



New Jersey Health Information Technology Environmental Scan

Final Report

September 2017

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Executive Summary

The New Jersey Department of Human Services (DHS), Division of Medical Assistance and Health Services (DMAHS), in the process of updating the State Medicaid Health Information Technology Plan (SMHP) conducted a Health Information Technology (HIT) Environmental Scan. The purpose of the HIT Environmental Scan is to provide the State with an understanding of the current healthcare technology landscape which will assist in developing the strategy and future direction of the SMHP.

The SMHP provides State Medicaid Agencies (SMAs) and the Centers for Medicare and Medicaid Services (CMS) with a common understanding of the activities the SMA will be engaged in over the next 5 years relative to implementing Section 4201 Medicaid provisions of the American Recovery and Reinvestment Act (ARRA).

Between 2016 and 2017, New Jersey Innovations Institute (NJII) Healthcare Delivery Systems iLab, a non-profit corporation of the New Jersey Institute of Technology, was tasked with conducting the HIT Environmental Scan in New Jersey based on an agreement with DMAHS and as approved by CMS.

The New Jersey Department of Health (NJDOH) selected NJII as the State Designated Entity (SDE) to establish the New Jersey Health Information Network (NJHIN), which is administered by the NJDOH. The NJHIN is also supported by the State Health IT Coordinator. Toward fulfilling the main goal of statewide exchange, the NJHIN team is working to connect major Health Information Exchange Organizations (HIEs/HIOs), health systems/hospitals, and other healthcare organizations in New Jersey.

As agreed upon with DMAHS, NJII collected and analyzed information on data items listed below.

1. Current New Jersey population
2. Current provider numbers
3. Current state of Health Information Exchanges (HIE/HIO) in New Jersey
 - 3.1 Health Information Exchange future strategy
 - 3.2 The New Jersey Health Information Network
 - 3.3 Current status/State activities to facilitate HIE
 - 3.4 Interoperability with public health registries
 - 3.5 Sustainability strategy
4. Health Information Exchange Adoption
 - 4.1 Eligible Professional (EP) and Eligible Hospital (EH)
5. Electronic Health Record adoption
 - 5.1 Eligible Professional and Eligible Hospital
6. Meaningful Use adoption
 - 6.1 Eligible Professional and Eligible Hospital
7. Broadband internet access
8. Federally Qualified Health Centers (FQHC)
 - 8.1 Number and geographic locations
 - 8.2 Electronic Health Record (EHR) adoption
 - 8.3 Meaningful Use (MU) adoption
 - 8.4 Health Information Exchange Adoption
9. Other Federal and State grants relevant to Health Information Technology

New Jersey Innovation Institute

The New Jersey Innovation Institute (NJII) is a New Jersey Institute of Technology (NJIT) non-profit corporation that applies the intellectual and technological resources of the state's science and technology university to challenges identified by industry partners. Through its Innovation Labs (iLabs), NJII brings NJIT expertise to key economic sectors, including healthcare delivery systems, bio-pharmaceutical production, civil infrastructure, defense and homeland security, and financial services.

The NJII Healthcare Delivery Systems iLab was formerly known as the New Jersey-Health Information Technology Extension Center (NJ-HITEC), the Regional Extension Center (REC) for Meaningful Use (MU) in New Jersey. NJ-HITEC had been established in 2010 as an unincorporated center of program activity at NJIT through a \$23 million grant from the federal Department of Health and Human Services' Office of the National Coordinator for Health Information Technology (ONC) as part of the 2009 American Recovery and Reinvestment Act (ARRA) law.

NJII continues to meet the needs of NJ-HITEC's provider members, consisting of 9,600 primary care providers (PCPs) and specialists, throughout New Jersey by supporting hospitals and providers in the electronic exchange of medical records as they endeavor to continue attestation to Meaningful Use. NJII and NJ-HITEC have more than seven years of experience working with providers and hospitals to navigate through the complexities of health information exchange in New Jersey. Over the past seven years, NJII has helped member providers receive more than \$100 million in incentive payments. The currently ongoing Medicaid Provider Program (MPP) grant was awarded to NJII/NJ-HITEC based on the success of the REC program. As of the end of June 2017, the NJII MPP have assisted in the successful attestation of 594 Medicaid providers and 1,638 MPP provider members have received a Medicaid MU payment as of July 2017.

Committed to improving healthcare through innovative programs and services, NJII Healthcare Delivery Systems iLab's Garden Practice Transformation Network (PTN) program is moving more than 10,000 physicians from fee-for-service to value-based care as part of the Centers for Medicare & Medicaid Services (CMS) Transforming Clinical Practices Initiative. Through the program, NJII will save more than \$135 million in healthcare costs and improve the lives of more than 500,000 patients with chronic illnesses.

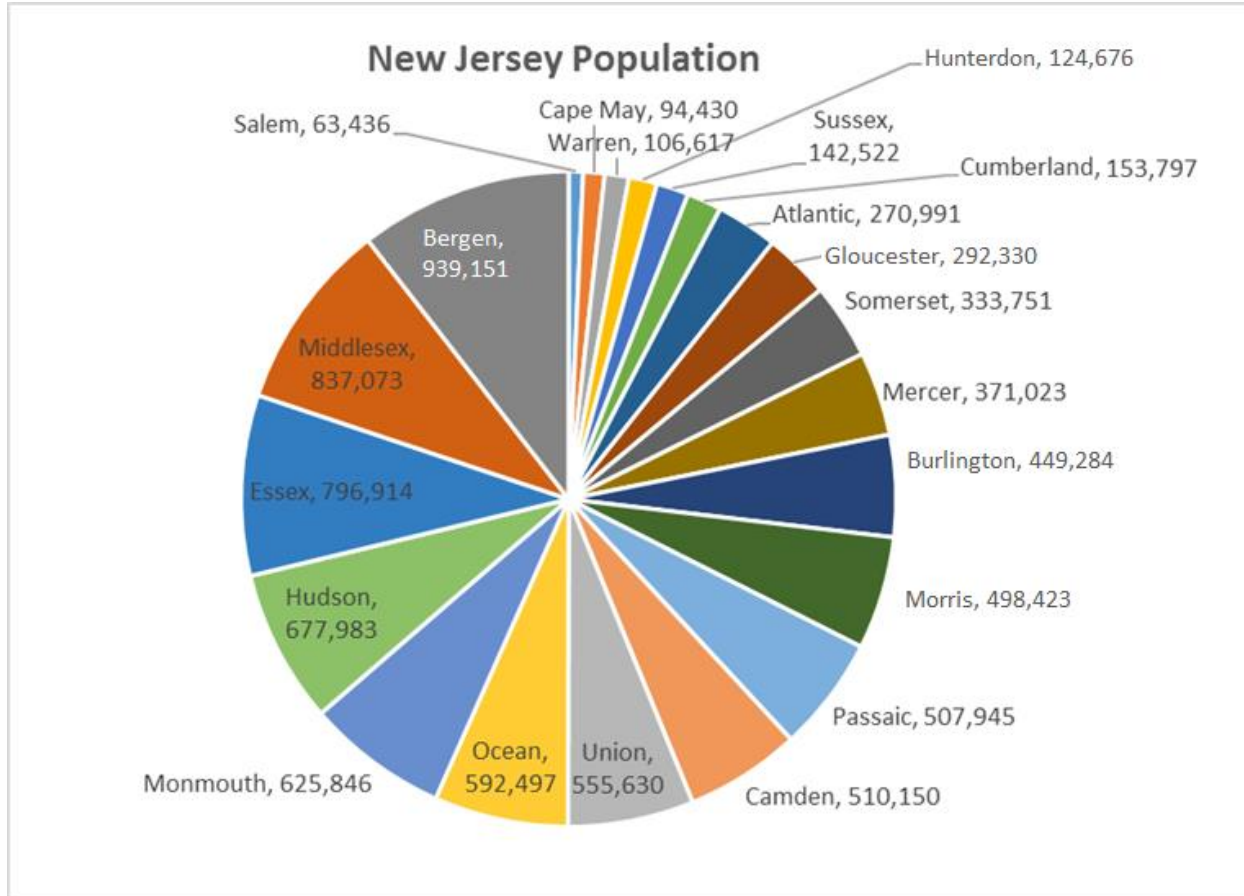
The iLab is also driving the healthcare technological revolution in our State through the New Jersey Health Information Network (NJHIN), a shared services platform developed by the New Jersey Department of Health (NJDOH) and powered by NJII that is enabling statewide data sharing by connecting health information exchange organizations (HIE/HIO), hospitals, and clinicians together through admission, discharge, and transfer (ADT) alerts, immunization data, and a Master Person Index (MPI) that uniquely identifies patients across the healthcare continuum. Additionally, NJHIN's Use Cases are empowering more than 500 providers and over 20 Long Term and Post-Acute Care (LTPAC) facilities to have access to State public health registries and other healthcare stakeholders' data sharing sources to drive improvements in clinical outcomes and population health.

The iLab also partners with physicians to help them report on Federal and State administered quality improvement programs, including the Merit-based Incentive Payment Program (formerly Medicare EHR Incentive Program and Physician Quality Reporting System), the Delivery System Reform Incentive Payment Program, and Accountable Care Organizations. In 2016, NJII's member hospitals received more than \$47.6 million in incentive payments.

New Jersey “As-Is” Health Information Technology Landscape

Population

NJ is ranked number 1 in population density among the 50 States, with a population of 8,944,469 across 21 counties.



Providers

The population is served by a total of 25,930 active physicians. There are 8,569 primary care providers (PCP) providing a ratio of 1 PCP for every 1,104 state residents.

Total Active Physicians:	25,930
Primary Care Physicians:	8,569
Total Residents:	2,875
Total Female Physicians:	9,045
Total Medical or Osteopathic Students:	2,177

With the goal of providing the State of New Jersey with an understanding of the current healthcare technology landscape, the 2017 Health Information Technology (HIT) Environmental Scan was primarily based on the questions contained in the 2014 National Electronic Health Records Survey along with questions based on new

HIT trends such as the adoption and use of Health Information Exchange and other technologies. We also evaluated data contained in our NJII/NJ-HITEC databases and other sources to produce this report.

Since key objectives of the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 included measuring the adoption and meaningful use of electronic health records (EHRs), this report contains a review of New Jersey’s HIT adoption landscape. Among non-federal acute care hospitals in New Jersey, adoption of basic EHR systems has increased from 16% to 75% between 2008 and 2015ⁱ. Moreover, 95% of New Jersey’s Eligible Hospitals (EH) adopted and demonstrated meaningful use of certified health IT (CEHRT) through the Centers Medicare and Medicaid Services (CMS) EHR Incentive Programsⁱⁱ.

Although the State have seen an increase in EHR adoption rates since the advent of the EHR Incentive Programs, the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics (NCHS) National Electronic Health Records Survey in 2015 revealed that New Jersey’s office-based physician adoption of either “Any” (electronic medical record excluding billing record systems), “Basic” (a system with the following capabilities: patient demographics, clinician notes, patient problem lists, patient medication lists, prescription orders, viewing imaging results, and viewing laboratory results), or “Certified” (any EHR that met Meaningful Use criteria) is still somewhat lower than national adoption ratesⁱⁱⁱ.

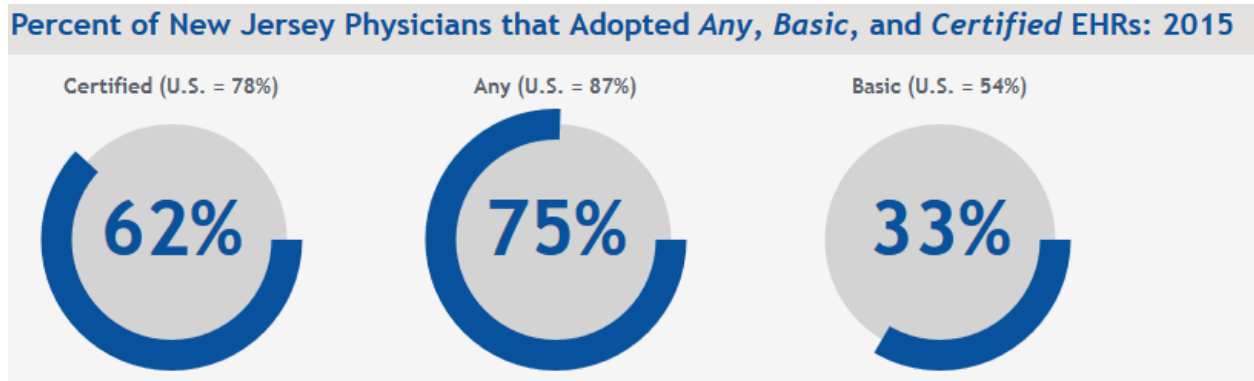


Figure 1. Percent of NJ Physicians that Adopted Any, Basic, and Certified EHRs based on the 2015 CDC/NCHS National Electronic Health Records Survey.

Further comparisons between the adoption of certified EHRs by primary care and specialist physicians (“a primary care physician specializes in one of the following areas: adolescent medicine, pediatrics, family practice, general practice, geriatrics, internal medicine, obstetrics, or gynecology. A specialist is a non-primary care medical or surgical physician specialist”^{iv}) revealed the following:

Percent of New Jersey Physicians that Adopted Certified EHRs by Physician Specialty: 2015

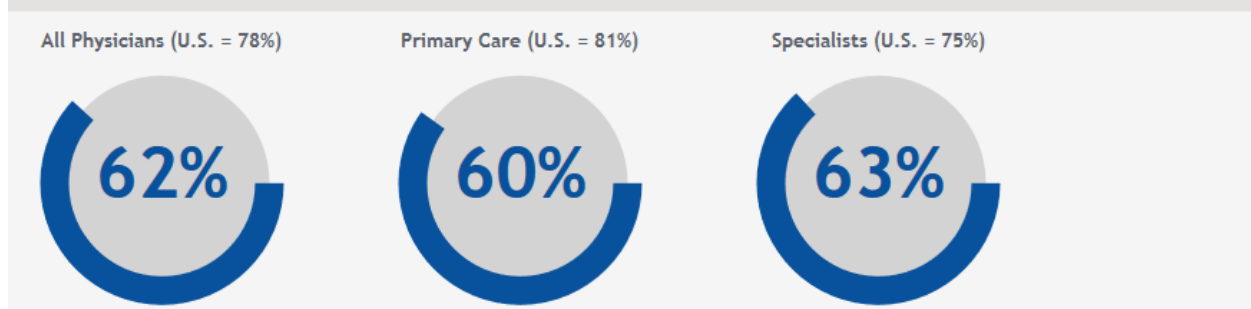


Figure 2. Percent of NJ Physicians that Adopted Certified EHRs by Physician Specialty based on the 2015 CDC/NCHS National Electronic Health Records Survey.

Hospitals

New Jersey currently has 75 Hospitals comprising of 20,589 Staffed beds. New Jersey hospitals reflect similar levels to the national averages on adoption of a Certified Electronic Health Record.

Percent of New Jersey Hospitals that Adopted Certified EHRs: 2015

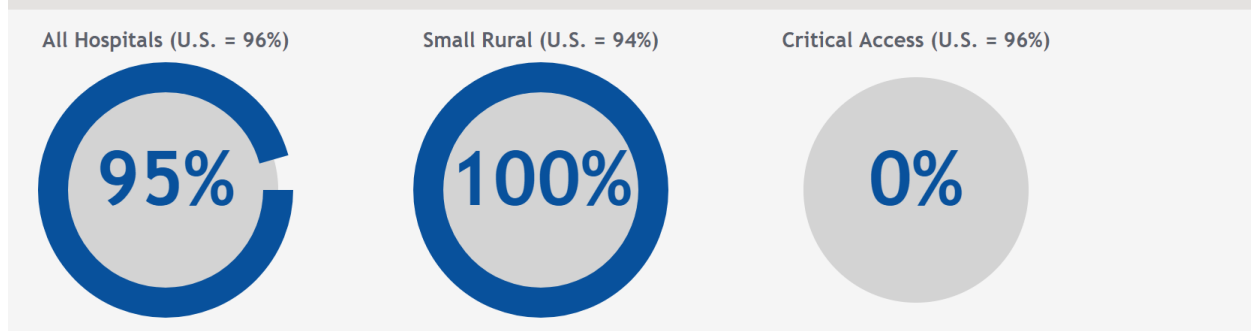


Figure 3. Percent of NJ Physicians that Adopted Certified EHRs by Physician Specialty based on the 2015 CDC/NCHS National Electronic Health Records Survey.

Sharing of data from outside health providers demonstrates above average against the national landscape however there is also still room to improve. Additionally, the data does not show if the data is consumed, integrated in clinical workflows, or used in patient care.

Percent of New Jersey Hospitals that Electronically Send, Receive, Find or Use (Integrate) Patient Health Information from Outside Health Care Providers: 2015

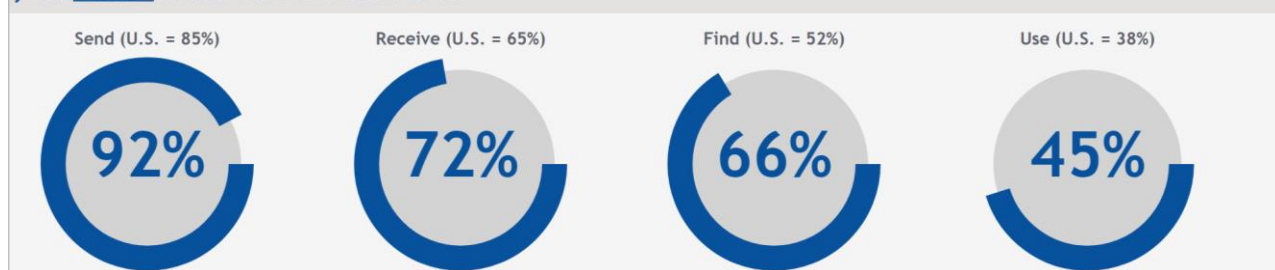


Figure 4. Percent of NJ Hospitals the electronically share Data based on the 2015 CDC/NCHS National Electronic Health Records Survey.

Health Information Technology and Electronic Health Records Adoption Survey

Methodology: Survey Design, Data Collection, and Analysis

In collaboration with Rutgers University’s Eagleton Center for Public Interest Polling, the research application to conduct this Environmental Scan survey was submitted to the Rutgers University Institutional Review Board (IRB) in January 2017 and approved in February 2017. The 2017 New Jersey Health Information Technology Survey was fielded between March 15, 2017 and May 31, 2017 and during which responses were collected. The survey was sent to all physicians (Medical Doctors and Doctors of Osteopathic Medicine), dentists (Doctors of Dental Surgery and Doctor of Medicine in Dentistry), optometrists, and advance practice nurses (Nurse Practitioners) licensed to practice in the State of New Jersey who had contact addresses on their license listed in the State of New Jersey.

Collectively, these four groups are termed “providers.” Contact information for providers was obtained from proprietary and State databases. Providers with email addresses were emailed the survey. Those without email addresses were sent notices through fax numbers or via postcard, if a fax number was not available. Each provider was given a unique code with which to access the survey, in order to prevent duplicate responses.

Though all correspondence was addressed to the provider, either the provider or a member of their office staff (such as an office manager) was eligible to complete the survey. For analytical purposes, unless otherwise specified, we placed respondents identifying as office staff completing the survey on behalf of the provider in the same category as their respective provider. Provider specialties, when available, were recorded for physicians and nurse practitioners responding to at least one question on the survey.

Across all four provider groups, a total of 22,917 received the survey via email, 1,767 by fax, and 3,197 via postcard, for a total of 27,881 unique contacted providers. All respondents contacted via email were contacted regarding participation 3-5 times between March 15, 2017 and April 27, 2017. Faxes with an invitation to take the survey were sent on April 5, 2017, and postcards were sent on April 10, 2017. An additional batch of postcards was sent on May 25, 2017 to both postcard and fax recipients who had not yet responded. During our outreach efforts, the majority of the contacts had email addresses; those individuals were contacted by email only. We ensured that no provider was listed twice on any list for method of contact, which means that a unique amount of providers were contacted by email, fax, and postcard and that they each received a unique survey link.

Environmental Scan Survey Outreach Numbers for New Jersey Providers				
Provider Type	Email	Fax	Postcard	Total per Type
Physicians	15687	1644	350	17681
Dentists	1214	123	362	1699
Optometrists	821	0	622	1443
Nurse Practitioners	5195	0	1863	7058
Total per Outreach	22917	1767	3197	27881

The survey, largely adapted from the long form of the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics (NCHS)'s 2014 National Electronic Health Records Survey (affiliated with the National Ambulatory Medical Care Survey), contained questions on the following topics:

- Use of Electronic Health Records (EHR) and Health Information Technology (HIT)
- Adoption of Health Information Exchanges (HIE)
- Adoption of Meaningful Use (MU) criteria
- Insurance coverage
- Access to high speed internet
- Features of EHR
- Perceived benefits of EHR and HIT
- Barriers to EHR and HIT adoption

Results are reported as all responses with only valid responses (i.e. without missing values); thus, the number of total responses on each question may differ from the next. All data reported are unweighted frequencies. Descriptive statistics are used to describe the data. Percentages may not add up to 100 percent due to rounding, or because respondents were allowed to select multiple response options.

Respondents replied to survey questions in the context of their “reporting location” – the setting in which they saw the most patients or clients in a normal week. A “normal week” was defined as a week with a normal caseload, with no holidays, vacations, or conferences.

NJ Environmental Scan Survey Respondent Population Demographics

A total of 1,384 respondents began the NJ Health Information Technology Survey during the 2017 response collection period. Of these, 957 answered the question regarding the presence of an electronic health record (EHR) system in their practice, and 546 completed the entire survey. The overall response rate for the survey of completed cases was 2.4 percent for completed cases.

In an effort to amass greater statistical confidence in results, studies of elite populations frequently incentivize respondents in order to boost response rates.^v Our study faced a challenge with the response rate due to the inability to incentivize participation. While methods to mitigate the bias introduced by survey nonresponse in probability surveys are well established, these methods can be applied only to surveys in which a sample of respondents are chosen at random from a population. In these methods, information about the population is available, and statistics are reported with confidence intervals as a way of identifying the degree of uncertainty (potential bias) of the results.

In our survey, however, we conducted census of all physicians, dentists, optometrists, and nurse practitioners in the state of New Jersey, in which all participants of the population were invited to participate. Unlike those for probability surveys, methods for correcting and reporting bias in nonprobability surveys are still up for debate. We used the method for estimating the maximum absolute value of the bias in web surveys developed by Bethlehem (2010)^{vi} [Equation 14] to account for self-selection into participating in the survey. We calculated that the maximum absolute bias in the survey as 5.69, which suggests that the results should be interpreted with caution.

Of the total 1326 providers responding to the question regarding provider type, 48 percent were physicians (or office staffers replying on behalf of physicians), 10 percent were dentists, 8 percent were optometrists, and 34 percent were nurse practitioners.

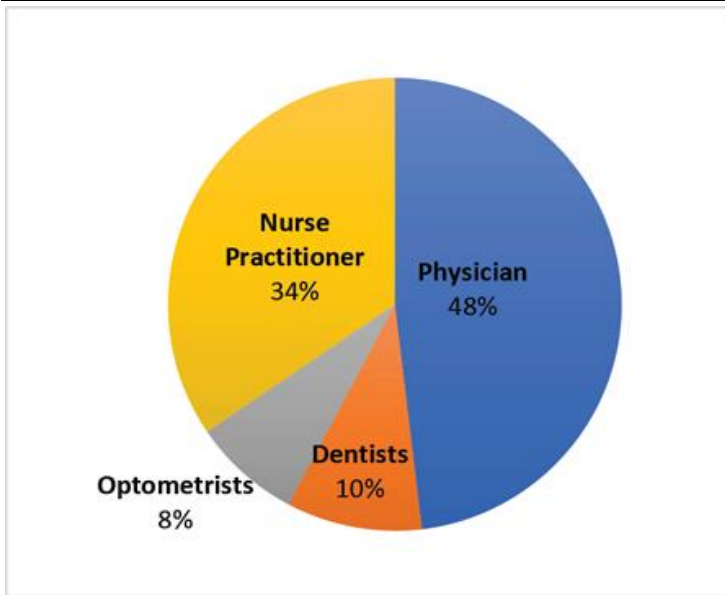


Figure 5. 2017 NJ Health Information Technology Survey Respondents by Provider Type.

Responding physicians and nurse practitioners represented an array of medical specialties in the 2017 NJ Health Information Technology Survey. The specialties with the largest representation in the survey were Internal Medicine (16 percent), Family Medicine (16 percent), and Pediatrics (13 percent).

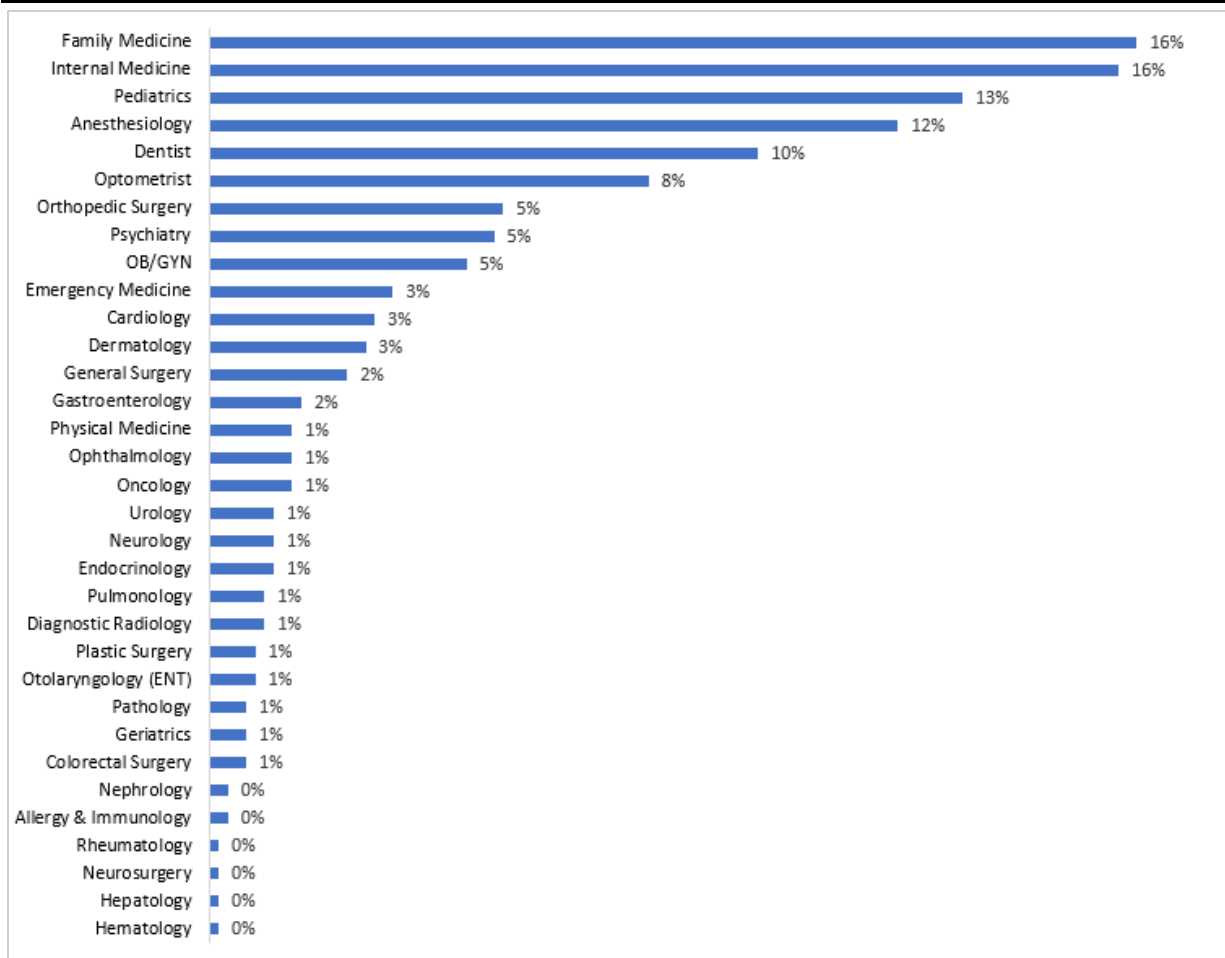


Figure 6. NJ 2017 Health Information Technology Survey Specialty breakdown, with available specialty data from physicians and nurse practitioners.

The majority of responding providers reported working in or being currently affiliated with a hospital (55 percent), Seven percent were affiliated with a long-term care facility, and only 4 percent reported having an affiliation with a Community Health Center (e.g. a Federally Qualified Health Center (FQHC), federally-funded clinics, or “look-alike” clinics.) Two (2) percent were affiliated with home health agencies and community mental health centers, respectively, and 1 percent worked or were affiliated with public health departments or a substance use disorder treatment center. Thirty-eight percent reported not working in any of the aforementioned facilities.

The majority of providers reported seeing patients in a group or solo practice setting: Of the 47 total responding office staff members, nearly all (98 percent) reported that the provider for which they worked was in group or solo practice. Sixty-six percent of providers reported the same. Thirty-five percent of providers reported seeing patients in hospital inpatient settings and 22 percent in hospital emergency departments or hospital outpatient settings. Other providers saw patients in freestanding clinics/urgent care centers (8 percent) or in a faculty practice setting (7 percent). Four (4) percent saw patients in a community health center, and 3 percent in a clinic not affiliated with the federal government. The majority of providers (66 percent) saw patients or clients at only one office location in a normal week, with the median number of locations being reported as 1 [interquartile range: 1].

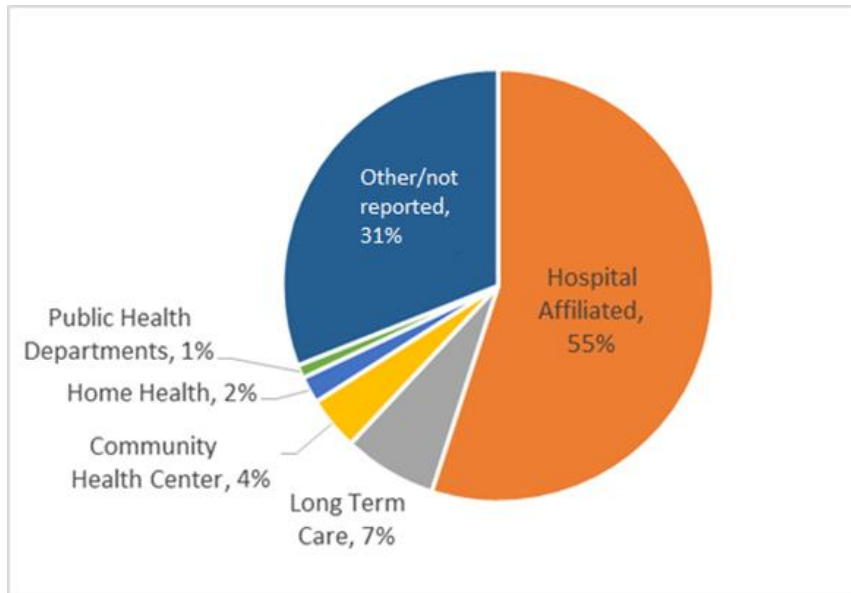


Figure 7. Provider Affiliations with Healthcare Institutions in the NJ 2017 Health Information Technology Survey.

Providers (including their office staff) reported seeing patients in various settings during a normal week (defined as a week with a normal caseload, with no holidays, vacations, or conferences). The majority were in private practice (in a solo or group setting, 51 percent), followed by hospital inpatient settings (18 percent), hospital emergency departments or hospital outpatient departments (14 percent), faculty practices (7 percent), and freestanding clinic or urgent care centers (6 percent). Only 2 percent of providers had a reporting location of a community health center (e.g. a Federally Qualified Health Center (FQHC), federally-funded clinics, or “look-alike” clinics), and 1 percent were mental health centers, non-federal government clinics (e.g., state, county, city, maternal and child health, etc.), or health maintenance organizations, or other prepaid practice (e.g. Horizon HealthCare Plan of New Jersey). These locations are referred to as the “reporting location” for the respondent.

Accordingly, 54 percent of providers stated that their reporting location (the setting in which they saw the most patients per week) was owned by a physician or provider group, 81 percent of which were single group practices; another 12 percent indicated a reporting location of an academic medical center. A median number of the providers employed in the reporting location was 3 [IQR: 6]. All providers except nurse practitioners and their staff estimated the median number of mid-level providers (i.e. nurse practitioners, physician assistants, and nurse midwives) at their reporting location as 1 [IQR: 6].

Insurance Profile

Respondents accepted a variety of insurance plans, which varied by provider type. Nearly all (97 percent) of providers reported accepting new patients at the time of the survey, and most reported accepting non-capitated private insurance (90 percent) and self-payment (94 percent) for services. Across all provider types, 82 percent accepted Medicare and 63 percent Medicaid as payment for services. Sixty-two (62) percent accepted insurance capitated payment, and 55 percent accepted workers’ compensation. Within provider types, 86 percent of physicians reported accepting Medicare, as did 23 percent of dentists, 90 percent of optometrists, and 87 percent of nurse practitioners. However, providers were less likely to accept Medicaid/CHIP (including Medicaid Managed Care): 64 percent of physicians reported accepting Medicaid, as did 38 percent of dentists, 43 percent of optometrists, and 78 percent of nurse practitioners.

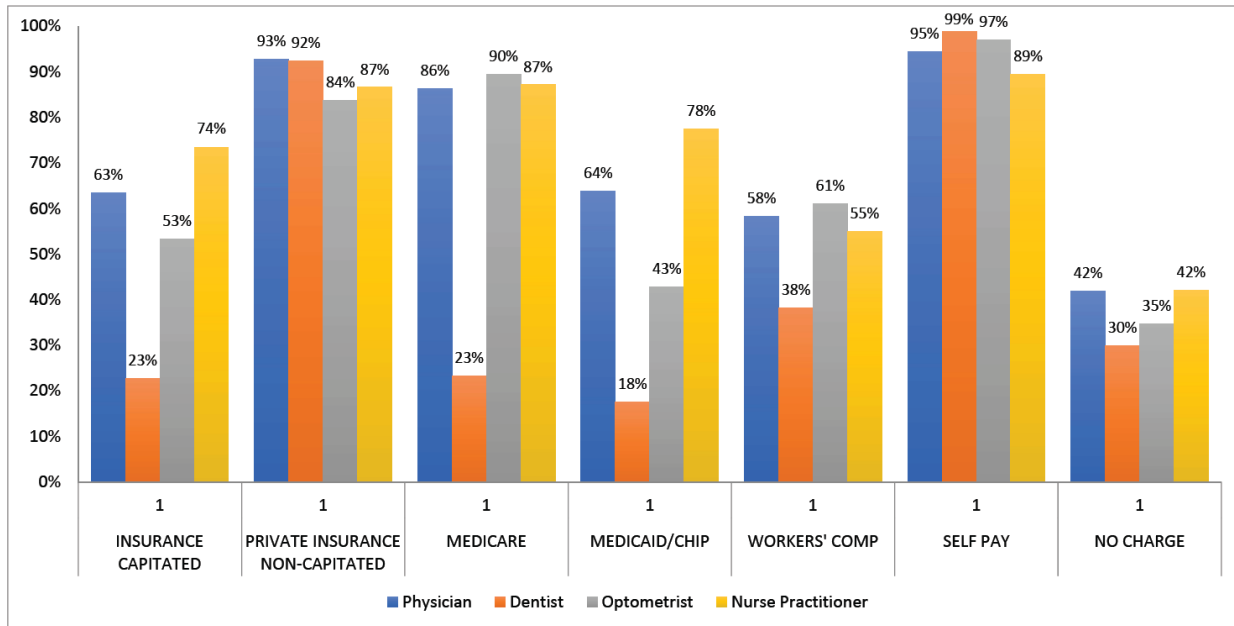


Figure 8: Insurance Acceptance by Provider Type in the NJ 2017 Health Information Technology Survey.

There was heterogeneity among specialties in terms of insurance acceptance. All responding physicians or nurse practitioners working in Hematology, Hepatology, Nephrology, and Neurosurgery reported accepting Medicaid/CHIP in their reporting location. More than three quarters of physicians and nurse practitioners in Anesthesiology did the same (88 percent), as did Oncology (86 percent), Emergency Medicine (82 percent), Pediatrics (80 percent), Cardiology (79 percent), and Family Medicine (78 percent) reported accepting Medicaid/CHIP.

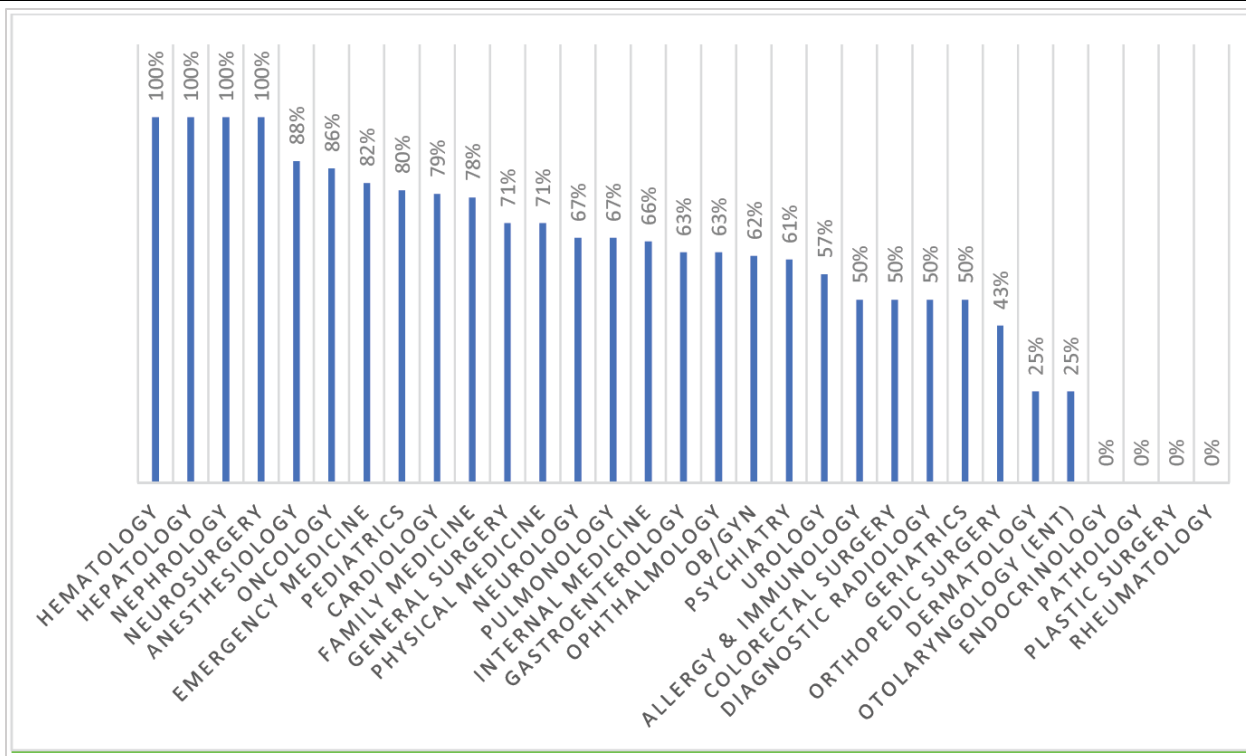


Figure 9. Specialists accepting Medicaid/CHIP in the NJ 2017 Health Information Technology Survey.

When thinking of their current patient populations, the median physician estimate was that 20 percent of their patient or client population was insured by Medicaid (IQR: 30). The median estimate for dentists was 40 percent (IQR: 50), optometrists was 32.5 percent (IQR: 50), and nurse practitioners was 35 percent (IQR: 50). The specialties with the highest estimated median percentages of their patient or client population insured by Medicaid were hepatology (50 percent), psychiatry (29 percent), and pediatrics (26 percent).

Use of Electronic Health Records

A majority of all providers reported using electronic systems for both billing purposes and for maintaining all health records in their practices. Almost nine in 10 (88 percent) providers currently submit claims electronically, and the majority of reporting locations across the State of New Jersey (62 percent) use only electronic health records (EHR) rather than paper ones. Another 22 percent of providers reported that only some of their health records are electronic, and the rest are on paper. Only 2 percent of providers reported that the reporting location previously used an EHR but did not currently. Finally, 15 percent reported that the reporting location had never used an EHR. With the exception of dentists, a majority of physicians (67 percent), optometrists (53 percent), and nurse practitioners (65 percent) reported that all of their health records were electronic. Only 30 percent of dentists reported the same. Thirty one percent of dentists, 25 percent of nurse practitioners, 19 percent of optometrists, and 19 percent of physicians’ reporting locations had some electronic health records and some on paper. In terms of not using an EHR, 38 percent of dentists, 21 percent of optometrists, 13 percent of physicians, and 9 percent of nurse practitioners reported that their reporting location had never used an EHR system. A miniscule proportion of providers reported that their reporting location previously used an EHR but no longer did: 7 percent of optometrists, and 1 percent each of physicians, dentists, and nurse practitioners.

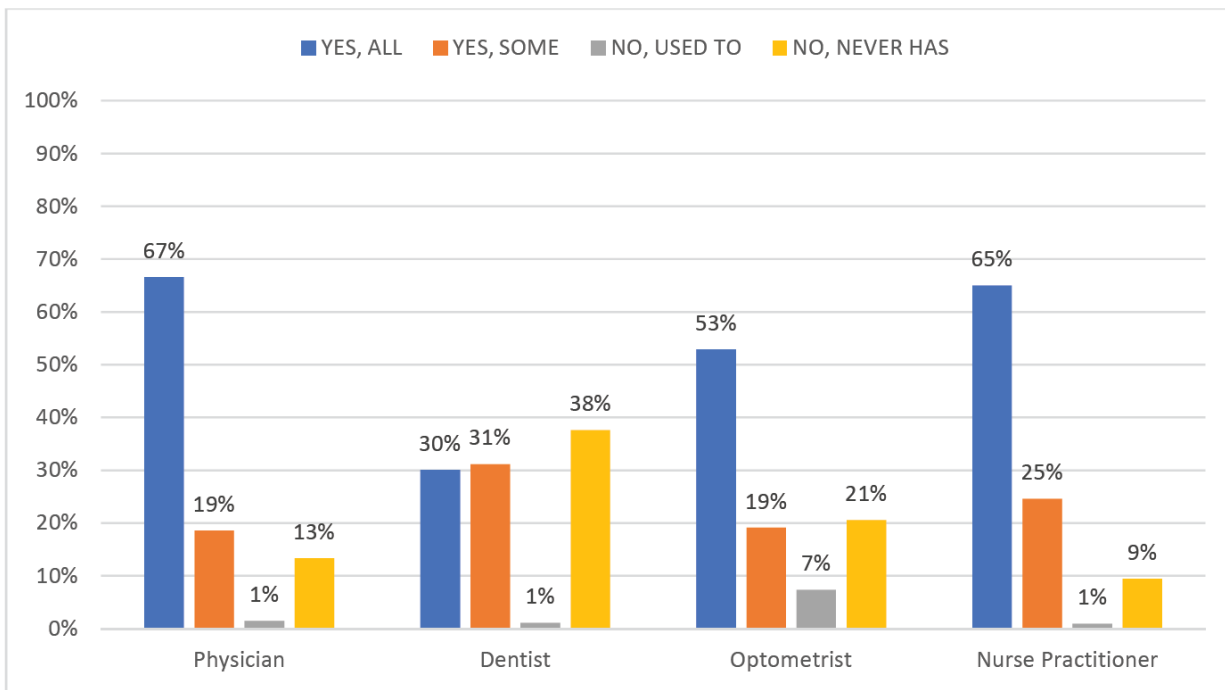


Figure 10. EHR Use by Provider in the NJ 2017 Health Information Technology Survey.

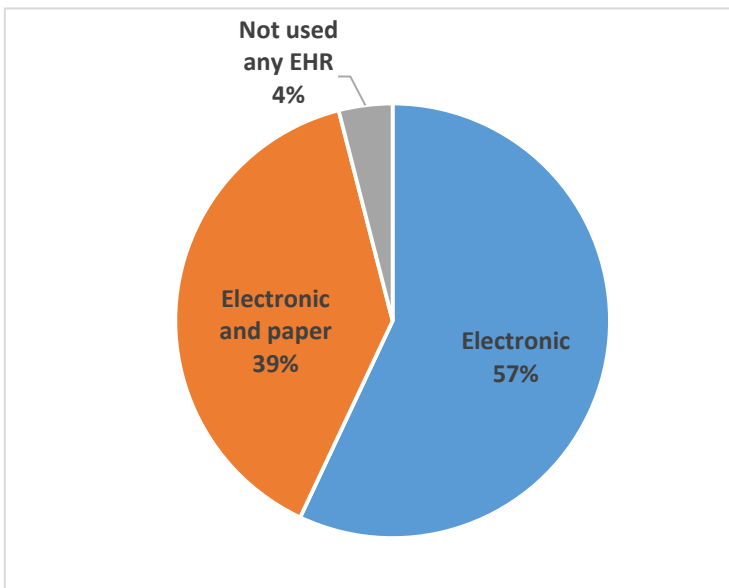


Figure 11. Hospital-based Providers' EHR Use of Electronic, Mixed (Electronic and Paper), or None in the NJ 2017 Health Information Technology Survey.

Most providers whose reporting location is a hospital (either in inpatient or outpatient settings) used at least some sort of EHR technology. Fifty-seven percent reported that all of their health records were electronic; 39 percent reported that the type of health records are mixed: some electronic, and some on paper. Finally, four percent of providers in hospitals declared that their reporting location had never used an EHR.

Among providers using EHR, most had been using them for three or more years. Most providers (78 percent) reported having used any EHR system for more than three years, while 10 percent said that they have used an EHR for 2-3 years, 7 percent for 1-2 years, and 5 percent for under one year.

Providers across New Jersey reported currently using many different EHR systems. The most often used systems were Epic (13 percent) and Cerner (9 percent). Allscripts, NextGen, and Athenahealth were each reported to be used 5 percent of the time, respectively. Nearly half of all providers (49 percent) installed their current EHR system in the past five years (since 2012), and an additional 25 percent had their current EHR system installed in the past ten years. Most providers reported continuity in their EHR usage over time: over the past ten years, 61 percent of providers reported having used only one EHR system, 28 percent having used two, and 10 percent having used three to five different systems.

Approximately one third (30 percent) of providers reported that the reporting location had to decide between buying necessary medical equipment and their EHR system.

Satisfaction with and Capabilities of EHR System

Providers were mostly satisfied with their current EHR system. Twenty-eight percent reported being “very satisfied” with their EHR, and another 48 percent reported being “somewhat satisfied.” Another 15 percent reported being “somewhat dissatisfied,” and 9 percent “very dissatisfied.” A majority of those in a solo or group practice (61 percent) said that they would buy their current EHR again.

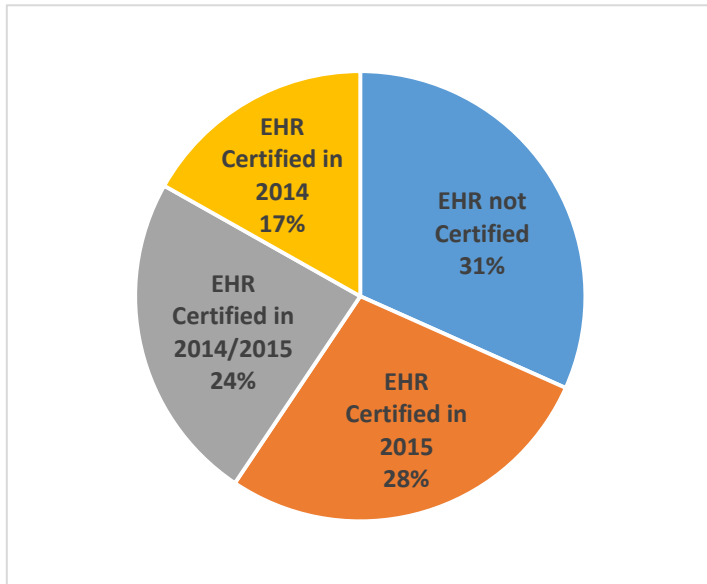


Figure 12. Provider Satisfaction with their Electronic Health Record systems in the NJ 2017 Health Information Technology Survey.

Only one quarter of providers (25 percent) reported that they “strongly agreed” that their EHR system(s) currently in use at the reporting location met their clinical needs, while 48 percent responded “somewhat agree.” Fifteen percent and 11 percent, respectively, said that they “somewhat disagree” and “somewhat agree” with the statement.

In terms of EHR capabilities, 45 percent of providers reported that their EHR had the capability to electronically send health information to another provider whose EHR system is not the same as theirs.

Among all providers, 32 percent reported that their current EHR was not certified according to the criteria set forth by the Office of the National Coordinator for Health Information Technology

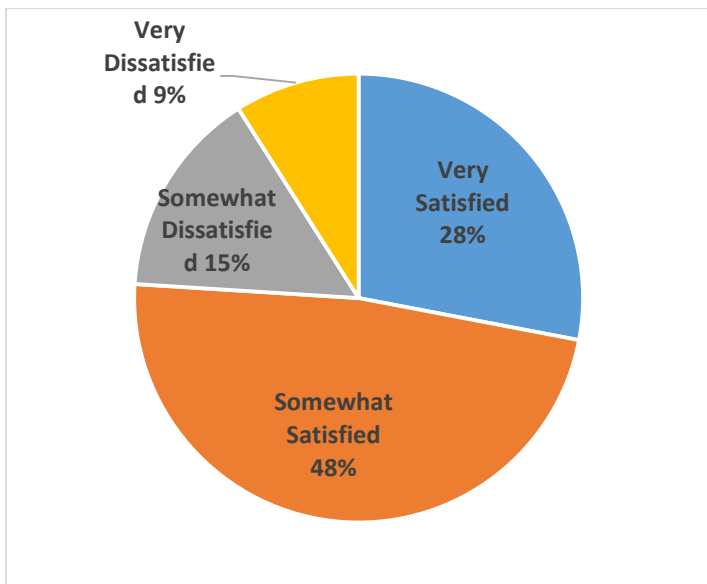
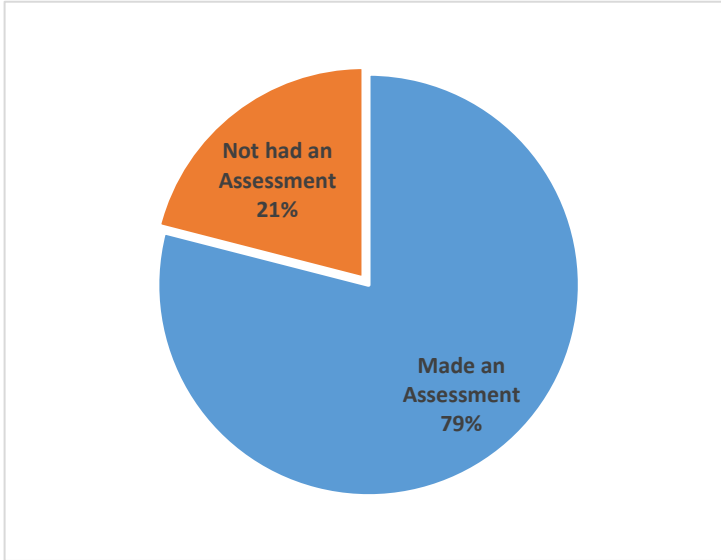


Figure 13. ONC Certification Rates for Providers’ EHRs according to the NJ 2017 Health Information Technology Survey.

(ONC). Another 28 percent reported that their EHR was certified in the 2015 Edition, 24 percent in the 2014/2015 Edition, and 17 percent in the 2014 Edition.

In terms of future plans with an EHR, only 16 percent of providers conveyed that there were plans to install a new EHR system in the next 18 months at the reporting location; another 16 percent said that it was a possibility. These future plans are not dependent on whether the responding sample of providers have or do not already have an EHR system.

Privacy and Security Risk Assessment



The vast majority of providers (79 percent) reported that their reporting location had made an assessment of the risks and vulnerabilities of their practice’s electronic health information in the past year, and 21 percent reported they had not.

Figure 14. Risk Assessments Completion Rate according to the NJ 2017 Health Information Technology Survey.

Barriers to Using an EHR

Providers reported an array of reasons for not using an EHR. While the majority said that they did not know precisely why they did not use an EHR, 43 percent said that they did not use one because of the additional costs necessary to accomplish reporting. Other reasons included the fact that the systems would be too time consuming for employees (37 percent), the cost of connecting with outside systems (29 percent), technical difficulties with connecting with outside systems (27 percent), data privacy concerns of the reporting location (26 percent), EHR vendors not understanding the provider’s needs (25 percent), lack of incentive funding (22 percent), the EHR would be too technical for employees (22 percent), the lack of established national standards (20 percent), data privacy concerns on the part of the patients (20 percent), inability to train staff (13 percent), other providers are not using EHRs (11 percent), and a fear of litigation arising from the use of the EHR (9 percent).

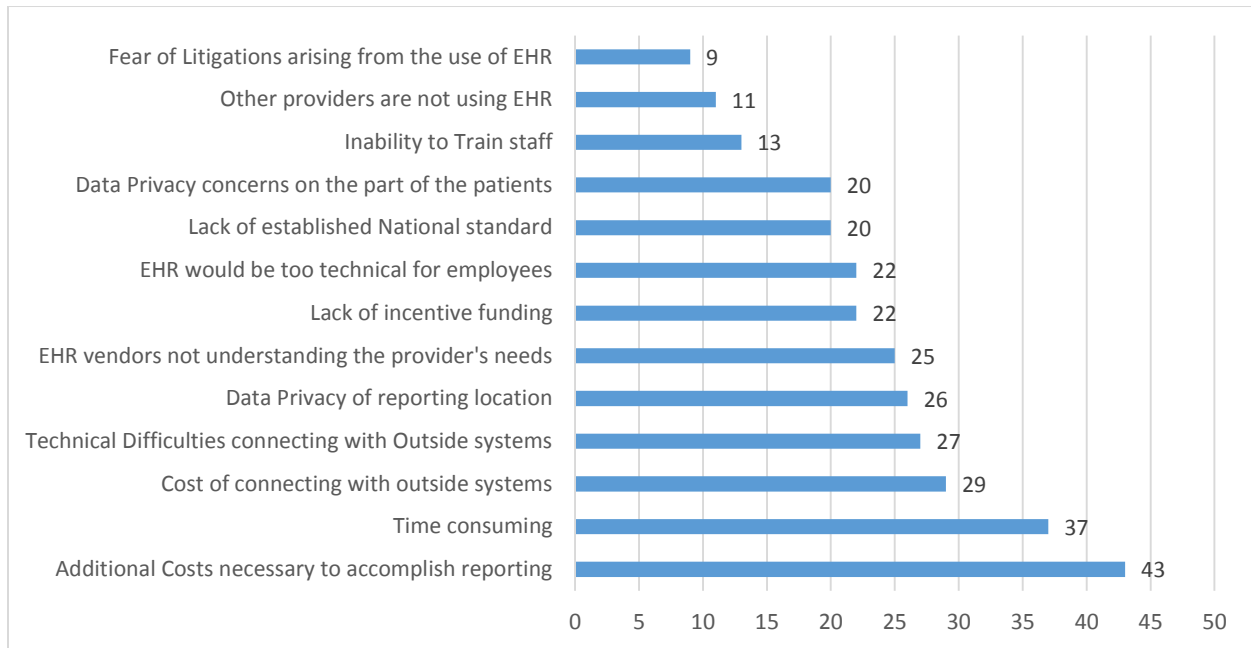


Figure 15. Percentages of Barriers Providers Reported For Not Using an EHR in the NJ 2017 Health Information Technology Survey.

For those that selected more than one reason for not having an EHR, the most often chosen reason (39 percent) was the cost of the system as the main concern. Another 11 percent said that electronically exchanging health information is too time consuming for employees, and 10 percent said that EHR vendors do not understand the clinical needs and workflow of the reporting location.

Prevalence of Other Health Information Technologies

EHR is not the only technology used in providers’ practices: 22 percent reported using medical scribe technology, and 28 percent reported the use of medical speech recognition technology. Almost all (92 percent) reported that their reporting location had access to affordable high-speed internet. Other technologies reported in respondents’ practices included e-prescribing, electronic scheduling, digital imaging, and patient portals, among other technologies.

Results from this Environmental Scan may support the work that the New Jersey Health Care Quality Institute (NJHCQI) and The Nicholson Foundation are working on as part of their "Medicaid 2.0: Blueprint for the Future."^{vii} These institutions’ March 2017 release suggests that the "State should foster the expansion of the use

of telehealth and establish demonstration programs in Medicaid to evaluate the use of telehealth to improve access to specialty care, especially physician to physician eConsults and Project ECHO." One clinician in the survey responded, "Telehealth is used extensively for everything from genetic testing to pre-op clearance and home monitoring."

Health Information Exchange

Out of all providers (419 responses), only 18 percent reported participating in a Health Information Exchange (HIE) platform. This included 21 percent of physicians, 3 percent of dentists, 16 percent of optometrists, and 10 percent of nurse practitioners.

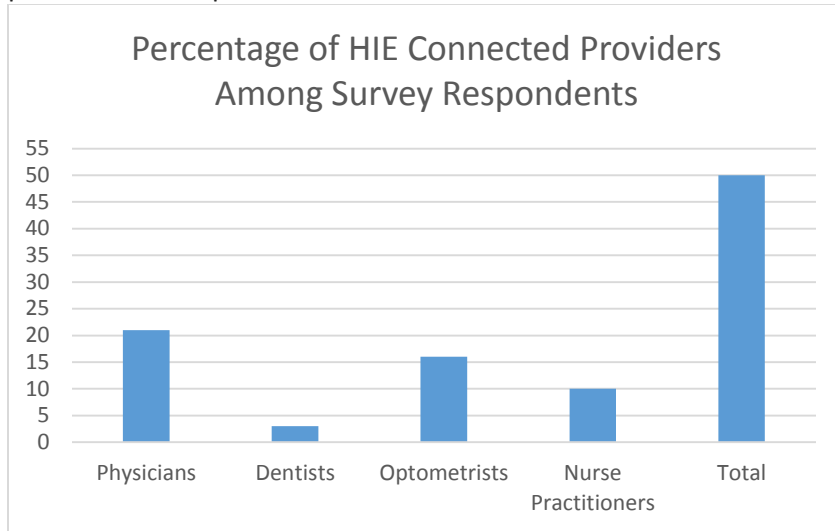


Figure 16. Percentage of HIE Connected Providers among Survey Respondents.

Of those respondents who had an HIE, 16 percent reported that they were “very satisfied” with how it met their practice’s clinical needs. Another 48 percent were “somewhat satisfied,” 24 percent were “somewhat dissatisfied,” and 12 percent were “strongly dissatisfied.”



Figure 17. HIE Satisfaction Rates Among Survey Respondents.

New Jersey Health Information Technology Environmental Scan

Forty-eight percent of respondents reported that the HIE's patient portal was useful in meeting their practice's needs; 34 percent and 27 percent said the same regarding hospital integration services and physician integrated services, respectively. Twenty-four percent found the HIEs' direct secure messaging tool to be useful. Twenty-one percent of respondents said that the central repository and portal query/clinical review were useful in meeting their practice's clinical needs. Others found that the reporting and statistics (20 percent), security and compliance (20 percent), virtual practice (10 percent), ADT notifications (8 percent), and master person/patient index (4 percent) were useful in meeting their practice's clinical needs. One-fifth of respondents (20 percent) said that they did not find the HIE services useful.

Providers not sharing patient or client information through HIE had numerous reasons for not participating in an HIE. Many providers did not have access to an HIE platform (35 percent), did not know how to use an HIE (26 percent), found that the HIE was too technical (22 percent), or that the HIE was too time consuming (22 percent). Providers also cited other providers not using HIEs as their reason for not participating (20 percent), privacy concerns (19 percent), or that the HIE was not needed (16 percent).

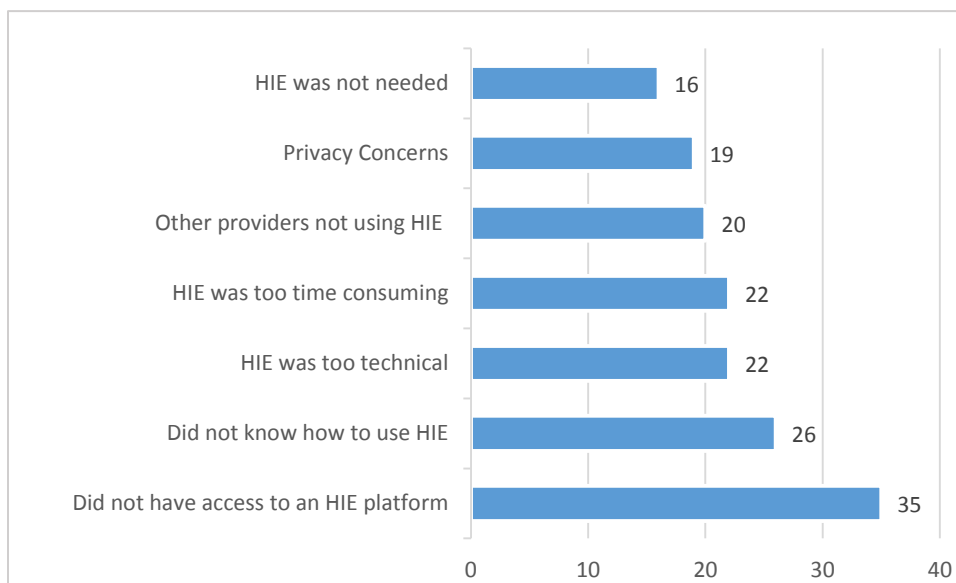


Figure 18. Percentage of Provider Reasons for Not Participating in a Health Information Exchange in the NJ 2017 Health Information Technology Survey.

Medicare/Medicaid Meaningful Use

More than nine in 10 respondents (92 percent) reported that their current EHR system meets Meaningful Use criteria as defined by the Department of Health and Human Services. Forty-eight percent of providers felt that financial incentives to advance health information technology were "very important," and another 34 percent felt that they were "somewhat important." Ten percent said that financial incentives to adopt health information technology were "not very important," and 8 percent said that they were "not at all important."

In terms of Meaningful Use incentive payments, 52 percent of respondents reported that their reporting location had applied for the payments, and an additional 6 percent intended to apply; 3 percent of respondents were uncertain if they would apply. Another 24 percent of respondents knew of the Meaningful Use incentive payments but are uncertain of their reporting location's status with the payments.

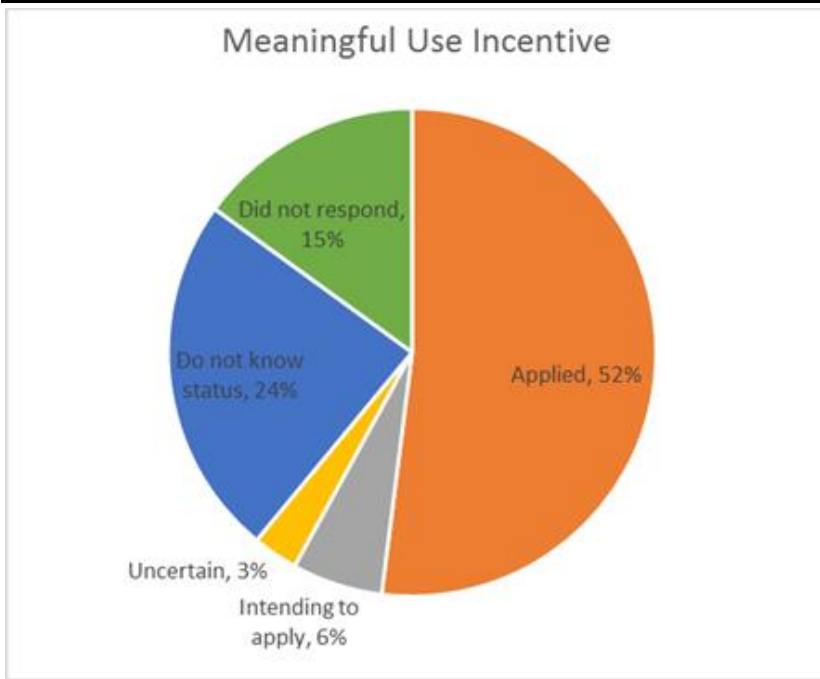


Figure 19. Percentage of Meaningful Use EHR Incentive Participants Among Survey Respondents.

Regarding Stage 3 incentive payments, 40 percent of respondents worked in a location that had applied for those payments, but another third of respondents (32 percent) did not know what they were. Sixteen percent of respondents knew what they were but are uncertain of their status. Eleven percent of respondents were uncertain if they would apply, and 2 percent said that they would not apply.

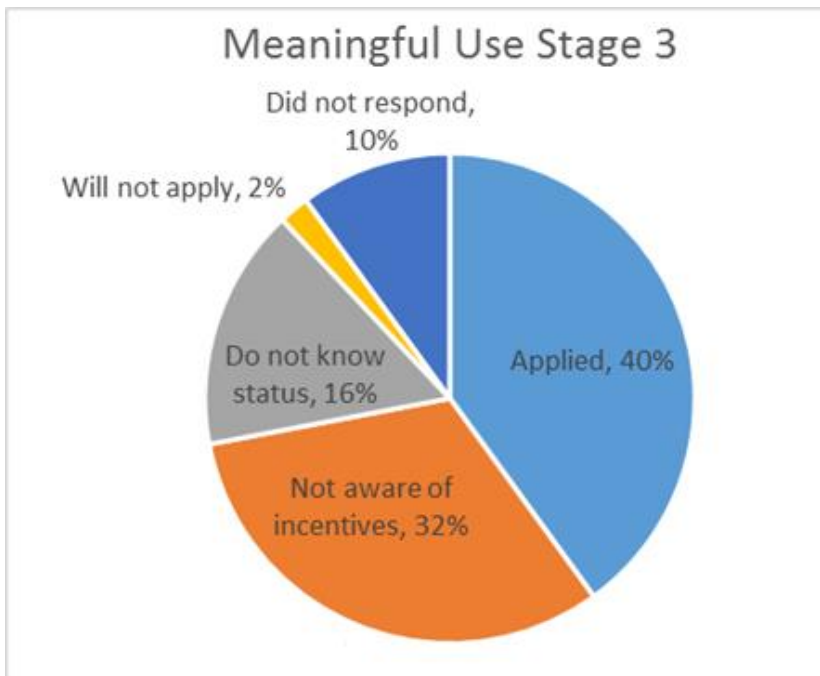


Figure 20. Percentage of Meaningful Use Stage 3 Incentive Payment Status Among Survey Respondents.

Electronic Health Data Capabilities

The capabilities of the reporting location’s electronic health data capabilities were robust and used routinely. The majority of respondents reported that their reporting location had computerized capabilities to record a patient’s medications and allergies, record patient demographics (89 percent), send prescriptions to the pharmacy (73 percent), and have the ability to provide a patient portal (50 percent); these features were used routinely.

The capability of identifying educational resources for patients’ conditions (49 percent), reporting clinical quality measures to federal or state agencies such as CMS or Medicaid (47 percent), the capabilities to do consults related to diagnosis, testing, or treatment (36 percent), to report to immunization registries (28 percent), and conducting e-consults for any health-related service, including diagnosis, testing, or treatment of physical or mental human disease or dysfunction (22 percent), were used routinely.

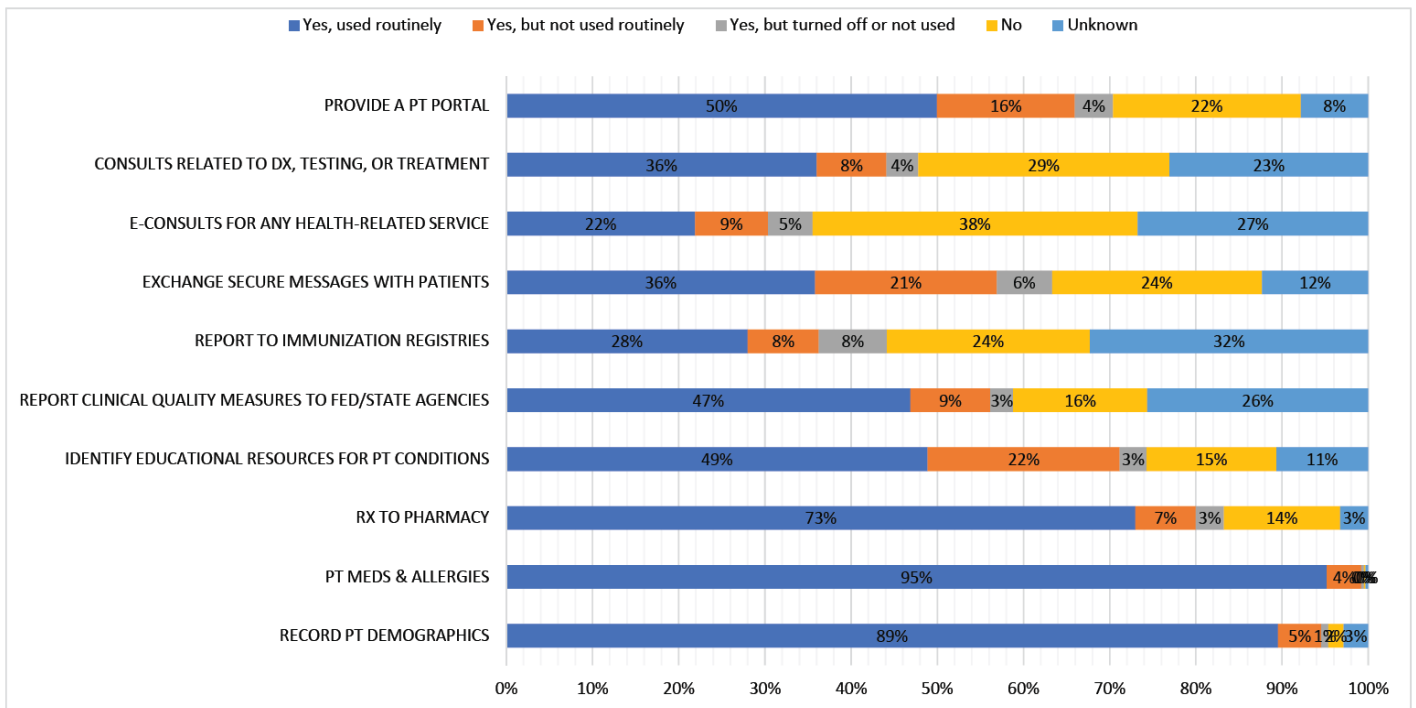


Figure 21. EHR Capabilities in the NJ 2017 Health Information Technology Survey.

A small percentage of respondents reported that patients seen at their reporting location could engage in many different activities related to their healthcare in an online setting patients could both request appointments and enter health information online. Nineteen percent reported that patients could request prescription refills online, 14 percent had the ability to ask the provider questions online and 11 percent were able to request referrals. Only 5 percent of respondents reported that patients had the ability to upload data from self-monitoring devices.

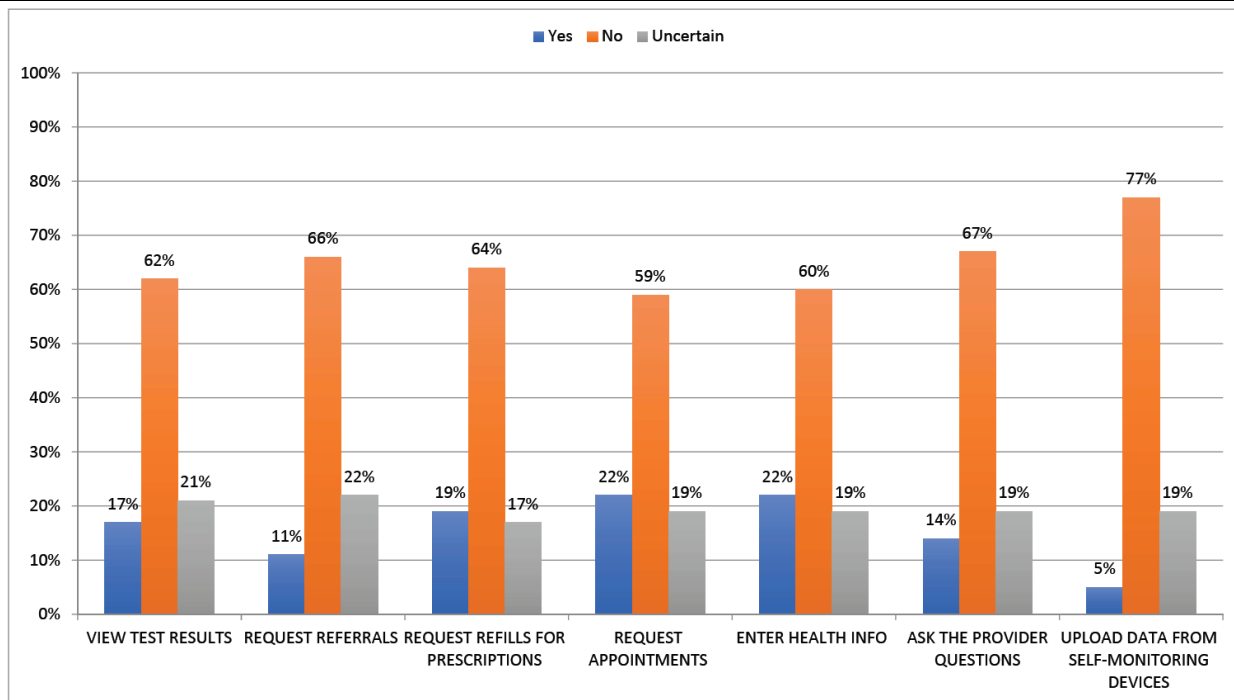


Figure 22. Online Capabilities for Patients in the NJ 2017 Health Information Technology Survey.

Sharing Patient or Client Health Information

Providers reported sharing patient or client health information with other healthcare providers and organizations: 67 percent reported sharing information with providers in their office or group, 55 percent with providers outside of their group, 39 percent with hospitals in which the provider is affiliated, 18 percent with a quality data reporting service, 17 percent with the New Jersey Department of Health, 15 percent with behavioral health providers, 14 percent with hospitals with which the provider is not affiliated, 12 percent with home health providers, 8 percent with Health Information Exchanges, and 7 percent with other federal, state, or city agencies. Only 8 percent of providers reported that they do not share patient or client health information with other providers.

Providers share health information both electronically and non-electronically with others. Overall, more than a third of providers sent patient health information to other providers via fax (36 percent) or email (19 percent). Other providers reported most often sending patient health information to other providers through the other entity’s EHR (33 percent), and another 26 percent via their own EHR (non-Health Level 7 (HL7) capability). Nineteen percent reported using direct secure messaging, while 14 percent reported using an HIE portal, and 13 percent reported using postal mail. Eleven percent reported using an interface with the organization other than an EHR, and 4 percent used a HL7 interface on the EHR.

Electronic Data Sharing

Among providers sharing data electronically, most shared comprehensive patient information. Most shared lab results (88 percent), imaging reports (84 percent), medication lists (83 percent), patient problem lists (82 percent), and medication allergy lists (77 percent). However, only about a half of providers (51 percent) shared this type of information using a Summary Care Record, which is an electronic file with these data in electronic format.

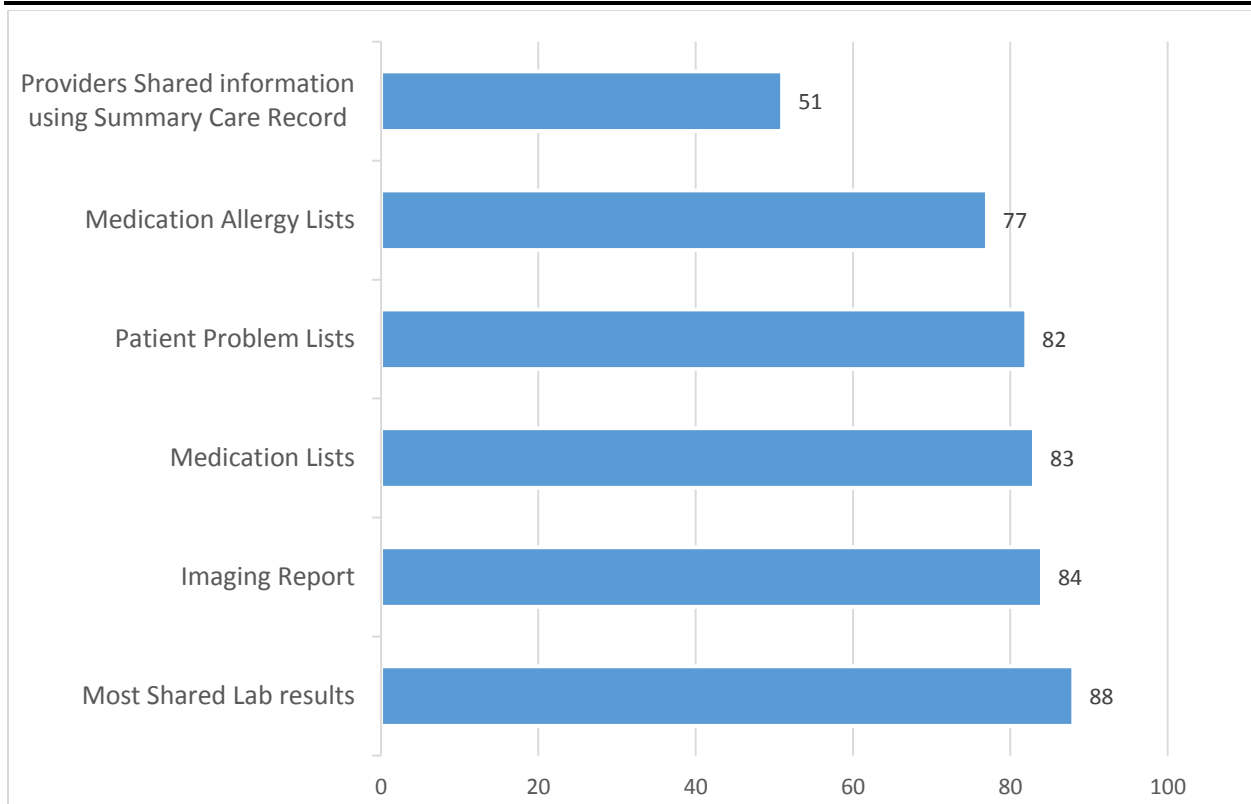


Figure 23. Types of Information and Data Sharing Rates among Providers who Share Electronic Information in the NJ 2017 Health Information Technology Survey.

For providers sharing patient health information with affiliated hospitals or unaffiliated hospitals, 41 percent reported that they were always electronically sent directly from their EHR to hospital’s EHR system; another 19 percent said that patient information was “often” sent, 19 percent said that patient information was “sometimes” sent, 6 percent said that patient information was “rarely” sent, and 16 percent reported that it was “never” sent.

Discharge Summaries

Among the providers who reported electronically sharing patient information with affiliated or unaffiliated hospitals, 78 percent took care of patients after they were discharged from an inpatient setting. Of these providers, 32 percent reported “always” receiving a discharge summary from the hospital with clinical information; another 32 percent and 23 percent reported that they “often” or “sometimes” received this information, respectively. Five (5) percent reported that they “rarely” received a discharge summary with clinical information, and 9 percent reported that they “never” received this information. Of those receiving a discharge summary, most received the summary electronically at least some of the time (26 percent “always,” 36 percent “often,” 13 percent “sometimes,” and 8 percent “rarely”). The remaining 18 percent reported that they rarely received discharge summaries electronically.

Electronic discharge records were largely distributed via the hospital’s EHR system (47 percent), with another 34 percent via the provider’s EHR, 16 percent with an interface other than the hospital’s EHR (16 percent), and 13 percent through an HIE portal. When receiving these discharge summaries from affiliated or unaffiliated hospitals, 41 percent of respondents reported being able to automatically incorporate the information into their EHR.

Preferences for Future Electronic Data Sharing

When considering the type(s) of patient or client data that their reporting location currently received, respondents suggested various types of additional patient or client data that they would like to receive electronically but currently do not. Many providers expressed a desire to receive imaging, lab results, and other test results; most did not know why their reporting location was not able to receive the electronic healthcare data they desired at this time.

Among all respondents, 59 percent reported wanting to participate in statewide data sharing, and 72 percent of respondents reported wanting to electronically share data with out-of-state providers. In terms of facilitating that data sharing with healthcare stakeholders such as providers, hospitals, HIEs, payers, and the New Jersey Department of Health, many respondents suggested a standardized interface with access to others providers' EHRs.

Though 8 percent of respondents reported already receiving electronic Admission, Discharge, or Transfer (ADT) notifications, 51 percent expressed a desire to receive them; another 17 percent said they would not like to receive them. Less than 10 percent of respondents reported already electronically querying the New Jersey Immunization registry, and more than half of respondents (52 percent) would like to be able to query the registry. Of the 262 physicians answering, 50% reported wanting to query the NJ Immunization Registry, as did 23% (N=39) of dentists, 22% (N=32) of optometrists, and 55% (N=139) of NPs. Thirty-nine percent of respondents did not wish to have the ability to electronically query the immunization registry. Finally, 12 percent of respondents reported that they already submitted their patients' immunization records electronically to the immunization registry. Respondents were split between submitting (44 percent) and not submitting (44 percent) to the registry.

Medical Home Model and Alternative Payment Model

With regards to the Agency for Healthcare Research and Quality (AHRQ)'s Medical Home model, only 14 percent of respondents reported that their reporting location receives additional compensation beyond routine visit fees for providing Patient Centered Medical Home (PCMH) type services, or for participating in a certified PCMH arrangement. One quarter (25 percent) of respondents' reporting locations reported participating in a Pay-for-Performance arrangement, where it can receive financial bonuses based on performance. Reporting locations submitted their Quality Measures Performance data to Medicare, Medicaid, and/or other plans at various intervals.

Twenty-five percent reported submitting the data once a year, 7 percent two times a year, 16 percent more than two times a year, and 30 percent did not submit quality measures to Medicare/Medicaid. Reporting locations typically submitted a median of five Quality Measures (IQR: 8) to Medicare, Medicaid, and/or other plans. In terms of the reporting location's EHR capabilities, 42 percent of respondents said that their EHR was able to produce reports and performance data on the Quality Measures desired by the provider; 21 percent said their EHR did not accomplish this. A plurality of respondents (37 percent) reported not knowing what reports and performance data they would like. Finally, 30 percent of respondents reported that their reporting location participated in an Accountable Care Organization (ACO) or similar APM arrangement.

Demographics

Seventy (70) percent of survey respondents were aged 50 or older, and exactly half were female. Nearly all respondents were providers themselves (93 percent); only 7 percent of respondents were the office manager or practice staff member. All New Jersey counties were represented in the survey.

Providers affiliated with Community Health Centers (Federally Qualified Health Centers (FQHC))

The vast majority of respondents (77 percent) whose reporting locations were Community Health Centers (including FQHCs, federally-funded clinics, or “look-alike” clinics) reported using entirely electronic health records, and an additional 15 percent reported that some of their reporting location’s health records were electronic. Three percent of respondents reported that their reporting location used to have an EHR but do not any longer, and the remaining 5 percent of respondents reported that their reporting location has never used an EHR.

Ninety-four percent of respondents reported working in reporting locations that meet Meaningful Use criteria as defined by the Department of Health and Human Services, to the best of the respondent’s knowledge. Thirteen percent of Community Health Centers participate in an HIE.

Broadband Internet Access

Quick Statistics

- In total there are 94 broadband providers in New Jersey.
- Everyone in New Jersey has access to some form of broadband.
- There are 130,000 people in New Jersey that have access to only one wired provider, leaving them no options to switch.
- Another 35,000 people in New Jersey do not have any wired internet providers available where they live.
- 2 percent are underserved (less than 2 wired providers).
- 41.3 Megabits per second (MBPS) Average Download Speed (7/28/2015).
- 3rd most connected state based on percentage of population with broadband access.

Broadband Access

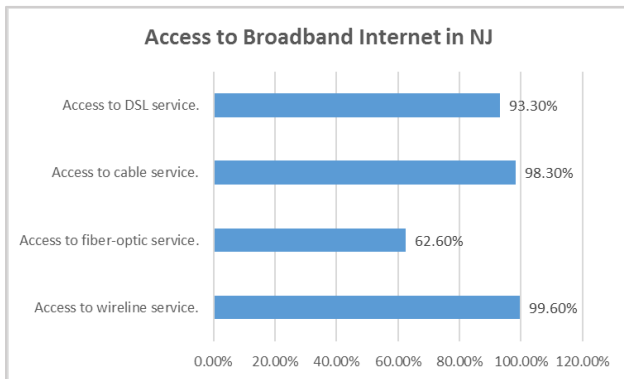


Figure 24. Access to Broadband Internet in NJ.

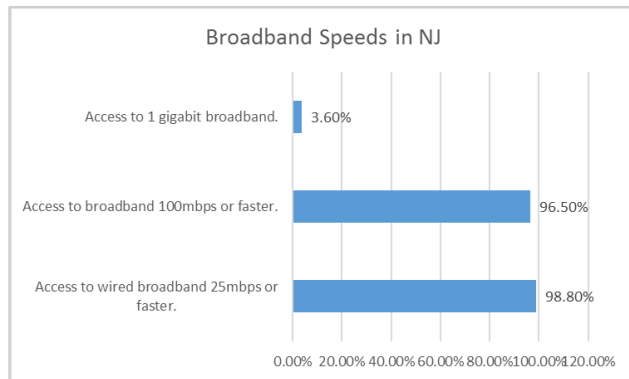


Figure 25. Broadband Speed Availability.

Federally Qualified Health Centers (FQHCs)

All of the 23 Federally Qualified Health Centers (FQHCs) that NJII is working with in state of NJ are on Modified Meaningful Use (MU) Stage 2 for EHR. All FQHCs in New Jersey must be on Modified MU Stage 2 per regulations. These FQHCs have a number of satellite offices throughout New Jersey.

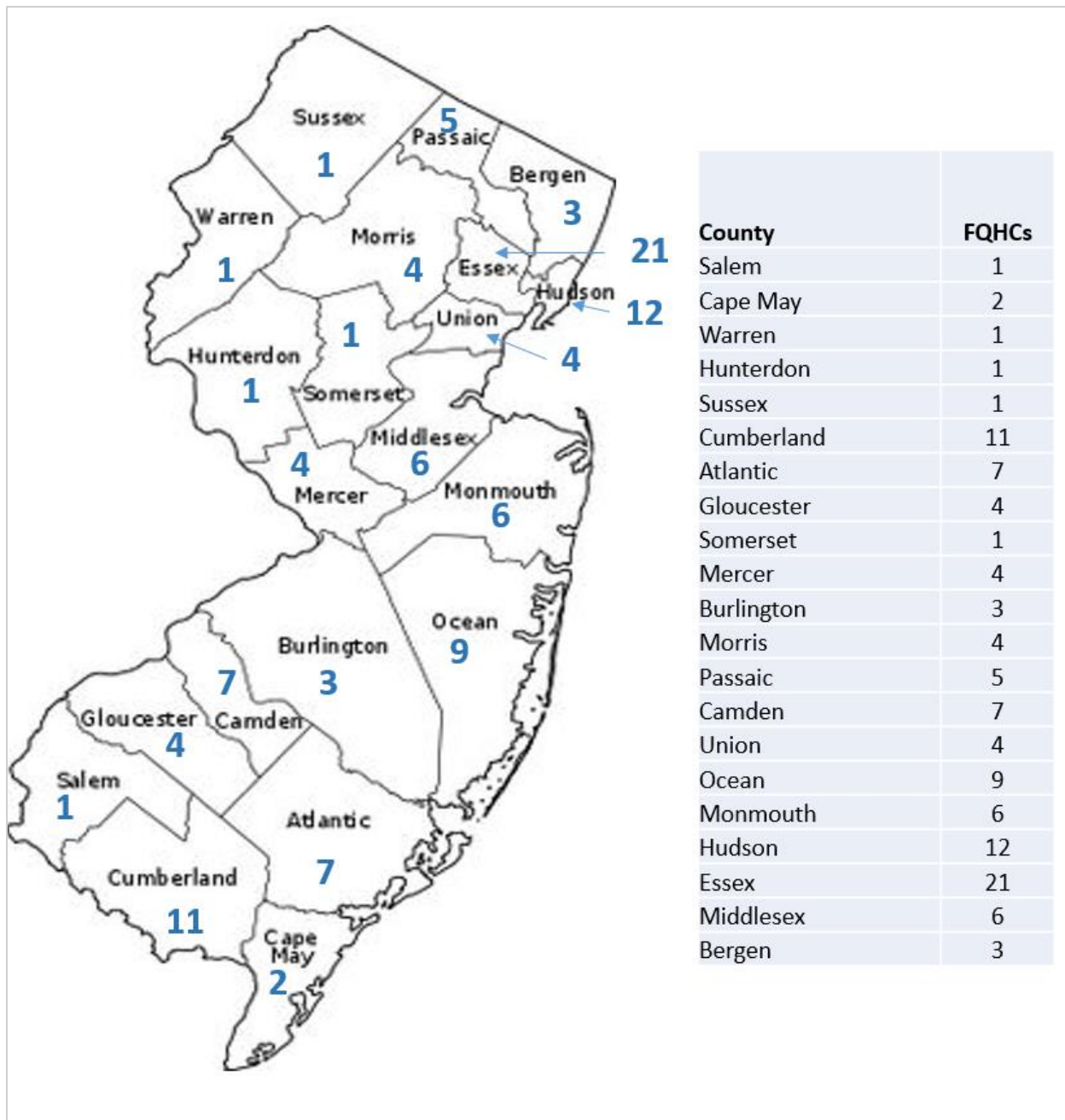
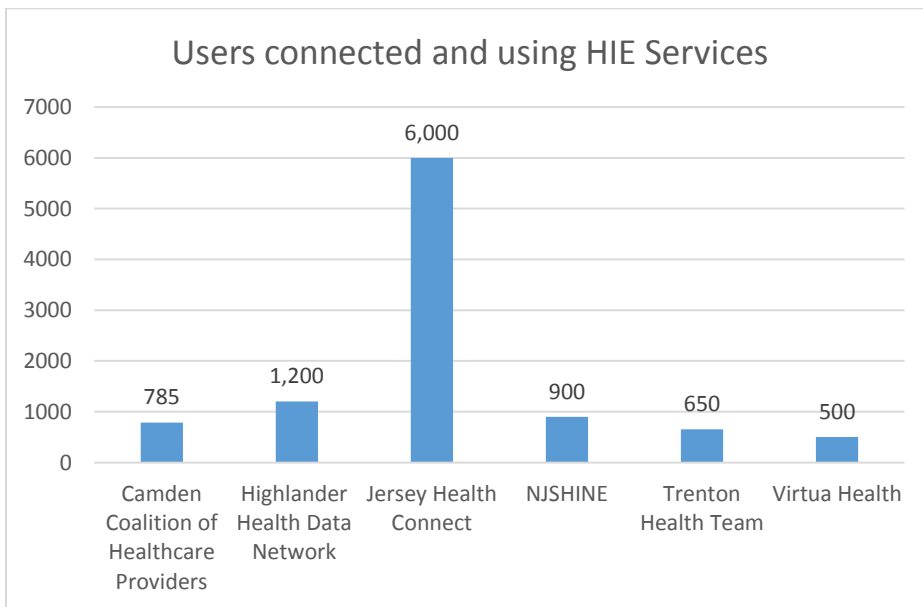
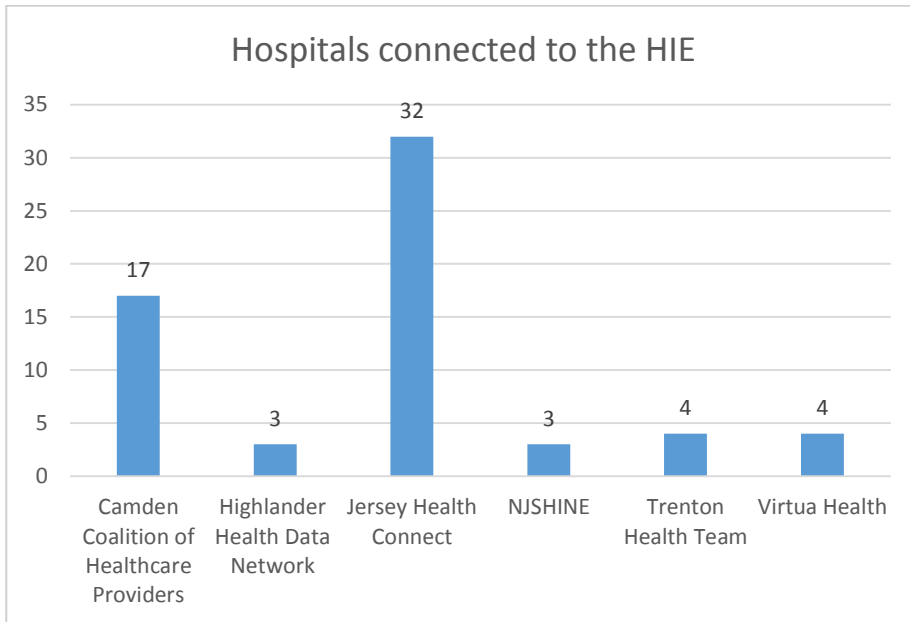


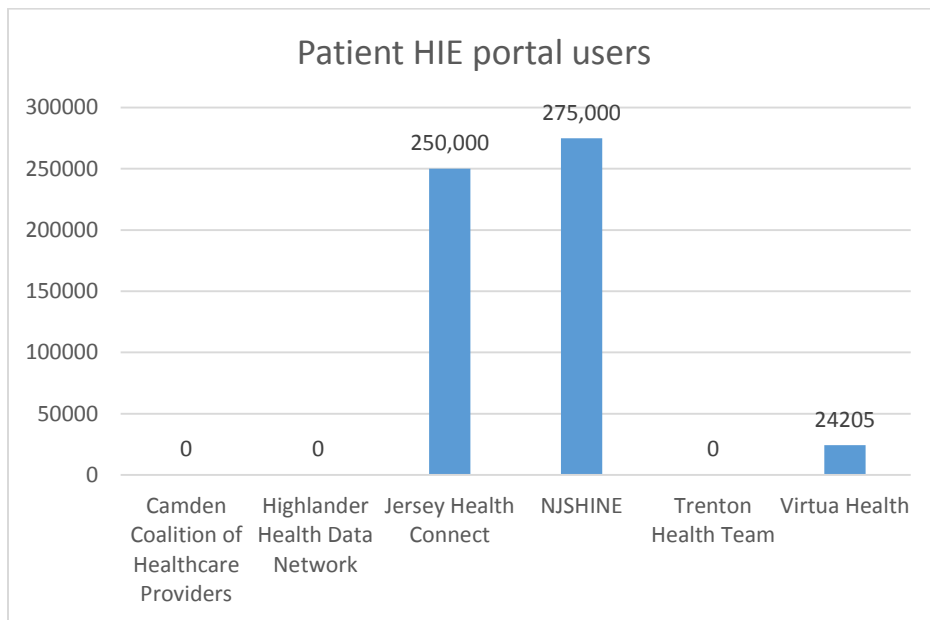
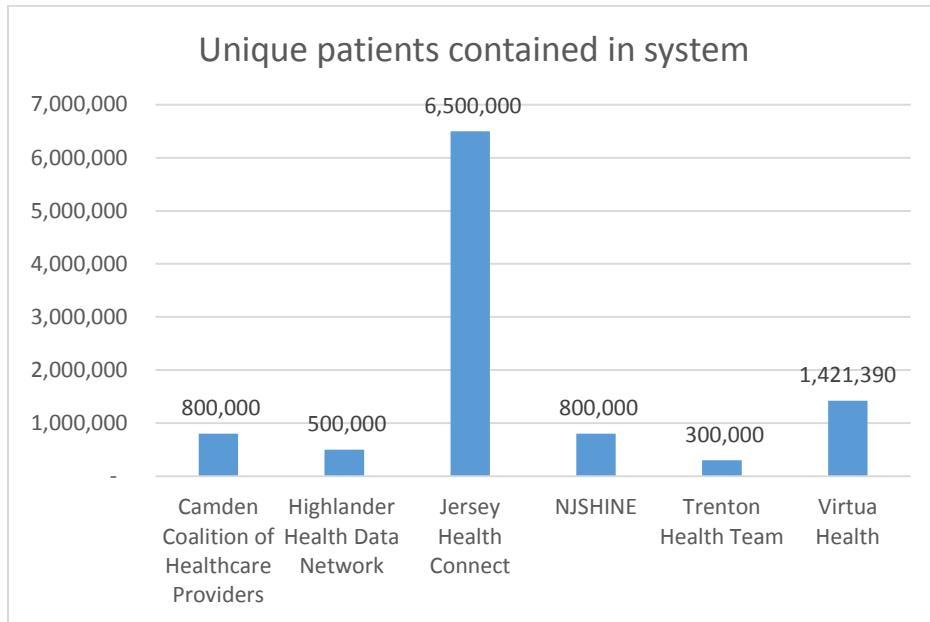
Figure 26. Number of Community Health Center such as Federally Qualified Health Center (FQHC), federally-funded clinics, “look-alike” clinics, or satellite locations distributed by County in NJ.

Health Information Exchange Presence in New Jersey

The New Jersey Health Information Network (NJHIN) is owned and funded by New Jersey Department of Health (NJDOH) and managed by the New Jersey Innovation Institute. NJHIN provides the infrastructure for electronic exchange of patient health information among Health Information Exchange Organizations and State health data sources. It also is the primary vehicle for New Jersey to eventually exchange health information nationally.

New Jersey has numerous regional Health Information Exchange Organizations (HIEs/HIOs) and integrated delivery networks (IDNs) that are all operating to support health information exchange in the state. There are also six Designated Health Information Organizations throughout New Jersey. While there are numerous options for organizations to participate, there is still approximately 30 Hospitals that do not participate in any HIOs.





Figures 27a-d. Hospitals Connected to the HIE; Users connected and using HIE Services; Unique patients contained in system; Patient portal users.

New Jersey Health Information Technology Environmental Scan

NJ HIE Core Services

Core Services	NJSHINE	Trenton	JHC	Highlander	Camden	Virtua
HIE Infrastructure and Central Repository	High Adoption*	High Adoption	High Adoption	Roadmap ‡	High Adoption	High Adoption
Hospital Integration Services	High Adoption	High Adoption	High Adoption	High Adoption	High Adoption	High Adoption
MPI (Regional)	Pilot †	High Adoption	NA	NA	High Adoption	High Adoption
MPI (Statewide)	NA	High Adoption	NA	NA	Roadmap	Roadmap
Physician Integration Services	High Adoption	Low Adoption	High Adoption	Roadmap	Roadmap	Low Adoption
Portal Query and Clinical Review	High Adoption	High Adoption	High Adoption	Low Adoption	High Adoption	Roadmap
Reporting and Statistics	High Adoption	High Adoption	Low Adoption	Roadmap	Low Adoption	Low Adoption
Security and Compliance Program	High Adoption	High Adoption	High Adoption	High Adoption	High Adoption	High Adoption

*In this table and the following tables, “Adoption” meaning member participation in the service is measured “High” by meeting a 65% or above threshold, while “Low” meets 64% or below threshold. ‡Roadmap items mean that this service is on the HIO’s high level timeline of the organization’s goals and deliverables. †Pilot means that this service is in a testing phase. “NA” means not applicable.

NJ HIE Advanced Services

Advanced Services	NJSHINE	Trenton	JHC	Highlander	Camden	Virtua
CONNECT & NwHIN Protocols - XCA, etc.	Low Adoption	NA	Roadmap	NA	Low Adoption	Pilot
Direct Messaging	Low Adoption	Low Adoption	Low Adoption	Low Adoption	Low Adoption	Low Adoption
Encounter Notification	Pilot	High Adoption	High Adoption	Roadmap	High Adoption	NA
Patient Portal	High Adoption	Low Adoption	High Adoption	Low Adoption	NA	Low Adoption
Virtual Practice	Low Adoption	NA	High Adoption	NA	NA	NA

New Jersey Health Information Technology Environmental Scan

NJ HIE Value Services

Value Services	NJSHINE	Trenton	JHC	Highlander	Camden	Virtua
Active Care Relationships Database	Low Adoption	Low Adoption	NA	NA	Roadmap	NA
ADT Notification (Regional)	High Adoption	High Adoption	High Adoption	Roadmap	High Adoption	NA
ADT Notification (Statewide)	NA	High Adoption	Roadmap	Roadmap	Low Adoption	NA
Alerting (based on rules)	Low Adoption	High Adoption	Roadmap	Roadmap	High Adoption	NA
Clinical Data Integration Services	High Adoption	High Adoption	High Adoption	Roadmap	High Adoption	NA
Core Consulting for Value based Programs	Low Adoption	Low Adoption	NA	NA	Roadmap	NA
Educational Services	Roadmap	High Adoption	Low Adoption	Roadmap	NA	NA
Immunization Registry Query by Parameter (QBP)	Roadmap	NA	Roadmap	Roadmap	Roadmap	NA
Immunization Registry Summit	Roadmap	NA	NA	NA	Roadmap	NA
Medicaid Provider Program	NA	Roadmap	NA	NA	Roadmap	NA
Participation in National HIE Collaborative (SHIEC)	Roadmap	NA	High Adoption	NA	Roadmap	NA
Practice Transformation Services (CMS PTN)	Low Adoption	NA	NA	NA	NA	NA
Public Health Reporting for MIPS	Pilot	NA	NA	NA	Roadmap	NA

New Jersey Health Information Exchange Organizations

Camden HIE

The Camden Health Information Exchange (HIE) was launched in 2010 by the Camden Coalition of Healthcare Providers and is the result of a collaborative data sharing effort to improve care delivery in Camden. The original founders of the HIE are Cooper Health System, Virtua, and Our Lady of Lourdes Health System. The HIE is currently used by over 100 healthcare providers in Camden. Camden HIE is also a Medicaid ACO.

Greater Healthy Newark (Highlander Health Data Network)

The Greater Healthy Newark Team is a community health improvement collaborative serving Newark, NJ. The collaborative is an innovative partnership among University Hospital, Newark Beth Israel, St. Michaels and East Orange Medical Centers. The HIE is also a Medicaid ACO and supports beneficiaries from several zip codes in Newark, NJ.

Jersey Health Connect

Jersey Health Connect is New Jersey's largest HIO and has approximately half of the health systems and hospitals of New Jersey connected to their HIE platform. In addition, several long term and post-acute care (LTPAC) facilities and provider practices are directly connected to JHC and participating in data exchange.

NJSHINE

NJSHINE facilitates health information exchange for the diverse populations of a seven-county region in South Jersey to improve the quality of care, support patient safety, facilitate care coordination across the continuum of care, reduce cost, and improve patient outcomes. Hospitals connected through NJSHINE include Shore Medical Center, Underwood Memorial Hospital, Cape Regional Medical Center, and Inspira Medical and Health Centers. NJSHINE also connects other area health providers like long-term care facilities and rehabilitation centers.

Trenton HIE

The Trenton Health Team is a community health improvement collaborative serving Trenton, NJ. The collaborative is an innovative partnership among St. Francis Medical Center, Capital Health, Henry J. Austin Federally Qualified Health Center and the Department of Health and Human Services of the City of Trenton. The vision of the Trenton Health Team is to make Trenton the healthiest city in the state, with a mission to transform healthcare for the city by forming a committed partnership with the community to expand access to high quality, coordinated healthcare, while being ever mindful of the necessity of containing and saving costs.

Virtua HIE

The Virtua HIE is operated by Virtua Health, Inc. and serves Burlington, Camden, and Gloucester counties, with free membership to any healthcare organizations therein, thereby making it a community service activity. The Virtua HIE strives to offer a comprehensive set of health records, presented in a longitudinal, patient-centric manner. Such records may be viewed via a web-based portal, or members may elect to have the records interfaced directly into their electronic health records. The Virtua HIE's strategy includes close adherence to national interoperability standards (as published periodically by ONC and the non-profit standards organization called Integrating the Healthcare Enterprise), and it has sophisticated mechanisms to meet Federal and State regulations on the release of "sensitive" data.

State Activities to Facilitate HIE and EHR Adoption

The New Jersey Health Information Network

The NJHIN as stated previously provides the infrastructure for electronic exchange of patient health information among Health Information Exchange Organizations and State health data sources. The New Jersey Department of Health (NJDOH) partnered with the New Jersey Innovation Institute (NJII) as the State Designated Entity on an ONC grant to “Advance Interoperable Health Information Technology Services to Support Health Information Exchange” that was awarded in July 2015 and will run through July 2017.

Beginning with a pilot initiative that includes the Highlander HDN and its participating organizations in the Newark metropolitan area, NJDOH and NJII have established an NJHIN Shared Services Platform that includes the following services:

- A statewide Master Person Index (MPI), allowing NJ Residents to be uniquely identified across the healthcare continuum. Open APIs allow for real-time integration into across systems and organizations.
- A statewide Admission, Discharge, and Transfer (ADT) Notification Service that sends alerts to providers and care management teams on a patient’s status, improving post-discharge outcomes, prompting follow up care, and improving communication among providers.
- A Common Key Service (CKS) that provides a consistent and reliable way to uniquely identify and match patients across multiple organizations, applications, and services, thereby improving patient safety and data integrity
- A Health Directory Service that manages information on organizations and their associated healthcare professionals, including provider preferences for receiving healthcare information.
- A State Health Data Hub that allows providers of participating HIOs to query health information from, and, in some cases, submit health information to, state health systems such as the New Jersey Immunization Information Systems (NJIS), the state’s immunization registry.

The NJHIN core goals are achievable by:

- Uniquely identifying individuals across the state, which ensures accurate and relevant health information is identified.
- Enabling the exchange and sharing of data across the healthcare continuum, to enable improved care coordination.
- Simplifying and expanding access to NJ public health registries through a normalized and repeatable process.
- Educating and outreach to at-risk populations across the state proactively.
- Ensure quality data is shared, the purpose of data exchange hinges on quality not quantity.

As an example, the NJHIN shares some commonalities with a Health Information Exchange Organization but there are also differences between what a Health Information Network is intended to provide in New Jersey compared to what an HIO (Jersey Health Connect (JHC)) may provide in New Jersey.

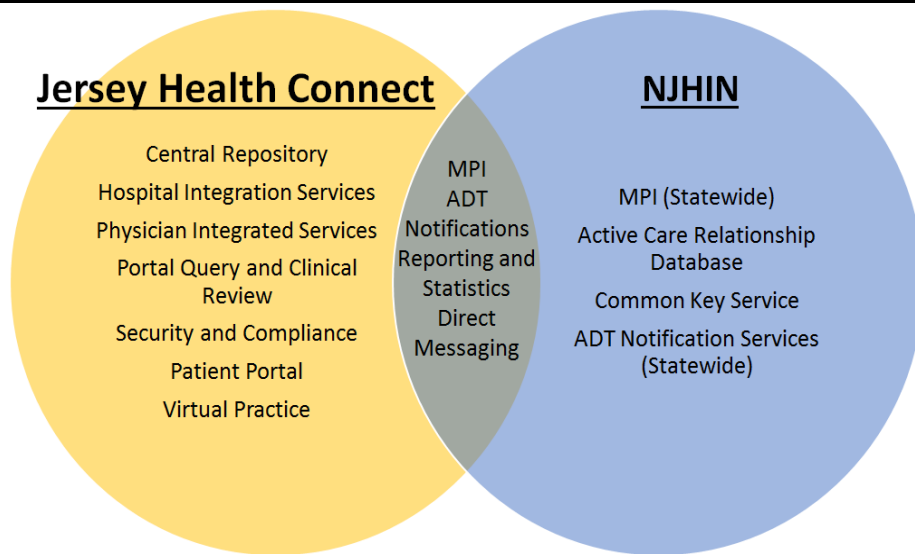


Figure 28. Jersey Health Connect Service Catalog and NJHIN Comparison.

HIO/HIE Activities across State Borders

The New Jersey Health Information Network is currently working with the Delaware Health Information Network (DHIN) on connecting the two regional Health Information Networks. This connection is initially intended to support the NJHIN ADT Notification Use Case. The NJHIN and New Jersey Department of Health (NJDOH) are currently in conversation on connectivity to nearby states Pennsylvania, New York, and Maryland. The HIO, NJSHINE, has established a connection to DHIN to allow for the notification of NJSHINE participants that seek care in Delaware.

HIO/HIE Interoperability

The current HIO environment in the state does not support state wide data sharing or collaborations between entities. With the successful launch of the NJHIN the infrastructure and legal framework is now in place to allow the collaboration and data sharing state wide across all HIOs. By implementing specific Use Cases NJHIN will enable purpose driven use cases to move forward data sharing to improve patient outcomes and allow interoperability between the disparate systems.

Conclusion: Key Findings

The New Jersey Innovation Institute identified key findings that should be further researched and specifically targeted in the State Medicaid Health Information Technology Plan (SMHP).

EHR Adoption

Although up to 86% of physicians are using some form of EHR based on full or partial adoption, the fact that potentially up to 33% of physicians are still using paper charts would indicate room for improvement with regard to increasing the full adoption of electronic health record systems in practices. There is a lower adoption of EHRs and HIT by specialists, especially dentists (total of 61% full or partial EHR adoption) and optometrists (total of 72% full or partial EHR adoption), which could be a target for improvement. Optometrists had the higher than normal abandon rate of EHRs (7%) than the other provider types (physicians, nurse practitioners, and dentists were at 1%), so education and training may help to improve adoption rates. At 90% of full or partial EHR adoption, nurse practitioners excelled in terms of adopting EHR systems. Overall, 83% of total providers surveyed have either fully or partially adopted an EHR system.

Although the vast majority of providers (79%) had performed risk assessments of the potential risks and vulnerabilities of their practice's electronic health information in the past year, the fact that 21 percent reported not having done so poses a significant HIPAA compliance issue. Moreover, among those who did not use EHRs, up to 43% said are not using one because of the perceived additional costs necessary to accomplish reporting (of measures to payers). In general, providers found costs to be the main barrier to the adoption and use of EHR and/or HIT.

Health Information Exchange

There are low level of health information exchange activities occurring throughout the state of NJ. The NJHIN should be leveraged to promote open connectivity and appropriate sharing of health information. Providers may not be aware or may be confused about the ability to join and access HIE services. The results surrounding the sharing of patient or client health information seem to be lower than one might expect. Only two-thirds (67%) of providers are sharing information with providers in their office or group while a little more than half of providers share data with providers outside of their group, and two-fifths (39%) share data with hospitals in which the provider is affiliated. There are State requirements for submission of certain data to the New Jersey Department of Health, but less than a fifth of respondents seem to submit data to the NJDOH. As not every practice is integrated with an HIE, it is understandable that only 8% of practices are exchanging data with an HIE. Among 70 respondents, 41% said they always send information directly from their EHR to another EHR, and only 19% are often or sometimes sending this information. Respondents positively suggested that having standardized interfaces with access to others providers' EHRs would be helpful.

However, one might have expected for more practices to be recipients of data exchanged electronically (excluding fax) and not necessarily have the technologies abilities to send data out if interfaces are not set up with external entities. Nonetheless, more education about interoperability ("ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged")^{viii} and how patient data is being shared is needed to encourage increased adoption and use of HIE technologies within providers' daily clinical workflows. The NJHIN and HIEs are collaborating on better and consistent patient identification solutions across disparate systems to uniquely identify patients and reduce redundant and inappropriate services that may be rendered in healthcare settings. The ongoing effort to connect disparate organizations must include an emphasis on data quality to ensure that the right information is delivered at the right time and to the right persons who are best positioned to coordinate care for patients. The NJHIN Use Case framework allows for normalized and validated data from trusted sharing organizations to be

more timely and easier to access for providers. Stakeholders may also employ predictive analytics to derive meaningful conclusions from data to inform better clinical decisions.

Health Information Technology

There are low levels of adoption of health information technologies as indicated by the low rate (below 30% in general) of the use of scribe, medical speech recognition, and telehealth-related technologies. Responses among those using HIT indicated openness to using varying types of technologies to accomplish different clinical functions, especially where clinical operations are integrated with communication, prescribing, dispensing, monitoring, laboratory, and imaging devices and technologies. The potential to achieve greater efficiencies and outcomes in the delivery of care to patients is a strong reason why healthcare organizations are actively promoting telehealth and other existing HIT capabilities.

Broadband Coverage

New Jersey has significant broadband coverage, and this strong network of coverage could be leveraged in conjunction with NJHIN Use Cases to increase mobility and accessibility for healthcare stakeholders to participate in exchanging health information.

Education

Based on the overall survey findings, there is a strong need for better education for all provider types. Special focus should especially be on areas of security and HIPAA compliance, data quality, interoperability as far as electronically sharing data outside of one's office, and general HIT and electronic health record education. Although 78% out of 58 respondents conducted post-discharge follow-up care for patients, one might expect that more of the providers in this survey would be conducting post-discharge follow-up care. Placing educational emphasis on the importance of Transitional Care Management could potentially improve this figure.

NJ's HIT Landscape to Continue to Evolve by Leveraging HIT Capabilities

The need to leverage existing HIT capabilities is paramount. There has been tremendous state and federal investments in EHRs, HIEs, NJHIN infrastructure and other HIT technologies in New Jersey. There should be a focus on using the existing capabilities and infrastructure to further increase HIT adoption, interoperability, and the appropriate sharing of health information.

Appendix A: List of Abbreviations

ACRS – Active Care Relationship Service
ADT – Admit, Discharge, Transfer
BAA – Business Associate Agreement
BCBSNJ – Blue Cross Blue Shield of New Jersey
BOD – Board of Directors
CCD – Continuity of Care Document
CDC – Centers for Disease Control and Prevention
CMR – Computerized Medical Record
CMS – Center for Medicare and Medicaid Services
CDURSA – Consumer Qualified Organization Data Sharing Agreement
CTDSO – Consumer Qualified Organization / NJHIN Consumer Qualified Data Sharing Organization
DHS – Department of Human Services
DOD – Department of Defense
DOH – Department of Health
DQ – Document Query / Document Query Message
DR – Document Retrieve / Document Retrieve Message
DURSA – Data Use and Reciprocal Support Agreement
DUA – Data Use Agreement
EHR – Electronic Health Record
EMR – Electronic Medical Record
eSMD – Electronic Submission of Medical Documentation System
EULA – End-User License Agreement
HIE – Health Information Exchange (as a verb or noun)
HIO – Health Information Exchange Organization (noun)
HIPAA – Health Insurance Portability and Accountability Act
HISP - Health Information Systems Program
HIT – Health Information Technology
HL7 – Health Level 7
Https – Post-to-URL Transport connectivity (Hypertext Transfer Protocol Secure)
IDN – Integrated Delivery Network (such as a health system)
IHE - Integrating the Healthcare Enterprise® (integrated health information profiles)
LLP – Lower Layer Protocol (HL7)
JHC – Jersey Health Connect
NJHIN – New Jersey Health Information Network
NJHIN BOD – New Jersey Health Information Network Board of Directors
NJHINSS – New Jersey Health Information Network Shared Services
NJDOH – New Jersey Department of Health
NJDHS – New Jersey Department of Human Services
NJOAC – NJHIN Operations Advisory Committee
MPI – Master Person Index
MTM – Medication Therapy Management
MU – Meaningful Use
NwHIN – Nationwide Health Information Network
NwHIN SOAP – Nationwide Health Information Network Simple Object Access Protocol
OID – HL7 Organization ID / Unique ID of the Organization
ONC – Office of the National Coordinator
PD – Patient Discovery / Patient Discovery Message

New Jersey Health Information Technology Environmental Scan

PHI – Protected Health Information / HIPAA-Protected Health Information

PMP – NJ Prescription Monitoring Program

QA – Quality Assurance

QA Testing – Quality Assurance Testing

TDSO – Trusted Data Sharing Organization / Qualified Organization / NJHIN Qualified Data Sharing Organization

SOAP – Simple Object Access Protocol

SONJ – State of New Jersey

SSA – U.S. Social Security Administration

SSO – Sponsored Sharing Organization

TBD – To Be Determined

URL – Uniform Resource Locator (Internet web site address)

VA – Veterans Administration / U.S. Department of Veterans Affairs

VPN – Virtual Private Network

XAML – Extensible Application Markup Language

XCA – Cross-Community Access

XCPD – Cross-Community Patient Discovery

Appendix B: HIT Coverage on Geographic Maps of New Jersey

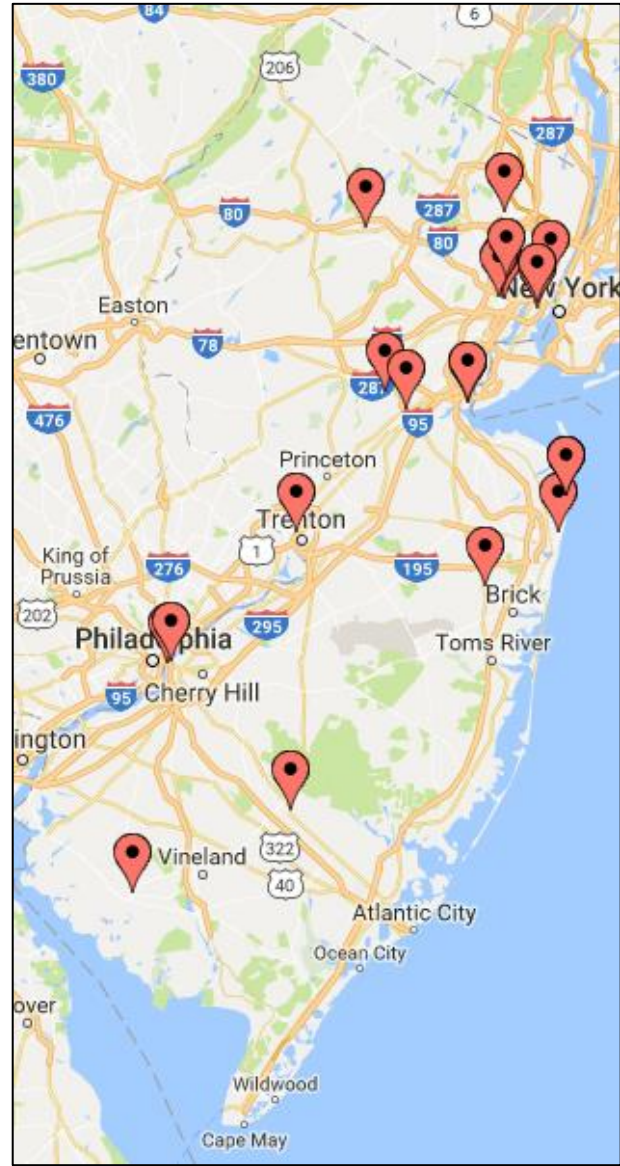
1. New Jersey County Boundaries^{ix}



2. New Jersey Hospitals



3. New Jersey FQHCs



4. Broadband Coverage by Town^x

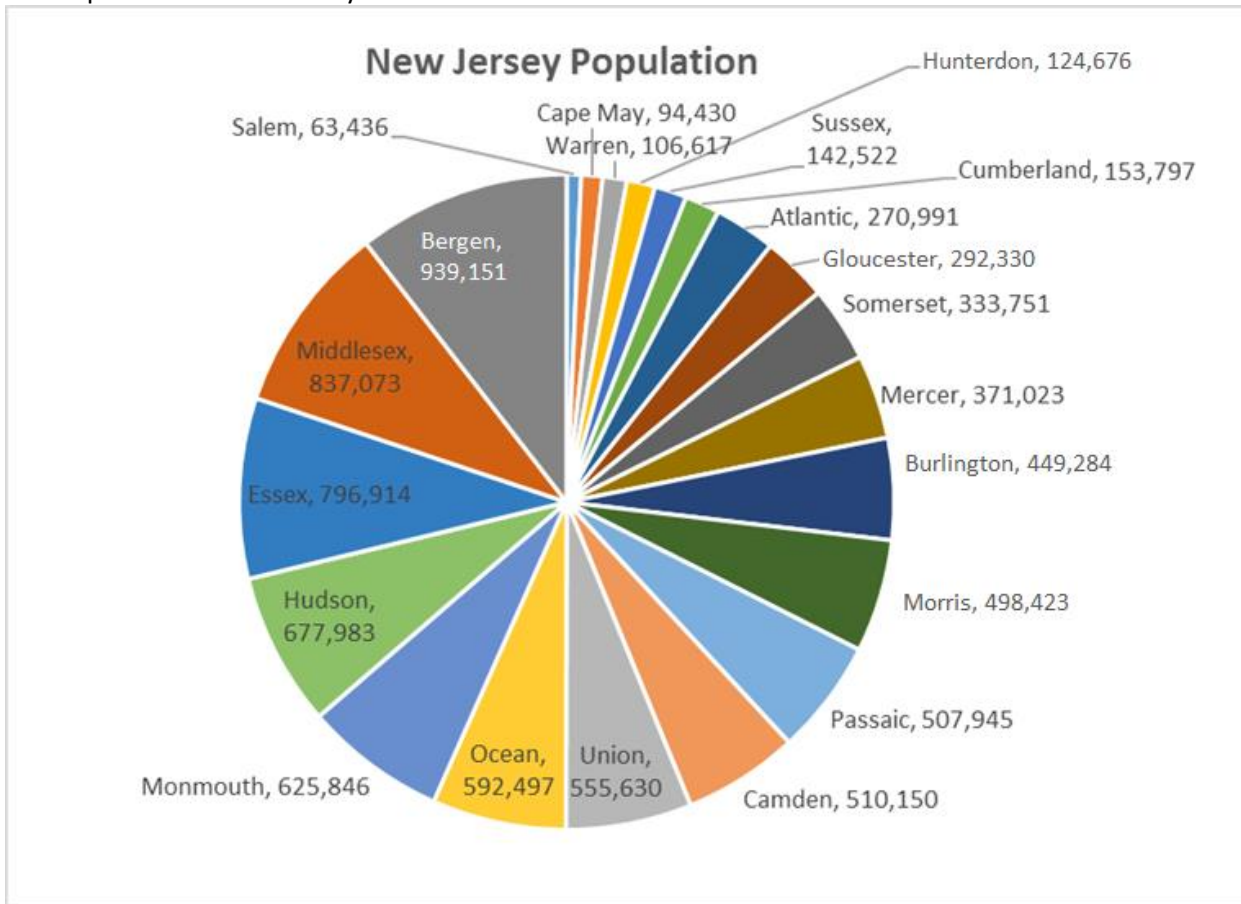
Cities	Broadband Coverage	Cities	Broadband Coverage
Absecon	95.20%	Long Branch	97.60%
Asbury Park	100.00%	Manchester Township	98.30%
Atlantic City	98.20%	Marlton	99.60%
Bayonne	100.00%	Matawan	100.00%
Belleville	99.50%	Millville	97.60%
Blackwood	98.50%	Monroe Township	99.30%
Bloomfield	99.50%	Montclair	99.50%
Brick	98.30%	Morristown	100.00%
Bridgeton	99.70%	Mount Laurel	96.10%
Bridgewater	99.30%	Neptune	99.50%
Burlington	93.90%	New Brunswick	100.00%
Camden	98.70%	Newark	100.00%
Cherry Hill	97.50%	North Bergen	99.80%
Clementon	99.60%	North Brunswick	99.30%
Clifton	100.00%	Old Bridge	100.00%
East Brunswick	99.30%	Passaic	100.00%
East Orange	99.20%	Paterson	100.00%
Edison	99.30%	Perth Amboy	99.80%
Egg Harbor Township	95.10%	Piscataway	99.30%
Elizabeth	100.00%	Plainfield	99.90%
Englishtown	100.00%	Princeton	100.00%
Fair Lawn	100.00%	Sewell	97.70%
Flemington	98.30%	Sicklerville	97.50%
Fort Lee	100.00%	Somerset	99.40%
Freehold	100.00%	Teaneck	99.90%
Garfield	100.00%	Toms River	99.40%
Hackensack	100.00%	Trenton	99.90%
Hillsborough	99.30%	Union	99.70%
Hoboken	100.00%	Union City	100.00%
Howell	99.50%	Vineland	95.50%
Irvington	99.50%	Wayne	100.00%
Jackson	98.30%	West Deptford	97.70%
Jersey City	99.60%	West New York	100.00%
Kearny	98.60%	West Orange	99.50%
Lakewood	100.00%	Westfield	99.90%
Lawrence Township	98.50%	Williamstown	97.00%
Linden	99.80%	Willingboro	96.10%

Appendix C: Population Data of New Jersey

Currently, New Jersey has a population of 8,944,469 across 21 Counties as of most recently available figures in 2016.^{xi}

County	Population
Bergen	939,151
Middlesex	837,073
Essex	796,914
Hudson	677,983
Monmouth	625,846
Ocean	592,497
Union	555,630
Camden	510,150
Passaic	507,945
Morris	498,423
Burlington	449,284
Mercer	371,023
Somerset	333,751
Gloucester	292,330
Atlantic	270,991
Cumberland	153,797
Sussex	142,522
Hunterdon	124,676
Warren	106,617
Cape May	94,430
Salem	63,436

The Population of New Jersey as of 2016.



A Profile of New Jersey's Physicians

The Meaningful Use EHR Incentive Program for New Jersey^{xii} from January 2011 through June 2017 includes: Unique Count of Eligible Professionals (EPs) 3,193 Medicaid and 9,702 Medicare. Unique Count of 2 Medicaid Hospitals, 4 Medicare Hospitals, both Medicare and Medicaid 64 Hospitals.

According to the American Medical Association Physician Masterfile of 2014^{xiii}, there were the following amounts of active physicians:

Total Active Physicians:	25,930
Primary Care Physicians:	8,569
Total Residents:	2,875
Total Female Physicians:	9,045
Total Medical or Osteopathic Students:	2,177

By April 2017, the amount of total active physicians in New Jersey increased to 27,923, with primary care physicians amounting to 13,699 and there were 14,224 specialists according to the Kaiser Family Foundation.^{xiv}

Revision History

Version	Date	Comments
1.0	9/18/2017	Final

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- ⁱⁱ Hospitals Participating in the Centers for Medicare & Medicaid Services (CMS) EHR Incentive Programs by 2015 (<https://dashboard.healthit.gov/datadashboard/documentation/cms-ehr-incentive-program-measures-documentation.php>)
- ⁱⁱⁱ Health IT Data Summaries: New Jersey in 2015 (<https://dashboard.healthit.gov/apps/health-information-technology-data-summaries.php?state=New+Jersey&cat9=all+data>)
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- ^v Cho, Young Ik, Timothy P. Johnson, and Jonathan B. VanGeest. "Enhancing surveys of health care professionals: a meta-analysis of techniques to improve response." *Evaluation & the health professions* 36.3 (2013): 382-407.
- ^{vi} Bethlehem, Jelke. "Selection bias in web surveys." *International Statistical Review* 78.2 (2010): 161-188.
- ^{vii} NJHCQI and The Nicholson Foundation, "Medicaid 2.0: Blueprint for the Future," March 2017 (https://thenicholsonfoundation.org/sites/default/files/Medicaid_Blueprint_for_the_Future.pdf)
- ^{viii} HIMSS "Interoperability" Definition (<http://www.himss.org/library/interoperability-standards/what-is-interoperability>)
- ^{ix} NJ County Map and Boundaries (<http://geology.com/county-map/new-jersey-county-map.gif>)
- ^x Broadband Statistics in NJ (<http://broadbandnow.com/New-Jersey>)
- ^{xi} NJ State Population: "State Population Totals Tables: 2010-2016" (<https://www.census.gov/data/tables/2016/demo/pepest/state-total.html>)
- ^{xii} Centers for Medicare and Medicaid Services, "Unique Count of Providers By State For Eligible Providers and Hospitals Paid by The EHR Incentive Program" (https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Downloads/June2017_UniqueCountofProvidersbyState.pdf)
- ^{xiii} A Profile of New Jersey's Physicians based on the American Medical Association Physician Masterfile of 2014 and American Association of Medical Colleges 2015 State Physician Workforce Data Book (<https://www.aamc.org/download/447206/data/newjerseyprofile.pdf>)
- ^{xiv} NJ Active Providers: Kaiser Family Foundation: Total Professionally Active Physicians April 2017 (<http://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>)