



Adventures at Better Health Partnership

Learning as a Community (aided by Electronic Health Records) to make an impact on the Health of Northeast Ohio's Adults



Thomas E. Love, Ph.D.

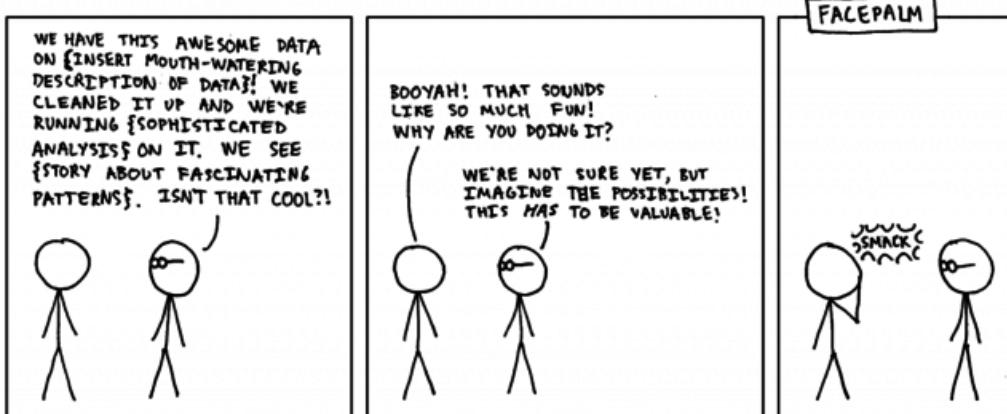
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<https://github.com/THOMASELOVE/adventures>

2018-04-05

Data Science



<https://github.com/THOMASELOVE/adventures>

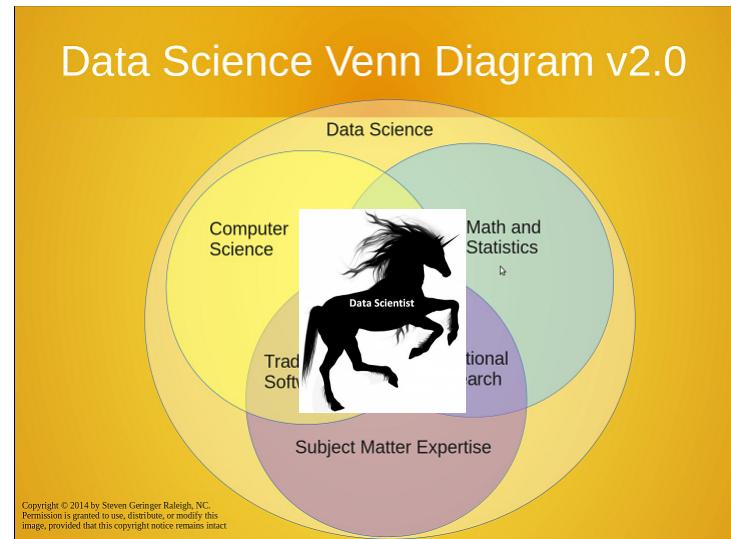
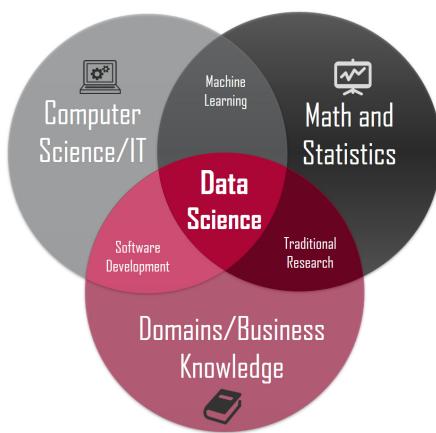
Today's Topics



1. The role of **data science** in informing researchers and the public about population health
2. **Better Health Partnership's** Vision, Mission, and some insight into how it's working in its 12th year
3. A few insights from Better Health's **data on adults** with chronic illness
4. Some early **Children's Health Initiative** findings

<https://github.com/THOMASELOVE/adventures>

Data Science

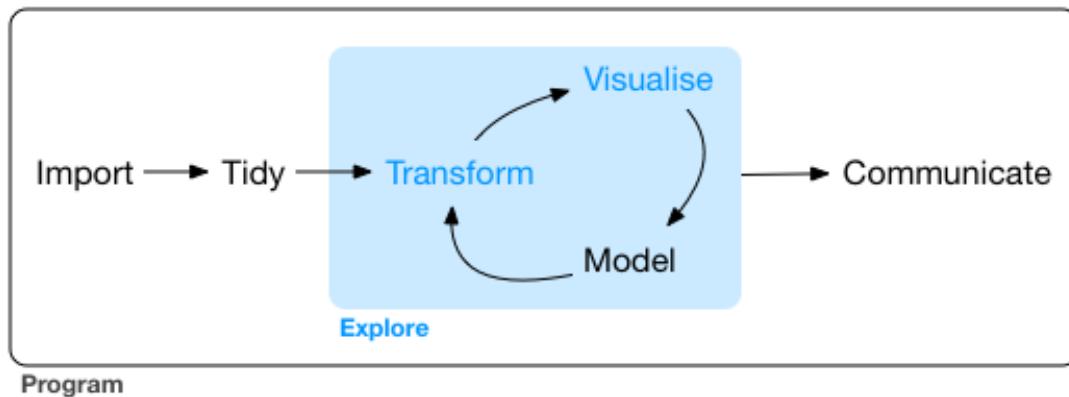


<https://github.com/THOMASELOVE/adventures>

Data Science

<http://r4ds.had.co.nz>

Grolemund and Wickham, R for Data Science



<https://github.com/THOMASELOVE/adventures>

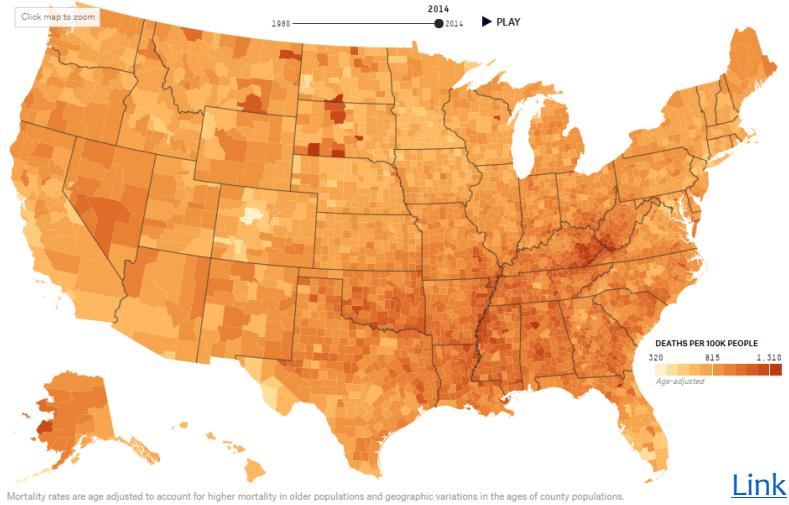
FiveThirtyEight

35 Years Of American Death

Mortality rates for leading causes of death in every U.S. county from 1980 to 2014.

By [Ella Keeze](#)

< >



Vision and Mission



To Help Northeast Ohio Become a Healthier Place to Live and a Better Place to do Business



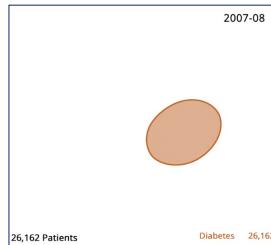
By creating a safe space for health care competitors to collaborate

<https://github.com/THOMASELOVE/adventures>

Better Health Partnership 10 Years Ago



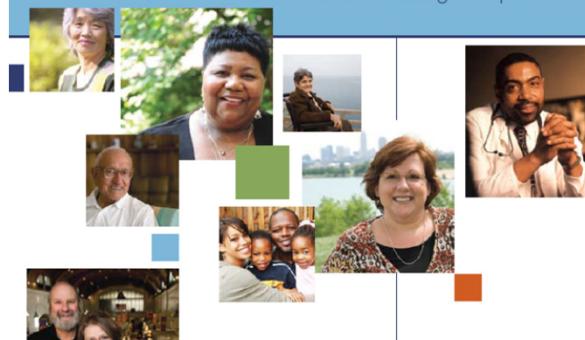
**26,162 adults
with diabetes**
43 practices &
417 providers



<https://github.com/THOMASELOVE/adventures>

Community Health Checkup Executive Summary

Diabetes Care and Outcomes:
Focus on Disadvantaged Populations



**Better Health Partnership
Now (2016-2017 data)**

**207,798 adults
with chronic disease**
80 practices &
844 providers, 9 systems

Condition	Count
High BP	194,742
Diabetes	55,541
Heart Failure	9,195
Total Patients	207,798
2016-17	145,985
2017-18	11,635
2018-19	40,983
2019-20	2609
2020-21	5165
2021-22	1107
2022-23	314

Cancer Screening and Population Health measures on **205,418** adults ages 50-75

**Children's Health Initiative:
Report 2 (April 13 release) will include 255,837 children**

children's health initiative
a program of Better Health Partnership

<https://github.com/THOMASELOVE/adventures>

189 Primary Care and Pediatric Practices reporting to Better Health Partnership (April 2018)

Better Health Partnership
Collaborating for a healthy community

In all, our new reports describe over 530,000 unique NE Ohio residents.

children's health initiative
a program of Better Health Partnership

Adult Data Collection

- Health Systems submit data that they have gathered from their electronic health records
- Data submission via a portal, every 6 months
- Overlapping 12-month periods
- Data Requests include
 - Elements
 - Public Reporting Standards
 - Timeline
 - Sample Submission Sheets

"All systems have problems. Let's honor the positives and address what we need to do better."
 - [Harlan Krumholz](#), Yale @hmkyale

- Data Elements at the patient level for...
 - 44 Core measures
 - Practice identifiers, Provider codes
 - 6 specialized diabetes measures
 - 16 specialized HBP measures
 - 12 specialized HF measures
 - Several appendices (ICD-10 codes, etc.)
- Geo-coded (address-based) assessments of education, income

<https://github.com/THOMASELOVE/adventures>

Data Elements Excerpt



Data Elements for Report 21
 Reporting Period: January 1, 2017 - December 31, 2017
 Revised: 1/30/2018

CORE DATA ELEMENTS TO BE GATHERED ON ALL REPORTED PATIENTS (i.e. All Patients with QUALDM or QUALHTN or QUALHF = 1)				
TWELVE MONTH REPORTING PERIOD for Report 21 : start date: January 1, 2017 through end date: December 31, 2017				
#	Variable	Name	Description / Codes	Comments / Business Rules
C-05	Does patient qualify for entry into Better Health reporting as a patient with diabetes in this reporting period?	QUALDM	See three qualifications at right. 0 = No, patient does not qualify for reporting as a diabetes patient. 1 = Yes, patient qualifies for reporting as a diabetes patient.	To qualify, patient must meet three criteria, specifically: [1] have a diabetes diagnosis (see Appendix 1 sheet for ICD10 codes) on the problem list and [2] be within the ages of 18 and 75, inclusive, on the start date of the reporting period, and [3] have at least 2 primary care office visits on different days during the twelve-month reporting period.
C-06	Does patient have a diabetes diagnosis?	DMDIAG	See three qualifications at right. 0 = No 1 = Yes, patient has a diabetes diagnosis (and at least one primary care visit in reporting period and is age 18+.)	To qualify, patient must: [1] have a diabetes diagnosis on the problem list - see Appendix 1 sheet for ICD10 codes. [2] be age 18 or older at the start of the reporting period. [3] have one or more primary care visits in reporting period. [Note: This includes all patients with QUALDM = 1, plus additional patients with diabetes, but who are older than 75 or who had only 1 primary care visit in the reporting period.]

Public Reporting Standards Excerpt

PUBLIC REPORTING STANDARDS FOR DIABETES				
Diabetes Care Standards				
Name	Data Elements	Numerator	Denominator	Description
A1c Done	C-05 (QUALDM) DM-01 (A1C)	A1C not missing	QUALDM	% of qualifying diabetes patients with at least one hemoglobin A1c value (within the range of 3.9% to 20.0%, inclusive) obtained during the reporting period.
Kidney Management	C-05 (QUALDM) DM-03 (MALB) C-35 (ACEARB)	MALB not missing OR ACEARB = 1	QUALDM	% of qualifying diabetes patients with urine microalbumin or urine microalbumin/creatinine ratio screening or ACE/ARB prescription in reporting
Eye Examination	C-05 (QUALDM) DM-04 (EYEX)	EYEX = 1	QUALDM	% of qualifying diabetes patients with documented eye exam (via result report or patient self-report [health maintenance override]) in reporting
Pneumonia Vaccination	C-05 (QUALDM) DM-05 (PNEUM23) DM-06 (PNEUM13)	PNEUM23 = 1 or PNEUM13 = 1	QUALDM	% of qualifying diabetes patients with documented pneumococcal vaccination at any time between January 1, 1990 and the last date of the reporting period.

Table 1:
Characteristics of Patients in 2016-2017 Report

Better Health's 20th report (describing 2016-2017) includes 280,862 patients seen by 844 providers, in 8

REPORTING PERIOD: 2016-2017	View Reporting by Different Timeframe: <input type="button" value="▼"/>			
	Diabetes Patients	High Blood Pressure Patients		
Health Systems	8		9	
# of Patients	55,541		194,742	
# of Primary Care Practices	73		80	
# of Primary Care Providers	742		813	
	Better Health Population	Range of Values Across Sites	Better Health Population	Range of Values Across Sites
Insurance (%)				
Medicare	47.6	16 - 78	52.9	15 - 83
Commercial (and Veterans)	37.9	0 - 65	36.2	1 - 56
Medicaid	12.1	0 - 66	8.7	0 - 63
Uninsured	2.5	0 - 37	2.2	0 - 38
Race/Ethnicity (%)				
White	63.0	2 - 99	69.0	2 - 99
African-American	29.4	0 - 96	26.3	0 - 98
Hispanic	4.7	0 - 68	2.7	0 - 60
Other	2.9	0 - 9	2.1	0 - 8

http://betterhealthpartnership.org/table1_2016_2017_detail.asp

	Better Health Population	Range of Values Across Sites
Insurance (%)		
Medicare	47.6	16 - 78
Commercial (and Veterans)	37.9	0 - 65
Medicaid	12.1	0 - 66
Uninsured	2.5	0 - 37
Race/Ethnicity (%)		
White	63.0	2 - 99
African-American	29.4	0 - 96
Hispanic	4.7	0 - 68
Other	2.9	0 - 9
Demographics		
Average Age	60.5	51 - 66
% Female	38.2	2 - 70
% in City of Cleveland	34.2	0 - 93
% in Cuyahoga County	56.9	0 - 100
Median Household Income (\$1000s)	47.3	25 - 78
High School Graduation Rate (%)	86.7	74 - 94
Population Health Measures		
% with Blood Pressure < 140/90	77.6	57 - 90
% with Body-Mass Index < 30	33.5	19 - 47
% Not Smoking	76.9	32 - 95

Achievement of HEDIS / NCQA Measures Better Health Partnership: 2016-17

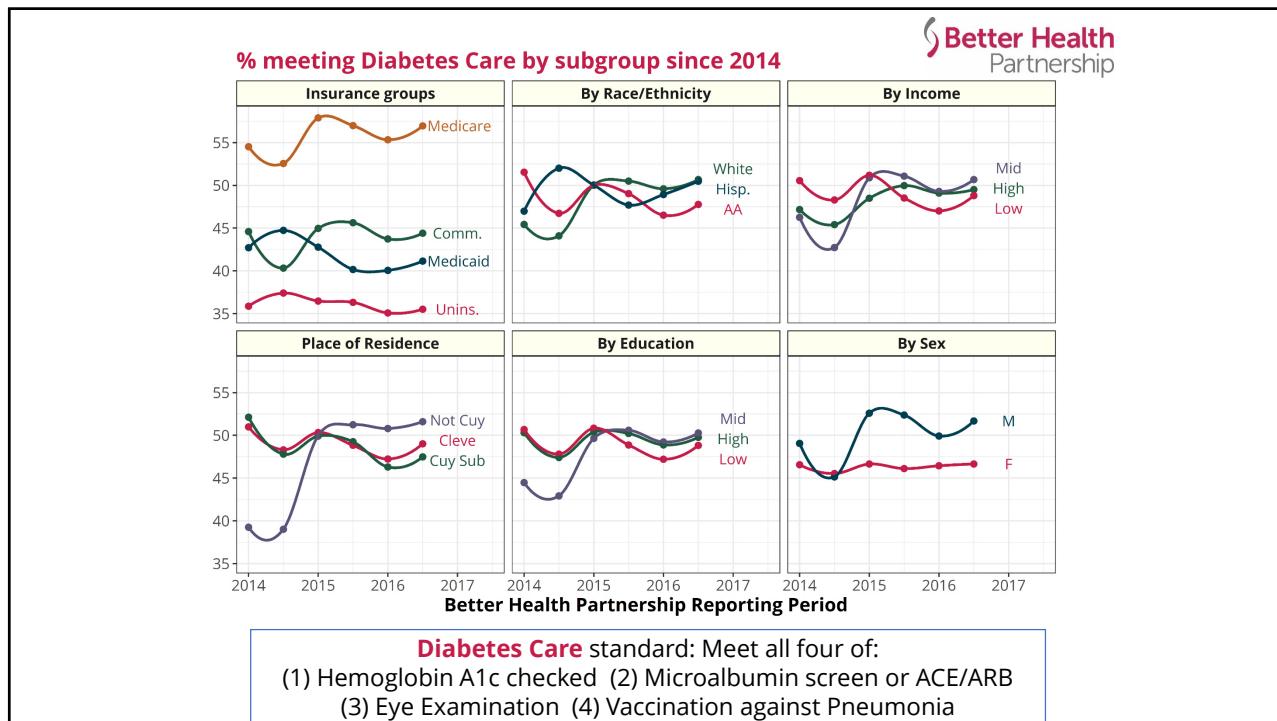
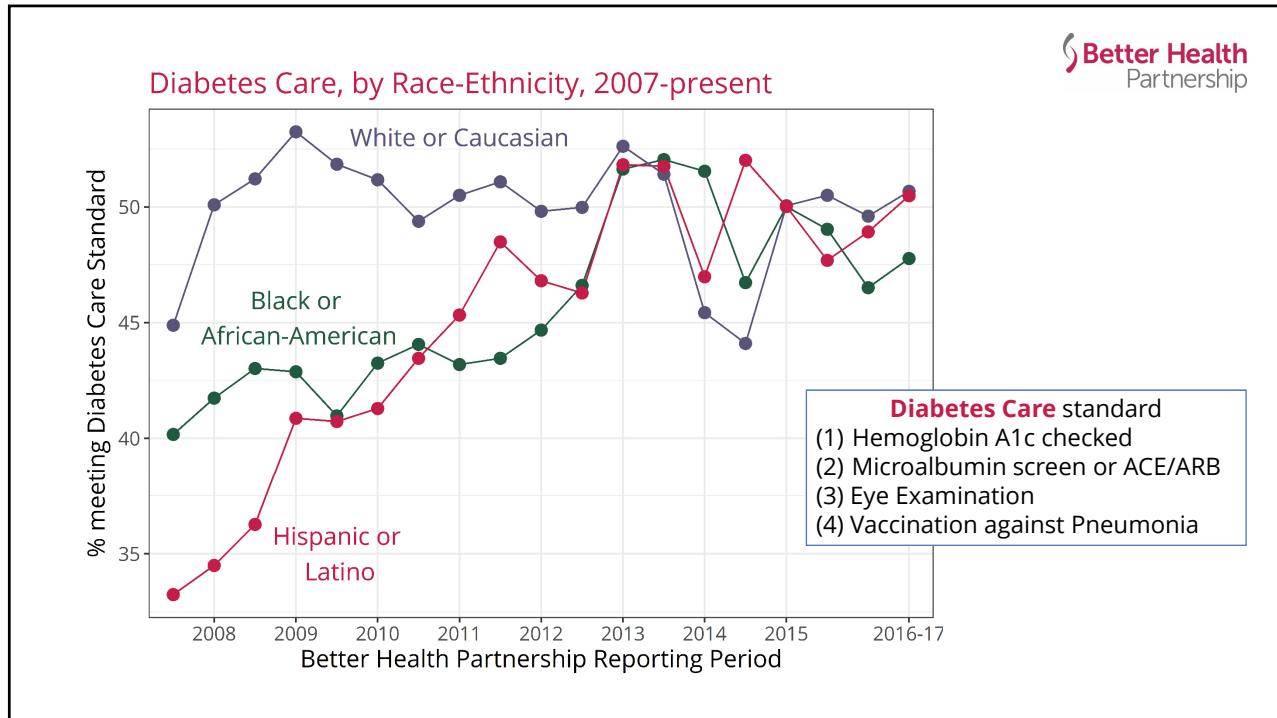


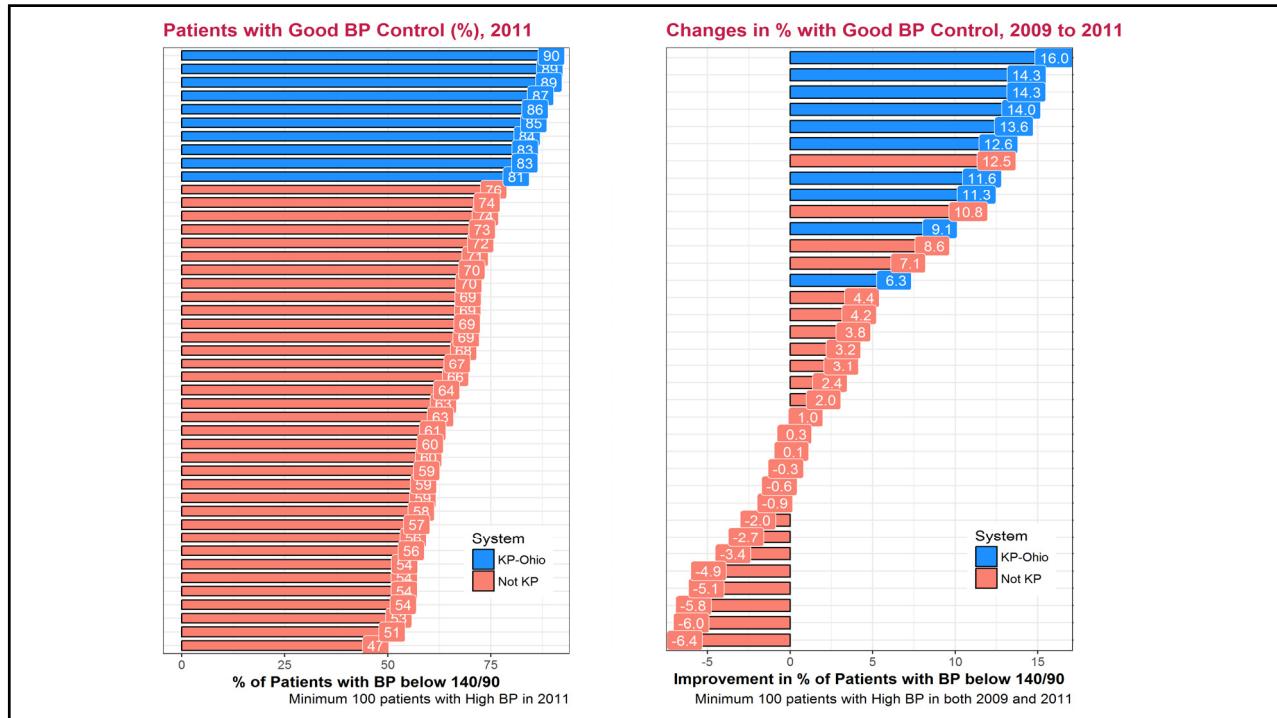
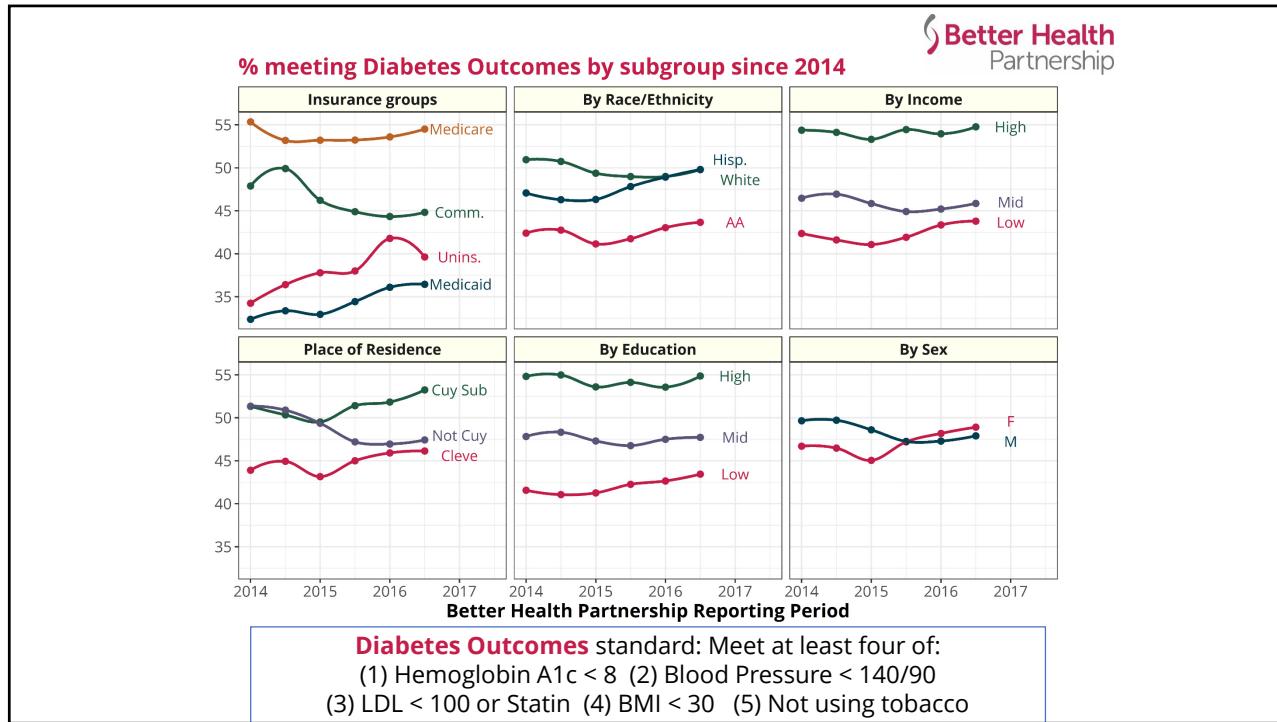
High BP	All	Medicare	Commercial	Medicaid	Uninsured
Blood Pressure Control	74	81	77	74	70
Diabetes Measures					
BP below 140/90	78	77	78	80	77
Hemoglobin A1c testing	94	95	93	95	96
A1c control (< 8%)	66	70	64	57	56
A1c control (< 9%)	85	89	84	75	74
Eye Examination	66	72	63	56	50
Kidney Management	87	87	86	89	89
Cancer Screening					
Colorectal Cancer Screening	74	80	73	60	55

Better Health Partnership: 2016-17 vs. National HMO/PPO data, 2016



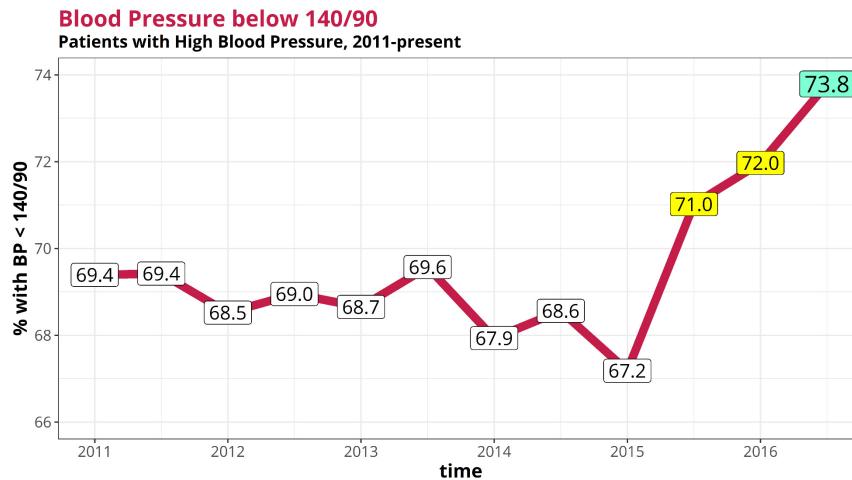
High BP	Medicare	Commercial	Medicaid	Uninsured
Blood Pressure Control	81	77	74	70
Diabetes Measures				
BP below 140/90	77	78	80	77
Hemoglobin A1c testing	95	93	95	96
A1c control (< 8%)	70	64	57	56
A1c control (< 9%)	89	84	75	74
Eye Examination	72	63	56	50
Kidney Management	87	86	89	89
Cancer Screening				
Colorectal Cancer Screening	80	73	60	55





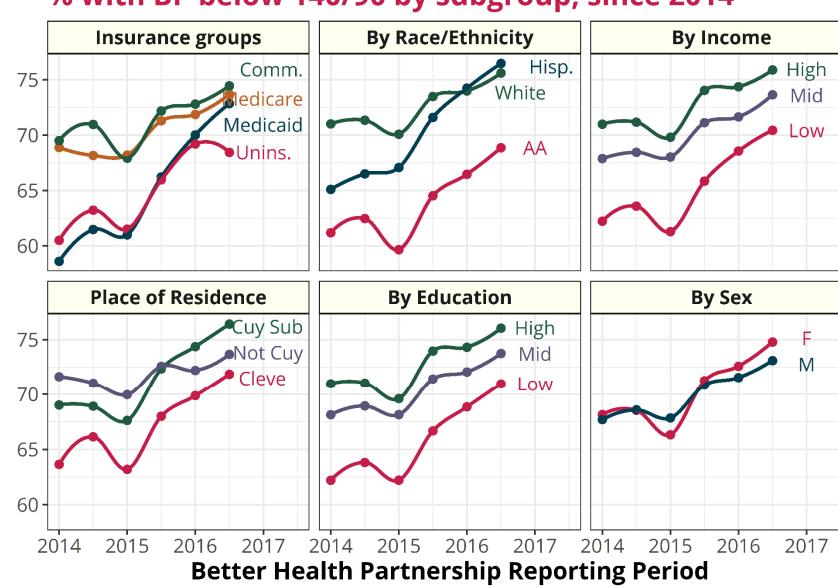
High Blood Pressure Control (most recent BP < 140/90)

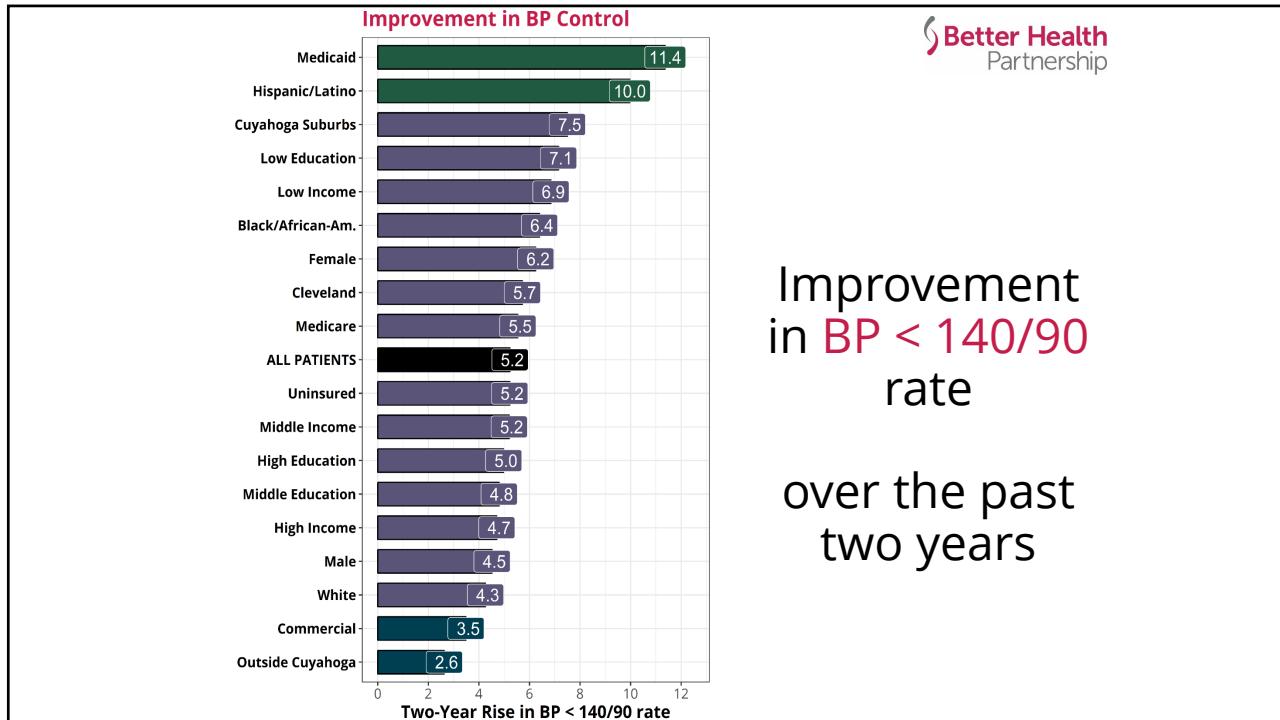
 Better Health
Partnership



% with BP below 140/90 by subgroup, since 2014

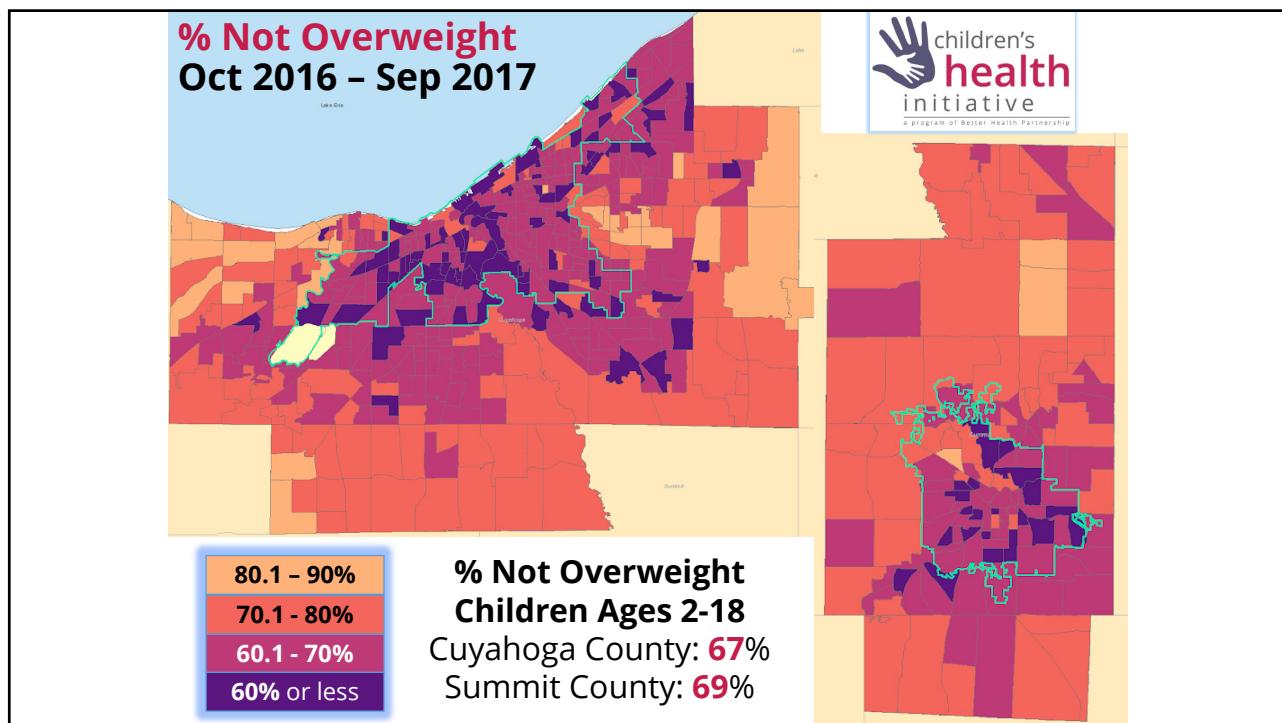
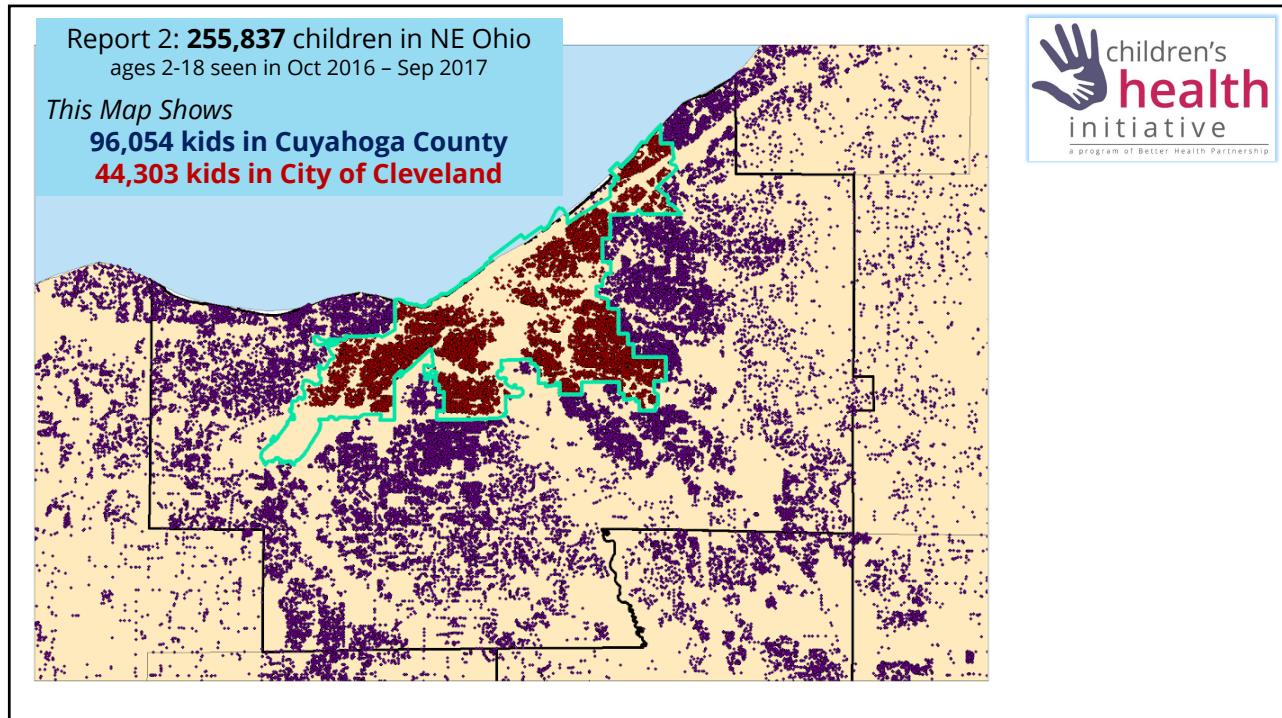
 Better Health
Partnership





Children's Health Initiative

- Deploying our **collaborative model of measurement**
 - Initial focus on **obesity, blood pressure and asthma**.
 - Importance of **non-medical determinants of health**.
- Connecting clinicians with community resources
- Development of data elements, reporting processes, addressing privacy concerns
- First Public Report included
 - **151,749** children ages 2-18
 - **601** primary care providers
 - **88** practices in **5** systems
 - April 2016 – March 2017 data
 - Obesity and Blood Pressure
- Second Public Report **next week**
 - To include **255,837** kids
 - **898** providers in **163** practices in **6** health systems
 - October 2016 – Sept 2017 data
 - Initial Results on Asthma



children's health initiative
a program of Better Health Partnership

Social determinant attributes and children's health outcomes

An interactive tool to highlight population health opportunities

Select Attributes

Age: 2 to 18

Sex: All Sexes

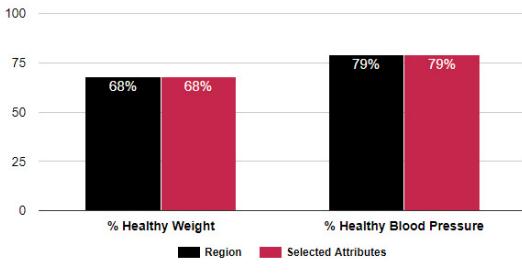
Race/Ethnicity: All Race/Ethnicity Types

Insurance: All Insurance Types

Income Category: All Income Categories

County: All Counties

Reset **Refresh**



Group	Number of Patients	% with Height & Weight Measured	% Healthy Weight	% with Blood Pressure Measured	% Healthy Blood Pressure
Region	255,785	87	68	77	79
Selected Attributes	255,785	87	68	77	79

Selected Attributes: Age: All Ages (2-18). Sex: All Sexes. Race: All Race/Ethnicity Categories. Insurance: All Insurance Categories. Income: All Income Categories. County: All

About these measures:
 % Healthy Weight: Body mass index below the 85th percentile for age and sex, based on U.S. standards.
 % Healthy Blood Pressure: Systolic and diastolic blood pressure below the 90th percentile for age and sex.

The data on this page come from the most recent Children's Health Initiative of the Better Health Partnership. Data are from October 1, 2016 through September 30, 2017.

[Link](#)

Thank you!

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Slides and Resources from this Presentation are available at:
<https://github.com/THOMASELOVE/adventures>