Brief for Colorado eHealth Commission
Prepared by CedarBridge Group LLC, June 1, 2016

Overview of Master Data Management

As health technology ecosystems develop, access to the right person's health data at the right place at the right time by the appropriate provider is imperative for quality care delivery and care coordination. More complex needs for accurate provider and person data is essential for advanced payment models and delivery system reform improving health, quality of care, and reducing costs. To improve quality and accuracy of provider and client data, a unified master data management (MDM) approach must be planned to identify and coordinate data requiring strategy, policy, workflow transformation, in addition to technology solutions, data quality and availability. Developing a MDM strategy supports a unified view of provider and client data across the data sharing networks and can be achieved by coordinating architecture and services improving quality of data and collaboration across providers and organizations. This brief discusses one of the two primary functions to consider for MDM strategy—the Master Provider Directory.

Provider Directory Overview

A Provider Directory is a maintained electronic database of information about health care providers. The term provider directory can mean many different things to people, and varying levels of detail about providers and organizations can be included in a directory, including but not limited to: provider's full name, physical location of practice site(s), secure messaging information, credentials, offered services, hours of operation, languages, specialties, patient attribution to the provider, and provider attribution to a clinic, health system, health plan and payer.[1] Provider Directories should manage the provider information at the organization level and individual provider level. Provider Directories are intended to gather provider information from authorized local, regional, state and national sources, as stewards of the most accurate and current data. The current scope for Medicaid Provider Directory is a comprehensive, updated index of Medicaid provider information for Medicaid specific use cases. Additional data sources in an integrated architecture could expand the scope to a multi-use Provider Directory supporting additional use cases. A basic provider directory architecture and planning for future complex needs should be considered early in planning efforts to build a back-end extensible architecture.

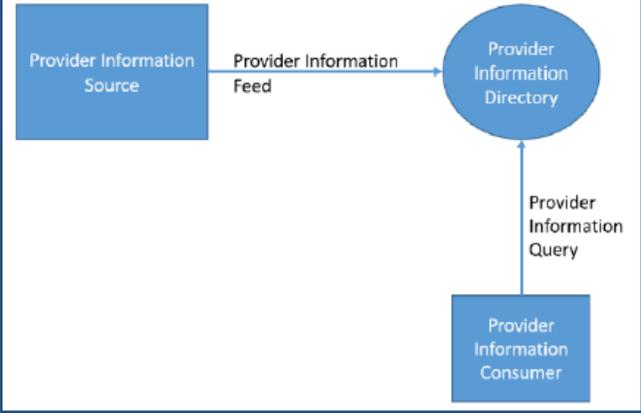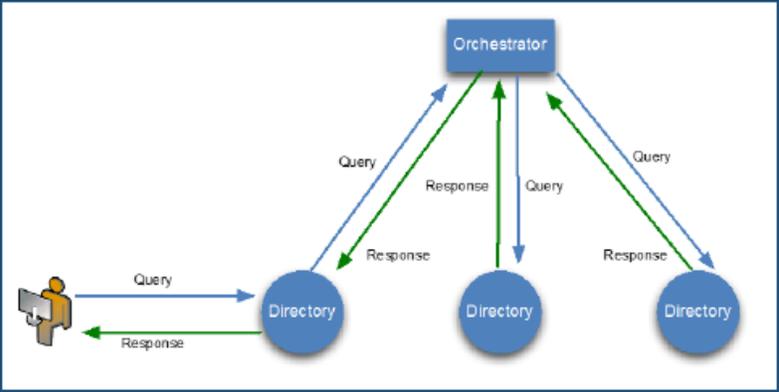[1] CBG Wisconsin provider directory brief

Value Proposition for Provider Directory

The table below identifies possible value proposition use cases for developing a common Provider Directory (PD). PDs are critical tools for care delivery use cases, as well as value-based payment reform use cases.

Agency/Organization	Summary of Value Proposition or Potential Use
HCPF (Medicaid, RCCOs)	• Enhances care coordination and HIE Network usage. • Improves the quality and completeness of data, collaboration, and reducing associated costs. • Supports clinical quality measurement.
CDPHE (PCO, LPHAs, registries and surveillance systems)	• Analyzes health workforce access, workforce shortage, planning, and analysis. • Population health measurement.
Other government agencies	• Can be expanded health professional data indexes, (e.g., human services case workers) to identify care coordinator resources, case managers, and other public service professionals providing health-related services to an individual.
HIEs	• Improves data quality and reliability of provider information to support care coordination across providers, organization and provider look up and accurate routing for event notification, transitions of care.
Providers	• Supports the appropriate routing of secure messaging, transitions of care, and notifications/alerts. • Increases a provider's ability to engage in care coordination activities. • Helps to streamline referral workflows, including the ability to refer to social service agencies or community-based organizations. • Increases accurate provider information that is visible to other providers, individuals and payers in a defined area, including the provider's attributions, credentials, and offered services. • Supports quality reporting and new payment models. • Attribution enabling providers to declare active care memberships with patients and attributes a patient the active members of their care team.

Agency/Organization	Summary of Value Proposition or Potential Use
Consumer	• Improves access to up-to-date provider information including whether provider is accepting new patients, languages spoken, specialties, etc. • Improves patient safety by ensuring that a provider can efficiently and effectively coordinate their care and issue referrals, as well as facilitating providers' use of notifications and alerts. • Increases the available pool of providers, facilities, and organizations to whom an individual can be referred efficiently.
Payers	• Support care coordination activities and quality measurement for reimbursement. • Improves efficiency in contracting and payment processes. • Supports member services with up-to-date provider information. • Increases information about providers serving a particular area for analysis of where shortages may be occurring. • Allows visibility into the attribution of providers for analysis, payment and management/oversight.
Policy/Research	• Allows for accuracy in cross-payer analysis, management and regulatory oversight. • Improves cross-agency coordination and accuracy, while reducing data reporting errors.

Three technical models for Provider Directories:

Architecture Diagram Descriptions	Architecture Diagram Illustration
Basic (centralized) Provider Index Model - In this architecture model, the provider information source is a common feed to a central index for provider information. Primary use cases, include: • Sending new and updated provider information (golden record), and • User/system queries for updated provider information.	 *Figure 1: Basic Centralized Provider Directory Model*
Simple Federated Provider Directory Model - In this model, a single provider information consumer queries a provider directory, which is subordinated to a higher-level node in a federated structure. The query is then relayed to the higher-level node, which provides the orchestrator function for this query. The orchestrator relays the query to other subordinated directories and sends an aggregated response to the initial directory queried by the consumer. Finally, the response is relayed to the consumer.[2]	 *Figure 2: Simple Federated Provider Directory Model*

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[2] ONC State Innovation Guide "Provider Directory to Support Value Based Payment Models" February 2016.

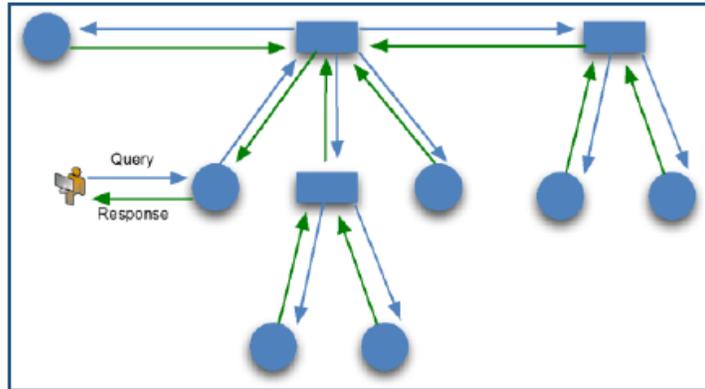|	
Complex Federated Provider Directory Model - This federated model can be extended to a network of networks concept with numerous peers and multiple layers. In this more complex model additional orchestrators are engaged and the initial orchestrator aggregates multiple aggregated responses before responding to the initial directory query.	Figure 3: Complex Federated Provider Directory Model

PD architecture diagrams source: ONC Provider Directory State Implementation Guide https://www.healthit.gov/sites/default/files/statestrategicimplementationguide-providerdirectories-v1-final.pdf

Provider Data Sources
Provider information should come from the most reliable sources possible, including authorized regional, state, and national sources, as stewards of the most accurate and current data. For example:

Colorado Data Sources
- DORA Licensure
- APCD
- Private provider organizations
- Qualified Health Plan (QHP) data
- Medicaid Enterprise (MMIS, BIDM, CBMS)
- HIEs
- Commercial payer network data files
- Health Insurance Exchange

National provider data sources:
- National Plan and Provider Enumeration System (NPPES) - NPI
- National Associations
- Delivery Networks
- State Licensing Bureaus
- Commercial Registries
- Health Information Exchanges

Policies to ensure data quality

Data quality - Data quality is a perception or an assessment of data's fitness to serve its purpose in a given context)

- Develop a provider data management strategy with common objectives, metrics, and reporting requirements.
- Establish data governance encompassing the management and ownership of data within an organization and across organizations ensuring data provenance and integrity.
- Data Remediation Policies and Processes, including automated and manual processes, should be recommended or required to improve data integrity at all points in the shared provider information network.
- Identify common provider data attributes for a common set of provider or resource data elements to be discussed and decided upon for consistent data entry, data sharing, and quality assessment.

Operational Considerations

Financing - HITECH, Medicaid, and SIM funding sources may apply to provider directory planning and design, development, and implementation (DDI). There are HITECH and Medicaid funding possibilities and implications identified in three State Medicaid Directors Letters:

- 11-004: Use of Administrative Funds to Support HIE.
- 10-016: Federal Funding for Medicaid HIT.
- 16-003: Availability of HITECH Administrative Matching Funds to Help Professionals and Hospitals Eligible for Medicaid EHR Incentive Payments Connect to Other Medicaid Providers.

HITECH Act 90/10 funding is available for HIE (and provider directories in support of expanding HIE) activities provided that the funds are used for time-limited design, development, and implementation activities. Under HITECH, the funding can only support eligible providers (Eligible Professionals and Eligible Hospitals). States must leverage efficiencies with other federal HIE funding. HIE costs are divided equitably across other payers based on the "fair share" principle and are appropriately allocated.

While provider directory projects are potentially eligible for HITECH administrative federal financial participation (FFP), in some cases project activities may be more appropriately funded by Medicaid Management Information System (MMIS) or Eligibility & Enrollment (E&E) FFP, also at a 90 percent match for design and development costs. Colorado can leverage these existing CMS funding authorities to build out provider directories, as well as other tools of master data management (master person indexes, identity proofing and management, etc.) within their Medicaid/CHIP systems enterprises.[3] MMIS funds are not allowable for infrastructure outside the MMIS environment and for either MMIS or E&E funding, cost allocation with other entities accruing benefit is still required.

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[3] ONC Provider Directory State Implementation Guide https://www.healthit.gov/sites/default/files/statestrategicimplementationguide-providerdirectories-v1-final.pdf February 2016

Sustainability

- **Policy Levers** can be leveraged to recommend or require usage of a central Provider Directory for multiple uses. Examples include Maine designated the HIE Provider Directory the primary source for credentialing providers in the state. Multiple policy levers are available to advance use of the shared tool, sustainability, and improved data quality for shared provider information. See recommendations for Commission to consider.

- **Managed care contracts** are additional avenues for articulating requirements for shared HIT resources to support care coordination, transitions of care, and quality measurement. CMS Managed Care Rule released on April 27, 2016 outlines advance HIE services and shared HIT infrastructure needed to support Medicaid Managed Care.

- **Other sustainability options** include but are not limited to requiring qualified health plans to identify and share network provider information and planning for additional use cases outside of care delivery such as workforce planning with different provider information data sources and funding streams. Any use cases beyond the Medicaid population must be cost-allocated.

Accountability

- **Objectives** – Accountability among data sources and users is essential for shared technical services. Agreement upon common objectives with measureable outcomes is important for measuring quality of data, remediation process, and success of shared Provider Directory through performance measures, reduced costs, or improved access to care.

- **Metrics** – Aligned and articulated measures are important to temper expectations on implementation milestones and extensibility planning.

- **Progress reporting** – All participating data sources and data users should produce regular progress reports on the agreed upon, aligned metrics advancing the objectives and overall master data management strategy.

Evaluation – Evaluation is important to maintain accountability and data stewardship within a complex data ecosystem. Evaluating performance measures, data quality, and auditing plans ensures compliance and integrity among data sources and users.

Provider Directory Implementation Planning

To implement a master Provider Directory supporting improve care coordination, quality of data, and transparency in provider information, detailed implementation planning must take place to think through the dependencies and potential barriers to building an extensible index of provider information. The following list identifies key implementation planning considerations for a successful reusable, shared directory.

- Identify working groups to discuss and provide a recommendation to the Commission on the following topics.

- Identify priority uses for the directory - care coordination, quality measurement, population health measurement, workforce, etc.

- Discuss and develop a phased approach for additional uses cases identifying additional data sources and/or standards.

- Identify business, technical, and operational dependencies to develop a detailed work breakdown structure sequencing tasks and the critical path for implementation

- Define Rules of Engagement and phasing for a provider data source participation and other required policies, procedures, data use agreements to support a cooperative, shared provider directory service.

- Conduct a technical system assessment of current and developing provider directory services to assess capacity to support priority use cases and users.

- Develop technical scope – (e.g. Centralized Provider Directory vs. Distributed Provider Directories; Query v. Push Model for Provider records; Authorization; Caching; Data Elements; Multiple v. Single Matching Result; Auditing; On-boarding HISPs for Directory Services into the WSC Trust Community.

- Identify and align other policy, program, and technical efforts requiring Provider Directory functions with other HIT efforts.

References: Information on Provider Directories was collected from previous CedarBridge Group contract work, ONC Provider Directory State Implementation Guide, Medicaid's HIE Implementation-Advanced Planning Document Update, and industry standard organizations.