CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Data Merging and Integration in Medicaid

Medicaid Innovation Accelerator Program - Data Analytics National Webinar

June 12, 2019
3:00 – 4:30 PM ET

Logistics for the Webinar

- All lines will be muted
- Use the chat box on your screen to ask a question or leave a comment
  - Note: chat box will not be seen in “full screen” mode
- Slides and a transcript will be posted online within a few weeks of the webinar
- Please complete the post-webinar survey at the conclusion of the webinar. We value your feedback!

Welcome!

- Keith Branham, Research Analyst on Medicaid IAP Data Analytics Team, Data and Systems Group, CMCS

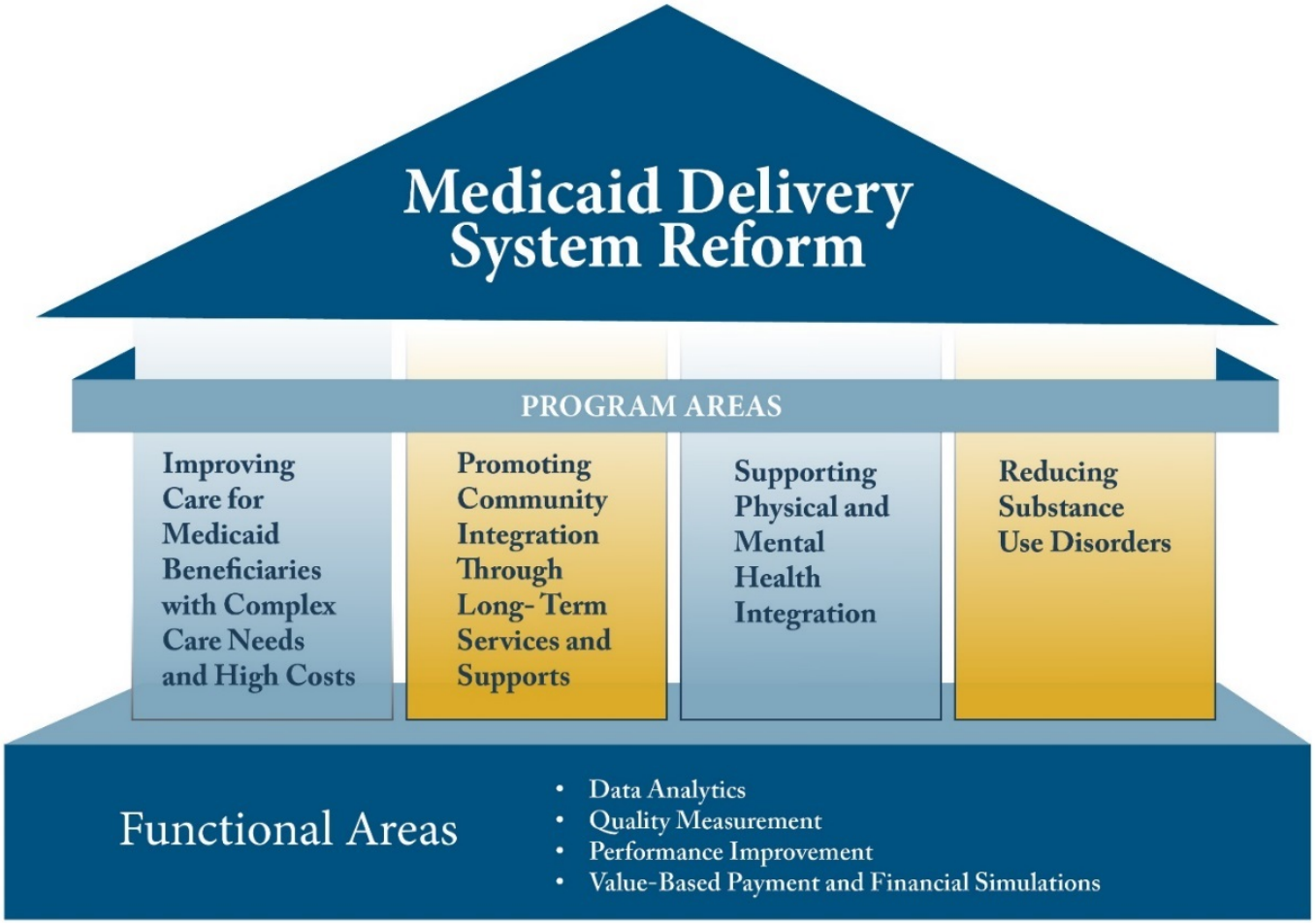
Agenda for Today's Webinar

- Introduction
- Overview of the Medicaid Innovation Accelerator Program
- Review of Data Merging Process
- Washington State's Experience with the Social and Health Services Integrated Client Databases
- West Virginia's Data Integration Experience Merging Mortality Records with Medicaid Data

Today's Speakers

- Jon Busch, Senior Director, Government Health and Human Services, IBM Watson Health
- David Mancuso, Director / Research and Data Analysis Division, Washington State Department of Social and Health Services
- Tanya Cyrus, Chief Quality and Integrity Officer, West Virginia Bureau for Medical Services and Suzanne Lopez, Director, Compliance and Reporting Privacy Officer, West Virginia Office of Management Information Services

Medicaid Innovation Accelerator Program (IAP)



Goals for Today's Webinar

In this interactive webinar, states will learn about:

- Reasons to link data
- Common methods for linking data
- Common methods for working with "noise" in data
- Overview of probabilistic methods
- Concerns and limitations
- Examples of the data linkage experiences in Washington State and West Virginia Medicaid agencies

Adventures in Record Linkage

Jon Busch, Senior Director, IBM Watson Health

Overview: Record Linkage

- Why link data?
  - Research and policy questions are sometimes answered most efficiently using secondary data.
  - These data are not collected for the purposes relevant to the particular research/policy question.
  - Similar data elements are present on different sets of data.
  - These similar elements can be used in combination to create an analytic data set.

Hypothetical Example

- Linking vital records data with eligibility data without a shared/common identifier

Vital Records		
Name	DOB	Gender
Jon Busch	8/7/1983	M

?

Eligibility data		
Name	DOB	Gender
John Bush	7/8/1983	M

How do we decide which records should be linked?

- Match-merging
  - Combine two or more sets of records using a common "key" to link records. Efficient and simple, but not always possible.
- Deterministic linking
  - Combines data using multiple criteria and pre-defined "points" for matches on different elements such as SSN, first name, last name, data of birth, gender. More complicated than match-merging, but can be used when match-merging is not possible.
- Probabilistic linking
  - Combines data using available information and assessed the likelihood that records should be linked. More complicated to set up, but can identify links not possible with other methods.

Back to our example…

- Match merge: No common key
- Deterministic: Only matches are a Gender and Year of Birth
- So what can be done?

Vital Records		
Name	DOB	Gender
Jon Busch	8/7/1983	M

Eligibility data		
Name	DOB	Gender
John Bush	7/8/1983	M

Deterministic example

Vital Name	Vital DOB	Vital Gender	Elig Name	Elig DOB	Elig Gender	Fname Match	Lname Match	DOB Match	Gender Match	Total
Jon Busch	8/7/1983	M	John Bush	7/8/1983	M	8	0	10	1	19
Jon Busch	8/7/1983	M	Jim Bess	7/7/1983	M	0	0	20	1	21
Jon Busch	8/7/1983	M	Jane Box	8/8/1983	F	8	0	19	-10	17

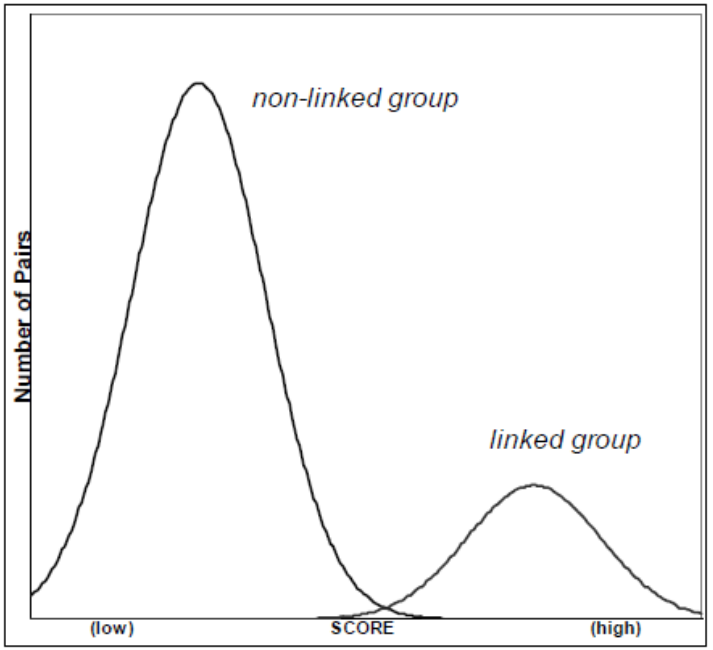
- Based on this example, the best match for Jon Busch (in Vital Records) is Jim Bess (in Eligibility) based on pre-determined points for various links
  - 21 points vs. 19 points or 17 points

Probabilistic linking

- Similar to deterministic linking
  - Uses multiple criteria and establishes scores
  - Difference lies in how points are calculated and where thresholds are set
- Agreement points (“weights”) are determined by the data
- Weights: The discriminating power of each comparison variable is expressed as a weight
  - SSN vs. gender
- Scaling: Provides a mechanism for modifying a weight based on the relative frequency
  - Smith vs. Wobbe

Probabilistic linking

- Join all combinations of records
- Compare each “A” record to each “B” record
- Most pairs are not likely to be linked
  - That’s OK



Probabilistic example

Vital_Name	Vital_DOB	Vital_Gender	Elig_Name	Elig_DOB	Elig_Gender	Prob. Match
Jon Busch	8/7/1983	M	John Bush	7/8/1983	M	0.828
Jon Busch	8/7/1983	M	Jim Bess	7/7/1983	M	0.466
Jon Busch	8/7/1983	M	Jane Box	8/8/1983	F	0.115

- Probabilistic linking identified a more intuitive match using more complex routines.

Key points so far

- You probably don’t have to re-invent the wheel
  - Use existing algorithms and research
- Know your data
  - Is your population more likely to move across town? Or to a different climate based on the season?
- There will be false positives and false negatives
  - Purpose is not to identify only 100% matches, just those records that are likely matches above a certain threshold.

Working with imperfect data

- Names
  - Soundex and other phonetic algorithms
  - Indexes names (including places) as pronounced
  - Process:
    - Retain the first letter of the name and drop all other occurrences of a, e, i, o, u, y, h, w.
    - Replace consonants with digits

Working with imperfect data

Name	Soundex
John	J500
Bush	B200

Name	Soundex
Jon	J500
Busch	B200

- Problem solved, right?
- Well…

Name	Soundex
Jim	J500
Jane	J500
John	J500
Jon	J500

Name	Soundex
Bush	B200
Busch	B200
Box	B200
Bess	B200

Working with imperfect data

- Alternatives such as Metaphone or NYSIIS are an improvement
- String comparators are also useful for comparing two strings, especially when variations on the string are common

Name	Soundex	Metaphone
Jim	J500	JM
Jane	J500	JN
John	J500	JN
Jon	J500	JN

Name	Soundex	Metaphone
Bush	B200	BX
Busch	B200	BSK
Box	B200	BKS
Bess	B200	BS

String comparators

- As the name implies, are used to compare two strings
- Typically, count the number of insertions, deletions, revisions required to make two strings identical
- Example:
  - “Jon” can be “John” by inserting one letter to “Jon”
    - or deleting one letter from John.
  - “Jon” can be “James” by deleting two letters and inserting four.

Wrap up

- Linking records can relatively simple or somewhat complex, with different degrees of apparent accuracy.
- Existing methods and tools are available, and because there is no single “best” method it is important to find the method that works best for your data.
- While the overall probabilistic approach can seem complicated, this can be divided into a set of steps that are somewhat intuitive.

Building an Analytic Data Infrastructure Using Linked Social and Health Service Data

David Mancuso, PhD
Director, Washington State DSHS Research and Data Analysis Division

June 2019

Overview

- **The business case for linking social and health service data in integrated analytic data systems**
- **A legal framework for integration: research data repositories and limited data sets**
- **Highlighted analytic use cases**
  - Performance measurement
  - "Social determinants"
  - Adverse childhood experiences
- **Some lessons learned in Washington State**

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PART 1

Analytics with Integrated Data:

The business case

The Rationale for Building Integrated Analytic Data Systems

HCA, DSHS, and DCYF Client Overlap, SFY 2018

GRAND TOTAL (All Three Agencies) = 2,896,415

Health Care Authority

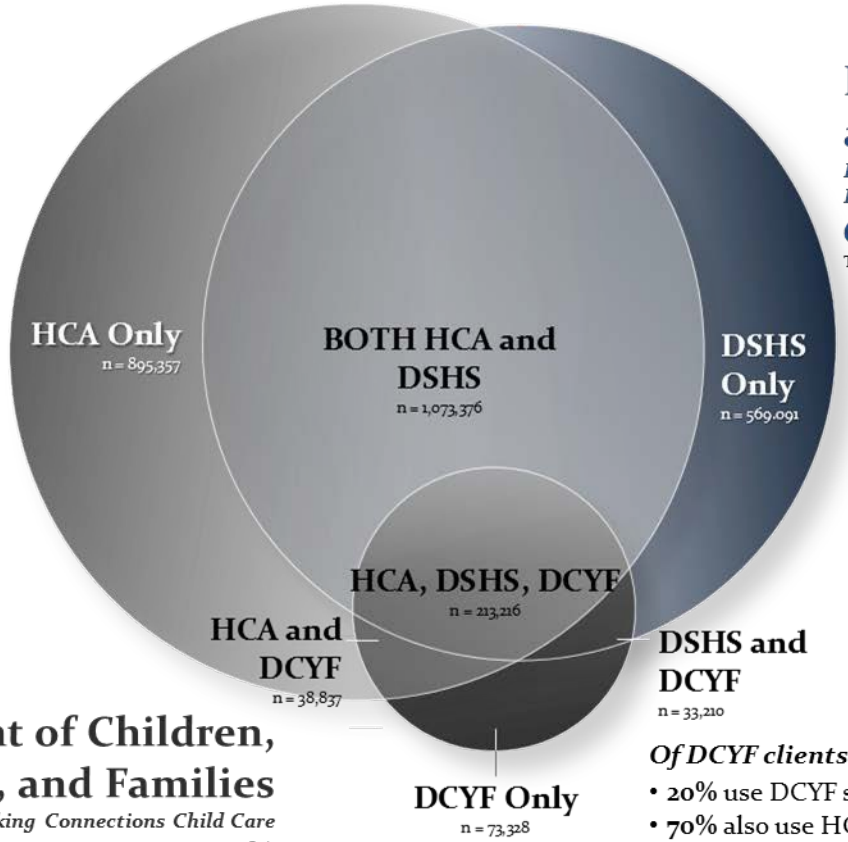
Medicaid Physical and Behavioral Health

77%

TOTAL = 2,220,786

Of HCA Medicaid/BH clients . . .

- **40%** use HCA services only
- **58%** also use DSHS services
- **11%** also use DCYF services
- **10%** use HCA + DSHS + DCYF services



Department of Social and Health Services

Economic Assistance, LTSS/DD Services, State Institutions (excludes Medical Assistance only)

65%

TOTAL = 1,888,893

Of DSHS clients . . .

- **31%** use DSHS services only
- **68%** also use HCA services
- **13%** also use DCYF services
- **11%** use HCA + DSHS + DCYF services

Department of Children, Youth, and Families

Child Welfare and Working Connections Child Care

12%

TOTAL = 358,591

Of DCYF clients . . .

- **20%** use DCYF services only
- **70%** also use HCA services
- **69%** also use DSHS services
- **59%** use HCA + DSHS + DCYF services

NOTES:

1. **Health Care Authority** (HCA) includes Medicaid and related Medical Assistance, community inpatient and outpatient Mental Health Services and Substance Use Disorder Services.
2. **Department of Social and Health Services** (DSHS) includes ALTSA, DDA, DVR, ESA, JRA, and MH State Hospitals, Children's Long-Term Inpatient Programs, and Child Study and Treatment Center.
3. **Department of Children, Youth, and Families** (DCYF) includes programs transferred from DSHS only (Child Welfare and Working Connections Child Care).

Analytic Opportunities in the Social/Health Service Environment

- **Supporting mission-critical core business functions:** budget/actuarial, forecasting, performance/utilization/contract management, service quality monitoring, program/policy development
- **Understanding how risk factors are related to client outcomes:** chronic physical conditions, extreme poverty, homelessness, trauma, mental illness, SUD, cognitive and functional limitations, etc.
- **Identifying social support needs common in high-cost clients,** such as the need for housing, transportation, or employment support, or for interventions to reduce the risk of criminal justice involvement
- **Understanding which interventions work to improve client outcomes**
- **Supporting performance-based contract structures**
- **Intervention targeting and care/case management support**

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PART 2

Analytics with Integrated Data:

A framework for data integration

Analytic Use Cases

- **Research (Common Rule)**
  - a systematic investigation … designed to develop or contribute to generalizable knowledge
- **Business operations:**
  - Policy analysis, program evaluation, reporting, performance measurement, quality improvement, forecasting, decision support, monitoring service utilization, eligibility determination, accounting activities, routine business processes, litigation support, etc.
- **Treatment**
  - Care management

Most Analytic Activities Are Business Operations (Not Research)

- **Policy analysis**
  - Rapid-cycle, descriptive, exploratory, ad hoc
- **Program evaluation**
  - Matching-based clinical-trial simulations using observational data
  - Other quasi-experimental methods
- **Predictive modeling and clinical decision support**
  - Identifying high-risk patients for program planning and/or targeted care/case management interventions
- **Outcome and performance measurement**
  - Monitoring quality and utilization; supporting performance-based contracting

Overarching Research Data Repository Framework

- **Key challenges:**
  - Establishing legal authority to integrate protected data (e.g., SUD, CAN) to support business operations in a multi-agency environment
  - Aligning data management activities to efficiently support massively dimensional, rapid-cycle analytic capability
- **IRB-authorized Research Data Repository (RDR) allows import of sensitive identified data under research disclosure authority**
- **Limited Data Set (LDS) extracts from the RDR are created to support authorized research and analytic business operations**

What is a Limited Data Set?

- "... protected health information that excludes ... direct identifiers of the individual or of relatives, employers, or household members of the individual" (45 CFR 164.514(e)(2))
- May be used and disclosed only for purposes related to research, public health, and health care operations (45 CFR 164.514(e)(3))
- "The implementation specifications do not delineate the data that can be released through a limited data set. Rather, the Rule specifies the direct identifiers that must be removed for a data set to qualify as a limited data set." (Federal Register, Vol 67, No. 157, Wednesday, August 14, 2002, pg. 53234.)
- "In response to wide public support, (DHHS) does not designate as a direct identifier any dates related to the individual or any geographic subdivision other than street address." (Federal Register, Vol 67, No. 157, Wednesday, August 14, 2002, pg. 53235)

What is a Limited Data Set? *(continued)*

- **Implications:**
  - An LDS may include all date elements related to an individual and all geographic subdivisions other than postal address
  - An LDS is not prohibited from including a record identifier that would allow re-identification of the LDS records for subsequent data validation and linkage (although under the required Data Use Agreement, the recipient of the LDS is not allowed to re-identify the data)
  - In other words, an LDS can support the vast majority of analytic business operations requiring cross-agency data
  - Project-specific Service Level Agreements (SLAs) are generally used to support business operations requiring identified data

How the RDR-LDS Framework Addresses Privacy Issues

- Legal authority to integrate many classes of sensitive data is grounded in research disclosure provisions of state and federal statutes and regulations

- Under these provisions, RDA acts as an "Intermediary" between Data Owners and Authorized Users to construct and maintain the RDR

How the RDR-LDS Framework Addresses Privacy Issues

- The IRB-approved research application establishes that the RDR can accumulate identified client-level data from multiple state agencies and programs over time, and link the data to create a comprehensive cross-program record set for each client

- Use of RDR data is governed by the research protocol approved by the WSIRB and companion DSAs and SLAs with agencies and programs that own the data

How the RDR-LDS Framework Addresses Privacy Issues *(continued)*

- While providing an increased level of protection to highly sensitive SUD/MH/CAN data, records in an LDS remain identifiable and for business operations may only be used in activities conducted on behalf of (e.g., under contract with) the Data Owner, or on "joint behalf" when there are multiple Data Owners
- DSA criteria define standards for assessing when a specific business operation activity meets the "joint behalf" standard
- DSAs also define key data governance criteria (e.g., prior review and reporting requirements)

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PART 3

Analytics with Medicaid Data: *Social Determinants and Adverse Childhood Experiences*

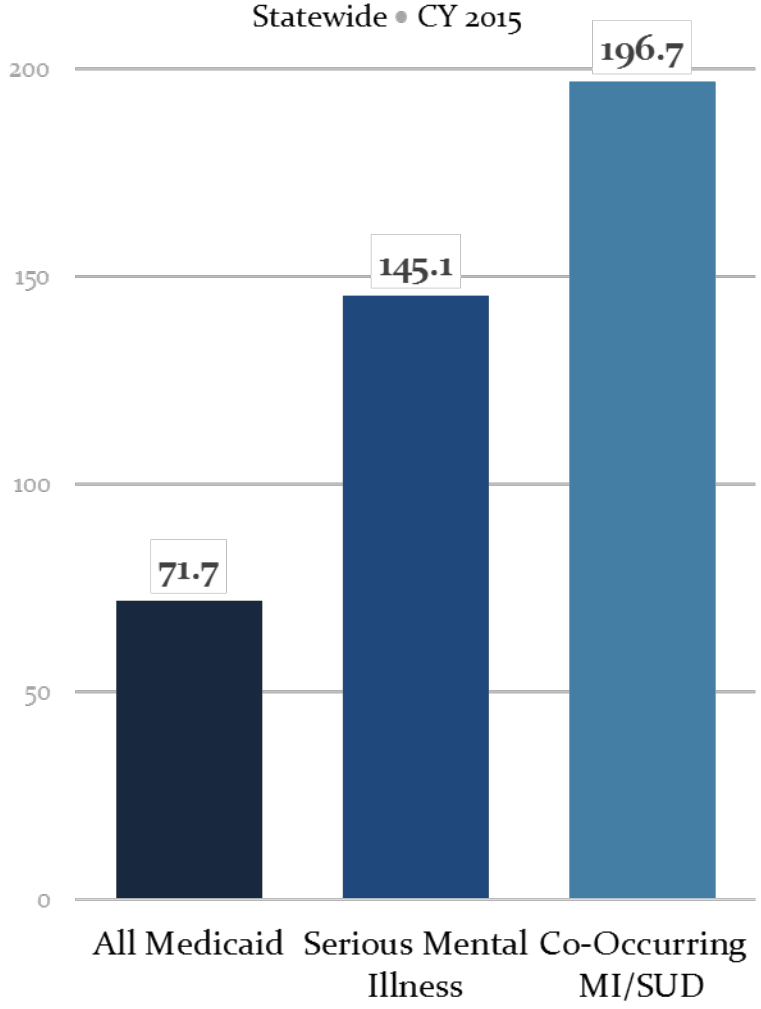
What types of analyses do we do with Medicaid data?

- https://www.dshs.wa.gov/sesa/rda/research-reports/
- **Policy analysis**
  - Rapid-cycle, descriptive, exploratory
- **Program evaluation**
  - Matching-based clinical-trial simulations using observational data
  - Other quasi-experimental methods
- **Predictive modeling and clinical decision support**
  - Identifying high-risk patients for targeted interventions
- **Geospatial analysis**
- **Outcome and performance measurement**
  - Monitoring health care quality, utilization and "social determinants" outcome measures
  - Supporting value-based purchasing

Medical Service Utilization

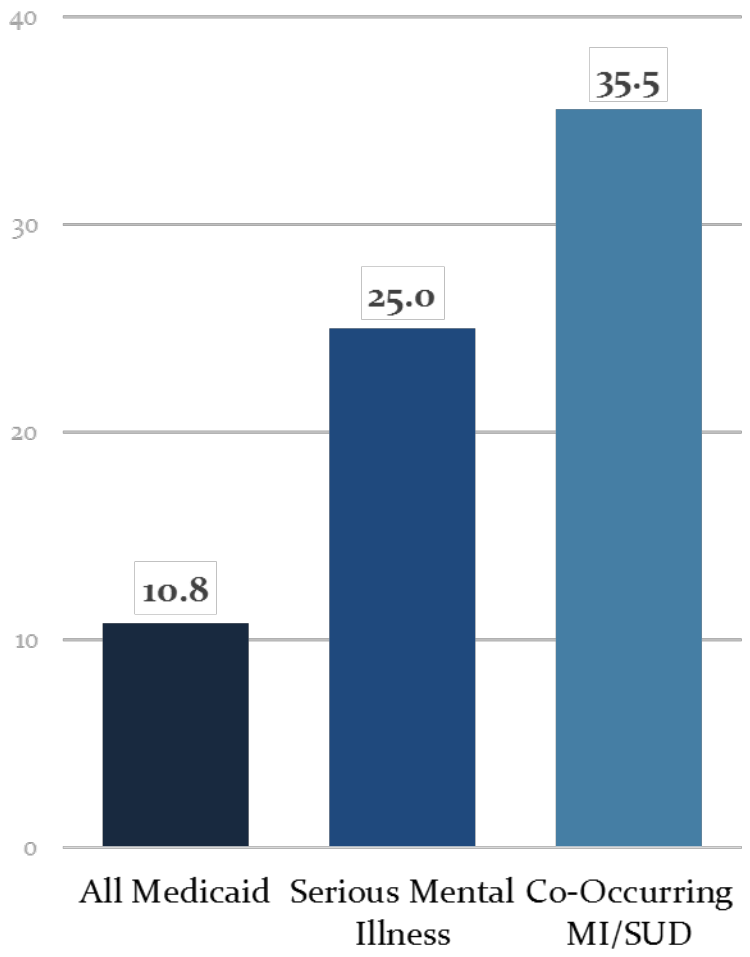
Emergency Department Visits

Per 1,000 MM • Adults Age 18-64
Statewide • CY 2015



Inpatient Admissions

Per 1,000 MM • Adults Age 18-64
Statewide • CY 2015

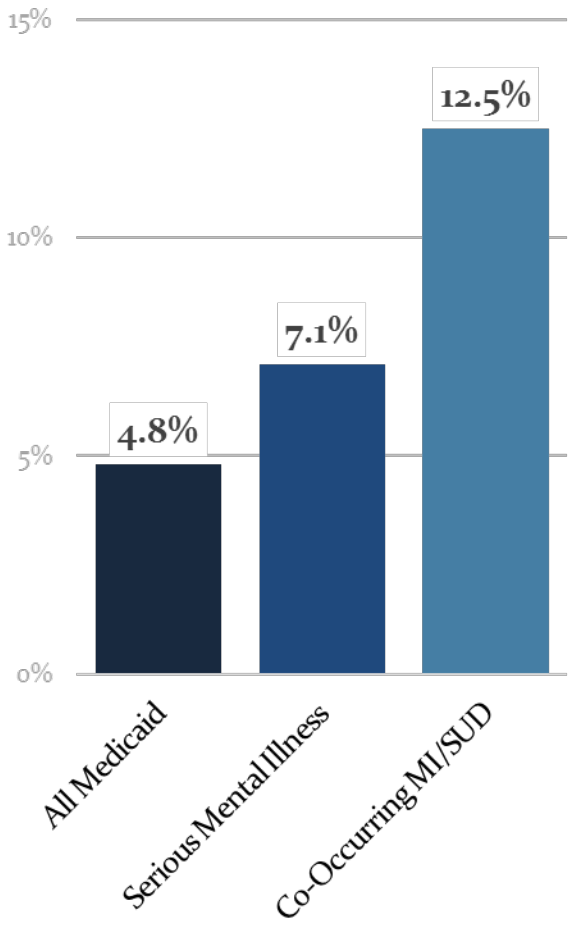


SOURCE: DSHS Integrated Client Databases, July 2017.

Social Outcomes

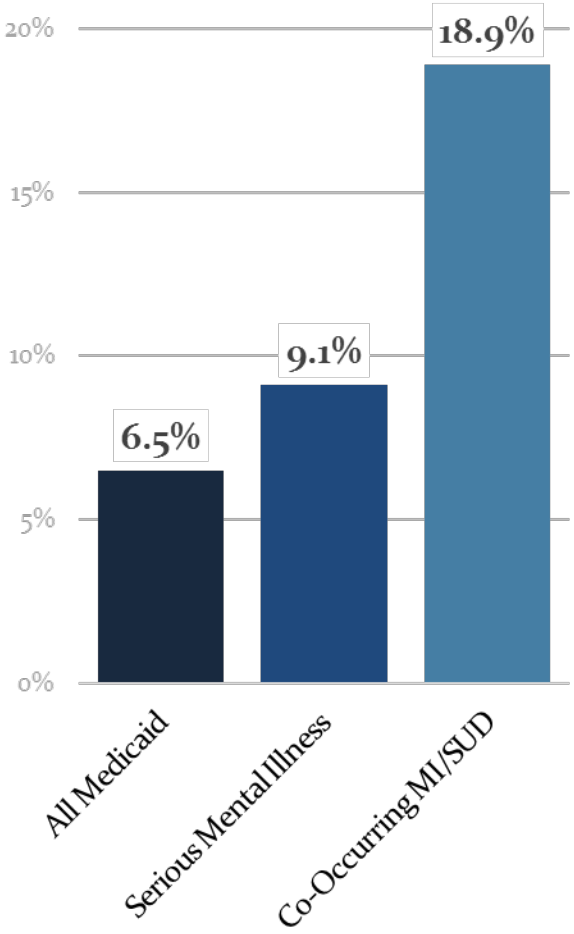
Homeless

Narrowly Defined • Adults Age 18-64
Statewide • CY 2015



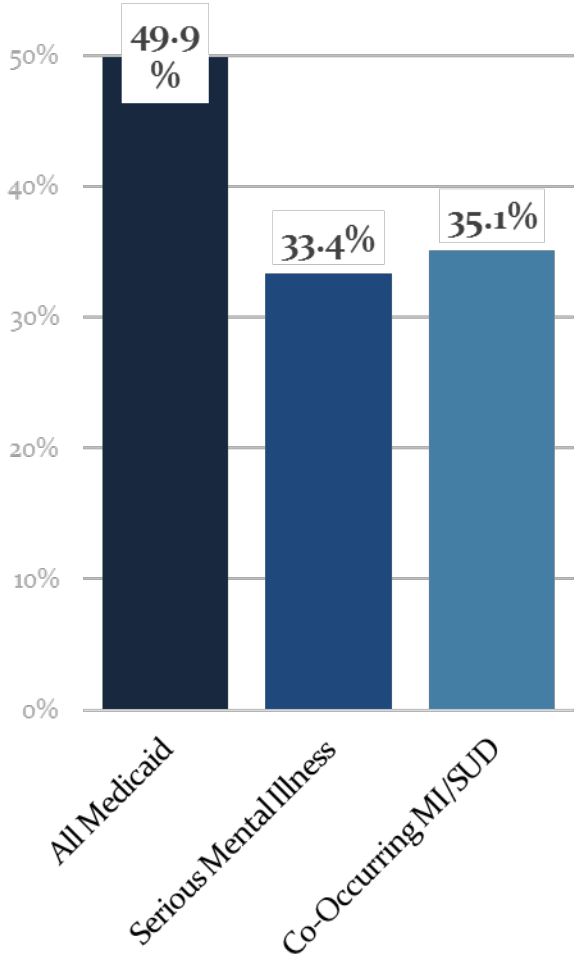
Arrested

Any Crime • Adults Age 18-64
Statewide • CY 2015



Employed

Part-time or Full-time • Adults Age 18-64
Statewide • CY 2015



SOURCE: DSHS Integrated Client Databases, July 2017.

Adverse Childhood Experiences

Measured with Administrative Data

Adverse Childhood Experiences (ACEs) [1]

- Studies conducted by Kaiser Permanente and the Centers for Disease Control
- Generally using adult retrospective reporting via surveys

ACEs are related to adult health outcomes

- Chronic physical health problems such as heart disease, cancer, obesity
- Behavioral health problems such as mental illness and substance abuse
- Early death

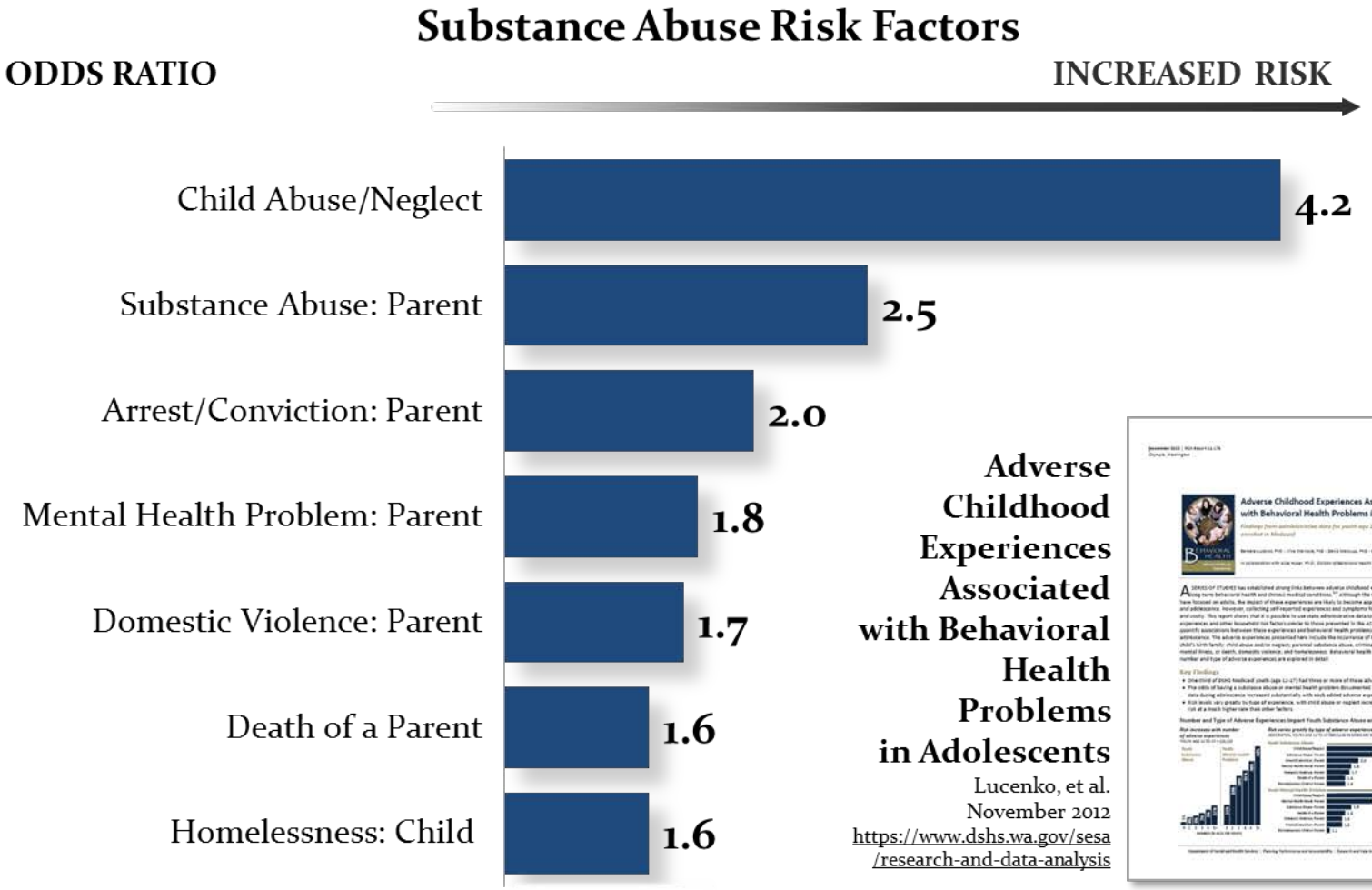
ACEs measures derived from administrative data

- Domestic violence arrests for either parent
- Mental illness of birth parent
- Substance abuse of birth parent
- Criminal justice involvement of birth parent
- Child abuse/neglect as measured by family involvement in child welfare system
- Homelessness spell for family during child's lifetime
- Death of parent

[1] Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., & Edwards, V. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. American Journal of Preventive Medicine, 14, 245-258.

Adverse Childhood Experiences Increase Risk of Adolescent Substance Abuse

AGE 12 TO 17 ENROLLED IN MEDICAID IN SFY 2008



Adverse Childhood Experiences Associated with Behavioral Health Problems in Adolescents

Lucenko, et al.
November 2012
https://www.dshs.wa.gov/sesa/research-and-data-analysis

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PART 4

Analytics with Integrated Data: *Lessons learned*

Washington State Social and Health Services Integrated Client Databases

Department of Social and Health Services

Aging and Long-Term Support
- Nursing Facilities
- In-home Services
- Community Residential
- Functional Assessments

Behavioral Health
- Child Study Treatment Center
- State Hospitals

Developmental Disabilities
- Case Management
- Community Residential Services
- Personal Care Support
- Residential Habilitation Centers and Nursing Facilities

Economic Services
- Food Stamps
- TANF and State Family Assistance
- General Assistance
- Child Support Services
- Working Connections Child Care

Vocational Rehabilitation
- Medical and Psychological Services
- Training, Education, Supplies
- Case Management
- Vocational Assessments *Job Skills*

Washington State Health Care Authority

Medical Assistance
- Medical Eligibility
- Managed Care Enrollment
- Hospital Inpatient/Outpatient/ED
- Physician Services
- Prescription Drugs
- Medical Equipment
- Dental Services
- Laboratory
- Health Conditions

Behavioral Health
- Mental health risk factors and services
- Substance use disorder risk factors and services
- Medication-assisted treatment for opiate addiction

Department of Children, Youth and Families

Child Welfare Services
- Child Protective Services
- Child Welfare Services
- Family Reconciliation Services
- Adoption
- Adoption Support
- Child Care
- Out of Home Placement
- Voluntary Services

Early Learning Services

Juvenile Rehabilitation
(Set to transfer from DSHS July 1, 2019)
- Institutions
- Dispositional Alternative
- Community Placement
- Parole

Other State and Federal Entities

Administrative Office of the Courts
- Charges
- Convictions

Department of Corrections
- Incarcerations
- Community Supervision

Department of Health
- Births
- Deaths

Employment Security Department
- Hours
- Wages

Department of Commerce
Public Housing Authority
- Housing Assistance
- Emergency Shelter
- Transitional Housing
- Homeless Prevention and Rapid Re-housing
- Permanent Supportive Housing

Washington State Patrol
- Arrests

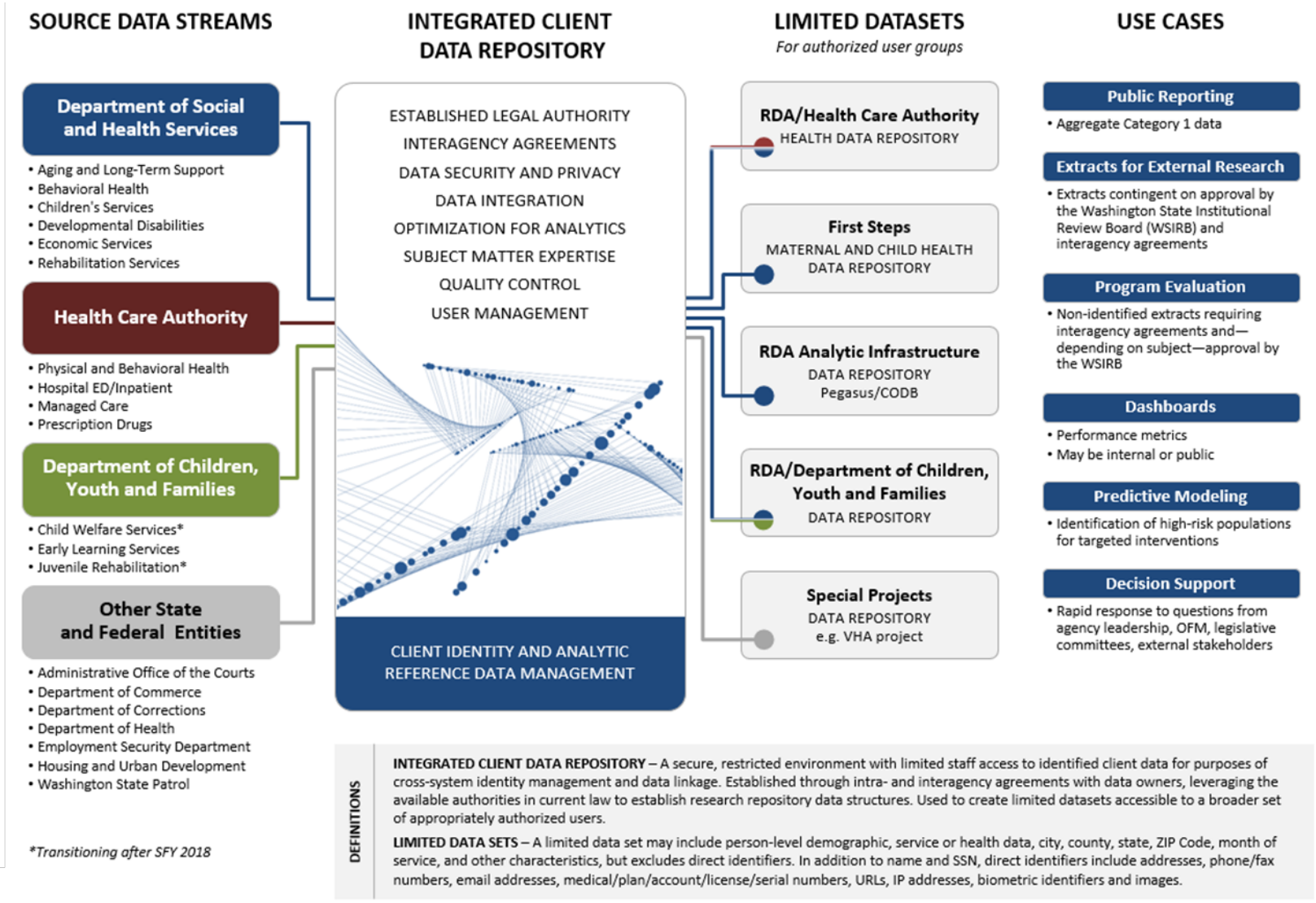
Data is de-identified, linked, and secured by RDA in an integrated client data repository.

The data is used for public reporting, program evaluation, dashboards, predictive modeling, and decision support. Limited datasets can be created for authorized user groups.

The Mechanics of Linking

- **Source systems can have varying identifier quality requiring multiple approaches**
  - Secondary linkage of criminal justice records (aliases)
  - "Golden records" derived from data systems with robust identity management (e.g., MMIS)
  - Resolving twins: linkage to birth certificate records
- **The Link King: free SAS software developed by WA State DSHS staff with probabilistic and deterministic record linking; selected features include:**
  - phonetic name matching (Double Metaphone, NYSIIS and Soundex); Jaro-Winkler string comparison, approximate string matching and spelling; distance algorithms; nickname matching; gender imputation; scaling of name weights ("Smith" receives less weight than "Freud")

Analytics with Integrated Client Data



Architecting a Proactive Analytic Environment

- **Recognize value can be derived from administrative data**
- **Store "reference" information as data that can be easily updated as measurement concepts evolve**
  - Mapping Dx codes to risk groups and disease categories
  - NCQA value sets and logic underlying HEDIS® quality metrics
- **Maintain intermediate relational data structures to support:**
  - Rapid-cycle response to frequently asked questions
  - Business intelligence and reporting "front end" applications

Architecting a Proactive Analytic Environment

- **Build relationships between analysts and fiscal, clinical, policy, program, and IT system SMEs to ensure analytics remain in sync with program, policy and IT system changes**

- **Recruit staff with strong analytic skills and interest in mastering the program/policy/clinical/IT dimensions of analysis**

Data Integration Challenges

- Cross-agency data governance
- Building and maintaining trust among data owners, including addressing privacy concerns
- Conscripting time from state agency subject matter experts
- Maintaining support as state agency leadership changes

Data Integration Challenges

- **Maintaining an analytical data infrastructure in a constantly evolving policy, program, and IT system environment**
- **Recruiting and retaining internal staff with analytical expertise, or finding external contractors with analytic skills and relevant subject matter expertise**
- **Data are plentiful – staff with analytical skills and policy/program/clinical/fiscal subject matter expertise are scarce**

Keys to Success

- Senior agency leadership recognizing potential for integrated data analytics to support improved service delivery
- Maintaining connections between analytic staff and business operations subject matter experts
- Focus on supporting the business rather than academic interests

Keys to Success

- **Maintaining commitment to analytical integrity to build trust with other agencies, the Legislature, and external stakeholders**
- **Maintaining commitment to engage data owners in timely review of sensitive results before public release**
- **Prioritizing integration of new data sources based on our partners' business needs**
- **Leadership by quantitative social scientists with strong analytic and technical skills**

Questions?

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West Virginia Medicaid Mortality Data Integration

with

Technical Assistance from the Centers for Medicare and Medicaid Services (CMS) Innovation Accelerator Program

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WEST VIRGINIA Department of Health & Human Resources
BUREAU FOR MEDICAL SERVICES

West Virginia Medicaid – Mortality Data Integration

- **Why Mortality Data?**
- **Medicaid Innovation Accelerator Program (IAP) Technical Assistance (TA) for Data Integration**
- **Workgroup**
- **Integration Process**
- **Challenges**
- **Lessons Learned**
- **Next Steps**

West Virginia Medicaid – Mortality Data Integration (Cont.)

WEST VIRGINIA Department of Health & Human Resources
BUREAU FOR MEDICAL SERVICES

Why Mortality Data?

Those who have passed speak to us through their mortality data so that we can improve the quality of healthcare for the living…and future generations.

IAP Technical Assistance for Data Integration:

- Four different data sets were considered for IAP TA Data Integration.
- Mid-January 2018 - Expression of Interest Form for IAP TA Data Integration submitted to CMS.
- February 27, 2018 – Notified of selection.
- March 2018 - Kick-Off Meeting and weekly meetings initiated for mortality data integration.
- Target date for completion of task - September 30, 2018

West Virginia Medicaid – Mortality Data Integration (Cont.)

Available data:

- Mortality data from death certificates
  - From West Virginia Health Statistics Center (HSC)
  - For deaths reported January 2011 to mid-2018
  - Two mortality data files:
    - An “old” format used until mid-2017 - 60 data fields
    - A “new” format implemented in mid-2017 – 136 data fields
- WV Medicaid Eligibility data
- WV Medicaid Claims and Utilization Management data
- Information from WV Medicaid sister agencies

West Virginia Medicaid – Mortality Data Integration (Cont.)

IAP Mortality Data Integration Workgroup Goal: integrate West Virginia's mortality data with Medicaid eligibility data with a match rate of at least 80%.

Workgroup Members:

- WV Office of Management Information Services (OMIS)
  - Director, Data Quality and Analytics – IAP Project Lead
  - Informatics Researchers, Data Quality and Analytics
  - Director, Compliance and Reporting and staff
- WV Medicaid
  - Director of Program Integrity
  - Director of Quality Management and staff
- WV Health Statistics Center
  - Director and staff
- WV Medicaid Data Warehouse/Decision Support System staff (IBM Watson Health)
- IAP Data Integration Task Lead, Director Enterprise Architecture – Federal (IBM Watson Health)

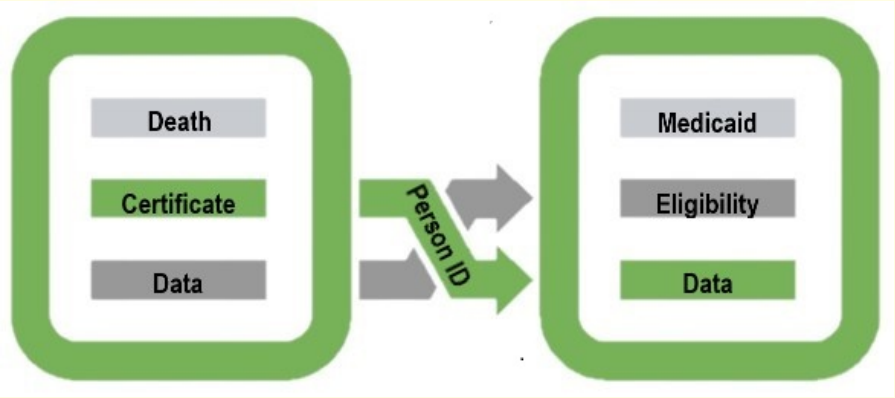
Matching Strategy

Initially, the workgroup reviewed West Virginia's existing matching strategy for birth data as an option for matching mortality data. The birth data currently has a match rate of 86.5% for the child and 96.5% for the mother.

The following strategies were tested for matching data from death certificates to the WV Medicaid eligibility data:

1. Social Security Number (SSN)
2. Last Name, First Name, Date of Death
3. Last Name, First Name, Date of Birth
4. SSN, First Name, Date of Birth
5. SSN, Date of Birth, Gender

The strategy with the best match, #5 above, was selected for the mortality data integration.



West Virginia Medicaid – Mortality Data Integration (Cont.)

WEST VIRGINIA Department of Health & Human Resources BUREAU FOR MEDICAL SERVICES

Match Results using Social Security Number, Date of Birth and Gender

Year	Medicaid Eligibility Records w/ Death Date	Mortality Match Count	Match Rate
2011	7,213	6,315	87.55%
2012	7,570	6,663	88.02%
2013	7,534	6,739	89.45%
2014	8,123	7,149	88.01%
2015	9,322	8,184	87.79%
2016	7,622	6,661	87.39%
2017	7,728	6,748	87.32%
2011-2017	55,112	48,459	87.93%
2018 (1/1 - 8/20)	4,069	3,594	88.33%
TOTAL	**59,181**	**52,053**	**87.96%**

Retrieved from Technical Report, IAP Data Analytics Task 6: West Virginia Mortality Data Integration, 2018

* Match rate based on initial load of historical mortality data for 2011 through August 2018. Rates are expected to increase with future updates of mortality data.

West Virginia Medicaid – Mortality Data Integration (Cont.)

Challenges:

- Historical mortality data in two different formats.
- Mortality data for residents who die out of state is not readily available.
- Time and system constraints prevented setting up a monthly mortality data feed as part of the integration.
- A formal change request was required to add mortality data to the production data warehouse system.
- Delay in loading the mortality data to production due to vendor name change in the state's purchasing system

West Virginia Medicaid – Mortality Data Integration (Cont.)

Lessons Learned:

- Identifying only one data set for integration saves time at beginning of project.
- Data matching strategy must include process to update mortality data when delayed due to medical examiner determination, review by the Centers for Disease Control and Prevention, etc.
- DW/DSS staff onsite greatly reduced the time required to discuss/resolve data-related issues.
- Remote access to the Medicaid data warehouse for CMS IAP Task Lead expedited communication and resolution of issues.

West Virginia Medicaid – Mortality Data Integration (Cont.)

Next Steps:

Implement monthly transmission of updated mortality data to the WV Medicaid data warehouse.

Analyze cause of death data to identify potential healthcare quality improvement opportunities, such as:

- Expanding state's Health Homes programs to address leading cause(s) of death.
- Collaboration with WV Medicaid Managed Care Organizations to ensure care management programs address diseases linked to leading causes of death.
- Implementing project to reduce mortality within 30 days of a hospital admission.

Pursue mortality data for residents that die out of state.

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Q&A

Webinar Takeaways

- Medicaid beneficiaries are often served by multiple social and health service delivery systems, which creates many high-value analytic opportunities using data linked across delivery systems.
- Try multiple matching strategies and use existing algorithms and research that best suit your data. (There is no “one size fits all” approach!)
- For linking mortality data, try to integrate all available data at one time to expedite predictive and prescriptive analytics.

Thank You

Thank you for joining today's webinar!

Please take a moment to complete

the post-webinar survey.

We appreciate your feedback!

For more information & resources, please contact MedicaidIAP@cms.hhs.gov