JOINT COMMISSION ON HEALTH CARE

PROVIDER DATA SHARING TO IMPROVE QUALITY OF CARE

TO THE GOVERNOR AND THE
GENERAL ASSEMBLY OF VIRGINIA

REPORT DOCUMENT #465

COMMONWEALTH OF VIRGINIA
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Code of Virginia § 30-168.

The Joint Commission on Health Care (the Commission) is established in the legislative branch of state government. The purpose of the Commission is to study, report and make recommendations on all areas of health care provision, regulation, insurance, liability, licensing, and delivery of services. In so doing, the Commission shall endeavor to ensure that the Commonwealth as provider, financier, and regulator adopts the most cost-effective and efficacious means of delivery of health care services so that the greatest number of Virginians receive quality health care. Further, the Commission shall encourage the development of uniform policies and services to ensure the availability of quality, affordable and accessible health services and provide a forum for continuing the review and study of programs and services.

The Commission may make recommendations and coordinate the proposals and recommendations of all commissions and agencies as to legislation affecting the provision and delivery of health care. For the purposes of this chapter, “health care” shall include behavioral health care.

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FINDINGS IN BRIEF

Providers can improve patient care and reduce unnecessary services with access to patient medical records
When providers are able to access a patient's medical history quickly and efficiently, they are able to make better clinical decisions and reduce unnecessary or duplicative tests. To accomplish this goal, the most important pieces of information are a complete prescription history for the patient, and the results of any recent lab or diagnostic tests.

Public programs that share data are meeting some data sharing needs, but require expansion or improvement to be effective
Two primary data sharing programs overseen by state agencies are the Prescription Monitoring Program (PMP) and the Emergency Department Care Coordination (EDCC) program. The PMP is an effective tool to collect and share with providers some prescription data, but is limited to a narrow subset of drugs that present a risk for addiction or over-prescribing. Creating a similar program that includes all prescriptions would address the number one piece of a patient's medical history that providers need. The EDCC program is a useful case management tool to assist individuals who frequently use hospital emergency rooms, but more non-hospital providers need to be added to maximize its benefits.

Multiple, fragmented programs and systems make it difficult for many providers to efficiently share data
There are a litany of private data sharing programs both within Virginia and nationally. Large health systems are often able to integrate these programs into their electronic medical records, but many smaller providers have to use multiple systems to access disparate pieces of a patient's medical history. This makes the data harder to access, and often discourages providers from using them at all. Bringing more of this data into one platform would enable easier access for providers.

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Provider Data Sharing to Improve Quality of Care

Improving the portability of patient medical data so that providers can improve care has been a longstanding focus within the health care community (see sidebar). Effectively sharing patient data can reduce the burden on patients, but must be done with strong safeguards to protect patient privacy. The Joint Commission on Health Care directed staff to study ways that Virginia can improve health care data sharing in Virginia. Specifically, the study resolution (see Appendix 2) directed staff to:

- assess current barriers that limit data sharing, including barriers to provider participation in existing data sharing programs;
- understand who is currently benefiting from data sharing and who is not able to benefit; and
- identify strategies to improve data sharing across providers.

Primary goal of sharing medical records is to improve the cost-effectiveness of patient care

Enabling providers to access patient records enables a patient's information to "follow them" through the health care system. Once a patient gives consent, the provider can electronically access that patient's medical records, reducing the need for the patient to transport physical records or for the provider to spend time contacting other providers for the necessary information. This is essentially like a patient bringing all of the necessary paper medical records and giving them to the provider, but it happens more efficiently and with less burden to the patient. Accessing patient records at the point of care can improve patient care and eliminate duplicative or unnecessary diagnostic tests.

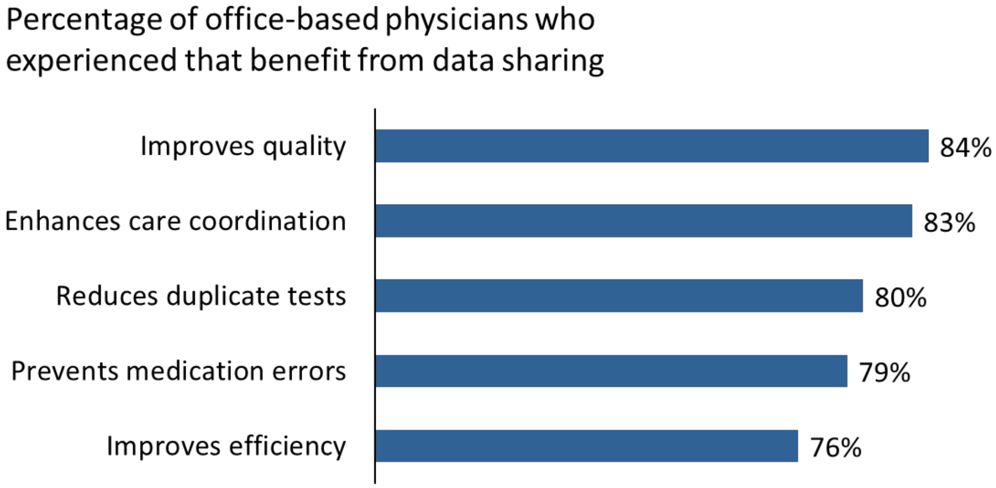
The **Office of the National Coordinator (ONC)** was established in 2004 to focus on promoting patient data sharing in a coordinated manner, known as interoperability. Subsequent federal laws, including the HITECH Act (2009) and the 21st Century Cures Act (2016) established incentives and penalties for providers to implement electronic medical records (EMRs) that meet federal requirements for interoperability.

Providers and payers can make more informed clinical decisions, reduce unnecessary care, and improve care coordination with patient data

Informing clinical decision-making

When providers are able to access a patient's medical history within the clinical workflow, it helps them make more informed clinical decisions. One example of this is if a provider diagnoses a patient with a new condition requiring medication, they can review all currently prescribed medications for that patient to ensure the new prescription won't cause any adverse reactions. Office-based physicians that use some form of patient data exchange list improved quality and reduced medication errors as two of the primary benefits of data sharing (FIGURE 1). Another example for the use of data sharing for clinical decision making is if a patient presents to a hospital or an urgent care with chest pains and shortness of breath, the providers can review any history of heart disease, respiratory illness, or other common causes to further their understanding of the patient's history and inform any necessary testing as part of making a diagnosis. These and many other examples help to improve patient care by enabling providers to make faster, more accurate diagnoses and treatment decisions.

FIGURE 1: Clinical benefits from patient data exchange for office-based providers



SOURCE: National Electronic Health Record Survey, 2019. Office of the National Coordinator.

Reducing unnecessary diagnostic tests

Sharing patient data securely with providers can also reduce costs by eliminating unnecessary diagnostic tests. A primary example of this occurs when a patient goes to the emergency room, receives diagnostic tests to determine their condition, and is discharged with a follow-up appointment for a specialist. Using the example of a head injury resulting in a concussion, if a neurologist can access the results of the hospital CT scan, they may be able to determine the appropriate follow-up care without further testing. Without that information, the patient may have to undergo another outpatient CT scan, at an additional cost, before the neurologist can make a treatment decision.

Improving care coordination

In addition to improving the quality of clinical care and reducing costs, patient data sharing can improve care coordination, particularly for patients with complex medical histories. Hospitals work to coordinate follow-up care when discharging patients, and insurance plans try to make sure patients are receiving necessary preventive or maintenance treatment to avoid acute illnesses. Providing these care coordinators with a clinical history that includes the doctors a patient is seeing, when their prescriptions are due to run out, and what other diagnoses they have, makes it easier to follow-up with patients and providers to track treatment adherence. In addition to this clinical information, qualitative information about barriers to care, such as a lack of transportation, can help care coordinators proactively address those barriers. This can be done through setting up transportation, or choosing a specialist or pharmacy within walking distance of their home or public transit.

Medication history and recent test results are the most useful patient information for providers

A patient's medication history was consistently raised by providers as the most important piece of medical information (TABLE 1). This is because a medication history can help a provider understand current diagnoses, ensure that the patient isn't exposed to adverse drug interactions if they need a new prescription, and help a new provider prescribe the most effective medication for that patient. Any provider that is treating a patient for the first time, including hospital staff, specialists seeing the patient in an outpatient setting, or any number of public providers such as Community Services Boards (CSBs), local health departments, or correctional facilities will benefit from having a full medication history for the patient.

TABLE 1: Medication history and recent test results are the most important information for providers

Type of information	Improve clinical decisions	Reduce unnecessary care	Improve care coordination
Medication history	✓	✓	
Test results	✓	✓	
Hospital visits, including ED	✓	✓	✓
Diagnoses	✓		✓
Barriers to care			✓

SOURCE: JCHC staff analysis of interviews and focus groups with providers in multiple settings, including hospitals, private practice, Community Services Boards, free clinics, and correctional facilities. See Appendix 1 for a full list of provider types included in the interviews and focus groups.

Recent test results, including blood tests, x-rays, or EKGs, were the second most important piece of patient information cited by clinicians. Having access to previous test results provides diagnostic information and can eliminate the need for duplicate tests. Additional information such as recent emergency room visits, a list of current providers, and notes about barriers to care are incredibly helpful to care coordinators and were commonly cited as important information to improve patient care.

These two data points can be particularly helpful for patients receiving episodic care. This can occur if a patient goes to the emergency room following an accident and is referred to a specialist for follow-up care. If the specialist can see all tests and any prescriptions from the hospital, that information can better inform their follow-up care. Additionally, a patient going to an urgent care center for an episodic illness can be better treated if the provider can access a more complete medical history than solely relying on the patient's recollection.

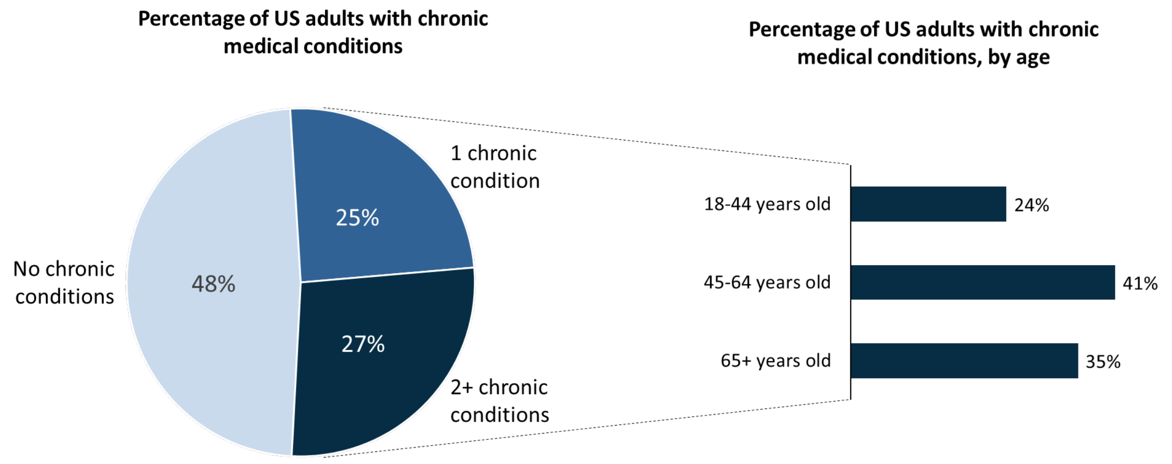
Effective data sharing is most beneficial to patients with complex needs

The use cases for making patient medical information available to their providers are much more common for patients with chronic conditions (see sidebar). The primary reason for this is that patients with chronic conditions are more likely to take multiple medications, need more frequent blood work or diagnostic tests, and receive care coordination services. Patients with complex medical conditions are also more likely to have to see a new provider for specialist care or for an emergency room visit.

Chronic conditions are commonly defined as those lasting more than one year that either require ongoing medical attention or limit daily functioning. Common chronic conditions are arthritis, COPD, cancer, and diabetes. All chronic conditions are estimated to account for 86% of total health care spending in the US.

The CDC estimates that more than a quarter of all adults in the United States have two or more chronic conditions (27.2%). Chronic conditions become much more common as individuals age. Individuals over 45 years of age account for 76% of those with at least one chronic condition (FIGURE 2). Individuals over 65 years of age are most likely to have chronic conditions, with nearly 90 percent having at least one chronic diagnosis.

FIGURE 2: More than one quarter of adults have multiple chronic conditions and can benefit significantly from robust data sharing



SOURCE: Centers for Disease Control and Prevention (CDC), *Prevalence of Multiple Chronic Conditions Among US Adults, 2018.*
NOTE: Chronic conditions included in the CDC analysis were arthritis, cancer, chronic obstructive pulmonary disease, coronary heart disease, current asthma, diabetes, hepatitis, hypertension, stroke, and weak/failing kidneys.

Effective data sharing requires integration with clinical workflow, IT systems, and strong privacy protections

Any data sharing program or system must give providers access to patient information in a seamless way, otherwise providers are unlikely to use it. The best way to incorporate patient medical histories into the clinical workflow is to integrate that information into the provider's existing electronic medical record (EMR). Providers want to access data quickly and easily, with minimal disruption to their workflows. Data that requires leaving the EMR to log in separately to another data portal, or to print out a separate sheet, is much less likely to be used.

However, when building these data interfaces between systems, the primary goal needs to be enabling a patient's data to "follow them" from one provider to another in a secure and controlled manner, and not on providing unrestricted access to a patient's information. This requires strong privacy protections that include both IT security and patient consent rules to ensure that only the necessary providers are able to access a patient's information.

Publicly operated systems meet some patient data sharing needs

Providers in Virginia interact with four data sharing platforms funded or operated by the Commonwealth. These programs are run through either the Department of Health (VDH) through its contract with Virginia Health Information (VHI), or through the Department of Health Professions (DHP).

- **Prescription Monitoring Program (PMP)** – established to help mitigate prescription misuse and promote the safe prescribing of controlled substances, this is a system where pharmacists and other dispensers of controlled substances are required to report each prescription, and other providers can check that system when treating a patient (and are required to when prescribing opioids).
- **Emergency Department Care Coordination Program (EDCC)** – established to help address "frequent fliers" in Virginia's emergency rooms, the system collects data on every emergency room and acute inpatient visit in Virginia, provides alerts to ER physicians and staff if a patient meets certain criteria (such as a history of frequent ER visits), and enables payers and community-based providers to be alerted to ER and acute inpatient visits and provide care management information back to the network to help with clinical decisions and discharge planning.
- **Public Health Reporting Pathway (PHRP)** – established to collect disease surveillance data for VDH epidemiology tracking and research purposes. All providers report certain conditions into the system and this data is reviewed and analyzed by VDH epidemiologists. Nearly all public health data, including COVID-19 lab results and vaccinations, are reported to VDH through the PHRP.
- **Advanced Healthcare Directives Registry (ADR)** – established to be a public clearinghouse for advanced care directives. Any individual with an advanced care directive can register and upload their document into the system. Any individual can access those documents if they have the person's information to look it up in the system.

Some of these systems meet a specific data sharing need identified by providers, but their usefulness for sharing a patient's medical history within the clinical workflow are limited (TABLE 2). The PMP and EDCC programs were designed to inform clinical decision-making, and do provide some limited information to meet provider's needs. The PHRP and ADR however were never designed or intended to meet the needs of providers for patient data sharing.

TABLE 2: Public programs that share patient data meet some data sharing needs while others have a different purpose

Type of information	PMP	EDCC	PHRP	ADR
Medication history	◐	○	○	○
Test results	○	○	◐	○
Hospital visits, including ED	○	●	○	○
Diagnoses	○	●	○	○
Barriers to care/SDOH	○	●	○	○

●=included ◐=partially included ○=not included

SOURCE: JCHC staff analysis of system capabilities and interviews with system administrators and users.
NOTE: SDOH stands for social determinants of health, such as housing and food insecurity, or transportation barriers.

The Prescription Monitoring Program is an extremely useful tool, but only includes a small subset of a patient's medication history

Providers indicated that the PMP is a valuable tool to mitigate the potential over-prescribing of controlled substances and that using the system is typically easy within their clinical workflow. The PMP includes data on schedule II-V drugs, as well as naloxone and medical cannabis. The drugs are reported by dispensers and can be accessed by a provider, if they are treating or consulting on that patient. Most dispensers have an automated reporting process through their dispensing software, meaning that the reporting of prescriptions is automated and does not require manual effort for most pharmacists. The majority of prescription history queries of the PMP from in-state providers are done through the provider's EMR or the dispenser's pharmacy management system. There was significant investment over the last several years to improve this integration after it was identified that having to access the PMP via a separate, web-based portal was a barrier to use. However, because the PMP is specific to controlled substances, the drugs included in the system are too limited to meet the clinical care needs of most providers. The prescriptions required to be reported to the PMP account for an estimated 10-15% of all prescriptions dispensed in Virginia.

Drugs are designated as **"scheduled drugs"** by the federal Drug Enforcement Agency based on the drug's relative abuse potential and likelihood of causing dependence when abused.

Full medication history for all patients could be made available to any provider who has consent to access it

Virginia could require the reporting of all prescriptions to a centralized database, and enable any provider to review a patient's full medication history if the patient gives consent. The process for reporting and accessing the information could be modeled after the PMP, but it would be for a different purpose and have different, specific rules for patient consent and provider access. Similar to the PMP, any dispenser of a prescribed drug in Virginia would be required to report the prescription to the central database. Providers would then get credentialed for access to the system, and could access a patient's prescription history either through a web-based portal or through an integrated interface in their EMR. The PMP currently works this way, but only for controlled substances.

Nebraska is the only state that has successfully implemented a program with mandatory reporting of all prescriptions. In Nebraska, a non-profit organization contracts with the Nebraska Department of Health and Human Services to operate the prescription drug monitoring program (PDMP), which collects a record of all medications dispensed in the state, even from patients paying cash or through mail order pharmacies. This information is then securely integrated into Nebraska's statewide health information exchange, so that providers are able to access a patient's medication history through that system, subject to the appropriate privacy safeguards. Nebraska's system provides a useful case study to compare the differences between Virginia's PMP, and any system designed to collect and make available a patient's full prescription history (TABLE 3). Two other states, Colorado and Maryland, have passed legislation to implement a similar system, but neither state's system is operational yet.

A system to provide a patient's complete medication history to their providers could be operated by the Department of Health Professions (DHP) or VHI, through their contract with VDH. The purpose of such a system is more in line with the mission of VHI and the other systems that it operates to leverage health care data to improve cost-effective care delivery. However, DHP already operates the PMP and has a contract with a vendor to perform essentially the same functions as would be necessary for this new system. It may be possible to leverage the existing IT infrastructure that DHP has set up for the PMP, while placing the governance of the system with VDH and VHI.

TABLE 3: A system to enable sharing of patients' medication history would be different from Virginia's current PMP

	Virginia PMP	Nebraska PDMP
Goals	Promote safe prescribing and dispensing for controlled substances	Reduce opioid abuse Provide full medication history to providers
Governance entity	Department of Health Professions	Health Information Technology Board
Prescriptions reported	Schedule II-V, naloxone, medical cannabis	All prescriptions dispensed in the state or to an address in the state
Patient consent	No patient opt-out	Patient opt-out for Health Information Exchange access; not reporting
Provider access	Providers who are treating or consulting on a patient	Providers who are treating or consulting on a patient

SOURCE: JCHC staff analysis of the Code of Virginia, Nebraska Revised Statutes, and interviews with staff from CyncHealth and the Department of Health Professions.
NOTE: Nebraska uses the same IT vendor for its controlled substance monitoring (similar to Virginia's PMP) and its full prescription history functionality.

If the General Assembly directs the creation of a system to make a patient's full medication history available to their providers, several implementation decisions will need to be made. These include:

- what agency or organization is responsible for the implementation and governance of the system;
- how to define all prescriptions, taking into consideration mail order, cash prescriptions, inpatient hospital prescriptions, and prescriptions filled out of state for Virginia residents (such as those living close to the North Carolina, Tennessee, Maryland, or DC border);
- how patients will provide consent, either through an active consent requirement, or through a passive (opt-out) consent model; and
- what safeguards will ensure providers only access the data they need.

All of these decisions may impact the cost to implement and maintain the system. There will also be initial costs to develop the data collection, storage, and access features of the system. These costs will be incurred by the state entity who runs the system, the dispensers who are required to report, and the providers who need to access the system. Nebraska paid for the initial investment and ongoing costs using two federal grants, one from the Bureau of Justice Assistance targeted to opioid, stimulant, and substance abuse reduction efforts and one from the Centers for Disease Control and Prevention (Virginia's PMP also receives over $1 million annually from a CDC grant for operations). Over time the federal sources of funds have changed, but they remain nearly fully funded with federal grants, and now some funding for Medicaid Enterprise Systems, because of the interface with the Nebraska Medicaid program.

The General Assembly could establish such a system in the Code of Virginia, and direct the appropriate state agency to work with stakeholders to make the necessary implementation decisions. It is likely to take about two years from the passage of any legislation to make the system operational. This is based on the time it took for Nebraska to implement their system and the estimated timeline in Maryland (see sidebar). During this two-year timeframe, implementation decisions can be made, any necessary regulations developed, the systems developed and tested, and outreach can be conducted to providers on the benefits of using the system.

Nebraska took about **two years to implement** its requirement to collect and make available all prescription drugs in its PDMP, passing legislation in February of 2016 and becoming operational in January of 2018. The Maryland statute was passed in the spring of 2022, with a required implementation date of January 1, 2024.

➔**OPTION 1:** The Joint Commission on Health Care could introduce legislation directing a state agency to develop a system to collect data on all prescriptions dispensed in Virginia, and use the system to make a patient's medication history available to a provider with consent of the patient.

EDCC is primarily used as a care coordination tool for hospital and health plan care coordinators

Care coordinators are the most common users of the EDCC and they indicate that it provides them with useful information to help their patients with complex medical needs and those that frequently visit hospital emergency rooms. Ninety two percent of all EDCC usage (outside of ED alerts) is from care coordinators at Virginia health insurance plans, including Medicaid managed care organizations (MCOs). The most useful components of the system for care coordinators are getting alerts when a patient visits an emergency room, and being able to review care insights and contact information for existing community providers. This helps the coordinators conduct proactive outreach to connect patients with preventive and maintenance care.

Conversely, emergency room physicians and staff indicate that they either don't use the system because it's not integrated into their EMR, or that the alerts provided are of modest value. While the EDCC is integrated into the EMR for most of the major health systems in Virginia, some are only able to receive a faxed printout with the patient alerts, and indicate that they don't review them as part of the clinical workflow. In health systems where the alerts are automated within the EMR, providers indicated that the security risk alerts are the most useful, but that because they are focused on understanding the reason for the visit and treating the patient, the other alerts are only somewhat useful (TABLE 4).

TABLE 4: EDCC provides alerts to ED providers if a patient meets certain criteria

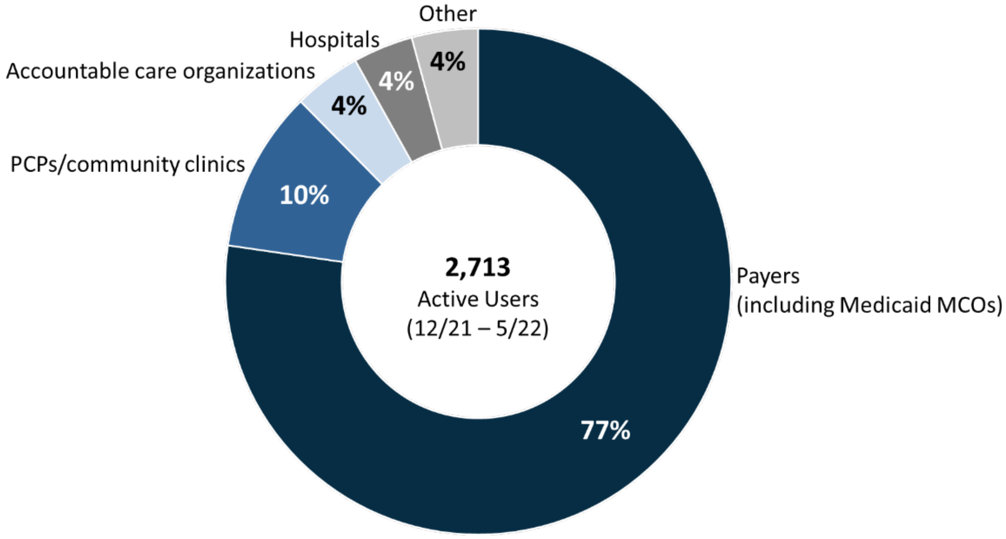
Alert type	Alert criteria
Frequent ED use	5 ED visits in a 12 month period
Multiple ED use	3 different EDs within 90 days
Care insights	Any patient with a care insight in the EDCC
Security	Prior security event entered into the EDCC
Advanced directive	Any patient with an advanced directive in the ADR
PMP information	Narx scores from the PMP (if greater than 500)
COVID	A recent COVID positive test result
Opioid overdose	Opioid overdose in the last 12 months
Alcohol abuse	Alcohol abuse in the last 12 months
Suicide risk	Suicide attempt, self-harm, or ideation in the last 12 months
Behavioral health	Diagnosis within the last 12 months

SOURCE: JCHC staff analysis of system capabilities and interviews with system administrators and users.

EDCC program can be leveraged to help additional downstream providers and improve functionality for care coordinators

The EDCC program is being used extensively by Medicaid MCOs to provide care coordination and case management support to patients with complex medical needs and those who heavily utilize hospital emergency rooms (FIGURE 3). Now that the program is established, its functionality could benefit other providers outside of hospitals to improve their ability to care for patients with whom they have no pre-existing relationship. Additionally, improved use of the existing system to record important patient information, and improved integration with MCO case management systems, could improve how useful the system is for care coordination.

FIGURE 3: Medicaid MCOs are currently the primary non-ED users of the EDCC



SOURCE: JCHC staff analysis of VHI data on registered and active users of the EDCC system.
NOTE: The EDCC is not currently able to accurately track hospital ED usage of the system, but is working on system upgrades to accurately track this in the future. The 4% of all registered users shown in the graphic includes just one account for each of the 104 acute care hospitals in the system.

Bringing several additional provider types onto the EDCC platform would benefit new and existing users

There are at least three provider types that could either directly benefit from being connected to the EDCC, or that would provide a strong benefit to existing users if they were connected. **Correctional facilities** would benefit from the type of alerts available to ED staff, including indicators of diagnoses, certain medications, and behavioral health conditions. **State mental health hospitals** and **CSBs** would provide valuable information to existing users, while also benefiting from the system's functionality.

State, regional, and local correctional facilities are responsible for providing health care to an average of 45,000 individuals as of January 2022. Providers in these settings have to do intake on new individuals, typically with limited information about their medical history. Anyone with a pre-existing condition requiring ongoing care needs to have that identified as quickly as possible so that the facility can continue that course of treatment. This is particularly important for any ongoing medications the individual takes. The EDCC would provide correctional facilities with information about recent ED visits, including diagnoses, indicators of opioid use, behavioral health conditions, as well as potential care insights with contact information for community providers. This information would significantly expedite the process of understanding an individual's medical history so that they can receive appropriate care.

CASE STUDY: Individuals requiring dialysis entering a correctional facility

Medical staff from two local jails shared that patients in need of dialysis illustrate the need for better data sharing. The jail needs to first identify that the patient requires dialysis and then get them established with a dialysis clinic. However before the jail can get the patient established with a clinic and start treatment, staff need to know the specifics of what type of dialysis the patient needs and how frequently. Without identifying the community dialysis clinic and obtaining the medical records, the jail will have to conduct an unnecessary set of tests to determine the appropriate treatment, delaying how quickly the patient can begin dialysis.

SOURCE: Focus group with the Virginia Sheriff’s Association and the Virginia Association of Regional Jails.

State mental health hospitals and CSBs would benefit from receiving data from the EDCC, and could also provide valuable information to other EDCC users. If state mental health hospitals participate in the EDCC, private emergency room providers would know if a patient was recently in a state hospital. This could help identify existing, community-based treatment plans and decrease the number of individuals who are sent to state hospitals multiple times while they work to get stabilized in the community. In FY21, 22 percent of all patients admitted to a state hospital were readmitted at least once in the same year (1,311 out of 6,037 admissions). CSBs provide case management services for many individuals with significant behavioral health diagnoses. Enabling all CSBs to provide care insights and notes in the EDCC would similarly help hospital providers conduct care coordination and identify appropriate treatments when individuals arrive in the emergency room with a behavioral health crisis.

The cost of bringing these entities onto the EDCC platform varies depending on whether they get full functionality or are simply able to query the EDCC for information about a patient. The options from least to greatest functionality are:

1. **“Read-only” access to EDCC data –** All correctional facilities could obtain access to receive information from the EDCC about incoming individuals at no cost. This is the primary functionality that these providers need.
2. **Integrated EDCC data** - There would be additional costs for each correctional facility if they want their EMR vendor to integrate the EDCC information into their EMR.
3. **Two-way communication with EDCC –** Providing full EDCC functionality, including the ability to upload data and care insights, to state hospitals and CSBs would require an investment.

In 2021 a DMAS workgroup identified adding state hospitals and CSBs to the EDCC as a priority and proposed using funding made available through provisions of the American Rescue Plan Act (see sidebar) for the initial investment. The workgroup estimated the first year cost to be $5 million, with ongoing annual costs of $1 million. ARPA funding is available to be spent through calendar year 2024, so if funding is appropriated during the 2023 session, at least the initial $5 million costs can be satisfied without using general funds.

The **American Rescue Plan Act (ARPA)** was a federal law that provided financial relief to state and local governments, businesses, and individuals impacted by the COVID-19 pandemic. One ARPA provision increased the federal match rate for Medicaid home and community-based services, temporarily freeing up general funds for other purposes.

➔**OPTION 2:** The Joint Commission on Health Care could introduce legislation to amend § 32.1-372 of the Code of Virginia to require the EDCC program to share information with all state, regional, and local correctional facilities in Virginia.

➔**OPTION 3:** The Joint Commission on Health Care could introduce legislation to amend § 32.1-372 of the Code of Virginia to require that information on all patients receiving services in state mental health hospitals be collected and shared as part of the EDCC program, and that all CSBs be enrolled in the program.

Additional standardization would improve the case management functionality of the EDCC program

Care coordinators who frequently use the EDCC consistently suggested several updates to the software that would improve their ability to effectively use the system. Some of this functionality already exists, but is underutilized.

- Obtaining more discharge plans from hospitals would significantly improve care coordinators' ability to follow-up with patients and community providers following discharge from the emergency room. Currently, care coordinators know that a patient was discharged, but unless the hospital uploads the discharge plan, they don't know what the next steps are for the patient.
- Improving users' compliance with inputting names and contact information for providers. EDCC users often either don't include this information, or put it in text fields as part of a care insight, rather than in the designated fields for contact information. This makes finding the information inconsistent and difficult.
- Integrating EDCC with existing case management software for MCOs would save significant time for MCO care coordinators. MCOs typically have an internal case management system, so care coordinators have to enter care insights and other information in both their internal system and the EDCC to effectively use both programs. This integration would likely also benefit CSBs who join the EDCC platform.

All of these changes will likely require software updates and user training, which may require funding. VHI could work with the EDCC IT vendor and the appropriate users from hospitals, MCOs, and downstream providers to determine whether these enhancements are cost-effective, and develop a plan to implement them if they are.

➔**OPTION 4:** The Joint Commission on Health Care could introduce a Chapter 1 bill directing VHI to work with the EDCC IT vendor and appropriate EDCC users to assess the cost to improve the sharing of discharge planning documents, provider contact information, and integration of the EDCC software with MCO case management software. VHI can then work the EDCC IT vendor to make the enhancements if there is agreement among the stakeholders that they are cost-effective.

Data sharing through EMRs and national HIEs provides the most robust data sharing currently available in Virginia

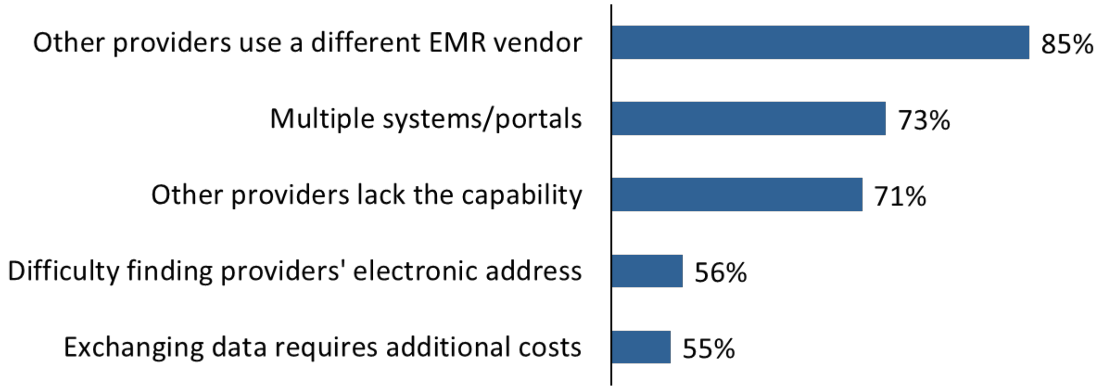
Privately established data sharing platforms, either through national non-profits or EMR vendors, provide strong models for patient data sharing. They can be extremely effective and some meet all of a provider's data needs by giving providers access to that data within their clinical workflow. These systems however are very dependent on the EMR that each provider uses. Health information exchanges (HIEs) are most effective for providers who use the same EMR vendor, or who have the resources to effectively integrate data from a national HIE into their EMR.

Current programs and systems to enable access to patient health data are extremely fragmented

There is currently a significant level of data sharing being done by Virginia providers. However, patient-level data sharing is extremely fragmented and varies widely across the state. In part, this is because there were few standards when it came to the development of EMRs, resulting in many different systems being designed to manage data in a very insular fashion. The significant investments by providers and the federal government to promote the use of EMRs and the interoperability between these systems have resulted in some excellent models of data sharing, but many providers are unable to tap into these systems for various reasons. Additionally, the proliferation of third party systems to share data, known generally as health information exchanges (HIE), have created more ways to share data. However providing this data outside of EMRs also helped create a fragmented network that some providers complain is burdensome and confusing to use.

Making a patient's information available to providers within their existing clinical workflow is a critical component of any successful data sharing initiative. Providers are working to treat patients efficiently, and if obtaining a patient's medical history takes additional time and effort, many providers indicated they'll forgo the information and rely on the patient's verbal medical history. In a national survey, 73 percent of office-based physicians cited the need to use multiple systems or portals as a barrier to data exchange (FIGURE 4).

FIGURE 4: Most common barriers to effective data exchange for office-based physicians

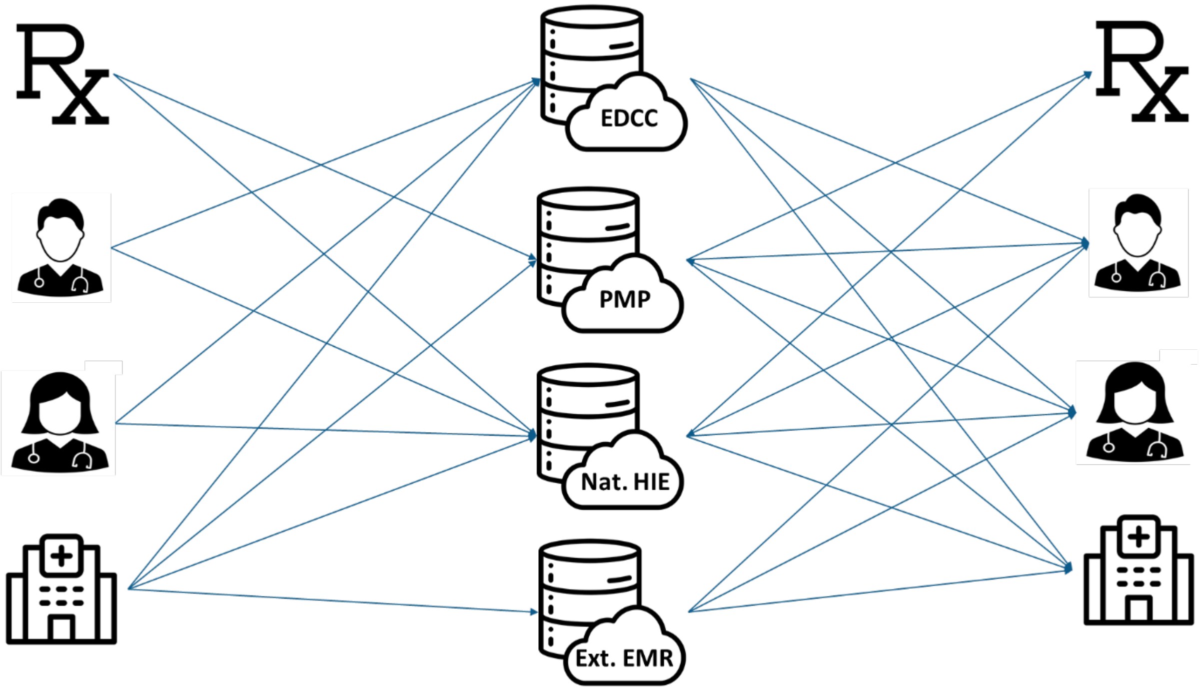


SOURCE: National Electronic Health Record Survey, 2019. Office of the National Coordinator.

The use of the EDCC program is an example of the importance of EMR integration. Emergency room staff at hospitals where the EDCC is integrated into their EMR were at least familiar with the alerts it provides, and used them sometimes, depending on the nature of the patient. At hospitals without EMR integration, where the alerts are sent via fax machine, emergency room staff report never taking the time out of their workflow to retrieve the fax and review it.

The fragmentation of data sharing programs and systems used by providers across Virginia makes EMR integration even more important for providers, but also more challenging. For example, a primary care provider that has access to a national HIE, the PMP, the EDCC, and the EMR of a local health system would need their EMR vendor to integrate each system. If they don't integrate the portals, they may be able to piece together a useful medical history for a new patient, but doing so will require logging into four different web-based portals with four different login credentials, and then manually reviewing that information to understand the patient's recent diagnoses, any test results, and a partial medication history (FIGURE 5). This requires time away from the patient for the provider, or additional administrative staff to do the work.

FIGURE 5: Current fragmentation requires providers to access multiple systems to understand a patient's medical history (conceptual diagram)

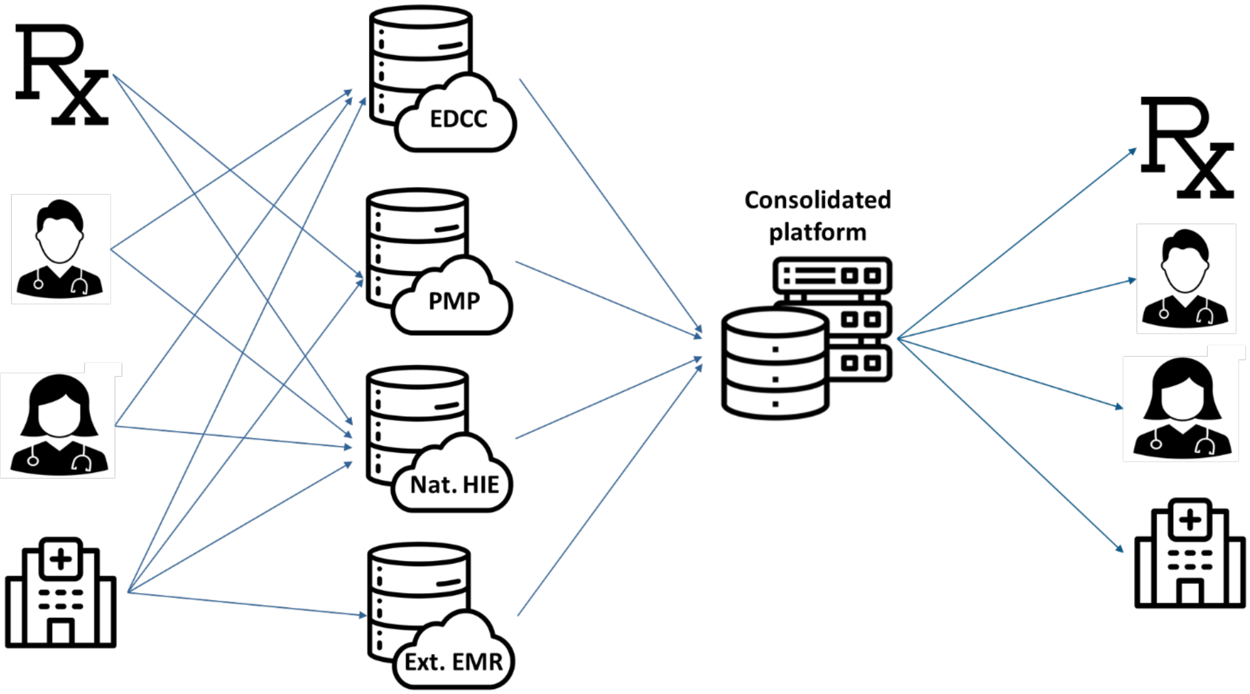


SOURCE: Interviews with VHI staff and staff from other state health information exchanges.

Developing a single platform would consolidate access to current systems and enable future capabilities to be developed in one place

Consolidating access to the currently fragmented network of data sharing systems would streamline the work of reviewing a patient's medical history for providers without EMR integration. Several other states partner with IT vendors to bring multiple data streams or existing systems together under a single access point for providers. Providers can still choose which data sharing programs they need access to (for example, they can join a national HIE but not the EDCC), and regardless of what they choose they can access those programs with a single login to a web-based portal. This means only one platform would need to be integrated into a provider's EMR, reducing the integration costs and making it more likely they may be able to achieve EMR integration (FIGURE 6). For providers with strong EMR integration who can already seamlessly access these systems, no change would be required. Several other states leverage multiple data sharing programs to provide a single platform that providers can access. These include Colorado, Arizona, Maryland, Iowa, and Nebraska.

FIGURE 6: Creating a single portal for providers to access exchange platforms would make access more streamlined (conceptual diagram)



SOURCE: Interviews with VHI staff and staff from other state health information exchanges.

In some states with a single portal to access multiple data exchanges, the portal is able to connect data about a single patient across the different data exchanges or data feeds that they receive. This single, patient identifier allows the consolidated platform to pull data from disparate systems together in one place to provide additional value to participating providers. For example, the portal can take data from emergency department visits, outpatient visits, and social safety net programs (such as supplemental nutrition assistance program – SNAP) to give users a more complete picture of whether a frequent ED utilizer is getting to outpatient appointments and if not, whether other social barriers are preventing or complicating that care. When this is done effectively, it is commonly known as a "health data utility", in that it provides more value than just bringing disparate data into one portal. It is actually able to put that data together in a meaningful way to improve patient care.

Developing this type of program in Virginia needs to be done thoughtfully and with input from the affected providers. If the single portal to access data sharing programs doesn't meet providers' needs, it won't be widely used. There are also several major implementation decisions that would need to be made for this type of solution to be effective.

- **Governance –** designating what Board or other entity is responsible for overseeing the implementation and ensuring ongoing oversight of the program
- **Essential functionality –** identifying which existing programs will be available through the platform and what additional functionality will be developed
- **Data usage and access controls –** determining what data the platform will be receiving, how that data can be used, and who can have access to it
- **Plan for EMR integration –** identifying how the platform can be integrated into provider EMRs to get all patient data into one place
- **Communications and outreach –** marketing the solution to providers to ensure maximum participation
- **Privacy and IT security –** receiving patient consent and ensuring strict security protocols protect patient privacy
- **Funding –** determining whether a public funding source will be used or if it will be supported with user fees, or a combination of the two

The 2022 Appropriation Act directed VHI to develop a strategic plan to expand the EDCC program into a comprehensive, statewide health information exchange. As part of this strategic planning process, the JCHC could direct VHI to include in this plan a proposal to consolidate access to existing data sharing programs into a single platform. The proposal should include, at a minimum, the governance structure, the baseline functionality for the system, and a funding plan for implementation. The decisions regarding data usage, access controls, EMR integration, and outreach are very detailed and can be determined during implementation.

➔**OPTION 5:** The Joint Commission on Health Care could send a letter to Virginia Health Information directing them to include a proposal for a consolidated health information exchange platform as part of the strategic plan being developed under Item 295.M.3 of the 2022 Appropriation Act.

Leveraging the data sharing capabilities of major health systems would help community providers obtain more patient data

Many major health systems in Virginia have strong, internal data sharing capabilities through their EMR. Most of the EMR vendors can provide read only access to this information to external providers, if the health system is willing to do it and the external provider can pay the licensing fees.

Major EMR vendors have built data exchanges for providers that use the same vendor

Many of the major EMR softwares also include optional packages where a user can access a patient's data from any other provider using the same software. Because the EMRs are the same, the user interface is seamless and providers are able to incorporate reviewing the data into their existing, clinical workflow. Twelve of the 16 largest health systems in Virginia all use the same, primary EMR vendor. The extent to which they have each enabled this functionality is unknown, but this capacity makes data sharing much easier for Virginians who receive most or all of their care through one of these health systems.

Providers' access to HIE or EMR data is controlled by user credentials and system checks to ensure providers are only accessing data for their patients. Examples include requiring providers to upload a patient roster and limiting access to that roster, and requiring certification any time a provider accesses data for a new patient.

Major EMR vendors can also provide external, read-only access to their EMR for outside providers. So for example, a primary care provider in private practice can receive a log-in to view the patient medical records at a large health system in their community. This access is typically provided through a web-based interface where the provider can use their credentials to access any patient data from the other provider's EMR. This is a strong solution, but it does require a separate login outside of their EMR, so providers that use it indicate that it is more cumbersome. There is also a cost to provide external providers with these read-only accounts, so the originating provider or the external provider has to cover the cost of that access.

Case Study: Ballad Health System

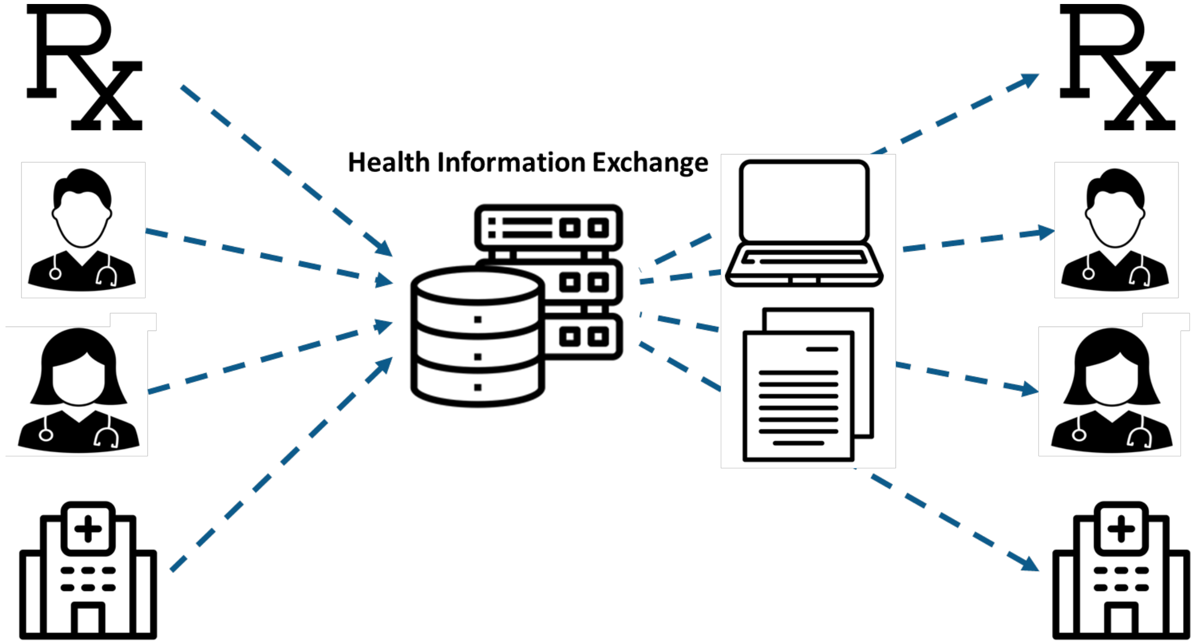
Ballad Health is a comprehensive health system that includes hospitals, outpatient physician practices, and urgent care centers across southwest Virginia, eastern Tennessee, and western North Carolina. With few exceptions, nearly all providers under the Ballad umbrella are on the same EMR platform, EPIC. This enables a provider anywhere in the system to view all of the patient's medical history that is associated with a Ballad hospital or provider. Additionally, the EMR enables providers to find any medical history from external providers that also use EPIC as their EMR vendor (known as Care Everywhere). They can also view the continuity of care documents (CCD's) available through the national HIEs that Ballad participates in, including multiple regional exchanges and the national eHealth Exchange and Care Quality. These external linkages are integrated into the EMR by allowing the provider to find the information through the EMR, and then giving them the option to "pull" that information into the patient's Ballad medical record. Additionally, external providers are able to access information within Ballad's EMR if they sign up for a service through the EMR vendor known as EpicCare Link.

SOURCE: Interview with Ballad Medical Associates Medical Director for Ambulatory EMR, and Clinical Informaticist.

All major health systems in Virginia participate in national data exchanges, but functionality is limited by IT integration

There are national HIEs that have the capacity to provide seamless, secure access to a patient's medical history within the provider's clinical workflow. These HIEs work by having participating providers upload a core set of patient data from their EMR to the HIE. The HIE can aggregate all of the information it receives about a patient from participating providers and providers can access what's called a continuity of care document (CCD) that includes a standard set of information about the patient (FIGURE 7).

FIGURE 7: HIEs seek to provide a core set of patient information to participating providers

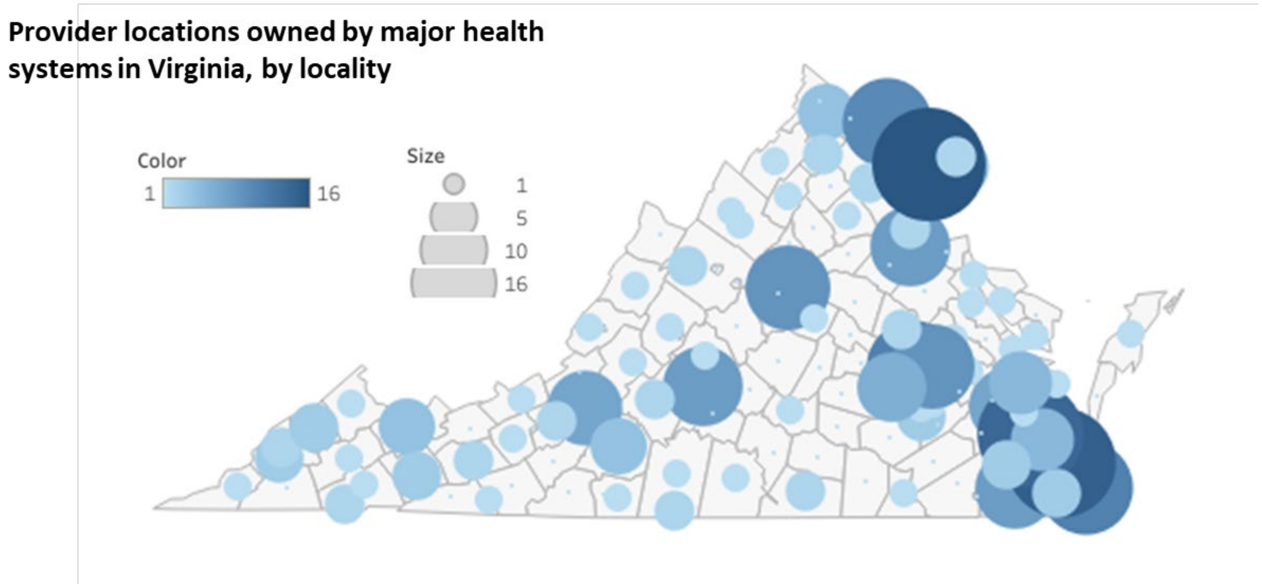


SOURCE: JCHC staff analysis of HIE models and interviews with users.

The usefulness of national HIEs is extremely dependent on how well-integrated it is with a provider's internal EMR. When integration is done well, the provider can see the necessary patient medical history as part of the medical record through their EMR. This enables them to easily find the information they need, such as a medication history or lab results, within their regular workflow. However some HIE users do not have this capability, and instead receive the CCD as a separate document that needs to be reviewed outside of their EMR. In some cases, the patient's information from each of the other participating providers is simply appended together, creating one extremely long document that is very time intensive to review and glean meaningful information from. If the information is useful, it then needs to be entered into the EMR manually.

All of the major health systems in Virginia participate in at least one common national HIE. These health systems collectively employ between 23 and 40 percent of all physicians in Virginia (estimates are based on full time equivalents and vary based on the data source and definition of employed physicians). Many major health systems are able to integrate these HIEs within their primary EMRs, maximizing the use of the systems. Nationally, about 70 percent of hospitals are able to integrate data exchange capabilities into their EMR, and this is consistent with estimates in Virginia based on interviews with providers in different hospital systems and an analysis of the facilities owned by the hospital systems across the state. However because this capability largely exists within major health systems, the benefits are primarily in Virginia's most populated areas, including northern Virginia, Tidewater, and the greater Richmond area (FIGURE 8).

FIGURE 8: Health systems with strong HIE functionality are primarily in large urban and suburban areas



SOURCE: JCHC staff analysis of VHI data on health system subsidiaries and participant data from two major, national HIEs, eHealth Exchange and Care Quality.

Supporting access to existing data sharing capabilities through major health systems would improve data sharing for community providers

Large health systems already have the capability to allow external providers to view the medical records stored within their EMRs. In many regions of the state, particularly northern Virginia, central Virginia, and Tidewater, a significant amount of patient care is provided through large health systems. For external providers in these areas, being able to access a patient's medical records through the health systems can provide a significant portion of a patient's medical history.

External providers currently have the ability to gain access to health system EMRs, but the cost to purchase the user license and make any necessary IT updates are a significant barrier. One free clinic indicated that it would have cost them between $10,000 - $15,000 in one-time costs to obtain access to a large health system's EMR in their area. This included the cost to access the information, and make necessary IT system changes internally to integrate into their EMR. Another barrier raised by health systems is that they need to verify that the individual with access to the data is a credentialed provider treating that patient. Some EMRs are not set up well to do this verification, making the integration of this information through a consolidated platform all the more valuable (see Option 5).

Virginia could establish a grant program to pay for the initial costs to get more community providers access to large health system data sharing capabilities. Community based providers could include, but not be limited to, private primary care or specialist practices, free clinics or federally qualified health centers (FQHCs), and CSBs. To apply for the grant, providers would need to demonstrate the overlap between their patient population and that of the health system or systems that they want to connect with, as well as how they'll use that connection to improve patient care, reduce duplicative services, or improve administrative efficiency. The grant program could begin as a one-time investment, and then could be extended if funds are available based on the demand from providers.

➔**OPTION 6:** The Joint Commission on Health Care could introduce legislation creating a grant program to pay for the initial costs of connecting community-based health care providers to the data sharing platforms operated by large health systems.

Federal grant funding should be considered as an option to pay for improvements to health care data sharing in Virginia

There are often federal grants available that could be leveraged to help pay for at least any initial costs to provide greater access for community providers. The Office of the National Coordinator (ONC; see sidebar) has an open grant solicitation under which they may award additional grants through 2027 to improve interoperability and data sharing. Virginia could apply for a grant to fund sub-grants to community providers who demonstrate a need to connect with large health system data sharing platforms in their area. Federal grant funding could also be considered as a mechanism to fund other policy options, such as a program to collect and make available all medications (Option 1), or a consolidated data exchange platform (Option 5).

The **Office of the National Coordinator (ONC)** was established in the federal Department of Health and Human Services in 2004 to focus on promoting patient data sharing, known as interoperability.

Appendix 1: Sources and methods

JCHC staff conducted this research by interviewing provider groups, staff at organizations that operate health data exchanges, subject matter experts, and users of current health data exchange programs and systems. Staff also collected and analyzed data on the usage of current, public data sharing programs in Virginia. Finally, staff reviewed research literature on the benefits and challenges with successful health information exchanges.

Interviews and focus groups

To understand the data sharing needs of providers across the health care spectrum, JCHC staff conducted focus groups and interviews with representatives of 10 provider types through their professional associations or state agencies that oversee them. These interviews included site visits to two hospitals. The provider types covered by the interviews and focus groups are:

- Community-based behavioral health providers (Virginia Association of Community-Based Providers)
- Community Services Boards (CSBs)
- Free clinics (Virginia Association of Free and Charitable Clinics)
- Federally Qualified Health Centers (Virginia Community Healthcare Association)
- Hospitals and health systems (Virginia Hospital and Healthcare Association)
- Local jails (Virginia Sheriff's Association)
- Pharmacists (Virginia Pharmacists Association)
- Physician practices (Medical Society of Virginia)
- Regional jails (Regional Jail Association
- State mental health hospitals
- State prisons

To understand the strengths and weaknesses of Virginia's primary, public data sharing platform (the EDCC program), JCHC staff also conducted two focus groups with current users of the EDCC System. These focus groups included users from hospital emergency departments, hospital case management staff, health insurance case management staff, a CSB, and the Virginia Association of Health Plans.

JCHC staff also observed two focus groups hosted by Virginia Health Information (VHI) that included key Virginia stakeholders such as hospitals, physician groups, health insurance plans, CSBs, state agencies, and non-profit health information exchange organizations.

To understand how other state health information exchanges operate, JCHC staff conducted interviews with two national trade associations focused on health information exchanges. Staff also conducted interviews with staff from two health information exchanges that provide services in five other states.

Data analysis

JCHC staff worked with VHI and the Department of Health Professions to obtain information on the current usage of public health information exchange programs. The specific information collected for each program is listed below.

EDCC Program

- Total hospitals participating and total registered users associated with those hopsitals
- Non-hospital organizations participating and total registered users associated with those organizations
- Data on the usage of the system among non-hospital users for a six-month period, including:
    - Number of log ins
    - Number of hours logged in
    - Number of patient records viewed

Prescription Monitoring Program

- Total prescriptions uploaded annually
- Prescription history requests annually
- Number of clinicians able to access the PMP for prescription history

Public Health Reporting Pathway (PHRP)

- Total number of organizations that are actively submitting data to VDH through the PHRP for a six-month period

Advanced Care Directives Registry

- Total number of legal documents in the system
- Total number of individuals with at least one legal document in the system

JCHC staff also analyzed data from VHI on the subsidiary organizations associated with "parent" health systems in Virginia. The data included the subsidiary organization address, type of health care provider, and the number of employed and contracted FTEs for the parent organization (cumulative across all subsidiaries).

Appendix 2: Study resolution

Provider Data Sharing to Improve Quality of Care

Authorized by the Joint Commission on Healthcare on December 7, 2021

WHEREAS, Virginia Health Information (VHI) houses and manages all of Virginia's statewide and national health information exchange efforts; and

WHEREAS, Virginia collects patient information from hospital emergency departments, federally qualified health centers, community service boards, skilled nursing facilities, clinics, accountable care organizations/managed care entities, and all health plans; and

WHEREAS, organizations and health plans may participate in the All Payer Claims Database (APCD), Emergency Department Care Coordination (EDCC) Program, the Public Health Reporting Pathway, EXCHANGE, and the Advance Health Care Directives Registry; and

WHEREAS, many smaller organizations that would benefit from participation in VHI's programs lack the legal or technological resources to join; and

WHEREAS, patient information that is shared through the various programs are not all integrated, and data are not available to all participants, now, therefore be it

RESOLVED, by the Joint Commission on Health Care that staff be directed to study the strengths and shortfalls across Virginia's data sharing programs.

In conducting its study, staff shall (i) assess the barriers that prevent additional data integration across state data sharing programs; (ii) understand why providers may not be participating in data sharing programs and what might incentive increased participation; (iii) identify which populations are currently benefitting from state data sharing programs and whether any groups are disproportionately impacted; and (iv) how the information being collected and shared may be used to better understand and improve care quality across the state.

The Joint Commission on Health Care shall make recommendations as necessary and review other related issues as warranted.

In accordance with § 30-169.1 of the Code of Virginia, all agencies of the Commonwealth, including the Virginia Department of Health, the Virginia Department of Medical Assistance Services, and Virginia Department of Social Services shall provide assistance, information, and data to the JCHC for this study upon request. Assistance is also requested from Virginia Health Information.

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