

TECHNOLOGY



12. STATEWIDE HEALTH INFORMATION TECHNICAL ARCHITECTURE		
Domain	Technology	
DESCRIPTION	This initiative investigates, develops, and implements approaches to optimize Colorado's health information technical architecture.	
Background & Findings	In Colorado, there are many organizations and systems – both public and private – that collect, house, and disseminate health information. The result of these multiple – often disparate systems – is gaps and overlaps in the information and differences in the quality of the information.	
	This often results in multiple inconsistent "sources of truth" for data – the consequences of which include lack of trust in the data, overlap of requests for data, incomplete information available, lack of integration of clinical and claims (and other) data, and overall difficulty in obtaining and sharing the information necessary for improving the quality and cost of care.	
	With the massive and ever-increasing amount of digital (health) information, an information architecture is essential to ensure that people can access – and trust – the information they need when and where they need it.	
	Having a complete and well documented Health Information Technical Architecture will enable the state to make effective decisions about which projects to pursue and the technology or products to use in the implementation.	
	This may also be referred to as Enterprise (Reference) Architecture.	
Purpose	The purpose of this initiative is to develop and document agreed upon technical approaches and processes to capture, store/manage, and disseminate health information in Colorado.	
Оитсоме(s)	An agreed upon statewide logical technical architectural model that optimizes how health information in Colorado is captured, managed, and disseminated.	



SUGGESTED APPROACH(ES)	 A statewide Health Information Technical Architecture encompasses all the characteristics of an Enterprise information architecture, but is focused on health information. It includes common policies, procedures, and technical approaches that both support and promote the expanded use of health IT in Colorado. Discover Conduct an environmental scan to understand the current statewide and state agency health information technical infrastructure/architecture(s) to: Gain an understanding of the categories and characteristics of the various participants in the health care ecosystem in Colorado. Understand what components are already in place. Identify interfaces already in place, as well as those that are planned. Understand what resources are available to effectively and efficiently leverage. Work with key stakeholder groups to understand their needs for – and contributions to – health information.
	 systems work together. Show how different services will be made available. Include the supporting services that are optimized for (large-scale) multiple uses and multiple users. Leverage the "Colorado Client Information Sharing System Interoperability Roadmap."⁸¹ Identify and develop high priority use cases for development. Involve key stakeholders to develop and evaluate various pro forma models – especially of high priority use cases – to optimize the collection, management, and dissemination of health information across organizations.
	Implement
	 Involve key stakeholders to develop/select the model to implement.
	 Educate stakeholders on how to use the model. Involve key stakeholders in the on-going development and maintenance of the model.
	 Explore creating a permanent governing body for the information architecture as part of overall information governance.

⁸¹ Colorado Division of Criminal Justice Website, Children and Youth Information Sharing web page accessed October 2017 at <u>www.colorado.gov/pacific/dcj/ccyis</u>



	 Considerations Determine the scope of what is included in the information architecture. The architecture must be scalable and able to evolve over time. The approach should be to use a "capture once, store simply, disseminate as required". The architecture should support care being delivered in the most appropriate, mutually convenient, cost effective manner. The architecture must accommodate multi-device, multi-channel access to (appropriate) sources of statewide health and health-related information and services including: Statewide health care price and quality information. Access to, and integration of, disease and other types of registries. 	
Suggested Initiator	OeHI, OIT	
Тіміng	Begin immediately	
INTERDEPENDENCIES	 Initiative #3 Harmonize and Advance Data Sharing and Health Information Exchange Capabilities Across Colorado Initiative #4 Integrate Behavioral, Physical, Claims, Social, and Other Health Data Initiative #5 Statewide Health Information Governance Initiative #6 Health IT Portfolio/Program Management Initiative #7 Accessible and Affordable Health IT and Information Sharing Initiative #8 Accessible and Affordable Health Analytics Initiative #9 Best Practices for Health Information Cybersecurity Threats and Incidents Initiative #10 Consent Management Initiative #11 Digital Health Innovation Initiative #13 Ease Quality Reporting Burden Initiative #14 Uniquely Identify a Person Across Systems Initiative #15 Unique Provider Identification and Organizational Affiliations Initiative #16 Broadband and Virtual Care Access 	
POTENTIAL FUNDING SOURCE(S)	 ARRA/HITECH 90/10 MMIS Maintenance & Operations (50/50 or 75/25) State budget funds 	



13. EASE QUALITY REPORTING BURDEN		
Domain	Technology	
DESCRIPTION	This initiative provides technology support to ease the capture, aggregation, and reporting of agreed upon, quality reporting measures.	
Background & Findings	Providers are inundated with, and over-burdened by, the multiple reporting requirements from State and Federal programs – as well as various commercial payers. Many of these requirements request the same or similar data, but in different formats and on different schedules. This lack of coordination causes an increased workload, with little or no recognized return, for the providers.	
	In addition to these varied reporting requirements, many providers still need to enter much of the data manually because not all EHRs capture (or calculate) the data necessary for quality reporting.	
	Providers are typically willing to provide the data but are seeking relief from the multiple, sometimes redundant, requests by multiple entities such as ACOs, commercial payers, Medicaid, Medicare, and other State programs.	
Purpose	The purpose of this initiative is to ease the burden on providers for submitting quality measures.	
	This initiative should provide tools that streamline the processes used to report on quality measures.	
Оитсоме(s)	Reduced reporting workload for providers. Simplified and streamlined processes for reporting required measures.	
	Affordable tools readily available to assist providers with the capture and reporting of their quality data.	
Suggested Approach(es)	Discover Conduct an environmental survey to understand providers' various reporting requirements, formats, and schedules. Leverage work already done such as SIM environmental scan, 	



	 RCCO HIT/HIE assessment, Community Mental Health Center (CMHC) assessment, and TEFT Grant assessment. Assess EHRs and other technologies for their ability to capture and report on required measures.
	 Plan Identify the top priority areas by obtaining input from providers regarding the areas of most concern for them. Involve key stakeholders as advisors to ensure their top priority areas are addressed early. Identify the reporting requirements that are within the State's purview – such as health care reform efforts that are currently underway – and identify ways to streamline the types, formats, and schedules for reporting. Agree upon a set of quality and performance data that is required (and collected) by State and State programs. Implement Harmonize quality measure definitions, reporting schedules, and data formats where possible and feasible. Provide tools to enhance the capture, analysis, and reporting of quality data.
SUGGESTED INITIATOR	CCMCN, HCPF, SIM
Тіміng	Continue and accelerate ongoing efforts
INTERDEPENDENCIES	 Initiative #3 Harmonize and Advance Data Sharing and Health Information Exchange Capabilities Across Colorado Initiative #6 Health IT Portfolio/Program Management Initiative #7 Accessible and Affordable Health IT and Information Sharing Initiative #8 Accessible and Affordable Health Analytics Initiative #14 Uniquely Identify a Person Across Systems Initiative #15 Unique Provider Identification and Organizational Affiliations Initiative #16 Broadband and Virtual Care Access
Potential Funding Source(s)	 SIM ARRA/HITECH 90/10 MMIS Maintenance & Operations (50/50 or 75/25) User/subscription fees



14. UNIQUELY IDENTIFY A PERSON ACROSS SYSTEMS		
Domain	Technology	
DESCRIPTION	This initiative develops and implements a comprehensive approach – that includes both health and social services information – that will be used across Colorado to uniquely identify a person across multiple systems and points of care.	
BACKGROUND & FINDINGS	Achieving health care reform and the Triple Aim requires the unambiguous identification of a person. This is needed so that health information can be accurately associated with an individual.	
	Throughout Colorado's health and social services organizations – including State agencies – there are many siloed Master Patient/Person Index (MPI) implementations. Most of these MPIs are focused on patient identification and are typically used by a single organization or system.	
	Knowing that the information presented is for the correct individual, and that it is accurate, complete, and current is critical to appropriate care. Today, each of these siloed systems has its own unique way of identifying a person. These individual system's identifications are rarely, if ever, compatible with other organizational systems. This makes the effort to correctly identify a patient across organizations – and ensure that the data retrieved is accurate – both cumbersome and expensive.	
	Due, in part, to the differences in these MPIs, information about a person cannot easily be shared across systems.	
	It will continue to be difficult for Colorado to integrate information from various systems and points of care – so that a person's complete health information and the services provided to an individual can be easily known and coordinated – until a single common approach to identity is implemented statewide.	
Purpose	The purpose of this initiative is to uniquely and accurately identify a person across a variety of health systems and settings. This will facilitate accurate and appropriate data sharing, care and service coordination, value based payment information, and accurate analytics.	



Outcome(s)	An agreed upon approach is implemented in Colorado to accurately and unambiguously identify an individual across multiple systems and settings. This will result in more easily obtaining complete health information about an individual by reducing the burden and uncertainty of matching that patient across multiple organizations.
	Optimally, person identification "as a service" is available, accurate, reasonably priced, and widely used.
Suggested Approach(es)	While initially starting with, and focusing on, solving the state agency needs, the scope for this initiative could ultimately be broader than the state's current health IT infrastructure.
	Summary of Suggested Approach
	 Understand state agency needs, as well as the needs across the state. Procure and deploy a system to manage person identity that will be used across state agency systems Consider using the state's recognized master person identifier when communicating with state agencies Note: It would be left to the non-state agency organizations as to how to harmonize their internal identifiers with the one to be used in communications with state agencies. Conduct a needs analysis and requirements gathering to determine if the state agency approach to person identifier is applicable to, and feasible for, broader statewide usage. This requires understanding the broad and diverse requirements needed for health and social services information linking throughout the state.
	 Discover Conduct an environmental scan to determine the current environment related to person identity capabilities. Inventory the number, types, capabilities, sources, and resources expended on multiple MPIs. Determine the extent and cost of unnecessary duplication. Harmonize Develop an approach for implementing a common person identity that can be used by multiple systems statewide. Start with the needs of state agencies. Identify and prioritize external organization needs and likely usages. Identify longer term uses for the system.



 should (or could) be used for harmonization. 6. To assist in gaining provider and consumer input, use statewide social advocates such as: Colorado Consumer Health Initiative Center for Patient Advocacy 7. Identify the benefits of a harmonized approach and use this information to educate providers and consumers. 8. Develop and prioritize use cases. 9. Align and consolidate identity-matching approaches into a common statewide approach. 10. Leverage and align the approach with federal direction and capabilities/systems on statewide common services approach. ^{82,63} 11. Consider the use of biometrics for uniquely identifying a person. 12. Consider offering MPI as a service. Implement 13. Develop and implement tools and processes to support statewide identity matching. 14. Consider incentives to promote the sharing of health and health-related information. 15. Consider using the state's recognized master person identifier as a requirement when communicating with state agencies. Considerations Align with My Colorado's client index, to the extent possible. May be use-case specific algorithms – but the approach should be able to be used broadly.
HCPF, OeHI Continue and accelerate ongoing efforts

⁸² The Sequoia Project. "A Framework for Cross-Organizational Patient Identity Matching". November 10, 2015 (draft for public review and comment). <u>http://sequoiaproject.org/framework-for-cross-organizational-patient-identity-</u>

 <u>matching/</u>
 ⁸³ HealthIT.gov website, SAFER (Safety Assurance Factors for EHR Resilience) web page, accessed October 2017 at <u>www.healthit.gov/policy-researchers-implementers/safer/guide/sg006</u>



INTERDEPENDENCIES	Initiative #11 Initiative #12 Initiative #13	Support Care Coordination in Communities Statewide Harmonize and Advance Data Sharing and Health Information Exchange Capabilities Across Colorado Statewide Health Information Governance Consent Management Digital Health Innovation Statewide Health Information Technical Architecture Ease Quality Reporting Burden Unique Provider Identification and Organizational Affiliations
Potential Funding Source(s)	MMIS Ma	ITECH 90/10 aintenance and Operations (50/50 or 75/25) oscription fees

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Technology
This initiative develops and implements an electronic approach that will be used across Colorado for uniquely identifying a health care provider and their organizational affiliations – and ultimately their patient relationships.
Provider directories are critical tools for implementing value-based payment. Providers may practice at multiple locations, hold different roles in various organizations, be compensated by multiple payers, and have different relationships with different patients.
These multiple roles and affiliations must be able to be readily and correctly identified as Colorado moves towards value based care. Provider directories can support several components of value based care models. Examples of these are provided below.
Patient Attribution Value based care models compensate providers based on the providers meeting certain quality metrics – many of which are patient centric. Proper attribution of patients to providers is essential. Accurate attribution is important so the results of patient related quality metrics can be linked to the appropriate provider, enabling the provider to be compensated appropriately Provider directories can support attribution by supplying accurate, up to date information on providers.
Care Coordination/Transition Provider directories can provide much needed information for providers who refer patients. This can range from contact information to organizational affiliation.
Research Support Provider directories can provide the information needed to conduct research and policy development in support of improved access for medically underserved populations, especially as it relates to the health professional workforce.



	 In Colorado there are many health care organizations, state agencies, and other entities that support multiple provider directories. These directories have been created and maintained to meet the needs specific to an organization. Colorado does not have a statewide provider directory. As a result, the costs to maintain the directories are duplicated, accuracy is not assured, and the benefits remain isolated. CDPHE's Primary Care Office is finalizing its health care provider directory. It will provide detailed information about practice patterns and network adequacy for insurers. 		
Purpose	The purpose of this initiative is to provide a single statewide source of truth for provider information and their organizational affiliations. This information will support accurate attribution models and value-based care.		
Outcome(s)	 There is a recognized, current, and accurate statewide source of truth for provider information available to – and used by – all who require the information. Provider Directory as-a-service is available, accurate, reasonably priced, and used statewide. 		
SUGGESTED Approach(es)	 Ultimately, this system should be able to link providers in the following ways. Provider → Unique ID Provider → Practice(s) Provider → Payer Plan(s) Provider → Patient(s) Discover Determine the current capabilities related to provider identity and their associated organizations. Inventory the number, types, capabilities, sources, and resources expended on the use of multiple sources of data for provider information. Determine the extent and cost of potentially unnecessary duplication. 		



Har	monize
5. 6. 7.	identification, organization identification and relationships, providers, and patients.
9. 10	into a common statewide approach.Consider broad statewide use of the Provider Directory currently under development in CDPHE.Develop a long-term sustainability approach.
	. Develop policies that drive the use of the Provider Directory.
	 Consider offering this as a utility or a service Consider mandating the use of this directory for all state-related business
How • •	 v this directory could be used: As a recognized, unambiguous, and relied upon identifier of providers when doing business with the state. As a resource for provider/patient attribution in value based payment models. To associate providers with payer plans.

Suggested Initiator	OeHI, CDPHI	E
Тіміng	Continue and	accelerate ongoing efforts – Go live Q1 2018
INTERDEPENDENCIES		Support Care Coordination in Communities Statewide Integrate Behavioral, Physical, Claims, Social, and Other Health Data Statewide Health Information Governance Accessible and Affordable Health IT and Information Sharing Consent Management Statewide Health Information Technical Architecture



Potential Funding Source(s)	 ARRA/HITECH 90/10 MMIS Maintenance &Operations) (50/50 or 75/25) Subscription/user fees State funds
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16. BROADBAND AND VIRTUAL CARE ACCESS		
Domain	Technology	
DESCRIPTION	This initiative develops and supports approaches that lead to ubiquitous, redundant, reliable, and affordable broadband access for health organizations and consumers.	
BACKGROUND & FINDINGS	Achieving health care reform and the Triple Aim will require continuous investment in new modes and models of care. These may include virtual patient visits and patient-generated/patient- captured information accomplished through multiple evolving technologies.	
	Colorado has already made significant inroads into providing remote access to care through telehealth services. But, broadband access required for telehealth is limited, or non-existent, in many of Colorado's rural communities. The lack of access severely inhibits effective participation in telehealth and access to other emerging capabilities.	
	In Colorado's rural areas, only 7 in 10 people have access to broadband. The state wants to raise rural broadband availability from 70 percent to 85 percent by the end of 2018, and pave the path to achieve 100 percent access for all of Colorado by 2020. ⁸⁴	
	Telehealth is an important avenue to support health care reform and is increasingly seen as an acceptable alternative to many types of in person provider visits.	
	While providing care remotely using telehealth or virtual visit technologies is not a new method of care, there are significant discussions and initiatives relating to key issues; among them are reimbursement to providers for services rendered via telehealth, and addressing licensure requirements when the patient and the provide are in different states.	

⁸⁴ State of Colorado website, "Gov. Hickenlooper Announces Executive Director for Broadband Office," accessed October 2017 at <u>https://www.colorado.gov/governor/news/gov-hickenlooper-announces-executive-directorbroadband-office</u>



	Colorado's Medicaid program, Health First Colorado, ⁸⁵ covers reimbursements for live video telemedicine for both medical and mental health services at the same rate as in-person services. Remote Patient Monitoring is reimbursed, but only on a flat fee basis for chronic disease management.
	Similarly, Medicare has updated its payment structure to broaden the telehealth services it covers. ⁸⁶
	Significant attention is also being given by the Veterans' Administration ⁸⁷ (VA) on using telehealth/virtual visits to improve access to care by veterans.
	The Veterans E-health and Telemedicine Support Act of 2017 allows a licensed health care professional of the Department of Veterans Affairs to practice his or her profession using telemedicine at any location in any state, regardless of where the professional or patient is located. The proposed rule "Authority of Health Care Providers to Practice Telehealth" ⁸⁸ was published in the Federal Register on October 2, 2017. This is significant for Colorado as there are 399,458 ⁸⁹ veterans living in the state. These veterans, located around the state, reside in communities ranging from urban to the very rural.
	Colorado needs to address the disparate access to broadband.
Purpose	The purpose of this initiative is to ensure equitable access to high speed connectivity.
Outcome(s)	All Coloradans have access to high speed connectivity sufficient for participating in virtual care programs.

⁸⁵ State of Colorado website, Department of Health Care Policy & Financing, Telemedicine web page, accessed October 2017 at <u>www.colorado.gov/pacific/hcpf/telemedicine</u> ⁸⁶ Centers for Medicare & Medicaid website, Telehealth Services. "Rural Health Fact Sheet Series". Accessed

October 2017 at https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/TelehealthSrvcsfctsht.pdf

⁸⁷ U.S. Department of Veterans Affairs. "VA Telehealth Services" web page. Accessed October 2017 at

 http://www.telehealth.va.gov/
 ⁸⁸ The Federal Register. A proposed rule by the Veterans Affairs Department, "Authority of Health Care Providers To Practice Telehealth." October 2, 2017. Accessed October 2017 at https://www.federalregister.gov/documents/2017/10/02/2017-20951/authority-of-health-care-providers-to-practicetelehealth

⁸⁹ U.S. Census Bureau website, Veterans Statistics – Colorado web page, accessed October 2017 at https://www2.census.gov/library/visualizations/2015/comm/vets/co-vet.pdf



Access to high speed connectivity will decrease disparities of care across Colorado by providing residents with broader availability of telehealth and other emerging technologies for care.

SUGGESTED APPROACH(ES)	 Broadband Leverage existing resources such as: Governor's Office of Broadband Broadband Deployment Board⁹⁰ Colorado Broadband Data and Development Program⁹¹ (CBDDP), which is a statewide broadband mapping and planning initiative (Broadband Mapping Team)⁹² led by the Office of Information Technology (OIT) Office of OIT Department of Local Affairs (DOLA) Broadband Program⁹³ which includes the Broadband Strategy Team⁹⁴ Knowledge and members of the Colorado Rural Health Center⁹⁵ Universal Service Administration Company⁹⁶ (USAC) FirstNet⁹⁷ Colorado Telehealth Network Consider innovative alternatives (e.g. satellite, 5G, etc.) to address key barriers such as cost and availability. Address issues associated with connectivity that could be particular barbane bis (alces headbane)
	available (already in place), but inhibited by easement or other issues.
	 Virtual Care 1. Leverage existing organizations and resources such as: Colorado Telehealth Network Colorado Rural Health Center

⁹⁰ State of Colorado website, The Broadband Fund web page, accessed October 2017 at <u>www.colorado.gov/pacific/dora-broadband-fund/deployment-board</u>

⁹¹ State of Colorado website, Office of Information Technology, Broadband web page , accessed October 2017 at <u>http://www.oit.state.co.us/broadband</u>

⁹² The Broadband Mapping Team develops and maintains a database and an interactive online map of broadband service in Colorado, accessed October 2017 at http://broadband.co.gov/about/

⁹³ State of Colorado website, Department of Local Affairs web page accessed October 2017 at https://www.colorado.gov/pacific/dola/broadband-program. DOLA supports the efforts of local governments to improve Broadband service to their constituents to achieve enhanced community and economic development.

⁹⁴ The Broadband Strategy Team focuses on organizing, facilitating, and educating stakeholder groups to increase awareness of the importance of broadband and help communities in identifying broadband solutions.

² Colorado Rural Health Center website, Home page, accessed October 2017 at <u>http://coruralhealth.org/</u>

⁹⁶ Universal Service Administration Company website, About web page, accessed October 2017 at <u>http://www.usac.org/about/default.aspx</u>

⁹⁷ FirstNet (the First Responder Network Authority) is an independent authority within the U.S. Department of Commerce. Authorized by Congress in 2012, its mission is to develop, build and operate the nationwide, broadband network that equips first responders to save lives and protect U.S. communities. FirstNet websites are accessed October 2017 at www.firstnet.gov and www.firstnet.com.



	 Colorado Telehealth Network Environmental Scan⁹⁸ Colorado Telehealth Alliance⁹⁹ Leverage innovation partners to develop/enhance telehealth capabilities. Leverage and refine as needed policies supporting equal compensation for in-person and virtual care visits. Prioritize key needs that can be addressed through the broader use of telehealth and focus on meeting those needs. Identify and address licensing issues that limit how providers can provide services across state lines.
Suggested Initiator	OeHI, Office of Broadband, Colorado Telehealth Network, Colorado Rural Health Center
Тіміng	Continue and accelerate ongoing efforts – Immediately
INTERDEPENDENCIES	 Initiative #1 Support Care Coordination in Communities Statewide Initiative #2 Promote and Enable Consumer Engagement, Empowerment, and Health Literacy Initiative #7 Accessible and Affordable Health IT and Information Sharing Initiative #8 Accessible and Affordable Health Analytics Initiative #11 Digital Health Innovation Initiative #12 Statewide Health Information Technical Architecture Initiative #13 Ease Quality Reporting Burden
Potential Funding Source(s)	 Federal and state broadband funding opportunities^{100,101,102,103} USAC Public/private partnerships HRSA telehealth funding opportunities¹⁰⁴ USDA Distance Learning & Telemedicine Grant¹⁰⁵ SIM funding

⁹⁸ Colorado Telehealth Network Website accessed October 2017 at <u>http://cotelehealth.com/</u>

⁹⁹ Colorado Telehealth Network website, Colorado Telehealth Alliance (CTA) web page accessed October 2017 at http://cotelehealth.com/ctwg/. The goal of the alliance is to inform, educate, and promote the adoption of telehealth across Colorado. ¹⁰⁰ National Telecommunications & Information Administration (NTIA) website accessed October 2017 at

www.ntia.doc.gov/grants-combined ¹⁰¹ State of Colorado website, State Broadband Portal web page, accessed October 2017 at

http://broadband.co.gov/funding-opportunities-update-august-2017/

¹⁰² FCC (Federal Communications Commission) website, Connect America Fund web page, accessed October 2017 at <u>www.fcc.gov/general/connect-america-fund-caf</u>¹⁰³ Universal Service Administration Company website, About web page, accessed October 2017 at

http://www.usac.org/about/default.aspx ¹⁰⁴ HRSA (Health & Resources Administration) website, Telehealth Programs web page, accessed October 2017 at

https://www.hrsa.gov/rural-health/telehealth/index.html

¹⁰⁵ USDA Website, Programs and Services web page accessed October 2017 at https://www.rd.usda.gov/programsservices/distance-learning-telemedicine-grants