

Evidence-Based Practices Estimates

ESTIMATING POPULATIONS FOR FSP, IPS, and CSC IMPLEMENTATION



PRESENTED BY

HAYLEA HANNAH, PHD, MSPH
SENIOR EPIDEMIOLOGIST

DAWN KAISER, LCSW, CPHQ
SENIOR DIRECTOR

AMIE MILLER, PSY.D, LMFT
EXECUTIVE DIRECTOR

Methods for Estimating Populations Who May Have Clinical Need for FSP and IPS

For Uninsured + Medi-Cal Eligible individuals who may have clinical need 19-64 years old

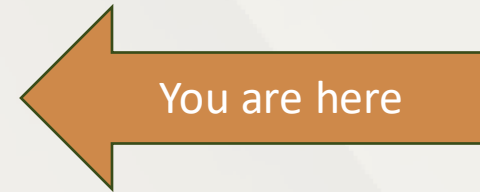
Webinar Series

1

Introduction & Methods Overview – October 28

2

FSP and IPS Model – October 31



3

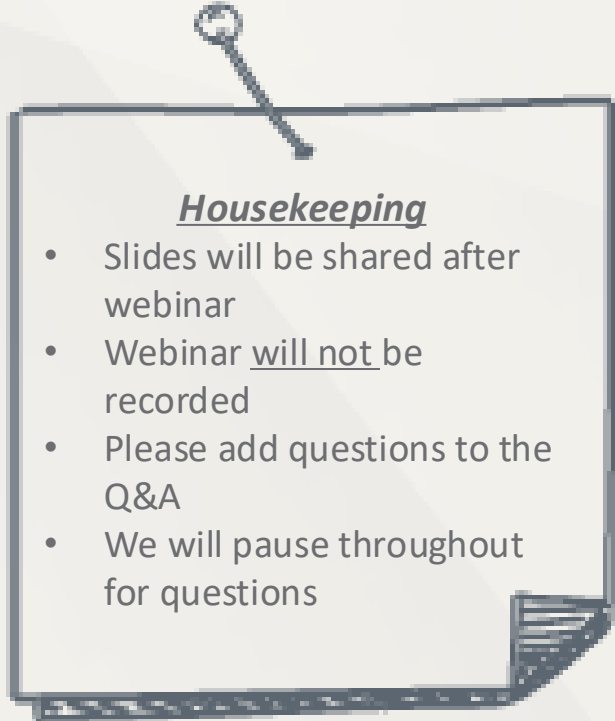
Justice-Involvement, ACT/FACT Model – November 4

4

CSC Model & Considerations for Interpretation of Estimates – November 6

Agenda

- Background and Model Objectives
- Simulation modeling overview – FSP and IPS
- Overview of data sources and what they're estimating – FSP
- Review of results – FSP
- Overview of data sources and what they're estimating – IPS
- Review of results – IPS
- Considerations for interpretation of estimates
- Q&A



Housekeeping

- Slides will be shared after webinar
- Webinar will not be recorded
- Please add questions to the Q&A
- We will pause throughout for questions

Coming soon...

Background

FSP and CSC estimates with ranges will be provided to you via e-mail by early next week

For CSC, you will also receive data by age group

Keep in mind...

Background

This will get complicated....

Because estimating clinical need and planning new services using publicly available data is complicated!

Model Objectives

To assist BHPs with completing their BHSA Integrated Plan, DHCS commissioned CalMHSA to estimate Medi-Cal + uninsured populations that may have a clinical need for the following:

Full-Service Partnerships (FSP) and the following sub-categories within FSP:

- Assertive Community Treatment (ACT)
 - Forensic Assertive Community Treatment (FACT)
- FSP Intensive Case Management (ICM)
- Individual Placement and Support Supported Employment (IPS)
- Coordinated Specialty Care for First Episode Psychosis (CSC FEP)

Estimating clinical need ≠
who will access the service

BHSA is Designed to Serve a Broader Population

Background

People eligible for
Medi-Cal



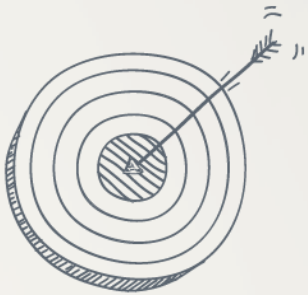
People who are
uninsured or not
eligible for Medi-Cal

BHSA Expansion

BHSA and BH-CONNECT are Complementary

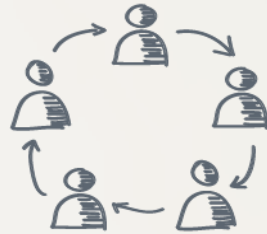
Background

Similar mission



Designed to meet the behavioral health needs of the most vulnerable Californians living with significant behavioral health needs

Serve the same priority populations



Focused on bolstering services for:

- People experiencing or at risk of homelessness
- People involved in the justice system
- Children and youth involved in the child welfare system

BH-CONNECT – Medi-Cal Only

BHSA – Medi-Cal ++

Strengthen investments in housing & workforce



BH-CONNECT allows for federal funding to support the workforce, while BHSA provides additional county-level and statewide investments

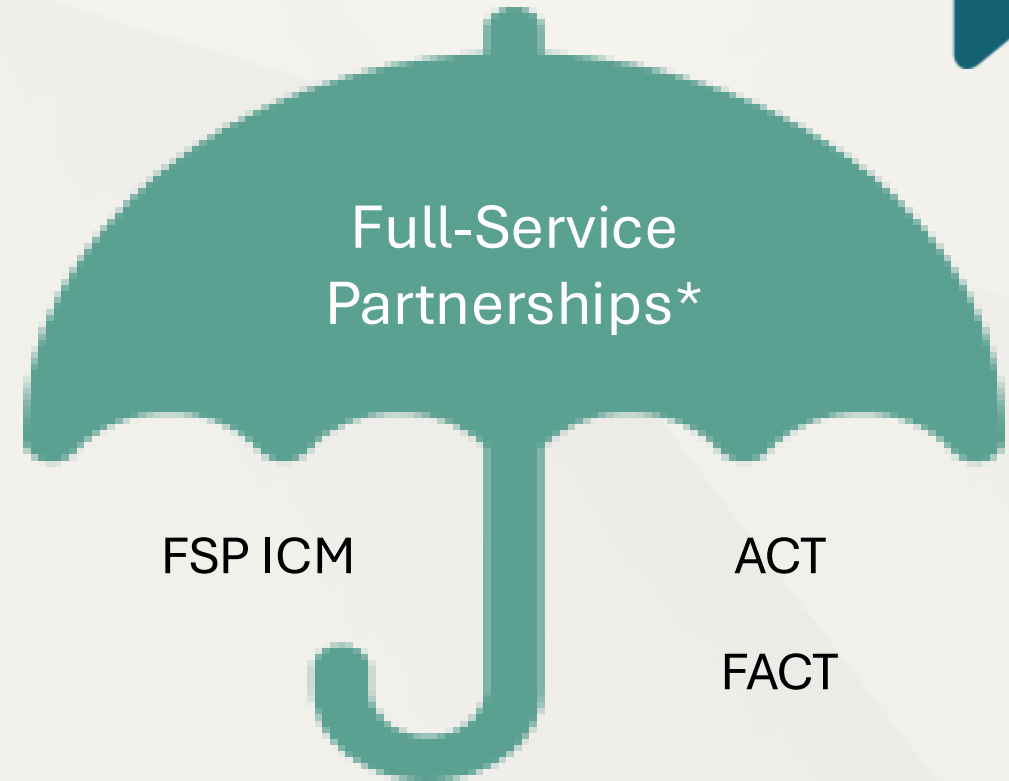
Source: [DHCS BHSA and BH-CONNECT EBP Overlap \(Updated August 2025\)](#)

Evidence-Based Practices: FSP

Background

Target Population

Adults living with serious mental illness (SMI) who have moderate to significant functional impairment (e.g., difficulty performing daily tasks) and continuous high service needs (e.g., co-occurring substance use disorder (SUD), risk of hospitalization or emergency/crisis care)



Source: [BHSA County Policy Manual](#)

*Other FSP continuum services not included in the scope of this project

Evidence-Based Practices: IPS

Background

Individual Placement & Support

Target Population

Working-age adults (16+) living with a serious behavioral health disorder who need help obtaining or maintaining employment



Competitive Employment



Integrated Services



Systematic Job Development



Worker Preferences



Rapid Job Search



Time-Unlimited Supports



Benefits Planning



Zero Exclusion

Source: [IPS Employment Center](#)

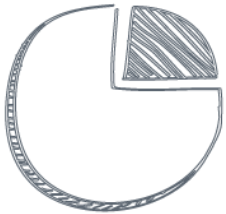
IPS can be offered as part of FSPs or as a standalone program

Publicly-Available Data for FSPs is Limited

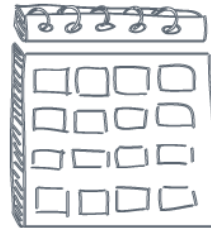
Two main sources:

MHSA County Performance Outcomes

BHSOAC Transparency Suite FSP Enrollment Dashboard



Focus on individuals served, not total individuals with clinical need



Limited by data completeness and reporting delays



Limited in scope given updated requirements and guidance

FSP EBP Model: Challenges & Solutions

Challenges

- Data availability
- Sparse literature on proportion of SMHS population meeting clinical criteria for FSPs and IPS
- Factors driving FSP and IPS clinical need vary county-by-county
- County-level indicators may vary year to year, resulting in a range of people eligible for services



Solution

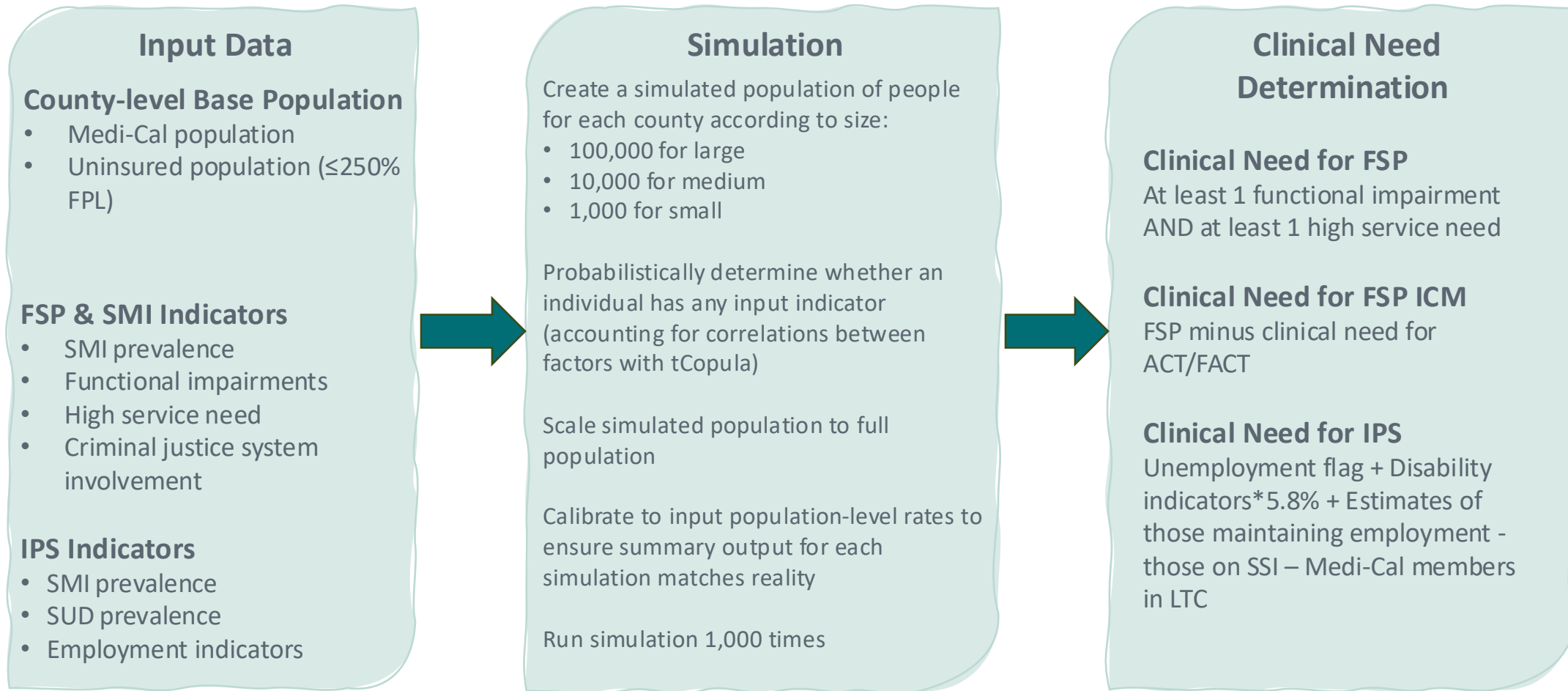
- Use publicly-available data at the county level
- Select a method to estimate FSP/IPS populations at the county-level
- Use county-level population indicators to estimate realistic variability
- Account for realistic variation in the methodology by applying a simulation approach



Final FSP EBP Methodology

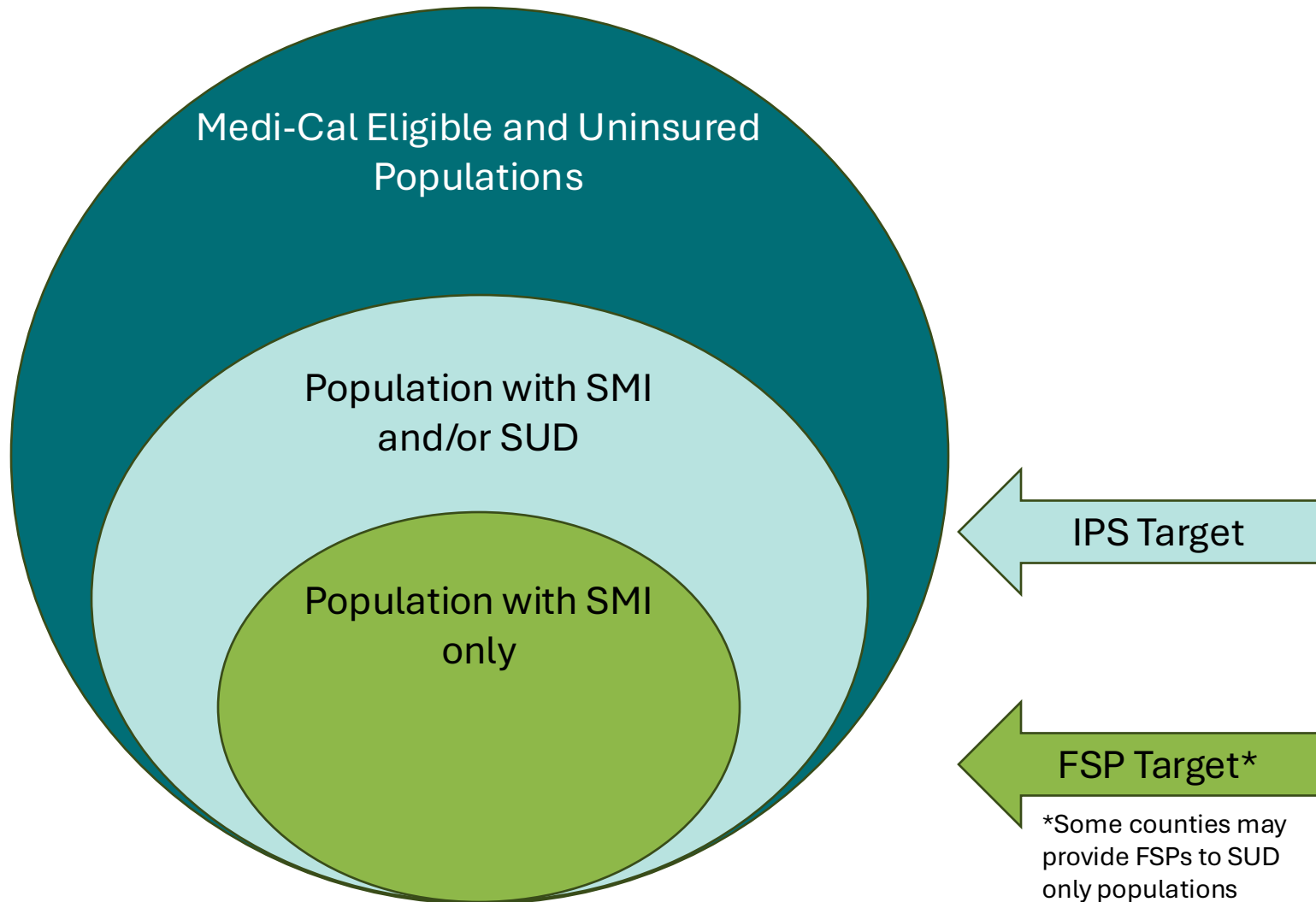
Simulation-based model using county-level indicators associated with FSP and IPS clinical need criteria

FSP/IPS Model Overview



Source: Kartik Kaushik, Cinzia Cirillo, Fabian Bastin. On Modelling Human Population Characteristics with Copulas. *Procedia Computer Science*. Volume 151, 2019, Pages 210-217. <https://doi.org/10.1016/j.procs.2019.04.031>; Laura B. Zwep, Tingjie Guo, Thomas Nagler, Catherijne A.J. Knibbe, Jacqueline J. Meulman, J. G. Coen van Hasselt. Virtual Patient Simulation Using Copula Modeling. *Clinical Pharmacology & Therapeutics* Volume 115, Issue 4 pp. 795-804. <https://doi.org/10.1002/cpt.3099>

Input Data: Base Populations for FSPs and IPS



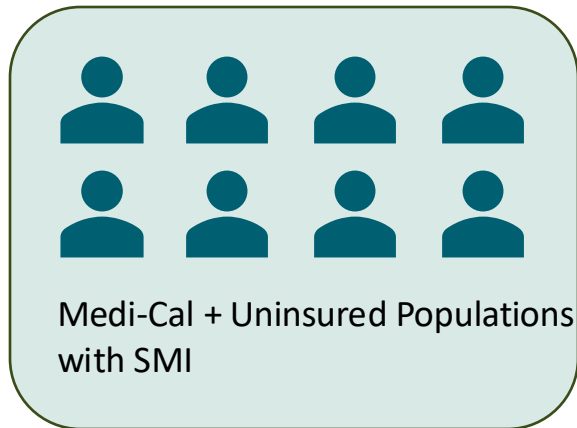
Key stats

- **5.9%** of base population with SMI
- **9.2%** of base population with SUD
- **~38%** of SMI population estimated to also have SUD

*Some counties may provide FSPs to SUD only populations

Simulation Modeling Approach

Simulation
Model
Overview



Synthetic population of individuals



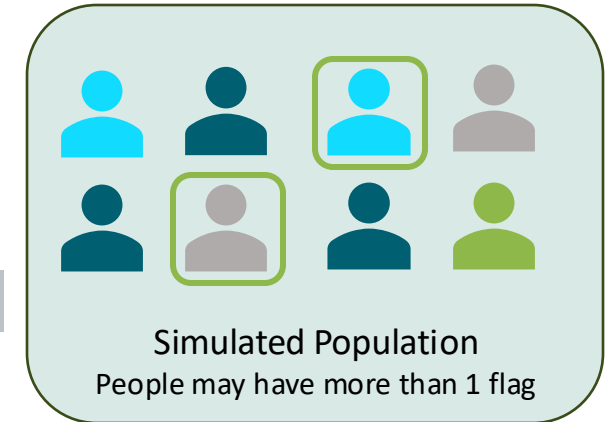
Simulate whether each indicator is present based on population rates



Functional impairment

High service needs

Unemployment



Calibration

Check average population rates from simulation against input population rates

Look for deviations +/- 1% difference, adjust model assumptions

Scale back to base population by multiplying the scaler by this sum

$$\text{Scaler} = \frac{\text{Total Eligible Population}}{\text{Number in Simulated Population}}$$

Sum FSP, ACT/FACT, ICM, and IPS Populations



IPS



FSP



Creating a realistic synthetic population that mirrors county patterns for potential BHP clients

For synthetic person #818 in the simulation....

Functional Impairment Indicators

- ✓ Currently receiving SSI benefits
- ✓ Experiencing a disability resulting in challenges with daily living tasks
- ✗ Does not have a disability due to cognition or self-care

High Service Need Indicators

- ✗ Not diagnosed with a co-occurring SUD
- ✗ Has not experienced homelessness in the past year
- ✗ Hasn't used HMIS services in the past year
- ✗ Hasn't been arrested
- ✓ 3 psychiatric EMS visits in the past year
- ✓ Currently unemployed

EBPs with clinical need for #818 (who is living with SMI)

FSP

High service needs + functional impairment

FSP ICM

FSP + limited high service needs

IPS

currently unemployed

Creating a realistic synthetic population that mirrors county patterns for potential BHP clients

For synthetic person #1,003 in the simulation....

Functional Impairment Indicators

- ✗ Not receiving SSI benefits
- ✓ Experiencing a disability resulting in challenges with daily living tasks
- ✗ Does not have a disability due to cognition or self-care

High Service Need Indicators

- ✗ Diagnosed with a co-occurring SUD
- ✗ Has not experienced homelessness in the past year
- ✗ Hasn't used HMIS services in the past year
- ✗ Hasn't been arrested
- ✗ No psychiatric EMS visits in the past year
- ✓ Currently unemployed

EBPs with clinical need for #1,003 (who is living with SMI)

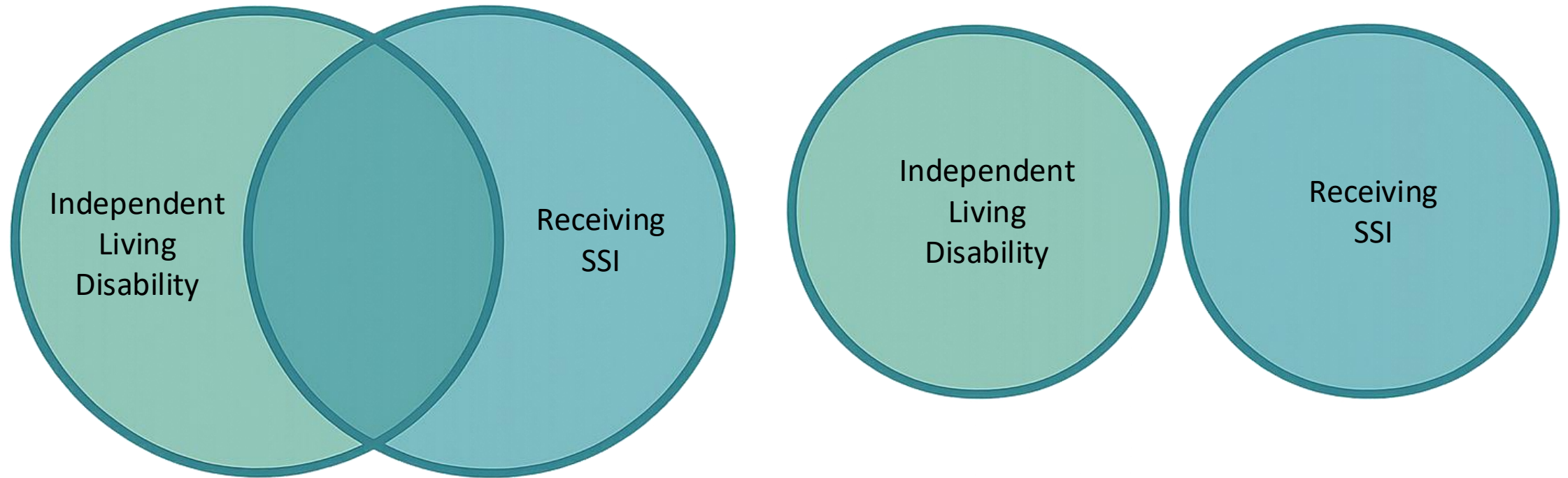
IPS

currently unemployed

Does not meet criteria for FSP

1 functional impairment indicator + 0 high service need indicators

Account for Correlations Between Indicators

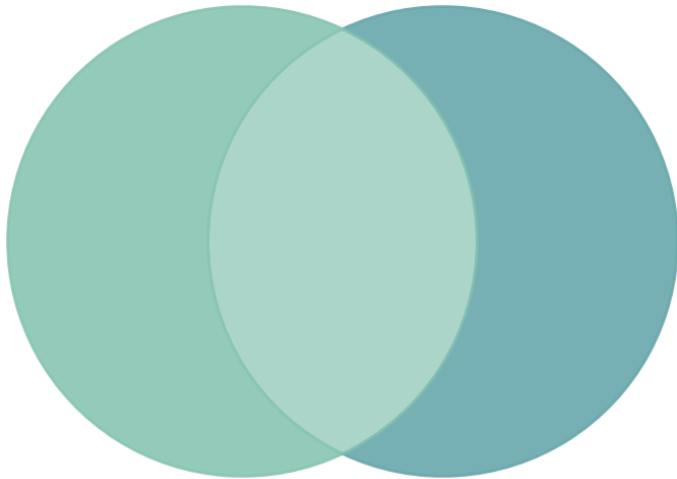


tCopula simulation accounts for the correlation between FSP indicators so we are not over- or undercounting populations with clinical need.

Correlations Between Factors Can Be Tailored

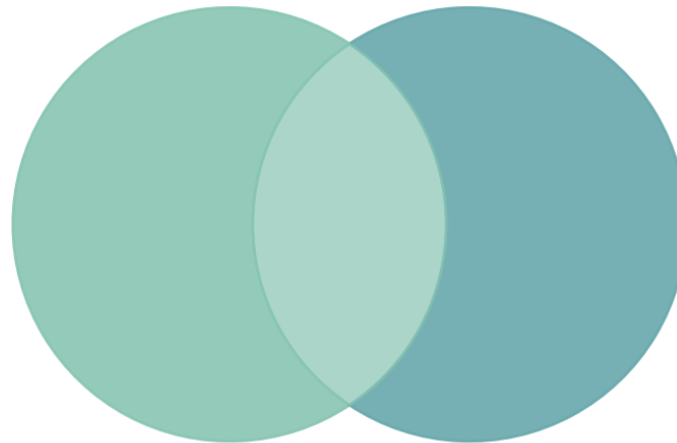
Simulation
Model
Overview

High Correlation



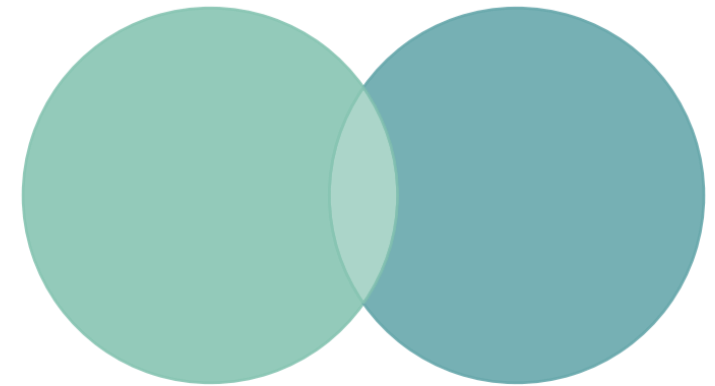
Unemployment rate
Prevalence of self-care disabilities

Medium Correlation



Independent living disability
Rates of SSI per population

Low Correlation



Arrest Rates
Probation Rates

Methods for Identifying Correlations

1

Explored correlations between indicators

- Population-level correlations*
- Subject matter expert clinical review
- Literature review

2

Correlations between pairs assigned into four groups:

High ($r=0.70$)
Medium ($r=0.50$)
Low ($r=0.30$)
Baseline ($r=0.10$)

*Only used as a guide given the absence of individual-level data. Relying on population-level correlations alone is prone to bias (ecological fallacy), which impacts the ability to make inference about individuals from data at the county-level.

Any Questions?



Functional Impairment Indicators

Functional Impairment Indicator	Indicator Description	Source	Data Source Year
Receiving economic benefits	SSI Rates	<u>SSI counts from Social Security Administration</u>	2023
Challenges with daily living tasks	Population-based survey estimating proportion of the population who has challenges with daily living tasks	<u>CDC Places dataset</u> which <u>models data from BRFSS and ACS</u>	2022
Challenges with self-care	Population-based survey estimating proportion of the population who has challenges with self-care	<u>CDC Places dataset</u> which <u>models data from BRFSS and ACS</u>	2022
Challenges managing activities of daily life	Population-based survey estimating proportion of the population who has challenges with cognition	<u>CDC Places dataset</u> which <u>models data from BRFSS and ACS</u>	2022
Difficulty maintaining employment	Unemployment rates – percentage of adult population (16+ years) who are unemployed	<u>California Employment Development Department</u>	2024

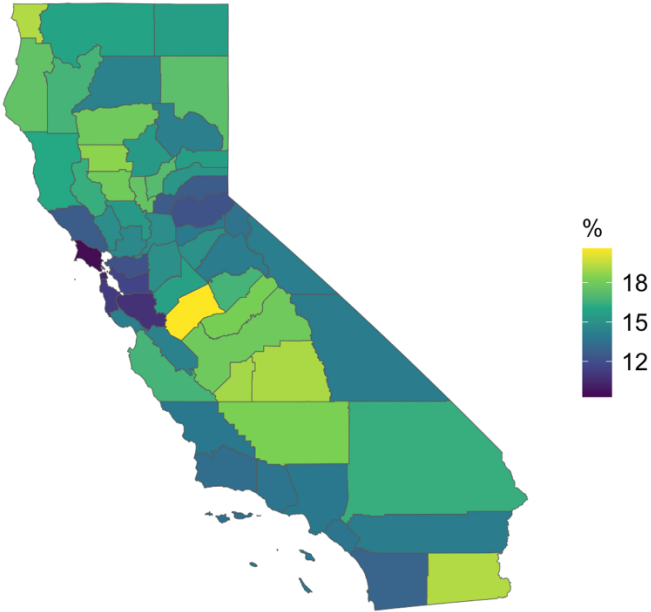
Source among Medi-Cal population

Source among full population (i.e., mixed payer)
where Medi-Cal was unavailable

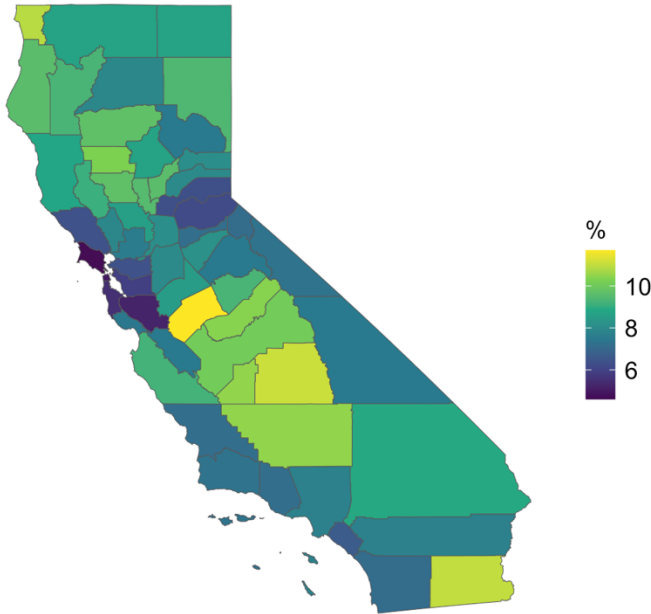
Functional Impairment Indicators Vary by County

Overview of
Data
Sources

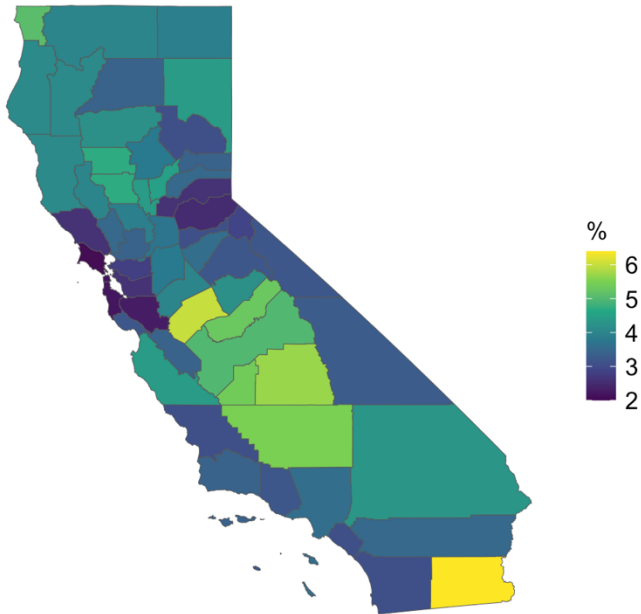
Age-Adjusted % Cognition Impairment (Adults 18+)



Age-Adjusted % Independent Living Impairment (Adults 18+)



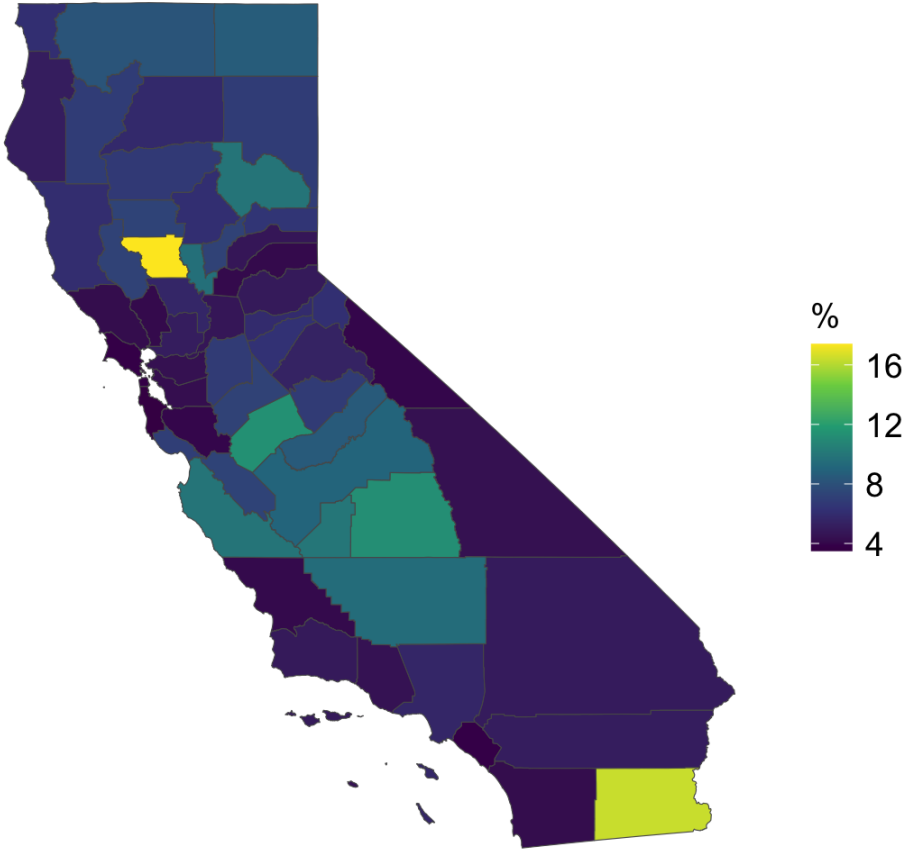
Age-Adjusted % Self Care Impairment (Adults 18+)



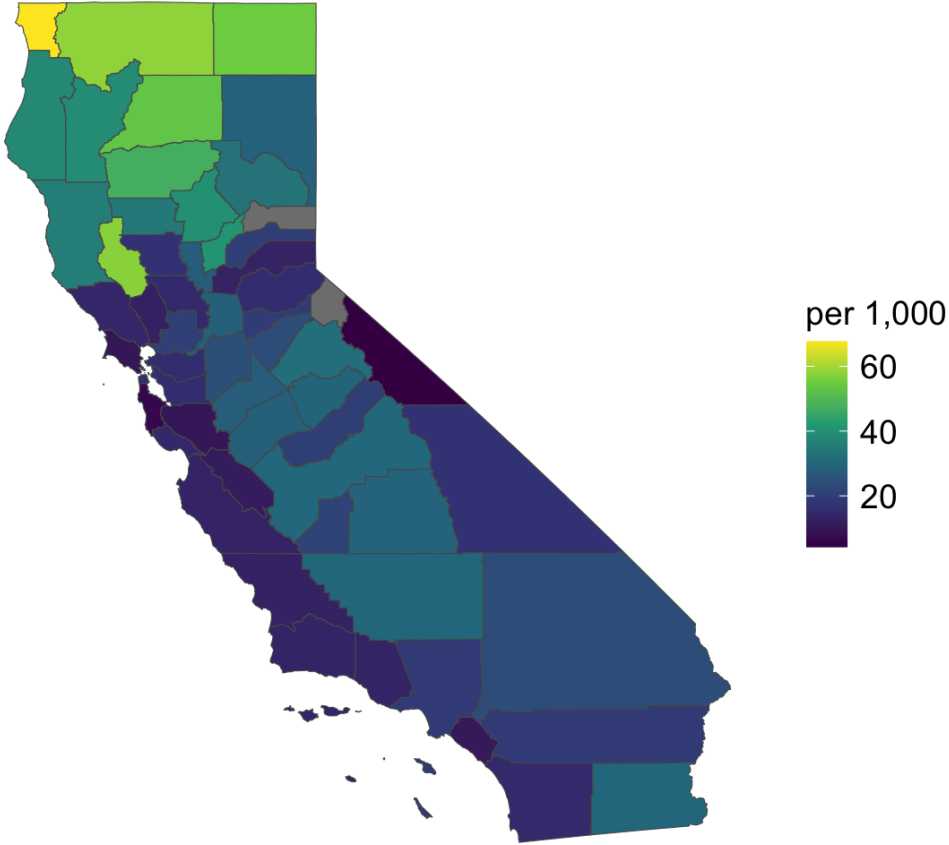
Functional Impairment Indicators Vary by County

Overview of
Data
Sources

Unemployment % (Adults 16+)



SSI Rates per 1,000 Adults (18-64)



High Service Need Indicators

Overview of
Data
Sources

High Service Need Indicator	Indicator Description	Source	Data Source Year
Co-occurring SUD	Prevalence of SUD among Medi-Cal population	DHCS DMC-ODS treatment seeking & SUD need estimates for Network Certification	2024
Risk or history of homelessness or precariously housed	<u>HMIS Utilization rates</u>	<u>Business, Consumer Services, and Housing Agency</u>	2024
Currently experiencing homelessness	PIT Homelessness rates	Rate of PIT HUD CA Counts by County (All Ages)	2023
High use of emergency medical services	Rate of Psychiatric EMS visits	<u>EMS responses reported into CEMISIS</u>	2022-2023
High use of psychiatric emergency department services	Rates of Emergency Department Discharges to Psychiatric Care	<u>HCAI through CalHHS</u>	2023
High use of inpatient psychiatric services	Rate of inpatient psychiatric hospitalizations	<u>HCAI through CalHHS</u>	<u>2023</u>
Adult Arrest Rates	Arrest rate among adults (18-69)	CA DOJ Open Justice Initiative	2023
Adult Probation Rates	Probation rate among adults (18+)	CA DOJ Open Justice Initiative	Dec 2023
Recidivism among those formerly incarcerated	Proportion of people released from incarceration with conviction within 2 years	<u>CDCR Recidivism Report</u>	2019-2020

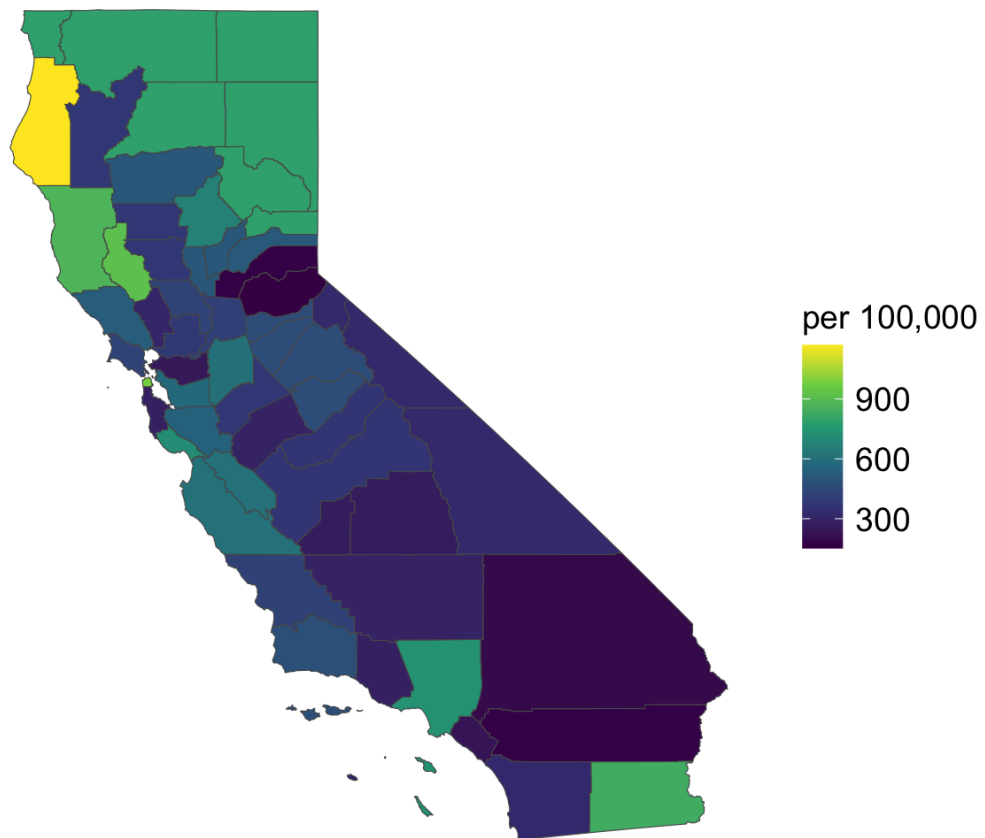
Source among full population (i.e., mixed payer)
where Medi-Cal was unavailable

Source among Medi-Cal population

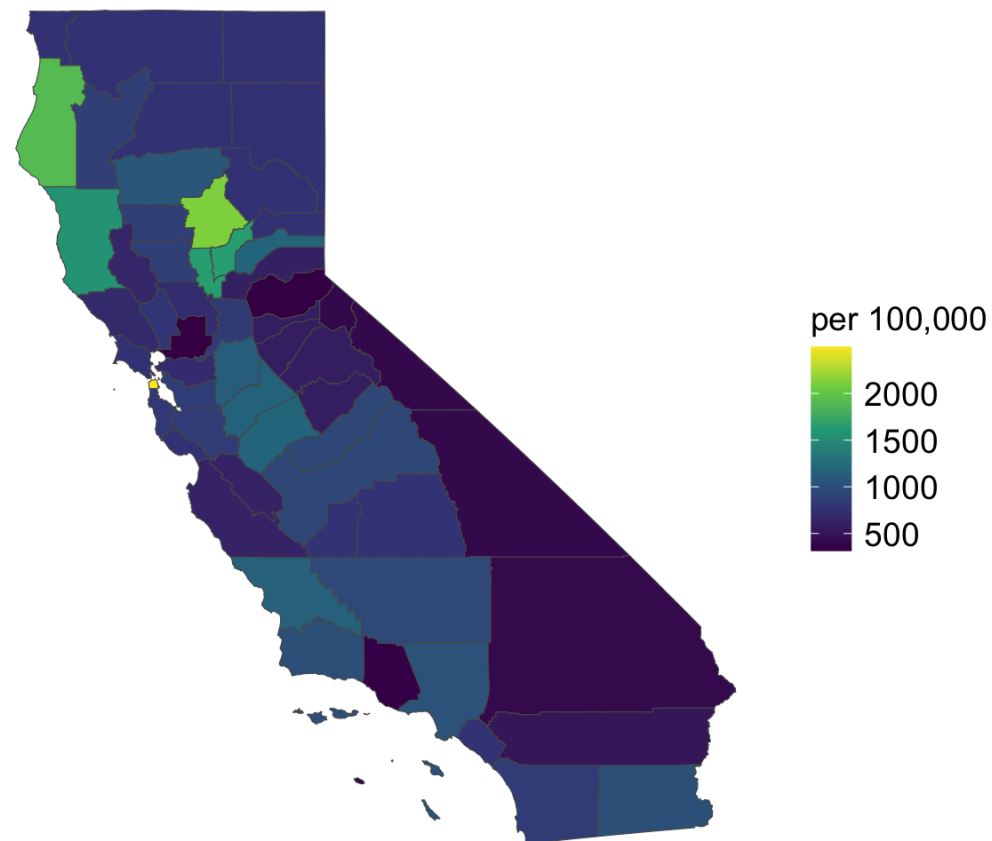
Housing Indicators Vary by County

Overview of
Data
Sources

Homelessness PIT Count per 100,000 Population



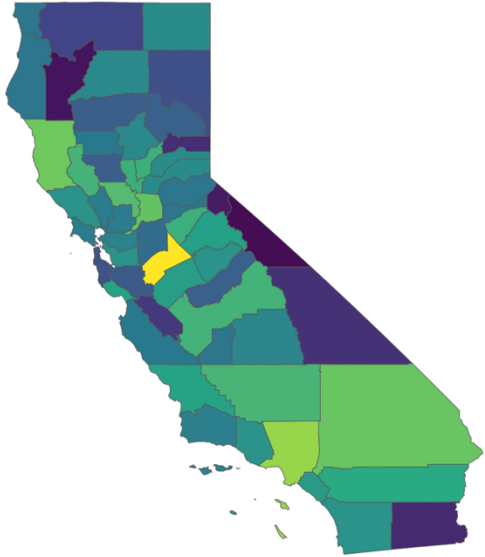
HMIS Utilization per 100,000 Population (All Ages)



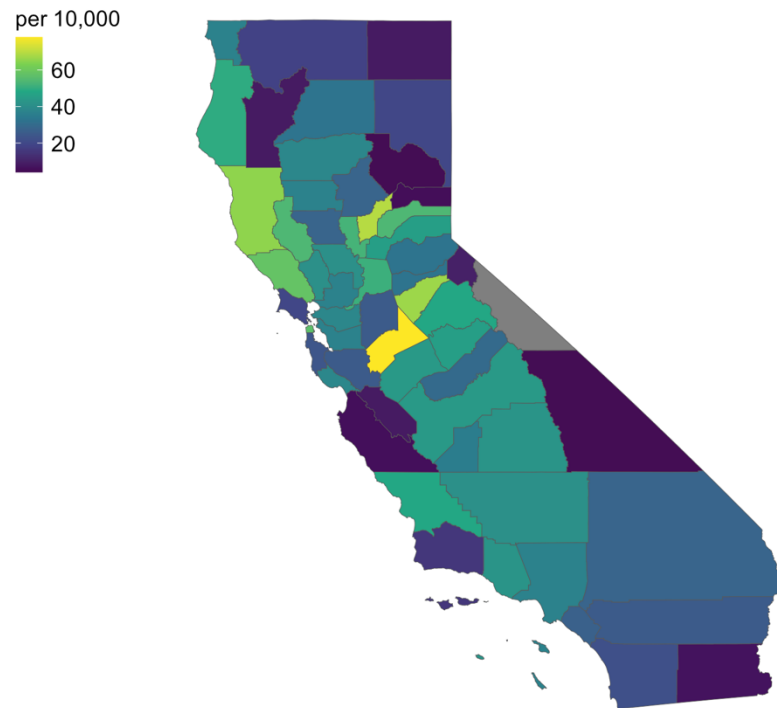
Clinical Indicators Vary by County

Overview of
Data
Sources

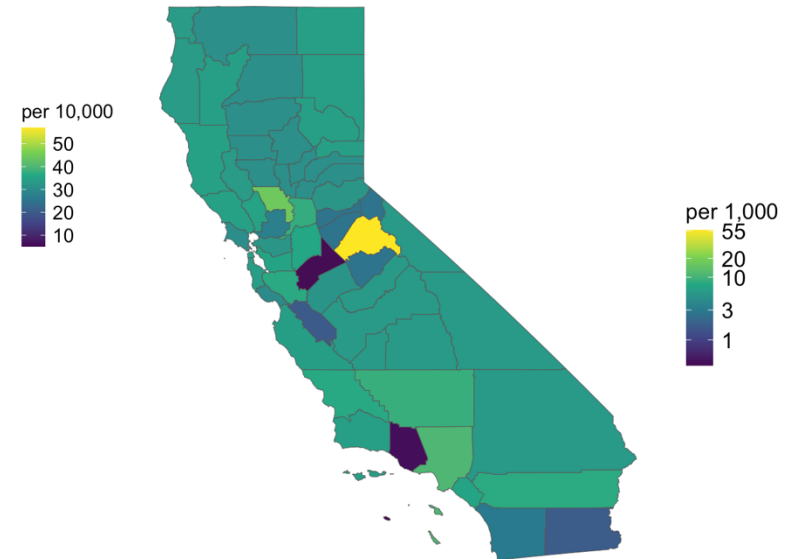
Psychiatric Hospitalizations per 10,000 Population (All Ages)



Psychiatric ED Visits per 10,000 Population (All Ages)



Behavioral Health EMS Calls per 1,000 Population (All Ages) (log scale)



Given the wide distribution of psychiatric/behavioral health EMS calls by county, it was challenging to visualize differences between these factors. As a result, this measure was log-transformed.

Considerable variation in estimated clinical need for FSP statewide

Population	# in Group (19-64)	Target Population (SMI)	Estimated FSP	Estimated % FSP Eligible
Medi-Cal	8,245,677	486,202 (464,662-507,417)	105,624 (95,559-116,183)	21.7% (20.6-22.9%)
Uninsured	1,191,137	70,234 (67,344-73,276)	15,308 (13,911-16,894)	21.7% (20.6-23.1%)

Numerical estimate
required on IP

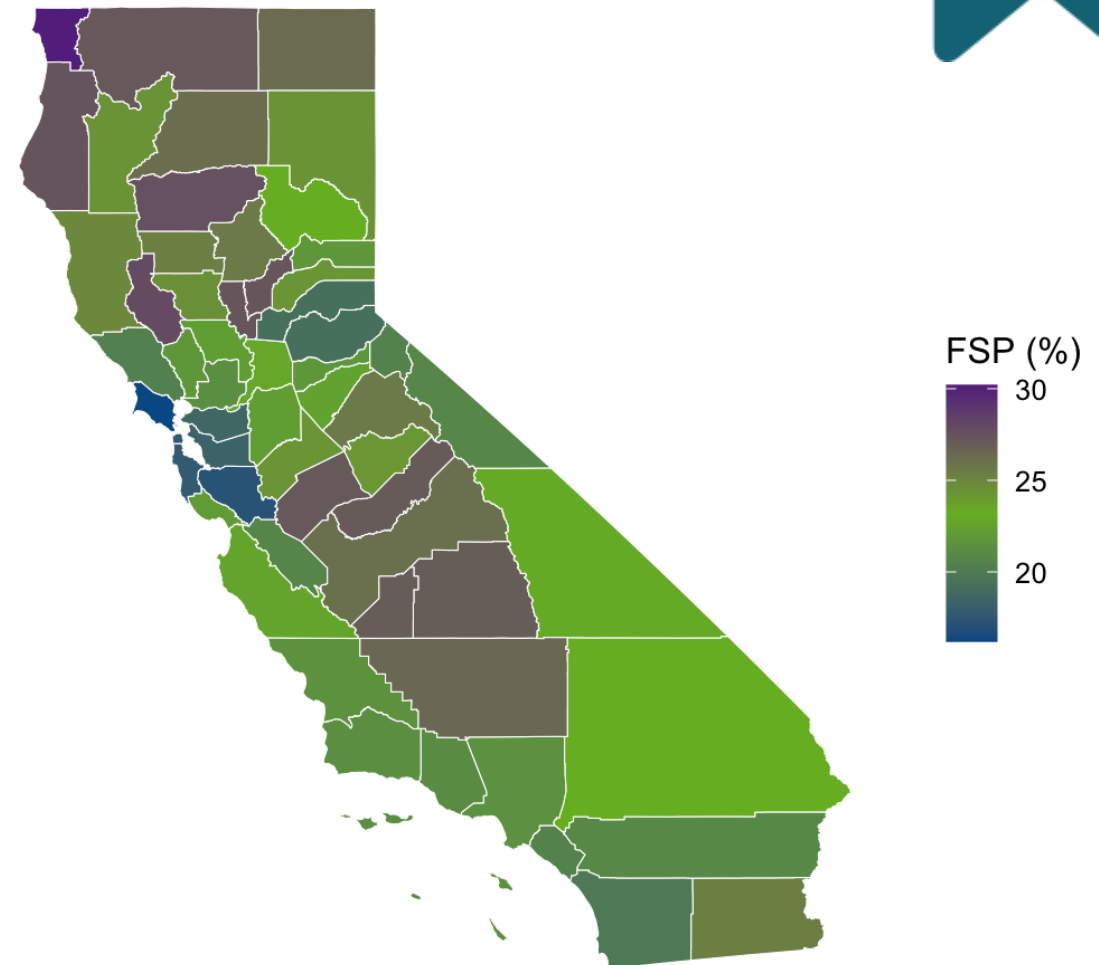
Key Takeaway

Range from **16.2% to 30.2%** of Medi-Cal/uninsured with SMI estimated to have clinical need for FSP by county

Estimated % FSP Population by County

Percentage among Medi-Cal Population with SMI

FSP
Results



Considerable variation in estimated clinical need for FSP ICM statewide

Population	# in Group (19-64)	Target Population (SMI)	Estimated FSP ICM	Estimated % FSP ICM
Medi-Cal	8,245,677	486,202 (464,662-507,417)	84,511 (75,507-94,158)	17.4% (16.2-18.6%)
Uninsured	119,113	70,234 (67,344-73,276)	12,252 (10,996-13,634)	17.4% (16.3-18.6%)

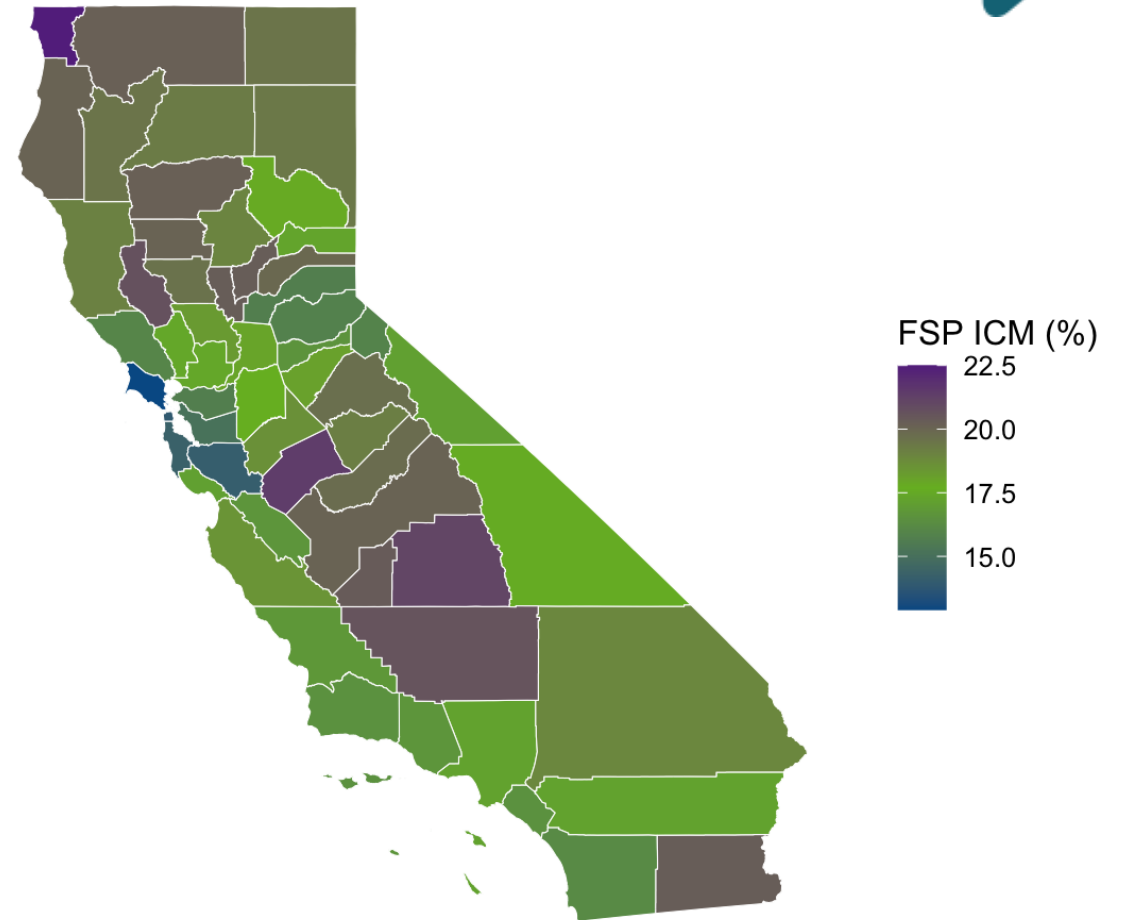
Key Takeaway

Approximately **80%** of FSP eligible population estimated to have clinical need for FSP ICM

Estimated % FSP ICM Population by County

Percentage among Medi-Cal Population with SMI

FSP
Results



Based on diagnosis-based SMI prevalence for Medi-Cal eligible populations

Any Questions?



IPS Indicators Selected

Overview of
Data
Sources

IPS Indicators

FSP Indicator	Indicator Description	Data Source	Data Source Year
Currently unemployed	Unemployment rates – percentage of adult population (16+ years) who are unemployed	California Employment Development Department	2024
Those with a disability who are looking for work	Percentage of individuals with a self-care or independent living disability who are not working but actively looking for work: 5.8% in 2023	Erickson, W., Lee, C., von Schrader, S. (2025). Disability Statistics from the American Community Survey (ACS). Ithaca, NY: Cornell University Yang-Tan Institute (YTI). Retrieved from Cornell University Disability Statistics website: www.disabilitystatistics.org	2023
Individuals with an SMI who are employed and need assistance maintaining employment	Range between 10-33%	NA	NA
Individuals who may not be looking for work	People who have Medi-Cal due to LTC	June 2024 DHCS Estimates	June 2024

Source among Medi-Cal population

Source among full population (i.e., mixed payer) where Medi-Cal was unavailable

IPS Population Determination After Simulation

Clinical Need for IPS – meet one of the following criteria:

Target Population of Interest	Inclusion
People with an SMI and/or SUD without a job who might be looking for work	67% of target population with an unemployment flag based on county unemployment rates
People with an SMI and/or SUD who have a self-care or independent living disability that are actively looking for work	5.8% of target population with self-care or independent living flag (Erickson et al. 2025)
People with an SMI and/or SUD who need help maintaining employment	10% of target population without an unemployment flag

Considerable variation in clinical need for IPS statewide

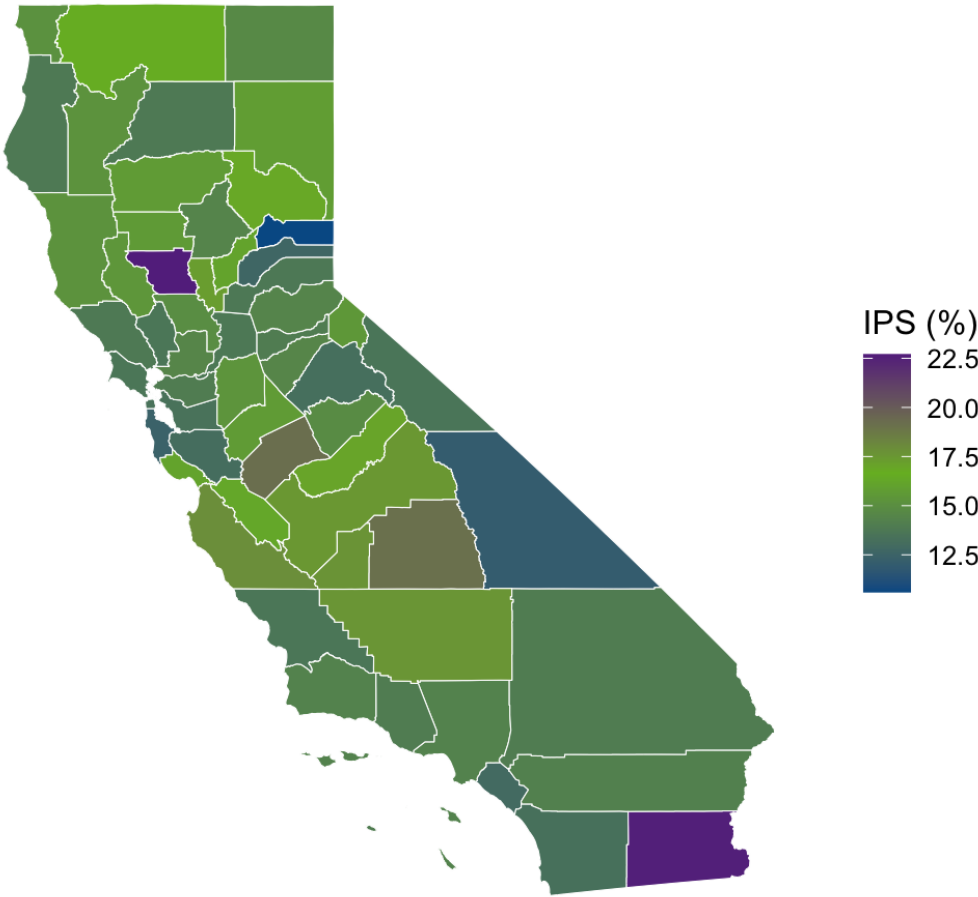
Estimated % IPS Population by County
Percentage among Medi-Cal Population with SMI and/or SUD

Population	# in Group (19-64)	Target Population (SMI and/or SUD)	Estimated IPS	Estimated % IPS Population
Medi-Cal	8,245,677	1,062,375 (1,031,248-1,093,196)	154,091 (146,833-161,674)	14.5% (14.2-14.7%)
Uninsured	1,191,137	153,473 (149,249-157,948)	22,903 (21,913-23,996)	14.9% (14.6-15.1%)

Estimates based on assumption that 67% of people with SMI/SUD who are currently unemployed might want employment and 10% of people with SMI and/or SUD who are currently employed might need help maintaining employment

Key Takeaway

Range from **10.6% to 23.4%** of Medi-Cal/uninsured with SMI and/or SUD estimated to have clinical need for IPS by county



Based on diagnosis-based SMI prevalence for Medi-Cal eligible populations

Any Questions?

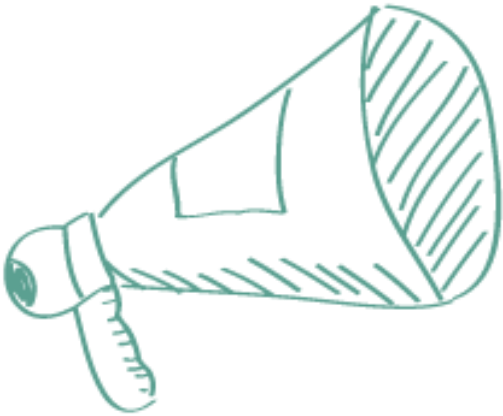


FSP and IPS - Limitations

Limitation	How we addressed it
Availability of county-level public data sources for functional impairment and high service need	Used a wide array of input indicators, where one may not fully serve as proxy, another can fill in the gaps
Some data sources may capture a rate that is higher or lower than Medi-Cal and uninsured populations	Modeled realistic variability around each indicator, recognizing that county-level averages provide a mean that these sub-groups contribute to
Validity of public data sources	Data sources believed to be the best source of the underlying criteria were selected, some believed to be low quality were excluded

FSP and IPS - Conclusions

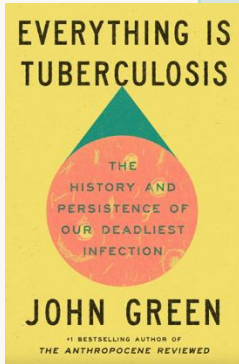
- We designed a robust FSP and IPS simulation model with 15 county-level functional impairment, high service need, and employment indicators.
- These estimates may serve as a helpful guide for individuals with clinical need for FSPs and IPS.
- Population models relying on local data (e.g., individual-level diagnosis and service data) would arrive at different estimates.



"All models are wrong, but some are useful"
-George E. P. Box

In absence of BHP-specific data, these estimates incorporate prior knowledge from the literature or unique county contexts while also capturing uncertainty to inform BHP planning.

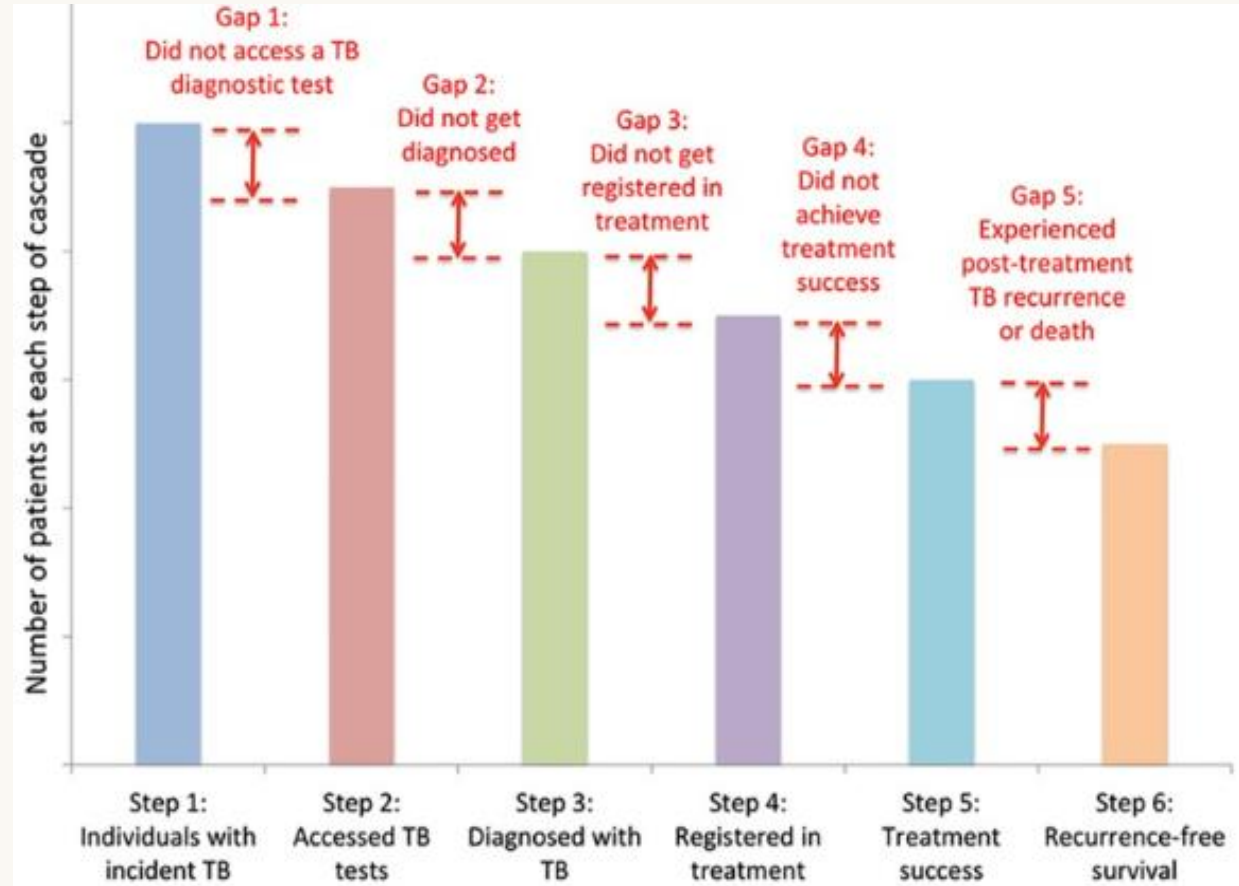
Clinical Need ≠ Served



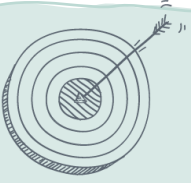
Many people who qualify for an intervention may not access it.

Only 43% of those eligible for TB treatment were successfully treated.

TB Care Cascade – General Model for people with any form of active TB in India, 2013



Source: [Subbaraman et al. 2019](#)



Estimated Population ≠ Served Population

Multiple contributing factors affect the subset of individuals who will access and use these services



Individual Factors*



Not able to access services (e.g., incarceration, hospitalization)



Refusal or inability to engage



Mismatch with available FSP model (e.g., prefers lower-intensity care)



System Factors*



FSP funding available (e.g., 35% of BHSA funds)



Provider shortages/workforce limitations



Program capacity & fidelity constraints



Served Population

Estimated Population with clinical need reduced by Individual Factors and/or System Factors

*The listed components serve as examples and are not comprehensive of all contributing factors.

Webinar Series

Overview of
Webinar
Series

1

Introduction & Methods Overview – October 28

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Justice-Involvement, ACT/FACT Model – November 4

What's next

4

CSC Model & Considerations for Interpretation of Estimates – November 6

Thank You!

Haylea Hannah, PhD, MSPH

Senior Epidemiologist

managedcare@calmhsa.org

Questions about the estimate document from
DHCS or the BHSA IP process?

Bhtinfo@dhcs.ca.gov

CalMHSA