



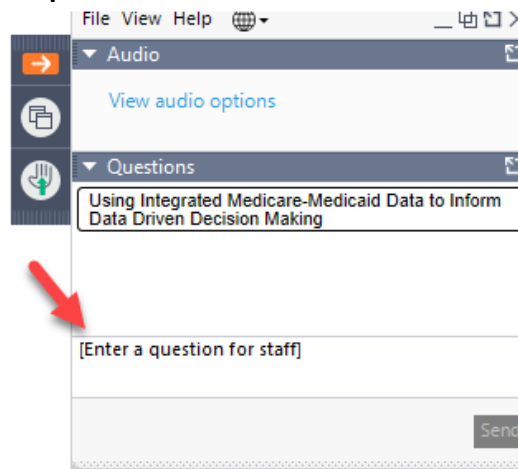
Using Integrated Medicare-Medicaid Data to Inform Data Driven Decision Making



May 31st, 3:00pm – 4:30pm ET

Logistics for the Webinar

- All lines are muted for this webinar.
- Please share any questions via the Questions box on the right side of your screen.
 - MMDI will review submitted questions and respond or share with the group.
 - Some questions may require additional research. MMDI will reply to these questions via email.



- At the conclusion of the webinar, you will receive a post-webinar survey. Please take a moment to respond - we would appreciate your feedback!

Welcome

Karen Llanos

Director, Medicaid Innovation Accelerator Program (IAP)

Center for Medicaid and CHIP Services (CMCS)

Centers for Medicare & Medicaid Services

Agenda

- Overview
- Medicare Data and Acquisition Process
- Data Integration
- Analytic Use
- Analytic Use Cases
- Pennsylvania Case Study
- Summary
- Question and Answer Session

Today's Speakers

Patrick DeBorde

- State Team Lead
- MMDI Program
- FEI Systems

Jessica Knott

- State Team Lead
- MMDI Program
- FEI Systems

Wilmarie González

- Bureau Director
- Office of Long-Term Living
- Bureau of Quality Assurance and Program Innovation
- Pennsylvania Department of Human Services

Phillip Windell

- Program Analyst
- Office of Long-Term Living
- Division of Program Development and Innovation
- Bureau of Quality Assurance and Program Innovation
- Pennsylvania Department of Human Services

MMDI Program Overview

The goal of CMS' Medicare-Medicaid Data Integration (MMDI) program is to help states address the challenges of successfully integrating Medicare and Medicaid data from a variety of sources for the purposes of care coordination and program integrity for the dual eligible population.

This includes assisting states with:

- Data understanding, acquisition, and integration efforts
- Designing, developing, and coding analytics using the integrated data
- Using the integrated data to support the implementation of innovative programs that provide care for the dual eligible population

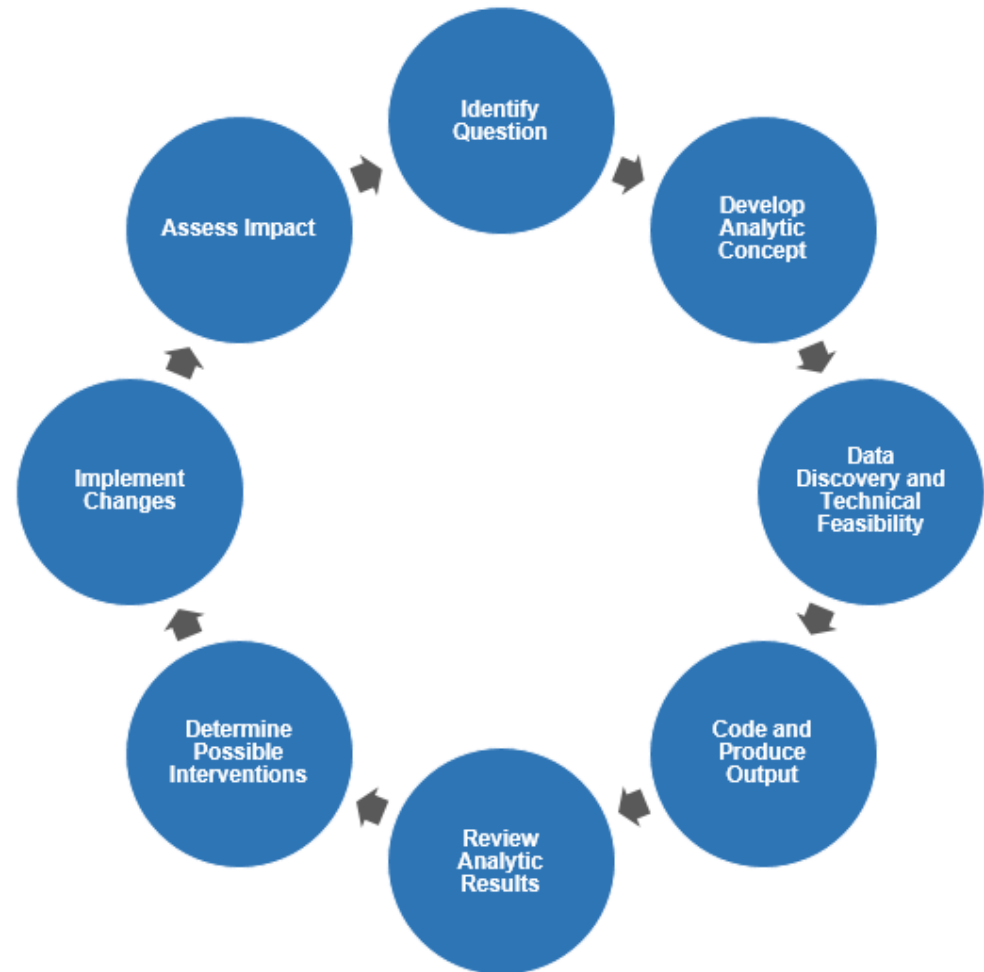
This webinar is intended for anyone interested in:

- A better understanding of the Medicare data sources available to states.
- Approaches and considerations for data integration.
- The role of integrated Medicare-Medicaid data in data-driven decision making.

Data driven decision making is a repeatable process that transforms questions into interventions that result in measurable impact.

Integrated Medicare-Medicaid data helps states to:

- Ask more relevant questions and develop more accurate results to inform policy
- Facilitate care coordination
- Implement more effective interventions related to improving health outcomes for the dual eligible population





FEI Systems



FEI Systems

Medicare Data Sources & Acquisition Process

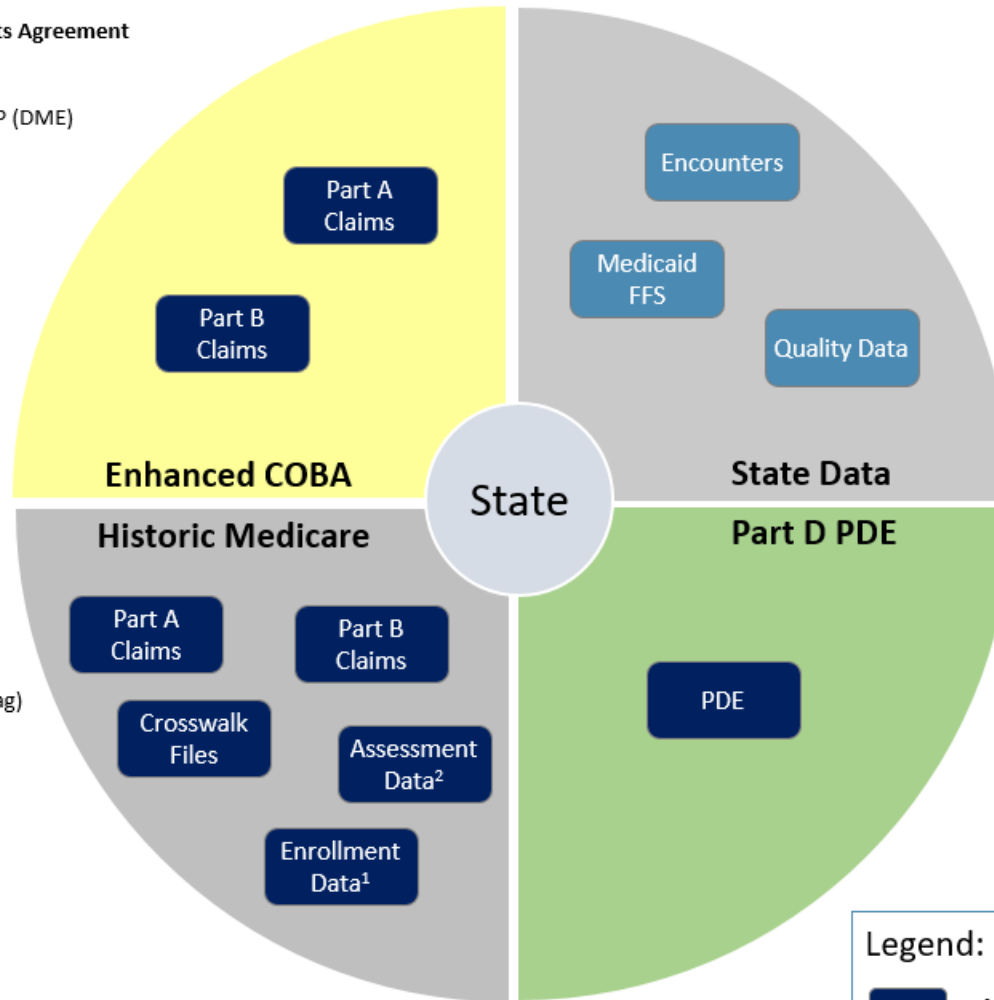


CMS makes several Medicare data sources available to states to improve care coordination for dual eligible beneficiaries, and to help ensure the integrity of the state's Medicaid program. Before you request the data, you need a plan.

- What do you want to do with the data?
- Will the available data meet your need?
- What kind of processing is needed to make the data ready for analysis?
- What resources do you have, or will you need, to manage the data?
- What resources will you need to perform the integration and analysis?
- Do you want to share the data with any other agencies or organizations?
- Are the right stakeholders involved?
 - IT, data administration groups, data vendors,
 - Policy and program staff,
 - Analysts

Enhanced Coordination of Benefits Agreement (COBA) Data

- Source: BCRC
- Format: X12 (Parts A/B)/NCPDP (DME)
- Currency: Current
- Selection Criteria: Based on eligibility file from state
- Frequency: Daily/Weekly
- Access: SFTP & State Connect:Direct



Note:

Source, Format, Currency, etc. are dependent on the state's arrangement with MCOs and providers.

Historic Medicare Data and Beneficiary Summary Data



- Source: CCW
- Format: Fixed Length Flat Files
- Currency: Historic (15 month lag) and Monthly (4 month lag)
- Selection Criteria: Based on Enrollment/MMA File
- Frequency: Yearly/Monthly
- Access: External Media

Part D PDE Data

- Source: IDR
- Format: Based on subset of PDE data authorized for use
- Currency: Historic and Monthly (1 month lag)
- Selection Criteria: Based on Enrollment/MMA File
- Frequency: Historic and Monthly
- Access: Connect:Direct

1 - Includes MMLEADS, MBSF A/B/C/D, Chronic Conditions, Other Chronic or Potentially Disabling Conditions, and Cost and Use segments
 2 - Includes MDS, OASIS, Swing Bed, IRF-PAI, and Facility Files

Legend:

-  Medicare Data Sources
-  Medicaid Data Sources

Contents	<ul style="list-style-type: none"> • Medicare Part D Prescription Drug Events • Currently includes 25 data elements, as described in the Part D File Record Layout provided by the State Data Resource Center (SDRC). The Medicare Beneficiary ID will soon be added, for a total of 26 data elements. • States must justify their intended use for each requested data element prior to CMS approval.
Source	<ul style="list-style-type: none"> • Integrated Data Repository (IDR) • Requested through the SDRC, subject to CMS approval.
Selection Criteria	<p>Data attributable to the state is determined by the state code on the record; dual eligible beneficiaries are determined by standard full benefit dual eligible codes 02, 04 and 08.</p>
Time Period/Currency	<ul style="list-style-type: none"> • Historic: 2007 to current with a one month lag. • Current: Monthly with a one month lag.
Frequency	<p>One time historic file, then monthly files thereafter.</p>
Additional Processing	<ul style="list-style-type: none"> • Final action processing (or netting) must be performed on the PDE data to apply a final action indicator to indicate the most recent version of an event. • The SDRC provides the following additional information regarding how to perform PDE netting: Integrating Monthly Files into Part D Final Action and PDE Data Netting Explanation. • The MMDI team has also developed a PDE final action indicator algorithm and related documentation, available via the SDRC technical assistance website or by request from the MMDI team.
Delivery Methods	<p>Connect:Direct</p>
File Format	<p>Mainframe flat file</p>

Contents	<ul style="list-style-type: none"> • Parts A/B (Institutional and Non-Institutional) fee-for-service (FFS) claims data. • Includes a subset of the full claim data elements, as described in the Medicare Fee-For-Service Claims data dictionary and codebook provided by the Chronic Conditions Data Warehouse (CCW).
Source	<ul style="list-style-type: none"> • CCW • Requested through the SDRC, subject to CMS approval.
Selection Criteria	<ul style="list-style-type: none"> • CCW files include full (02, 04, 08), partial (01, 03, 05, 06), other dual (09) and unknown (99) dual status beneficiaries. • Cut by date of service.
Time Period/Currency	<ul style="list-style-type: none"> • Annual file: One time disbursement with current availability of 2007-2016. States are required to submit a request each year. Annual files are available 15 months after the end of the calendar year requested. • 'Gap' file: One time disbursement of a file that spans the period from the last annual file to current monthly file (with 3 month maturity lag and up to 1 month processing lag). • Monthly files: States may receive monthly files (with 3 month maturity lag and up to 1 month processing lag).*
Frequency	One time historic file, one time gap file, then monthly files thereafter.
Additional Processing	No additional final action processing is required on CCW files.
Delivery Methods	States are sent CCW data files on CDs, DVDs, or external HD, depending on file size.
File Format	Fixed column flat files.

Contents	<ul style="list-style-type: none"> • Files available:* <ul style="list-style-type: none"> • Master Beneficiary Summary File (MBSF) segments: Parts A/B/C/D enrollment, Cost and Use, Chronic Conditions, Other Chronic or Potentially Disabling Conditions. • MMLEADS: Linked Medicare & Medicaid claims information (eligibility/enrollment, utilization, expenditures). • Crosswalk files for linkage of CCW data to state files by linking CCW Bene_ID to HIC, MBI, or SSN.
Source	<ul style="list-style-type: none"> • Chronic Conditions Data Warehouse (CCW) • Requested through the SDRC, subject to CMS approval.
Selection Criteria	<p>CCW files include full (02, 04, 08), partial (01, 03, 05, 06), other dual (09) and unknown (99) dual status beneficiaries.</p>
Time Period/Currency	<ul style="list-style-type: none"> • MBSF Parts A/B/C/D enrollment: 2007 – 2016, then monthly with a four month lag. • MBSF Cost and Use: 2007 – 2016 • MBSF Chronic Conditions: 2007 – 2016 • MBSF Other Chronic or Potentially Disabling Conditions: 2007 – 2016 • MMLEADS: 2006 – 2012
Frequency	<p>Annual file except for MBSF A/B/C/D enrollment, which is monthly, and crosswalk files, available with each file distribution.</p>
Additional Processing	<p>No additional processing is required on CCW files.</p>
Delivery Methods	<p>States are sent CCW data files on CDs, DVDs, or external HD, depending on file size.</p>
File Format	<p>Fixed column flat files.</p>

*File layouts and codebooks for the Beneficiary Summary data from the CCW can be found at: <https://www.ccwdata.org/web/guest/data-dictionaries>

Contents	<ul style="list-style-type: none"> • Files available: <ul style="list-style-type: none"> • Minimum Data Set (MDS) • Outcome and Assessment Information Set (OASIS) • Swing Bed assessments • Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF/PAI) • All assessment data types include separate facility files. • States must justify their intended use for each requested data element prior to CMS approval.
Source	<ul style="list-style-type: none"> • Chronic Conditions Data Warehouse (CCW) • Requested through the SDRC, subject to CMS approval.
Selection Criteria	<p>CCW files include full (02, 04, 08), partial (01, 03, 05, 06), other dual (09) and unknown (99) dual status beneficiaries.</p>
Time Period/Currency	<ul style="list-style-type: none"> • MDS 2.0: Annual (2007 - 2010) • MDS 3.0: Annual (2010 - 2017) and Quarterly (1 quarter lag) • IRF/PAI: Annual (2007 - 2017) and Quarterly (1 quarter lag) • OASIS: Annual (2007 - 2017) and Quarterly (1 quarter lag) • Swing Bed 2.0: 2007 - 2010 • Swing Bed 3.0: Annual (2010 - 2017) and Quarterly (1 quarter lag)
Frequency	<p>Annual and quarterly files.</p>
Additional Processing	<p>No additional processing is required on CCW files.</p>
Delivery Methods	<p>States are sent CCW data files on CDs, DVDs, or external HD, depending on file size.</p>
File Format	<p>Fixed column flat files.</p>

Contents	<ul style="list-style-type: none"> • Current Parts A/B claim files with all available data elements (no exclusions). This file is in addition to the existing crossover COBA data file that states already receive for claims processing. • The COBA 5010 Companion Guide describing the data elements and file format is available via the SDRC.
Source	<ul style="list-style-type: none"> • Benefits Coordination & Recovery Center (BCRC). • Requested through the SDRC, subject to CMS approval.
Selection Criteria	<ul style="list-style-type: none"> • E01 COBA Eligibility Files are sent to BCRC (1 or 2 times per month) by states. • COBA data received by the states may contain claims for all dual eligible beneficiaries from the state-submitted eligibility file. • Cut by adjudication date.
Time Period/Currency	<p>Current data, with a 2 week processing lag.</p>
Frequency	<p>Daily or weekly depending on a state's preference and the COBA Agreement.</p>
Additional Processing	<ul style="list-style-type: none"> • Final action processing must be performed on each Enhanced COBA file received by the states to apply the final action indicators to the claim records, indicating the most recent version of a claim. • The MMDI team has developed a final action indicator algorithm and related documentation for the Enhanced COBA data, available via the SDRC technical assistance website or by request from the MMDI team.
Delivery Methods	<p>Secure File Transfer Protocol (SFTP) or Connect:Direct.</p>
File Format	<ul style="list-style-type: none"> • ANSI X12 837I (Part A Institutional), 837P (Part B Professional) or NCPDP format. Enhanced COBA data will need to be translated into a flat file format before it can be loaded into a data structure. • If a state needs an EDI translator, a free version of the Chiapas translator tool is available via the SDRC state assistance website, or upon request from the SDRC.

Data Source	Historic Parts A/B	Enhanced COBA (Current Parts A/B)
Purpose	<ul style="list-style-type: none"> Comes from the CCW, which was designed to provide historic data for research purposes. States can use the historic Parts A/B data to gain a historical perspective on the dual population. 	<ul style="list-style-type: none"> Comes from the BCRC, which was designed to provide claims data for crossover claims processing. States can use the Enhanced COBA data to: <ul style="list-style-type: none"> Assist in more timely care coordination Build upon historical perspective gained via analysis of historic Parts A/B data.
Potential Challenges	<ul style="list-style-type: none"> Monthly files have a lag of about 4 months: 3 month maturity lag and 1 month processing lag. Annual files have a lag of about 15 months: 12 month maturity lag and 3 months processing lag. On average, up to 10% of claim records are either not included in the monthly files, or are not the final version of the claim, due to selection criteria and maturity factors. Includes a limited set of the data elements available on the full claim record (those considered most relevant for research). 	<ul style="list-style-type: none"> Provided in the ANSI X12 837 format, which must be translated. <ul style="list-style-type: none"> A free translator called Chiapas is available on the SDRC technical assistance website for this purpose. Must have final action processing applied in order to identify the final version of a claim. <ul style="list-style-type: none"> The MMDI team has developed an Enhanced COBA final action indicator algorithm, available on the SDRC technical assistance website, or by request from the MMDI team. Does not include historic data.

For additional information regarding claims maturity, see: [CCW White Paper: Medicare Claims Maturity](#)

States request Medicare data through the State Data Resource Center (SDRC) Data Request and Attestation (DRA) process.

- Care coordination data use justification is required. Program integrity can be a secondary use justification.
- States request the Medicare data sources and time periods of data they would like access to.
- Data Request and Attestation (DRA) Forms are subject to CMS approval.
- States benefit from having a basic understanding of the data when they make their requests.
- More information about the data, including record layouts, the request process, and available data integration and analysis tools, can be found at <http://www.statedataresourcecenter.com/>



FEI Systems



FEI Systems

Questions?





FEI Systems



FEI Systems

Data Integration



Data integration involves retrieving diverse data and presenting it in a unified way. There are several data integration techniques, including:

- **Physical Integration** means keeping independently managed copies of data from source systems, typically in a data warehouse.
 - Example tool: Oracle
- **Virtual Integration** involves providing a unified access layer to transparently retrieve information from multiple source systems.
 - Example tool: Statistical Analysis System (SAS)
- **Manual Integration** users can access all the information from multiple source systems, but it is not presented as a unified view.
 - Example tool: Excel

Physical and virtual data integration techniques include:

- Matching records with common identifiers
- Mapping provider or service types across data sources
- Creating a new standard identifier (index) to match records across data sources

- Option I – Deterministic Matching
 - A multi-step matching algorithm is used for comparing records against the authoritative enrollment system of record.
 - Assigns a unique identifier to be used across all records.
- Option II – Probabilistic
 - Assigns a unique ID to the records that score above a probabilistic matching threshold.
 - Use the probabilistic approach from a master data management vendor.

A master patient index (MPI) links beneficiaries across data sources by creating a unique identifier to be propagated across all the integrated data.

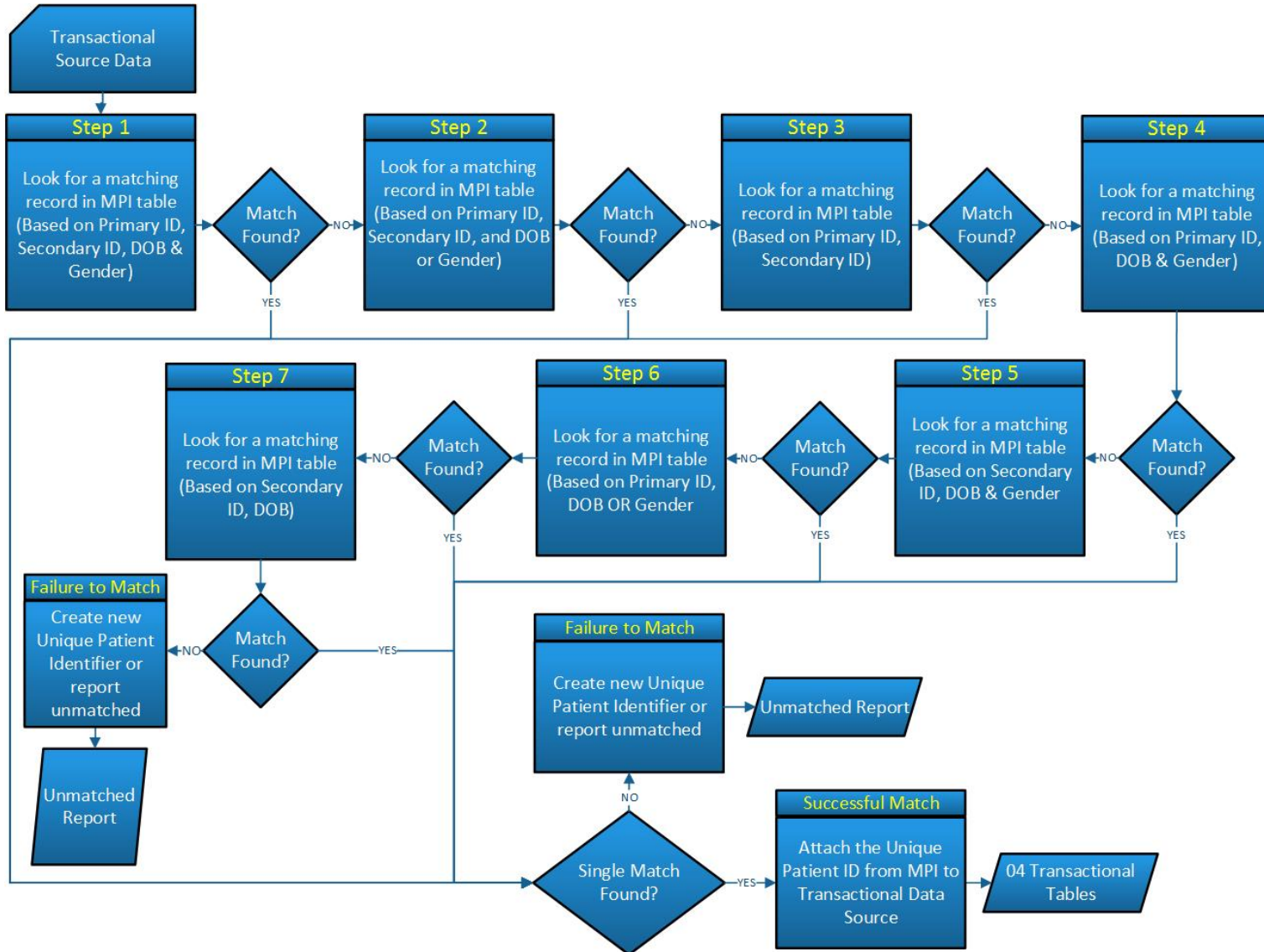
- By correctly matching beneficiary records from multiple sources, a complete view of an individual may be obtained, which can result in better care coordination and improved program coordination.
- The goal of the matching process is to find a match for all beneficiaries where the data supports a certain match.
- Master patient indexes use primary identifiers (e.g., state Medicaid ID, CCW Beneficiary ID, Medicare HICN or MBI) to identify beneficiaries.

Data Source	Beneficiary ID Fields for Matching	Additional Data Elements that can be used for matching
CCW Medicare Master Beneficiary Summary File Base (MBSF)	BENE_ID	Date of Birth, Gender
Identifier Crosswalk CCW BENE ID to HIC	BENE_ID, HIC (HICN)	N/A
Identifier Crosswalk CCW BENE ID to SSN	BENE_ID, SSN	N/A
Identifier Crosswalk CCW BENE ID to MBI*	BENE_ID, MBI*	N/A
COBA Medicare Part A and B Claims	HICN, SSN, MBI* State-specific ID	N/A
Medicare Prescription Drug Events	HICN, MBI*	Date of Birth, Gender Name (first, middle, last)
Medicaid enrollment data	HICN, SSN, MBI* State-specific ID	Date of Birth, Gender Name (first, middle, last)
Medicaid State-specific ID crosswalk files and other relevant files	State-specific ID	N/A

* The transition period for replacing the HICN with the new Medicare Beneficiary Identifier (MBI) is April 1, 2018 through December 31, 2019. A CCW BENE_ID to MBI crosswalk file will be available approximately April 2018.



Example of a deterministic matching algorithm approach



To take full advantage of integrated Medicare and Medicaid data, states also need a method for linking providers across data sources. While linking providers was simplified by the adoption of the National Provider Identifier (NPI), it still requires some effort because other identifiers are also used and providers can submit claims under more than one identifier.

The following are some examples of analyses where provider linking is required:

- A report of physicians who provide care to dual eligible beneficiaries through Medicare, but are not enrolled as Medicaid providers
- A payment integrity claims review to determine if any providers have billed Medicaid in full for services also paid for by Medicare
- An analysis of ordering or referring physicians linking ordered services with face-to-face visits with the ordering physician

Using multiple Systems of Record (SORs) to link providers across data sources provides:

- Additional attributes for matching records and identifying providers
- Unique information that helps distinguish one provider from another

Data Source	Description
State Medicaid Provider Directory	A database or extract containing information on health care providers enrolled to provide services to Medicaid patients. May include multiple tables or files.
Medicare Fee-for-Service (FFS) Public Provider Enrollment Extract (PPEE)	This public data set is created from CMS's Provider Enrollment and Chain/Ownership System (PECOS), but does not include all of the data elements in the PECOS system that are used to pay Medicare FFS providers.
NPPES Data Dissemination Public File	The National Plan and Provider Enumeration System (NPPES) is the CMS system that assigns NPIs, mandated by the Health Insurance Portability and Accountability Act of 1996 (HIPAA).
CMS Physician Compare Data Sets	The Physician Compare is a web site designed to help consumers make informed choices about the health care they receive through Medicare and contains information about physicians and other health care practitioners enrolled to provide Medicare Part B services.
CMS Provider of Service Files (POS)	The Provider of Service files include characteristics of all Medicare-approved hospitals, labs, residential facilities, clinics and other types of health care facilities.



Example of a master provider index data model

Master Individual Provider Index

- Unique Provider ID
- Entity Type Code
- NPI
- Provider Identifier Type Code
- Provider Identifier
- Name Prefix
- First Name
- Middle Name
- Last Name
- Name Suffix
- Alternate Name Type
- Address Line 1
- Address Line 2
- City
- State Code
- Zip Code
- Practice Location Country
- Phone Number
- Fax Number
- Provider Type or Specialty Description 1
- Provider Type or Specialty Code 1
- Provider Type or Specialty Coding System 1
- Provider Type or Specialty Description 2
- Provider Type or Specialty Code 2
- Provider Type or Specialty Coding System 2
- Credential
- Medical School
- Graduation Year
- Provider Date of Birth
- Gender
- Sole Proprietor
- Record Source
- Match Score
- Source Record Update Date
- Date Effective From
- Date Effective Through
- Date Record Created
- Date Record Last Matched

Master Organizational Provider Index

- Unique Provider ID
- Entity Type Code
- NPI
- Provider Identifier Type Code
- Provider Identifier
- Organization Name
- Parent Organization Name
- Alternate Name Type
- Address Line 1
- Address Line 2
- City
- State Code
- Zip Code
- Practice Location Country
- Phone Number
- Fax Number
- Provider Type or Specialty Description 1
- Provider Type or Specialty Code 1
- Provider Type or Specialty Coding System 1
- Provider Type or Specialty Description 2
- Provider Type or Specialty Code 2
- Provider Type or Specialty Coding System 2
- Record Source
- Match Score
- Source Record Update Date
- Date Effective From
- Date Effective Through
- Date Record Created
- Date Record Last Matched

In addition to matching beneficiaries and providers, states will need to be able to match services in order to assess service utilization. Service level integration is required for:

- Assessing whether a beneficiary has received certain services.
- Evaluating share of cost by payer for certain types of services.

When integrating Medicare and Medicaid data to analyze service information, it's important to consider and account for duplicate transactions.

Cause of Duplicate Transaction	Solutions to Consider
Multiple versions of a claim due to adjustments, replacements, and voids.	Final action processes are needed to exclude or flag non-final versions of transactions. The processes are different for each data source that sends transactions which might later be adjusted.
Two claims for each crossover, one Medicare and one Medicaid.	<ol style="list-style-type: none"> 1. Ensure Medicaid crossovers are easily identified so they can be included for cost reports and excluded for utilization reports. 2. Write process to match up and merge each crossover.
Duplicate Medicare claims received from Historic Parts A/B data and Enhanced COBA data.	Write a process to match up Historic Parts A/B and Enhanced COBA claims to eliminate duplicates.

Example service level integration approach:

- A Medicaid claim is assigned to Medicare claim service category based on the Medicaid type of service.
- Where the Medicaid type of service does not clearly map to a Medicare claim service category, other variables must be considered to categorize claims (e.g. Provider Type, Provider Specialty).
 - For example, if we were looking for Outpatient/Carrier service category, we could consider Medicaid Provider Type Codes (e.g. “Ambulatory Surgical Center”, “Physician”, etc).
 - If Provider Type codes are unclear, we may look at Provider Specialty (e.g. “Primary Care Provider”, “Physical Therapist”, other types of Specialty care physician).
- Services covered by Medicaid only (e.g. transportation) cannot be mapped because there is no Medicare equivalent.

Example of service category matching

Medicaid Type of Service Categories	Medicare Service Categories
Inpatient hospital Mental hospital services for the aged Inpatient psychiatric facility for under 21	Inpatient
Outpatient hospital Physician Other practitioners Clinic	Outpatient / Carrier
Nursing facility (NFS)-all other	Skilled Nursing Facility
Home health, waiver and non-waiver	Home Health Agency
Hospice benefits, waiver and non-waiver	Hospice
Durable Medical Equipment and supplies	Durable Medical Equipment

- Data quality (missing, incorrect or incomplete data)
- Duplicate transactions
- Currency of data sources that are used for identifying an entity or individual may differ
- Different formats for common identifiers or codes across data sources
- Variables that are in one data source, but not in another
 - In Medicare: service categories
 - In Medicaid: type of service, provider type, provider specialty
- Similar variables, but contain different value sets
 - Diagnosis/procedure codes: Diagnosis and procedure codes are similar, but an indication for codes that are missing or N/A may be different.
- Multiple or redundant identifiers (the same identifier may be used for different individuals or entities)
 - Patients and provider organizations can have multiple IDs
 - Individual and organization providers might use the same ID
- False positive or false negative record matches
- Burden of manual review



FEI Systems



FEI Systems

Questions?





FEI Systems



FEI Systems

Analytic Use



Now that states are able to request and receive the Medicare data, they have the ability to enhance their data analytics capabilities to include dual eligible beneficiaries. Analytics specific to the dual eligible population can include:

- Demographic Characteristics
- Service Utilization and Cost
- Fraud, Waste, and Abuse
- Augmented Quality Measures (e.g., HEDIS, Adult Core Measures)

Integrated Medicare and Medicaid data is essential to developing analytics that inform stakeholders on the needs of dual eligible beneficiaries in order to ultimately shape programs and policies. This will assist states in understanding the physical health, behavioral health, and long-term care needs of the dual eligible population.

While states will likely use different approaches to defining an analytic project lifecycle, states can consider and adapt the steps in the following sample development process:



- **Concept** – Assemble a team of subject matter experts to research, identify, and outline an analytic concept that will address a state’s area of concern.
- **Technical Vetting** – Determine if the necessary data is available, write technical specifications and assess the feasibility of the concept, identify benchmarking sources to assess reasonableness of results, and define the population to include in the analysis.
- **Programming** – Develop code to accomplish the goals stated in the concept phase. Review code and output, adjust based on output review and benchmarking, repeating as necessary
- **Results** – Create a comprehensive document that includes stated goals, application, considerations and caveats, and analytic results.
- **Assess Impact** – Determine impacts to programs and policies and possible interventions, assess whether further analytics are needed.

This process can be repeated as necessary to assess impact, gain a better understanding of the dual eligible population, and explore new concepts.

States may also wish to share the Medicare data or their integrated Medicare and Medicaid data sets with health plans and other downstream users to facilitate care coordination and enhance the plans' understanding of the dual eligible beneficiaries they provide care for. Below are some examples of how the Medicare data can be utilized by the plans.

- Historic claims data can help plans establish a baseline understanding of their dual eligible population, such as chronic conditions prevalence, to stratify by risk and identify those most in need of immediate outreach.
- Historic claims data combined with current claims data can help plans to monitor trends over time.
- Current claims data can be used by the plans to assist in determining yearly capitation rates.
- Current claims data can be used to analyze service utilization to assist care coordinators in identifying beneficiaries who could benefit from additional services or interventions.



FEI Systems



FEI Systems

Questions?





FEI Systems



FEI Systems

Analytic Use Cases



The MMDI team has developed a number of analytic use cases, which are designed to provide examples of the analytics states can do with Medicare data and integrated Medicare-Medicaid data. These use cases can help answer the following questions:

- What are the demographic characteristics and needs of the dual eligible population?
- How is the health of a dual eligible beneficiary impacted by prescription drug use?
- How can an analysis of the prevalence of chronic conditions be used to predict the need for services?
- What is the utilization rate of acute care services and are they preventable?

The use cases follow the development process outlined in previous slides and include technical specifications, code, and sample results. They can be customized by states to meet their own analytic needs.

As states address the task of integrating Medicare and Medicaid data, developing a robust understanding of key features of the dual eligible population can be a good starting point before expanding analyses to included additional information.

- The MMDI team developed a Duals Profile use case to provide examples of analyses which require states to use integrated Medicare and Medicaid data, such as chronic condition prevalence rates, type of coverage, service utilization, and summary costs by payer.
- Identifying utilization in the dual eligible population provides a starting place for determining and targeting appropriate care coordination and other interventions.

The MMDI team is currently working with three states on Duals Profile use cases. While all share the same underlying goal of better understanding their dual eligible population, each state has its own unique set of metrics:

Metrics	State A	State B	State C
Demographics	X	X	X
Program enrollment	X		
Use of Long Term Services and Supports (LTSS)	X		X
Prevalence of select chronic conditions	X	X	X
Prevalence of functional impairment	X		
Acute care quality measures	X		
Inpatient admissions by diagnostic category		X	
Hospital admissions quality measures		X	
Service utilization for select service categories			X
Costs by payer			X

- To identify enrollment in both Medicare and Medicaid, we used the CMS monthly “dual status code”.
 - This variable is found in the MBSF base segment and distinguishes between full- and partial-benefit dual eligible beneficiaries.
 - For the purposes of this analysis, a beneficiary was considered a dual eligible beneficiary if they had one or more months of dual eligibility.
- We used the publicly available CCW chronic condition algorithms to identify beneficiaries with a diabetes diagnosis.
- Medicare cost analysis is limited to dual eligible beneficiaries in FFS since this information is not available for those in Medicare Advantage.
- We further limit our cost analysis to beneficiaries with full/nearly full Medicare FFS group, for which we have robust Medicare cost information.

When using integrated data, states can identify more beneficiaries with a chronic condition than with Medicare or Medicaid data alone. In this sample state, using integrated data, the prevalence rate was 30% for full-benefit dual eligible beneficiaries.

Prevalence of Diabetes among Dual Eligible Beneficiaries by Claims Source and Medicaid Benefit Status

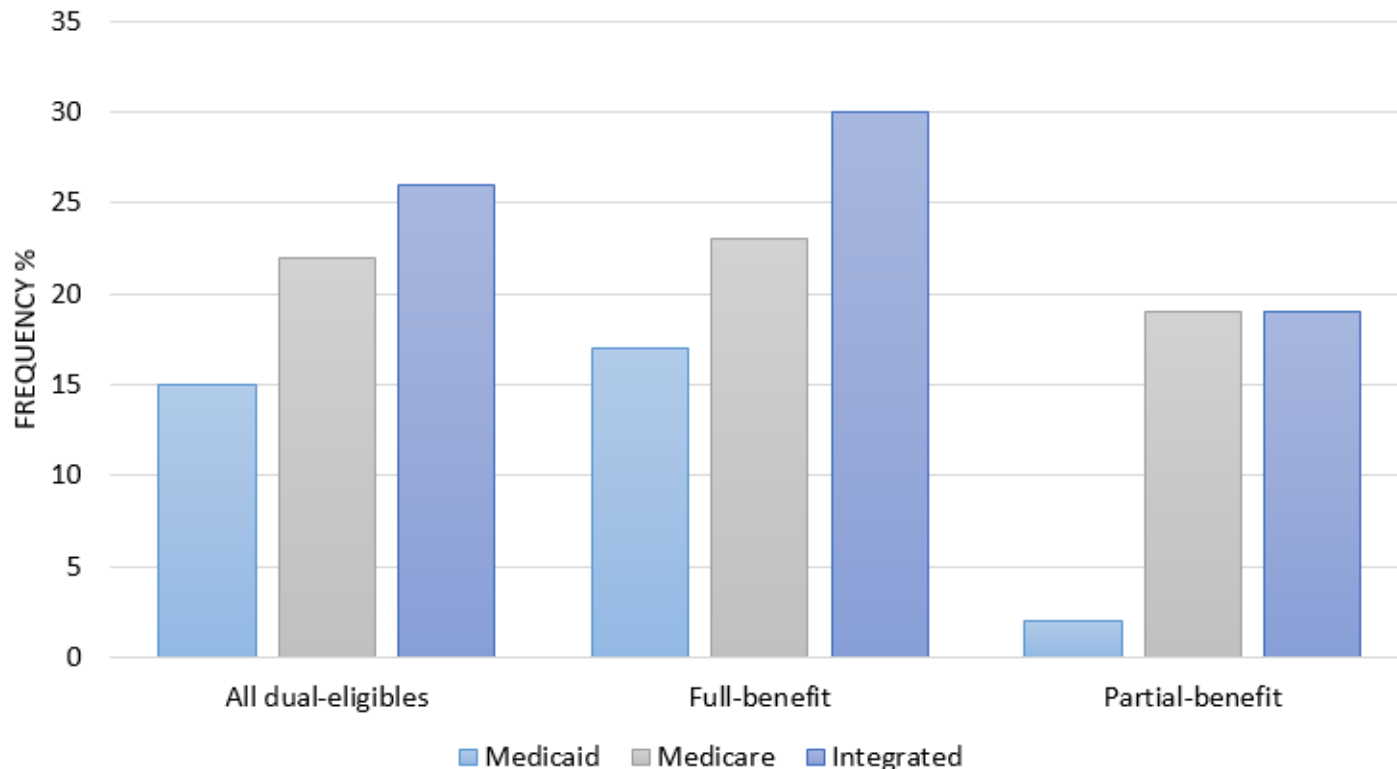


Table 1: Costs for All Dual Eligibles with Full/Nearly Full Medicare FFS Status in State A, 2013

Cost by Payer: All Dual Eligibles	All	With Diabetes	Without Diabetes
Total Medicare FFS costs per-person per-month	\$1,529	\$2,383	\$1,116
Total Medicaid costs per-person per-month	\$1,251	\$1,499	\$1,162
Total Overall costs per-person per-month	\$2,780	\$3,882	\$2,279

Table 2: Costs for Full-Benefit Dual Eligibles with Full/Nearly Full Medicare FFS in State A, 2013

Cost by Payer: Full-Benefit	All	With Diabetes	Without Diabetes
Total Medicare FFS costs per-person per-month	\$1,613	\$2,503	\$1,175
Total Medicaid costs per-person per-month	\$1,511	\$1,716	\$1,431
Total Overall costs per-person per-month	\$3,124	\$4,219	\$2,607

Table 3: Costs for Partial-Benefit Dual Eligibles with Full/Nearly Full Medicare FFS in State A, 2013

Cost by Payer: Partial-Benefit	All	With Diabetes	Without Diabetes
Total Medicare FFS costs per-person per-month	\$1,112	\$1,739	\$836
Total Medicaid costs per-person per-month	\$24	\$40	\$20
Total Overall costs per-person per-month	\$1,136	\$1,779	\$856

Opioid use disorders and prescription opioid misuse are prevalent and costly public health problems in the US. States recognize the need to identify dual eligible beneficiaries who could benefit from interventions. To assist states in this area, the MMDI team developed two use cases that aim to address the following analytic questions:

- Who are the dual eligible beneficiaries at risk for opioid misuse and abuse?
- Who are the providers with potentially high risk opioid prescribing patterns?

These use cases are intended to help states in the following ways:

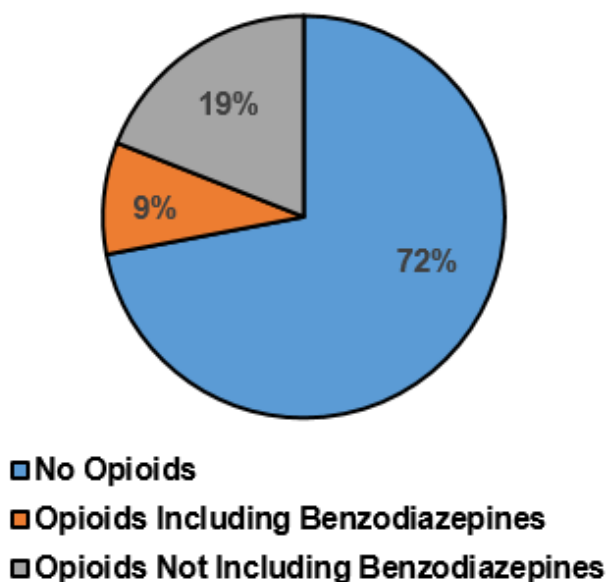
- Detect the frequency of opioid prescribing and identify potentially dangerous prescribing practices.
- Predict the need for behavioral health services for dual eligible beneficiaries who may be at-risk of opioid substance use disorder (SUD).
- Develop programs that utilize evidence-based opioid prescribing guidelines to support providers in making informed decisions about managing pain in the dual eligible population.
- Evaluate the efficacy of programs and interventions aimed at addressing opioid misuse.

To create a profile of opioid utilization among dual eligible beneficiaries, states should first define the dual eligible population of interest. For each of our opioid use cases, we selected a sample state and study year.

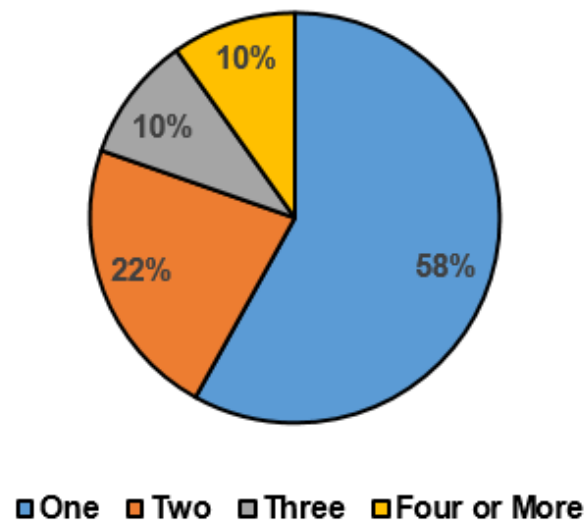
- The population was selected based on the following criteria:
 - Medicare Parts A/B or Part C coverage, and Medicare Part D for 11 or more months, or for those who died, for all months alive, to allow for complete prescription drug data for the study year.
 - Full-benefit dual eligible status: the PDE data only includes full-benefit dual eligible beneficiaries and this is the population of interest to states.
 - Beneficiaries with hospice claims during the study year were excluded.
 - When examining fills and prescribing by chronic conditions, beneficiaries with a cancer diagnosis during the study were also excluded.
- Opioids were identified using the Prescription Drug Monitoring Program Training and Technical Assistance Center's (PDMP TTAC's) guide.
- Providers were identified by their national provider identifier (NPI) and categorized accordingly for reporting.

- In this sample state, the majority of dual eligible beneficiaries did not have an opioid fill during the year.
- Of those who had an opioid fill, a third were prescribed benzodiazepines, which have been implicated in opioid overdoses.
- Of those with an opioid fill, almost half had four or more opioid fills during the year.

Percentage of Dual Eligible Beneficiaries Who Had An Opioid Fill

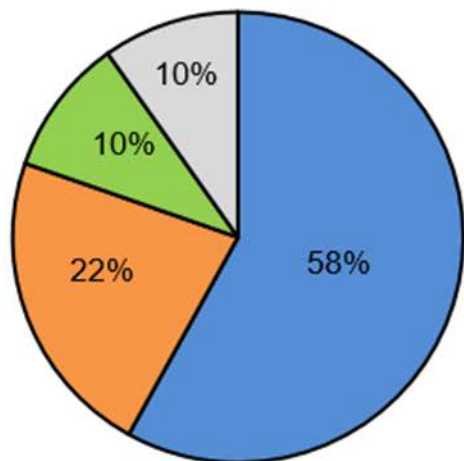


Number of Opioid Fills Among Dual Eligible Beneficiaries with at Least One Opioid Fill



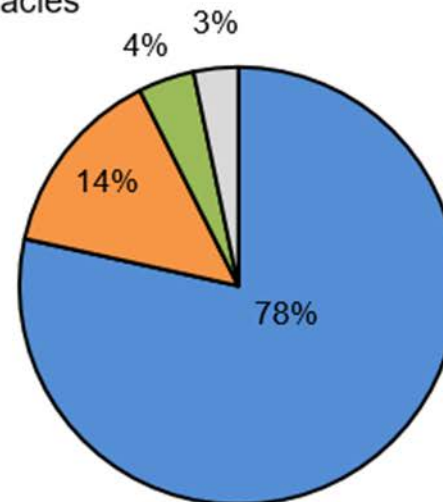
- Over half of dual eligible beneficiaries who had an opioid fill received opioid prescriptions from only one provider.
- Over three-quarters of dual eligible beneficiaries who had an opioid fill used only one pharmacy to fill their opioid prescriptions.

Percentage of Dual Eligible Beneficiaries with at Least One Opioid Fill by Number of Prescribing Providers



- One Provider
- Two Providers
- Three Providers
- Four or More Providers

Percentage of Dual Eligible Beneficiaries with at Least One Opioid Fill by Number of Pharmacies



- One Pharmacy
- Two Pharmacies
- Three Pharmacies
- Four or More Pharmacies

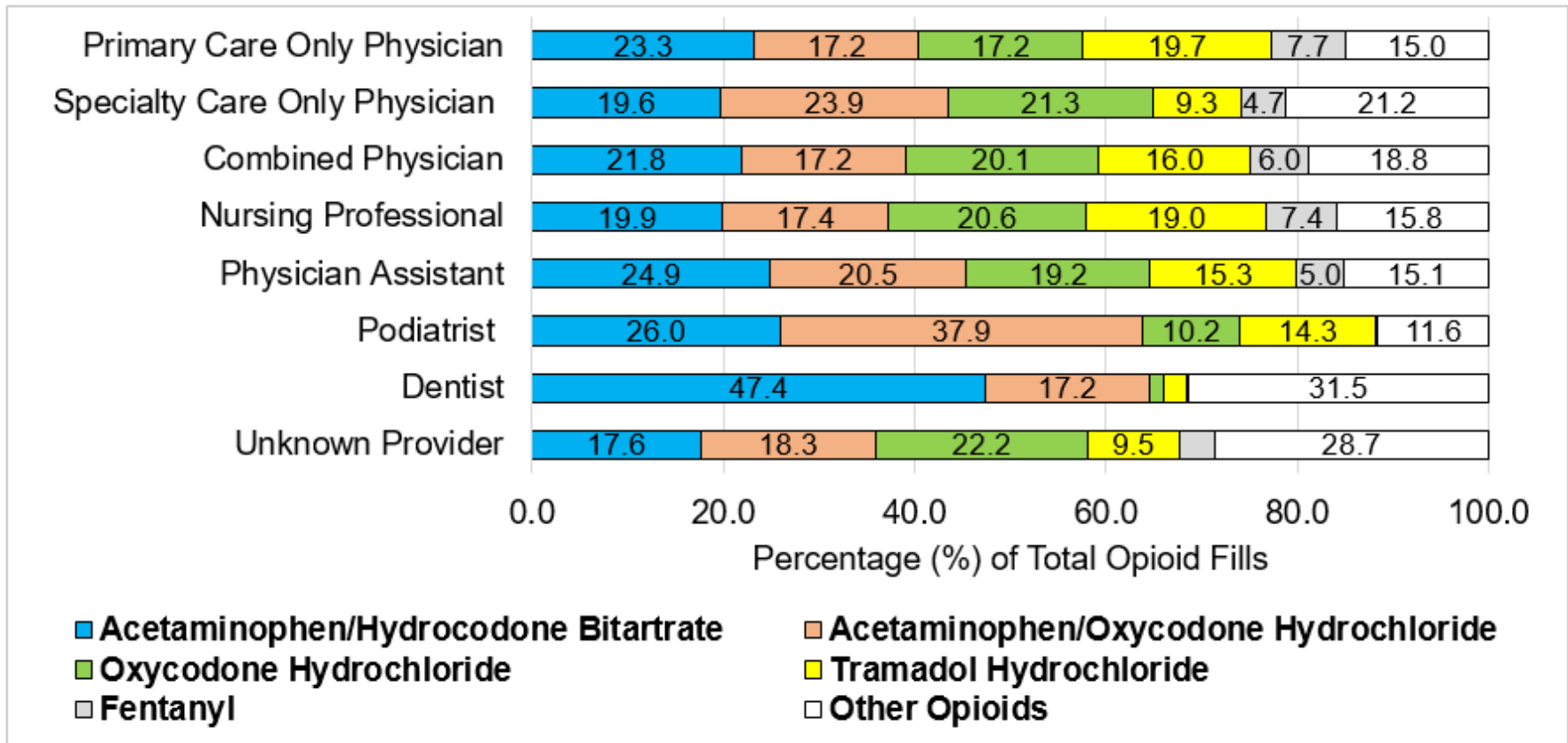
Primary care only physicians prescribed half of all opioid fills and had the highest average number of opioid fills per dual eligible beneficiary with an opioid fill, compared to other provider types.

Opioid Fills Prescribed to Dual Eligible Beneficiaries by Provider Group

Provider Type	Percentage of Total Opioid Fills	Percentage of Total Opioid Prescribers	Percentage who Prescribed Opioids	Average Number of Opioid Fills per Dual Eligible with an Opioid Fill
Physician				
Primary Care only	50.0%	23.9%	71.4%	7.6
Specialty Care only	19.9%	27.8%	55.4%	4.6
Combined	7.0%	5.5%	52.9%	5.3
Non-Physician				
Nursing Professional	7.1%	7.4%	52.7%	4.3
Physician Assistant	7.5%	10.3%	69.4%	3.3
Podiatrist	0.7%	1.8%	59.6%	3.2
Dentist	0.5%	2.0%	50.8%	1.4
Other Non-Physician	0.0%	0.1%	3.9%	1.3
Unknown Provider Type	7.3%	21.2%	27.6%	3.7

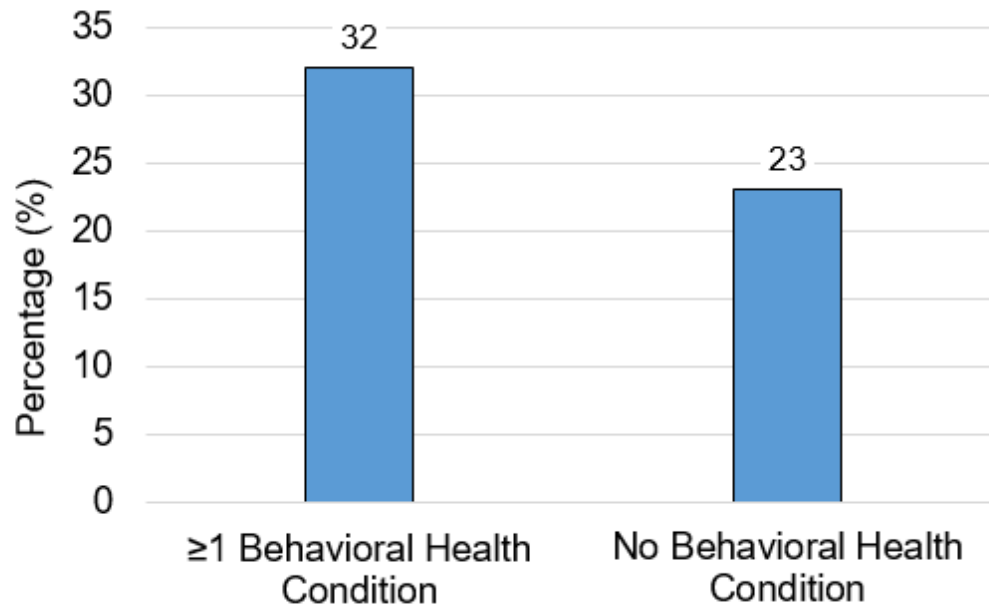
We observed considerable variation in prescribing by provider type within the top five types of opioids prescribed, especially between physicians and non-physicians (and within non-physicians).

Percentage of Total Opioids by Top Five Opioids and Provider Type



A higher proportion of dual eligible beneficiaries with a behavioral health condition had at least one opioid fill compared to those without a behavioral health condition.

Percentage of Dual Eligibles with at Least One Opioid Fill by Behavioral Health Condition Status



MMDI Use Cases:

- Intelligent Assignment
- Comparison of Managed Care or Other Program Participants to Non-Participants on Characteristics and Outcomes
- Assessment Data Value and Use
- Leveraging Integrated Data to Examine Program Integrity in Managed Care
- Overview of Prescription Drug Event (PDE) Data and Use Related to Dual Eligibles
- Identification of Dual Eligibles with Functional and Cognitive Impairments
- Leveraging Integrated Data to Examine Dual Eligibles' Use of Behavioral Health Services
- Leveraging Integrated Medicare & Medicaid Data to Examine Dual Eligibles' Quality of Care - Behavioral Health Measures
- Profiling the Provider Role in Opioid Prescribing Among Dual Eligibles
- Using Integrated Medicare & Medicaid Data to Develop a Profile of the Dual Eligible Enrollee Population
- Identification of Elderly Dual Eligibles using High Risk Medications
- Analytics and Dashboard Reporting on Managed Care Program Enrollment and Disenrollment
- Incorporating the HCBS Taxonomy Into Integrated Medicare and Medicaid Data Files
- Using Integrated Data to Examine Program Integrity in Managed Care
- Using Integrated Data to Generate Risk Scores and Chronic Condition Information for Dual Eligibles
- Part D Prescription Drug Event (PDE) Data and Use
- Identification of Elderly Dual Eligibles Using High Risk Medications
- Leveraging Integrated Medicare & Medicaid Data to Examine Dual Eligibles' Prevalence of Behavioral Health Conditions and Differences in Cost and Service Use
- Options for States for the Assignment of Chronic Condition Diagnoses for Dual Eligibles
- Profiling Substance Use Disorder and Potential Opioid Misuse Among Dual Eligibles
- Avoidable and Unavoidable Emergency Department Utilization in Dual Eligibles



FEI Systems



FEI Systems

Questions?





FEI Systems

Wilmarie González
Bureau Director
Office of Long-Term Living
Bureau of Quality Assurance and Program Innovation
Pennsylvania Department of Human Services



FEI Systems

Pennsylvania Case Study

Phillip Windell
Program Analyst
Office of Long-Term Living
Division of Program Development and Innovation
Bureau of Quality Assurance and Program Innovation
Pennsylvania Department of Human Services

- Moving participants from the legacy (FFS) program to a new managed long-term services and supports (MLTSS) program, Community HealthChoices (CHC), using a three year phased-in approach.
- Implemented the CHC program starting January 2018:
 - Awarded statewide contracts to three managed care organizations (MCOs)
 - Serves the dual-eligible population
 - Requires CHC-MCOs to have companion Dual Eligible Special Needs Plans (D-SNPs)
- Medicare Integration: Requiring companion (aligned) D-SNPs along with unaligned D-SNPs to work alongside the CHC-MCOs.
- The Medicaid FFS program served over 40,000 beneficiaries; CHC will serve the dual-eligible population of over 400,000 beneficiaries.

Legacy (FFS) Program

- Limited knowledge of Medicare services
- Gaps in data analytics
- How to use incoming Medicare data and expected outcomes
- Understanding the eligibility variables and the algorithms used to calculate the chronic conditions and how to use them
- Understanding the process of decrypting and importing historic data into SAS
- Managing the historic cross-reference files
- Using Enhanced COBA data:
 - Understanding the complicated format in which the data is delivered
 - Identifying an appropriate database to hold the data
 - Recognizing and planning the large size of data that is being delivered to the state

Community HealthChoices (CHC)

Goals for the program include:

- Enhanced opportunities for community-based living.
- Strengthen coordination of LTSS and other types of healthcare, including all Medicare and Medicaid services.
- Enhance quality and accountability.
- Advance program innovation.
- Increase efficiency and effectiveness.

- The MMDI program has facilitated the Office of Long Term Living's (OLTL's) utilization of historic Medicare integration with Medicaid data for the same period to support the development of a profile of the population that is being served under CHC, the new MLTSS program.
- Used the CHC Duals Profile use case as a basis for OLTL policy discussions regarding CHC program innovations.
- Integrated Medicare and Medicaid data in a demonstration of the value of developing a complete profile of dual eligible beneficiaries.
- Shared results of the Duals Profile use case with the entity conducting the long-term evaluation of CHC program (seven years).

To support OLTL in addressing their data integration and care coordination goals, the MMDI team is assisting with a number of tasks. These include, but are not limited to :

- Receipt and processing of Medicare FFS data
 - Historic Parts A/B claims
 - Historic Part D PDEs
 - Enhanced COBA claims
- Client Cross Reference Table (CCRT)
- Analytic Use Cases
- Policy Support
- Encounter Data Survey

Prior to engaging with the MMDI team, OLTL requested and received the historic Medicare Parts A/B claims data in 2011 and the Part D PDE data in 2012.

- OLTL loaded this data into a database created for the Medicare data.
- OLTL reported completing the following preliminary analyses, utilizing the Medicare Parts A/B data with Medicaid data:
 - Identified dual eligible beneficiaries to include in CHC.
 - Developed counts of dual eligible beneficiaries, including the prevalence of chronic conditions and whether they had inpatient or nursing facility utilization.
 - Identified diabetic dual eligible beneficiaries in support of a proposed innovative intervention to stem the development of diabetic-related complications.

- In September 2016, OLTL began the process of requesting the Enhanced COBA data, working with the BCRC to complete the required trading partner agreement and go through the testing process to confirm they were able to receive and read the data. The testing process with the BCRC is unique to the Enhanced COBA data and can take approximately 3 months to complete, which should be factored into planning for receipt of this data.
- Since this data is not being processed through or stored in their MMIS, OLTL built an Oracle database to house the Enhanced COBA data, and decided to use BizTalk as their translator tool.

- The Enhanced COBA data contains thousands of data elements, not all of which are useful for care coordination.
 - OLTL chose to retain only a subset of the available data elements.
 - The MMDI team developed a Medicare Database Staging Model (DSM), which is a customizable tool that includes recommended data elements.
 - OLTL used the Medicare DSM, with some modifications, to load their Enhanced COBA data into the Oracle database.
- Now that the Oracle database has been built, the MMDI team is assisting with testing the BizTalk translation of the Enhanced COBA data.
- OLTL expects to be able to utilize the Enhanced COBA data for analytics starting in August 2018.

Applying a final action indicator process to the PDE and Enhanced COBA data is required in order to be able to identify voids, adjustments, or deletes, and select only the most current version of a claim to use in analytics. This process should be applied each time new claims or events are received.

- PDE Final Action Indicator Process Algorithm
 - The MMDI team worked with OLTL to implement and apply a final action indicator process to the historic and monthly Part D PDE data.
- COBA Final Action Indicator Process Algorithm
 - OLTL is using specifications developed by the MMDI team to apply a final action indicator process specific to this data source. MMDI will provide support for this process as necessary.

The MMDI team worked with OLTL to develop a customized Client Cross Reference Table (CCRT) that is specific to the CHC population.

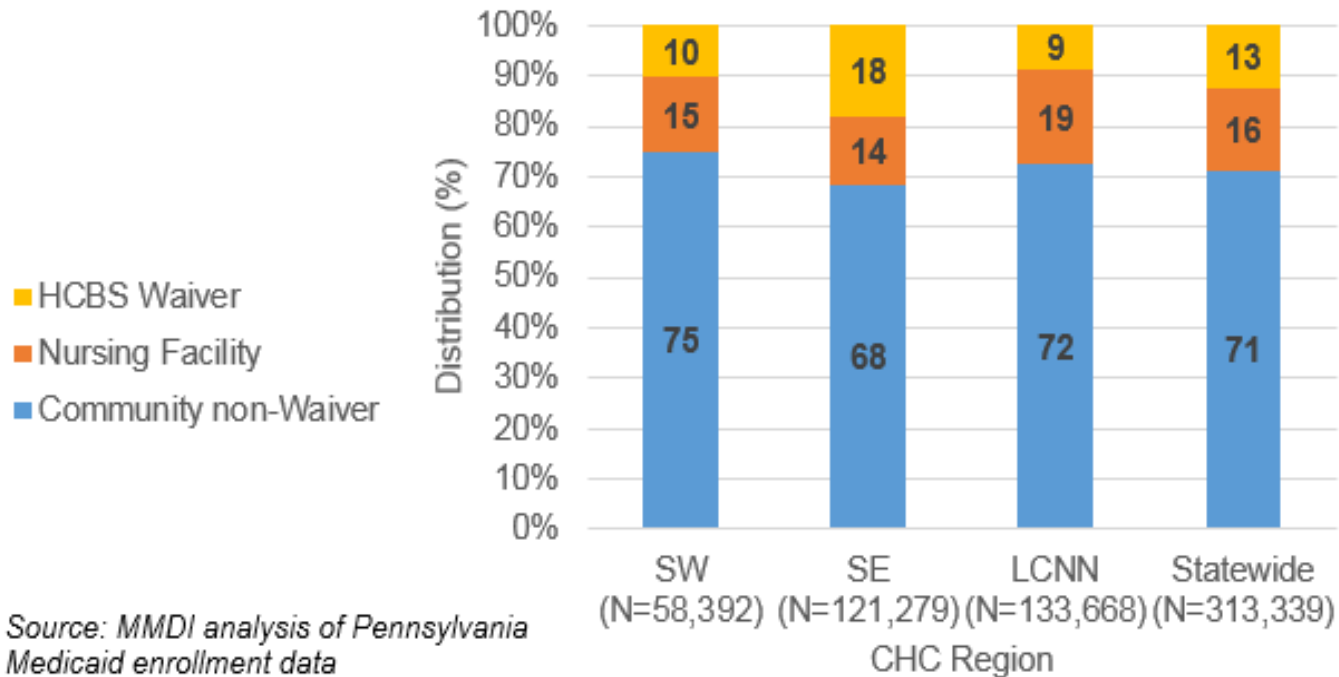
- This is what we would typically refer to as a master patient index, as described earlier in our presentation.
- The CCRT allows OLTL to link dual eligible CHC beneficiaries across both Medicaid and Medicare data sources through the use of a surrogate key, or unique identifier.
- The CCRT will be used to identify analytic populations for future OLTL studies.

In collaboration with OLTL, the MMDI team developed a use case that provided a baseline profile of their dual eligible beneficiaries who may be moving into the CHC program, using 2014 data. At a high level, the use case included the following profile elements:

- Demographic characteristics (ie, age, gender, race/ethnicity)
- Type of LTSS, if any
- Prevalence of select chronic conditions
- Service utilization (physical and behavioral health)
- Summary costs

OLTL plans to run this use case each year, to be able to track trends and monitor changes in the characteristics and health of the population over the span of the CHC program. OLTL is in the process of running the use case on 2015 data, with MMDI support as needed.

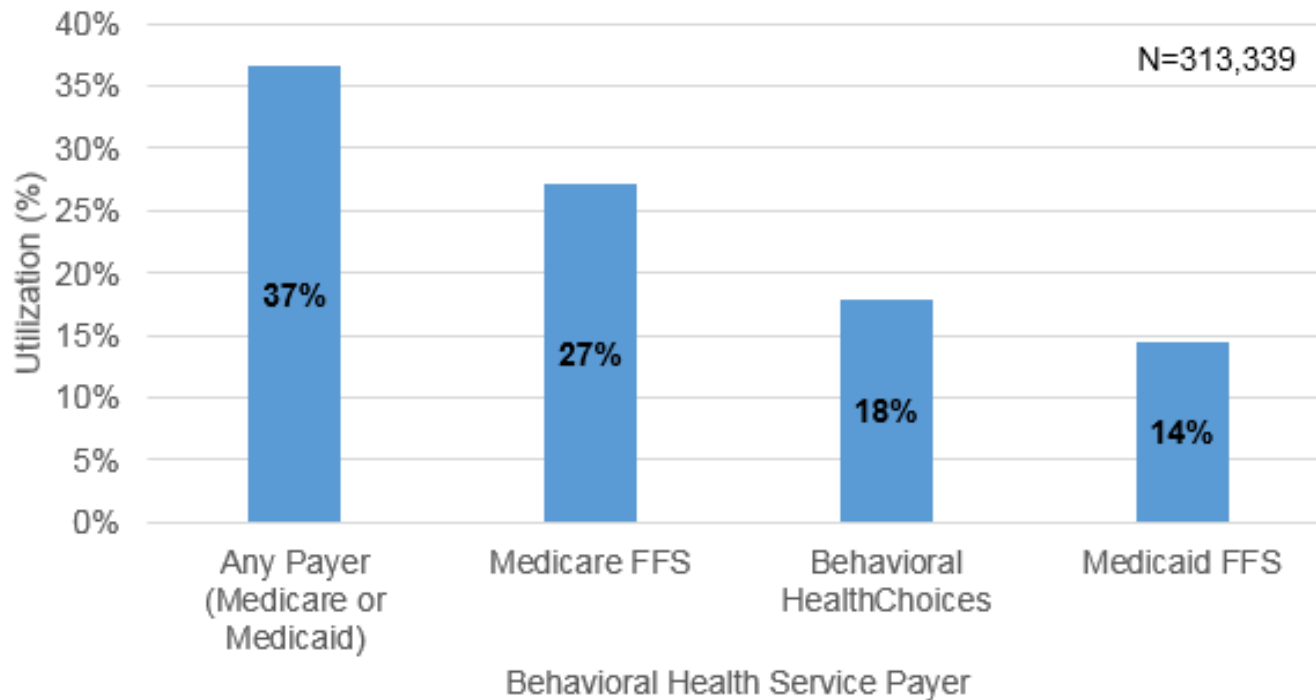
The figure below shows the distribution of the CHC-eligible population by LTSS status, stratified by CHC Region. The majority of the CHC-eligible population is community non-waiver across all regions.



This figure shows the total number of emergency department (ED) visits in 2014 by region and statewide and the average number of ED visits per CHC-eligible. Statewide, close to 15% of all ED visits were classified as preventable/avoidable.

CHC Region	Total ED visits	Average ED Visits Per CHC-eligible	Percent ED Visits Emergent	Percent of ED Visits Non-emergent	Percent of Emergent ED Visits Preventable/Avoidable
SW	18,961	0.91	65.1%	34.9%	14.4%
SE	52,839	0.80	66.3%	33.7%	15.7%
LCNN	79,668	0.89	65.3%	34.7%	14.2%
Statewide	151,468	0.86	65.6%	34.4%	14.7%

This figure shows the percent of the CHC-eligible population who utilized behavioral health services, and utilization by payer. 37% of the CHC-eligible population utilized behavioral health services in 2014.



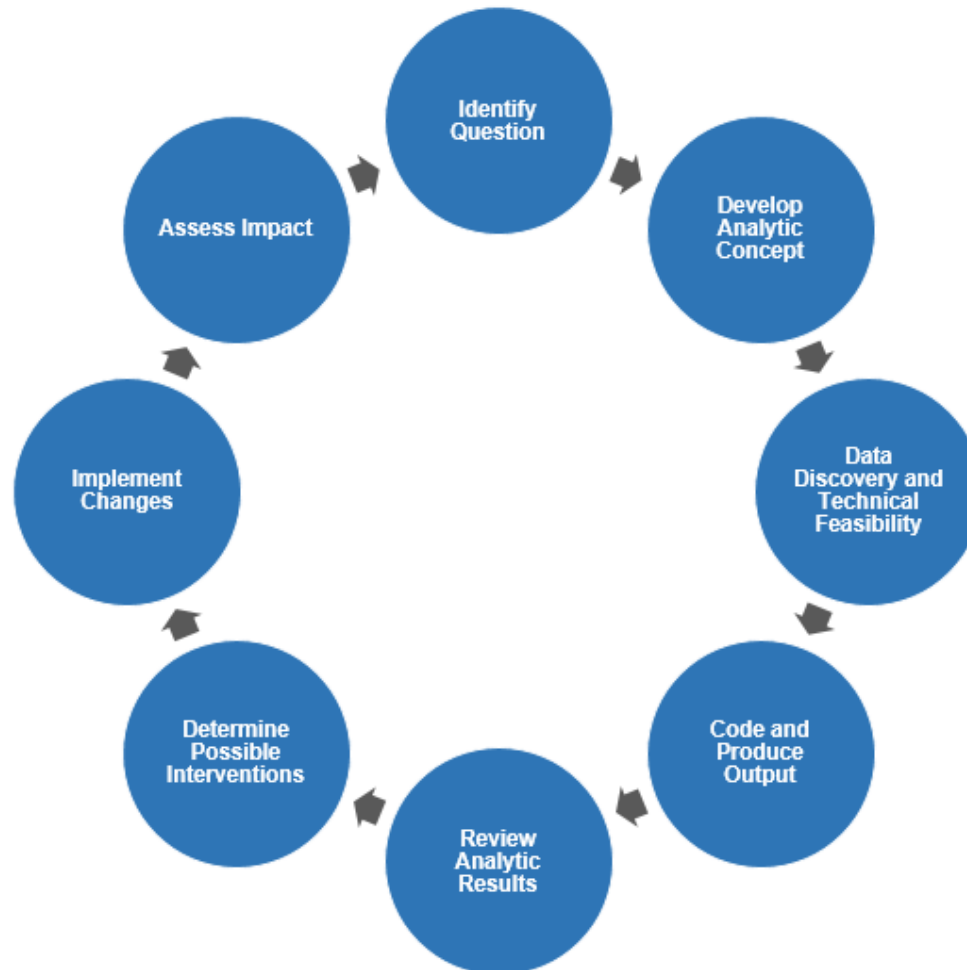
Source: MMDI analysis of Medicare claims and Pennsylvania Medicaid claims and encounters

OLTL is working with the MMDI team on an additional use case that will focus on Care Transitions, with the goal of better understanding why beneficiaries with an inpatient stay become long-term nursing facility residents.

This use case will examine the path of a beneficiary after an inpatient hospitalization, whether they move back into the community or into a skilled nursing facility, and whether that stay is short-term, or transitions into a long-term nursing facility stay, and the characteristics of these sub-populations.

- Some analyses to be included in this use case are:
 - Features of inpatient stays, such as length of stay and rate of preventable hospitalizations
 - Prevalence of chronic conditions, specifically behavioral health conditions
 - Prevalence of functional and cognitive impairments in nursing facility residents, upon admission
 - Percentage of beneficiaries who transition from an inpatient hospital stay to a nursing facility and become long-term residents

OLTL is employing a data-driven decision making process to use the results of the Duals Profile use case to develop and monitor key performance measures for their CHC MCOs.



- Once the Duals Profile use case was complete, the MMDI team facilitated a series of meetings in which OLTL discussed the results, developed follow up questions, and targeted areas of focus.
- Additional analytics were conducted to address the follow up questions. For example, the MMDI team further explored the most common primary diagnoses associated with ED visits that resulted in inpatient stays. The table below shows the statewide results of this analysis.
- CHC Region = Statewide

CHC Region	CCS Category	Visit Count	User Count
Statewide	Mood disorders	702	583
Statewide	Schizophrenia and other psychotic disorders	441	362
Statewide	Suicide and intentional self-inflicted injury	202	175
Statewide	Anxiety disorders	111	101
Statewide	Unclassified	103	99

Meeting Goals:

- Identify priority areas for improvement that OLTL would like to implement based on the results of the Duals Profile use case.
- Share the results of the Duals Profile use case with the CHC-MCOs, D-SNPs and DHS executives and discuss how they can use the use case results to discuss opportunities for improvement, and track changes in those areas over time.
- Support care coordination by identifying clinical interventions, improving health outcomes, and sharing information among the plans.
- Ongoing analysis will allow OLTL and the plans to assess the impact and adjust as necessary.

A significant portion of CHC dual eligible beneficiaries are enrolled in D-SNPs, creating a sizable data gap for the program. To address this, OLTL modified their Medicare Improvements for Patients and Providers Act (MIPPA) agreement to require submission of Medicare encounters.

- In preparation for this effort, MMDI collaborated with OLTL to develop an interview protocol to solicit feedback from states who are already receiving the D-SNP encounter data.
- The protocol focused on data format, processing, and storage, as well as essential personnel, data utilization, and lessons learned.
- Interviews were conducted with four states, and with CMS.
- The MMDI team has synthesized the results of the interviews into a report for Pennsylvania to utilize as they begin designing their Medicare encounter data system.

- Ensure executive team support and engage them in decision making.
- Assemble a devoted team with the variety of necessary skills to include analytics (use cases), technical (IT), and policy (operations).
- Ensure the core team and other resources are sufficient to accomplish the identified goals.
- Develop and maintain regular communication between the core team, and executive team; include the healthcare plans operating in your state.
- Length of time to receive and then understand the data varies by data type.

- Share the Enhanced COBA data with the plans serving Pennsylvania's dual eligible population.
- Adapt the Duals Profile use case code to support replication of the Duals Profile on an annual basis.
- Develop an integrated Medicare, Medicaid, and Minimum Data Set (MDS) data set for a study of dual eligible beneficiaries who are admitted to a nursing facility (NF).
- Develop an integrated Medicare-Medicaid-MDS study of NF residents discharged from the NF and those who remain long-term in the NF.
- To date, analytics have been based entirely on claims data, but through this project Pennsylvania is including encounter data from behavioral health, Medicaid physical health, Medicare, and the CHC program.



FEI Systems



FEI Systems

Questions?





FEI Systems



FEI Systems

Summary



- Decide how the available Medicare data can be of value to your state.
- Develop a clearly defined concept and set measurable, achievable goals for the Medicare-Medicaid data integration effort.
- Determine what resources you need to achieve your data acquisition, integration, and analysis goals.
- Plan on implementing a repeatable process to continue to be able to make effective use of the Medicare and integrated Medicare-Medicaid data.
- Technical assistance is available and CMS may be able to offer additional resources.

States interested in requesting Medicare data can contact the State Data Resource Center (SDRC) at: SDRC@econometricainc.com

The SDRC website (statedataresourcecenter.com) is another resource for states interested in acquiring Medicare data, or in integrating Medicare and Medicaid data.

States can also request follow-up information or address additional questions or comments by contacting: MMDIMgmt@feisystems.com

The MMDI team has also developed a number of tools to assist states with acquiring, becoming familiar with, integrating, and analyzing the Medicare and integrated Medicare-Medicaid data. Some of these are listed below.

- COBA Mapping Workbooks & Recommended Data Structures
- Assessment Data Request Guidance
- Enhanced COBA Final Action Indicator Process & Algorithm
- Master Provider Index Specification
- Chiapas EDI Translator (MMDI version) & SAS Load Script
- Medicare Database Staging Model
- Part D PDE Overview for Analytics
- Part D PDE Final Action Indicator Process & Algorithm
- Master Patient Index Specification
- MBSF Population Macro & User Implementation Guide



FEI Systems



FEI Systems

Questions?



Thank you!

Please complete the evaluation that will pop-up when you close out of the webinar.