1. Public Health should embrace the role of Chief Health Strategist
2. Form vibrant, structured, cross-sectored partnerships
3. Ensure every person in the U.S. is served by a nationally accredited health department
4. Timely, reliable, granular-level (i.e. subcounty) and actionable data should be made accessible to communities throughout the country and clear metrics should be developed
5. Funding for Public Health should be enhances and substantially modified

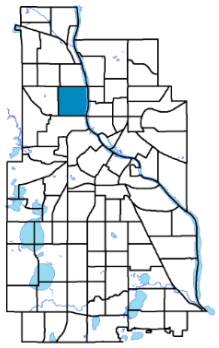
Subcounty data analysis

Many interesting resources have been published, including:

- 500 Cities (small area estimation methods from surveys such as BRFSS or National Survey of Children's Health)
- County Health Rankings
- City Health Dashboard
- Healthy Communities Transformation Initiative (pictured, presented at eHealth Summit previously)

Indicator Details

Indicators	Primary Domain	Indicator Value	Rank	Tier
Access to Mainstream Financial Services	Economic Health	49.2%	80	Bottom
Access to Parks and Open Space	Natural Areas	4.7%	48	Middle
Adult Educational Attainment	Educational Opportunities	73.0%	77	Bottom
Age of Housing	Housing	75.9%	19	Top
Blood Lead Levels in Children	Housing	12.9%	78	Bottom
Business Retention	Economic Health	0.6%	55	Middle
Chronic School Absence	Health Systems and Public Safety	44.1%	25	Top
Commute Mode Share	Transportation	34.1%	32	Middle
Employment Rate	Employment Opportunities	44.1%	83	Bottom
Excessive Housing Cost Burden	Housing	53.8%	85	Bottom
	Neighborhood			



Compare Indicator to Targets

Select an Indicator...

See how the selected neighborhoods compare to state and national goals for a specific indicator.

https://www.huduser.gov/healthycommunities/node/142

Response and nonresponse matter

- Participation in epidemiologic studies has been decreasing since the 1970s, across national, state, and local surveys
- Recent surveys have narrowed the range of responses to predominantly white women, over the age of 60, with college degrees
- Estimates of health status based on survey responses present a more favorable picture of population health than is actually the case – which is not helpful!

Alternative example:
MN Hospital Association data

Limitation: the nature of EMR/EHR data does not help us with some health-related behaviors (e.g. we can't model smoking rates or evaluate the impact of smoke free living initiatives on smoking rates)

Smoke Free Living

The Health Department works with community partners to promote smoke-free spaces, and implement strategies to prevent current initiatives below.

*New this December 2017, the Minneapolis Health Department is launching a smoke free housing campaign. Please

Current Initiatives

Smoke-free Housing Campaign

Menthol Tobacco

2015 Flavor and Price Tobacco Sales Ordinance

MN Hospital Association data continued

Race and Ethnicity variables are not useable in this data set because of how the data is collected at the hospitals:

- 35% of Race Missing
- 22% of Race Not provided

- 39% of Ethnicity is Missing
- 20% of Ethnicity Declined to answer

Frequency Table

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		210721	34.8	34.8	34.8
	R1	10065	1.7	1.7	36.4
	R2	7331	1.2	1.2	37.6
	R3	109968	18.1	18.1	55.8
	R4	810	.1	.1	55.9
	R5	120208	19.8	19.8	75.8
	R9	10922	1.8	1.8	77.6
	RZ	135865	22.4	22.4	100.0
	Total	605890	100.0	100.0	

Ethnicity

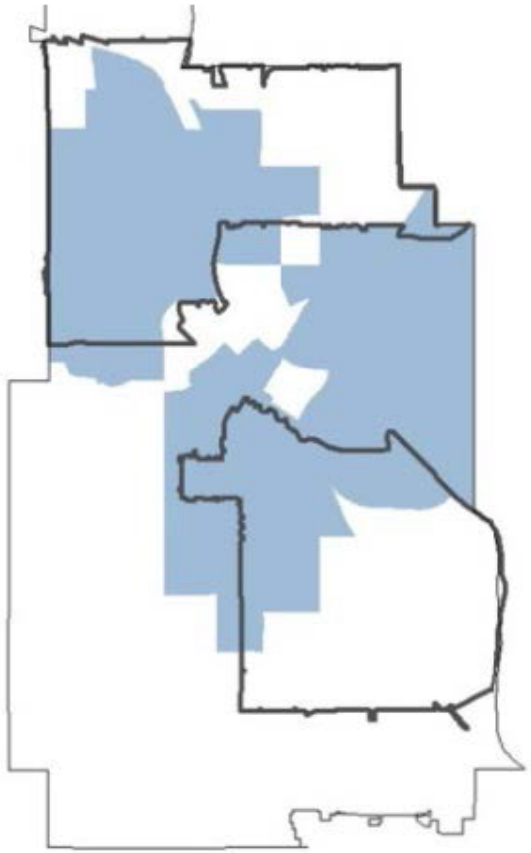
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		235874	38.9	38.9	38.9
	E1	19854	3.3	3.3	42.2
	E2	225183	37.2	37.2	79.4
	EY	124979	20.6	20.6	100.0
	Total	605890	100.0	100.0	

MHA data use case: Asthma by geography

Pediatric Asthma Diagnosis by Minneapolis Zipcode MHA Data 2016 to 2018 (30 months)			
Zipcode	Community	Asthma Diagnosis	Percentage of all pediatric Asthma
55411	Near North	1,938	23.6%
55412	Camden	1,108	13.5%
55407	Powderhorn	883	10.7%
55404	Central	772	9.4%
55430	Camden	569	6.9%
55408	Calhoun Isle/Phillips	462	5.6%
55406	Longfellow	358	4.4%
55418	Northeast	309	3.8%
55417	Nokomis	275	3.3%
55419	Southwest	224	2.7%
55405	Calhoun Isle/Near North	209	2.5%
55454	Central	195	2.4%
55416	Calhoun Isle	135	1.6%
55414	University	133	1.6%
55403	Calhoun Isle/ Central	130	1.6%
55409	Southwest	128	1.6%
55415	Central	128	1.6%
55410	Southwest	113	1.4%
55413	University	111	1.4%
55401	Central	27	0.3%
55402	Central	4	0.0%
55455	University	4	0.0%
55487	Central	2	0.0%
Total		8,217	100.00%

MHA data use case:
Chronic disease and poverty by geography

Figure 2: Poverty and chronic disease-related ER admissions



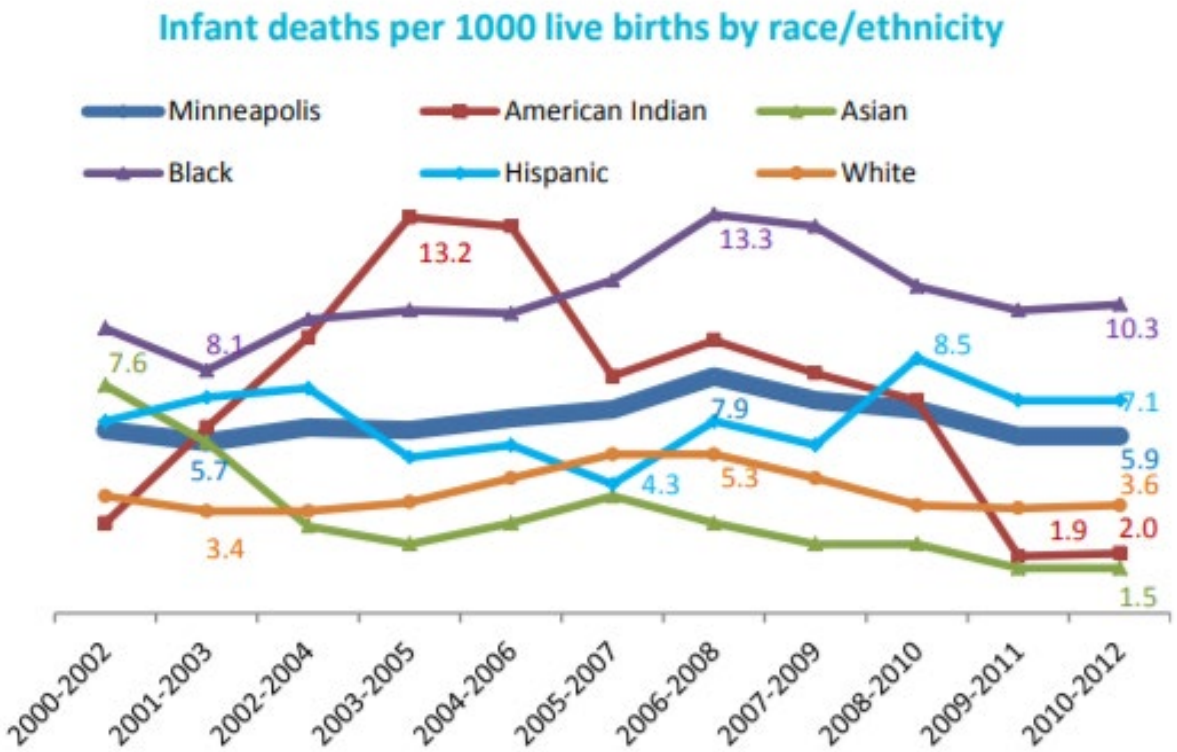
Chief health strategist

Public Health Foundation (PHF): A community **Chief Health Strategist** is an engaged change leader or group of leaders who build community coalitions that investigate or take action to make meaningful progress on a community health issue.

RESOLVE "The High Achieving Governmental Health Department in 2020": **Chief health strategists** will lead their community's health promotion efforts in partnership with health care clinicians and leaders in widely diverse sectors, from social services to education to transportation to public safety and community development.

NACCHO "The Local Health Department as the Community **Chief Health Strategist**": Local health departments are uniquely positioned to fill this role through their experience in providing essential services and leadership, engaging communities to identify and support policy solutions, and collecting, analyzing, and sharing data."

Health historian vs. Health strategist



Concept from Anna Thomas, MPH, Director of Manchester Health Department (New Hampshire)

Predicting health outcomes

- This has been an area of intense interest for many stakeholders
- We have worked with a variety of partnerships for thinking this through and have not had much success, though continue to refine our attempts as new data sets emerge

In search of a screening tool: Predicting increased risk of young people in Minneapolis becoming victims of violent crime

- This study sought to identify the characteristics and background experiences that best distinguished victims from nonvictims of violence crime and calculate estimates of how well individual indicators or sets of indicators accurately identified victims
- We used data from the U of MN's Minn-LInk program, connecting data from multiple sources

Creation of a screening tool for predicting increased risk of young people becoming victims of violent crime…

- …didn't work
- The characteristics that the service providers identify as putting a young person at risk are what we could see through the data
- When we got anything *mathematically* useful, there were so many risk factors present that it was a *functionally* useless observation

Predicting Lead Presence in Minneapolis

- This project was completed as part of a Masters of Urban Spatial Analysis practicum, Univ. of Pennsylvania
- Our goal is to “work for the day when we don’t use children as lead detectors,” citing our concern that while we understand the risk factors for lead poisoning, we have limited abilities to intervene until a child receives a blood test indicating that they have lead poisoning
- To protect families’ privacy, we can’t let partners work with the results of the lead testing – we can let them work with data related to the structure that is generally the source of the lead poisoning

Predicting Lead Presence in Minneapolis…

- …didn't work
- We already know which homes are at increased risk for lead
- More granular data is collected based on where inspectors visit, therefore all the data is based on inspectors having some reason to believe the structure is at increased risk for lead

Lessons learned about response bias

If you are going to do a survey or create estimates off someone else's survey…

- Be forthright about who answered the survey and how this compares to the population whose health status you are attempting to estimate

- Be clear about limitations – it is more helpful for programs working with chronic disease to have language about data limitations than to have inaccurate and artificially improved estimates

Lessons learned about predictive analytics

People can do many things just as well, if not sooner, than the data, especially in the areas related to social services

Use caution when deciding a dataset is useful and spend time with the program area to determine how they already use data

Lessons learned about EMR/EHR data

Data can only do what it can do – figure out your data and think of the possibilities, but don't ask it to do something it isn't capable of doing

Give feedback about the data to people who can help make it better

See what's possible!

The way ahead…

Let’s chat!

What are your questions?

How do you see your agency moving ahead on some of these same issues?

How can our learnings help you?

Thank you!

If you have any additional questions, please don't hesitate to reach out!

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