NORTH CAROLINA HEALTH INFORMATION EXCHANGE AUTHORITY

North Carolina Diabetes Advisory Council Meeting

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NC Health Information Exchange Authority

NC HealthConnex
Powering Health Care Outcomes

We connect health care providers to safely and securely share health information through a trusted network to improve health care quality and outcomes for North Carolinians.

STATE DESIGNATED

North Carolina's state-designated health information exchange

SECURE

Secure statewide network for physicians and other health care providers in North Carolina to share important patient health information to improve patient care

PARTNERSHIP

Housed within the Department of Information Technology's Government Data Analytics Center (GDAC). Our technology partner is SAS Institute.

The Vision for Connectivity

North Carolina set out a vision to create communities of connected health care providers electronically across the state.

- Allow providers to view their patients' longitudinal health record in real-time

- Improve health care quality, enhance patient safety, improve health outcomes

- Consolidate data reporting requirements across the state to ease administrative burden and create efficiencies by eliminating duplicative data integrations

- Create outbound services to give providers insight to their at risk patient population

NC **HealthConnex**
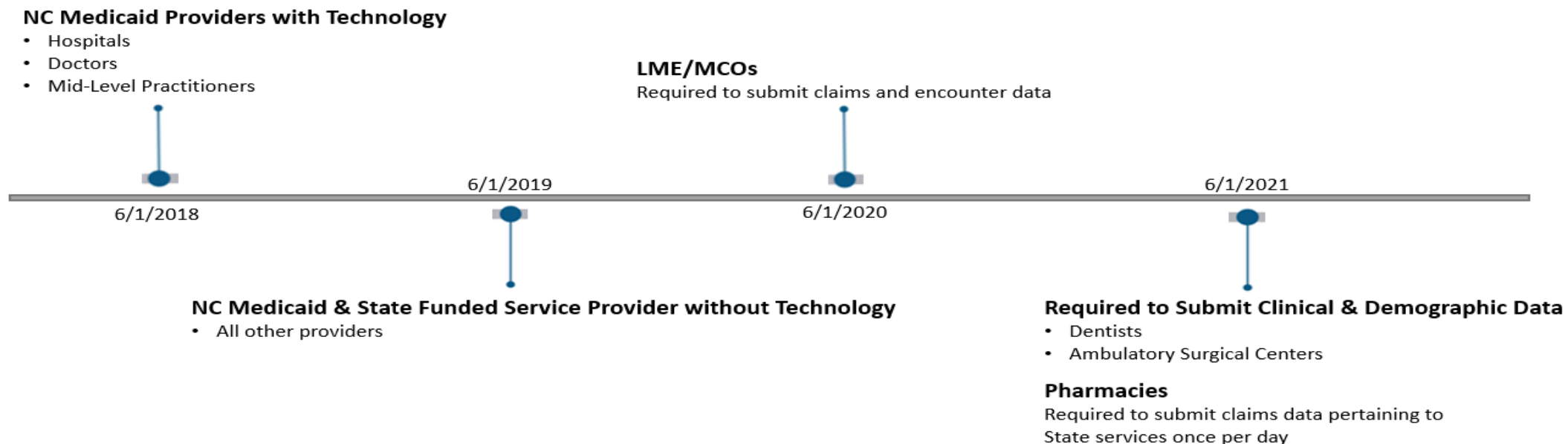Powering Health Care Outcomes
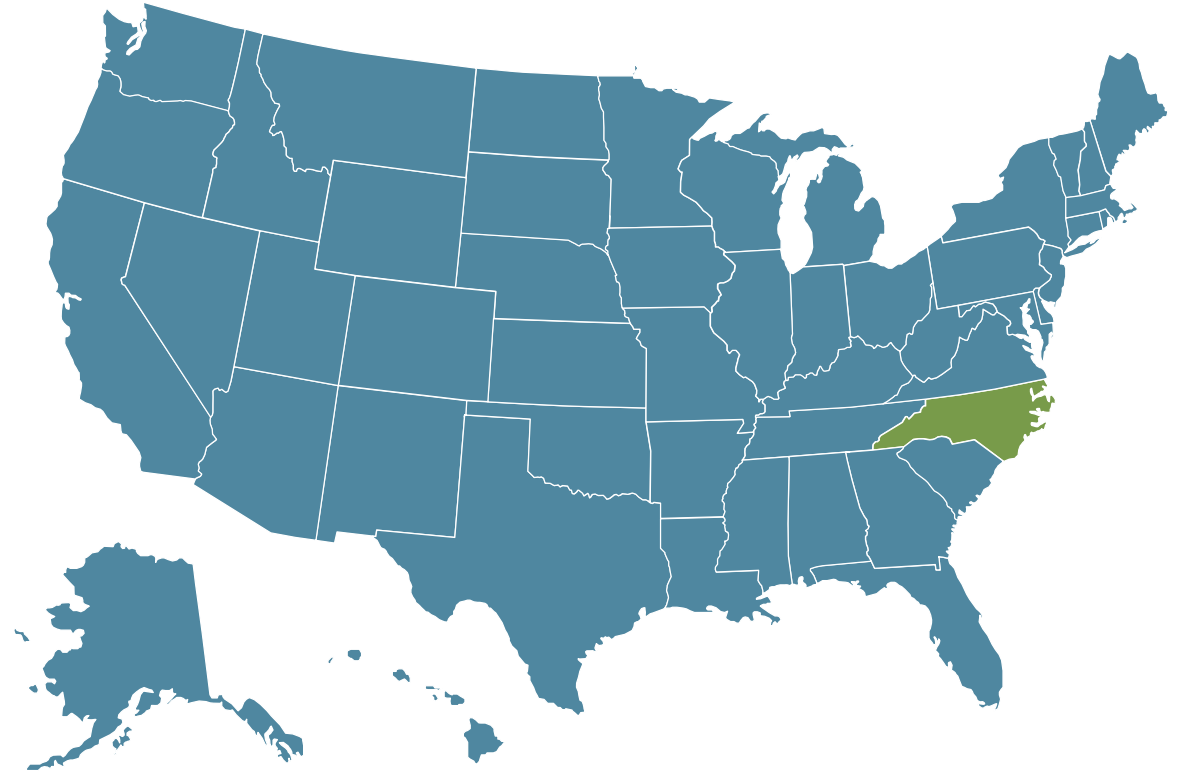
What Does the Law Mandate?

Hospitals as defined by G.S. 131E-176(3), doctors (licensed to practice under Article 1 of Chapter 90 of the General Statutes), and mid-level practitioners who provide Medicaid services and who have an electronic health record were required to connect by June 1, 2018.

All other providers of Medicaid and state-funded services shall connect by June 1, 2019 except;

- Dentists and ambulatory surgical centers are required to submit clinical and demographic data by June 1, 2021

- Pharmacies are required to submit claims data pertaining to State services once per day by June 1, 2021 using pharmacy industry standardized formats

NC Medicaid Providers with Technology
- Hospitals
- Doctors
- Mid-Level Practitioners

LME/MCOs
Required to submit claims and encounter data

6/1/2018   6/1/2019   6/1/2020   6/1/2021

NC Medicaid & State Funded Service Provider without Technology
- All other providers

Required to Submit Clinical & Demographic Data
- Dentists
- Ambulatory Surgical Centers

Pharmacies
Required to submit claims data pertaining to State services once per day

What is Health Information Exchange (HIE)?

A Health Information Exchange (HIE) is a secure, electronic network that gives authorized health care providers the ability to access and share health-related information across a statewide information highway.
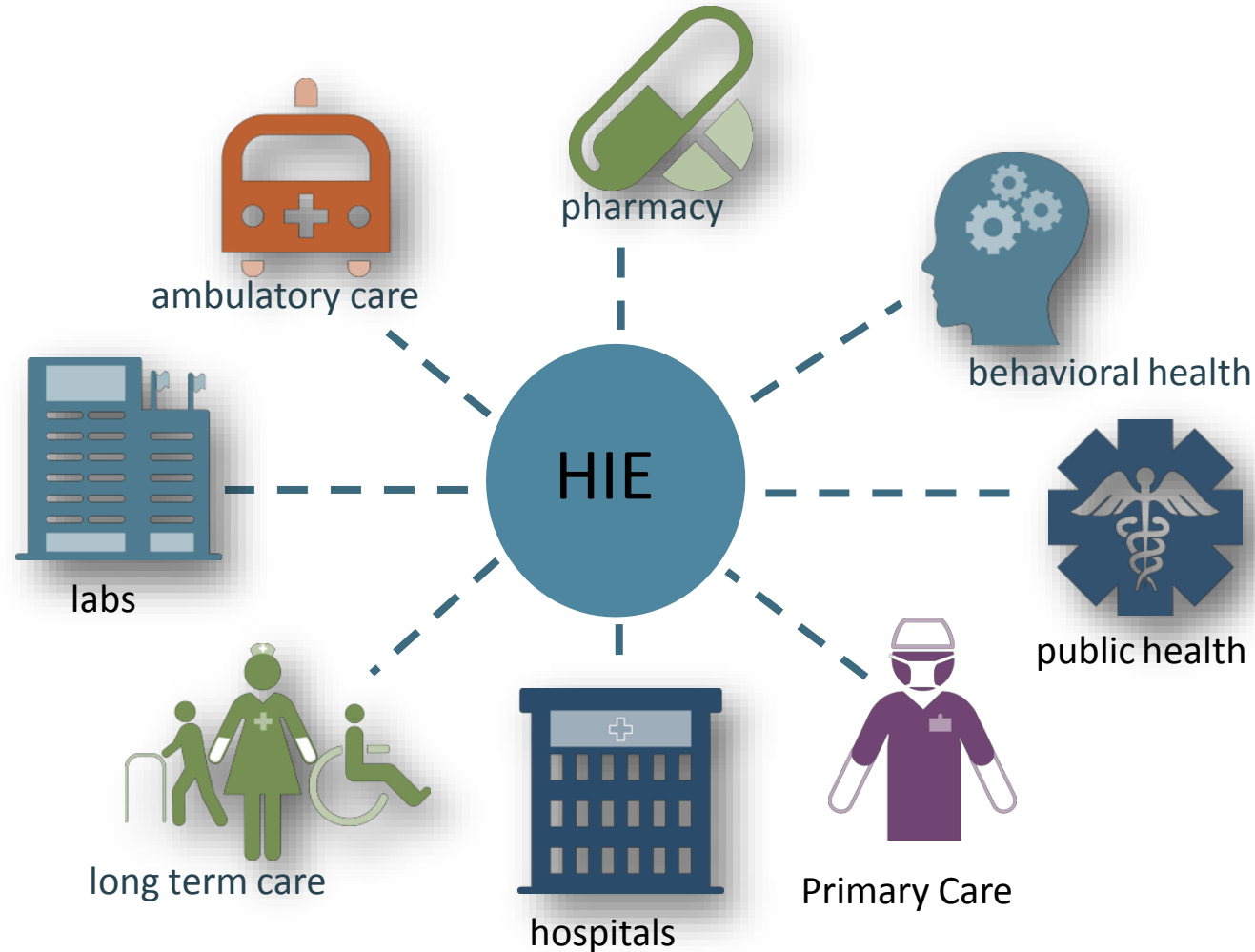
What are the clinical benefits of an HIE?
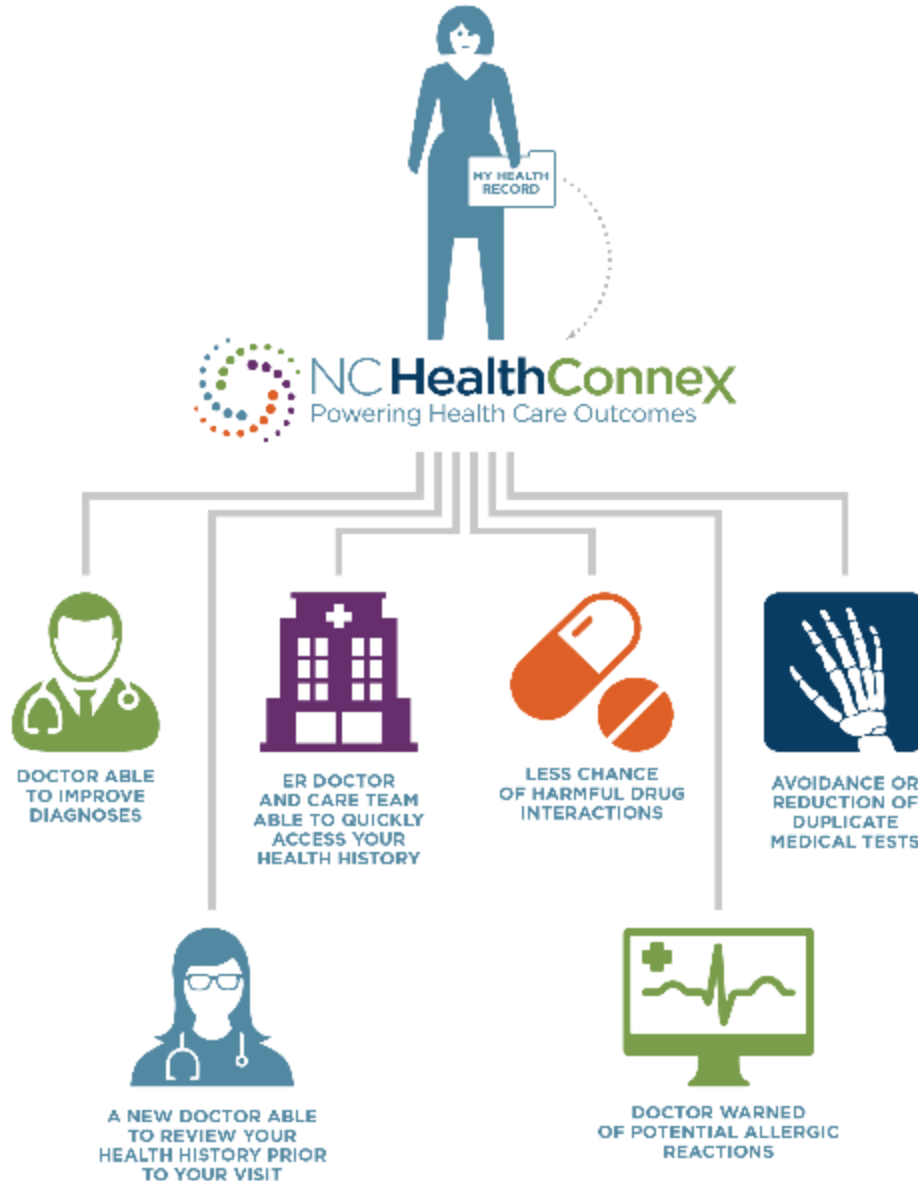
- A full "picture" of a person's health, including visits, hospitalizations and medications

- Improved, more accurate and timely medication reconciliation that reduces errors and avoids unnecessary tests

- Instant access to a full panel of test results, reducing errors and gaps in treatment

How Does Health Information Exchange Work?

Electronic Health Record
Clinicians enter data into EHR and that data is pulled into HIE

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Data Provided
Clinicians who have care relationships with their patients are able readily access that data
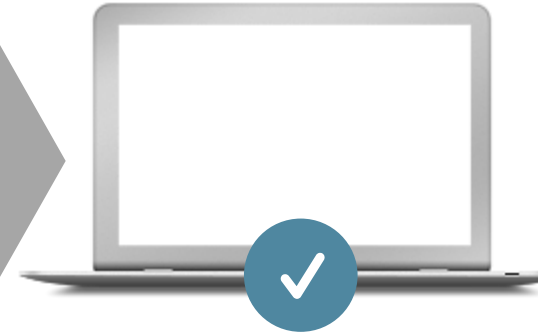
1 **Elements Available**

Current data elements available in NC HealthConnex include: Allergies, Encounters, Immunizations, Medications, Problems, Procedures, Results

2 **Security in Place**

All data is protected, stored and accessed only for purposes permissible under federal and state law.

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What Data Elements Will You Need to Submit?

The NC HealthConnex Data Target

We aim to collect all Meaningful Use Data Elements

Patient ID	Name	Date of Birth	Address/ Phone	Language	Race/ Ethnicity	Gender
Date of Visit	Visit Number	Reason for Visit	Level of Care	Visit Location	Care Team Members	
Vital signs (height, weight, BP, BMI)	Immunization	Referrals	Care plan field(s), including goals and instructions	Problems	Medication Allergies	
Medications	Laboratory Test(s)	Laboratory Value(s)/Result(s)	Smoking Status	Discharge Summary	Procedures	

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Significant Progress
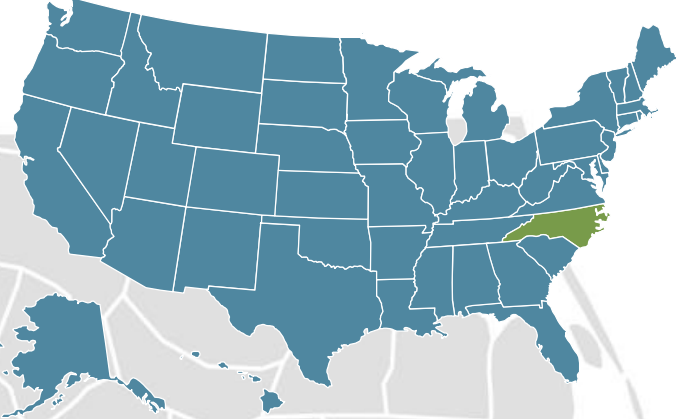
Number of Connected Facilities		
Spring 2016	Spring 2017	Summer 2018
108 Facilities	**877** Facilities	**4,500+** Facilities
Number of Facilities in the Onboarding Process		
2016	2017	2018
158 Facilities	**578** Facilities	**3,800+** Facilities

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How Do Providers Meet the Mandate?

There are two steps to determine a practice's readiness for connection.

1. Does your practice have an EHR that can send CCD or HL7 messages?

   - **Technology in Place:** The NC HIEA Participation Agreement requests EHRs that are minimally capable of sending HL7 messages, version 2 and higher.

2. Does your practice have a Participation Agreement in place?

   - **The Participation Agreement** is the document that governs the exchange of data between the practice and NC HealthConnex. This contract must be in place before the technical build can begin. Participation Agreements are linked on our website for providers to download, sign and return.

NC HealthConnex Participation Agreement

The contract governing data sharing between the NC HIEA and Health Care Organization

How do I complete?

Log on to:

nchealthconnex.gov/how-to connect

- ✓ Complete the Participation Agreement
- ✓ Submit to hiea@nc.gov

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How Do Providers Connect: The Participation Agreement

Attachment 2

Participant Staff Contact Information

Please provide contact information for the following staff members at your organization. Each field must be filled even if one person occupies more than one role. **All fields must be completed or the processing of your Participation Agreement will be delayed.**

Participant Account Administrator

Staff member who will be the point of contact for the NC HIEA for communications and credentialing NC HealthConnex users in your organization.

Name:

Position Title:

Email Address:

Phone Number:

Mailing Address:

Technical Services Contact

Staff member who will work with our technology vendor to build a connection from your organization to
NC HealthConnex.

Name:

Position Title:

Email Address:

Phone Number:

Participant Background Information

1. Type of facility or system: *Please select all that apply below.*

☐ Hospital, Health System, or Regional HIE	☐ Ambulatory/ Outpatient Clinic	☐ Laboratory	☐ Pharmacy	☐ Other *Please specify:* _____

2. Provider type:
This field is not required if your organization is a Hospital, Health System, Regional HIE, Laboratory, or Pharmacy

☐ Primary Care	☐ Dental or Orthodontic	☐ Respiratory, Developmental, Rehabilitative or Restorative
☐ Pediatrics	☐ Residential Facility	☐ Speech, Language and Hearing
☐ OB/GYN	☐ In Home Care, e.g. PCS, CAP-C/DA, etc.	☐ Other *Please specify:* _____
☐ Behavioral Health	☐ Eye & Vision	

3. Participant Organization National Provider Identifier (NPI): _____

4. How many Participating Entities (PEs) or facility locations does your organization have?
If you have any PEs or more than one facility location, please complete Attachment 4 _____

5. Is your provider or health system a part of one or more the following? ☐ Yes ☐ No
If yes, please select all that apply and list the name of the organization(s).

☐ Health system	
☐ Regional HIE	
☐ Accountable Care Organization	
☐ Clinically Integrated Network	

Substance Use Disorder Treatment Information

6. Does your organization or any unit within your organization provide Substance Use Disorder treatment? ☐ Yes ☐ No

7. If yes to 6, does your organization fall under 42 C.F.R. Part 2?
If unsure, please contact your legal counsel and visit the SAMHSA website at www.SAMHSA.gov ☐ Yes ☐ No

Electronic Health Record (EHR Vendor) Information
Please discuss these questions with your Technical Services Contact

8. EHR Vendor:

Patient Education & Opt-Out

Once a Participation Agreement (PA) is signed by a health care provider, Patient Education materials are provided to that organization via email, which includes a sample Notice of Privacy Practices.

Providers and [patients](#) also have easy access to Patient-Opt out materials on the NC HealthConnex website.

Providers generally have around 3 months after they sign a PA before they are connected to NC HealthConnex. Providers can use this time to educate their patients about the new relationship between your practice and NC HealthConnex.

All NC HIEA Policies are posted on our website, nchealthconnex.gov.

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Privacy and Security

- Privacy and Security Policies

- Highest security standards as set by federal and state law

- HIPAA regulations and state law

- HITECH Act

- Regular monitoring and audits

- Data Encryption via Direct Secure Messaging

Suite of Services

Exchange

Flexible Delivery
Custom delivery methods integrate into varied provider workflows

Notify

NC*Notify
Notifies providers as their patients receive services across the care continuum

Communicate

Direct Secure Message
Connection with other providers by sending and receiving secure, encrypted messages.

Connect

Provider Directory
More than 21,000 secure messaging addresses of health care providers

Contribute

Public Health Reporting
Diabetes Public Health Registry and NC Immunization Registry (help providers meet MU/MIPS)

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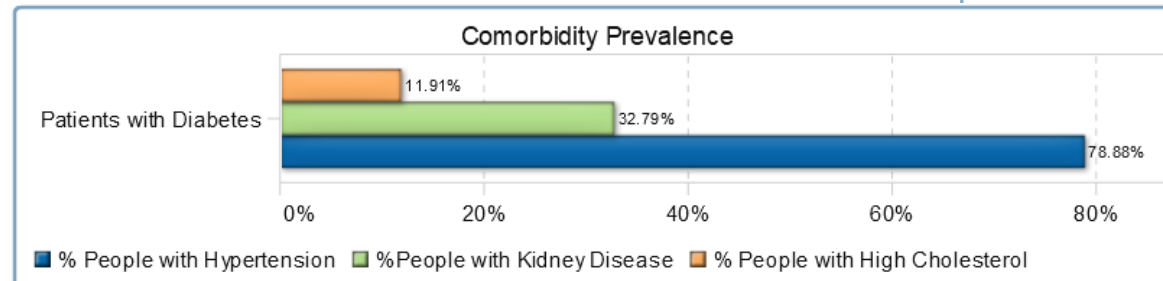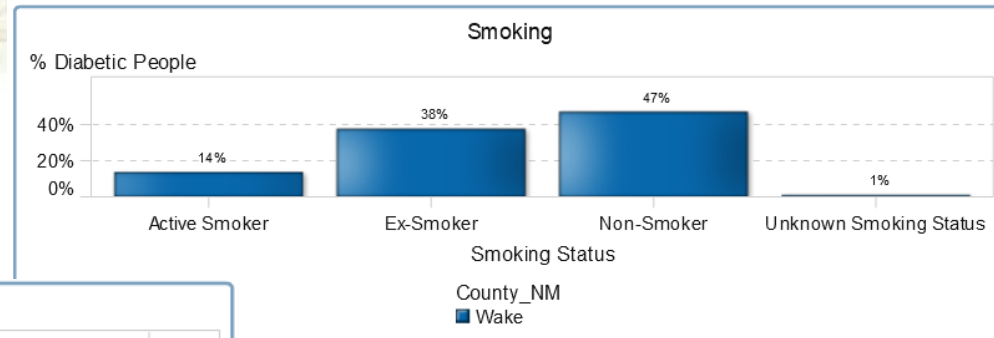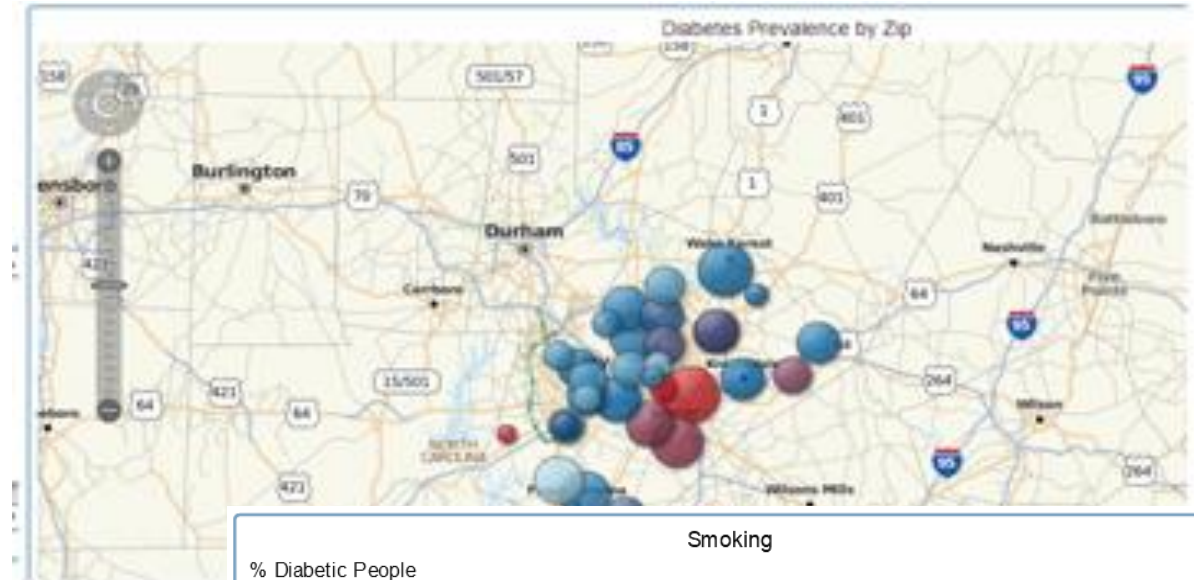
Diabetes Disease Registry

- Partnership between the NC DHHS's DPH and NC HealthConnex.

- Starting June 1, supports attestation for Meaningful Use Stage 3 and Modified Stage 2 for eligible hospitals, eligible critical access hospitals, and eligible professionals as well as Medicare Quality Payment Program Advancing Care Information for eligible clinicians

- Also includes a subscription based service for Participants where detail clinical data is provided based on a list of Participant's Patients

- Currently evaluating other clinical registries beyond Diabetes

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Diabetes Disease Registry

NC DHHS's DPH regularly receives data and visualizations used for tracking the clinical care and outcomes of the patient population in North Carolina diagnosed with or presenting signs or symptoms of Diabetes.

This information is used to:
- ✓ Identify where there may be geographic areas and/or other populations that would benefit from public health programs
- ✓ Augment other Public Health data sources with de-identified clinical information about patients with Diabetes

Diabetes Prevalence by Zip

Smoking

% Diabetic People

Active Smoker	Ex-Smoker	Non-Smoker	Unknown Smoking Status
14%	38%	47%	1%

Smoking Status

County_NM
■ Wake

| ...moking | BMI | Blood Pres... | LDL | HbA1c | ▷ |

Comorbidity Prevalence

Patients with Diabetes
- 11.91%
- 32.79%
- 78.88%

0% 20% 40% 60% 80%

■ % People with Hypertension ■ %People with Kidney Disease ■ % People with High Cholesterol

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North Carolina Health Information Exchange
DIABETES REGISTRY

Diabetes Prevalence by County - View of the diabetic population in each county. Users can filter the diabetic population using demographic filters on the left. Patients are displayed on a map based on their most recent home address. Data is also displayed in a table which is sorted by county name. Information in this table includes the county name, the total number of patients who have data in NC Health Connex, as well as the percentage of all patients with data in NC HealthConnex with diabetes, kidney disease, hypertension and high cholesterol. The bar chart displays diabetes prevalence for the 10 counties with the highest rates of diabetes.

Health Indicators - Drill down to view details based on your selections on the previous tab. Users can select additional filters on the left and view the number and prevalence of diabetes and the number of diabetic patients by zip code within the county(ies) selected. Patients are displayed on a map, table and bar chart similar to that presented on "Diabetes Prevalence by County." In addition, this tab displays the percentage of patients that have any of the three comorbidities shown (hypertension, kidney disease, high cholesterol) and the results of their most recent smoking status screening, BMI measurement, blood pressure measurement, LDL test, and HbA1c test. If a patient does not have results for one of the screenings, measurements or tests, they will display as "No Recent Test".

Health Indicators Trends - This shows the number of patients that during the past year for that quarter have the value set codes to indicated they have diabetes. This trend chart is useful in gauging how many people are in the HIE and how many have diabetes as the number of connections and data sources expands.

Definitions - Codes and code systems that that were used to define diagnoses, lab results, procedures and vitals for this report.

General Note - When applying filters you may end up at a small population that will not be displayed due to small cell suppression rules. The typical result is that now rows will appear or a value for "all Others" will be presented.

Question of Interest

Let's assume an organization is developing a targeted intervention for the following type of diabetic patient:

- Non-Hispanic

- Females

- Under the age of 65

How can the NC HealthConnex Diabetes Registry support this question?

Welcome   **Diabetes Prevalence by County**   Health Indicators   Health Indicator Trends   Definitions

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Diabetes Prevalence by County

Step 1: Filter your data

Gender
- ☑ Female
- ☐ Male
- ☐ Unknown
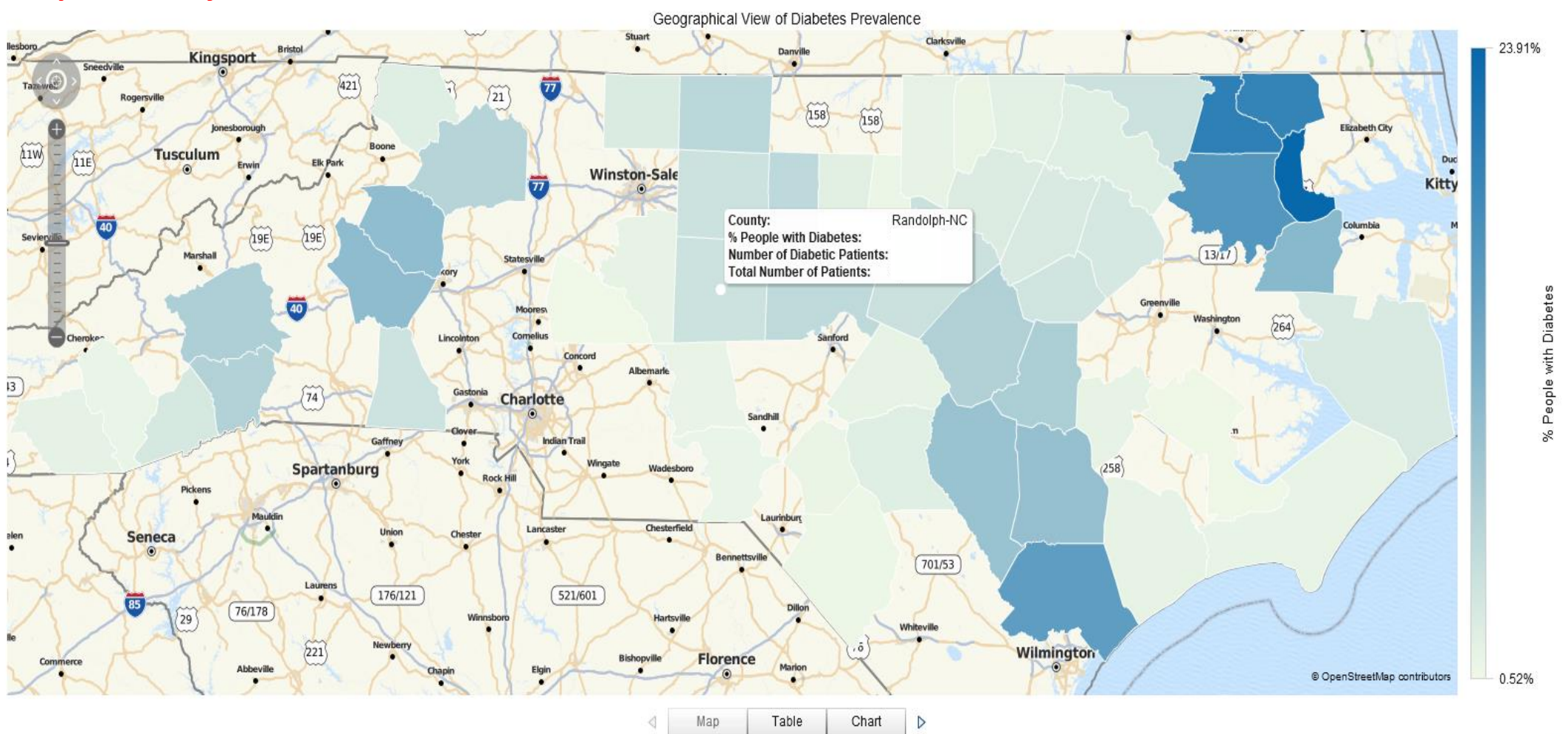
Age Group
- ☑ 0-17
- ☑ 18-44
- ☑ 45-54
- ☑ 55-64
- ☐ 65-75
- ☐ 76+

Ethnicity
- ☐ Hispanic or Latino
- ☑ Not Hispanic or Latino
- ☐ Unknown

Race
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
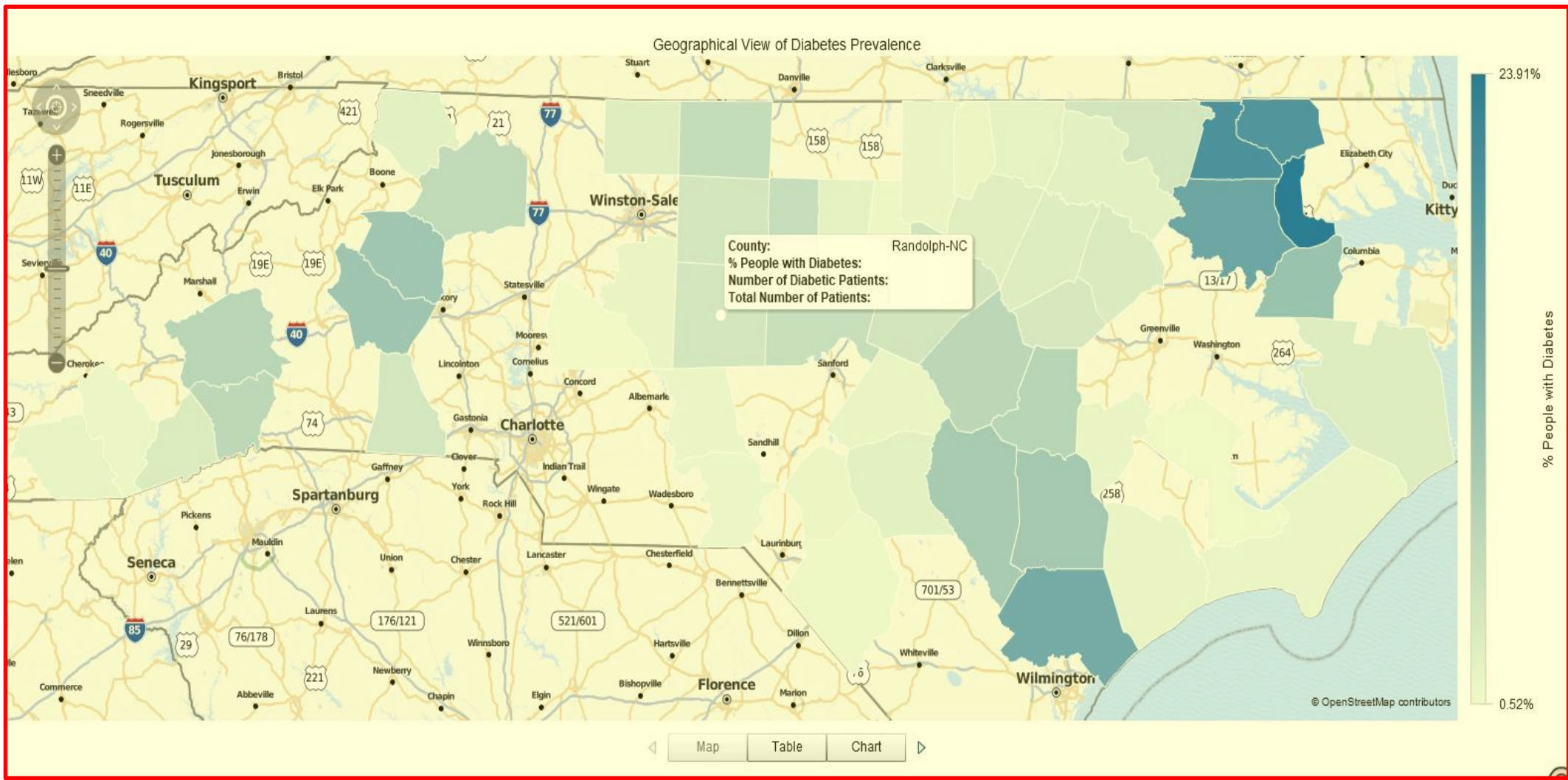- ☐ Other Race
- ☐ Unknown
- ☐ White

Geographical View of Diabetes Prevalence

County: Randolph-NC
% People with Diabetes:
Number of Diabetic Patients:
Total Number of Patients:

23.91%

% People with Diabetes

0.52%

© OpenStreetMap contributors

◁   Map   Table   Chart   ▷

Step 2: Review data geo-spatially

File   Help   📁 📄 ↻ 📊   Sign Out

Welcome | **Diabetes Prevalence by County** | Health Indicators | Health Indicator Trends | Definitions

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Diabetes Prevalence by County

Step 3: Review data in the tabular form

Gender
- ☑ Female
- ☐ Male
- ☐ Unknown

Age Group
- ☑ 0-17
- ☑ 18-44
- ☑ 45-54
- ☑ 55-64
- ☐ 65-75
- ☐ 76+

Ethnicity
- ☐ Hispanic or Latino
- ☑ Not Hispanic or Latino
- ☐ Unknown

Race
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Other Race
- ☐ Unknown
- ☐ White

Prevalence of Common Health Conditions - double click on county to see Health Indicators for that county

County	Total Number of Patients	% People with Diabetes ▼	People with Diabetes	%People with Kidney Disease	People with Kidney Disease	% People with Hypertension	People with Hypertension	% People with High Cholesterol	People with High Cholesterol
	2,890	20.00%	578	5.71%	165	44.19%	1,277	5.43%	157
	253	19.37%	49	7.11%	18	39.92%	101	5.14%	13
	1,004	16.14%	162	5.78%	58	38.35%	385	4.48%	45
	1,059	15.11%	160	2.17%	23	35.03%	371	3.87%	41
	2,020	10.10%	204	2.33%	47	27.23%	550	4.85%	98
	10,676	7.28%	777	3.44%	367	15.61%	1,666	0.21%	22
	795	7.17%	57	4.15%	33	26.67%	212	7.42%	59
	2,347	6.82%	160	1.62%	38	14.49%	340	0.98%	23
	577	6.76%	39	3.99%	23	18.20%	105	2.43%	14
	1,278	6.18%	79	2.11%	27	19.87%	254	3.83%	49
	6,671	5.94%	396	1.78%	119	19.26%	1,285	4.83%	322
	659	5.46%	36	2.43%	16	16.39%	108	1.82%	12
	3,161	4.24%	134	1.46%	46	9.46%	299	0.95%	30
	8,496	4.23%	359	2.60%	221	9.07%	771	0.55%	47
	4,062	4.21%	171	1.62%	66	12.80%	520	0.69%	28
	1,943	4.12%	80	1.96%	38	10.09%	196	1.54%	30
	3,446	4.00%	138	0.49%	17	4.90%	169	0.90%	31
	3,405	3.20%	109	1.50%	51	20.26%	690	2.88%	98
	818	3.06%	25	1.83%	15	11.49%	94	3.55%	29
	616	2.92%	18	1.95%	12	16.23%	100	3.57%	22
	10,200	2.79%	285	1.42%	145	19.53%	1,992	2.96%	302
	2,295	2.53%	58	1.05%	24	10.11%	232	2.35%	54
	3,428	2.13%	73	0.50%	18	5.01%	172	0.32%	11
Sum:	112,672	Total: 4.25%	Total: 4,792	Total: 1.80%	Total: 2,023	Total: 13.38%	Total: 15,078	Total: 1.76%	Total: 1,988

◁ Map | Table | Chart ▷

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Welcome | **Diabetes Prevalence by County** | Health Indicators | Health Indicator Trends | Definitions

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Diabetes Prevalence by County

Step 4: Review data in chart form

Gender
- ☑ Female
- ☐ Male
- ☐ Unknown

Age Group
- ☑ 0-17
- ☑ 18-44
- ☑ 45-54
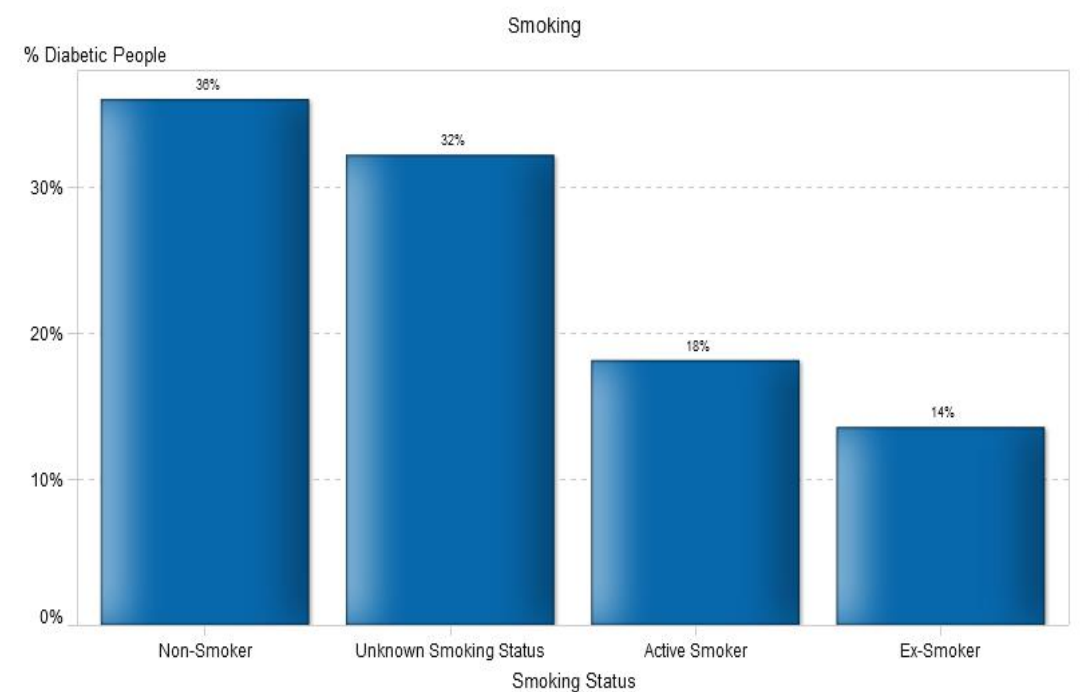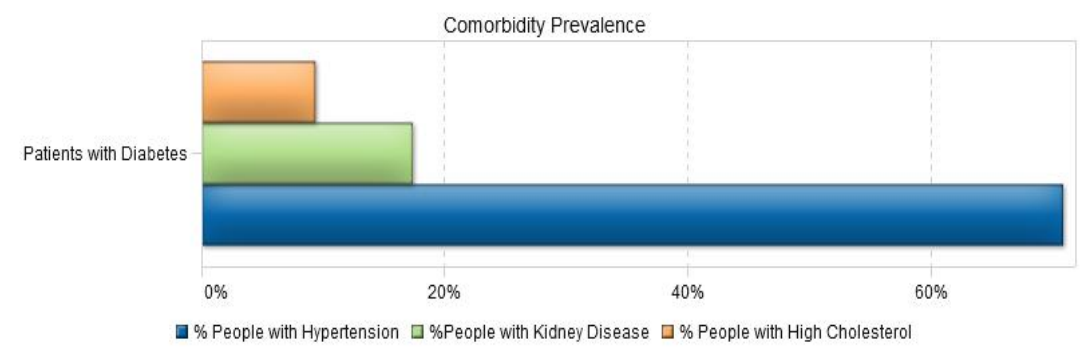- ☑ 55-64
- ☐ 65-75
- ☐ 76+

Ethnicity
- ☐ Hispanic or Latino
- ☑ Not Hispanic or Latino
- ☐ Unknown

Race
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Other Race
- ☐ Unknown
- ☐ White

Counties with Highest Diabetes Prevalence - double click on county to see Health Indicators for that county

% People with Diabetes

- 20.00%
- 19.37%
- 16.14%
- 15.11%
- 2.89%

20%

15%

10%

5%

0%

◁ | Map | Table | Chart | ▷
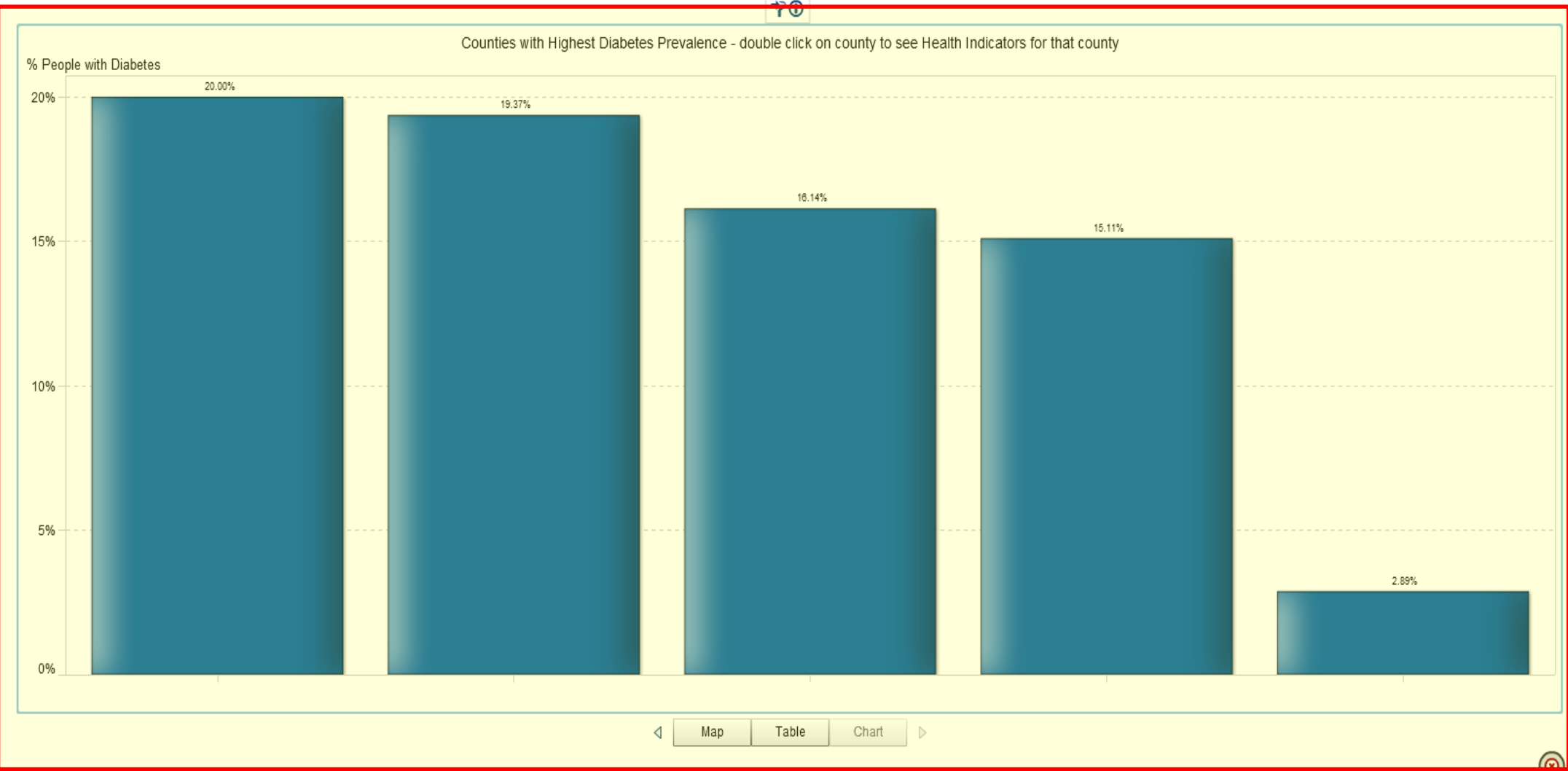
Step 5: Review other prevalent health indicators for this population
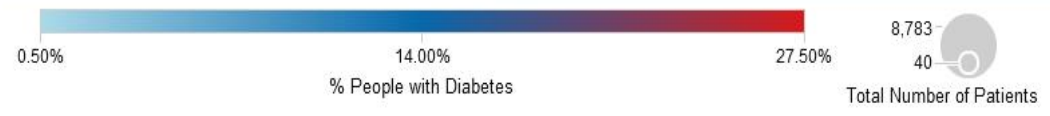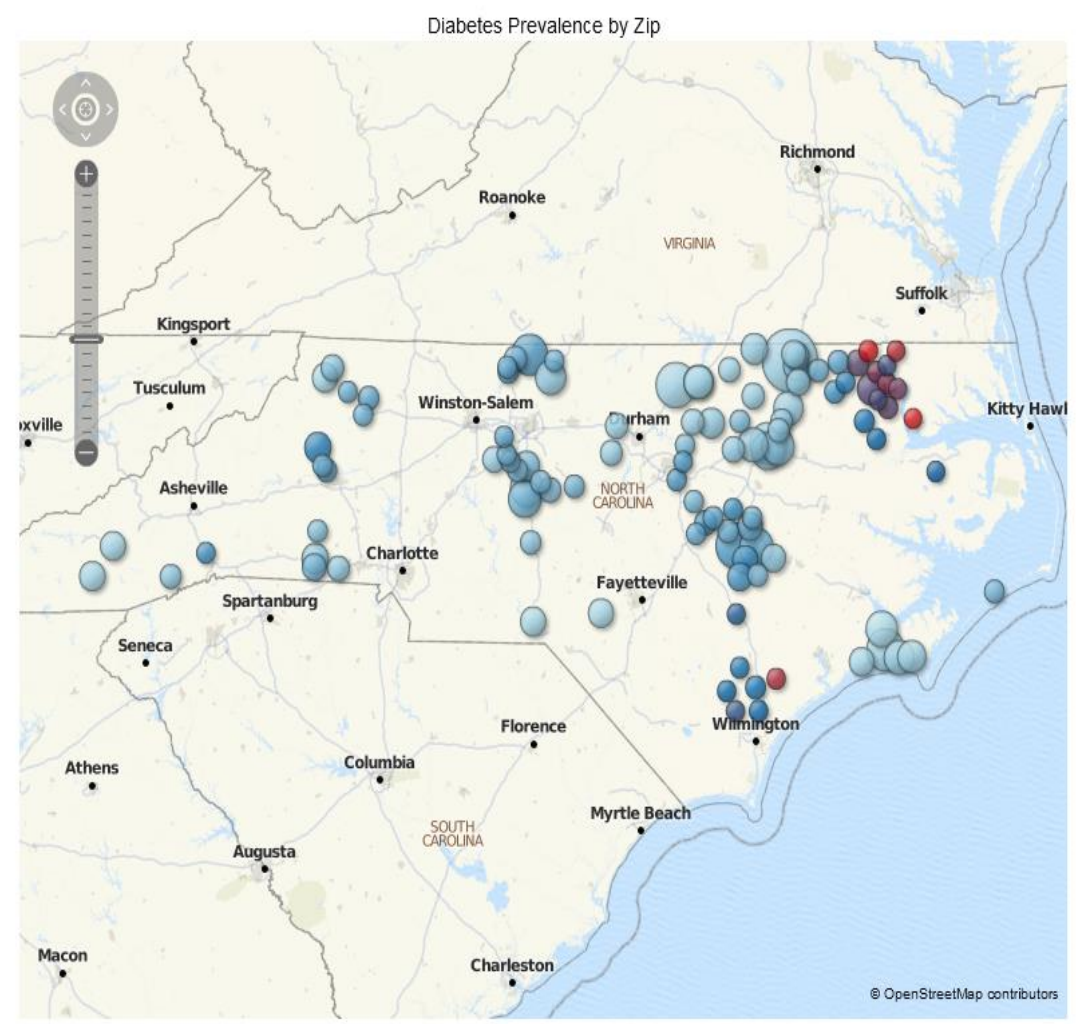
Step 6: Review other prevalent health indicators trends for this population

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Welcome | Diabetes Prevalence by County | Health Indicators | Health Indicator Trends | **Definitions**

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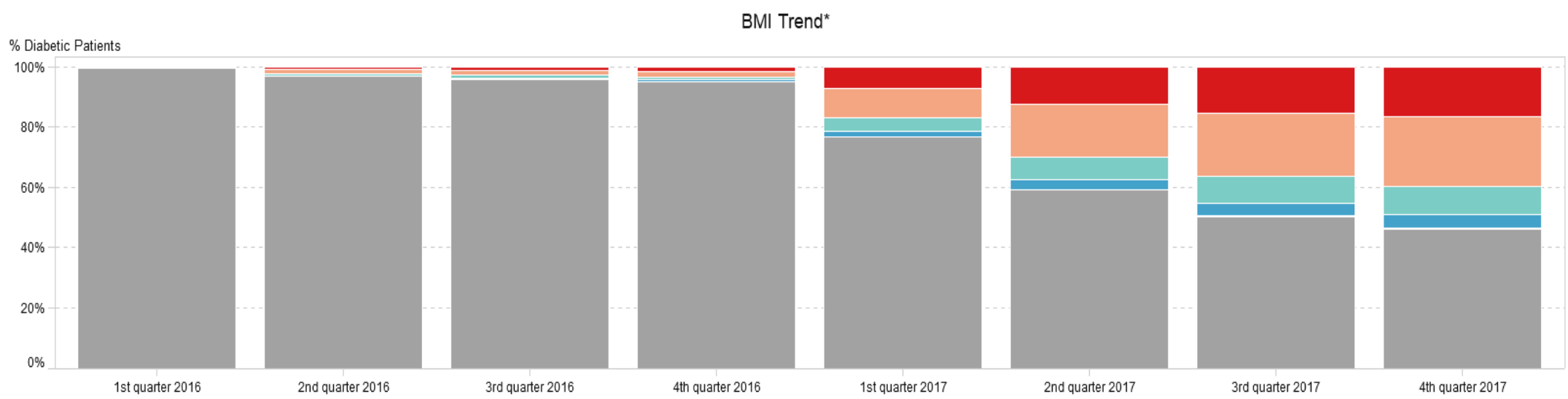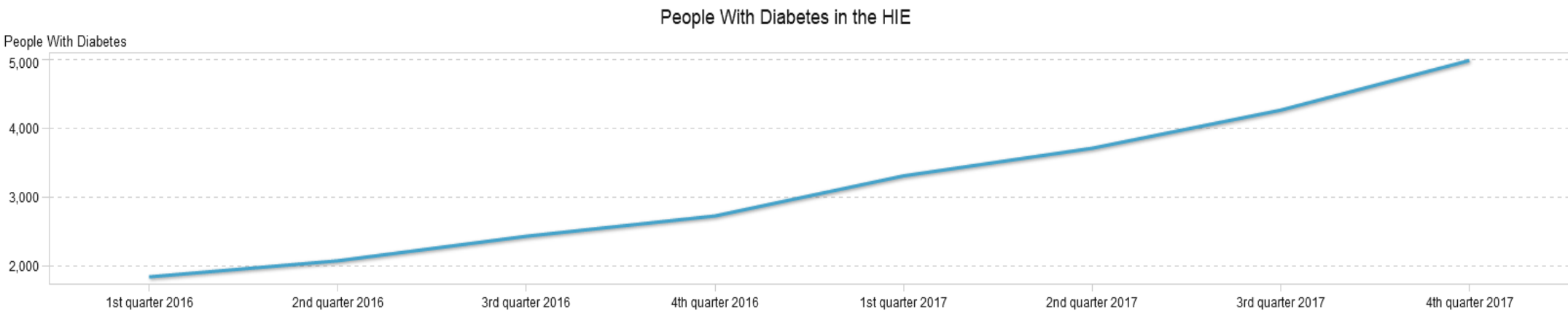
Measures

☐ BMI Measurement	56	
☐ Creatinine Test	5	
☐ Diabetes Diagnosis	392	
☐ Diastolic BP Measurement	1	
☐ HbA1c Test	6	
☐ Height Measurement	6	
☐ Hypercholesterolemia Diagnosis	16	

Definitions

These are the codes that we used to define disease diagnoses, lab results, procedures, and vitals information from the NC Health Connex.

They are derived from the Value Set Authority Center, which is provided by the National Library of Medicine.

https://vsac.nlm.nih.gov/

To create the Diabetes registry, the following logic is used:

For **diagnoses** (diabetes, hypertension, hypercholesterolemia, kidney condition) the patient care records are searched for the earliest diagnosis, as defined by the code definitions shown to the right.

For **lab results** (creatinine, hbA1c, LDL) the patient care records are searched for the latest test results, using the code definitions shown to the right.

For **procedures** (eye exam, foot exam) the patient care records are searched for the most recent procedures, using the code definitions shown to the right.

For **vitals flags** (BMI, height, weight, diastolic blood pressure, systolic blood pressure) the patient care records are searched for the latest vitals measurements, using the code definitions shown to the right.

Excel file of definitions can be downloaded here.

HbA1c:
No recent test (no test in 1 year)

Metric	Display Name	Code Syst...	Code
Hypertension ...	Fear of hypertension (finding)	SNOMEDCT	102932008
Hypertension ...	Benign hypertension (disorder)	SNOMEDCT	10725009
Hypertension ...	Progressive pulmonary hypertension (disorder)	SNOMEDCT	10964002
Kidney Conditi...	Armanni-Ebstein kidney (disorder)	SNOMEDCT	110996009
Kidney Conditi...	Nephrogenic diabetes insipidus (disorder)	SNOMEDCT	111395007
Hypertension ...	Hypertension secondary to renal disease in obstetric context (disorder)	SNOMEDCT	111438007
Kidney Conditi...	Hypertension secondary to renal disease in obstetric context (disorder)	SNOMEDCT	111438007
LDL Test	Low density lipoprotein cholesterol measurement (procedure)	SNOMEDCT	113079009
Kidney Conditi...	Drug-induced nephrogenic diabetes insipidus (disorder)	SNOMEDCT	118951003
Hypertension ...	Benign essential hypertension (disorder)	SNOMEDCT	1201005
Kidney Conditi...	Nephrogenous proteinuria (finding)	SNOMEDCT	12178007
Kidney Conditi...	Subacute glomerulonephritis (disorder)	SNOMEDCT	123609007
Kidney Conditi...	Healed glomerulonephritis (disorder)	SNOMEDCT	123610002
Kidney Conditi...	Immune-complex glomerulonephritis (disorder)	SNOMEDCT	123752003
Hypertension ...	Renovascular hypertension (disorder)	SNOMEDCT	123799005
Kidney Conditi...	Renovascular hypertension (disorder)	SNOMEDCT	123799005
Kidney Conditi...	Goldblatt hypertension (disorder)	SNOMEDCT	123800009
Hypertension ...	Goldblatt hypertension (disorder)	SNOMEDCT	123800009
Kidney Conditi...	Isolated proteinuria (finding)	SNOMEDCT	12491000132...
Kidney Conditi...	Persistent proteinuria (finding)	SNOMEDCT	12511000132...
Kidney Conditi...	Diabetic renal disease (disorder)	SNOMEDCT	127013003
LDL Test	Cholesterol in LDL [Units/volume] in Serum or Plasma by Electrophoresis	LOINC	12773-8
Kidney Conditi...	Chronic kidney disease stage 4 due to hypertension (disorder)	SNOMEDCT	12915100011...
Kidney Conditi...	Chronic kidney disease stage 3 due to hypertension (disorder)	SNOMEDCT	12917100011...
Kidney Conditi...	Chronic kidney disease stage 2 due to hypertension (disorder)	SNOMEDCT	12918100011...
Kidney Conditi...	Sclerosing glomerulonephritis (disorder)	SNOMEDCT	13335004
LDL Test	Cholesterol in LDL [Mass/volume] in Serum or Plasma by calculation	LOINC	13457-7
Hypercholeste...	Hypercholesterolemia (disorder)	SNOMEDCT	13644009
Kidney Conditi...	Hypertension in chronic kidney disease stage 4 due to type 2 diabetes mellitus (...	SNOMEDCT	14011100011...
Kidney Conditi...	Hypertension in chronic kidney disease stage 2 due to type 2 diabetes mellitus (...	SNOMEDCT	14013100011...
Kidney Conditi...	Necrotizing glomerulonephritis (disorder)	SNOMEDCT	1426004
Kidney Conditi...	Acute renal failure due to tubular necrosis (disorder)	SNOMEDCT	14568100011...
Kidney Conditi...	Acute renal failure syndrome (disorder)	SNOMEDCT	14669001

What are some of NC HealthConnex Participants' challenges?

- Knowing where their patients receive care outside of their Organization or EHR

- Limited patient search capabilities in the clinical portal -- Finding events in the HIE requires the Provider explicitly search for a Patient

- Ensuring and supporting successful transitions of care if they are _**not**_ notified of events in a timely manner
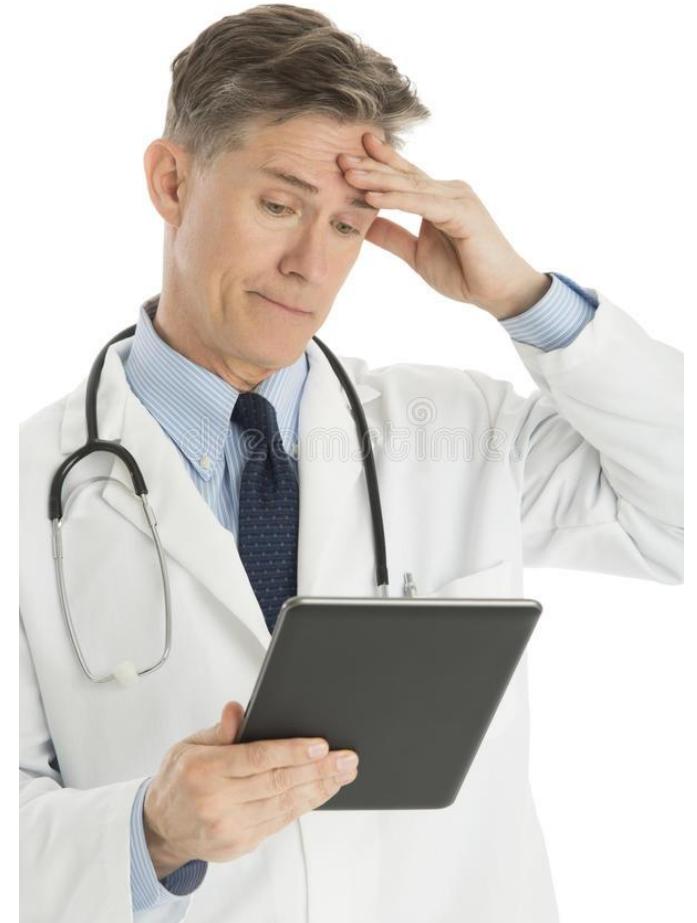
NC Notify
Event Notifications Powered by NC HealthConnex

Step 1

Participant Submits Patient File for NC HealthConnex to Monitor

Technical Details
- Flat file with patient demographics
- Sent via sFTP

Step 2

Other Participants Submit Admission & Discharge Messages (ADT)

Step 3

Participant Receives Notification File

Technical Details
- Flat file with patient demographics and visit details
- Sent via sFTP
- Participant defines delivery schedule

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What is Required to Subscribe?

1. Full NC HealthConnex Participation Agreement, 2017 or 2018 versions

2. Provider's EHR is connected and is sending data to NC HealthConnex (live in production)

3. Completed NC*Notify enrollment form

4. A patient list that the participant would like to track (sent via Secure FTP)

5. Mechanism for receiving alerts (Secure FTP)

Note: NC HealthConnex will roll out this service in phased intervals for the remainder of 2018, however all participants are encouraged to complete the enrollment process and enter the queue.

NC*Notify – How to Enroll

☑ Full participation agreement

❑ Complete NC*Notify enrollment form

❑ Send patient list (sent via Secure FTP)

❑ Mechanism for receiving alerts (Secure FTP)

Benefits - NC*Notify

- Providers are notified when their patients have received care in other care settings

- Schedule follow up appointments with patients

- Follow up on medications prescribed or other discharge instructions

- Insight to provide continuity in care to **reduce avoidable readmissions**

- Insight to **achieve financial goals** under value-based care contracts

- Utilize for compliance with state and federal quality initiatives, including Meaningful Use/Promoting Interoperability

BENEFiTS

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Questions?

Reminder: Please use the Q&A feature in your chat function of the WebEx Feature

For more information visit, www.nchealthconnex.gov

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