**Colorado Office of eHealth Innovation**

**Master Data Management (MDM)**

**Draft Business and Functional Requirements**

**for Public Comment**

**October 12, 2016**

The Colorado Office of eHealth Innovation has released this document to receive public comment. Any individual, stakeholder group, vendor, or company is encouraged to offer written comments for consideration. To submit written comments:

* Submit all comments to [RFPQuestions@state.co.us](mailto:RFPQuestions@state.co.us)
* All comments and questions should be received no later than October 31, 2016.
* Provide all comments in an MS-Excel Spreadsheet or MS-Word Document. It is preferred, but not required, that comments on specific items lists in the document (i.e., Business Needs, Use Cases, Functional Requirements) are provided utilizing the following the layout:

|  |  |
| --- | --- |
| **ID (reference**  **as provided in the document)** | **Question/Comment** |
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|  |  |

Comments on the following topics are encouraged:

* Does the General Information Section provide enough information on the history, guiding principles, and objectives of this project?
* For the specific Business Needs, Use Cases, Functional Requirements:
  + Are the descriptions correct and understandable? If not, please provide additional wording or clarifications.
  + Are any Business Needs, Use Cases, Functional Requirements missing? If so, please provide additional detail.
  + Are they in the correct phase as provided on the document? If not, please suggest a different phase.
* Does the Data Sources Section seem complete? If not, please provide additional data sources that should be included.
* Does the Data Elements Section seem complete? If not, please provide additional data elements that should be included.

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|  |  |
| --- | --- |
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# General Information

## Background

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. An 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.1 On January 15, 2016, Colorado’s Department of Health Care Policy and Finance (HCPF) submitted an [Implementation Advanced Planning Document (IAPD)](https://www.colorado.gov/pacific/sites/default/files/Colorado%20Medicaid%20HIT%20IAPDU%20Appendix%20D%20Public%20Release%20-%206-22-16.pdf) update to request Federal Financial Participation (FFP) Health Information Technology for Economic and Clinical Health (HITECH) Health Information Exchange (HIE) administrative funding from the Centers for Medicare & Medicaid Services (CMS). This funding covers provider onboarding, as well as the strategic development and implementation of core infrastructure and technical solutions to create and enhance sustainable solutions for Medicaid providers serving Medicaid clients and supporting Medicaid eligible professionals’ (EPs’) and eligible hospitals’ (EHs’) achievement of Meaningful Use (MU). The IAPD-Update (IAPD-U) aligns to HCPF’s strategy for advancing Health Information Technology (HIT) and HIE in Colorado by supporting the design, development, testing, and implementation of core infrastructure and technical solutions promoting HIE for EPs and EHs aligned with Colorado’s Medicaid Electronic Health Record (EHR) Incentive Program authorized by the American Recovery and Reinvestment Act of 2009 (ARRA).2

HCPF seeks to improve processes, policies, and tools to link and synchronize Medicaid member, provider, and organization data across HIE data sources. A unified view of Medicaid provider and member data across the Medicaid and HIE Network is necessary to improve the precision and quality of data necessary to enhance care coordination and data quality for eCQM reporting for Medicaid members. 2

By implementing both a Master Patient Index (MPI) and Master Provider Directory (MPD) as the foundation for its MDM, HCPF will achieve a unified view of Medicaid provider and member data across the HIE networks, improving the quality of data, collaboration, and reducing costs, and will also create a suite of data records and services that will allow HCPF to link and synchronize Medicaid member, provider, and organization data to HIE sources. This effort will result in a single, trusted, authoritative data source. The fully implemented MDM will include a Consents and Disclosures repository as part of Medicaid provider directory that will support precision for information sharing consents and disclosures across medical, behavioral, and substance abuse information. Creating a strong and legally sound consent framework will reduce barriers to information exchange improve interoperability and enhance care coordination.2

The MDM will be implemented based on the state’s HIE foundation to achieve a unified view of Medicaid provider and member data across the Medicaid and HIE Network. This will help to achieve HCPF’s vision of enhancing care coordination and HIE Network usage by improving the quality and completeness of data, collaboration, and reducing associated costs. The MDM solution, as a shared service, will support HCPF and both HIE providers, targeting HCPF/Medicaid-centric data, including eCQMs. This will allow HCPF to precisely correlate and synchronize member, provider, and organization data with HIE data sources. As this solution becomes available, HCPF will plan for and request the funding necessary to enable the MMIS to effectively utilize this service.2

To ensure effective coordination and alignment of strategic efforts, HCPF worked with the Office of eHealth Innovation (OeHI) to research and define an MDM strategy. OeHI is Colorado’s state designated entity responsible for coordinating strategic health IT initiatives and establishing data sharing and health IT governance through their eHealth Commission. To date, Colorado does not have a Master Data Management Plan for the sharing and exchanging health information, nor does it have a state-wide identity management or provider directory system that health care providers can access. Key stake-holders involved in the State Innovation Model (SIM) Grant articulated the need for a master-patient/person index (MPI) and master provider directory (MPD) during interviews conducted in June 2016. Additionally, MPI/MPD were selected as the top use case to advance SIM practices in their goals to integrate behavioral and physical health while advancing toward value-based payment.

The purpose of this document is to outline the specific Colorado business needs and use case objectives that will benefit from an integrated master data management platform which includes an MPI and MPD, and to identify the functional requirements that must be included in the MDM for these objectives to be achieved. The business needs and use cases were gathered from existing state documents and vetted through interviews and focus groups conducted in August 2016. They were then layered into three distinct program phases that will be used to define the implementation and rollout schedule. Base requirements in later stages may optionally be implemented in an earlier stage, as some requirements in phases two and three may need to be implemented earlier depending on the timing of the SIM and APD rollouts.

* **Year One Base Requirements** – Support Medicaid business needs and use cases by aligning Medicaid data sources for MPI/MPD. Also, support SIM needs for clinical care, HIE use cases, and eCQM solution use case. Optionally, year 2 base requirements needed for SIM (dependent on SIM direction and solution requirements), APD or other services could be implemented in this this phase.
* **Year Two Base Requirements** – Begin DORA and CDPHE data source integration, and integrate SIM/MPI/MPD solutions with the Medicaid MPI/MPD efforts. Optionally, year three base requirements needed for APD or other services could be implemented in this phase.
* **Year Three Base Requirements** – Expand to include other public/private partner and social determinants use cases.

## Guiding Principles

The following assumptions are the foundation and principles for which the business and functional requirements were developed:

* The initial phases of MDM include only an MPI and MPD.
* The State will not build its own MDM infrastructure.
* The State will not “rip and replace” MDM infrastructure where it already exists.
* MDM will be initially implemented around SIM and the Medicaid population, then expanded to improve the health of all citizens of Colorado.
* Current health information exchange initiatives and private sector technology initiatives will continue to maintain their own local MPIs where applicable.
* All systems will use national standards where available.

## General Objectives

Thisdocument will be used to identify Colorado’s needs and requirements for both an MPI and MPD, and also used to evaluate vendors and ensure alignment among its external partners. The following general objectives were noted as goals in the 2012 Comprehensive State Health Information Management Strategy (C-CHIMS) document.4 and are referenced with each of the business needs defined below.

|  |  |
| --- | --- |
| ID | General Objectives: |
| G1 | Improve information availability and interoperability within the State |
| G2 | Reduce costs and redundancy |
| G3 | Increase information agility |
| G4 | Increase information security |

## References

The following documents were used as reference to developing this requirements document.

|  |  |  |
| --- | --- | --- |
| Title: | By: | Date: |
| 1. Provider Directory Brief for the Colorado eHealth Commission | CedarBridge Group | June 2016 |
| 2. Colorado Implementation Advanced Planning Document (IAPD) Update | Colorado Department of Health Care Policy and Finance | April 2016 |
| 3. Master Patient Index Brief for the Colorado eHealth Commission | CedarBridge Group | June 2016 |
| 4. Comprehensive State Health Information Management Strategy | Colorado Department of Health Care Policy and Financing & Governor’s Office of Information Technology | August 2012 |
| 5. Provider directory work products of the Clinician Data Consortium | Colorado Department of Public Health & Environment (CDPHE), Primary Care Office | Various |

# Business Requirements

The following business needs were identified throughout the C-SHIMS document and/or identified through interviews with various stakeholders. Those immediate needs identified for Medicaid operations have been placed into phase one. Phase two represents those needs that will be addressed by connecting DORA and CDPHE with the Phase one Medicaid infrastructure. And, Phase 3 represents those needs that will be addressed when the broader stakeholder community is connected.

| ID | Business Need | General Objective(s) | MPI/MPD | Customer(s) | Base Phase Year |
| --- | --- | --- | --- | --- | --- |
| PHASE 1 BUSINESS NEEDS | | | | | |
| B01 | Improved availability of data considered to be sensitive at the person-level, but that could be made available in aggregate for analysis and reporting.4 | G1, G3, G4 | MPI | All | 1 |
| B03 | Reduce capture of data when it already exists and is available elsewhere.4 | G1, G2, G3 | BOTH | All | 1 |
| B04 | Provide information in a consistent and standard format to reduce data analysis effort.4 | G2 | BOTH | All | 1 |
| B05 | Information is available for real-time reporting.4 | G1, G3 | BOTH | State/Federal programs, commercial payers, CDPHE, other data senders/users, Providers – sending | 1 |
| B06 | Role-based access to ensure only authorized data exposure.4 | G1, G4 | MPD | All | 1 |
| B07 | Information should be auditable to ensure reliability and integrity of data for purposes including but not limited to meaningful use, credentialing, etc. | G4 | BOTH | All | 1 |
| B08 | Support a strategy for accurate cost, performance, and quality measurement of providers and organizations across State and Federal programs by linking patients with the providers involved in their care. | G1, G2, G3 | BOTH | Care delivery providers, other program participants required performance measure reporting | 1 |
| B09 | Improve quality and efficiency of information collected through facility licensing programs to be utilized for program administration and evaluation.4 | G1, G2 | MPD | All | 1 |
| B10 | Data capture should be simple and easy, using standardized data elements and collection processes that are simplified or automated. | G1, G2, G3 | BOTH | All | 1 |
| B11 | Administrative transactions should occur quickly and accurately. Clients and providers should be able to quickly determine eligibility and enroll in programs, leveraging online and automated processes. | G1, G2, G3 | BOTH | All | 1 |
| B12 | Identify, segment and maintain demographic information about individual providers and organizations registered in Colorado’s MMIS. | G1, G2 | MPD | Medicaid | 1 |
| B13 | Make available security credential information (digital certificate and/or public key discoverability), using national accreditation standards and national security standards. | G1, G4 | BOTH | All | 1 |
| B14 | Credibility/integrity of data elements (including age of data). | G1, G2 | BOTH | All | 1 |
| B15 | Support the ability to support a single payment to a single provider, for a single patient. | G1, G2, G3 | BOTH | All | 1 |
| B16 | Accurate attribution of in-network providers to associated plans (e.g., RCCOs, health plans). | G1, G2 | MPD | RCCOs, Health Plans | 1 |
| B17 | Individual providers must be attributable to all of the organizations they bill under to provide care for Medicaid patients. | G1, G2 | BOTH | RCCOs | 1 |
| B18 | Individual providers must be attributable to all of the clinics where they practice/ provide care for Medicaid patients, including charity care. | G1, G2 | BOTH | Medicaid, RCCOs | 1 |
| B19 | Must support analytics for determining network adequacy. | G1 | BOTH | Medicaid, RCCOs | 1 |
| B20 | Facilitate patient-level interoperability to support care coordination activities and identify use cases for patient matching and data integrity. | G1, G2, G3 | MPI | RCCOs | 1 |
| B21 | Accurately identify the correct patient for quality of care measurement and improvement. | G1, G2, G3 | MPI | RCCOs, Providers, public/private payers | 1 |
| B22 | Ensure better quality of care in clinical settings and across data systems by allowing stakeholders to identify where/how/why the patient is being treated. | G1, G2, G3 | MPI | RCCOs | 1 |
| B23 | Reduce patient-matching errors by identifying duplicate patient records for correction. | G1, G2 | MPI | RCCOs | 1 |
| B24 | Support MPI information for multiple settings (e.g., acute, ambulatory, long-term care, state agencies) to ensure data interoperability across provider and care settings and data integrity in care delivery, community settings, including non-health settings and their associated data systems. | G1, G2, G3 | BOTH | RCCOs | 1 |
| B25 | Improve program administration and reduce fraud, waste and abuse by linking health provider licensing and certification information to provider data in MMIS. | G1, G2 | MPD | RCCOs | 1 |
| B26 | Improve Medicaid program administration by linking provider licensure information. | G1, G2, G3 | MPD | RCCOs | 1 |
| B27 | Receive timely updates to health professional licensure information and augment the process of information exchange with DORA. | G1, G2 | MPD | RCCOs | 1 |
| B28 | Utilize facility billing to support information exchange with CDPHE to receive initial and timeline updates to health facility licensure information. | G1, G2, G3 | MPD | RCCOs | 1 |
| B29 | Provide actionable health information to Medicaid providers, enrollment services, and program administrators, plus reduce administrative burdens and improve effectiveness linking CDPHE registries to MMIS. | G1, G2, G3 | BOTH | RCCOs | 1 |
| B30 | Improve the effective management of the Medicaid program, as well as an interest in accessing individual and aggregate data from others to help assess clinical outcomes and conduct performance analytics by providing connections to CDPHE registries. | G1, G2, G3 | BOTH | RCCOs | 1 |
| B31 | Provide actionable health information to Medicaid providers, benefits management services, and program administrators to reduce administrative burden and improve effectiveness by linking mental health and substance use treatment information with Medicaid systems. | G1, G2, G3 | BOTH | RCCOs | 1 |
| B32 | Accelerate and sustain state-wide Health Information Exchange services to assist Colorado providers in meeting meaningful use and provide timely access to clinical data that can be used to improve care coordination, and aggregated for data analytics and reporting. | G1, G2, G3 | BOTH | RCCOs | 1 |
| B33 | Ability to maintain expiration status of persons that have died. | G1, G2 | BOTH |  | 1 |
|  | | | | | |
| PHASE 2 BUSINESS NEEDS | | | | | |
| B34 | Maintain source of data. | G1, G4 | BOTH | Private health partners (providers, commercial payers, others), HIEs, APCD, HCPF, DHS, CDPHE, Other agencies deemed in scope, and All health data system/sources/users | 2 |
| B35 | Link claims info to clinical, and tie-in with social (non-health) organizations. | G1, G2, G3 | MPI | Commercial payers, providers, HIEs, APCD, HCPF, DHS, CDPHE | 2 |
| B36 | Improve data quality from data sources. | G1, G2, G3 | BOTH | Private health partners (providers, commercial payers, others), HIEs, HCPF, DHS, CDPHE, other data sources | 2 |
| B37 | Improved ability to link providers with their specialties, practices, health systems, payment networks, etc. | G1, G2, G3 | MPD | Private health partners (providers, commercial payers, others), HIEs, HCPF, CDPHE, local public health agencies, State/Federal/Medicaid programs and grants | 2 |
| B38 | Provide a consistent view of information over time.4 | G1, G2 | BOTH | Private health partners (providers, commercial payers, others), HIEs, APCD, HCPF, DHS, CDPHE, Other agencies deemed in scope | 2 |
| B39 | Provide a reference architecture of information made available to state agencies, including governance and standards around available information.4 | G1, G2 | BOTH | State agencies with health data systems/data (DORA, HCPF, CDPHE, DHS, OIT, DOC) and other peripheral social and community settings (e.g., homeless support programs, justice) | 2 |
| B40 | Provide a one stop source of comprehensive provider information, which other sources can use to validate their provider information.4 | G2, G3 | BOTH | Providers, CDPHE | 2 |
| B41 | Ensure accurate education, practice location, practice characteristics, and billing relationships for all licensed and registered clinicians in the state of Colorado.5 | G2 | MPD | DORA, HCPF, providers, other users of provider data, policy/researchers, HIEs, providers, commercial and public payers, Connect to facility data | 2 |
| B42 | Reduce data entry and information duplication across program administrative transactions.4 | G1, G2 | BOTH | All | 2 |
| B43 | Administrative data should be automatically shared across state and community-based health care programs, improving workflows and reducing data-entry errors within state programs and across the health care community. | G1, G2 | BOTH | All | 2 |
| B44 | Administrative information should be captured once and made available as needed across many areas. | G1, G2, G3 | BOTH | All | 2 |
| B45 | Provide information contained in HIE Provider Directories to relevant state agencies for authorized uses, potentially including entity-level and individual-level provider information on active service locations, organizational affiliations, admitting privileges with hospitals, accurate and up-to-date contact information, and national provider identifiers, among others.4 | G1, G2 | MPD | State agencies with health data/systems | 2 |
| B46 | Data sharing processes should occur through standardized and solid integration methods that work reliably despite system upgrades, enhancements or system replacements. | G1, G3 | BOTH | All | 2 |
| B47 | System should make it easier to publicly share accurate information for use by citizens, businesses, policymakers, and researchers following required access rules. | G1, G3 | BOTH | All | 2 |
| B48 | Allow provider directory access by authorized organizations and individuals including non-health providers via a standard web-services model. | G1, G3, G4 | MPD | Medicaid | 2 |
| B49 | Make compressed and expanded views for a single provider in the directory, rather than a long series of single records (expandable view). | G3 | MPD | Medicaid | 2 |
| B50 | Must provide geo-mapping identifiers to identify workforce shortages. | G2, G3 | BOTH | RCCOs | 2 |
| B51 | Provide core patient-matching functionality for shared community HIE platform to support care coordination, care delivery, human services interoperability, provider data integrity across platform and/or services. | G1, G2, G3 | MPI | All | 2 |
| B52 | Common key to link a patient to external data sources. | G1, G2, G3, G4 | BOTH | Private health partners (providers, e.g., hospitals, primary care, CMHCs, private practice, FQHCs, Pharmacy, LTPAC/SNF, commercial payers, others), HIEs, APCD, HCPF, DHS, CDPHE, OIT, Other agencies deemed in scope | 2 |
| B53 | Improve patient matching rates. | G1, G2, G3 | MPI | Private health partners (providers, commercial payers, others), HIEs, HCPF, CDPHE, RCCOs, CMHCs, PCPs | 2 |
| PHASE 3 BUSINESS NEEDS | | | | | |
| B54 | Identify and differentiate billing provider from servicing provider. | G1, G2, G3 | BOTH | Public and commercial payers | 3 |
| B55 | Make relevant health information available at the point of care and for performance analysis.4 | G1, G2, G3 | BOTH | Providers and care teams | 3 |
| B56 | Define comparisons with other communities, the state and nation.4 | G2 | BOTH | CDPHE (state and local), HCPF (Medicaid), policy, research stakeholders | 3 |
| B57 | Health and health administrative information is effectively and efficiently collected by multiple agencies with multiple data sources through logical and streamlined workflows that reduce administrative burden wherever possible. 4 | G1, G2, G3 | BOTH | Providers, HIEs, CDPHE, state agencies in health scope | 3 |
| B58 | Collect and re-purpose CQMs submitted through Meaningful Use attestations.4 | G1, G2, G3 | BOTH | Eligible professionals and hospitals | 3 |
| B59 | Support streamlined options for electronic reporting of CQMs, leveraging functionality provided for HIE and repurposing existing interfaces and connectivity.4 | G1, G2, G3 | BOTH | Care delivery providers, other program participants required performance measure reporting | 3 |
| B60 | Develop functionality to capture clinical data included in Medicaid claims and claims attachments to be included in longitudinal health records. | G1, G2, G3 | BOTH | HCPF, HIE, RCCO, Medicaid providers | 3 |
| B61 | Ability for participating health care providers to query longitudinal health records. | G1, G2, G3 | BOTH | All providers | 3 |
| B62 | There should be a high level of interoperability\* and integration between health systems, databases, and programs, enabling standardized data exchange for individuals moving between and across health services and programs. | G1, G2, G3 | BOTH | All | 3 |
| B63 | System should support the ability for state and community health services to be administered efficiently and effectively. | G1, G2 | BOTH | DHS, community services, providers, public/private payers, patients | 3 |
| B64 | Provide unambiguous electronic addresses of message/ transaction senders and receivers for health information exchange, using national standards. | G1, G2, G3 | BOTH | Medicaid, HIEs, providers, commercial payers, DHS | 3 |
| B65 | Linkages from the MPI to the Master Provider Directory for attribution of Medicaid clients to providers and organizations where care has been delivered. | G1, G2 | BOTH | Medicaid, Medicaid providers and clients | 3 |
| B66 | Support communications between providers and CDPHE communicable disease registries / syndromic surveillance system | G1, G2, G3 | BOTH |  | 3 |
| B67 | Support communications between providers and CDPHE immunization registry. | G1, G2, G3 | BOTH |  | 3 |
| B68 | Support home health and community health workers in ability to participate in health information exchange (including access to Direct addresses). | G1, G2, G3 | BOTH |  | 3 |
| B69 | Support case workers with accurate provider information and the ability to participate in health information exchange (access to Direct addresses). | G1, G2, G3 | MPD |  | 3 |

\* Term defined in Glossary.

# Use Cases

The following use cases were identified by stakeholders through both group and individual interviews. Use cases where Medicaid was the primary customer are prioritized to be in phase one, while use cases involving the connections with DORA and CDPHE are prioritized into phase two, and connections with external partners are prioritized into phase three.

| ID | Short Title | Use Cases | Customer(s) | Base Phase Year |
| --- | --- | --- | --- | --- |
| PHASE 1 USE CASES | | | | |
| U01 | HCPF - Medicaid care coordination | Improve care coordination by: 1) connecting medical homes using MPI to identify other organizations that have clinical data (e.g. find x-ray reports, prescriptions, etc. from other data sources for newly enrolled clients); 2) Care coordinators should have their own ID to avoid generating duplicate care plans for a single client; and, 3) Connecting patients/clients with non-health provider community. | Medicaid, RCCOs, FQHCs, private care coordination services | 1 |
| U02 | HCPF - provider outreach | Individual provider outreach. Client calls the call center to request a provider that is not in the Medicaid program. Staff member uses the MPD to lookup provider contact information and outreach. | Medicaid | 1 |
| U03 | Provider Marketing/ Communication | Provider marketing. Medicaid obtains a list of non-Medicaid providers from the MPD system based on criteria so they can be contacted for possible participation. | Medicaid | 1 |
| U04 | Provider Maintenance | Provider maintenance. Any updates that occur in the MPD (i.e., address change) for Medicaid providers should be pushed to MMIS for keeping the system current. | Medicaid | 1 |
| U05 | HCPF - Medicaid Provider List | Support the ability for providers to enter and maintain their information in one place, which can be connected with: 1) Colorado’s Medicaid enterprise; 2) DORA to receive timely updates to health professional licensure information. Information and updates to professionals’ license from DORA will be captured and updated weekly; 3) Issue re-enrollments and notices when license information has expired, and interact with other state databases (and federal databases if applicable) to verify current licensing information; and, 4) Colorado’s Human Services Agency with accurate and up-to-date information about the healthcare providers and organizations serving Colorado’s vulnerable populations with health-related services. | Medicaid | 1 |
| U06 | Patient attribution | Provide support for patient attribution between patients/clients and providers in order to: 1) Develop and manage client enrollment in the program and client attribution to specific Regional Care Collaborative Organizations and Primary Care Medical Providers; 2) Identify practice integration between behavioral health and primary care; and, 3) Plan attribution and Central Quality Measurement calculation and reporting, where “the metric follows the client” (plan info flows into the MPD). | All | 1 |
| U07 | Provider Attribution | Support linkage between providers and their various networks (e.g., practices, health systems, ACOs, payers), as well as clinic locations and biller for each service. | RCCOs, Medicaid, All | 1 |
| U8 | HCPF Medicaid provider HIE | Medicaid providers engage in state-wide interoperability of health information for care delivery, care coordination and Medicaid provider care teams, notifications to Medicaid providers/RCCOs, improve patient matching, improve identity management services. | All | 1 |
| U9 | HCPF COMMIT BIDM | The ability to link information with the 80 different data sources connected (or in process) to BIDM, including Federal, State, and private sources. An MPI would greatly improve this linking within the BIDM system. | Medicaid, RCCOs | 1 |
| U10 | Medicaid immunization gap outreach | Medicaid program administrators, with the proper data use agreement, can request immunization records from Department of Public Health and Environment for only those individuals currently enrolled in Medicaid. This would enable the Medicaid program to target outreach and improve immunization rates.4 | Medicaid | 1 |
| U11 | ACC support | Support the Medicaid Accountable Care Collaborative (ACC) program by supporting sophisticated analytics including predictive modeling to create client risk scores, performance monitoring and benchmarking, evaluating utilization variances, and creating provider profiles. | ACC, Medicaid | 1 |
| U12 | HCPF BH data integration for service analytics | Supporting the capture of mental health and substance use treatment information in a streamlined manner and linking to Medicaid systems to provide actionable health information to Medicaid providers, benefits management services, and program administrators to reduce administrative burden and improve effectiveness.4 | All HCPF, DHS, OBH, CMHC, | 1 |
| U13 | MH/SUD administrative data | Supporting an integrated data collection tool, DACODS and CCAR assessment data so the information can be handled more effectively. (Effort Data Integration Initiative (DII)) | Medicaid, DHS, OBH, CMHCs | 1 |
| PHASE 2 USE CASES | | | | |
| U14 | HCPF - PH data integration | Link public health registries to MMIS to provide actionable health information to Medicaid providers, enrollment services, and program administrators and reduce administrative burden and improve effectiveness.4 | Medicaid, CDPHE | 2 |
| U15 | Provider administrative data updates | Support a central source of truth for provider updates (i.e., Addresses, Panel size, Office hours, Languages) | All | 2 |
| U16 | CDPHE provider data exchange | Improve linkage between CDPHE providers and MMIS data. For CDPHE providers, the licensure data may not be as easily matched to MMIS data as for DORA providers. The same facility as recorded at CDPHE could be enrolled with HCPF multiple times as multiple provider types. The matching of names is complicated by the use of doing-business-as (DBA) names by MMIS (but not by CDPHE). | CDPHE, Medicaid | 2 |
| U17 | Provider administrative data verification/ enrollment | Online application collects the required information from providers, related databases that are necessary to issue re-enrollments and notices when license information has expired, and interacts with other state databases (and federal databases if applicable) to verify current licensing information. | All | 2 |
| U18 | MU PH reporting and registry data integration | Connect CDPHE registries relevant to the Meaningful Use program including:  • Colorado Immunization Information System (CIIS) – consolidated immunization information • Colorado Electronic Disease Reporting System (CEDRS) – communicable disease reporting  • Cancer Registry – treatment summary and care plan for cancer survivors; cancer case tracking and trending • Other specialized registries – Advanced Directives, Consent Management | Medicaid, CDPHE, RCCOs, Eligible Professionals, Eligible Hospitals | 2 |
| U19 | Health Workforce Assessment | Workforce Assessment: Network Analysis and Adequacy - Track specialties and location to identify health professional shortage areas.5 | CDPHE, Medicaid, RCCOs | 2 |
| U20 | Prevention Services | Prevention Services: Program level data gathering surveys of various provider types. (e.g., Diabetes prevention). Need accurate denominator for selected provider groups.5 | CDPHE, Medicaid, RCCOs, Public Health | 2 |
| U21 | Disease Control - Outbreak | Disease Control: Outbreak investigations - Support epidemiological disease investigations through communications to specific clinicians.5 | CDPHE, local PH | 2 |
| U22 | Disease Control - STD/HIV/AIDs provider services | Disease Control: Sexually transmitted disease follow-up and CO Aids Drug Assistance Program. Maintain specific clinic/provider profiling information to connect patients to appropriate care.5 | CDPHE, Medicaid, RCCOs | 2 |
| U23 | Registry - Muscular dystrophy provider | Health and Environmental Data: Muscular dystrophy surveillance provider information. Support physician contacts for reporting and information dissemination.5 | CDPHE | 2 |
| U24 | License and Registration - HPPP | License and Registration: Clinician Profiling System. Support state statute for public reporting about providers.5 | DORA | 2 |
| U25 | DOI - Network adequacy | Division of Insurance: Network adequacy analysis. Support statutory requirement to regulate health plans in Colorado. Demonstrate health plans have an adequate provider network.5 | DORA | 2 |
| U26 | HCPF - Vital statistics (birth/ death data) | Link between Medicaid administrative systems and COVIS4 (Vital Statistics) for: - Dis-enrolling deceased clients and providers in an efficient and effective manner - Confirming identity and citizenship requirements to establish eligibility for Medicaid benefits - Tracking and recording births including information about method of delivery, weeks’ gestation, and birth outcomes to assist with performance and outcomes measurement - Tracking and recording cause of death information to assist with performance and outcomes measurement | Medicaid, RCCOs, CDPHE | 2 |
|  | | | | |
| PHASE 3 USE CASES | | | | |
| U27 | Analytics - patient/ client matching | Provide patient matching services, in order to:  1) replace back-end patient matching for analysis (e.g., high-utilizers) with real-time matching; 2) Ensure that patient info from multiple facilities is de-duplicated and patients/conditions are not double-counted in public health studies; 3) Assist Colorado providers in meeting Meaningful Use and provide timely access to clinical data that can be used to improve care coordination and aggregated for data analytics and reporting; and, 4) Ensure the ability to match administrative data with clinical information in data exchange with HIEs; and, 5) Reduce duplicate accounts, insurance registrations, and validations for claims and billing. | Non-State Partners, State public health, local public health, research, Medicaid client analytics | 3 |
| U28 | Data integrity | Data cleanliness is needed to improve quality reporting, payment and outreach/care coordination. | Non-State Partners, state data systems | 3 |
| U29 | Data system integration and interoperability | Support for common applications across the community that may or may not exist today such as population health tools, care management tools, or other efforts to integrate disparate data sources into new platforms. | Non-State Partners | 3 |
| U30 | Emergency Preparedness | Emergency Preparedness: Disaster assessment, response and recovery. Office of Emergency Preparedness needs to know what clinicians are available by location for planning and responding to mass casualties and issuing health alerts.5 | CDPHE, Medicaid, RCCOs, All | 3 |
| U31 | HIE - Secure messaging | Support provider matching and updates to allow/improve: 1) Secure messaging for Meaningful Use.  2) APCD: billing and cost research for the all claims payer database (APCD) to compare billing information.5 | Eligible providers and hospitals, Medicaid providers, outside organizations: CORHIO, QHN, CCMCN, etc., CIVHC, policy, research, etc. | 3 |
| U32 | HIX - Qualified Health Plan networks provider look-up | Insurance Exchange: Provider look-up Each health insurance exchange needs a provider directory lookup for customers on the exchange.5 | Insurance Exchange, consumers | 3 |
| U33 | Health Workforce Research | Research – Workforce research regarding trends, capacity, pay scales, etc. to support direct survey methods. Support for multiple clinician types including all licensed professionals in the State5 | Colorado Health Institute, University of Colorado School of Medicine, Colorado Center for Nursing Excellence, OEDIT, Workforce Development Council | 3 |
| U34 | PH - public health program providers | Support Colorado’s Public Health Department with accurate and up-to-date information about the healthcare providers and organizations participating in public health programs, and prepared to provide services in the event of a public health crisis. | Possible future need | 3 |
| U35 | DOC - Corrections/ Justice/ Health providers | Support Colorado’s Dept. of Corrections and city/county jails with accurate and up-to- date information about the healthcare providers and organizations providing healthcare services to inmates and parolees. | Possible future need, ACC, CMHC | 3 |
| U36 | DOC - Corrections/ Justice/ Health providers | Support Colorado’s Dept. of Corrections and city/county jails by leveraging identity management to help reduce recidivism through health information sharing. | Possible future need | 3 |

# Functional Requirements

These functional requirements were based on the business needs and uses cases defined above for both MPI and MPDs. There are no phases defined for these requirements as the selected systems are expected to perform these functions when installed.

| ID | Functional Requirements | MPI/MPD |
| --- | --- | --- |
| F1 | Data must be searchable, query-able, and integrate-able with other data sources.4 | BOTH |
| F2 | System must be secure, scalable, reliable and sustainable.4 | BOTH |
| F3 | The quality of each record must be easy to review and verify against a system generated reliability score.4 | BOTH |
| F4 | Ability to share MPI identifiers from other systems. | MPI |
| F5 | Must support ability to accept data from disparate data sources. | BOTH |
| F6 | MPI must account for patients that move / have one or more aliases. | MPI |
| F7 | MPD must support one to many linkages (who/where/what). | MPD |
| F8 | Identifying algorithms should have a high-degree of statistical confidence. | MPD |
| F9 | Maintenance of unique identification information in the form of a “golden record”, or, in other words, the master data representing the minimum set of data used to uniquely identify a specific person.4 | MPI |
| F10 | Deployment of a highly accurate, configurable matching engine to ensure matching accuracy, prevent the occurrence of false positives (e.g., where two records are reported as a match but they are, in fact, two different individuals), identify and record occurrence of duplicates, and support modification of match fields by data source.4 | MPI |
| F11 | Provision of a master identifier and ability to cross reference to other designated identifiers maintained by State agencies and others (e.g., Medicaid ID numbers, provider identifiers).4 | MPI |
| F12 | Ability to interface with existing and future systems, including mainframe systems that require a web services interface (SOAP, REST). 4 | BOTH |
| F13 | Capability to audit activity across entire system.4 | BOTH |
| F14 | Provision of an enterprise bus or other service that allows for a “publish/subscribe” technical implementation with a secure transmission of data.4 | BOTH |
| F15 | IHE Profile web services-based exchange with Application Programming Interface. | MPI |
| F16 | Digital certificate / public key discoverability meeting national accreditation/testing standards (DirectTrust, eHealth Exchange) and national security standards (NIST Level 2 or 3). | BOTH |
| F17 | Rules-based engine to implement policies for:   * Authorization: Right to access the provider directory * Authentication: Identity proofing of individuals and/or organizations * Access: When and how provider directory information may be accessed by individuals * Audit: Record and examine when information is accessed and by whom | MPD |
| F18 | Share and integrate MPI demographic data with registration/admission systems. | MPI |
| F19 | Ability to add new patients using existing registration, admission or scheduling process. | MPI |
| F20 | Ability to add new patients or revise demographic data for existing patients in MPI outside of registration/admission process. | MPI |
| F21 | Ability to provide real-time access to the MPI from other, interfaced systems. Please indicate interface standards supported. | MPI |
| F22 | Ability to notify all systems when new patients are added or when demographics are updated by another system. | MPI |
| F23 | Support MPI across the continuum of care: acute care, ambulatory, physician office, SNF, home health, and ancillary services. | MPI |
| F24 | Support an enterprise number as well as separate, multiple medical record numbers, including host systems have a patient identifier hierarchy consisting of multiple patient identifiers internal to that system. | MPI |
| F25 | Support different numbering schemes to accommodate each facility’s patient identifier. | MPI |
| F26 | Provide cross-reference indices that link the MPI number to the facility-specific number. | MPI |
| F27 | Identify duplicate patient histories/medical record numbers. | MPI |
| F28 | Alert the user of a potential duplicate during registration process without producing multiple alerts for the same registration. | MPI |
| F29 | Do not allow manual assignment of MPI numbers; the MPI system should manage assignment of the enterprise identifier. | MPI |
| F30 | Store individual encounter information at the MPI level with the last encounter visit/date of service. | MPI |
| F31 | Provide embedded weighted algorithm to assist with the identification of potential duplicate Medical Record Numbers (MRNs) during registration process as well as during duplicate review process. | MPI |
| F32 | Provide merge capability for 2 records for same person (e.g., duplicates, erroneous registration).   * Note: some host systems have a single field for patient name, while other systems have multiple fields for patient name (first, last, MI) * Correct guarantor information must remain intact during a merge * Manual merge capability required; automatic merge is optional functionality with configuration to enable or disable | MPI |
| F33 | Support for sending/receiving HL7 merge transactions (e.g., A18, A30, A34). | MPI |
| F34 | Provide capability to un-merge records incorrectly merged, and correct guarantor information must remain intact during un-merge. | MPI |
| F34 | Provide linking capability for 2 records for same person in different host systems. | MPI |
| F36 | Provide capability to un-link records that were incorrectly linked. | MPI |
| F37 | Provide patient overlay detection and remediation:   * Overlay occurs when information on two different people is combined or added to the same patient record. * When overlay is detected, need a quarantine function that will prevent merging or linking until information is reviewed. | MPI |
| F38 | Do not allow registration/enrollment of a deceased patient. Flag deceased patients and integrate information with registration and clinical modules. | MPI |
| F39 | Support flexible search criteria during the patient identification process: MPI for example, partial name, Soundex, medical record number, encounter number, age, date of birth, sex, combinations of data. | MPI |
| F40 | Support custom fields. | BOTH |
| F41 | Support alternative name/alias processing. | BOTH |
| F42 | The system should provide customizable workflow queues for assignment of tasks (e.g., provide a work queue to review potential duplicates). | MPI |
| F43 | Ability for end users to customize or manipulate the product screens and placement of returned data to accommodate individual user preference. | BOTH |
| F44 | Ability to assist end-user in preventing fraudulent use of identity. | BOTH |
| F45 | Provide on-line inquiry and retrieval capabilities to the MPI history for an unlimited number of years. | MPI |
| F46 | Generate a report indicating patients with multiple medical record numbers. | MPI |
| F47 | Ability to write ad-hoc reports on all MPI data fields with a standard report writer application. | MPI |
| F48 | Maintenance of user audit detail and ability to report on MPI activity. | MPI |
| F49 | The system should provide reports that identify duplicates by user, area and facility. | BOTH |
| F50 | The system should provide tools for setting up automatic distribution of reports. | BOTH |
| F51 | The system should provide a high-level dashboard for managerial review. | BOTH |
| F52 | Provide multiple level reporting (i.e., internal, external, agency, division and facility level reporting). | BOTH |
| F53 | The system should have role based security with the ability to separate administrative tasks from workflow tasks, and to limit user access by entity, as desired. | BOTH |
| F54 | The system should allow users security to be configured for different levels of access depending on the entity. | BOTH |
| F55 | System administrators should have the ability to control viewing and printing of reports, and limiting access to these functions. | BOTH |
| F56 | Support for both probabilistic and deterministic matching algorithms. | MPI |
| F57 | Support both an Entity Level Provider Directory (ELPD) and an Individual Level Provider Directory (ILPD). | MPD |
| F58 | The Provider Directory uses a standard provider identity, performs information correlation process used to uniquely identify an individual and match provider data from various connected healthcare entities and care settings. | MPD |
| F59 | The Provider Directory has a process for synchronizing to a statewide DOH/HHS provider directory. | MPD |
| F60 | The application has a process for resolving unmatched and/or overmatched providers. | MPD |
| F61 | The application has a process for consuming additional provider data from connected entities. | MPD |
| F62 | The application has a process disassociating records from each other received from multiple connected entities that were inadvertently matched. | MPD |
| F63 | The application has a process for merging providers from a single connected entity. | MPD |
| F64 | The application has a process for splitting providers from a single connected entity. | MPD |
| F65 | The application has a process for reporting on records that require attention such as potential matches and or inconsumable records. | MPD |
| F66 | The application has a process for updating provider data. | MPD |
| F67 | The application has a process for incorporating new data sources | MPD |
| F68 | The application has a process for interacting with foreign applications. | MPD |
| F69 | The application has a process for consuming, managing and distributing information on which services and associated formats a connected system uses. | MPD |
| F70 | The application has a process for providing performance metrics. | MPD |
| F71 | The application has a process for managing users. | MPD |
| F72 | System should have the capability to push updated information back to source systems as requested. | BOTH |
| F73 | System should be agile, so data elements can be added to the MDM for new data collection and tracking over time as well as integration with new systems. | BOTH |

# Data Sources

“Data is seamlessly shared and exchanged across multiple agencies, as well as community, state, and federal levels, in a manner that protects the privacy and security of individually identifiable information and supports sustained access to timely, complete, and actionable health information”.4

OeHI will coordinate with the eHealth Commission, Colorado Governing Data Advisory Board (GDAB), state agencies, and non-governmental partners to review and prioritize data sources for data sharing agreements.

The following are a list of suggested data sources that could be used to generate input to the master data management system through a system of governance and trust based on agreements and shared consent. Data owners will need to agree to use and terms of data sharing for the data to be used in MDM.

| Proposed Data Sources |
| --- |
| Providers (via EHR, HIE, web-portal) |
| Labs/hospitals (via EHR, HIE, web-portal) |
| Medical licensing database (Department of Regulatory Agencies—DORA)4 |
| Credentialing databases, both local and national (e.g. CAQH) |
| Multi-payer provider databases |
| National Plan and Provider Enumeration System (NPPES) |
| Medicare Provider Enrollment, Chain, and Ownership (PECOS) System |
| Medicaid Management Information System (MMIS)4 |
| Statewide Data and Analytics Contractor (SDAC)4 |
| Colorado Benefits Management System (CBMS) |
| All Payer Claims Database (APCD) – CIVHC |
| AMA provider files |
| Connect for Health Colorado |
| CDPHE Registries4:  Registries may include:   * Colorado Vital Information System (COVIS) * Colorado Immunization Information System (CIIS) – consolidated immunization information * Colorado Electronic Disease Reporting System (CEDRS) – communicable disease reporting * Cancer Registry – treatment summary and care plan for cancer survivors; cancer case tracking and trending * Newborn Evaluation Screening & Tracking (NEST) – newborn hearing and lab results * Clinical Health Information Records of Patients (CHIRP) – maintains health records for children with special needs * Colorado Response to Children with Special Needs – birth defect data * Tracking registries providing data on specific communicable diseases: * eHARS (HIV and AIDS); * TBdb (tuberculosis); * Viral Hepatitis; * Prenatal Hepatitis and Hepatitis-B in pregnant women; * Elevated Lead * Patient Reporting Investigating Surveillance Manager (PRISM) – surveillance and case management of STIs, HIV and viral hepatitis * ARIES – tracking data on alcohol and drug abuse within HIV populations * Laboratory Information Tracking System (LITS) Plus – maintains chemistry, microbiology, and toxicology lab reports * Refugee Case Management Data – from refugee health clinics * Outbreak Management – disease outbreak data |
| Department of Human Services (DHS)4:   * Behavioral health service provider licensing and certification information, including Community Mental Health Centers and substance use treatment providers * Avatar – client mental health records, pharmacy and laboratory records * Colorado Client Assessment Record (CCAR) – client assessment data * Computerized Homeless Information Referral Program (CHIRP) – client medical records * Colorado State Mental Health Institutes – client medical records * Colorado TRAILS – including child welfare (adoption, foster care, child protection) and youth corrections information, also maintains children’s medical records * An encounter database includes services provided to Medicaid clients through Behavioral Health Organizations * Refugee Management Information System – client medical records * Veterans’ Nursing Homes – client medical records and Medicaid claims |
| Department of Corrections (DOC)4:   * Encounter System – housed within the database of all offender records, contains health records including mental, physical, dental and medication information and manages offenders from incarceration through their transition to and completion of, community-based supervision by the Adult Parole Division * DOC E-prescribing – offender prescription records and filling system |
| Non-State Partner Entities:   * Colorado Regional Health Information Organization (CORHIO) – provides HIE and transition support services (TSS), maintains connection to health care provider EHRs and other information systems, provides for access to aggregated clinical information, and facilitates connections to other regional health information organizations * Colorado Health Benefits Exchange (COHBE) – developing and operating state health insurance exchange, including eligibility processing for commercial health plans and Medicaid / CHP+, and maintains health plan administrative and provider network data * Quality Health Networks (QHN) – provides HIE services and promotes innovative uses of electronic health information for improved healthcare outcomes * Center for Improving Value in Health Care (CIVHC) – developing and operating Colorado All-Payer Claims Database (APCD), which includes Medicaid claims information, and provides aggregation of claims across Colorado health plans for research and analytics purposes * Colorado Community Managed Care Network (CCMCN) – provides HIE services that enable its members and their community partners to succeed as efficient, effective and accountable systems of care * Regional Care Coordination Organizations (RCCOs), Managed Care Organizations (MCOs), Behavioral Health Organizations (BHOs), and other payment / service delivery providers – contracted by State agencies to provide health care services to clients of public programs or on behalf of public programs |

# Data Elements

| Data Element(s) | MPD/ MPI |
| --- | --- |
| MPI Person Identifiers: |  |
| * Medical Record Number | MPI |
| * Facility Mnemonic | MPI |
| * Account Number | MPI |
| * Full Name (First, Last, Middle) | MPI |
| * Title | MPI |
| * Suffix | MPI |
| * Maiden Name / Alias / Prior Name | MPI |
| * Birthdate / Date of Birth | MPI |
| * Gender / Birth Sex | MPI |
| * Social Security Number (9-digit) | MPI |
| * Full Address:   + Address 1 (Street)   + Address 2 (Apt / Suite)   + City   + State   + Zip Code | MPI |
| * Race / Other Race | MPI |
| * Hispanic Indicator | MPI |
| * Ethnicity 1 / 2 / Other | MPI |
| * Home Telephone | MPI |
| * Cell Telephone | MPI |
| * Primary Email Address | MPI |
| * Other Email Address | MPI |
| Insurance(s): | MPI |
| * Payer Code | MPI |
| * Payer Name | MPI |
| * Member / Subscriber Code | MPI |
| * Policy Number | MPI |
| * Group Name | MPI |
| * Group Number | MPI |
| * Insurance Address | MPI |
| * Insurance Phone | MPI |
| * Effective Date | MPI |
| * End Date | MPI |
| Primary Care Physician | MPI |
| Active Care Team Member(s) | MPI |
| Last Update Date | MPI |
| Provider Directory Person Information: |  |
| * Provider Name (First/Middle/Last)\* | MPD |
| * Provider Legal Name (First/Middle/Last) | MPD |
| * Other Name (First/Middle/Last) | MPD |
| * Initial (First/Middle) | MPD |
| * Other Initial (First/Middle) | MPD |
| * prefix / suffix | MPD |
| * Birthdate / Date of Birth | MPD |
| * Birth Country | MPD |
| * Gender / Birth Sex | MPD |
| * Date of Death | MPD |
| * Phone / Extension | MPD |
| * Type of Professional (e.g., M.D., P.A., etc.) | MPD |
| * Fax | MPD |
| * Social Security Number (9-digit) / SSN-4 | MPD |
| * DIRECT address(es) | MPD |
| * State/Federal ID | MPD |
| Medical License: | MPD |
| * License Number | MPD |
| * License State | MPD |
| * License Type | MPD |
| * + Granted/Issue/Effective Date | MPD |
| * + Expiration Date | MPD |
| * License Status Code5 | MPD |
| * License Mod5 | MPD |
| * Individual NPI: | MPD |
| * + Individual NPI number (NPI) | MPD |
| * + Enumeration Date | MPD |
| * NPI Deactivation Reason Code | MPD |
| * NPI Deactivation Date | MPD |
| * NPI Reactivation Date | MPD |
| * Unique Physician Identification Number (UPIN)4 | MPD |
| * DORA License Key5 | MPD |
| * Tax ID (TIN)5 | MPD |
| * Tax ID Previous | MPD |
| * Drug Enforcement Administration Number | MPD |
| * DEA Effective Date | MPD |
| * DEA Expiration Date | MPD |
| * Controlled Substance Registration Number | MPD |
| * Medicare Number | MPD |
| * Medicaid Number | MPD |
| * Previous Medicare Number | MPD |
| * Previous Medicaid Number | MPD |
| * Immigrant Visa Number | MPD |
| * Treo Peer Group ID | MPD |
| * Object Identifier (OID) – <http://hl7.org/fhir/sid/oid> | MPD |
| Education5: | MPD |
| * Educational Commission for Foreign Medical Graduates (ECFMG) Number | MPD |
| * Education Date5 | MPD |
| * Degree School | MPD |
| * Degree Level5 | MPD |
| * Degree Type5 | MPD |
| * Resident5 | MPD |
| * Fellow5 | MPD |
| eMail5: | MPD |
| * Email address5 | MPD |
| * Status5 | MPD |
| * Description5 | MPD |
| * Type5 | MPD |
| * Start5 | MPD |
| * End5 | MPD |
| Addresses: | MPD |
| * Practice Address\* (all locations that physician practices) | MPD |
| * Alternative Billing Address | MPD |
| * Legal Address | MPD |
| * Home Address | MPD |
| * Address\_35 | MPD |
| * County / District | MPD |
| * Country | MPD |
| Specializations\* / Professional Information: | MPD |
| * Principle Clinical Specialty | MPD |
| * Board Certified Specialty | MPD |
| * Additional Clinical Practice Specialties | MPD |
| * Primary Field of Practice | MPD |
| * PCP designation / indicator | MPD |
| * Summary Provider Type | MPD |
| * Initial Certification Date | MPD |
| * Last Recertification Date | MPD |
| * Expiration Date | MPD |
| * Certifying Board | MPD |
| Specialty Codes: | MPD |
| * NPI Taxonomy Code | MPD |
| * AMA Specialty Code | MPD |
| * DOH Profile Codes | MPD |
| * Medicaid Specialty Code | MPD |
| * Role (Primary Care, Specialist, Both) | MPD |
| * Worker’s Comp Codes | MPD |
| Board Certification/ Recertification/ Specialty: | MPD |
| * Certification Status5 | MPD |
| * Certification Number5 | MPD |
| * Subspecialty (ID/Description)5 | MPD |
| * Certification Effective Date | MPD |
| * Certification Expiration Date | MPD |
| Practitioner type: Care Coordinator, Certified Nurse Midwife, Chiropractor, Doctor of Osteopathy, Licensed Practical Nurse, Medical Doctor, Medical Technologist, Non‐clinical Staff, Nurse, Nurse Practitioner, Optometrist, Pharmacist, Physical Therapist, Physician Assistant, Podiatrist, Registered Nurse, Other | MPD |
| Status: Active, Inactive, Retired, Deceased | MPD |
| Languages supported\* | MPD |
| Days / Hours Operations (link to each location where physician practices) | MPD |
| Provider Entity / Group Practice: | MPD |
| * Entity ID | MPD |
| * Group/Practice Name / Provider Entity Description | MPD |
| * Accountable Care Organization (ACO) | MPD |
| * IPA Association (Name) | MPD |
| * Hospital Ownership | MPD |
| * Group Effective Date | MPD |
| * Group Expiration Date | MPD |
| * Group NPI Number | MPD |
| * Group Taxonomy | MPD |
| Affiliations: | MPD |
| * Affiliation Status | MPD |
| * Affiliation Dates – Start | MPD |
| * Affiliation Dates – End | MPD |
| * Historic Affiliations | MPD |
| Other Professional Liability | MPD |
| * Professional Liability Insurance and Carrier | MPD |
| * Attestation Questions/Professional Liability Actions | MPD |
| Assigned OID (HL7 standard electronic endpoint, tied to a digital certificate) | MPD |
| Other professional activities (Telemedicine) | MPD |
| Years Since Last Provided Patient Care | MPD |
| Setting5 | MPD |
| TeleCare5 | MPD |
| Pay Type5 | MPD |
| Pay Stat5 | MPD |
| Bill Date5 | MPD |
| GeocodeX – Longitude5 | MPD |
| GeocodeY – Latitude5 | MPD |
| Sanctions/Actions/Convictions/Restrictions | MPD |
| Teaching Indicator |  |
| Termination Date |  |
| Termination Reason (Code, if available) |  |
| Organization Identifiers: |  |
| Organization / Site Name\* (Legal business name) | MPD |
| Doing Business As (DBA) Name | MPD |
| Other Organization Name | MPD |
| Addresses (multiple): | MPD |
| * Practice Address\* | MPD |
| * Alternative/Billing Address | MPD |
| * Legal Address | MPD |
| Federal Tax ID | MPD |
| Organizational NPI: | MPD |
| * NPI Number | MPD |
| * NPI Deactivation Reason Code | MPD |
| * NPI Deactivation Date | MPD |
| * NPI Reactivation Date | MPD |
| Department | MPD |
| Clinical Information Contact | MPD |
| Billing Information Contact | MPD |
| Phone/ Fax /Email | MPD |
| Object Identifier (OID) – <http://hl7.org/fhir/sid/oid> | MPD |
| eMail5: | MPD |
| * Email address5 | MPD |
| * Status5 | MPD |
| * Description5 | MPD |
| * Type5 | MPD |
| * Start5 | MPD |
| * End5 | MPD |
| DIRECT Email address(es) | MPD |
| Border State Indicator | MPD |
| Out-of-State Indicator | MPD |
| Entity Type / Type of Site | MPD |
| Setting (e.g., private office, hospital, health center) | MPD |
| Primary Professional Activity (e.g., patient care, admin, research, teaching) | MPD |
| Type of Patient Care (e.g., ambulatory, inpatient, emergency services) | MPD |
| Site Specialty | MPD |
| Days of Practice Per Week | MPD |
| Age Limitations | MPD |
| Other Limitations | MPD |
| Handicapped Accessible | MPD |
| Business Category/ Organization type: ACO, Association, Clinic, Department, HIE, Hospital, Lab, Long Term Care Facility, Medical School, Payer, Pharmacy, PO, Practice, University, Other | MPD |
| PCMH Status | MPD |
| PCMH Status Designation and Tier | MPD |
| Use Electronic Medical Records | MPD |
| Use Physician Extenders | MPD |
| HIV Service Referrals | MPD |
| Specializations/ Profession Information Specializations\* | MPD |
| Board Certification/ Recertification Specialty | MPD |
| Affiliations Provider/ Organizational Affiliation\* | MPD |
| * Affiliation Status | MPD |
| * Affiliation Purpose (admitting/attending privileges) | MPD |
| * Effective Date of Affiliation Start/ End | MPD |
| * Historic Affiliations | MPD |
| * Affiliation with RCCO | MPD |
| Languages supported\* | MPD |
| Days / Hours operation | MPD |
| Hours Type (Inpatient Hrs, Outpatient Hrs, Telemed Hrs, Indirect Hrs, Other Hrs)4 | MPD |
| Assigned OID (HL7 standard electronic endpoint, tied to a digital certificate) | MPD |
| Other Professional Liability | MPD |
| * Professional Liability Insurance and Carrier | MPD |
| * Attestation Questions/Professional Liability Actions | MPD |
| Historic Practice or Work History Data | MPD |
| Practice Call Coverage | MPD |
| Network5: | MPD |
| * Network ID5 | MPD |
| * Accepting New Patients\* | MPD |
| * Facility ID5 | MPD |
| Insurances Accepted: | MPD |
| * Accept Medicaid/Medicare Patients | MPD |
| * Medicaid Managed Care Plans/ACA Plans | MPD |
| * Plans Specified (multiple) | MPD |
| Provider Enrollment: | MPD |
| * Provider Enrollment Status | MPD |
| * Provider Enrollment Status Effective Date | MPD |
| * Provider Enrollment Status End Date | MPD |
| EHR Incentive Program data | MPD |
| EHR Vendor / Product /Version | MPD |
| Urban vs. Rural designation | MPD |
| All Payer Claims Data | MPD |
| Last Update Date | MPD |

\*Key provider directory requirements for health plans from the 2013 NCQA standards

# Glossary

| Acronym | Definition |
| --- | --- |
| ACC | Accountable Care Collaborative |
| ADT | Admission, Discharge, Transfer |
| AMA | American Medical Association |
| APCD | All- Payer Claims Database |
| API | Application Programming Interface |
| ARRA | American Recovery and Reinvestment Act of 2009 |
| ARIES | System for tracking data on alcohol and drug abuse within HIV populations |
| BHO | Behavioral Health Organizations |
| BIDM | Business Intelligence & Data Management System |
| CAHPS | Consumer Assessment of Healthcare Providers and Systems |
| CBMS | Colorado Benefits Management System |
| CCAR | Colorado Clinical Assessment Record |
| CCMCN | Colorado Community Managed Care Network |
| CDPHE | Colorado Department of Public Health and Environment |
| CEDRS | Colorado Electronic Disease Reporting System |
| CHIRP | Clinical Health Information Records of Patients |
| CIIS | Colorado Immunization Information System |
| CIVHC | Center for Improving Value in Health Care |
| CME | Continuing Medical Education |
| CMHCs | Community Mental Health Centers |
| CMS | Center for Medicare & Medicaid Services |
| COHBE | Colorado Health Benefits Exchange |
| CORHIO | Colorado Regional Health Information Organization |
| COMMIT | Colorado Medicaid Management Innovation & Transformation Project |
| COVIS | Colorado Vital Information System |
| CQM | Clinical Quality Measure |
| DACODS | Drug/Alcohol Coordinated Drug System |
| DBH | Division of Behavioral Health |
| DHS | Department of Human Services |
| DOC | Department of Corrections |
| DORA | Colorado Department of Regulatory Agencies |
| eCQM | Electronic Clinical Quality Measures |
| EH | Eligible Hospital |
| EHR | Electronic Health Record |
| EP | Eligible Professional |
| FFP | Federal Financial Participation |
| HCPF | Health Care Policy and Financing |
| HIE | Health Information Exchange |
| HIO | Health Information Organization |
| HIT | Health Information Technology |
| HITECH | Health Information Technology for Economic and Clinical Health |
| HIV | Human Immunodeficiency Virus |
| HUD | Housing and Urban Development |
| IAPD | Implementation Advanced Planning Document |
| IAPD-U | Implementation Advanced Planning Document-Update |
| Interoperability | “Interoperability describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.”\*  “Interoperability: Ability of a system or a product to work with other systems or products without special effort on the part of the customer. Interoperability is made possible by the implementation of standards.”\*\* |
| LITS | Laboratory Information Tracking System (LITS) Plus |
| MCO | Managed Care Organizations |
| MDM | Master Data Management |
| MMIS | Medicaid Management Information System |
| MPI | Master Patient Index |
| MU | Meaningful Use |
| MRN | Medical Record Number |
| NEST | Newborn Evaluation Screening & Tracking |
| NPPES | National Plan and Provider Enumeration System |
| OID | Object Identifier |
| OIT | Office of Information Technology |
| PCMH | Patient Centered Medical Home |
| PECOS | Provider Enrollment, Chain, and Ownership System |
| PRISM | Patient Reporting Investigating Surveillance Manager |
| RCCO | Regional Community Care Organizations |
| SDAC | Statewide Data and Analytics Contractor |
| SNF | Skilled Nursing Facility |
| STI | Sexually Transmitted Infections |
| TIN | Tax Identification Number |
| TRAILS | Colorado TRAILS – including child welfare (adoption, foster care, child protection) and youth corrections information, also maintains children’s medical records |
| WIC | Women, Infants and Children |

\* <http://www.himss.org/library/interoperability-standards/what-is-interoperability>, accessed 9/26/2016.

\*\* <http://www.ieee.org/education_careers/education/standards/standards_glossary.html>, accessed 9/26/2016.