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Moving Medicaid Data Forward:
A Guide to Medicaid Utilization Data

A Mathematica Policy Research Webinar
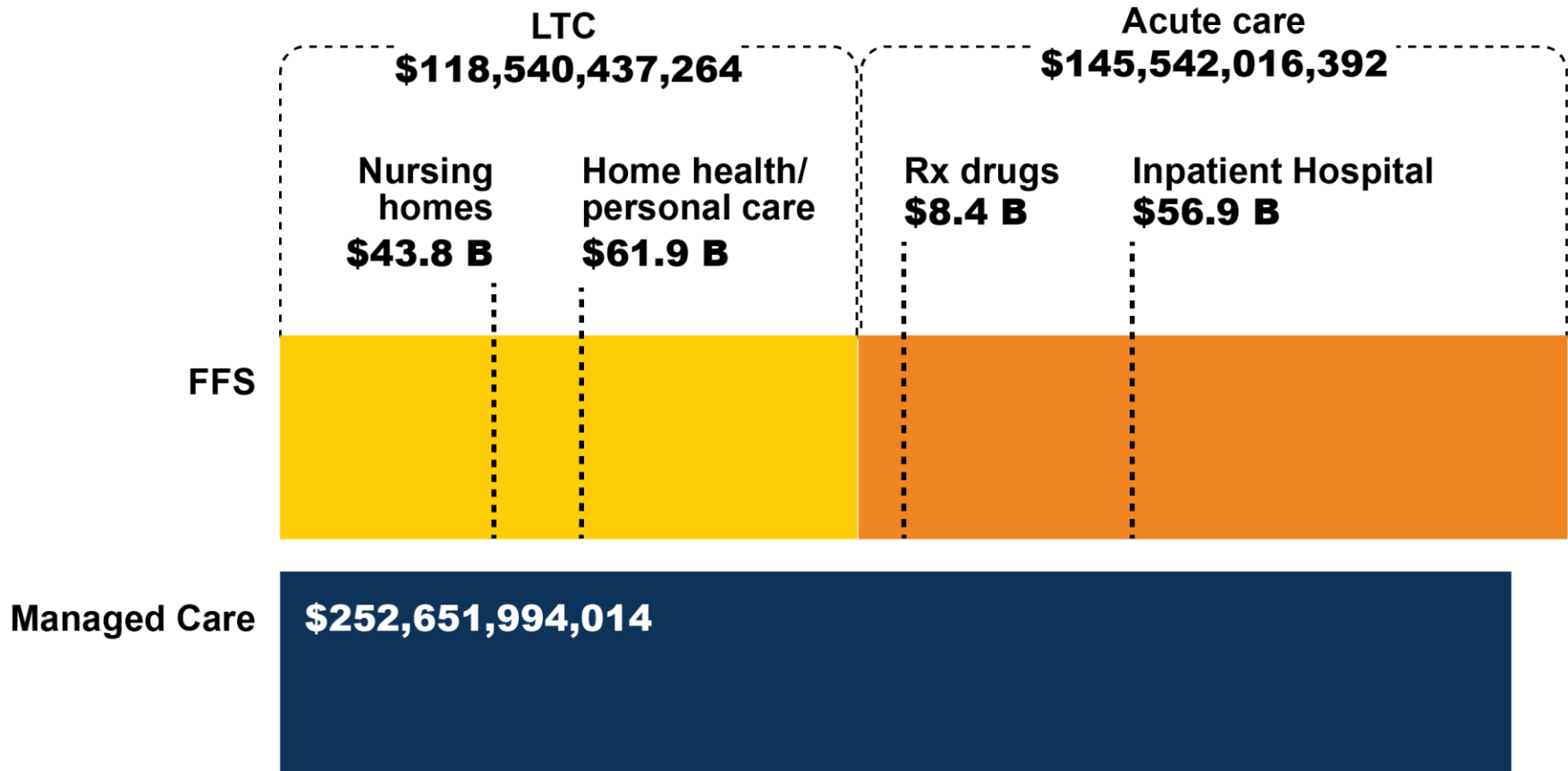*Washington, DC*

August 10, 2017

Craig Thornton • Lindsey Leininger • Su Liu
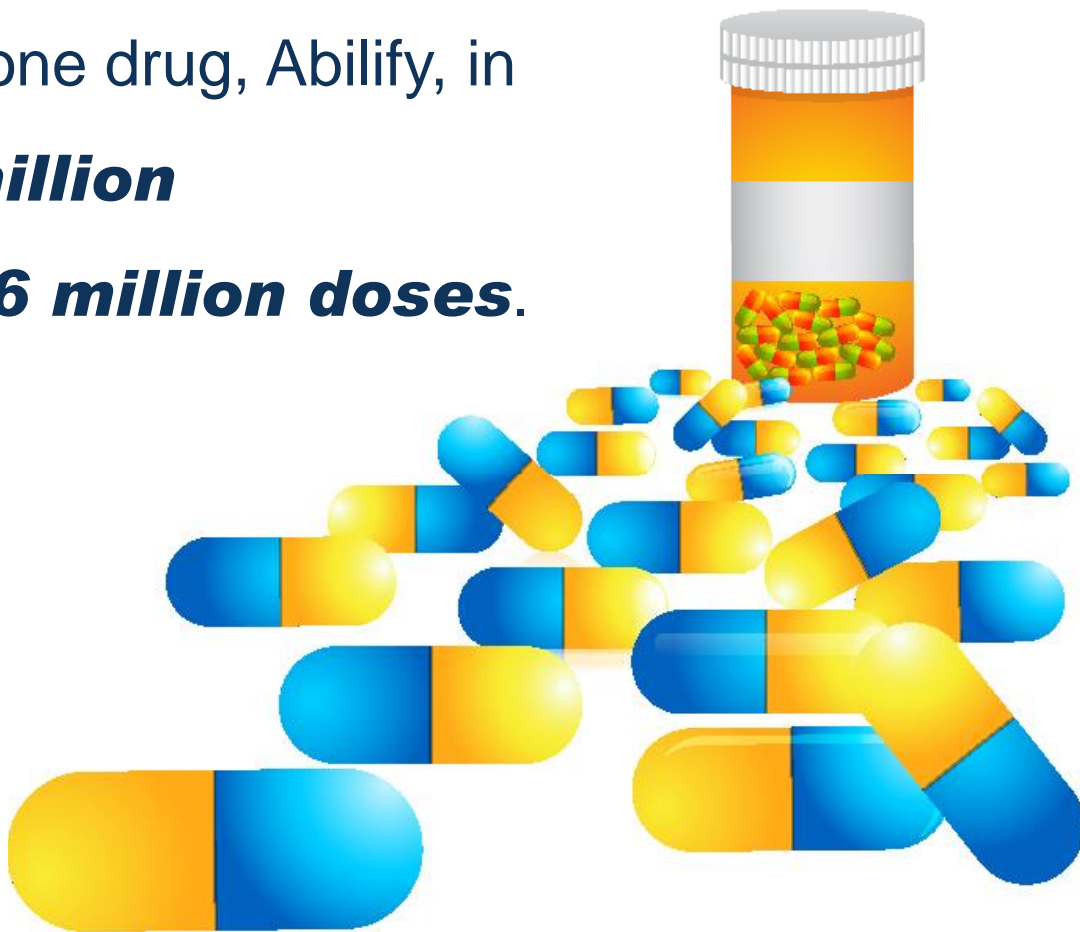David Mancuso

Welcome

Craig Thornton
Senior Fellow

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Utilization in Context (Macro Level)

LTC
$118,540,437,264

Acute care
$145,542,016,392

Nursing homes $43.8 B

Home health/ personal care $61.9 B

Rx drugs $8.4 B

Inpatient Hospital $56.9 B

FFS

Managed Care   **$252,651,994,014**

Source: Kaiser Family Foundation. "Distribution of Medicaid Spending by Service: FY 2016." Available at http://www.kff.org/medicaid/state-indicator/distribution-of-medicaid-spending-by-service/
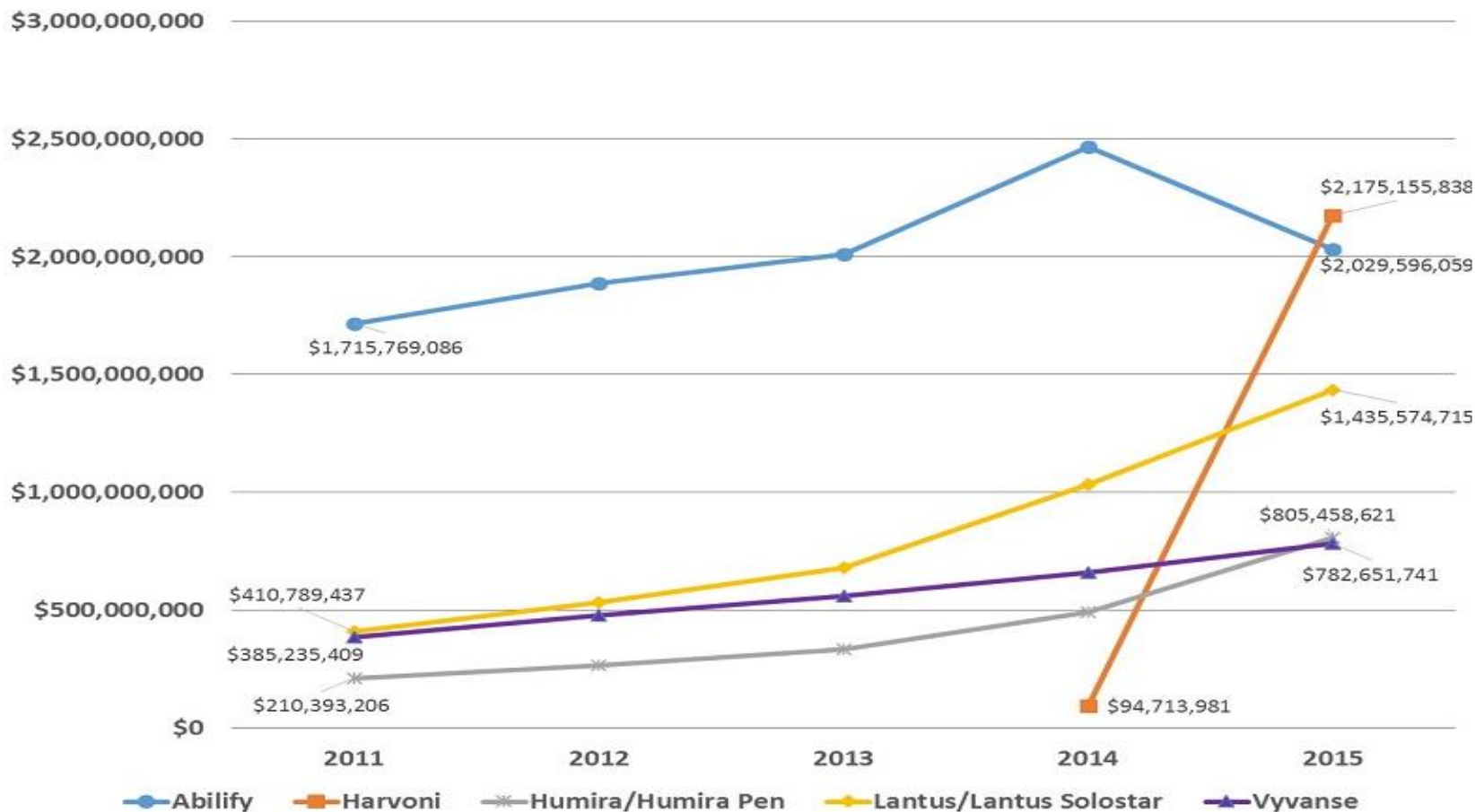
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Utilization in Context (Micro Level)

Medicaid spending for one drug, Abilify, in 2015 was *$2B* for *2 million prescriptions* and *66 million doses*.

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Significant changes in recent years

Trends in Medicaid Total Spending for the Top 5 Drugs in 2015

Source: Medicaid Drug Spending Dashboard available at https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-11-14-2.html

Today's Presenters

- ***Lindsey Leininger,*** Mathematica Policy Research

- ***David Mancuso,*** Washington State Department of Social and Health Services

- ***Su Liu,*** Mathematica Policy Research

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Using Medicaid Claims Data for Research

Moving Medicaid Data Forward, Part 3:A Guide to Medicaid Utilization Data

August 10, 2017

Lindsey Leininger

Objectives

- **Describe the types of policy questions that can be answered using Medicaid claims and encounter data**

  1. Descriptive
  2. Predictive
  3. Evaluative

- **Describe the key challenges inherent in using Medicaid claims and encounter data for research**

- **Introduce analytic tools that have been created to help overcome challenges**

Descriptive Uses (1)

- **Snapshot-in-time reporting**
  - **Example: quality monitoring to support value-based purchasing**
  - **Why Medicaid claims data?**
    - Facilitates standardized measurement
    - Sample sizes large enough to cover small, but high priority populations

- **Related tools**
  - **Adult and Child Core Set**
  - **In development – new measures on vulnerable Medicaid beneficiaries, along with technical specifications**
    - Dual-eligible, MLTSS, Innovation Accelerator Program populations

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Descriptive Uses (2)

- **Assessing beneficiary-level trajectories over time**
  - **Example: monitoring population health outcomes among priority subpopulations**
    - Prescription drug adherence
    - Continuity of care after SUD detoxification
  - **Why Medicaid claims data?**
    - Consistent time series availability

- **Related tools**
  - **Guide to using MAX data**
  - **Overview and guide to working with Medicaid claims data for questions about prescription drug use**

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Predictive Uses (1)

- **Example application #1: Risk adjustment for rate setting and performance scoring of quality measures**

- **Why Medicaid claims data?**

  - **Standardized measurement**

  - **Consistent time series availability**

  - **Widespread availability**

- **Related tools**

  - **Technical specifications for condition groupers**
    - Chronic Conditions Warehouse (CCW)
    - Chronic Illness and Disability Payment System (CDPS)

  - **Standardized risk-adjustment algorithm for both dual eligible and non-dual eligible beneficiaries**

  - **Comprehensive guide for Medicaid-specific risk adjustment implementation**

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Predictive Uses (2)

- **Example application #2: Developing risk scores to support population health initiatives (e.g., targeted case management)**

- **Why Medicaid claims data?**
  - **Standardized measurement**
  - **Widespread availability**
  - **Sample sizes large enough to cover small, high-priority populations of interest**

- **Related tools**
  - **How-to guide for state Medicaid purchasers**
  - **Instructive use cases for Medicaid beneficiaries with complex care needs and high costs**

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Evaluative Uses

- **Application: Evaluating the impacts of a policy change**

  – **Can speak to current policy debates**

  - *Delivery system redesign:* Implementing a risk-tiered case management intervention reduced inpatient hospital costs among target beneficiaries in Washington State

  - *The use of beneficiary financial incentives*: Using beneficiary financial incentives increased well-child visit compliance in Idaho

  – **Why Medicaid claims data?**

  - Standardized measurement

  - Sample sizes large enough to cover small, high-priority populations of interest

  - Consistent time series availability; rigorous evaluation designs are inherently longitudinal

Limitation (1): Missing Data

- **Sample coverage**
  - **Populations experiencing insurance churn**
  - **Managed care (MCO) data**
  - **Behavioral health organization (BHO) data**
  - **Dual eligible beneficiaries**

- **Limited clinical outcome measures**

- **Provider and MCO fields**

- **Related tools**
  - **Usability assessments for MAX MCO and BHO data**
  - **Technical assistance guides on linking Medicare and Medicaid data for dual eligible beneficiaries**
  - **Illustrative use cases of patient attribution in Medicaid Accountable Care Organizations (ACO)**

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Limitation (2): Making Comparisons

- **A.k.a. answering the "compared to what?" question**

- **Finding external benchmarks for quality reporting applications**

- **Related tools**
  - **Publicly available data tools**
    - SHADAC's State Health Compare
    - Dartmouth Atlas
    - Core Set chart packs

- **Making causal conclusions for impact analyses**

  - **Related tool**
    - Evidence grading for impact analyses
    - In development: Regression-to-the-mean benchmarks for Medicaid beneficiaries with complex care needs and high costs

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Limitation (3): Data Linkage

- **Innovative applications of linked data analyses answering important policy questions**

  - **Descriptive: Maternity Core Set quality measures**

  - **Predictive: Santa Clara County Triage Tool for targeting case management for homeless population**

  - **Evaluation: a medical home for women with high-risk pregnancies that was piloted in Wisconsin and supported by linked vital statistics and Medicaid data**

- **But linking data across systems can be (very!) hard**

  - **Related tools**

    - Instructive use cases from state Medicaid agencies
    - Technical assistance brief on linking Medicaid data with vital statistics data

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Summary and Conclusions

- **Medicaid claims and encounter data systems**
  - **Are powerful tools to answer critical policy questions**
  - **Serve as key data sources for emerging value-based purchasing initiatives across Medicaid programs**
  - **Require appreciable investment to use for research purposes**

- **Lots of good, free resources designed to help end-users navigate challenges**

- **Excited for the future**
  - **Especially on the missing data front**
    - Transformed Medicaid Statistical Information System (T-MSIS)
    - Linkages across data systems both within and outside of health care sector

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THANK YOU!

Questions? Comments?

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CLAIMS DATA TOOLKIT

DESCRIPTIVE	PREDICTIVE	EVALUATIVE

MISSING DATA

MAKING COMPARISONS

DATA LINKAGE

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DESCRIPTIVE

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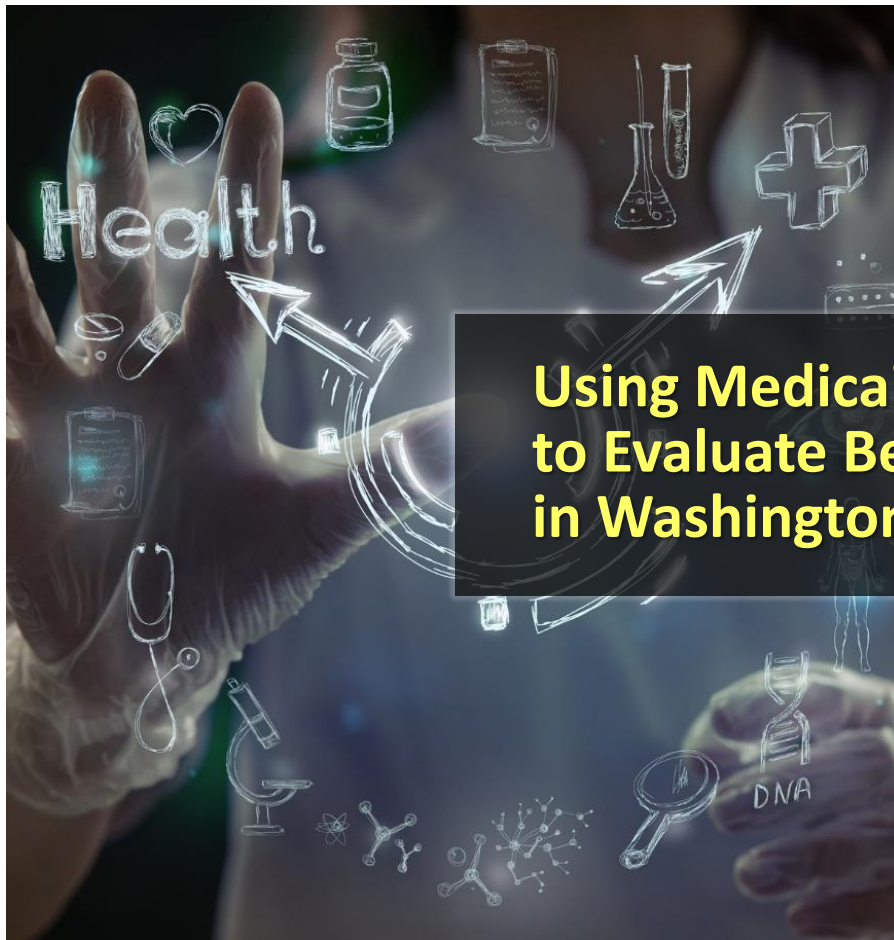**MATHEMATICA**
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MAKING COMPARISONS

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DATA LINKAGE

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Using Medicaid Claims and Encounter Data to Evaluate Behavioral Health Integration in Washington State

Mathematica Policy Research Webinar

AUGUST 10, 2017

David Mancuso, PhD
Director, Research and Data Analysis Division
Washington State Department of Social and Health Services

Washington State Behavioral Health Integration Context

▶ **Structure of Behavioral Health services before April 1, 2016**

- **Department of Social and Health Services (DSHS)**
  - Regional mental health carve-out plans for SMI/SED population (RSNs)
  - County-administered outpatient SUD treatment system (including methadone)
  - State agency administers IP/residential SUD treatment system

- **Health Care Authority (HCA - Washington's single state Medicaid agency)**
  - Outpatient mental health benefit for persons not meeting SMI/SED criteria
  - All mental health medications, regardless of prescriber
  - Other medication assisted treatment (mainly buprenorphine for OUD)

▶ **Structure of Behavioral Health services beginning April 1, 2016**

- **Phased transition to statewide FIMC plans under HCA oversight by 2020**
  - Currently operating in 2 of 39 counties

- **DSHS delivery systems administered by integrated regional BHO plans in regions not yet transitioned to FIMC**

Measurement Approach

- **Behavioral health integration changes how the state delivers Medicaid physical and behavioral health services through health plans, or county or state government agencies that performed health-plan functions such as:**

  – Building and maintaining a provider network

  – Authorizing services

  – Managing utilization

- **Evaluation approach uses tools commonly used to assess relative health plan performance:**

  – HEDIS®

  – State-developed HEDIS®-like measures designed to fill measurement gaps in areas that are of particular importance to Medicaid clients with behavioral health needs

- **Regression-adjusted difference-of-difference evaluation design**

Testable Hypotheses

- **Relative to the experience in regions operating with separate BHOs and MCOs, does delivering care through integrated FIMC plans:**

    – Improve *access* to needed services?

    – Increase beneficiary *engagement* in behavioral health treatment?

    – Improve *quality* and *coordination* of physical and behavioral health care?

    – Reduce potentially avoidable *utilization* of emergency department (ED), medical and psychiatric inpatient, and crisis services?

    – Improve beneficiary level of functioning and quality of life, as indicated by *social outcomes* such as:

        ▸ Improved labor market outcomes,

        ▸ Increased housing stability, and

        ▸ Reduced criminal justice involvement?

    – Reduce *disparities* in access, quality, health service utilization, and social outcomes between Medicaid beneficiaries with serious mental illness and/or SUD, relative to other Medicaid beneficiaries?
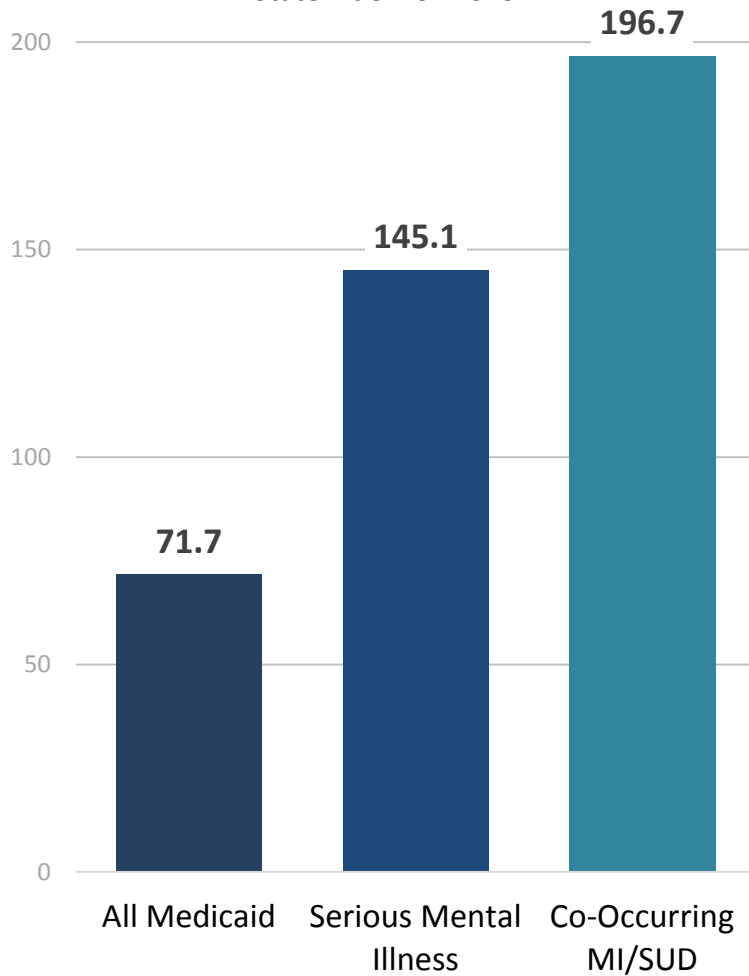
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Focus on Baseline Disparities
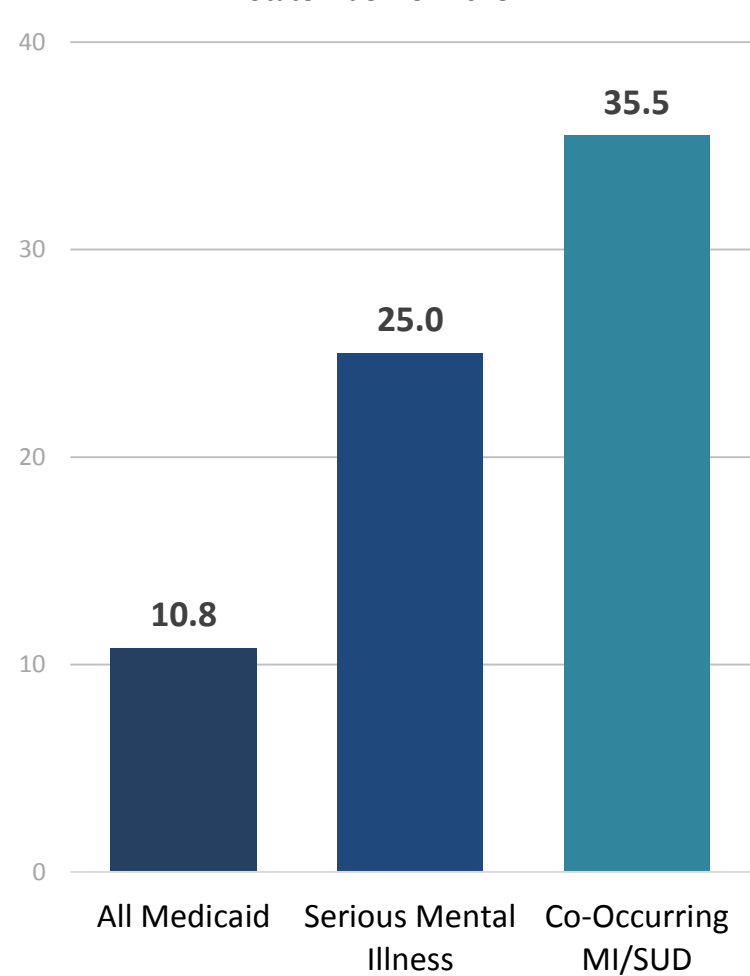
Medical Service Utilization

Emergency Department Visits
Per 1,000 MM ● Adults Age 18-64
Statewide ● CY 2015

Category	Value
All Medicaid	71.7
Serious Mental Illness	145.1
Co-Occurring MI/SUD	196.7

Inpatient Admissions
Per 1,000 MM ● Adults Age 18-64
Statewide ● CY 2015

Category	Value
All Medicaid	10.8
Serious Mental Illness	25.0
Co-Occurring MI/SUD	35.5

SOURCE: DSHS Integrated Client Databases, July 2017.

Access to Care

Mental Health Service Penetration

Adults Age 18-64 ● State Defined
Statewide ● CY 2015

- All Medicaid: 42.9%
- Serious Mental Illness: 71.5%
- Co-Occurring MI/SUD: 51.3%
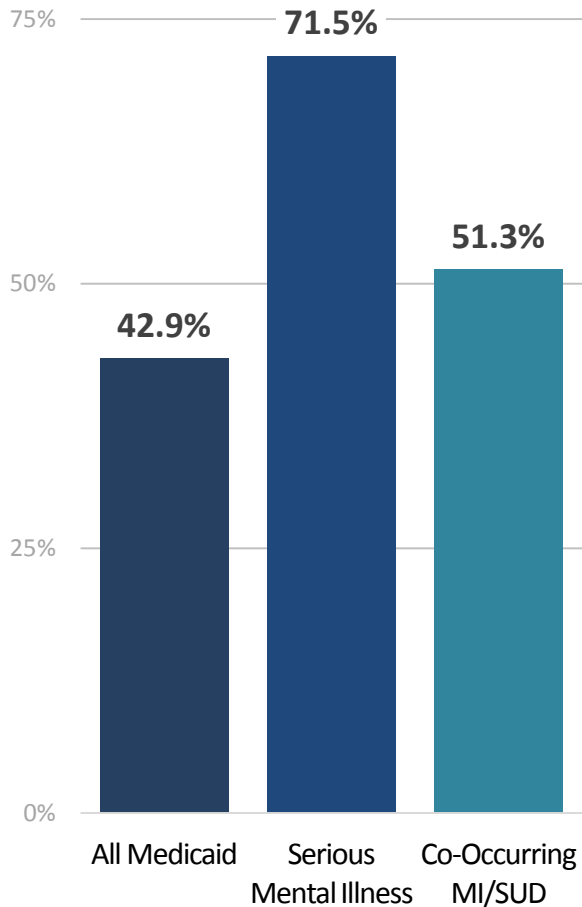
Substance Use Disorder Service Penetration

Adults Age 18-64 ● State Defined
Statewide ● CY 2015

- All Medicaid: 26.6%
- Co-Occurring SMI/SUD: 27.3%
- Co-Occurring MI/SUD: 25.6%
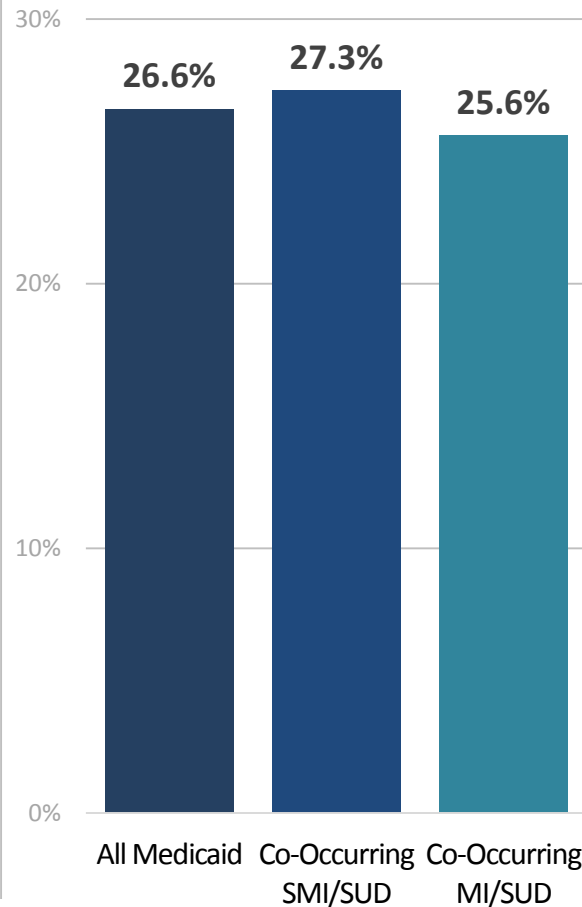
Access to Preventive/ Ambulatory Care

Adults Age 18-64 ● HEDIS®-AAP
Statewide ● CY 2015

- All Medicaid: 77.5%
- Serious Mental Illness: 96.0%
- Co-Occurring MI/SUD: 90.3%

SOURCE: DSHS Integrated Client Databases, July 2017.

Washington State
Department of Social & Health Services
Transforming lives
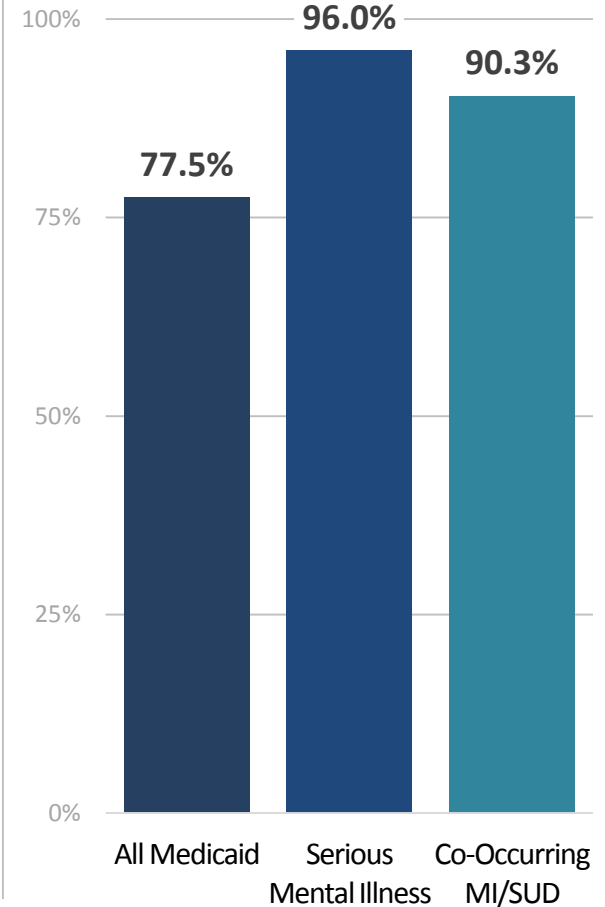
Quality of Care

All Cause 30-day Hospital Readmission
Adults Age 18-64 ● HEDIS-PCR
Statewide ● CY 2015

15.9% All Medicaid
19.6% Serious Mental Illness
20.4% Co-Occurring MI/SUD
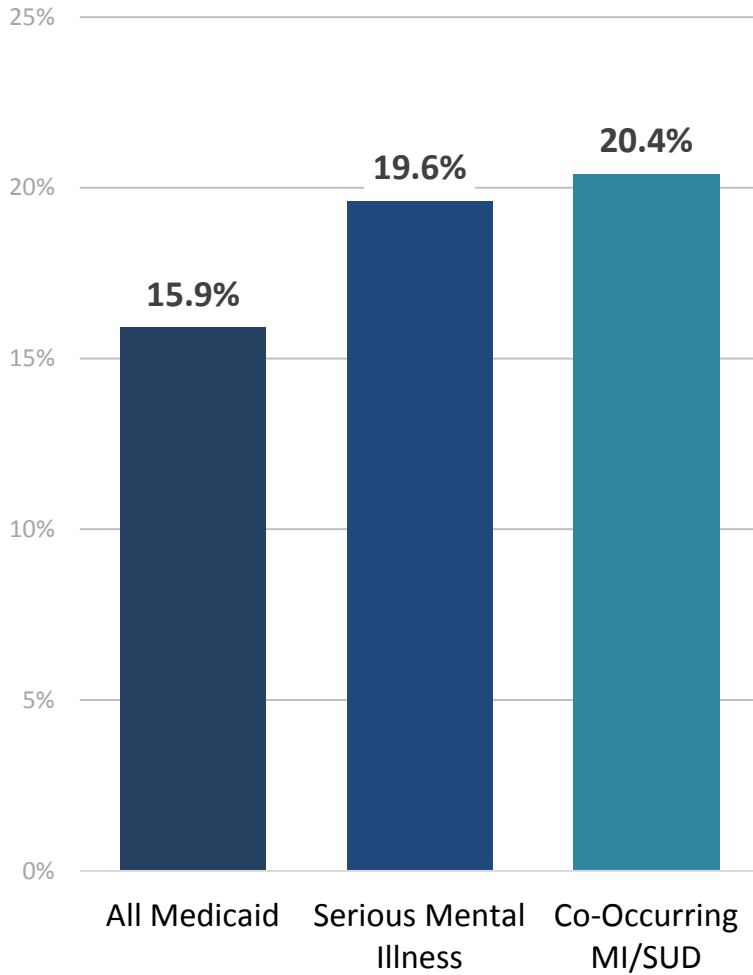
Psychiatric 30-day Hospital Readmission
Adults Age 18-64
Statewide ● CY 2015

13.4% All Medicaid
12.8% Serious Mental Illness
13.6% Co-Occurring MI/SUD

Washington State
Department of Social & Health Services
Transforming lives
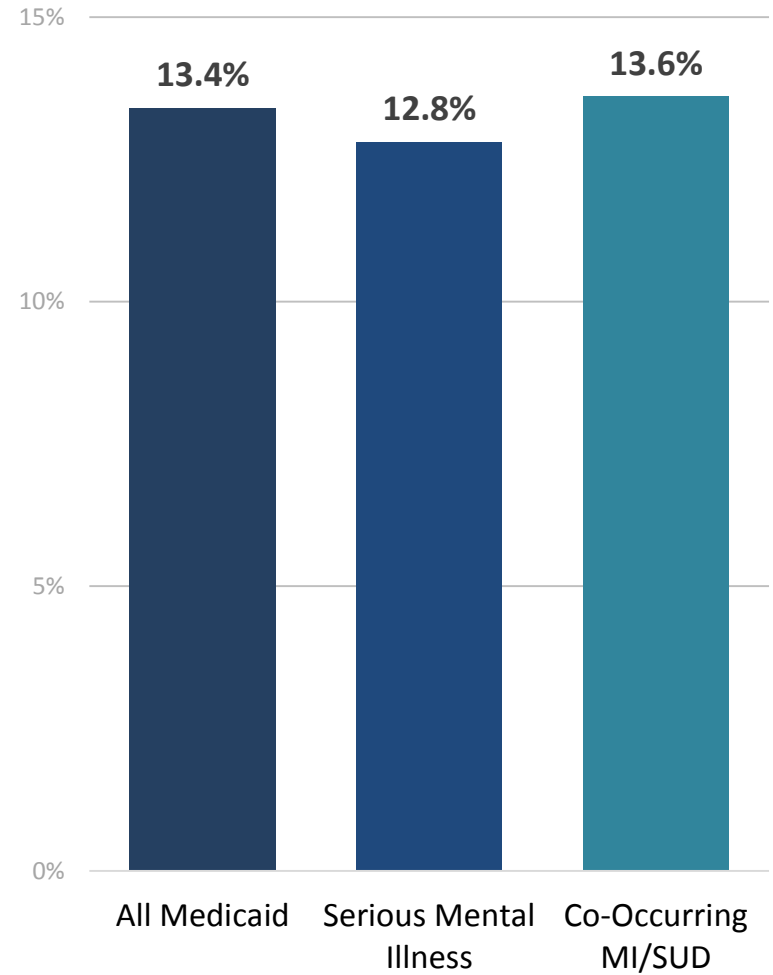
Social Outcomes

Homeless
Narrowly Defined ● Adults Age 18-64
Statewide ● CY 2015

Category	Value
All Medicaid	4.8%
Serious Mental Illness	7.1%
Co-Occurring MI/SUD	12.5%
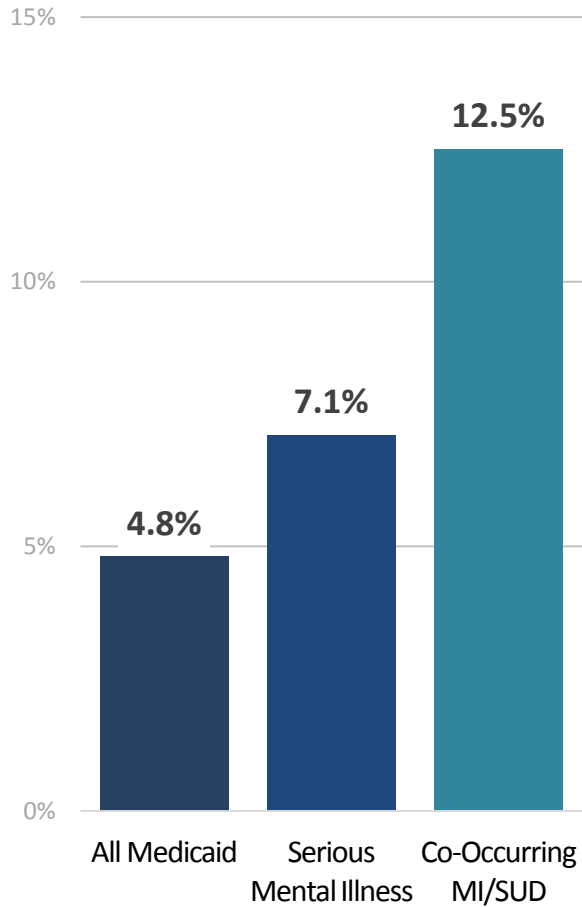
Arrested
Any Crime ● Adults Age 18-64
Statewide ● CY 2015

Category	Value
All Medicaid	6.5%
Serious Mental Illness	9.1%
Co-Occurring MI/SUD	18.9%
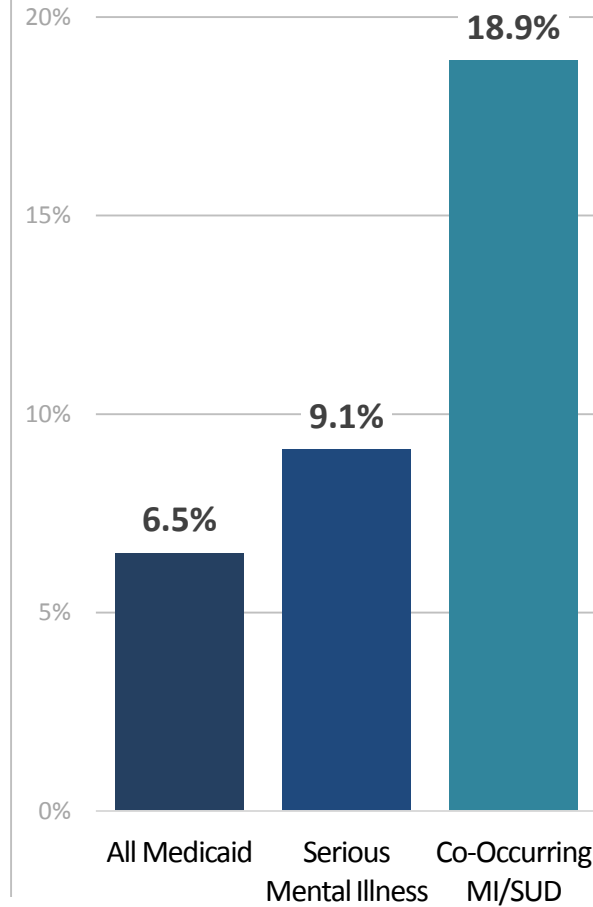
Employed
Part-time or Full-time ● Adults Age 18-64
Statewide ● CY 2015

Category	Value
All Medicaid	49.9%
Serious Mental Illness	33.4%
Co-Occurring MI/SUD	35.1%
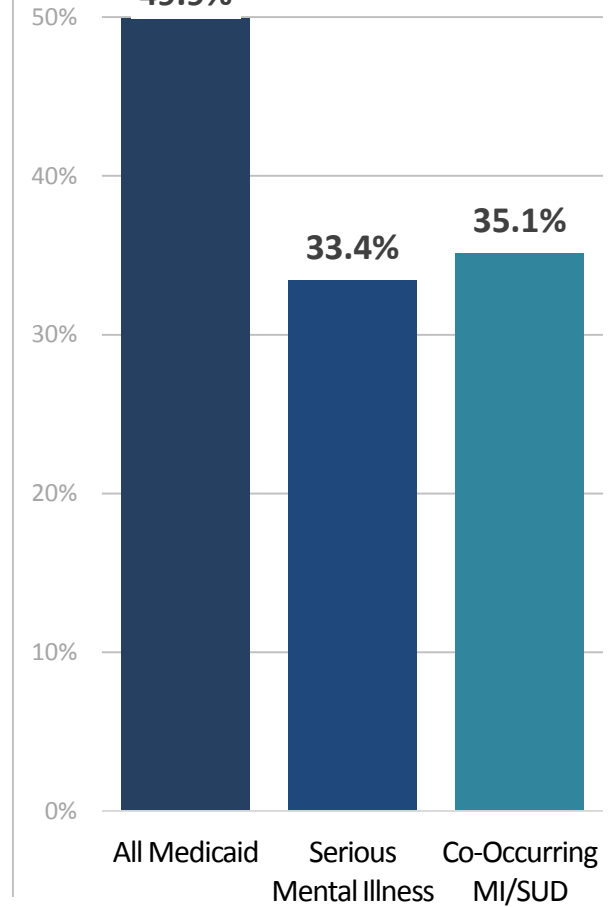
Discussion

Extreme disparities in ED and inpatient utilization exist between persons with SMI and/or SUD, relative to the balance of the adult Medicaid population

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Disparities in homelessness and criminal justice involvement for persons with SMI and/or SUD mirror ED/IP utilization disparities

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Inpatient utilization rates better reflect disparities in inpatient risk than 30-day hospital readmission metrics

The Promise T-MSIS Holds for Future Medicaid Utilization Research

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Presentation at the Moving Medicaid Data Forward, Forum 3: A Guide to Medicaid Utilization Data
Washington, DC

August 10, 2017

Su Liu

Roadmap

- **Advances made by T-MSIS and their implications for research on utilization**
  - **New data files**
  - **New data elements**
  - **More timely, better quality**
  - **More efficient data storage and processing**

- **Examples of the kinds of research questions that would get fuller answers under T-MSIS**

- **A big assumption: that in time, the data will be available promptly and their quality will be high**
  - **Data availability, quality, and completeness still pose challenges, but with time, exploration, data use, technical assistance, and feedback, they will improve**

Advances Made by T-MSIS

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New Data Files (1)

- **Managed Care Plan Information File**
  - **A record for each managed care entity**
    - Identified by state plan ID that is linkable to beneficiaries' enrollment, capitation payments, and encounter records
  - **Example Data Elements**
    - Profit status
    - Service area
    - Percentage of business in public programs
    - Operating authority (e.g., 1115 waiver, 1932(a) state plan option)
    - Reimbursement arrangement (e.g., risk-based, with or without incentives)

New Data Files (2)

- **Provider file**
  - **A record for each provider serving Medicaid enrollees**
    - Identified by a state-assigned identifier and linkable to claims and encounter records
    - Also captures National Provider Identification (NPI) if available
  - **Example Data Elements:**
    - Ownership and location
    - Group or association affiliation
    - Individual characteristics (e.g., sex, birthdate)
    - License/accreditation
    - Provider type and specialty
    - Whether accepting new patients

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New Data Files (3)

- **Third-party liability file**

  - **A record for each Medicaid enrollee who has some form of third party entity other than Medicaid and Medicare liable for payment of some or all medical expenses**

    - Identified by an MSIS ID that is linkable to eligibility and claims/encounter records

  - **Example Data Elements**

    - Insurance plan ID, group number and effective date
    - Policy owner/relationship
    - Plan type (e.g., HMO, Dental, Long-Term Care, TRICARE)
    - Coverage type (e.g., inpatient, mental health, home health)
    - Annual deductible amount

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Examples of Other New or Improved Data Elements (1)

- **Beneficiary characteristics**
  - **Citizenship/immigration status, language, marital status, veteran, Social Security Disability (SSDI) and Supplemental Security Income (SSI)**

- **Waivers**
  - **Expanded information about special programs and waivers (e.g., Money Follows the Person) on Eligibility file (e.g. enrollment dates, waiver ID, waiver type)**
  - **Attaching waiver ID (e.g. 1115 waiver) to service encounter records**

- **Dual eligible beneficiaries**
  - **Amount paid by Medicare on the claim**
  - **Medicare reimbursement type (e.g. fee schedule, prospective payment system)**

Examples of Other New or Improved Data Elements (2)

- **Diagnosis**
  - **Diagnosis present on admission flag to help identify certain preventable conditions**

- **Provider**
  - **Admitting, billing, referring, servicing, and operating providers identified as reported on claims/encounter records to allow tracking of provider roles and market consolidation**

- **Payment**
  - **Medicaid paid amount for encounter claims**
  - **Fixed-payment indicator**
    - For premiums or fixed fee states pay providers (e.g. Primary Care Case Management)

- **Rx**
  - **Drug utilization code indicating the conflict, intervention, and outcome of a prescription presented for fulfillment**

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Timeliness and Data Quality

- **Submitted monthly instead of quarterly**

- **Front-end data validation rules in areas such as completeness and data element relational tests**
  - **Automated inferential measures that feed into a data quality compliance database for tracking**

- **Medicaid and CHIP Managed Care Final Rule (CMS-2390-F)**
  - **Strengthens state/managed care plan requirements to comply with MSIS/T-MSIS reporting requirements on encounter data,**
  - **Gives the Centers for Medicare & Medicaid Services (CMS) the explicit option to withhold federal financial participation (FFP) if the data submitted do not meet its criteria for accuracy, completeness, and timeliness**
  - **Guidance provided to states recently on CMS's expectations for reporting complete and accurate encounter data in T-MSIS***

    * https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/tmsis-blog/index.html#/entry/43416

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Data Storage and Processing Management

- **Efficiency gain, faster turnaround with data processing**

  - **Relational instead of flat file**

  - **Data storage and processing in the Amazon cloud**

  - **Distributed processing**

- **New Business Intelligence (BI) tools anticipated**

  - **SAS Enterprise Business Intelligence (EBI), Microstrategy, Tableau, Python, Databricks**

  - **Support for user-friendly graphs and charts, mapping and geocoding, interactive dashboard components, machine learning, and more**

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Examples of Improved Utilization Analyses: Past vs. Future

Understand Medicaid Managed Care Better

Past

- **Incomplete and inconsistent encounter data**
  - Not all states report them; when they do, usability varies
  - Limited analysis for a growing majority of beneficiaries

- **Little knowledge about how much services cost managed care organizations (MCOs)**

- **Little information about the managed care plans**

- **Medicaid moving to value-based purchasing, but much of the quality measure and other data analytics development is restricted to fee-for-service (FFS)**

Future

- **States and MCOs are required to submit complete and accurate encounter data on time**

- **States are required to submit MCOs' actual payment to providers for services (MEDICAID-PAID-AMT)**

- **Rich plan-level information**

- **Much better analytic capacity at all levels (e.g., managed care enrollee, plan, state) for issues of access, cost/value for care, quality, and program integrity**

Utilization Among Beneficiaries with Complex Needs and High Costs (BCN)

Past

- **Cost-based BCN definitions are only applicable to FFS beneficiaries**

- **Most cross-sectional descriptive analyses of medical service utilization among Medicaid-only beneficiaries**

- **Little knowledge about other important factors that make this population's needs "complex": socioeconomic conditions, behavioral health, living arrangements, use of other social services**

Future

- **Managed care enrollees may finally be included**

- **More time points and enrollee characteristics to conduct longitudinal analysis and predictive modeling with finer granularity**

- **More data on location of beneficiaries, plans, and providers to accommodate geocoding (e.g., heat map of ED visits, provider network serving BCN)**

- **Possibly better linkage with census and other data to understand non-medical risk factors and service use among BCN**

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Final Thoughts (1)

- **Using the data to answer real-world questions will help identify data limitations, demonstrate the utility of T-MSIS, and incentivize states to submit high quality data on time in the future**

- **A practical question: CMS required all states to stop reporting MSIS and start reporting T-MSIS data for a reporting period no later than October 2015, but some states stopped reporting MSIS and started reporting T-MSIS earlier. How will researchers deal with the transition years?**

Year	Submitted via MSIS	Submitted via T-MSIS	No data submitted yet
2012	50 states	1 state	0 states
2013	47	3	1
2014	30	12	9
2015	17	19	15
2016	0	16	35

Source: CMS: State Medicaid/CHIP Data Sharing Fact Sheet, January 17, 2017.

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Final Thoughts (2)

- **Research-friendly T-MSIS Analytic File (TAF)**

- **Related systems under Medicaid and CHIP Business Information Solution (MACBIS)**

- **Data linking can increase research capacity exponentially**

- **Standardized reporting from T-MSIS could potentially relieve burden on states; at the same time, improve timeliness, consistency, reliability, and transparency**

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For More Information

- **Su Liu**
  - **SLiu@mathematica-mpr.com**

- **Transformed Medicaid Statistical Information System (T-MSIS) information**
  - **https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html**

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Questions?

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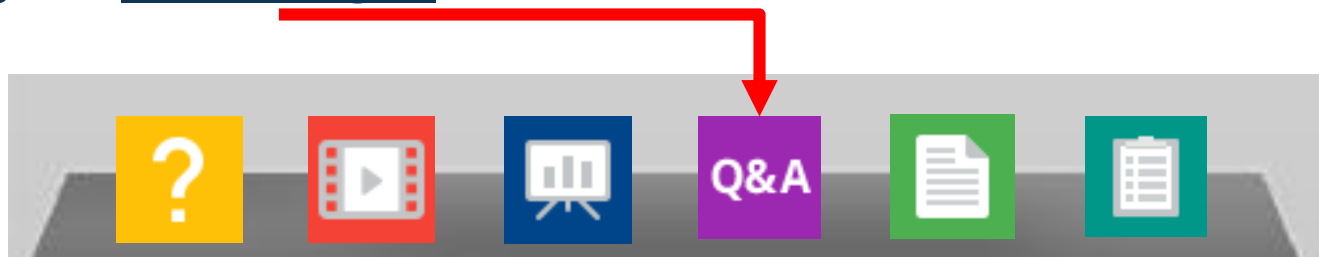
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Prior Moving Medicaid Data Forward Forums

- *Understanding T-MSIS, the Transformed Medicaid Statistical Information System* **https://www.mathematica-mpr.com/events/moving-medicaid-data-forward-part-1**

- *Medicaid Enrollment: Overview and Data Sources* **https://www.mathematica-mpr.com/events/moving-medicaid-forward-part-2**

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