Navigating Community Data for Research: The Universal Data System (UDS) and Current Population Health Tools

Andrew Hamilton, RN, BSN, MS
Chief Informatics Officer/Deputy Director
AllianceChicago

Michael Nudo, MNA, CNP
Grants and Resource Development Manager
AllianceChicago

CDN
CLINICAL•DIRECTORS•NETWORK
www.CDNetwork.org

Friday, October 6, 2017 ~ 2 PM – 3:30 PM EST

AllianceChicago

ACKNOWLEDGEMENT

- This presentation was funded through a Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award (6043-ACCH).

- **Disclaimer:** The statements presented in this webinar are solely the responsibility of the author(s) and do not necessarily represent the views of the Patient-Centered Outcomes Research Institute (PCORI), its Board of Governors or Methodology Committee.

- The Patient-Centered Outcomes Research Institute (PCORI) is an independent, nonprofit organization authorized by Congress in 2010. Its mission is to fund research that will provide patients, their caregivers, and clinicians with the evidence -based information needed to make better-informed healthcare decisions. PCORI is committed to continually seeking input from a broad range of stakeholders to guide its work.

AllianceChicago

Exploring a Quality-driven Research Question Using the Uniform Data System (UDS)

Michael Nudo
Grants and Resource Development Manager, AllianceChicago

The Uniform Data System is maintained by:
The Health Resources and Services Administration (HRSA)
Bureau of Primary Health Care
Federally Qualified Health Center (FQHC) Program

AllianceChicago

AllianceChicago

Innovating for better health

AllianceChicago is a Health Center Controlled Network which was founded in 1997 and includes:

- 28 Safety-net Health Centers in 18 states
- Health Information Technology services
- Data Warehouse with over 2 million patients
- 50+ Partners & Affiliates
- 20+ Funders
- 45+ Employees
- 20+ Research Affiliations

AllianceChicago

Sources of Research Data

There are many sources of preparatory to research data that can be used to assess the feasibility of a proposed research study. Some include:

- Government agency data sets
- Public and private data repositories, such as Electronic Health Record Systems
- Government records or publications
- Interviews with patients, customers, and other stakeholders
- Scholarly journals and previous research findings

AllianceChicago

How can you use available data to develop a research question that will improve patient care?

AllianceChicago

How can you use available data to develop a research question that will improve patient care?

- For this exercise, let's assume that I am a nurse working in a health center to provide direct services and on quality improvement initiatives to improve patient health outcomes.

AllianceChicago

How can you use available data to develop a research question that will improve patient care?

- For this exercise, let's assume that I am a nurse working in a health center to provide direct services and on quality improvement initiatives to improve patient health outcomes.

- Also, let's say that I recently saw an article that stated that African Americans might be up to 2.2 times more likely to have diabetes than Caucasians. I wondered if this trend was similar in my health center's service area as we serve a large number of people from this group.

AllianceChicago

How can you use available data to develop a research question that will improve patient care?

- For this exercise, let's assume that I am a nurse working in a health center to provide direct services and on quality improvement initiatives to improve patient health outcomes.

- Also, let's say that I recently saw an article that stated that African Americans might be up to 2.2 times more likely to have diabetes than Caucasians. I wondered if this trend was similar in my health center's service area as we serve a large number of people from this group.

- I knew I had access to data about my health center from our EMR patient records - but how do I find more information about individuals living in our community? I wondered how we could increase the impact of our diabetes care services and reach more people.

AllianceChicago

How can you use available data to develop a research question that will improve patient care?

- For this exercise, let's assume that I am a nurse working in a health center to provide direct services and on quality improvement initiatives to improve patient health outcomes.
- Also, let's say that I recently saw an article that stated that African Americans might be up to 2.2 times more likely to have diabetes than Caucasians. I wondered if this trend was similar in my health center's service area as we serve a large number of people from this group.
- I knew I had access to data about my health center from our EMR patient records - but how do I find more information about individuals living in our community? I wondered how we could increase the impact of our diabetes care services and reach more people.
- To begin, I contacted my HRSA FQHC Project Officer and she referred me to the UDS website, data warehouse, and UDS Mapper – a treasure trove of community health data

AllianceChicago

UDS – A Comprehensive Data Source

The Uniform Data System (UDS) is an integrated reporting system used by all grantees funded for Community Health Center, Migrant and Seasonal Farmworker, Health Care for the Homeless, and Public Housing Primary Care, under the Health Center grant program administered by the Bureau of Primary Health Care (BPHC) at the Health Resources and Services Administration (HRSA).

AllianceChicago

UDS – A Comprehensive Data Source

The Uniform Data System (UDS) is an integrated reporting system used by all grantees funded for Community Health Center, Migrant and Seasonal Farmworker, Health Care for the Homeless, and Public Housing Primary Care, under the Health Center grant program administered by the Bureau of Primary Health Care (BPHC) at the Health Resources and Services Administration (HRSA).

- The data collected through this reporting process are analyzed to ensure compliance with legislative mandates, report program accomplishments, and justify budget requests to the U.S. Congress.

AllianceChicago

UDS – A Comprehensive Data Source

The Uniform Data System (UDS) is an integrated reporting system used by all grantees funded for Community Health Center, Migrant and Seasonal Farmworker, Health Care for the Homeless, and Public Housing Primary Care, under the Health Center grant program administered by the Bureau of Primary Health Care (BPHC) at the Health Resources and Services Administration (HRSA).

- The data collected through this reporting process are analyzed to ensure compliance with legislative mandates, report program accomplishments, and justify budget requests to the U.S. Congress.
- The data help to identify trends over time, enabling HRSA to establish or expand targeted programs and identify effective services and interventions to improve the health of underserved communities and vulnerable populations.

AllianceChicago

UDS – A Comprehensive Data Source

The Uniform Data System (UDS) is an integrated reporting system used by all grantees funded for Community Health Center, Migrant and Seasonal Farmworker, Health Care for the Homeless, and Public Housing Primary Care, under the Health Center grant program administered by the Bureau of Primary Health Care (BPHC) at the Health Resources and Services Administration (HRSA).

- The data collected through this reporting process are analyzed to ensure compliance with legislative mandates, report program accomplishments, and justify budget requests to the U.S. Congress.
- The data help to identify trends over time, enabling HRSA to establish or expand targeted programs and identify effective services and interventions to improve the health of underserved communities and vulnerable populations.
- UDS data are compared with national data to look at differences between the U.S. population at large and those individuals and families who rely on the health care safety net for primary care.

AllianceChicago

Overview of UDS Report and Its Data

UDS
UNIFORM DATA SYSTEM
HRSA
Health Center Program

Age and Race/Ethnicity

	2014	2015	2016
Total Patients			
Total Patients	34,076	34,736	37,102
Age (% of total patients)			
Children (< 18 years old)	27.6%	25.9%	29.3%
Adult (18 - 64)	67.2%	68.3%	65.0%
Older Adults (age 65 and over)	5.2%	5.9%	5.7%
Patients By Race & Ethnicity (% known)			
Non-Hispanic White[1]	7.1%	5.0%	5.4%
Racial and/or Ethnic Minority	92.9%	95.1%	94.6%
Hispanic/Latino Ethnicity			
Black/African American [1]			
Asian [1]			

HRSA Health Resources & Services Administration Data Warehouse

AllianceChicago

Overview of UDS Report and Its Data

- The Uniform Data System (UDS) report is a performance report which is submitted electronically to the Health Resources and Services Administration (HRSA) each year by Federally Qualified Health Centers and Look-Alikes.

UDS UNIFORM DATA SYSTEM HRSA Health Center Program

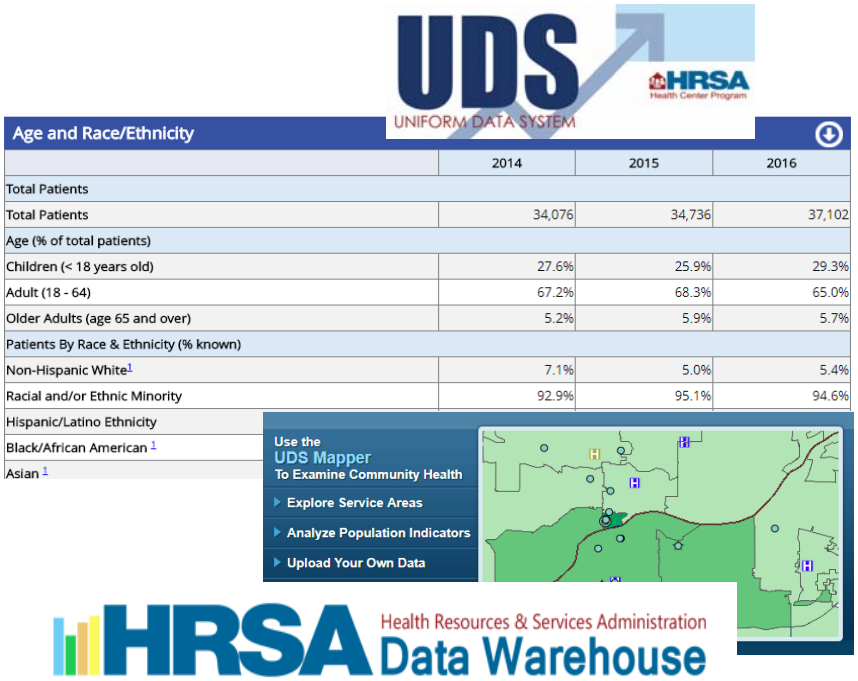
Age and Race/Ethnicity	2014	2015	2016
Total Patients			
Total Patients	34,076	34,736	37,102
Age (% of total patients)			
Children (< 18 years old)	27.6%	25.9%	29.3%
Adult (18 - 64)	67.2%	68.3%	65.0%
Older Adults (age 65 and over)	5.2%	5.9%	5.7%
Patients By Race & Ethnicity (% known)			
Non-Hispanic White[1]	7.1%	5.0%	5.4%
Racial and/or Ethnic Minority	92.9%	95.1%	94.6%
Hispanic/Latino Ethnicity			
Black/African American [1]			
Asian [1]			

HRSA Health Resources & Services Administration Data Warehouse

AllianceChicago

Overview of UDS Report and Its Data

- The Uniform Data System (UDS) report is a performance report which is submitted electronically to the Health Resources and Services Administration (HRSA) each year by Federally Qualified Health Centers and Look-Alikes.
- The report collects demographic, clinical, financial, and cost data on CHCs. All data is made available to the public each year

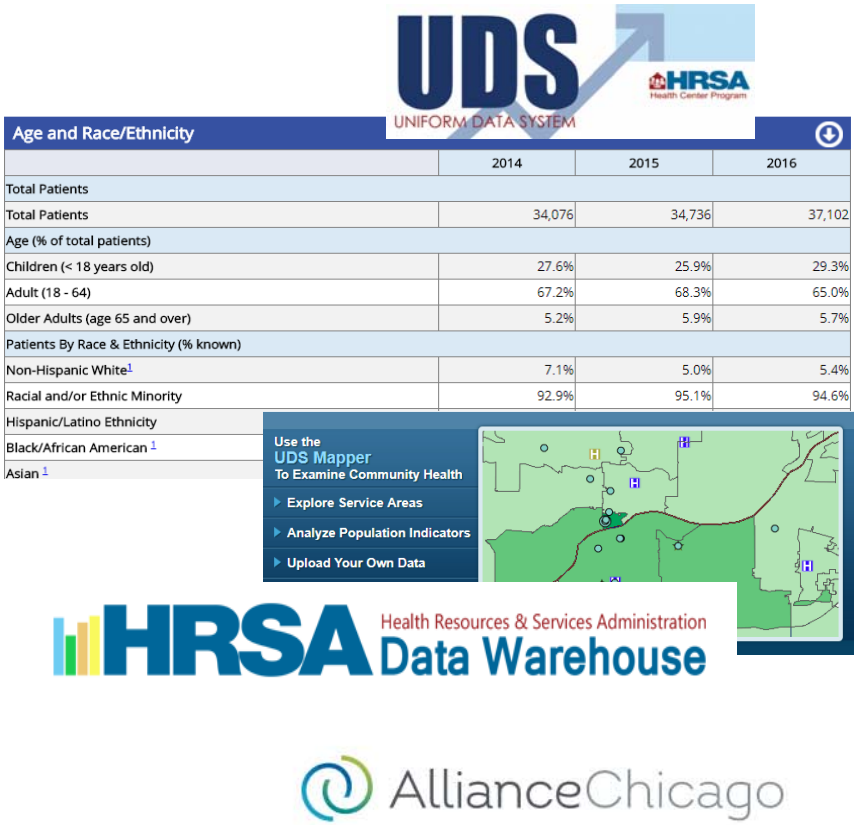


HRSA Health Resources & Services Administration Data Warehouse

AllianceChicago

Overview of UDS Report and Its Data

- The Uniform Data System (UDS) report is a performance report which is submitted electronically to the Health Resources and Services Administration (HRSA) each year by Federally Qualified Health Centers and Look-Alikes.
- The report collects demographic, clinical, financial, and cost data on CHCs. All data is made available to the public each year
- HRSA maintains a website of all grantee data, a data warehouse, and provides its data-set to an online tool which compares data-sets across different federal programs, via the mapping tool.



AllianceChicago

Potential Public UDS Data Sources to Explore

Community Health Center UDS data is available via three distinct portals, each with a different capability. They include:

- Annual UDS Report summaries on HRSA's website, presented by health center, and aggregated by grant program
- The HRSA UDS Data Warehouse
- The UDS Mapper

AllianceChicago

The HRSA UDS Website

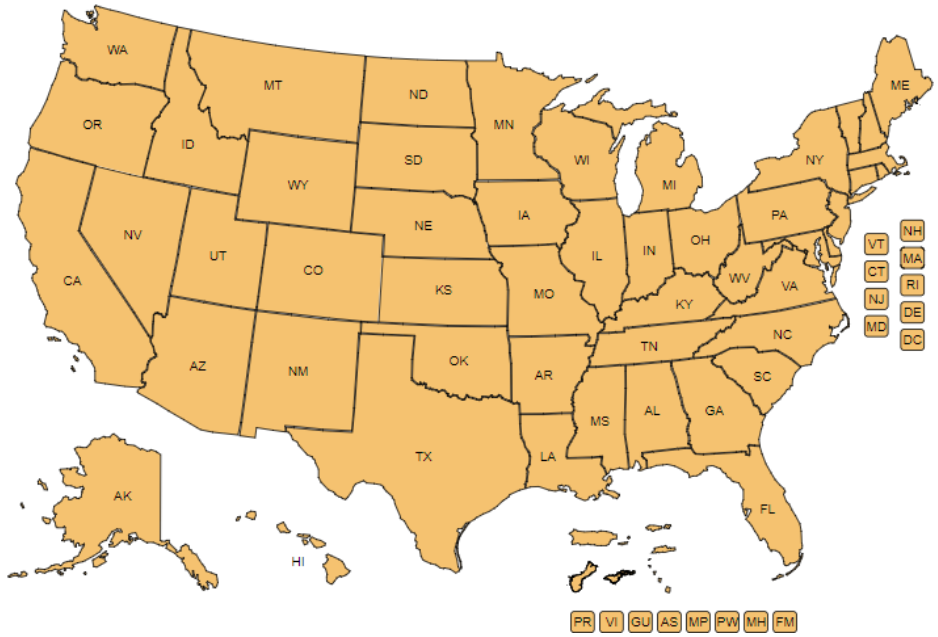
Health Center Program Grantee Profiles

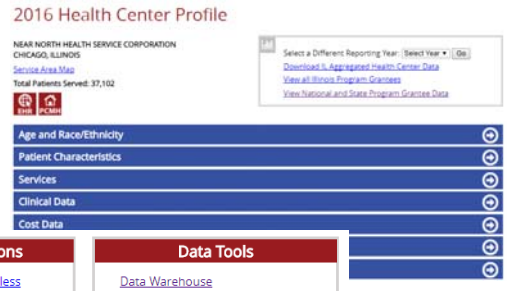
Health Center Program Grantee Data

Each year HRSA-funded Health Center Grantees are required to report core set of information, including data on patient demographics, services provided, clinical indicators, utilization rates, costs, and revenues. View the most recent national data, and browse previous years' data.

Click on state or use the dropdown menu to see state data.

Select a state ▾ Go





Health Center Data

View National, State and Health Center data profiles for:

- Health Center Program Grantee Data
- Health Center Program Look-Alike Data

Special Populations

- Health Care for the Homeless
- Migrant Health Centers
- Public Housing Primary Care

Data Tools

- Data Warehouse
- Data Snapshot
- Data Comparisons
- UDS Resources

State Program Grantee Data
Illinois Program Grantee Data
Download Illinois Aggregated Health Center Data

Health Center	City	State
ACCESS COMMUNITY HEALTH NETWORK	CHICAGO	Illinois
ALIVIO MEDICAL CENTER	CHICAGO	Illinois
ASIAN HUMAN SERVICES FAMILY HEALTH CENTER, INC.	CHICAGO	Illinois
AUNT MARTHA'S YOUTH SERVICE CENTER, INC.	OLYMPIA FLDS	Illinois
BELOVED COMMUNITY FAMILY WELLNESS CENTER	CHICAGO	Illinois

Health Center profiles can be viewed at https://bphc.hrsa.gov/uds/datacenter.aspx?q=d

AllianceChicago

UDS Data Warehouse

The HRSA Data Warehouse provides maps, data, reports and dashboard to the public. The data integrates with external sources, such as the U.S. Census Bureau, providing information about HRSA's grants, loan and scholarship programs, health centers and other public health programs and services. You can:

- Analyze, sort, and filter data on interactive dashboards
- Access preformatted charts, maps, and reports
- See what HRSA is doing in your state, county, region, and congressional district
- View and compare data by geography, by topic, and by HRSA program area
- Download data for research and analysis
- Connect to HRSA data from third party applications through map services and web services
- Create custom maps and reports
- Locate HRSA's health centers and other HRSA-supported programs and services

The UDS Data Warehouse can be found at: https://datawarehouse.hrsa.gov/

AllianceChicago

HRSA Health Resources & Services Administration Data Warehouse

Enter Keywords SEARCH

Advanced Search

Topic Areas | Tools | Data | FAQs & Resources | About HDW | HRSA.gov

Home

HRSA Fact Sheets

Formatted for printing, the HRSA Fact Sheets present a breakdown of most HRSA data by Nation, HHS region, state, county, and congressional district.

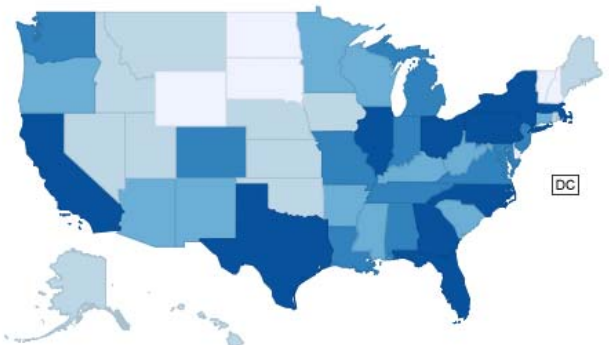
Select a Fact Sheet >>

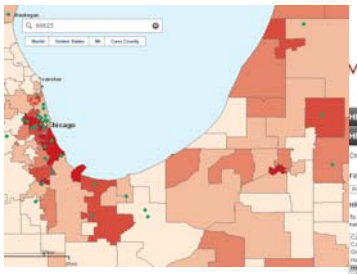
Data by Geography

Displayed as a data grid, Data by Geography allows users to see both summary and detailed views of HRSA data.

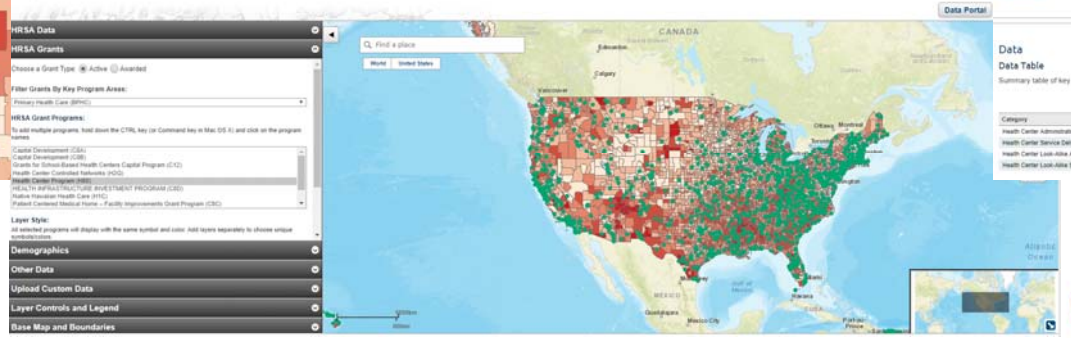
Select a Geography >>

Awarded Grants FY2017





Map Tool



HRSA Fact Sheet

Health Resources & Services Administration

Powered by the HRSA Data Warehouse – data.hrsa.gov

Data as of 09/30/2016

The Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services, is the primary Federal agency for improving health care to people who are geographically isolated, economically or medically vulnerable.

FY 2016 - Nation

Demographic	Data
Population	316,515,021
Median Household Income	$53,889
Low Income Population **(Population in households with incomes below 2-times the U.S. poverty level)**	21,315,285

AllianceChicago

UDS Mapper

UDS Mapper is an online tool that allows anyone with an internet connection to identify areas served by community health centers. It presents:

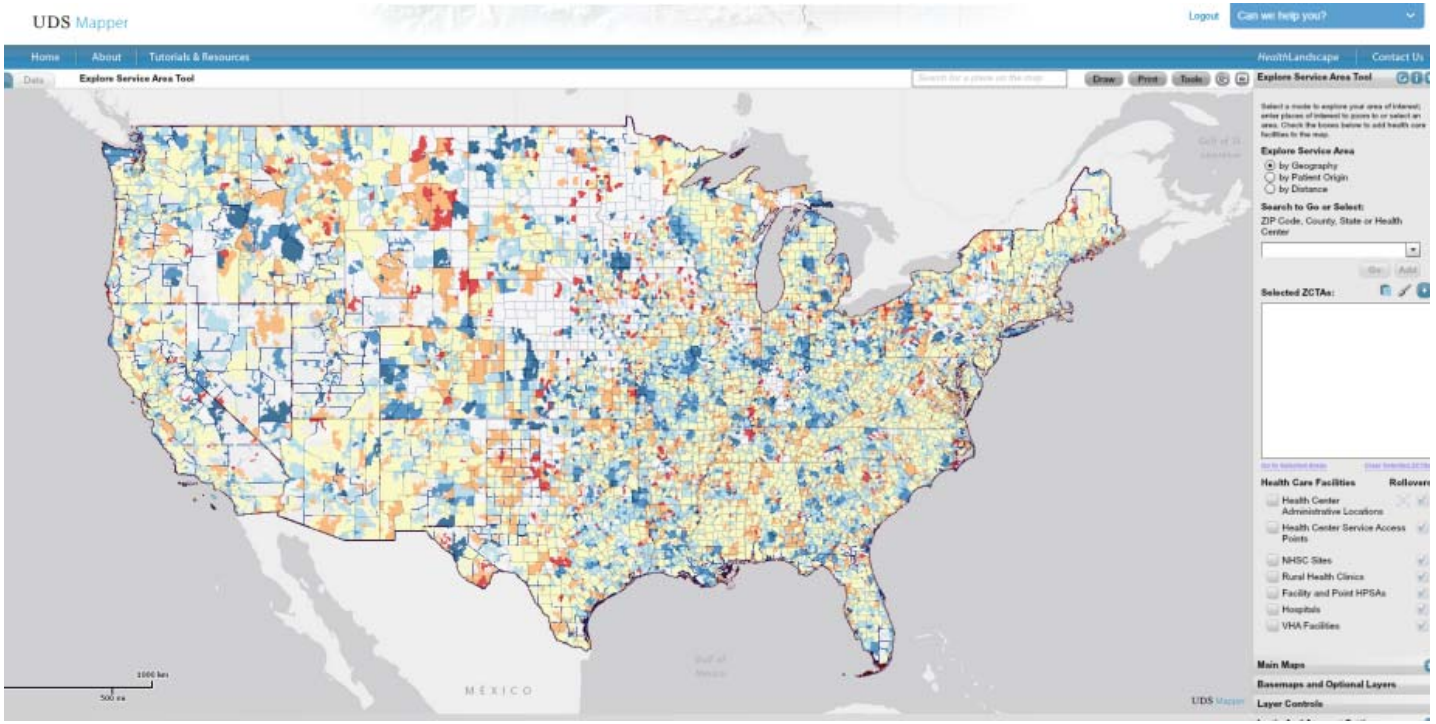
- The change in the number of people who receive those services over time
- An estimate of places where additional services and health center expansion would be most beneficial.
- It allows users to visualize and understand the primary care safety net through maps, tables, and numerous data layers.

UDS Mapper is available to anyone interested in health policy, geographic distribution of health care resources to the underserved and other issues that affect people's access to health services.

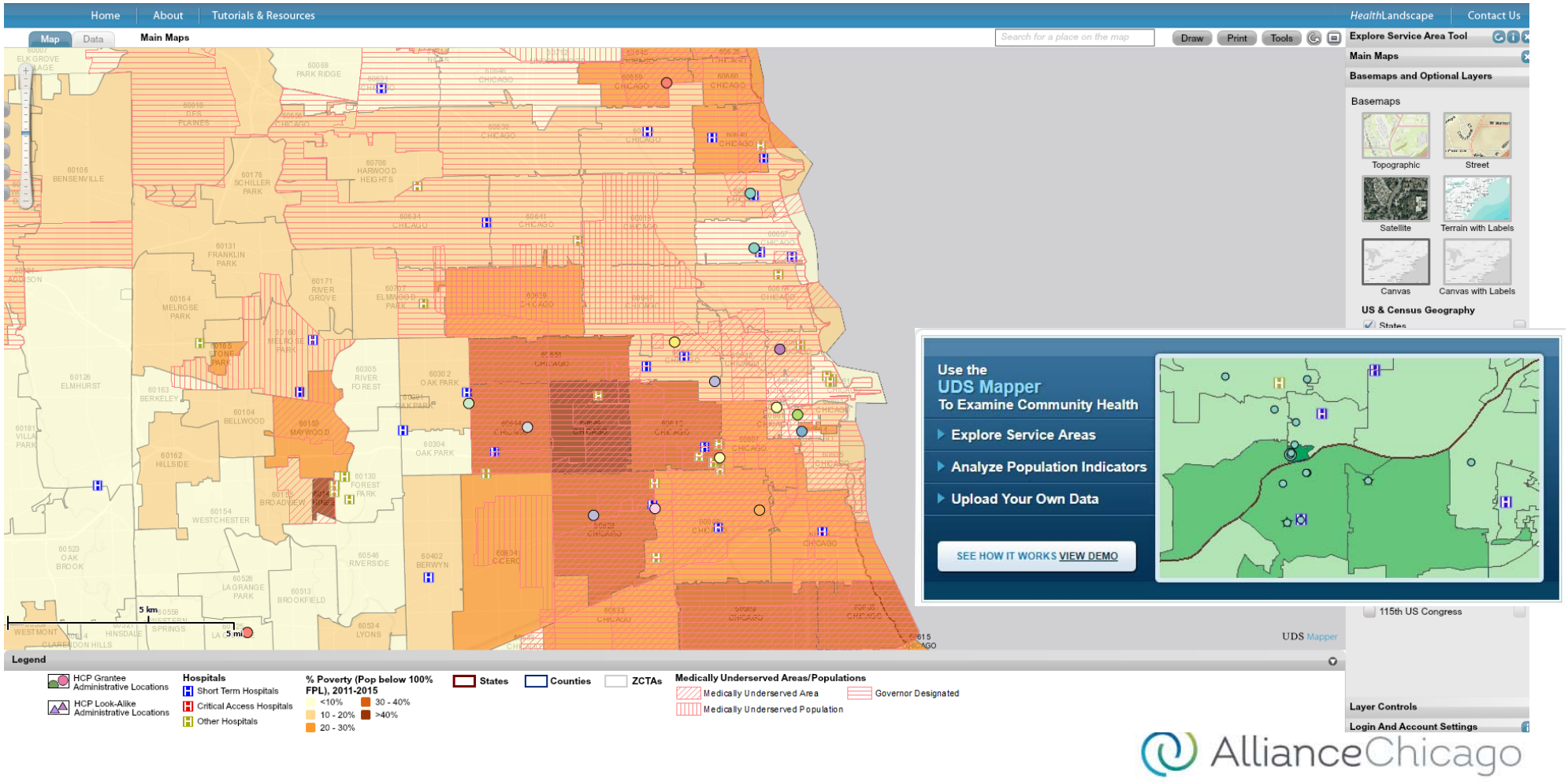
The UDS Mapper can be found at: https://www.udsmapper.org/

AllianceChicago

Health Center Program (HCP) grantees report the number of patients they see by ZIP Code in one table of the Uniform Data System (UDS) report. Data from this one table are displayed by Zip Code Tabulation Areas (ZCTA) by the UDS Mapper website.



AllianceChicago



AllianceChicago

Audience Poll #1

What individuals will find the UDS Mapper useful?

A. Health Center Staff and Grantees
B. Primary Care Associations
C. Policymakers and Planners
D. All of the above

AllianceChicago

That’s a lot of data! So, now what?

To begin, I choose to use the features of the UDS Mapper. It will allow me to pull in additional data-sets and to associate them with my health center’s service area.

These data will help my team to make decisions about where we should focus in the community to deliver our diabetes services, programs, and interventions.

Now, let’s get some data!

AllianceChicago

The Population Indicators Tool

For this exercise, we will use the UDS Mapper's Population Indicators Tool which will enable me to do spot analysis to find high-need areas based on data that are common indicators of health status and combines UDS data with other data sources like:

- The American Community Survey
- The HRSA Area Resource File
- The CDC Wonder Data Set
- The CDC Behavioral Risk Factor Surveillance System

AllianceChicago

The Population Indicators Tool

Specifically, the Mapper will allow us to combine UDS data with CDC Behavioral Risk Factor Surveillance System (BRFSS) telephone survey like:

- % of Adults Ever Told They Have Diabetes
- % of Adults Ever Told They Have High Blood Pressure
- % of Adults Who Are Obese
- % of Adults with No Dental Visit in the Past Year
- % of Adults Who Have Delayed or Not Sought Care Due to High Cost
- % of Adults with No Usual Source of Care

AllianceChicago

Time to combine some data!

Let’s use the UDS Mapper’s tools to combine the data from HRSA’s Health Center Program with the CDC’s BRFSS data that will:

AllianceChicago

Time to combine some data!

Let’s use the UDS Mapper’s tools to combine the data from HRSA’s Health Center Program with the CDC’s BRFSS data that will:

- Help me to better understand the areas in my CHC’s service are with the highest need for diabetes prevention, education, and treatment support services.

AllianceChicago

Time to combine some data!

Let's use the UDS Mapper's tools to combine the data from HRSA's Health Center Program with the CDC's BRFSS data that will:

- Help me to better understand the areas in my CHC's service are with the highest need for diabetes prevention, education, and treatment support services.
- Allow me to download and save the data

AllianceChicago

Time to combine some data!

Let's use the UDS Mapper's tools to combine the data from HRSA's Health Center Program with the CDC's BRFSS data that will:

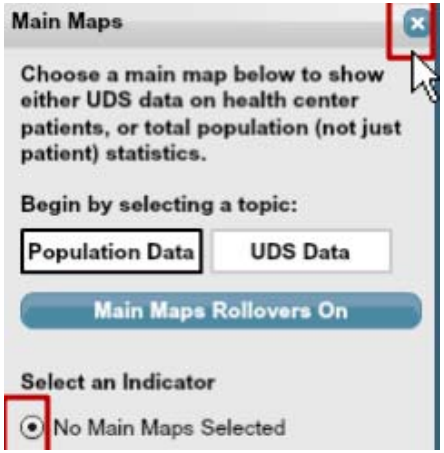
- Help me to better understand the areas in my CHC's service are with the highest need for diabetes prevention, education, and treatment support services.
- Allow me to download and save the data
- Provide data in a format that could be combined with data from my Network's data warehouse or from my CHC's EMR

AllianceChicago

First: Clear Colored Layers from the Map

The Population Indicators are best visualized with a clear map background. Before displaying Population Indicators data on the map, you should remove other colorful data layers (including the Main Maps) and:

- Open the Main Maps tool, click ‘No Main Maps Selected’, (in Population Data or UDS Data)
- OR simply remove the Main Maps tool from the “Tools Accordion” by clicking the ‘x’



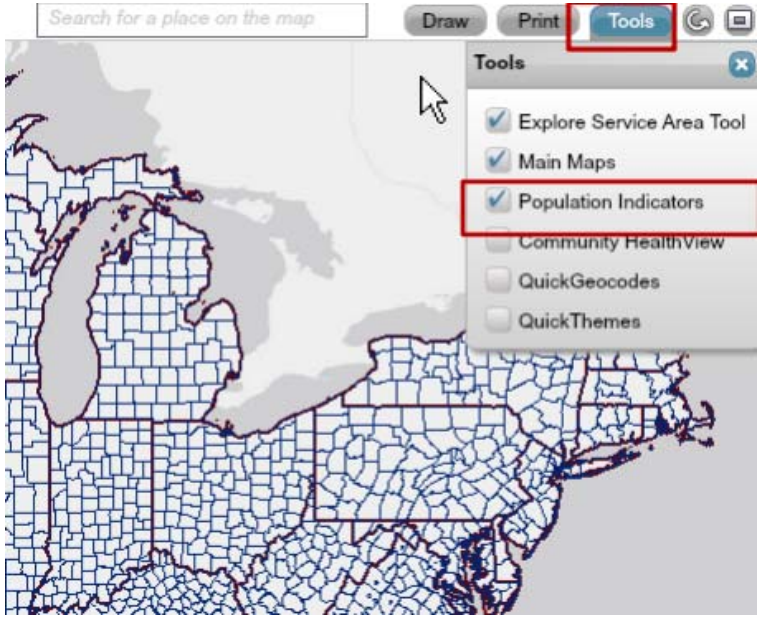
AllianceChicago

How to Open the Population Indicators Tool

Click the ‘Tools’ button above the map

Check the ‘Population Indicators’ box

This will launch the features that I want to use to discover the prevalence of diabetes in my health center’s service area.

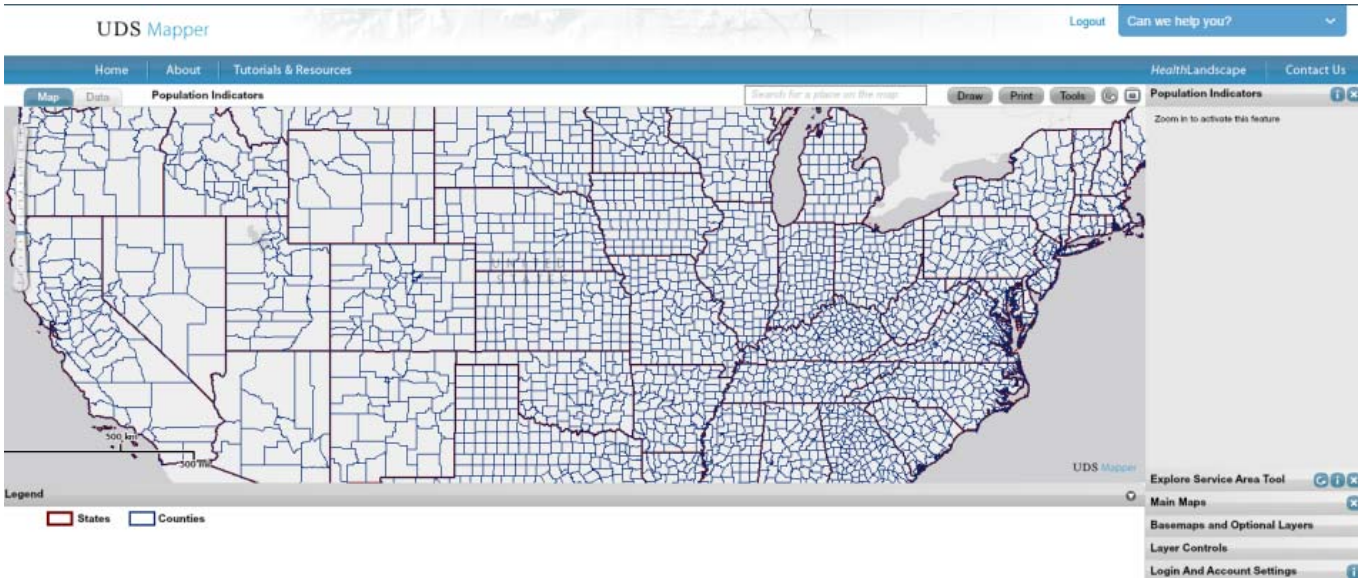


AllianceChicago

Zoom Level to Use the Population Indicators Tool

You will notice that the Population Indicators tool is added to the Tools Accordion

Note: You must be zoomed in to at least the County level on the Zoom Bar in order to activate the indicators



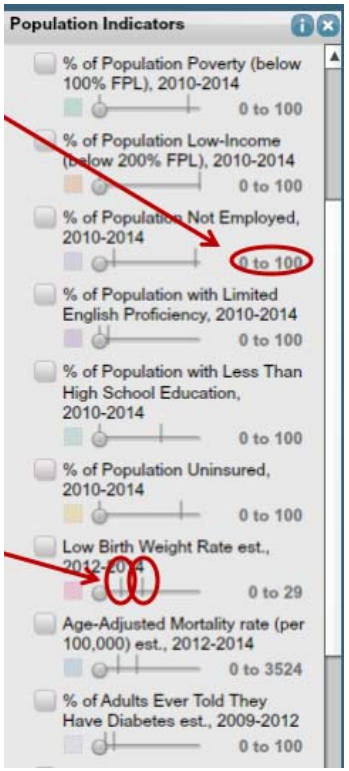
AllianceChicago

National and Local Data Ranges in the Population Indicators

The number range to the right of the slider bar for each indicator gives the minimum and maximum values of that dataset for the nation.

The vertical lines on each slider show the minimum and maximum values of that dataset for the viewable extent (the area that the map is zoomed in to during use of the tool).

I will set the slide related to “% of Adults Ever Told They Have Diabetes” to greater than 22% to identify concentration of individuals living with diabetes in the area surrounding my health center.

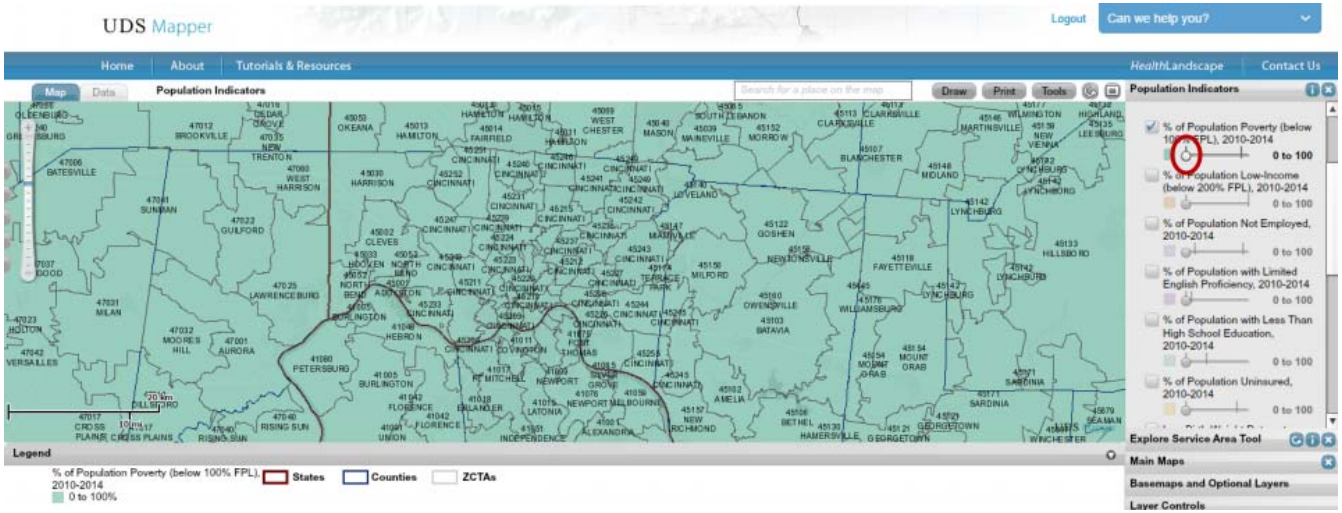


AllianceChicago

Turn on a Population Indicator

Click on a check box to turn on an indicator

– After checking the box, you will see that every Zip Code Tabulation Area (ZCTA) on the map (that has a population/data) becomes filled in. In our case, it would turn color if the ZCTA has a rate/percent of at least 22% for our chosen indicator. We can move the indicator's slide to reveal the ZCTA's with the highest concentration of individuals.



AllianceChicago

Note: Use Reasonable Benchmarks

It is important to use reasonable benchmarks when looking for “high” need.

AllianceChicago

Note: Use Reasonable Benchmarks

It is important to use reasonable benchmarks when looking for “high” need.

- For example, you can use the state or regional average as a cut-off point

AllianceChicago

Note: Use Reasonable Benchmarks

It is important to use reasonable benchmarks when looking for “high” need.

- For example, you can use the state or regional average as a cut-off point
- Otherwise, saying that an area has high need may be false, it must be compared to something tangible rather than just a user-selected number

AllianceChicago

Note: Use Reasonable Benchmarks

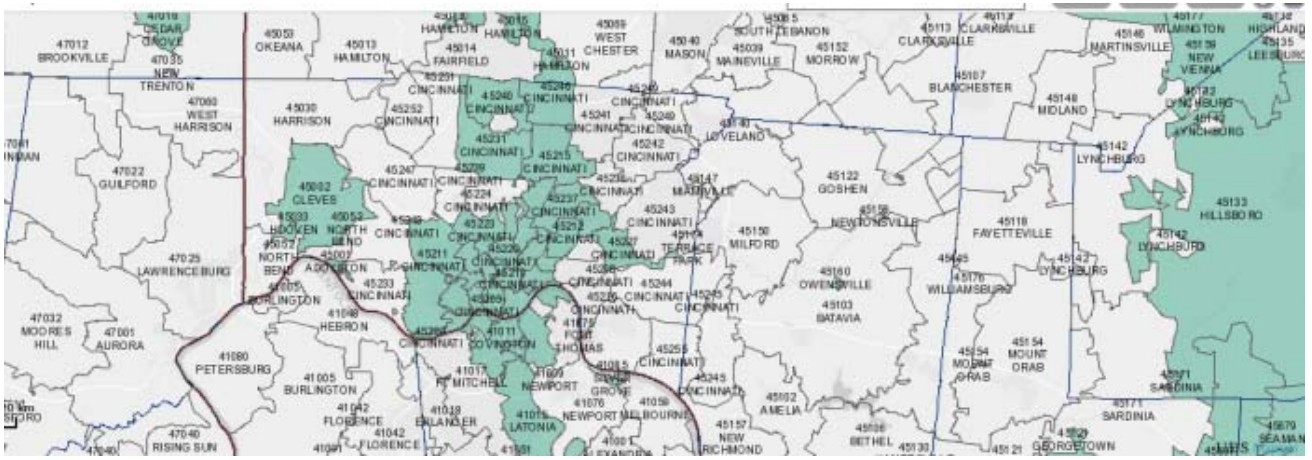
It is important to use reasonable benchmarks when looking for “high” need.

- For example, you can use the state or regional average as a cut-off point
- Otherwise, saying that an area has high need may be false, it must be compared to something tangible rather than just a user-selected number
- For my inquiry, I decided on a cut-off point based on a University of Chicago Medical Center report which identified the prevalence of diabetes on Chicago’s south side as 19.3 % for African Americans. So, I set my cut-off to 22% to try to identify high prevalence areas in my south side clinic’s service area which were polled as part of this report.

AllianceChicago

Population Indicator Benchmark

The prevalence of diabetes on Chicago's south side as 19.3% for African Americans so I set a reasonable threshold of 22% to see areas worse than this rate in my service area, a community which is 87% African American according to the U.S. Census. Notice how the sample map below begins to show concentrations in an area as the slide is moved to a greater percentage.



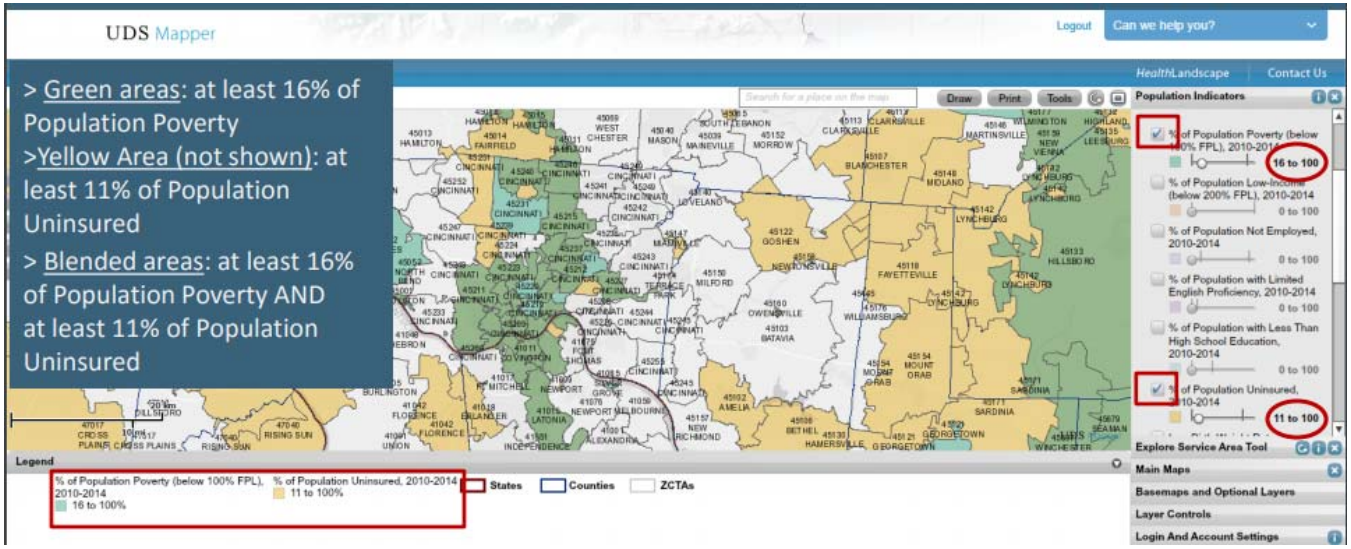
AllianceChicago

Compare Indicators

I could also turn on multiple indicators for comparison

- Look for overlap to find “hotspots” of need based on multiple indicators
- You should not turn on more than two indicators at a time, as colors will blend and start to become confusing

An example of a blended map is included below.



AllianceChicago

Audience Poll #2

How does HRSA's UDS Mapper segment UDS data from CHCs?

A. By Zip Code Tabulation Areas (ZCTA)
B. By Census Tracts
C. By Neighborhood
D. By County

AllianceChicago

Can I download the data?

Yes! Data can be ported to MS Excel!

The Population Indicators data are available to view in the data table and can be downloaded. The data will only show for the ZCTAs selected in the Explore Service Area tool.

To visually figure out the rate in a specific ZCTA, gradually move the circle right on the slider and note when the ZCTA becomes unfilled.

For example, if you move the slider setting for “% of Adults With No Usual Source of Care” from 10 to 11, and you see a ZCTA become unfilled, you know that 10% of adults in that ZCTA have no usual source of care

AllianceChicago

Program Improvement & Research

Now that I have the data, what am I going to do with it?

- Alert my CHC's leadership to my findings
- Create a plan to launch our diabetes interventions in the highest need areas of my CHC's service area
- Explore other uses for the data like a comparative effectiveness study to determine the impact of our programmatic changes
- Seek out potential funders, especially those interested in nurse-led research

AllianceChicago

For example, funders might include…

Funder: National Institute for Nursing Research
Program: Varies across centers and institutes
Description: NINR supports clinical and basic research and research training on health and illness across the lifespan. The research focus encompasses health promotion and disease prevention, quality of life, health disparities, and end-of-life. Link: https://www.ninr.nih.gov/researchandfunding

Funder: Sigma Theta Tau Intl. - Honor Society of Nursing
Program: STTI/Joan K. Stout, RN, Research Grant
Description: The allocation of funds is based upon a research project that is ready for implementation. The proposed research project should be designed to ensure the ongoing practice of nurse-led simulation in improving quality of care in clinical and/or academic settings with the potential for further funding and ongoing research. Funding Amount: $5,000
Link: http://www.nursingsociety.org/advance-elevate/research/research-grants/joan-k-stout-rn-research-grant

Funder: American Nurses Credentialing Center (ANCC)
Program: Clinical Research Grants - Beginner or Experienced
Description: Clinical research grants will be awarded to studies of systematic data-guided activities designed to bring about improvement in healthcare delivery. Funding Amount: $10,000 Beginner; $20,000 Experienced
Link: http://www.nursecredentialing.org/

AllianceChicago

Conclusion

Clinicians are often the first to see the contributors to and consequences of poor health behaviors and to notice community health trends. Some things to remember:

AllianceChicago

Conclusion

Clinicians are often the first to see the contributors to and consequences of poor health behaviors and to notice community health trends. Some things to remember:

- Prior to diving in to a new project it can be beneficial to fully understand health concerns across the community.

AllianceChicago

Conclusion

Clinicians are often the first to see the contributors to and consequences of poor health behaviors and to notice community health trends. Some things to remember:

- Prior to diving in to a new project it can be beneficial to fully understand health concerns across the community.
- Data sources like the UDS can provide insights about a wide range of health behaviors, social determinants, and health outcomes, and can be used to guide the development of targeted public programs and research studies.

AllianceChicago

Conclusion

Clinicians are often the first to see the contributors to and consequences of poor health behaviors and to notice community health trends. Some things to remember:

- Prior to diving in to a new project it can be beneficial to fully understand health concerns across the community.
- Data sources like the UDS can provide insights about a wide range of health behaviors, social determinants, and health outcomes, and can be used to guide the development of targeted public programs and research studies.
- Knowing how to find, understand and use data is an important first step in thinking about the best health and wellness projects for your community and how to study and evaluate how we treat disease in different populations.

AllianceChicago

Training on the Use of UDS Data

UDS Mapper Training and Tutorials
https://www.udsmapper.org/tutorials-and-resources.cfm

HRSA UDS Data Warehouse Tutorials
https://datawarehouse.hrsa.gov/resources/tutorials.aspx

HRSA Data Warehouse Tools and Analyzers
https://datawarehouse.hrsa.gov/tools/tools.aspx

AllianceChicago

Population Health Tools & The Learning HealthCare System

Andrew Hamilton
CIO, AllianceChicago

AllianceChicago

Audience Poll #3

Are you familiar with the Learning HealthCare System?

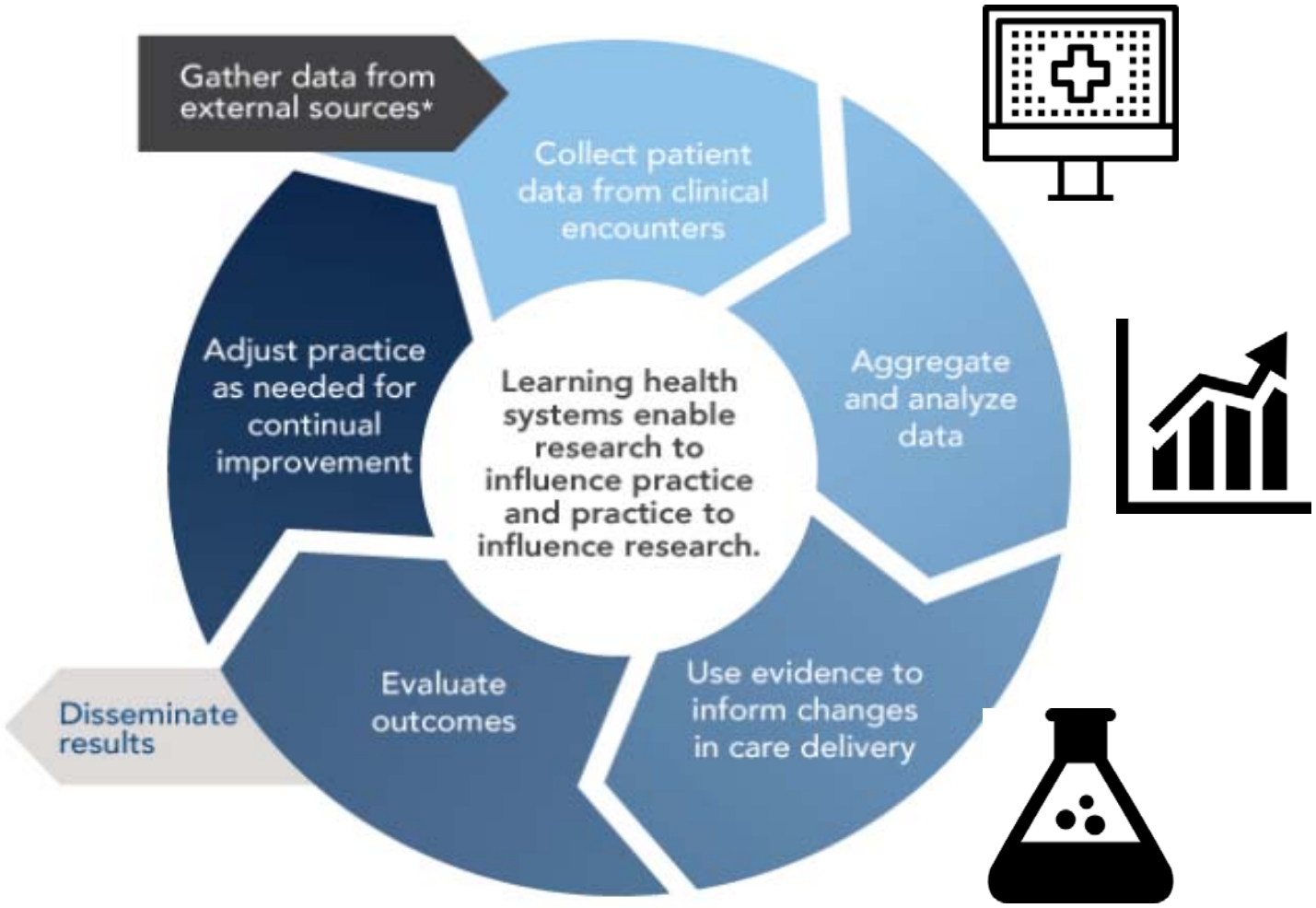
A. Yes
B. No

AllianceChicago

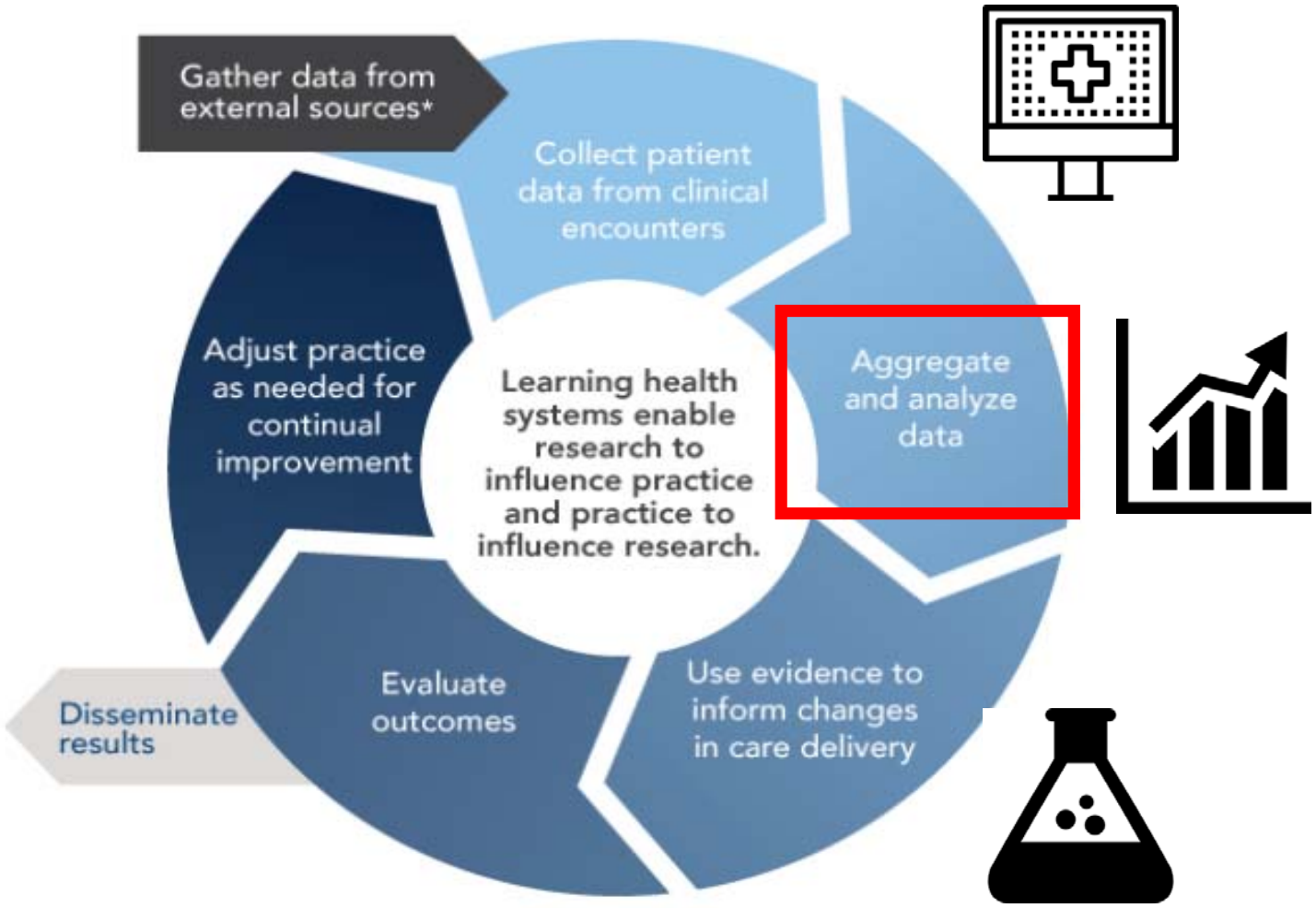
Learning HealthCare System

A system in which science, informatics, incentives and culture are aligned for continuous improvement and innovation, with best practices seamlessly embed in the care process, patients and family active participants in all elements, and new knowledge captured as an integral by-product of the care experience (IOM, 2013)

AllianceChicago



*Examples include clinical trials, observational studies, patient-reported outcomes, surveillance databases, and population-based surveys.



*Examples include clinical trials, observational studies, patient-reported outcomes, surveillance databases, and population-based surveys.

Data & Analytics Strategic Plan

AllianceChicago

Data & Analytics Strategic Plan

- More than just reporting

AllianceChicago

Data & Analytics Strategic Plan

- More than just reporting
- Requires alignment with other organizational plans (especially the quality plan & readiness for value-based care)

AllianceChicago

Data & Analytics Strategic Plan

- More than just reporting
- Requires alignment with other organizational plans (especially the quality plan & readiness for value-based care)
- Challenging to balance today's issues with planning for tomorrow's need

AllianceChicago

Key Data & Analytics Functions

- Preventive and Chronic Disease Management
- Risk Stratification
- Provider Empanelment
- ED, Hospital, and Specialty Utilization
- Total Cost of Care
- Business, Financial & Operations Management
- Required Reporting (UDS)
- Ad Hoc Reporting
- Research Data (including distributed query networks)
- Predictive Modeling

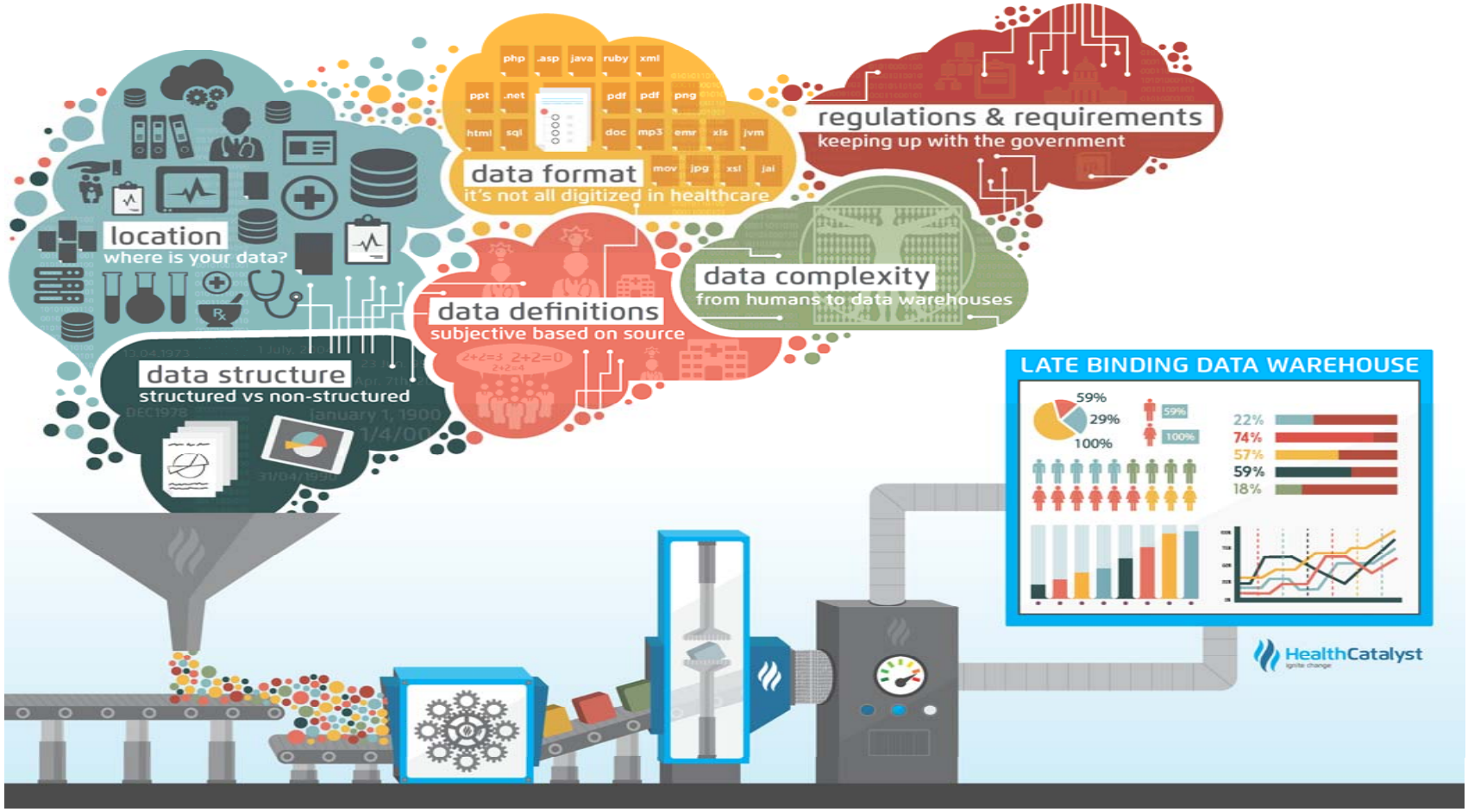
AllianceChicago

Data Sources

- EMR
- Claims/Enrollment
- Pharmacy
- Admission, Discharge and Transfer (ADT)
- Public Health
- Patient Reported
- Social Determinants of Health

AllianceChicago

WHY HEALTHCARE DATA IS DIFFICULT



Data Flow

Raw data
(from Centricity and other sources)

Clean and consistent data

Pre-computed Tables
- UDS
- Clinical
- Financial
- Encounter

- Reports
- Dashboards
- Applications

AllianceChicago

AllianceChicago

AllianceChicago

AllianceChicago

Data Ingestion Layer

AllianceChicago

SAP Data Services SSIS Sqoop (Scoop in to Hadoop)

Data Ingestion Layer

AllianceChicago

Microsoft's Big Data Solution

Microsoft SQL Server 2012

Microsoft Analytics Platform System (APS)

Microsoft HDInsight (Hadoop): Unstructured, Free Text Data

SAP Data Services SSIS Sqoop (Scoop in to Hadoop)

Data Ingestion Layer

AllianceChicago

Microsoft BI Tools

Microsoft's Big Data Solution

Microsoft SQL Server 2012

Microsoft Analytics Platform System (APS)

Microsoft HDInsight (Hadoop): Unstructured, Free Text Data

SAP Data Services SSIS Sqoop (Scoop in to Hadoop)

Data Ingestion Layer

AllianceChicago

SSRS &
Power View

Microsoft
BI Tools

Microsoft's Big Data Solution

Microsoft SQL Server 2012

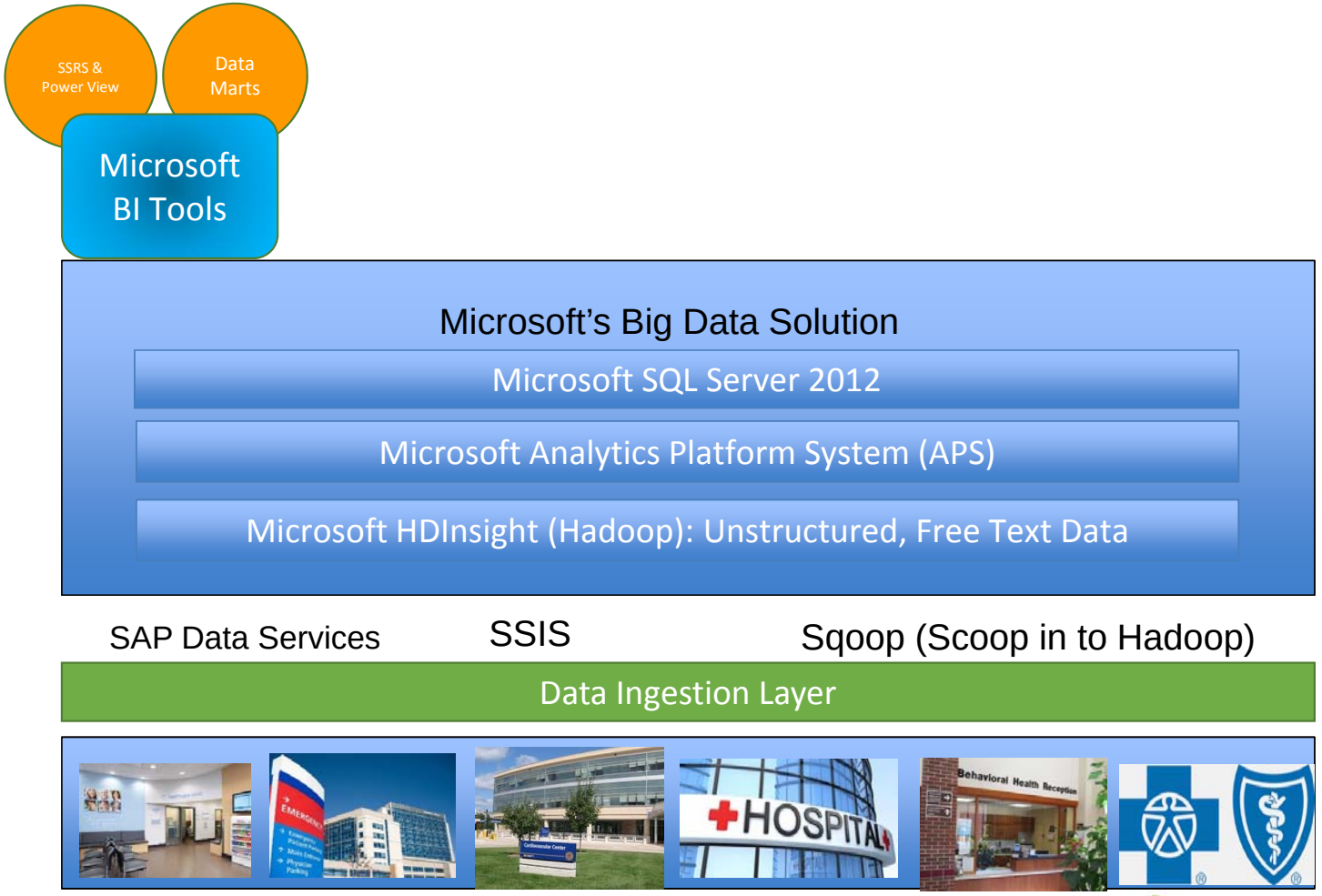
Microsoft Analytics Platform System (APS)

Microsoft HDInsight (Hadoop): Unstructured, Free Text Data

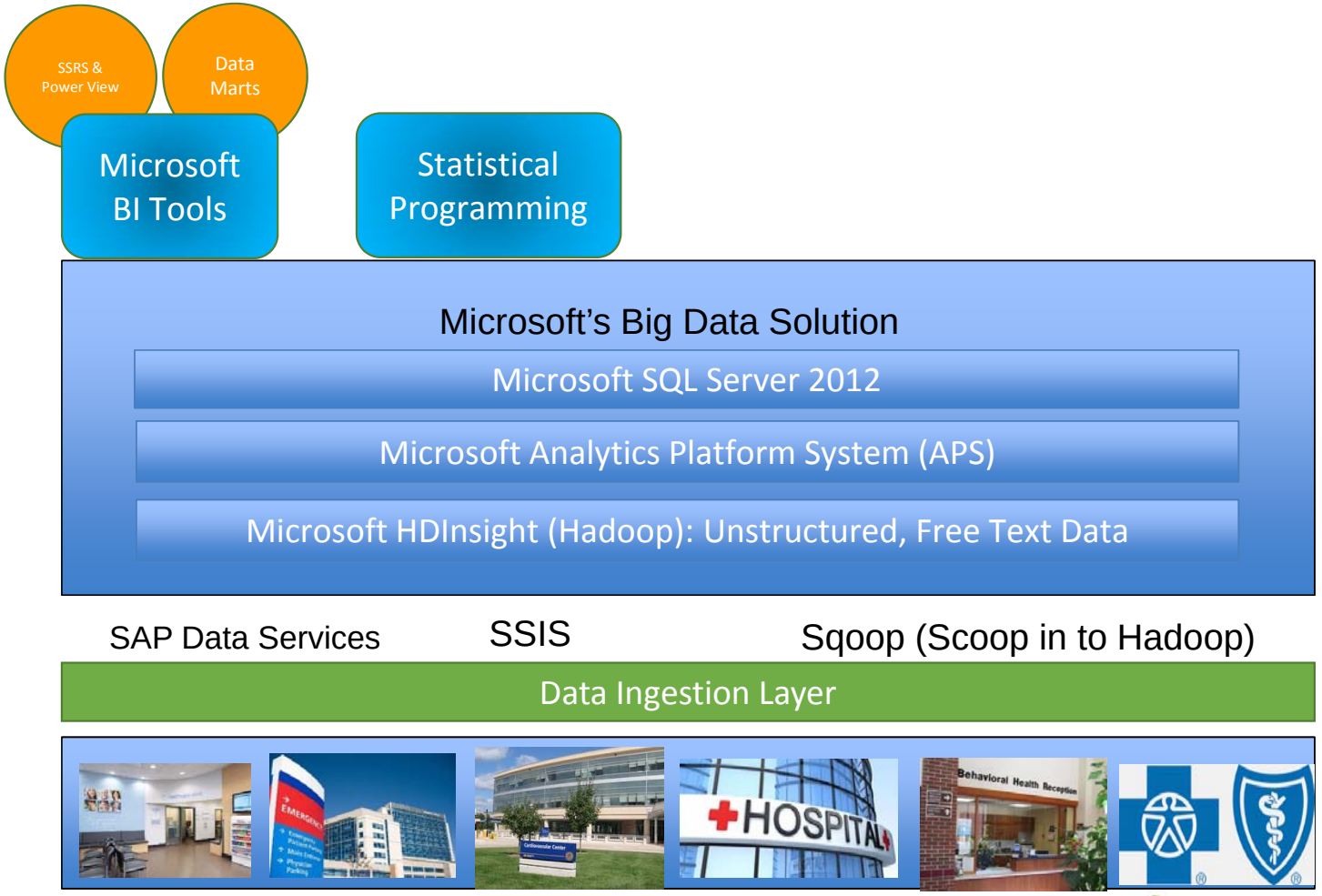
SAP Data Services SSIS Sqoop (Scoop in to Hadoop)

Data Ingestion Layer

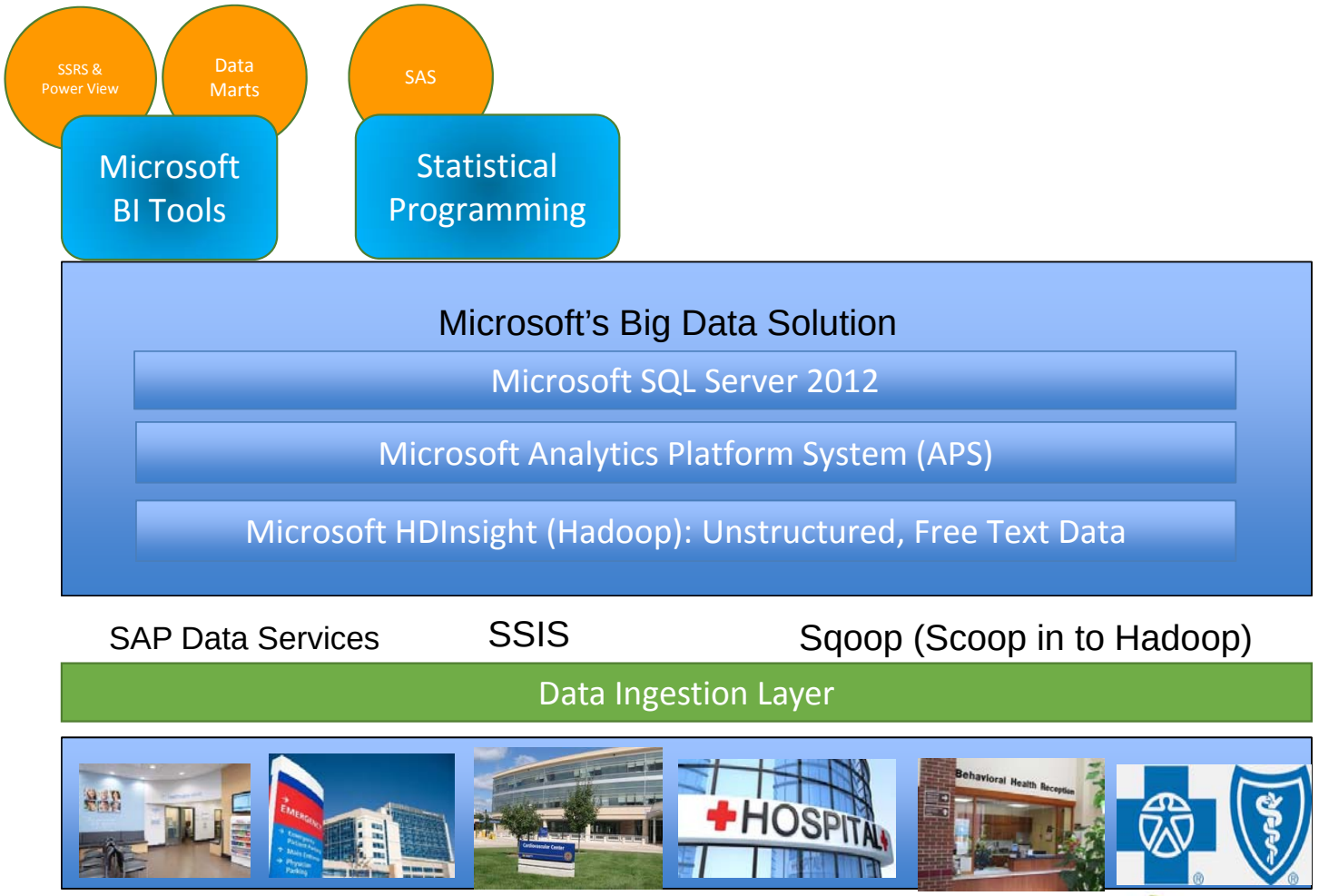
AllianceChicago



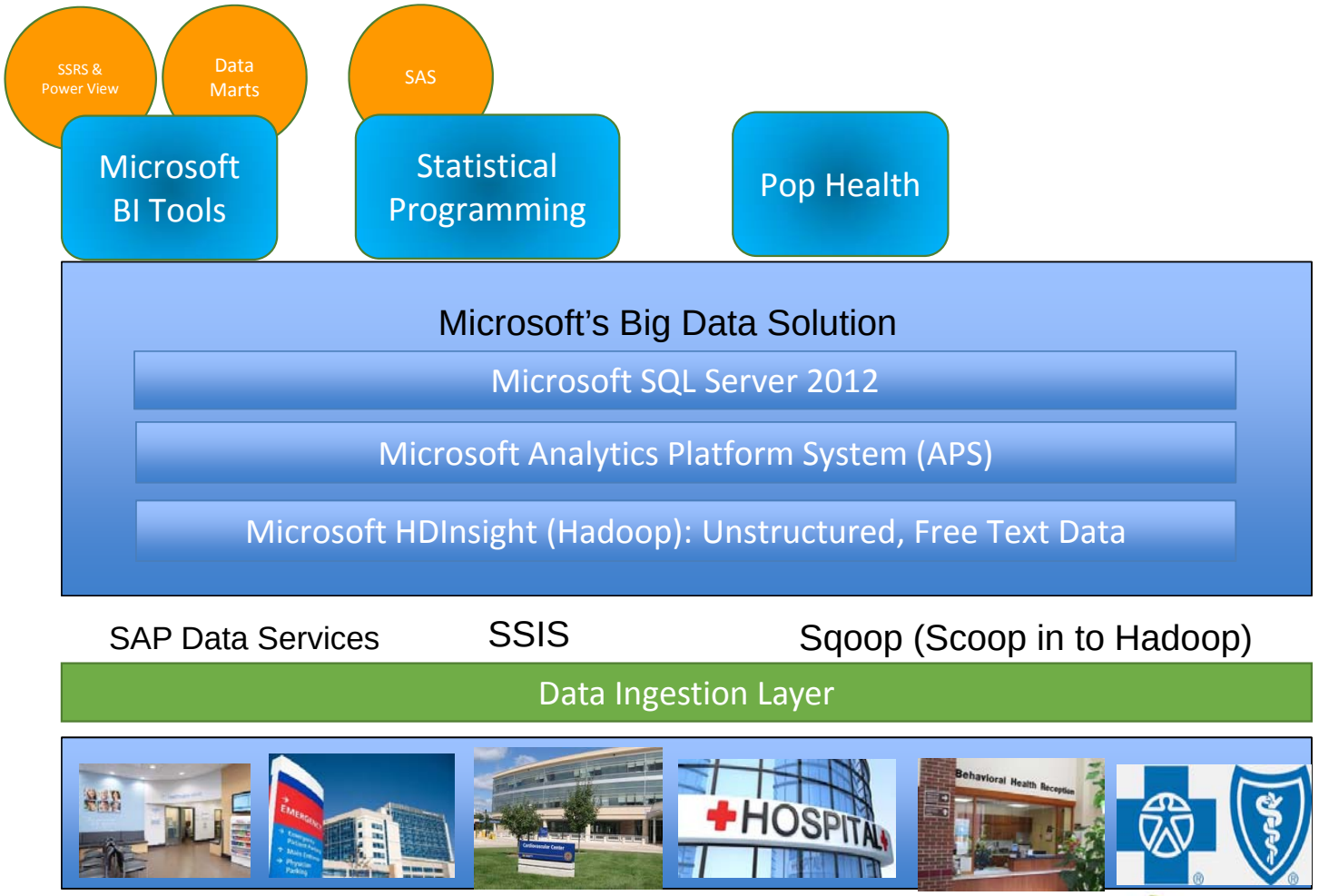
AllianceChicago



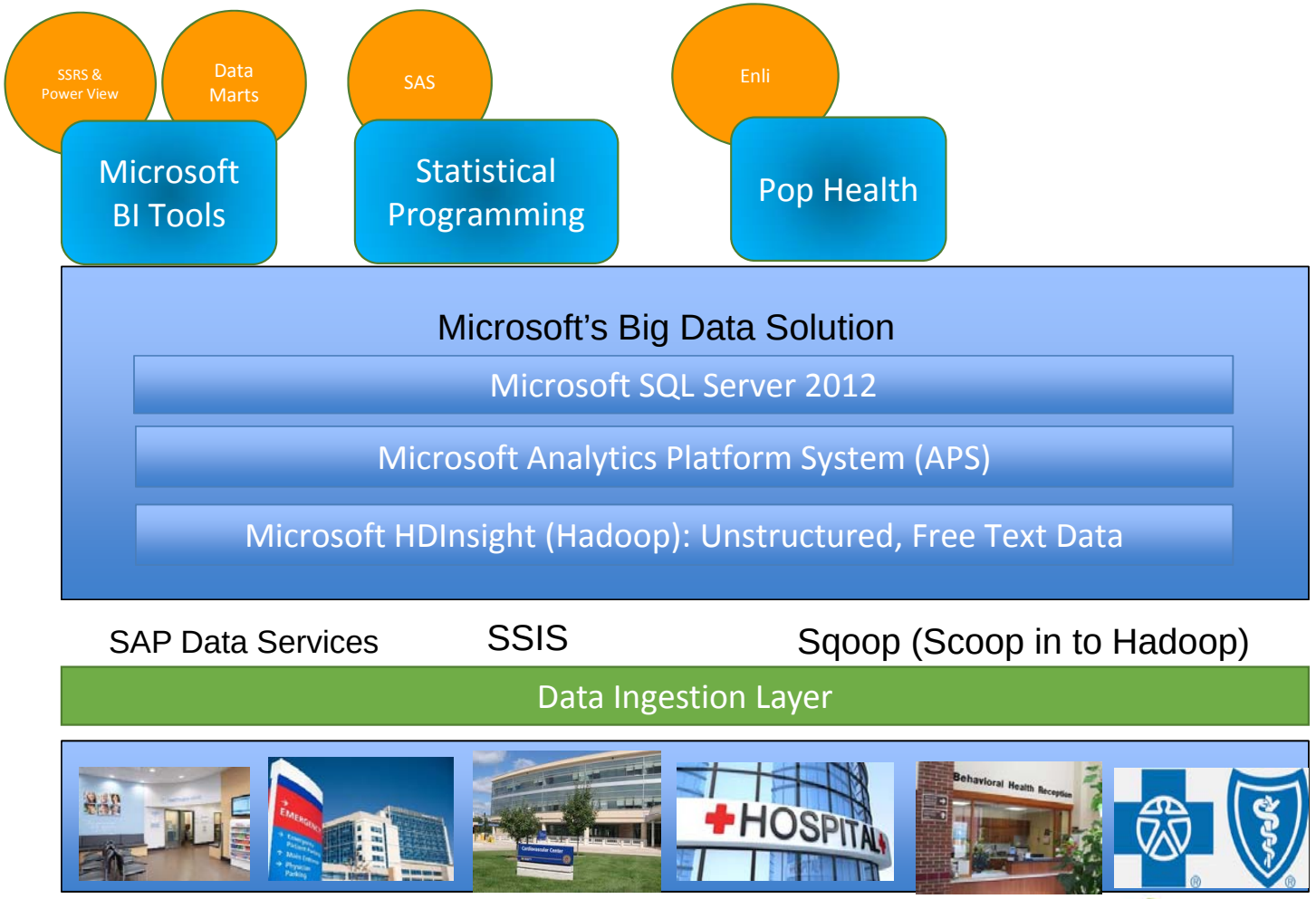
AllianceChicago



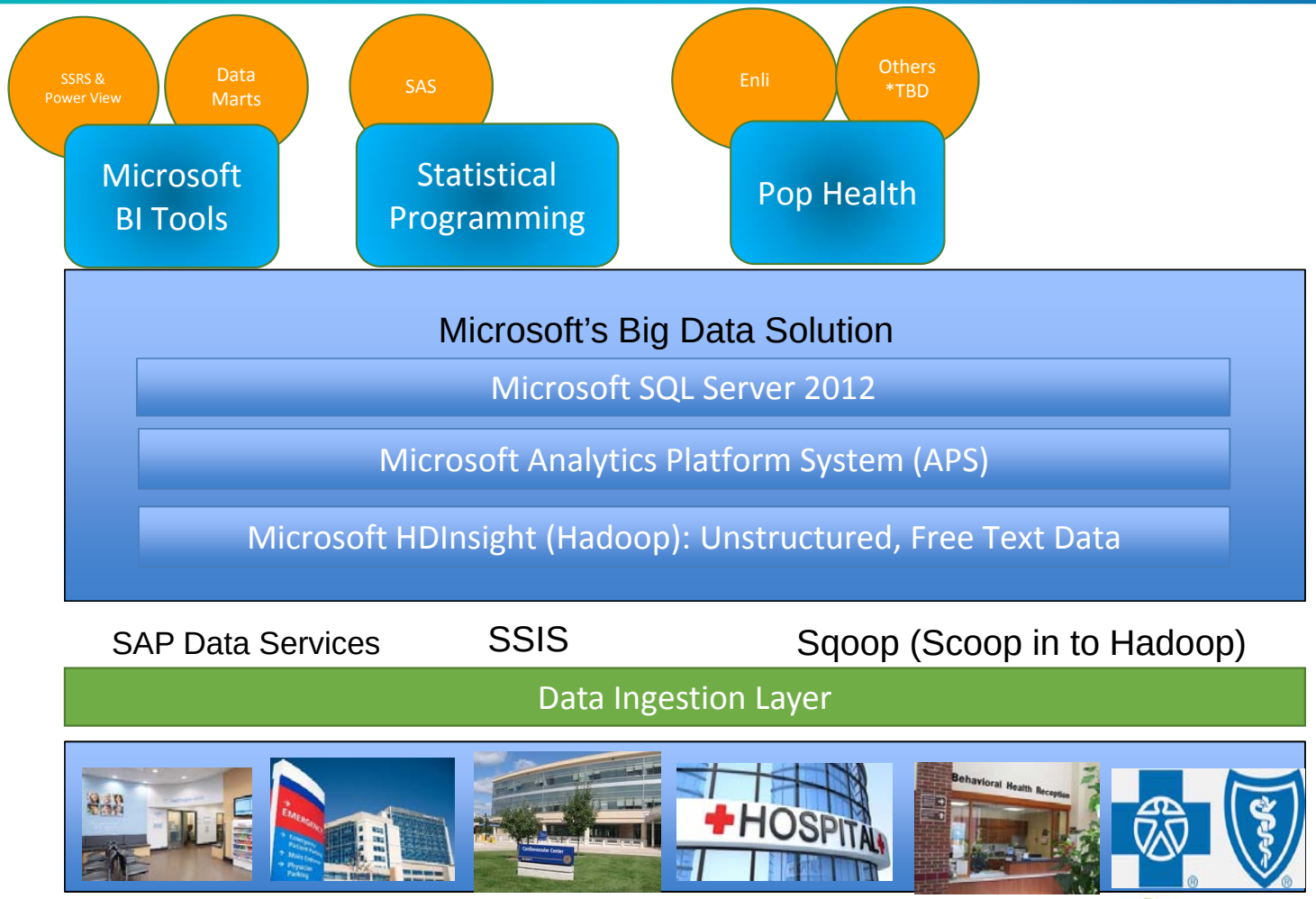
AllianceChicago



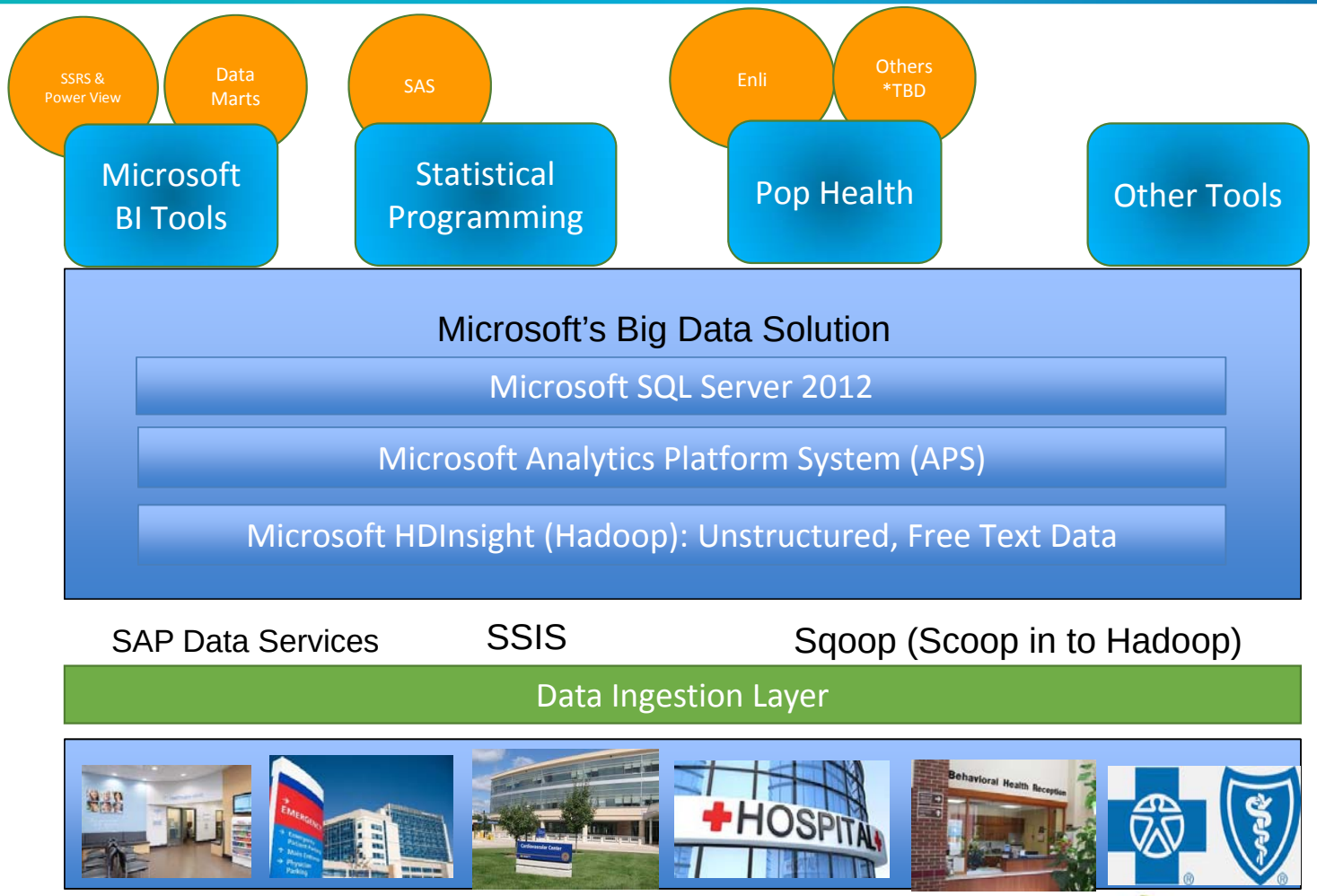
AllianceChicago



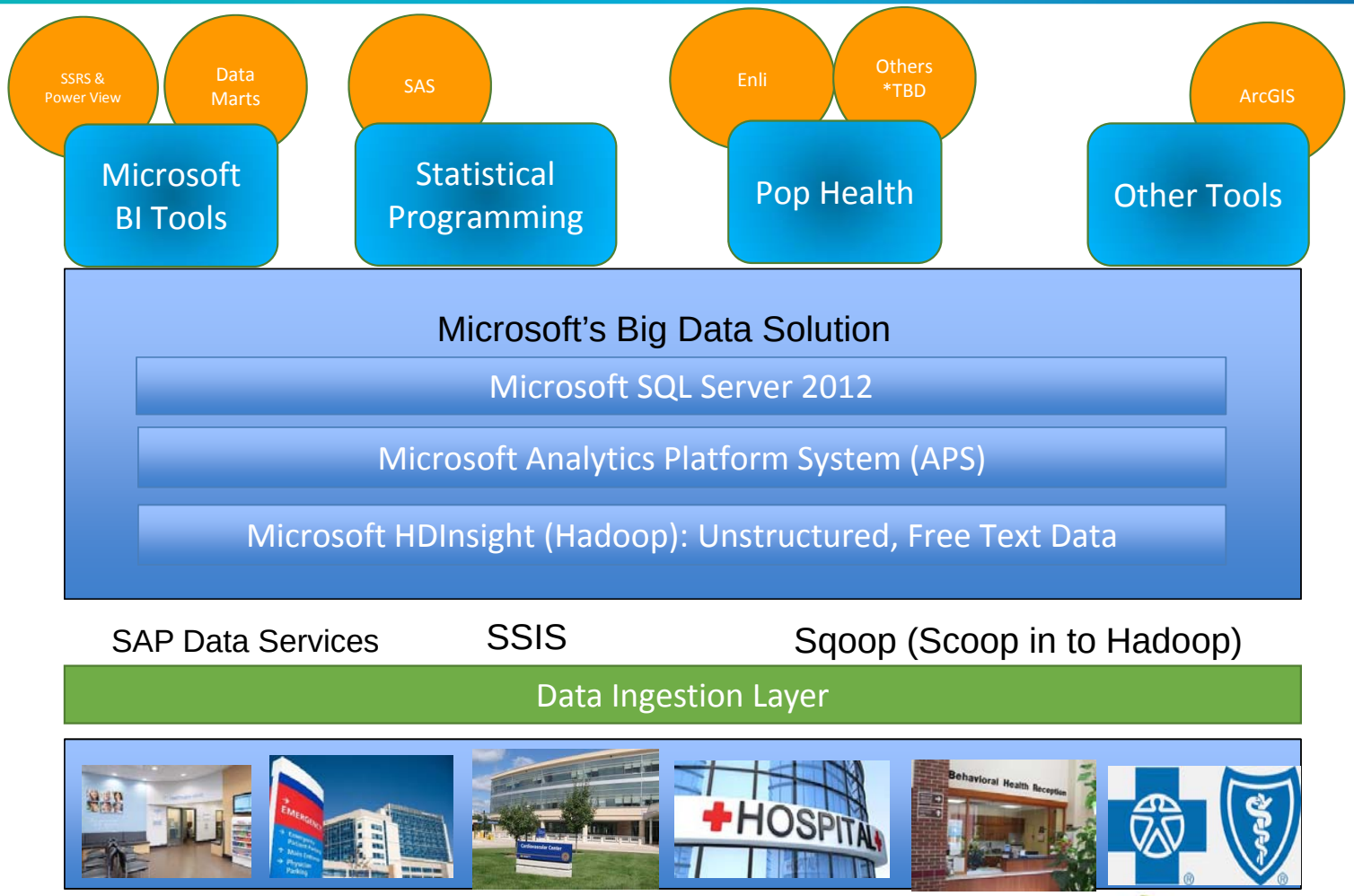
AllianceChicago



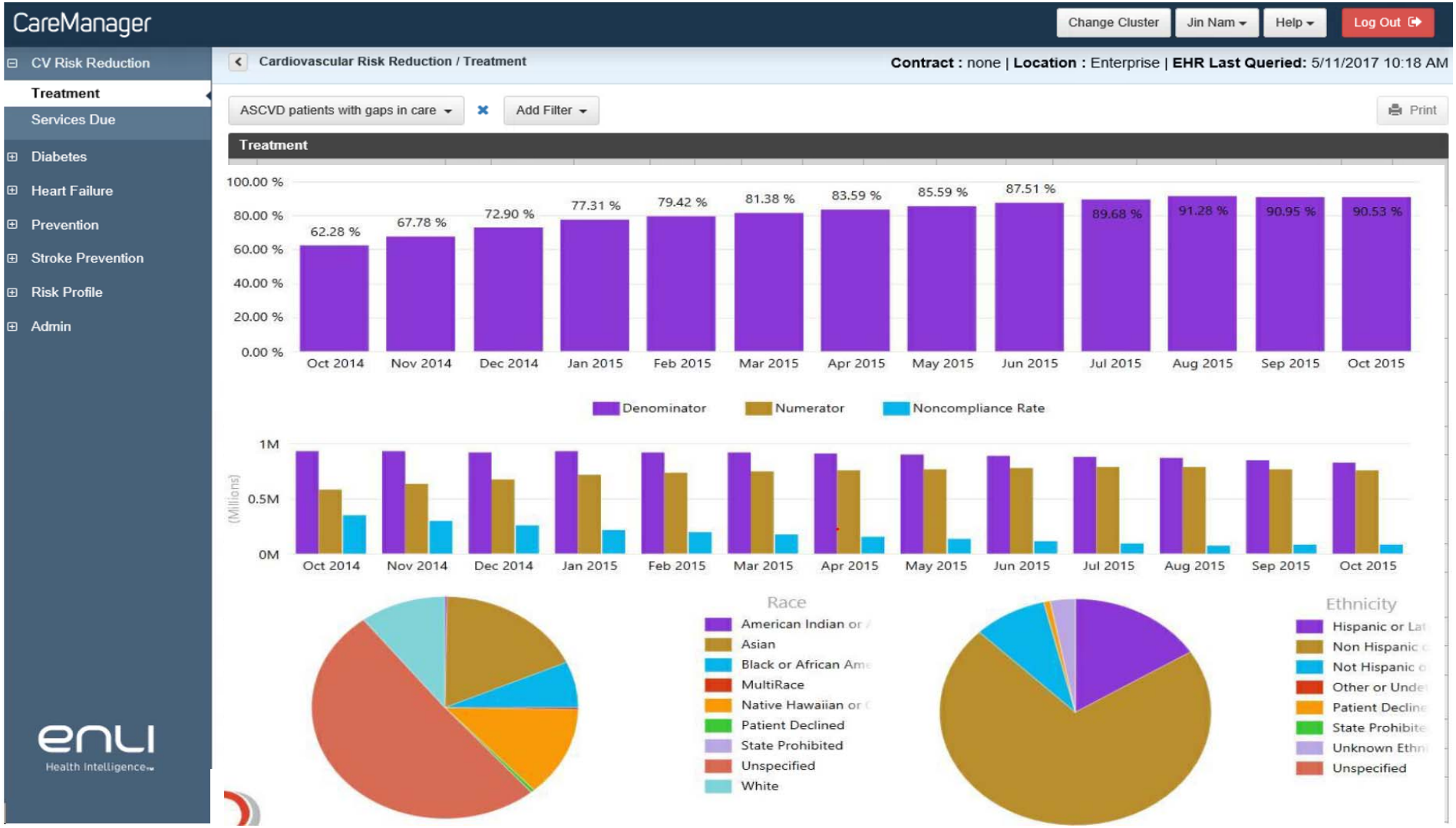
AllianceChicago



AllianceChicago



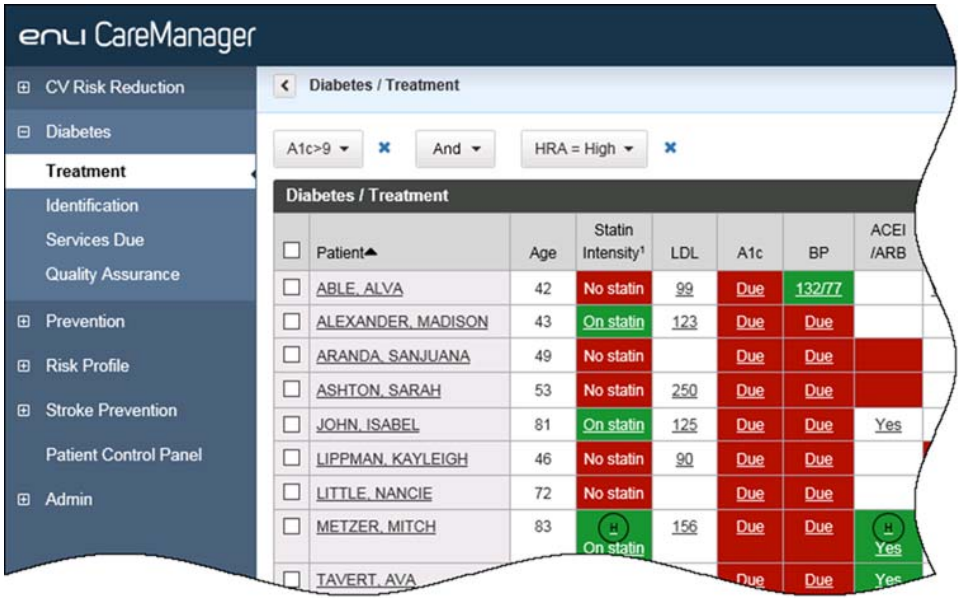
AllianceChicago


CareManager
Change Cluster
Jin Nam
Help
Log Out
CV Risk Reduction
Treatment
Services Due
Diabetes
Heart Failure
Prevention
Stroke Prevention
Risk Profile
Admin
Cardiovascular Risk Reduction / Treatment
Contract : none | Location : Enterprise | EHR Last Queried: 5/11/2017 10:18 AM
ASCVD patients with gaps in care
Add Filter
Print
Treatment
100.00 %
80.00 %
60.00 %
40.00 %
20.00 %
0.00 %
62.28 %
67.78 %
72.90 %
77.31 %
79.42 %
81.38 %
83.59 %
85.59 %
87.51 %
89.68 %
91.28 %
90.95 %
90.53 %
Oct 2014
Nov 2014
Dec 2014
Jan 2015
Feb 2015
Mar 2015
Apr 2015
May 2015
Jun 2015
Jul 2015
Aug 2015
Sep 2015
Oct 2015
Denominator
Numerator
Noncompliance Rate
1M
0.5M
0M
(Millions)
Race
American Indian or
Asian
Black or African Am
MultiRace
Native Hawaiian or
Patient Declined
State Prohibited
Unspecified
White
Ethnicity
Hispanic or Lat
Non Hispanic
Not Hispanic
Other or Unde
Patient Decline
State Prohibite
Unknown Ethn
Unspecified
enli
Health Intelligence

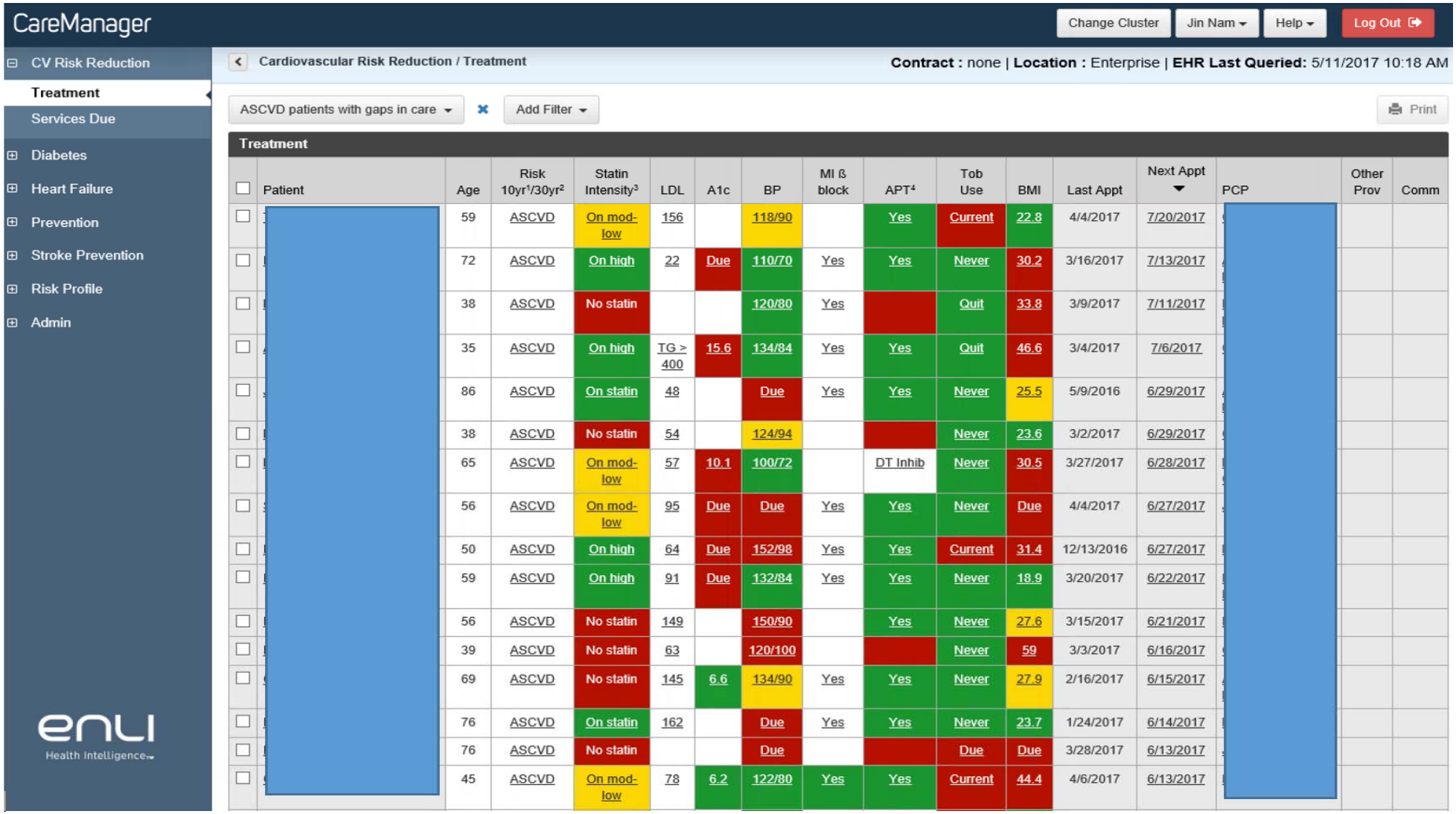
Advanced Filtering

The ability to simultaneously filter across two CareManager Registry tabs

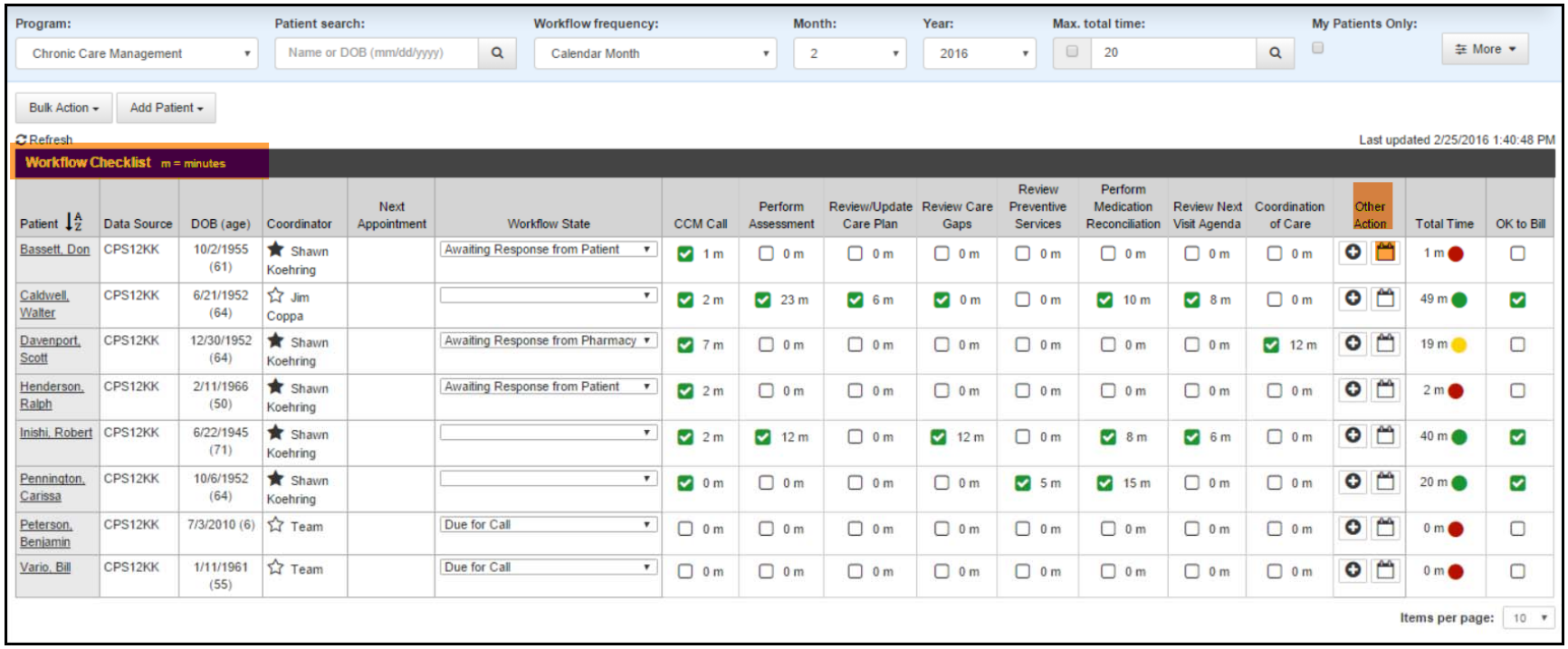
- Example: Filtering for ASCVD patients with a gap in care and upcoming appt.
- Example: Filtering for patients with Diabetes Treatment gaps and Services Due gaps



AllianceChicago


CareManager
Change Cluster
Jin Nam
Help
Log Out
CV Risk Reduction
Treatment
Services Due
Diabetes
Heart Failure
Prevention
Stroke Prevention
Risk Profile
Admin
Cardiovascular Risk Reduction / Treatment
Contract : none | Location : Enterprise | EHR Last Queried: 5/11/2017 10:18 AM
ASCVD patients with gaps in care
Add Filter
Print
Treatment
Patient
Age
Risk 10yr[1]/30yr[2]
Statin Intensity[3]
LDL
A1c
BP
MI ß block
APT[4]
Tob Use
BMI
Last Appt
Next Appt
PCP
Other Prov
Comm
59 ASCVD On mod-low 156 118/90 Yes Current 22.8 4/4/2017 7/20/2017
72 ASCVD On high 22 Due 110/70 Yes Yes Never 30.2 3/16/2017 7/13/2017
38 ASCVD No statin 120/80 Yes Quit 33.8 3/9/2017 7/11/2017
35 ASCVD On high TG > 400 15.6 134/84 Yes Yes Quit 46.6 3/4/2017 7/6/2017
86 ASCVD On statin 48 Due Yes Yes Never 25.5 5/9/2016 6/29/2017
38 ASCVD No statin 54 124/94 Never 23.6 3/2/2017 6/29/2017
65 ASCVD On mod-low 57 10.1 100/72 DT Inhib Never 30.5 3/27/2017 6/28/2017
56 ASCVD On mod-low 95 Due Due Yes Yes Never Due 4/4/2017 6/27/2017
50 ASCVD On high 64 Due 152/98 Yes Yes Current 31.4 12/13/2016 6/27/2017
59 ASCVD On high 91 Due 132/84 Yes Yes Never 18.9 3/20/2017 6/22/2017
56 ASCVD No statin 149 150/90 Yes Never 27.6 3/15/2017 6/21/2017
39 ASCVD No statin 63 120/100 Never 59 3/3/2017 6/16/2017
69 ASCVD No statin 145 6.6 134/90 Yes Yes Never 27.9 2/16/2017 6/15/2017
76 ASCVD On statin 162 Due Yes Yes Never 23.7 1/24/2017 6/14/2017
76 ASCVD No statin Due Due Due 3/28/2017 6/13/2017
45 ASCVD On mod-low 78 6.2 122/80 Yes Yes Current 44.4 4/6/2017 6/13/2017
enli
Health Intelligence

Population Health “Program”



Program: Chronic Care Management | Patient search: Name or DOB (mm/dd/yyyy) | Workflow frequency: Calendar Month | Month: 2 | Year: 2016 | Max. total time: 20 | My Patients Only: | More

Bulk Action | Add Patient | Refresh | Last updated 2/25/2016 1:40:48 PM

Workflow Checklist m = minutes

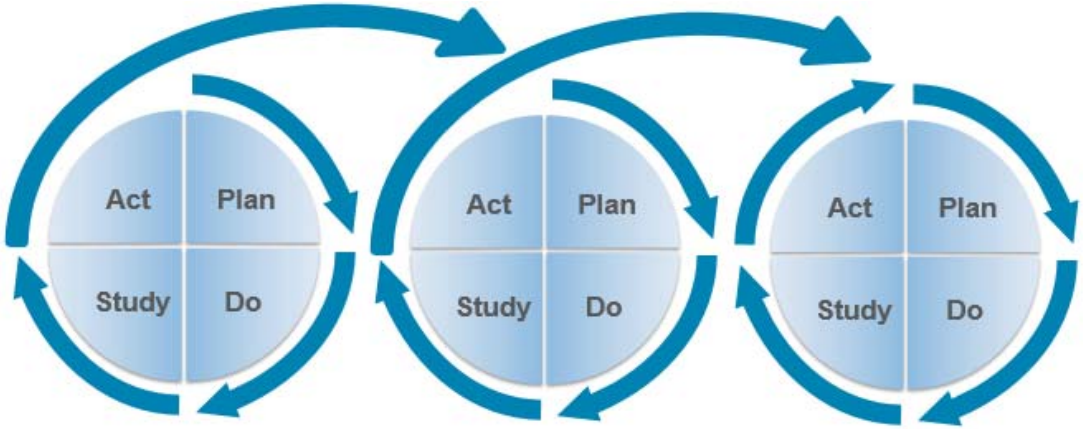
Patient	Data Source	DOB (age)	Coordinator	Next Appointment	Workflow State	CCM Call	Perform Assessment	Review/Update Care Plan	Review Care Gaps	Review Preventive Services	Perform Medication Reconciliation	Review Next Visit Agenda	Coordination of Care	Other Action	Total Time	OK to Bill
Bassett, Don	CPS12KK	10/2/1955 (61)	★ Shawn Koehring		Awaiting Response from Patient	☑ 1 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m		1 m ●	☐
Caldwell, Walter	CPS12KK	6/21/1952 (64)	☆ Jim Coppa			☑ 2 m	☑ 23 m	☑ 6 m	☑ 0 m	☐ 0 m	☑ 10 m	☑ 8 m	☐ 0 m		49 m ●	☑
Davenport, Scott	CPS12KK	12/30/1952 (64)	★ Shawn Koehring		Awaiting Response from Pharmacy	☑ 7 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☑ 12 m		19 m ●	☐
Henderson, Ralph	CPS12KK	2/11/1966 (50)	★ Shawn Koehring		Awaiting Response from Patient	☑ 2 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m		2 m ●	☐
Inishi, Robert	CPS12KK	6/22/1945 (71)	★ Shawn Koehring			☑ 2 m	☑ 12 m	☐ 0 m	☑ 12 m	☐ 0 m	☑ 8 m	☑ 6 m	☐ 0 m		40 m ●	☑
Pennington, Carissa	CPS12KK	10/6/1952 (64)	★ Shawn Koehring			☑ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☑ 5 m	☑ 15 m	☐ 0 m	☐ 0 m		20 m ●	☑
Peterson, Benjamin	CPS12KK	7/3/2010 (6)	☆ Team		Due for Call	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m		0 m ●	☐
Vario, Bill	CPS12KK	1/11/1961 (55)	☆ Team		Due for Call	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m	☐ 0 m		0 m ●	☐

Items per page: 10

AllianceChicago

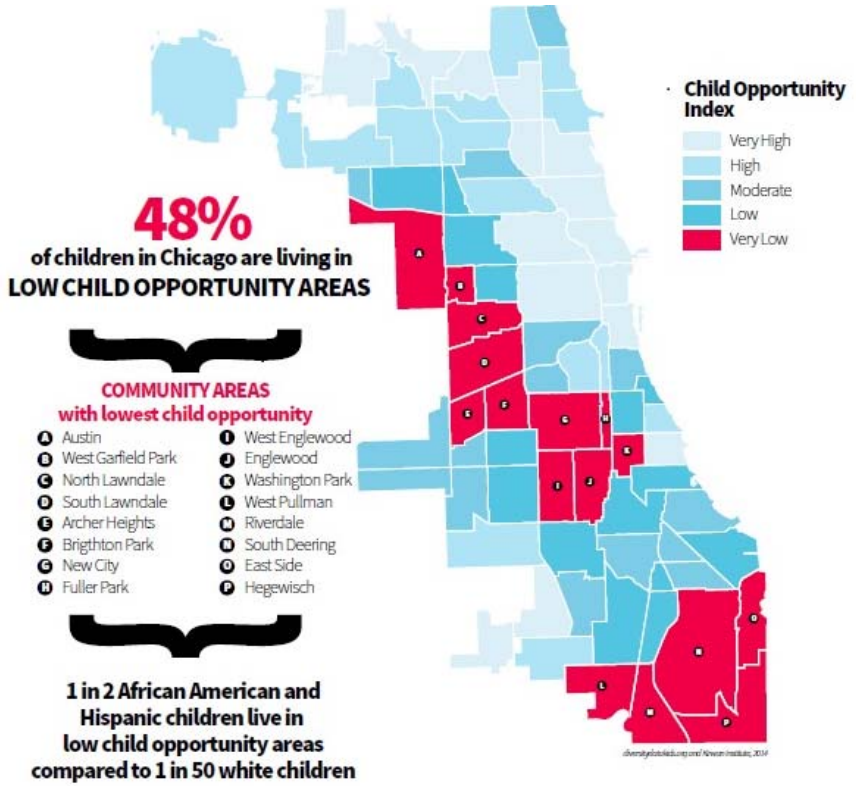
Practice Transformation

- Using a Quality Improvement Process, teams can test interventions and understand the impact of those interventions on clinical outcome measures & cost of care



AllianceChicago

Public Health & Open Data



AllianceChicago

AllianceChicago

100

97
73

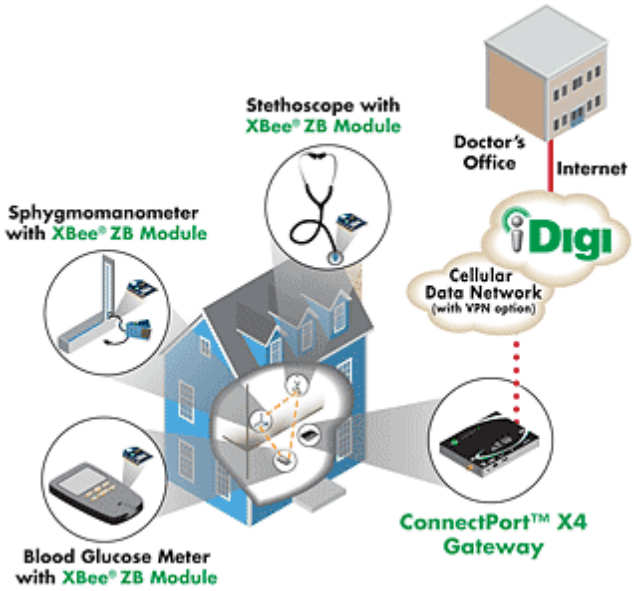
100

120
80

97
73

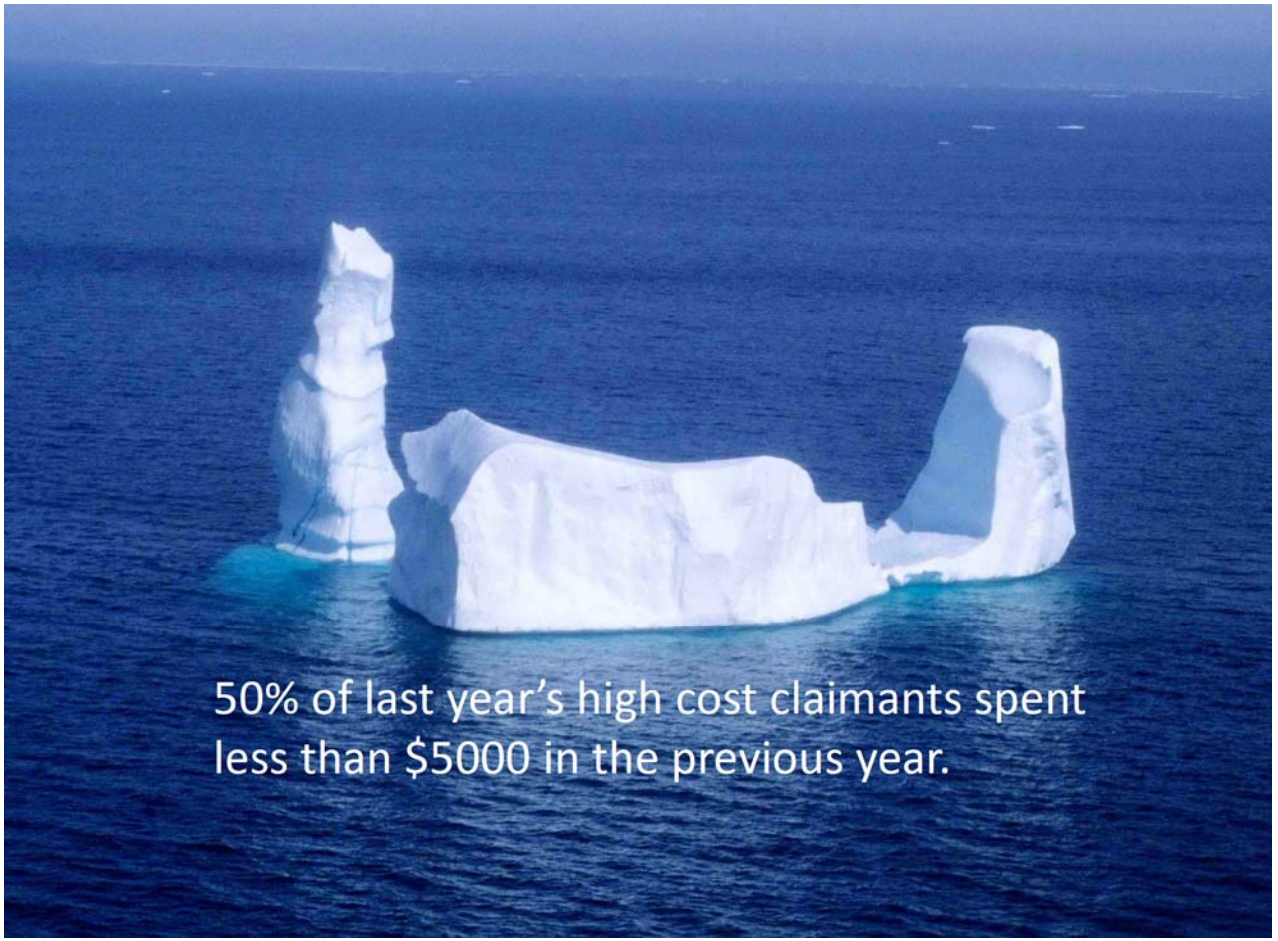
100

97
73


Stethoscope with
XBee® ZB Module
Doctor's
Office
Internet
Sphygmomanometer
with XBee® ZB Module
iDigi
Cellular
Data Network
(with VPN option)
Blood Glucose Meter
with XBee® ZB Module
ConnectPort™ X4
Gateway

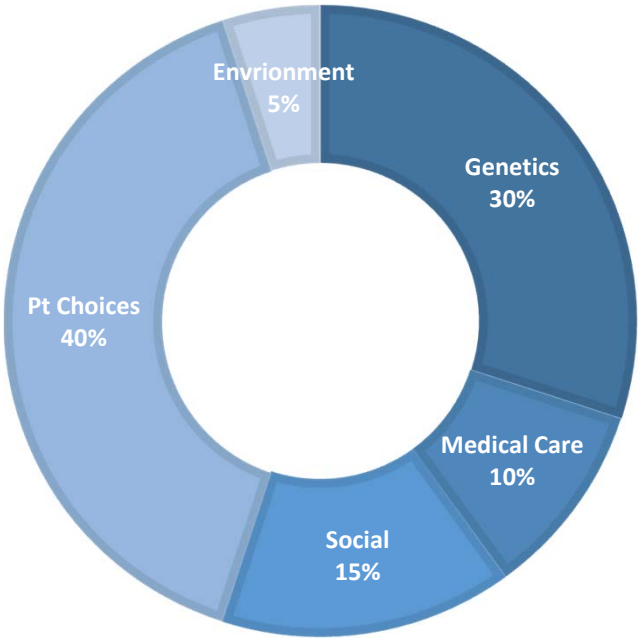
120
80

100



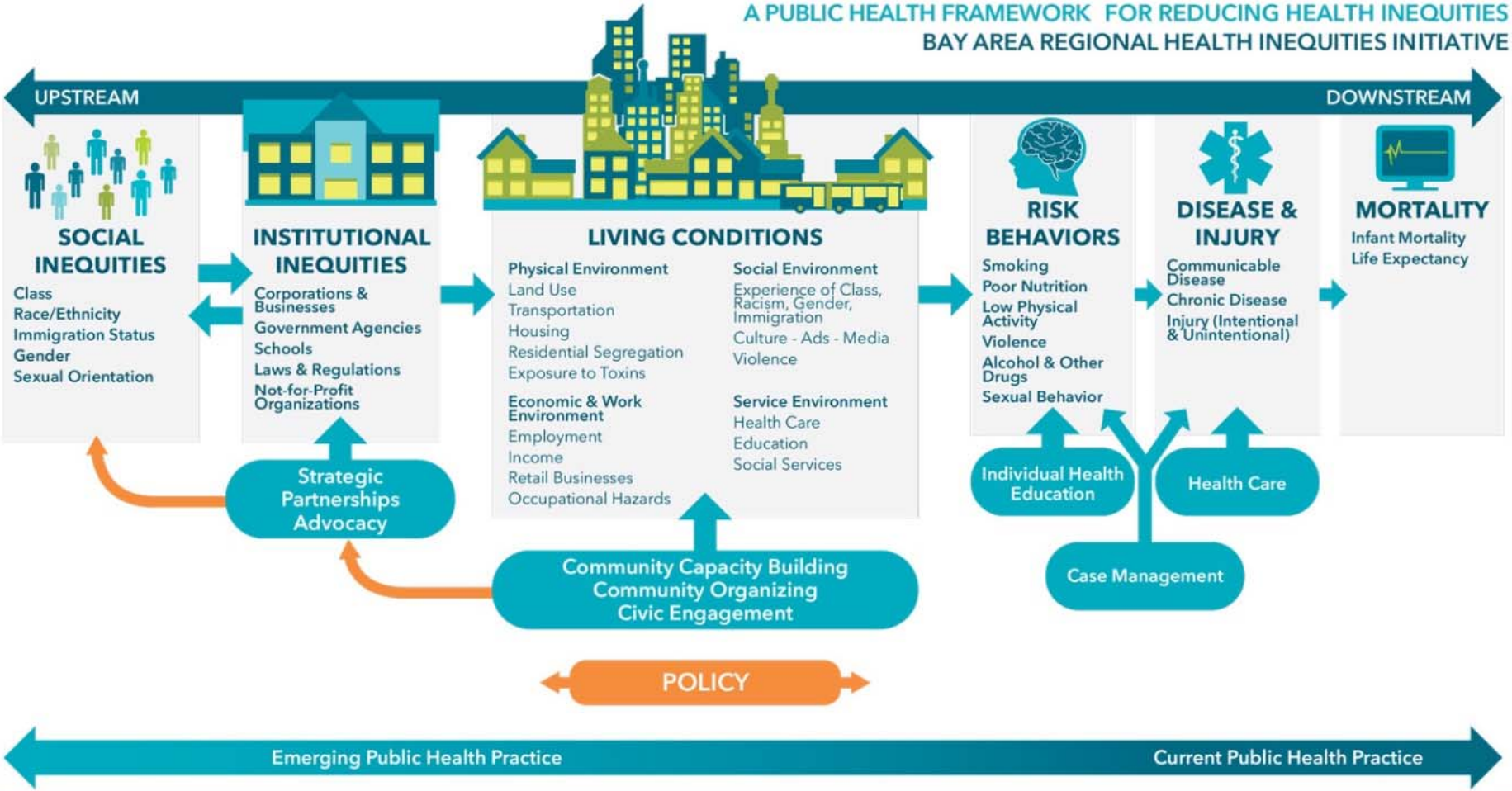
AllianceChicago

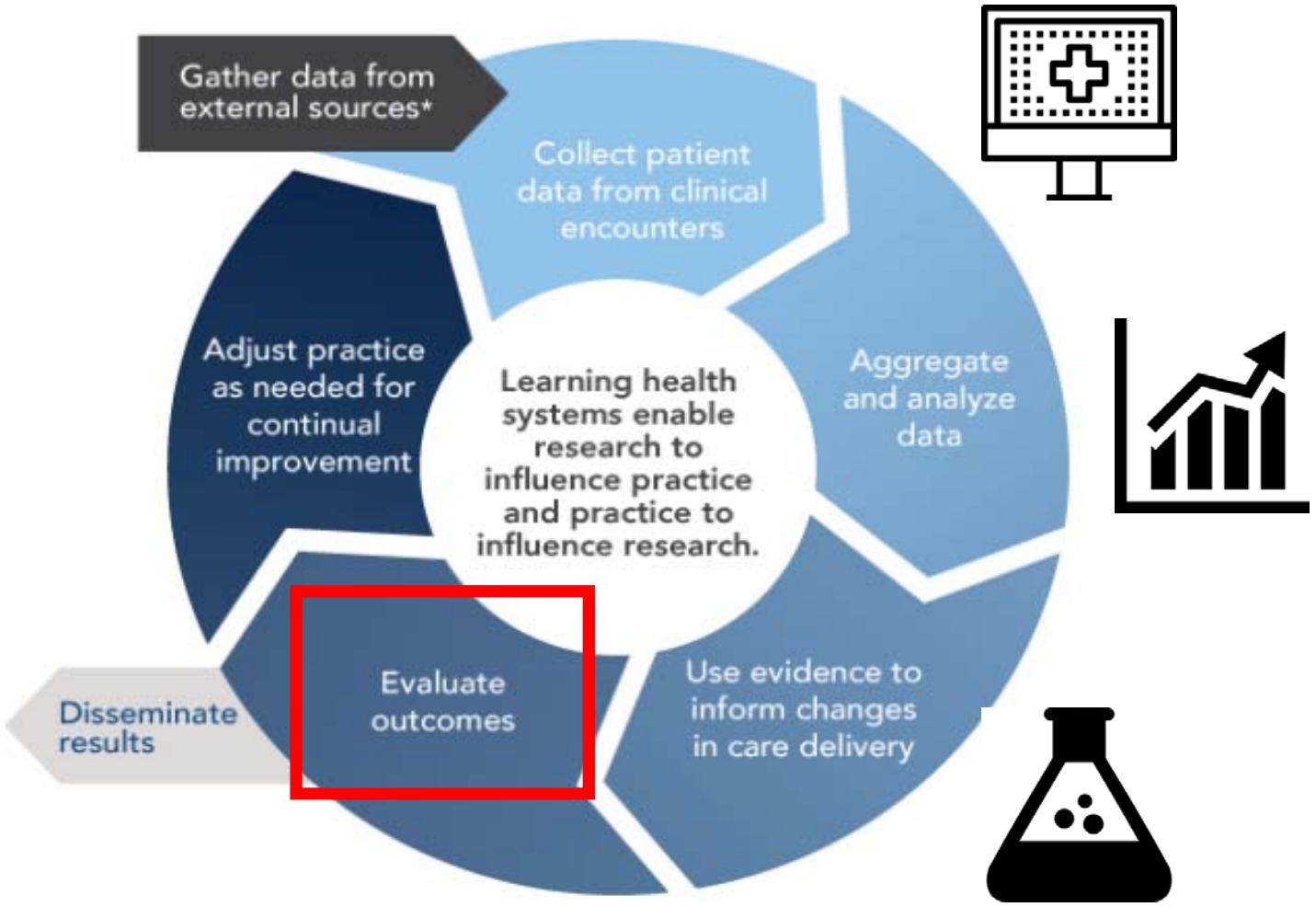
What Determines Health



McGinnis et al, Health Affairs Vol 22(2)

AllianceChicago


A PUBLIC HEALTH FRAMEWORK FOR REDUCING HEALTH INEQUITIES
BAY AREA REGIONAL HEALTH INEQUITIES INITIATIVE
UPSTREAM
DOWNSTREAM
SOCIAL INEQUITIES
Class
Race/Ethnicity
Immigration Status
Gender
Sexual Orientation
INSTITUTIONAL INEQUITIES
Corporations & Businesses
Government Agencies
Schools
Laws & Regulations
Not-for-Profit Organizations
LIVING CONDITIONS
Physical Environment
Land Use
Transportation
Housing
Residential Segregation
Exposure to Toxins
Economic & Work Environment
Employment
Income
Retail Businesses
Occupational Hazards
Social Environment
Experience of Class, Racism, Gender, Immigration
Culture - Ads - Media
Violence
Service Environment
Health Care
Education
Social Services
RISK BEHAVIORS
Smoking
Poor Nutrition
Low Physical Activity
Violence
Alcohol & Other Drugs
Sexual Behavior
DISEASE & INJURY
Communicable Disease
Chronic Disease
Injury (Intentional & Unintentional)
MORTALITY
Infant Mortality
Life Expectancy
Strategic Partnerships Advocacy
Community Capacity Building Community Organizing Civic Engagement
Individual Health Education
Health Care
Case Management
POLICY
Emerging Public Health Practice
Current Public Health Practice



*Examples include clinical trials, observational studies, patient-reported outcomes, surveillance databases, and population-based surveys.

Summary

- Effective Population Health requires access to and use of multiple sources of data
- Healthcare Organizations need a data and analytic strategic plan
- The technology solutions for population health include data aggregation, advanced analytics, and tools to support workflow automation
- Data for population health can also be used to support research and evaluation.

AllianceChicago

THANK YOU!

Michael Nudo, MNA, CNP

Email: mnudo@alliancechicago.org

Andrew Hamilton, RN, BSN, MS

Email: ahamilton@alliancechicago.org

AllianceChicago

AllianceChicago