Justice Community
Overdose Innovation
Network

WORKBOOK FOR THE CASCADE OF CARE TOOLKIT

Implementing a Data-Driven Approach to Improve Substance Use Disorder Care

JCOIN Coordination and Translation Center
https://cascadeofcare.org/

Table of Contents

I. WELCOME TO THE CASCADE OF CARE WORKBOOK 3

Figure 1: Sample Graphic from the COC Toolkit 3

PURPOSE 4

THE CASCADE OF CARE AND THE COC TOOLKIT 4

COC History 4

Applications to SUD and Individuals Involved in the Justice System 4

Figure 2: Opioid Use Disorder/Substance Use Disorder Treatment Gap 5

COC and System Change 6

KEY TAKEAWAYS 6

II. APPLYING THE CASCADE OF CARE 6

HOW THE COC TOOLKIT GENERATES STATE AND COUNTY ESTIMATES 7

Figure 3: Example of County COC Estimates Contrasting Justice-Involved and Non-Justice Involved Populations 8

RECOMMENDED USES FOR THE COC TOOLKIT 9

COC Toolkit as Planning Tool 9

COC Toolkit for Assessing Health Disparities 9

Figure 4: Comparing Risk for SUD by Race 10

Data Assessment 11

Documenting Need 11

Evaluations 11

KEY TAKEAWAYS 12

III. USING THE CASCADE OF CARE TOOLKIT 12

Figure 5: Selecting Your Jurisdiction in the COC Tool 13

Figure 6: Marion County (IN) Example, COC for Any Illicit Substance, Adult Population 14

Figure 7: Marion County (IN) Example, COC for Any Illicit Substance, Criminal Justice Involved Population 15

Figure 8: Marion County (IN) Example, COC for Cocaine, Adult Population 16

Figure 9: Marion County (IN) Example, COC for Cocaine, Percentage of the Population 16

Exporting Your Data 16

IV. CASE STUDY: USING THE CASCADE OF CARE TOOLKIT TO ADVANCE SUD SERVICES 17

Figure 10: Sample County of Cascade of Care for All Drugs, All Demographics 17

Figure 11: Cascade of Care for All Drugs, Comparing by Age 18

Figure 12: Cascade of Care for All Drugs, 18-25 Year-olds, Comparing by Sex 18

Figure 13: Slide from the Team's Presentation 19

ACKNOWLEDGEMENTS 20

RESOURCES 21

DATA SOURCES 22

DEFINITIONS 23

COC STAGE DEFINITIONS 23

REFERENCES 25

TECHNICAL APPENDIX 26

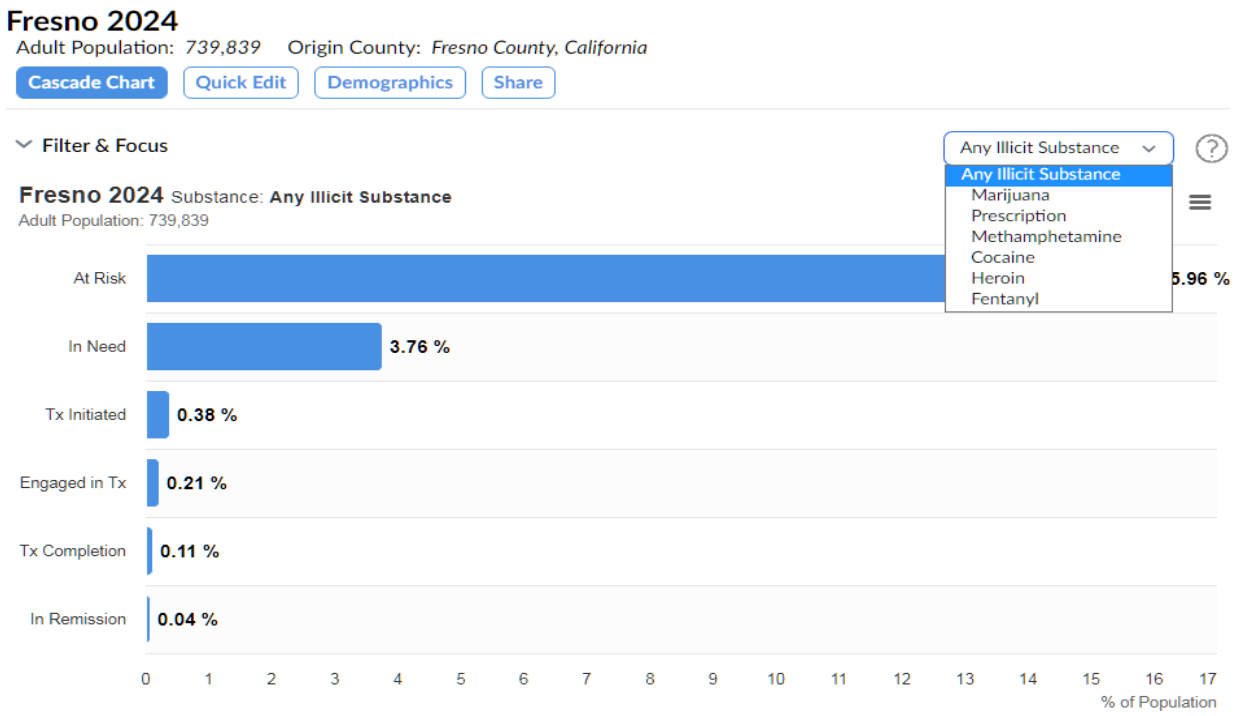
I. Welcome to the Cascade of Care Workbook

The Cascade of Care (COC) Toolkit provides agencies, local communities, and/or states with data to support planning processes to address substance use disorder (SUD) and to enhance individual and community health outcomes. This can best be served by estimating the number and type of individuals who need to have a SUD issue addressed, then examining access and retention in various types of care. In this workbook, we will:

- Walk you through the history of the cascade of care,
- Describe the cascade of care's applications in healthcare,
- Introduce you to the Cascade of Care (COC) Toolkit, and
- Provide examples of how communities can use the COC Toolkit.

The COC Toolkit provides a visualization of the needs of the population. In the Fresno example (Figure 1), the county has a population of 739,839 individuals of which an estimated 5.96% are at risk for any SUD, an estimated 3.76% are in need of treatment (using a proxy of a DSM-IV diagnosis), .38% initiate some type of treatment, .21% are engaged in care, and .11% complete the treatment regime. These estimates tells us that few individuals who need treatment are accessing or engaging in care.

Figure 1: Sample Graphic from the COC Toolkit



Purpose

The **COC Toolkit** was developed to assist local and state communities, agencies, and other stakeholders who seek to increase access to treatment for people with SUD. Many local and state agencies face limitations in available data to assess the number of people at risk for SUD, being screened for SUD, being referred to treatment, initiating and completing SUD treatment, and sustaining remission from SUD. This is also true for various subpopulations such as individuals involved in the justice system, women, and so on. The **COC Toolkit** provides local and state communities with data to estimate treatment needs and support planning processes to address SUD and enhance individual and community health outcomes.

The Cascade of Care and the COC Toolkit

COC History

- The first breakthrough in treating HIV occurred through the introduction of antiretroviral medications in the mid-1990s, with research finding that use of these drugs could significantly reduce mortality associated with a diagnosis of HIV.
- The next challenge was to ensure that those in need of medications and other treatment could receive that treatment. This was particularly challenging because the antiretrovirals provided the tools to manage a person's health.
- There were no available tools to identify whether the population at risk was receiving the needed medications. That is, there was no means to show the prevalence of treatment processes from disease diagnosis to treatment to recovery. The concept of a COC was developed to illustrate treatment needs and assess progress in assisting individuals through the treatment process of screening, treatment initiation, completion, and remission.
- The COC model demonstrated its utility in improving treatment for HIV and has proven applicable to other diseases, including SUD. It became an invaluable public health tool.

Applications to SUD and Individuals Involved in the Justice System

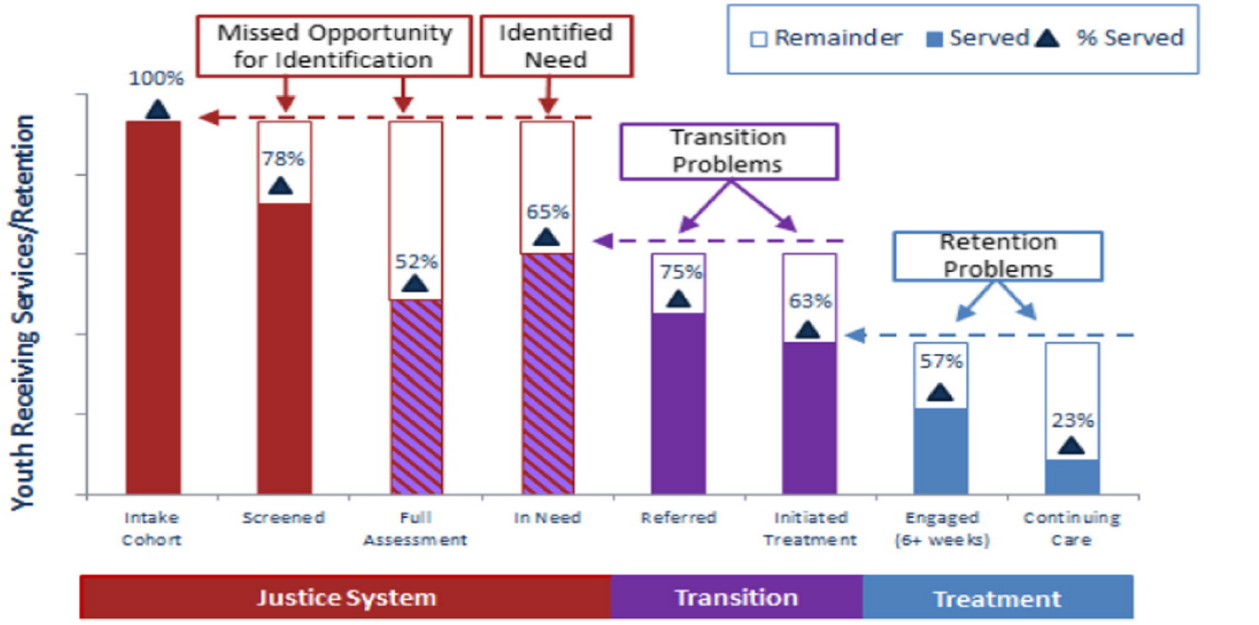
The COC model helps us conceptualize the touchpoints in the justice system where individuals are at risk for or need SUD treatment. Touchpoints can occur along the sequential intercept, from deflection from arrest to a referral for behavioral health screening and assessment, as a diversion program or a drug treatment court following arrest, or as a referral to in-house or community-based services for individuals in jail or prison, or those on probation and parole.

Typically, referral to services involves coordination between justice and behavioral health agencies. This interface of systems can leave a gap in the process of engaging and retaining people in treatment. The COC model suggests that we consider how we provide screening, assessment, and referral to treatment, as well as how we increase initiation, engagement, retention, and completion of treatment. To enhance access or efficacy of services that involve this type of justice and treatment interface, the COC model can help us develop a plan for coordinating services. It is also a valuable conceptual model for assembling a successful multi-agency planning and implementation team for your strategy or intervention.

Note: While the COC model can be applied in carceral settings (jail/prison) the COC Toolkit data (demographics, estimates, etc.) are based on community (non-carceral) populations. That is the estimates are based on demographics occurring in the community. The COC framework can support the goal of *identifying and reducing* the gap between those needing treatment for SUD and those who receive and succeed in treatment.

Prior research has demonstrated a significant gap between the number of people at risk for SUD, the number screened and assessed, the number referred to treatment, initiating treatment, the number being engaged and retained in treatment, and the number successfully completing treatment. The COC provides a framework for conceptualizing and potentially estimating the nature of these gaps (see Figure 2 from Belenko et al, 2017).

Figure 2: Opioid Use Disorder/Substance Use Disorder Treatment Gap



One of the major efforts to apply the COC in the justice system occurred in the Juvenile Justice—Translational Research on Interventions for Adolescents in the Legal System (JJ-TRIALS).[1] This was a major research project in over 30 counties, applying the COC model to enhancing service delivery in the juvenile justice system. Researchers involved in JJ-TRIALS demonstrated a significant gap between treatment needs and treatment delivery like the population estimates developed by Williams et al. (2019, see Figure 2).

These national and multi-jurisdictional estimates of the need for treatment and the referral to and successful completion of treatment are useful as a way of highlighting the shortcomings of our efforts to engage people with SUD in treatment. They are, however, limited in their ability to provide local decision-makers with estimates of the need and potential gap in services in any community. The **COC Toolkit** was developed to address these needs by providing a toolkit that can help jurisdictions/agencies estimate each point in the COC. One primary goal is

[1] See Belenko et al. (2017); Dennis et al. (2019), JJ-Trials Cooperative.

to facilitate strategic planning and system change at the local level by providing local estimates of the number of people at risk, screened, referred, initiating treatment, engaged, and successfully completing treatment. End users of the tool can include state and county officials, researchers, students, health and justice practitioners, members of the media, and activists.

COC and System Change

The intended role of the COC Toolkit in strategic planning is to support system change with the goal of increasing the number of people with SUD receiving and completing treatment and improving health outcomes. The COC provides a ***lens*** to view and understand complex processes within systems. This COC lens supports the development of a ***strategy*** for coordinating and improving treatment across justice and behavioral health service agencies. Thus, for example, the COC can help justice and behavioral health officials assess whether the processes within their agencies, and at the hand-off between justice and behavioral health agencies, are successfully connecting people with treatment.

Additionally, the COC Toolkit provides a ***template*** for summarizing data from existing records. A potential starting point for strategic planning could involve using the COC framework to assess what data are currently available across the COC. In many, if not most communities, data are unavailable or very difficult to access across the full COC. The COC toolkit provides estimates of data at each point which help to illustrate gaps that can occur. These estimates can then be used to examine which there are gaps in services or populations at different touchpoints. As will be discussed subsequently, the COC Toolkit also allows users to improve the estimates by building upon local data that are available.

Key Takeaways

The COC framework summary is acknowledged as a standard approach to illustrate chronic disease management. The COC framework has been successfully applied to HIV, diabetes, hepatitis C treatment, juvenile justice, and other areas. The COC frameworks examines results at key, sequential stages[2] which can help us assess gaps in treatment delivery from screening to aftercare.

II. Applying the Cascade of Care

The COC Toolkit addresses a common problem: agencies often do not collect or have access to data needed to assess gaps in services across the COC. Data tend to be incomplete, inaccessible, underutilized, not shared across agencies, or not organized in a way that allows for analysis across the COC. The COC Toolkit allows local counties and agencies to **use <u>whatever data they have available</u>** to *estimate* the number of individuals that *may* be in each stage of the COC in their county/agency. In the absence of local data, the Toolkit provides local estimates. These local estimates are based on national data sources adjusted for state and local population characteristics.

[2] This approach is often referred to as the sequential intercept model.

How the COC Toolkit Generates State and County Estimates

The COC Toolkit uses publicly available data to generate state-and county-level estimates of the COC parameters for each profile of attributes. That is, estimates across the COC are developed using profiles based on ten socio-demographic attributes and for different types of substances. The publicly available data come from large data collection systems collected on a national basis. These include:

- National Household Survey of Drug Use and Health (NSDUH) (https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health)
- Treatment Episodes Dataset (Discharges) (TEDS) (https://www.samhsa.gov/data/data-we-collect/teds-treatment-episode-data-set)
- Other data: U.S. Census sources for county data (https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-detail.html); employment, education data from U.S. Department of Agriculture's Economic Research Services (https://www.ers.usda.gov/data-products) and mental health data from County Health Rankings and Roadmaps project (https://www.countyhealthrankings.org/health-data)

From these data sources, profiles are created for every possible combination of the ten socio-demographic variables that are available in the datasets (age, race, gender, marital status, education, employment, criminal justice system involvement, co-occurring alcohol use disorder, co-occurring mental health disorders, and a county urban/rural flag). The data provide estimates for the following stages of the COC:

- **At risk of developing a SUD:** Self report indicator of whether a person used or misused the substance in the past year.
- **A developed SUD need:** Presence of SUD as identified by responses to DSM-V questions (or DSM-IV for the earlier data). The underlying questions used to flag moderate or severe SUD depends on the substance in question. SAMHSA provided a recoded flag that identifies those with a dependence of abuse problem. This flag was used to identify the numerator.
- **SUD treatment initiated:** Whether the person's last treatment episode or the current treatment for the specific SUD was at least 7 days or more. This measure was intended to proxy the fact that many detox programs or emergency facility visits are short and do not constitute treatment. The cut point of 7 days was used to flag those with actual treatment.
- **Sustained SUD treatment engagement:** Whether a treatment discharge resulted after a period of 60 days.
- **SUD treatment completion:** Whether the discharge reason was recorded as successful and the criteria for sustained treatment engagement (the previous stage) was satisfied. Discharge reasons of "treatment completion" and "transfer to another treatment type or facility" were considered as successful.

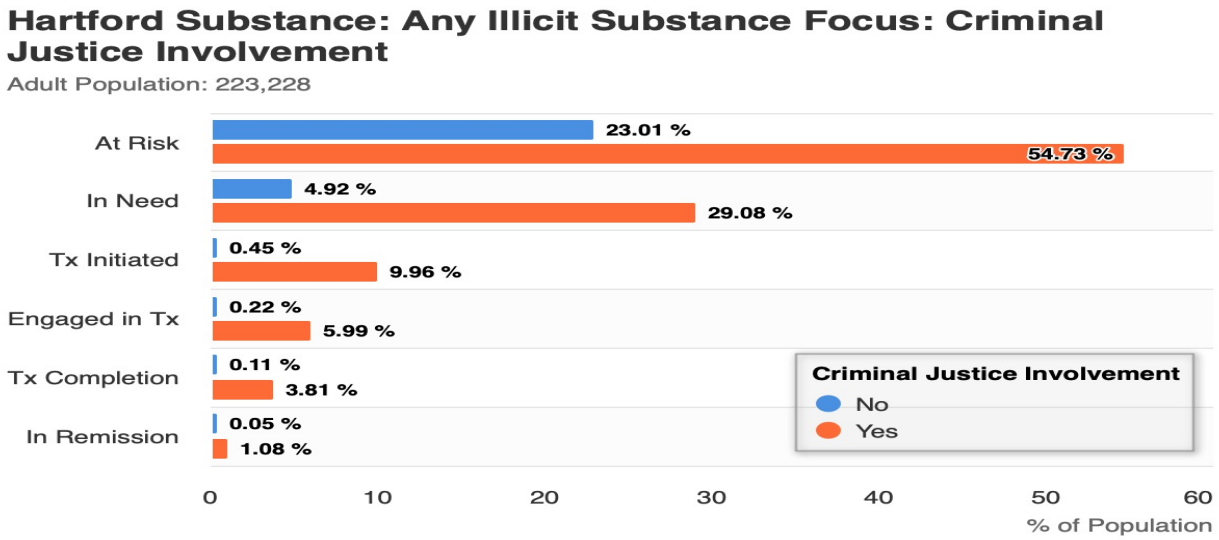
- **Remission from SUD:** There is no direct measure of remission in the NSDUH or TEDS. Therefore, a proxy was created and used defining remission as the proportion of people with no current SUD risk out of those who ever received treatment for the substance.

For a county with no available data on treatment needs and delivery, the COC Toolkit can provide estimates across the COC based on the underlying national data sets adjusted to the state and county demographic characteristics. The characteristics are: socio-demographic features like age, race, gender, employment, education, marital status and co-occurring disorders. The online tool can re-weight the underlying data to accommodate local data and will, once re-weighted, provide more accurate and timelier COC estimates for a specific jurisdiction/agency.

The re-weighting can also be done to study any sub-population of interest. A likely application would be to generate estimates for justice-involved populations. For example, a county could use data on the profile of people arrested or booked into the local jail to then estimate across the COC for the county's justice-involved population. They would revise in the COC Toolkit the county demographics to reflect demographic information they have collected from local correctional agency to better reflect the population of people in the county with criminal justice involvement. Adjusting the demographics will trigger the COC Toolkit to re-weight data, which will change the cascade.

To provide illustration of the use of the **COC Toolkit**, several examples of county estimates were developed. Figure 3 illustrates a contrast based on sub-population. Specifically, for this county, the figure contrasts COC estimates for those with recent justice system involvement with those with no justice system involvement. This figure demonstrates the utility of the COC Toolkit and its ability to support a gap analysis by substance type or by justice involvement.

Figure 3: Example of County COC Estimates Contrasting Justice-Involved and Non-Justice Involved Populations



Recommended Uses for the COC Toolkit

COC Toolkit as Planning Tool

As described in the prior section, the COC and the COC Toolkit can support strategic planning and system change. The COC stages range from screening through treatment completion, and by providing data to assess the gap between treatment needs and completion.

A useful framework for using the COC in strategic planning is the "plan, do, study, and act" (PDSA) process (Viglione et al, 2015). The PDSA process involves key elements include convening a group of stakeholders who will be responsible for developing and implementing the action plan, identifying key metrics across the cascade, routinely using data to assess the status of performance, and adjusting the action for continuous quality improvement.[3] Using this process promotes quality improvement through testing strategies and monitoring key metrics as you implement those strategies. View the course: https://www.jcoinctc.org/courses/cascade-of-care-coordinating-substance-use-disorder-treatment-services-for-justice-involved-individuals/.

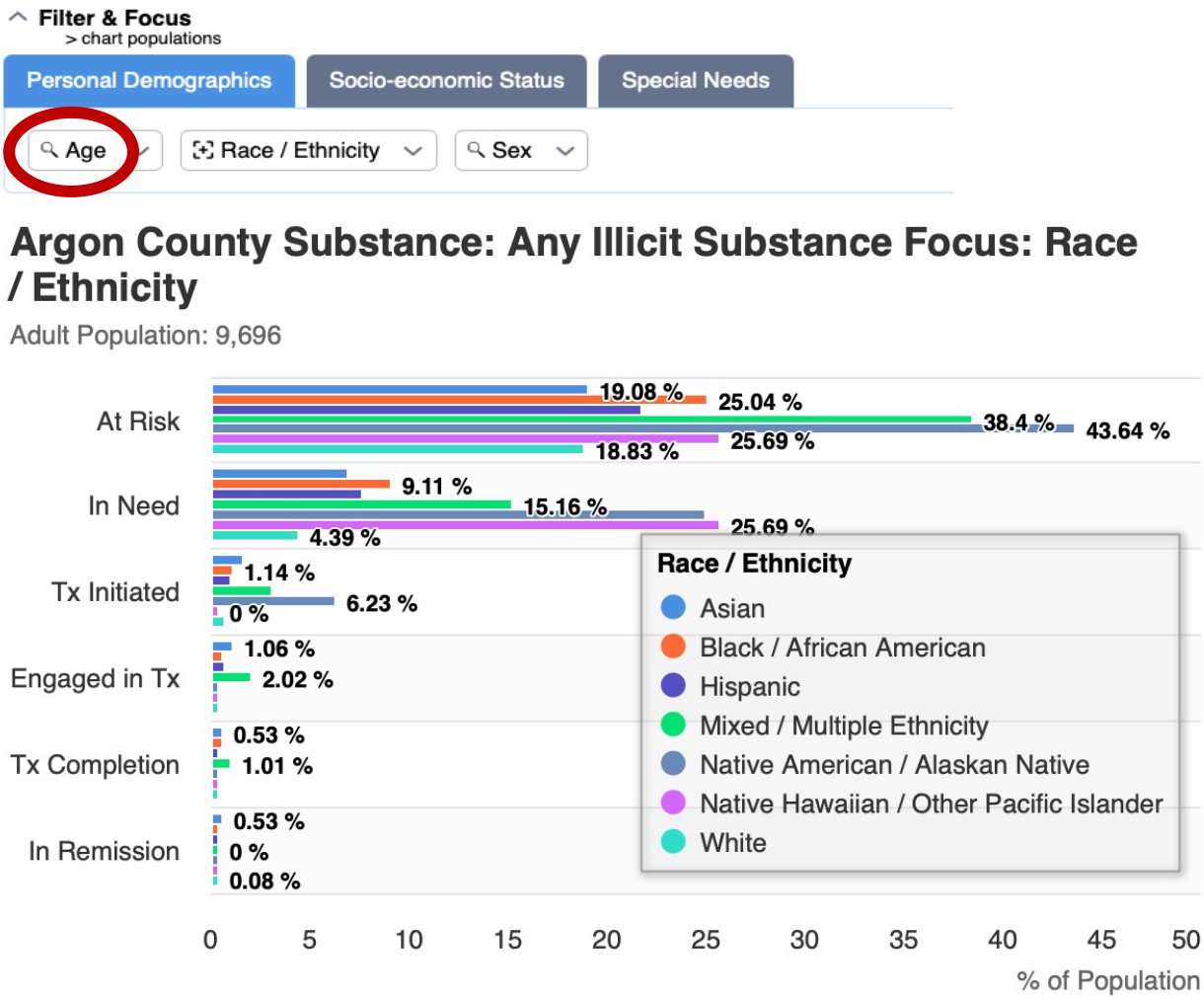
The COC Toolkit supports these efforts by providing data across the COC for the stakeholders to assess needs and to plan for continuous improvement. For example, the stakeholders may set a goal of increasing screening, referrals, initiation, engagement, and completion of treatment by 10% by the completion of year one. The COC Toolkit can provide estimates that translate what this 10% increase would mean in terms of resources as well as benchmarks for assessing progress. Ideally, as part of the planned change initiative, local data can then be collected to monitor screening, referrals, initiation, engagement, and completion of treatment.

COC Toolkit for Assessing Health Disparities

An additional use of the COC Toolkit is to review access and engagement in care for disparity assessment. Are there particular segments of our community that are being underserved? This could be based on demographics (e.g., racial, ethnic, gender) or on co-occurring disorders. Such assessment could be done at the local level utilizing the COC Toolkit. Each of the filter drop-downs has a magnifying glass icon next to the demographic. When a user clicks on this icon, they will be able to compare estimates of people in the population by their demographics. Figure 4 shows the same population as Figure 3, filtered to allow comparison of the cascades for people of different races. Figure 4 demonstrates a comparison of the cascade by race within a county. As shown in Figure 3, the user can also click on the demographics in the key box on the lower right side if they wish to remove a demographic group from the analysis.

[3] More detail on using the COC in strategic planning, and on the plan, do, study, and act process is available in the JCOIN "Cascade of Care" virtual course available through JTEC at https://www.jcoinctc.org/courses/cascade-of-care-coordinating-substance-use-disorder-treatment-services-for-justice-involved-individuals/.

Figure 4: Comparing Risk for SUD by Race



For example, the study "E-Connect" (see Elkington, et al., 2021) demonstrated the utility of conducting this type of assessment. Using data from 10 probation departments, this study sought to assess treatment needs and delivery among juveniles on probation. The study began with a COC gap analysis at the screening, assessment, referral, initiation, engagement, and continuing care stages. The assessment demonstrated gaps at each stage. Then the researchers examined the results by gender and race. This analysis found that the treatment gaps were particularly pronounced for non-white girls and boys when contrasted with white girls and boys (Ryan et al., 2019). The planning process could then address how to reduce the gaps in services for specific youth in terms of screening, referrals, treatment for non-white boys and girls.[4]

[4] See Elkington et al. (2021). The disparity assessment is included in the JCOIN Cascade of Care virtual course available at https://www.jcoinctc.org/courses/cascade-of-care-coordinating-substance-use-disorder-treatment-services-for-justice-involved-individuals/.

Data Assessment

As noted in the section on strategic planning, the COC framework and the COC Toolkit can allow decision-makers to ask questions such as:

- How complete is our data coverage across the COC? Do we need additional data?
- Do we need additional partners to gather the necessary data?

The COC Toolkit helps planning and strategic goals for examining SUD processes which serves to reframe abstract questions about data needs to highly specific ones. For example:

- How many people booked into the jail were screened for SUD risk?
- Of those, how many assessments were conducted?
- How many referrals to treatment?

Using the COC Toolkit, local data can then be compared with data derived from national estimates. When local data are not available, the toolkit can provide estimates adjusted for the local context.

Documenting Need

Many communities face a potential catch-22 situation. They may seek resources to better address SUD through various public and private funding sources, often through grants, but the application for such funding may require contextual data to document their need. In the absence of such data, the community or agency may be at a significant disadvantage, despite the scale of the SUD health challenge. The COC Toolkit can address this challenge by providing estimates of the need and the potential gap between needs and services.

Evaluations

Limited data availability can also create challenges in evaluating progress and outcomes. The COC Toolkit can provide estimates of the likely SUD treatment needs, services, and gaps. These Toolkit estimates can be used to assess the progress of planned change efforts.

Similarly, the baseline data provided by the COC Toolkit can provide information that can be used to benchmark against comparable jurisdictions. Although not relying on the COC Toolkit, research conducted by Dr. Kate Elkington in New York State demonstrated the value of such benchmarking (Elkington et al, 2021). In this study, data were collected from established opioid treatment courts on screening, linkage to treatment, treatment initiation, and completion. These established courts had previously identified and overcome challenges across the COC. Data were then collected for newly established opioid treatment courts, revealing much lower rates of screening, linkage to treatment, initiation, and retention. The data provided a clear picture of treatment gaps, but also realistic targets or benchmarks from the more established courts.[5]

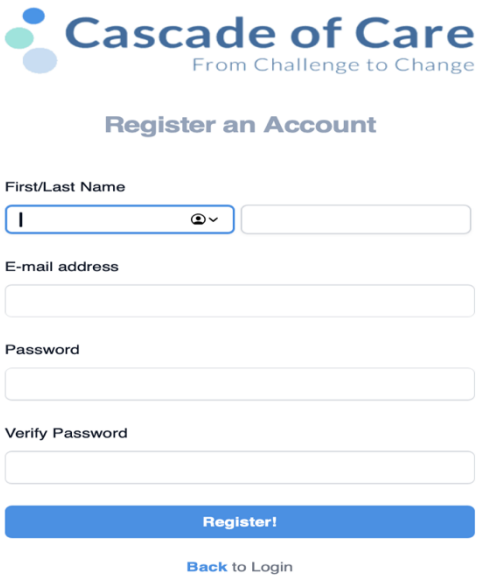
[5] Dr. Elkington's project with the New York State opioid treatment courts is discussed in greater detail in the JCOIN Cascade of Care virtual course (McGarrell, E. Cascade of Care: Coordinating Substance Use Disorder Treatment Services for Justice-Involved Individuals. (2022). Justice Community Opioid Innovation Network Coordination and Translation Center. https://www.jcoinctc.org/courses/cascade-of-care-coordinating-substance-use-disorder-treatment-services-for-justice-involved-individuals/.

Key Takeaways

The COC Toolkit can be used to inform counties and agencies in assessing their capacity for SUD treatment and services. The toolkit can help determine if they should be trying to maximize services to reach existing capacity or if they should be trying to increase their treatment capacity (or both). The COC can help guide counties and agencies in setting goals and identifying where they are and where they want to be in terms of service provision. This can support counties and states in creating policy changes and resource development and allocation. At agency, local, and state levels, these estimates can help users identify gaps in services, target "high need" populations/substances, encourage data collection, plan system change, and track progress in service provisions. To take an eCourse on the Cascade of Care, visit the JCOIN Training and Engagement Center at https://www.jcoinctc.org/jtec/.

III. Using the Cascade of Care Toolkit

Let's turn to accessing and using the COC Toolkit. The Toolkit is available through the JCOIN Coordination and Translation Center (CTC). You can access the tool and a user guide at https://cascadeofcare.org/. A comprehensive, hands-on user guide to all the features of the COC Toolkit is available on the website.



Here's all you need to register and get started with the COC Toolkit:

- Visit the COC home page **https://cascadeofcare.org**
- Enter your first and last name
- Enter your email address
- Select a password

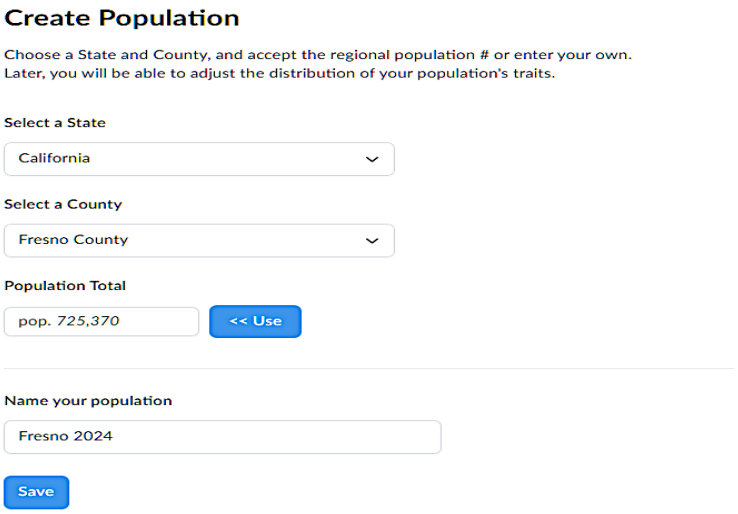
The advantage of the registration-based system is that it will allow you to save your work for the specific units of analysis of interest to you. For example, you may wish to specify the county where you provide services. Registering allows you to save and share your data.

Figure 5 illustrates the process of choosing a jurisdiction in the COC Toolkit. You will take the following steps to create a population.

1. Create your account at https://cascadeofcare.org.
2. Select Create Population from the menu on the left-hand side.
3. Use the dropdown menus to select your state and then your county.

4. Determine whether you want to use the suggested Population total (this total comes from U.S. Census data). If you do wish to use that total, select Use.
5. Enter a name for the population you are creating.

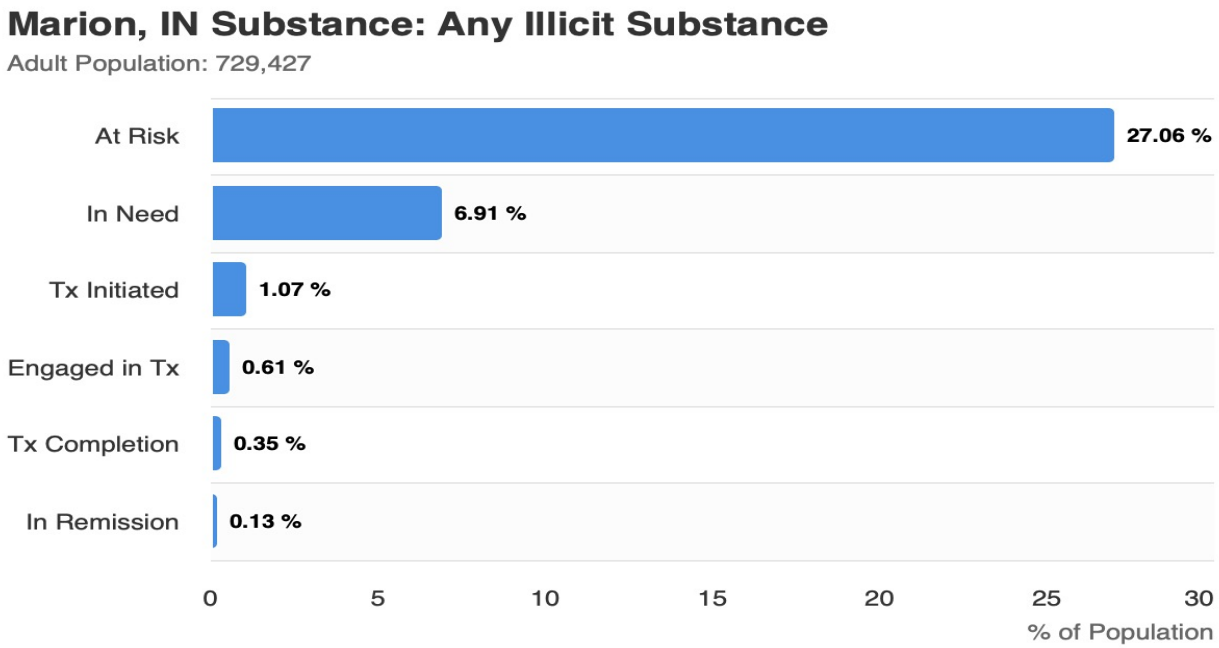
Figure 5: Selecting Your Jurisdiction in the COC Tool



Once you have created your population, you will first see a graph illustrating the total percentage (or number) of individuals in that county who are at each stage of the cascade. Figure 6 illustrates the results for Marion County, Indiana. In Marion County, the overall population of the county (n=729,427) is estimated to have approximately 197,369 adults who are at risk for SUD or estimated 27% of the county's population (197,369/729,427*100). The category of "At Risk" encompasses individuals who used an illicit substance in the past year, not all individuals who have used an illicit substance. We differentiate between this group and the next category, "In Need" of treatment, which encompasses those who have used an illicit substance **and** present with DSM criteria for SUD. Of those considered at risk for SUD, just over 50,000 (n=50,434) are estimated to need SUD treatment. This represents 26% of those at risk.

Based on national and state estimates, the COC Toolkit estimates that approximately 7,784 would initiate SUD treatment, labeled in the Toolkit as "Tx Initiated." This term refers to people who have enrolled in and completed at least seven days of treatment. This represents just over 15% of those in need of treatment. Continuing the COC analysis, an estimated 4,455 (57.2% of those who initiated treatment) would be estimated to be engaged in treatment ("Engaged in Tx"), meaning they have participated in at least 60 days of treatment. Another 2,547 are estimated to have completed treatment "Tx Completion," which means that they were successfully discharged from their treatment program. Just over 900 (n=917) are estimated to be in remission ("In Remission"), which we define as those who have previously participated in SUD treatment and who no longer meet DSM criteria for SUD.

Figure 6: Marion County (IN) Example, COC for Any Illicit Substance, Adult Population



It is important to recall that these are estimates based on state and national data adjusted for local demographics. The actual numbers at the local level may be different for a variety of reasons, including resources dedicated to SUD treatment. With these qualifications in mind, it is easy to see how helpful these estimates are for planning and assessment. For example, knowing that there are an estimated 50,000 people in need of SUD treatment provides a useful starting point for estimating treatment needs. Similarly, knowing that national and state estimates suggest that just under 8,000 (n=7,784) people would initiate treatment provides a helpful benchmark to assess current capacity to provide treatment.

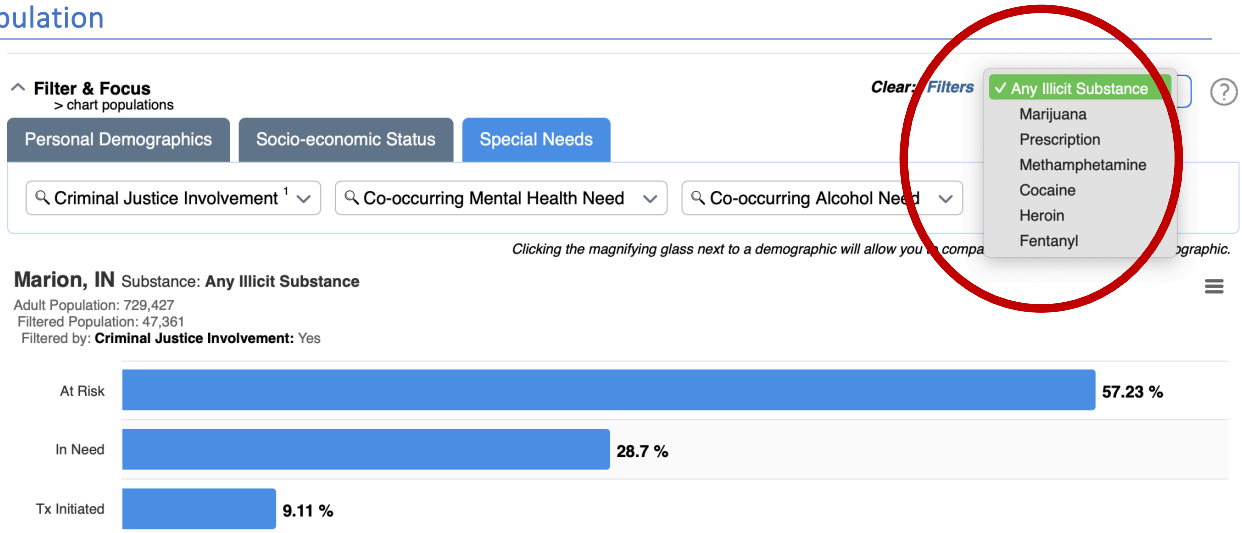
The COC Toolkit also allows for more customized analyses. For example, the analysis in Figure 6 was based on all illicit substances. By choosing from the drop-down menu, the analysis can be adjusted for specific substances (marijuana; opioid and non-opioid prescription drugs; methamphetamine; cocaine; heroin; fentanyl). Similarly, the analyses can be filtered for personal demographics (age, race/ethnicity, sex), socio-economic status (marital status, education level, employment status), and special needs (criminal justice involvement, co-occurring mental health need, co-occurring alcohol need).

The *Create Population* function, available from the Dashboard, allows users to select a county and create a population that can be saved and used in the future. For any given chart, the user can view numbers as totals or as percentages and can change using their Settings as needed. For treatment and prevention planning purposes, absolute numbers will be most helpful, but if a user wants to compare the prevalence of SUD in two counties of different total populations, they may find it more helpful to use the percentages.

Figure 7 repeats the analysis for Marion County but with the data generated for people with criminal justice involvement (See Appendix for definitions of criminal justice-involved). As the figure illustrates, an estimated 47,361 adults have criminal justice involvement (6.5% of the county population). An estimated 27,103 of those criminal justice-involved people are

estimated to be at risk for SUD. This represents 57% of those with criminal justice involvement and reflects the elevated risk for SUD among those with criminal justice involvement (57% vs. 27% of the overall county population (see Figures 6 and 7)). Over 13,000 (n=13,594) of the County's criminal justice-involved people are estimated to be in need of treatment (50% of those at-risk). Based on national and state estimates, the COC tool estimates that over 4,000 (n=4,313) would initiate treatment, over 2,600 (n=2,658) would be engaged in treatment, 1,638 would have completed treatment, and 521 would be in remission. In contrast to the overall county population, these analyses could prove very helpful for justice and behavioral health leaders to estimate treatment needs among the justice-involved population and would allow for benchmarking comparison to existing levels of people initiating treatment, engaged in treatment, having completed treatment, and in remission.

Figure 7: Marion County (IN) Example, COC for Any Illicit Substance, Criminal Justice Involved Population



The drop-down function in the upper right-hand corner (circled in red) allows the user to select different substances of interest (any illicit substance; marijuana; prescription drugs; methamphetamine; cocaine; heroin; fentanyl). Figures 8 and 9 present cocaine SUD estimates for the adult population in Marion County. The data indicate that an estimated 20,597 adults are at risk of SUD, with cocaine as their primary drug of choice, and 4,738 are in need of treatment. Nearly 1,300 (n=1,287) are estimated to have initiated treatment, with 729 engaged in treatment, 412 having completed treatment, and an estimated 212 in remission. These estimates can be generated for each substance and can also be generated for different demographic groups (e.g., women, people aged 18-25) or special need populations (e.g., criminal justice-involved). Based on your settings, you can view the data in absolute numbers (Figure 8) or percentages (Figure 9).

Figure 8: Marion County (IN) Example, COC for Cocaine, Adult Population

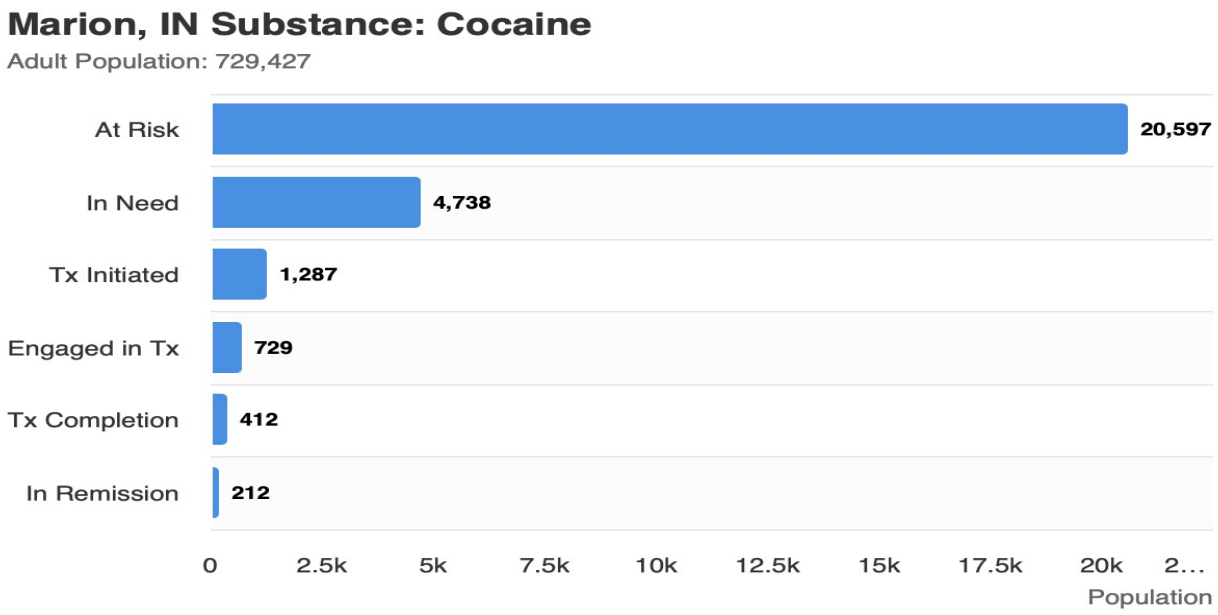
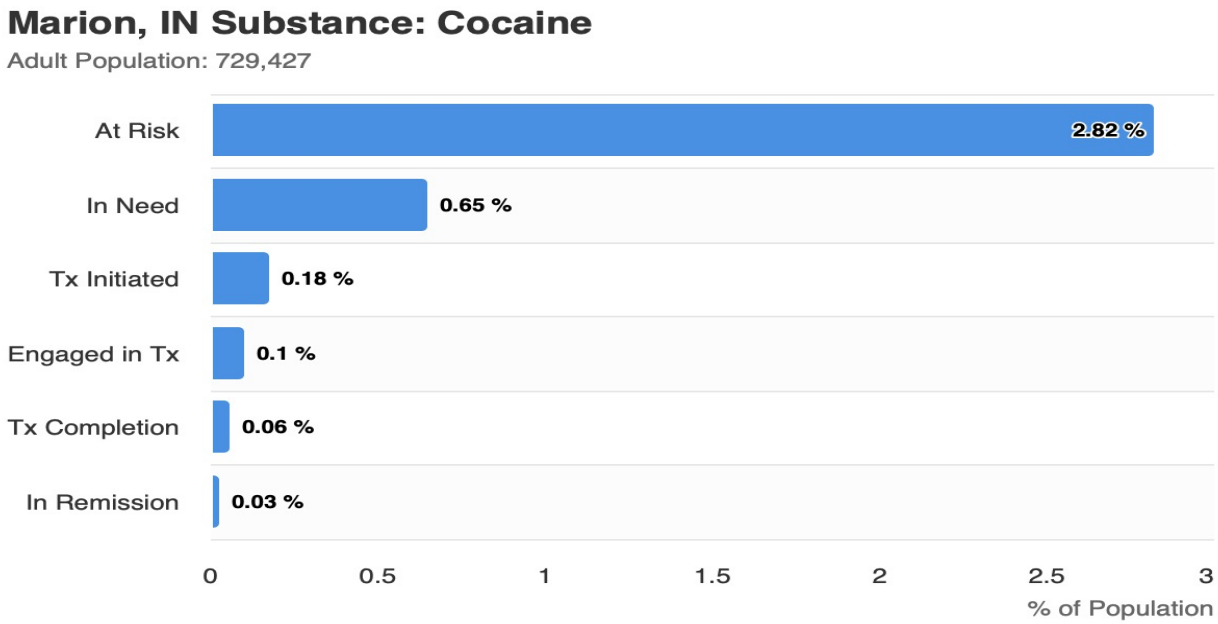


Figure 9: Marion County (IN) Example, COC for Cocaine, Percentage of the Population



Exporting Your Data

Users can also share the tables they create using the download function, which allows you to share data with colleagues who do not have an account or include the data in a report or presentation. Users can download the data in different formats, including PNG, JPEG, CSV, XLS, PDF, and SVG vector image. This tool can also be useful if you wish to compare your population to that of another county or share the data in a report or presentation.

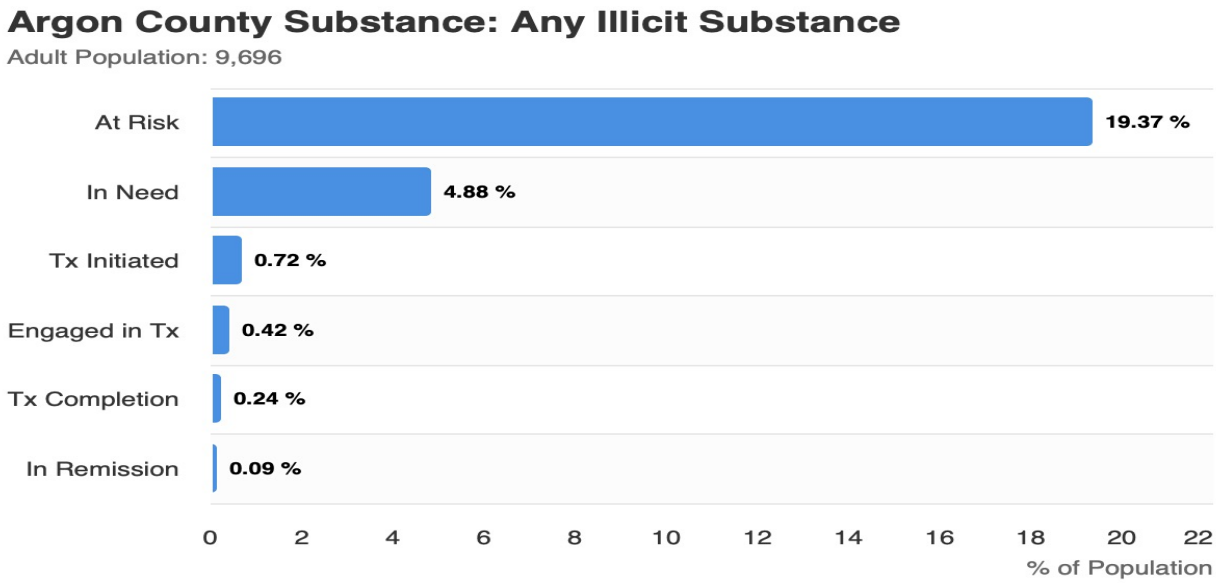
IV. Case Study: Using the Cascade of Care Toolkit to Advance SUD Services

The following is a hypothetical example. Alex P. works as a planner in the Department of Mental Health and Substance Use (DMHSU) in Argon County and has been tasked with developing a proposal for allocation of funds for SUD prevention and treatment in the next fiscal year. Currently, the county's spending on prevention and treatment does not target any particular age group. Alex has reviewed national data on substance use and noted that young adults (age 18-25) are the most at risk for SUD or in need of treatment. The counselors at DMHSU have confirmed that, anecdotally, the largest portion of the people they serve are under age 25.

Alex wants to make data-driven recommendations, so he turns to the Cascade of Care Toolkit. He knows that the COC Toolkit provides a ***framework*** for identifying best practices. For example, are we using evidence-based practices for screening and risk assessment? Are we engaging with people at crucial junctures such as the transition from incarceration to the community? Alex and his team think the COC Toolkit will provide them with baseline knowledge they can apply to answer these questions.

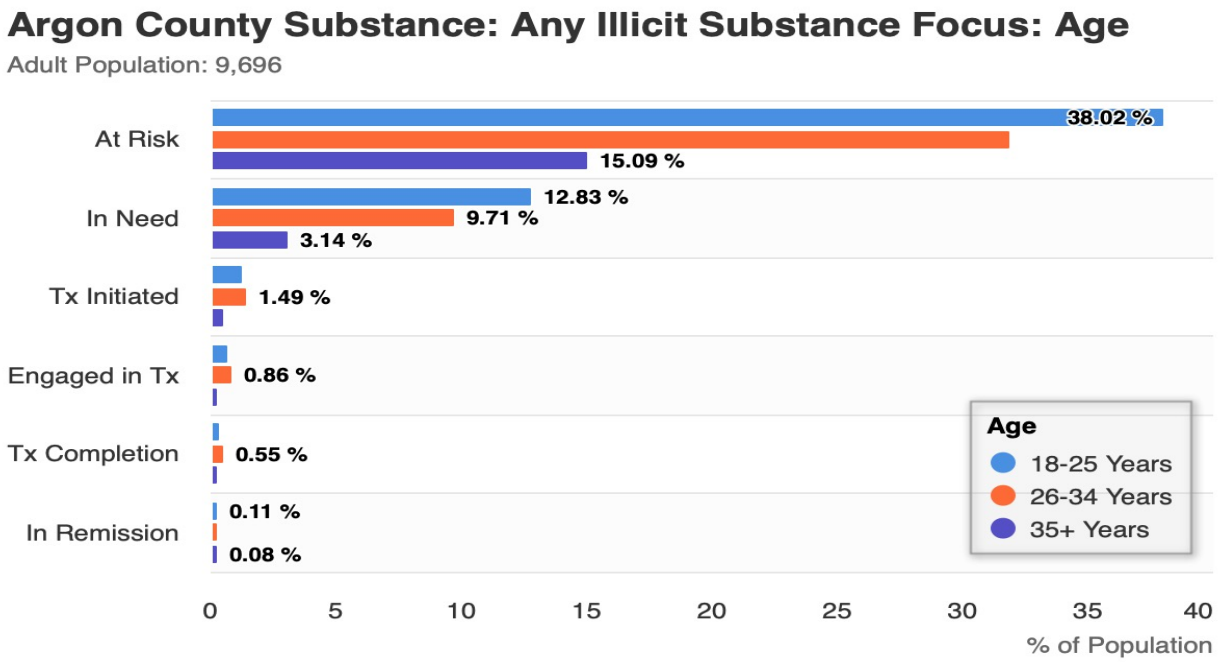
Alex creates a COC Toolkit account and selects his county. From the initial chart, he is able to estimate the total number and percentage of people who are at risk for SUD, in need of SUD treatment, have initiated SUD treatment, have engaged in treatment, have completed treatment, and are in remission from SUD.

Figure 10: Sample County of Cascade of Care for All Drugs, All Demographics



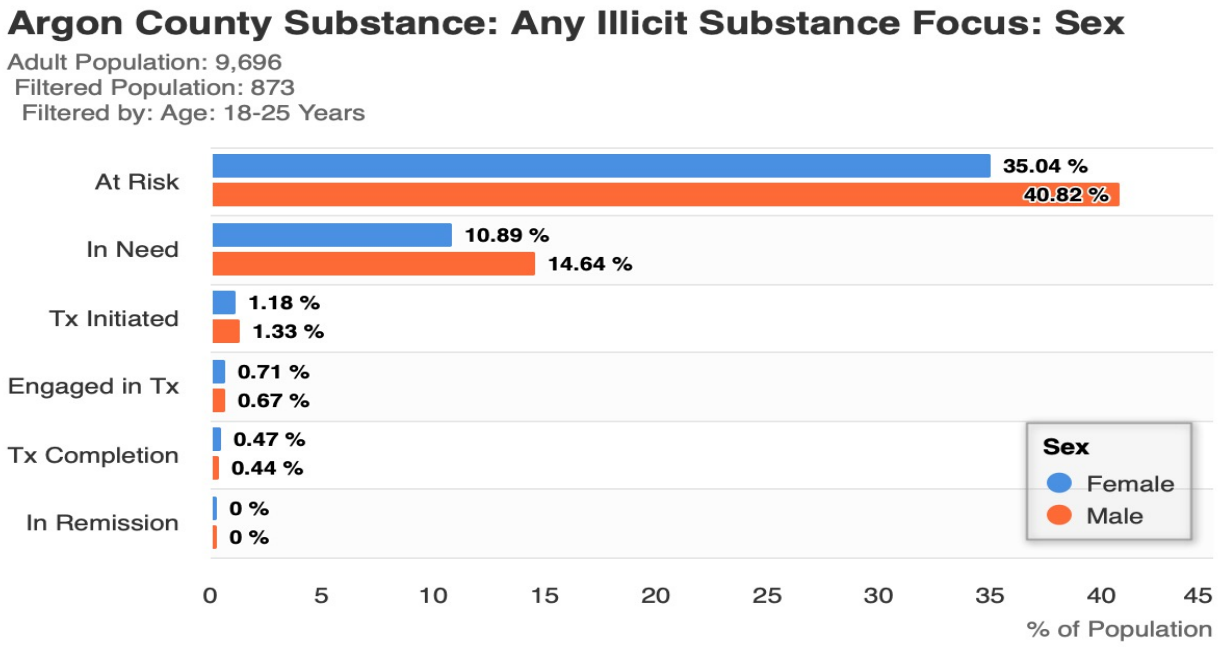
Alex uses the COC Toolkit's Filter and Focus tool that confirms that people age 18-25 in Argon County show higher rates of need for SUD prevention and treatment and supports in the community.

Figure 11: Cascade of Care for All Drugs, Comparing by Age



Alex then compares estimates within this age group by gender and notes that compared to young women, young men show higher rates at each stage of the cascade.

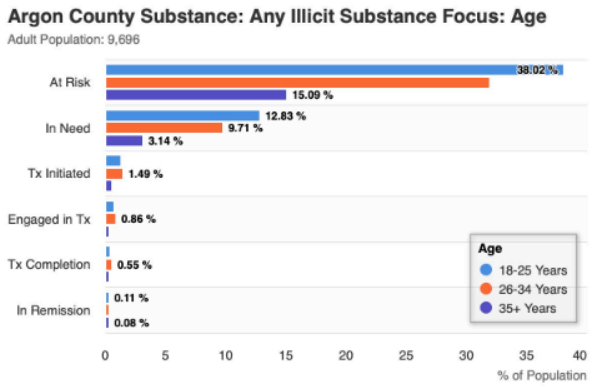
Figure 12: Cascade of Care for All Drugs, 18-25 Year-olds, Comparing by Sex

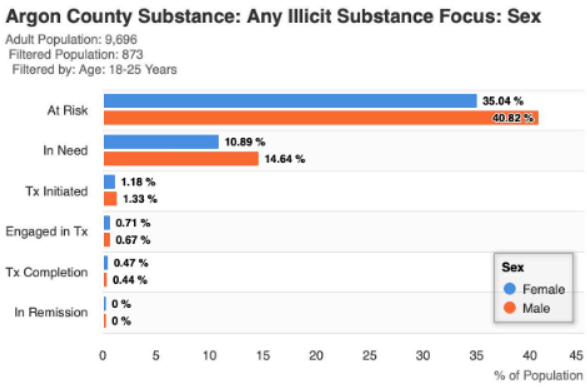


After reviewing the COC Toolkit data, Alex creates PDFs of the graphs and shares them with his team. As they develop their budget proposal, they determine that the county should prioritize people age 18-25 and conduct research on prevention campaigns aimed at this age group, the capacity of the different treatment providers in the county, and the types of outreach that are being conducted. The team develops a presentation that incorporates data and graphics from the COC Toolkit to make their case for additional prevention campaigns and outreach efforts that target this age group.

Figure 13: Slide from the Team's Presentation

Rates of SUD Higher Among Adults Age 18-25 in Argon





Alex and his team are satisfied that they have helped their county's leader make an informed decision about how to allocate funds for SUD preventions and treatment. We hope that the Cascade of Care Toolkit can help you too! Please visit https://cascadeofcare.org/ to get started.

Acknowledgements

Thank you for using the Cascade of Care Toolkit. For questions or feedback, please contact amurph10@gmu.edu. For more information on data sources and definitions, please see the appendices. The Cascade of Care Toolkit was developed with funding from the National Institute on Drug Abuse (U2C DA050097, MPI Taxman and Rudes). The toolkit was developed by Dr. Faye Taxman and Amy Murphy (George Mason University), Dr. Avinash Bhati (Maxarth, LLC), Dr. Ed McGarrell (Michigan State University), and Reggie Craig (Slonky, LLC).

Resources

- For those interested in using the COC Toolkit, we encourage you to access the Toolkit and to register as a user of the COC Toolkit at https://cascadeofcare.org/ and check out other resources on the cascade of care on the JCOIN website at https://www.jcoinctc.org.
- For those interested in learning more about the Cascade of Care model, we encourage you to participate in the following JCOIN online course--JCOIN Virtual Course: Cascade of Care | Coordinating Substance Use Disorder Treatment Services for Justice-Involved Individuals (https://www.jcoinctc.org/courses/cascade-of-care-coordinating-substance-use-disorder-treatment-services-for-justice-involved-individuals/).
- Finally, we encourage you to reach out to the JCOIN Technical Assistance team if you encounter issues or have questions about the JCOIN COC Toolkit. You can submit a request at this link: https://www.jcoinctc.org/tta/. We also encourage feedback and suggestions for how we can improve the COC Toolkit. Please contact Amy Murphy at amurph10@gmu.edu with questions and feedback.

Data Sources

Three primary data sources were used to develop estimates for the Cascade of Care model.

1. NSDUH (National Household Survey on Drug Use and Health -- 2017, 2018, 2019, 2021, and 2022). The 2020 data was excluded because of possible COVID related disruptions in underlying patterns. The NSDUH is a nationally representative, annual survey of households that tracks drug use and health among U.S. residents 12 years and older. Pertinent for the CoC model, the NSDUH contains detailed self-report data on substance use and treatment as well as mental health. It also contains detailed demographic data as well as some additional, partial data on criminal justice involvement. The NSDUH provides useful data on stages 1, 2, 3, and 6 of the Cascade of Care model. All data for persons 12-17 were deleted from the analysis to retain only adults.
2. TEDS-D (Treatment Episode Data Set, Discharges -- 2016, 2017, 2018, 2019, and 2021). The 2020 data was excluded because of possible COVID related disruptions in underlying patterns. TEDS data is a repository of data collected by states for monitoring their substance use treatment services. The underlying data come from administrative record systems maintained by the states. TEDS provides these data elements standardized so that national-level analysis can be conducted. TEDS data are provided as two extracts -- admissions and discharges. The data elements captured in them are identical with two exceptions. The TEDS discharges data contains additional information on (i) the reason for discharge from treatment and (ii) the length of stay in treatment prior to discharge. All data for persons 12-17 were deleted from the analysis to retain only adults.
3. County-Level Data: County-level population counts and estimates were obtained from the U.S. Census. These numbers were further augmented to include economic data from USDA's Economic Research Services – ERS – (education and employment rates by county) as well as mental health related data from the County Health Rankings and Roadmap project.

Definitions

Screening: procedures intended to identify unknown conditions. Screening should be universal, for example, in healthcare, all women are asked questions meant to identify their risk for certain cancers or other health conditions. Screening should use a standardized instrument that consists of a relatively short list of questions and non-clinicians should be able to administer it.

Assessment: comprehensive and multidimensional evaluations intended to produce a diagnosis. Anyone whose screening indicates the possibility of SUD should undergo an assessment. The resulting diagnosis should identify treatment needs.

Identification of need: involves confirming what we learned through the assessment—for example, examining other health records or prior assessments to determine that a need exists.

Referral to treatment: connecting a person to treatment through phone calls, appointments, reminders, and follow-up, performed by a staff member or a referring agency. Without an active referral process or "warm handoff," it falls to the individual or their loved ones to connect to treatment.

Initiation: attending the first appointment with the treatment provider.

Engagement: defined as spending at least six weeks in treatment, attending at least two sessions.

Continuing care: longer-term treatment participation, here defined as remaining in treatment for three months or longer.

Criminal justice-involved: having a history of arrests in the past year or being under probation or parole supervision.

COC Stage Definitions

At risk of developing a SUD: Self report indicator of whether a person used or misused the substance in the past year.

A developed SUD need: Presence of SUD as identified by responses to DSM-V questions (or DSM-IV for the earlier data). The underlying questions used to flag moderate or severe SUD depends on the substance in question. SAMHSA provided a recoded flag that identifies those with a dependence of abuse problem. This flag was used to identify the numerator.

SUD treatment initiated: Whether the person's last treatment episode or the current treatment for the specific SUD was at least 7 days or more. This measure was intended to proxy the fact that many detox programs or emergency facility visits are short and do not constitute treatment. The cut point of 7 days was used to flag those with actual treatment.

Sustained SUD treatment engagement: Whether a treatment discharge resulted after a period of 60 days.

SUD treatment completion: Whether the discharge reason was recorded as successful and the criteria for sustained treatment engagement (the previous stage) was satisfied. Discharge reasons of "treatment completion" and "transfer to another treatment type or facility" were considered as successful.

Remission from SUD: There is no direct measure of remission in the NSDUH or TEDS. Therefore, a proxy was created and used defining remission as the proportion of people with no current SUD risk out of those who ever received treatment for the substance.

References

Belenko, S., Knight, D., Wasserman, G. A., Dennis, M. L., Wiley, T., Taxman, F. S., Oser, C., Dembo, R., Robertson, A. A., & Sales, J. (2017). The juvenile justice behavioral health services cascade: A new framework for measuring unmet substance use treatment services needs among adolescent offenders. *Journal of Substance Abuse Treatment, 74*, 80–91. https://doi.org/10.1016/j.jsat.2016.12.012

Centers for Disease Control and Prevention. (2019, July). *Understanding the HIV care continuum*. https://www.cdc.gov/hiv/pdf/library/factsheets/cdc-hiv-care-continuum.pdf

Clark, K. J., Vechinski, J., Molfenter, T., & Taxman, F. S. (2025). Cascade of care in the legal system: Best practices and goals for agencies providing care to patients concurrently navigating substance use disorders and criminal legal involvement. *Journal of Drug Issues*, *55*(1), 64-88. https://journals.sagepub.com/doi/full/10.1177/00220426231196304

Dennis, M. L., Smith, C. N., Belenko, S., Knight, D., McReynolds, L., Rowan, G., Dembo, R., DiClemente, R., Robertson, A., & Wiley, T. (2019). Operationalizing a behavioral health services cascade of care model: Lessons learned from a 33-site implementation in juvenile justice community supervision. *Federal Probation, 83*(1), 52. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8341285/

Elkington, K. S., Nunes, E., Schachar, A., Ryan, M. E., Garcia, A., Van DeVelde, K., ... & Wainberg, M. (2021). Stepped-wedge randomized controlled trial of a novel opioid court to improve identification of need and linkage to medications for opioid use disorder treatment for court-involved adults. *Journal of substance abuse treatment*, *128*, 108277. https://pubmed.ncbi.nlm.nih.gov/33487516/

JCOIN. (2021, April 16). *JCOIN Speaker Series: Cascade of Care and Practical Applications*. https://www.jcoinctc.org/jcoin-speaker-series-cascade-of-care-and-practical-applications/

JJ-TRIALS Cooperative. (n.d.). *Juvenile Justice–Translational Research on Interventions for Adolescents in the Legal System (JJ-TRIALS)*. National Institute on Drug Abuse. https://www.jcoinctc.org/resources/jj-trials/

Knight, D. K. (2021, April 16). *Using the Cascade of Care to Change Complex Systems* [Conference presentation]. JCOIN Speaker Series. https://www.jcoinctc.org/jcoin-speaker-series-cascade-of-care-and-practical-applications/

Ryan, M. E., Elkington, K. S., Sarapas, C., Sichel, C., Taxman, F., Dennis, M. L., & Wasserman, G. A. (2023). Evaluating e-Connect: Mitigating Race by Gender Disparities in Behavioral Health Referral Among Youths on Probation, Northeast United States, 2019. *American Journal of Public Health*, *113*(12), 1267-1270.

Viglione, J., Rudes, D. S., & Taxman, F. S. (2015). The myriad of challenges with correctional change: From goals to culture. *European Journal of Probation*, *7*(2), 103-123.

Williams, A. R., Nunes, E. V., Bisaga, A., Levin, F. R., & Olfson, M. (2019). Development of a cascade of care for responding to the opioid epidemic. *The American Journal of Drug and Alcohol Abuse, 45*(1), 1–10. https://doi.org/10.1080/00952990.2018.1546862

Technical Appendix

The technical appendix*, Estimating Local SUD Cascade of Care Parameters from National Data* begins on the following page.