

**Medicaid Innovation Accelerator Program Webinar
Using Data to Better Understand Medicaid Populations with SMI**

September 6, 2018

Hannah Dorr, National Academy for State Health Policy opened the webinar and provided instructions on how to participate; she also explained how polls will be taken and how questions will be accepted. (Slides 1 and 2)

DAVID SHILLCUTT: (Slides 3 and 4) Welcome. Today, we will be talking about a new technical resource, or tool, from the Medicaid Innovation Accelerator Program, abbreviated as IAP, that state Medicaid agencies can use to analyze key aspects of their beneficiary populations with serious mental illness, or SMI.

(Slide 5) We will start by talking about what this resource is and why and how it can be useful. Next, we will go into some preliminary considerations about identifying target populations and using claims and encounter data for these analyses. After that, we will walk through the framework for analyses that are covered in the tool to give you a sense of the breadth and depth of the analyses. This will be followed by some perspectives from representatives of three state Medicaid agencies providing similar data analyses that they have done, how these sorts of analyses can be important, and how the tool can be helpful in doing these types of analyses. After that, we will have time for questions and answers. Then we will identify takeaways and provide a wrap-up.

(Slides 6 and 7) I am David Shillcutt from the Medicaid IAP in the Centers for Medicare and Medicaid Services. I have been leading the serious mental illness work for the IAP. Next, we will have Suzanne Fields moderating our discussion. She is a consultant from IBM Watson. Health Management Associates has been our lead contractor for this work and we will be joined by Gina Eckart and Izanne Leonard-Haak who will talk through the tool. Finally, our three state presenters will be Dr. David Kelley from Pennsylvania Medicaid, Dr. James Becker from West Virginia Medicaid, and Dr. Kate Neuhausen from Virginia Medicaid.

As a little background, the IAP is an initiative designed to improve the health and healthcare of Medicaid beneficiaries and reduce costs by supporting states in their ongoing payment and delivery system reforms. It was launched in 2014 as a collaboration between the Center for Medicaid and CHIP Services and the Center for Medicare and Medicaid Innovation, and it is designed to support state Medicaid agencies to build capacity in key program and functional areas by offering targeted technical support, tool development, including resources like this one, and cross-state learning opportunities. For additional details, I encourage you to visit the Medicaid IAP web page. There will be a link provided at the end of the webinar. With that I will turn it over to Suzanne Fields.

SUZANNE FIELDS: (Slides 8 and 9) Thank you, David, for that introduction. To begin we will ask participants to respond to a polling question, the first of several throughout the webinar. We would like to understand the status of state's efforts in this area. Respond with all applicable answers. Please select the types of data analyses your state Medicaid agency has conducted related to your Medicaid beneficiaries with serious mental illness. Has your agency looked at demographic makeup, utilization of services, costs associated with care, other aspects of the work, or have you have not participated in or conducted this type of analysis. For the other category, please provide additional details through the chat box function. We will give you a moment to respond to that polling question.

It looks like a number of states are engaging in or have engaged in looking at the utilization of their services, with over 77 percent doing so. Just over half the states are looking at the demographic makeup as well as the costs associated with care. We also have several states that have looked at other aspects, and we can see through the chat box function that many of you have been looking at emergency department utilization, as well as HEDIS measures and medications. Finally, a percentage of you have not yet conducted analyses in this area. Thank you for these responses. They will help as we move toward a discussion and key considerations to elevate to all of you today.

(Slide 10) Now, let us set the context for today's webinar. There is a shift to value-based purchasing happening across the healthcare sector. For Medicaid, that means it is important to understand the data specific to subpopulations within the total population of Medicaid beneficiaries in your program. Beneficiaries with complex needs are those who, because of their health or social conditions, are likely to experience high levels of costly service utilization and whose patterns of care and of cost can be impacted. A significant subgroup of beneficiaries with complex needs are persons with serious mental illness. This small group within the broader Medicaid beneficiary population accounts for a significant part of the expenditures within the Medicaid program.

(Slide 11) The objectives of today's webinar are to help state Medicaid agencies to identify their adult Medicaid beneficiaries with serious mental illness, such as understanding the size or numbers of that population, the geographic distribution of the population, and other demographic or diagnostic characteristics. We also hope to help identify potential issues within the delivery of care to those individuals and inform potential approaches to address such matters as access to certain services, quality service needs, and service gaps, along with the broader issues of cost and utilization patterns.

(Slide 12) This new technical resource is a starting point for Medicaid agencies to highlight what can be learned from your own Medicaid claims and encounter data for adult beneficiaries with serious mental illness. All these analyses described can be customized to meet your state-specific priorities and state-specific issues regarding your claims and encounter data.

Finally, data from Medicaid claims and Medicaid encounters can be used in collaboration with state behavioral health authorities to further understand service needs, service gaps, access, and quality issues within your program.

(Slide 13) The webinar today is organized to follow the structure of the technical resource that has been developed. We will begin with a discussion of preliminary considerations states will need to address before commencing with any type of analysis. These considerations include things like how to clearly define your scope, claims and encounter data availability issues, and potential use of comparison data. We will then proceed to a discussion of the three types of analysis within the technical resource. These are related to beneficiary data, utilization data, and cost data. The technical resource is a starting point for states to understand the possibilities in terms of what their Medicaid data and encounter data can help them understand.

Within that, though, we will conclude with a discussion highlighting other potential uses of your Medicaid claims and encounter data, and further drill down to deepen the work and potential application of your Medicaid claims and encounter data to specific questions you have about your own program.

(Slide 14) Our first set of presenters include Gina Eckart, Izanne Leonard-Haak, and Dr. David Kelley, who will discuss preliminary considerations for this work.

(Slide 15) GINA ECKART: Our first poll indicated that many states participating today have done some data analysis specific to Medicaid beneficiaries with serious mental illness while others may be in the early

stages of developing an approach. Whether you're just beginning or expanding your analysis of this population, the technical resource provides three primary considerations specific to design. These considerations include:

1. Leveraging an analytic definition of serious mental illness that supports the focus of your state's initiatives or interests
2. Giving consideration to incorporating comparison populations, as these may enhance your understanding of individuals with serious mental illness
3. Understanding the utility of data sets you have access to within your Medicaid agency for analysis

The technical resource provides states with the flexibility to determine the scope of their analysis based on their unique policy questions or concerns. The tool provides a general approach that states can adjust to meet their particular policy and state context. For example, the resource purposely avoids providing a single analytic definition for serious mental illness. In fact, states may leverage the tool to inform an initial analytic definition for serious mental illness rather than utilizing pre-existing state statutory or policy definitions.

If developing a new analytic definition, a state might want to broaden previous diagnosis parameters associated with serious mental illness or use more than one parameter when defining the scope of the target population. For instance, states might consider including a set of diagnoses coupled with service utilization to define the target population for analysis. In fact, an initial run and analysis of data may result in expanding the traditional list of serious mental illness diagnoses from statutory definitions, which may be limited for example to schizophrenia and bipolar disorders; or states may want to consider combining a set of diagnoses with utilization of specific Medicaid Rehabilitation Option services or even pharmacy claims to narrow the analytic definition based on results from that initial review of utilization or cost data. States may also want to allow for further revision of their analytic definition as you examine the results across different focus areas and in later stages of your analysis.

I want to go back because we have acknowledged that many states do have existing statutory or policy definitions for serious mental illness that can also be used for data analytic purposes. But before adopting these definitions for your analytic definition, states should consider if these definitions provide the necessary parameters to capture the scope needed for a thorough analysis of or a query for specific policy considerations. Before adapting a preexisting state statutory or policy definition of serious mental illness for your analysis, you may want to consider the full context of any specific policy questions being asked. For example, if your state definition incorporates a list of diagnoses, is the diagnosis list broad enough to capture individuals with prolonged or intermittent need for services who may fall outside traditional serious mental illness diagnostic categories, such as schizophrenia spectrum and bipolar and depressive disorders?

Another consideration is how the current definition is utilized. Was the state definition initially developed as eligibility criteria for a specific program or another state agency's policy considerations? And, if this is the case, is it intentionally broad or intentionally narrow in response to those specific program goals or requirements?

Lastly, does the Medicaid agency have access to data sets that align with the existing statutory serious mental illness criteria? This will be necessary to allow for identification through available and reportable information. For example, if the statutory definition for serious mental illness relies on findings regarding functional impairment and/or level of care, does the agency have access to data points from a

standardized level of care tool that can translate to specifications as well as identifying data for the population, such as a level of care score from a tool, like CANS (Child and Adolescent Needs and Strengths Assessment) and ANSA (Adult Needs and Strengths Assessment)?

But ultimately, each state Medicaid agency will want to consider a range of factors in determining the scope of their analysis, and the technical resource does support each state's ability to use any serious mental illness definition and related specifications that meet their needs. Back to Suzanne and a poll question.

SUZANNE FIELDS: (Slide 16) Given that in this segment we are talking about preliminary considerations, we are interested in understanding where states are thinking of beginning such work in their own state. We have another polling question. For states just beginning to think about a deeper dive into this data, where might you begin? Would you be looking at a set of diagnostic codes such as for depression, anxiety, bipolar disorder, or schizophrenia? Would you be thinking about refining the target population based on service utilization data, such as persons using inpatient care, outpatient care, or the hospital emergency department? Would you consider refining the target population based on pharmacy claims data, such as use of mood stabilizers or antipsychotics or antidepressants? Are you considering other areas that haven't already been listed? If you're a state not sure where you might begin, we are also interested in knowing that. If you choose the other category, please provide additional details through the chat box function about other types of analyses that would fall under that category. We will give you a moment to respond to that polling question.

We have several states, nearly 55 percent, that are looking at diagnostic codes. About 17 percent of states are looking at refining the target population through service utilization; and about 4 percent are looking to refine the population through pharmacy claims. We have just under 10 percent of states pursuing other means. Through the chat box, we can see people are beginning to consider social determinants of health and other uniform assessment data their state may have. Finally, about 15 percent of states have not yet decided where to begin such analysis. Back to you, Gina, as we continue our discussion of preliminary considerations.

GINA ECKART: (Slide 17) We are going to transition from talking about the analytic definition to talking about another preliminary consideration. A second consideration for states in developing the scope of their analysis is whether there is a benefit to utilizing comparison groups. Comparison groups may be helpful in confirming unique focus areas for meeting the needs of individuals with serious mental illness. For example, a comparison group may include Medicaid beneficiaries who have a mental health diagnosis but do not meet the state's analytic definition for individuals with serious mental illness. While treatment, duration, and cost are not assumed as high for the management of some mental health disorders, the impact of these when considered with other co-occurring medical conditions may be significant related to health outcomes and overall costs of care.

Or you may want to simply leverage a comparison group of Medicaid beneficiaries who do not meet the analytic definition of your target population with serious mental illness. I'm sure many of you on the webinar today are familiar with the National Academy for State Health Policy's 2006 report which highlighted that people with serious mental illness served by our public mental health system die on average 25 years earlier than the general population. Recognizing that 12 years have passed since that report's release, states may want to revisit this data and choose to compare comorbidities among their serious mental illness population and the comparison group.

In addition to these broader comparison groups, you may want to consider comparing subpopulations within the target populations of individuals with serious mental illness with their counterpart

subpopulations in the non-serious mental illness population group. An example might be a comparison of characteristics of individuals with and without serious mental illness who have high utilization of inpatient care or the hospital emergency department. More examples involving subpopulation comparisons will also be provided later in the webinar.

Finally, a state Medicaid agency may also want to consider whether subsets of the population should be excluded from the Medicaid beneficiaries with serious mental illness group and any comparison group due to factors that may impact the results of the data reporting and subsequent analysis. Some examples of these may be individuals who have Medicare coverage or individuals who may have received care in an Institution for Mental Diseases that is not covered under Medicaid authority. In these cases, complete cost and utilization data may not be readily available to the Medicaid agency for use in their analysis.

Izanne will discuss a third consideration, leveraging data sources readily available to your agency.

IZANNE LEONARD-HAAK: (Slide 18) There are three points I would like to make. First, in the technical resource we focus on using Medicaid claims and encounter data because they are readily available and contain good basic information. I'm assuming most of our listeners know that claims data is the information submitted directly to the payer by providers or their agents to document who received a service, who provided the service, what the service was, and when it was provided. In the case of states with fee for service systems, the payer is the state or its fiscal agent. For states with managed care systems, the payer is the managed care organization, or MCO, contracted to the state. Encounter data is the claims-related data submitted to the state by the MCO, so the state has documentation of how the MCO is providing services to Medicaid beneficiaries. Both claims and encounter data contain much of the same information.

The second point we wanted to demonstrate in this technical resource to states is that using just claims and encounter data could provide significant insight into the population with serious mental illness in a state. Our premise is that conducting structured analyses using claims and encounter data in combination with the readily available Medicaid eligibility and provider files can enable state Medicaid agencies to get a pretty good handle on the strengths and weaknesses of your delivery system as it relates to the population with serious mental illness. As noted in some of the introductory remarks today, you can get considerable demographic information, utilization, and cost data, all specifically related to the population with serious mental illness, directly from your claims and encounter data. We are suggesting that if you haven't started to do any analyses, you at least start with claims and encounters.

Third, we urge you to engage your data experts early in the process. It is important that you consider just what data is accurate and reliable within your claims and encounter data. Most states are fairly confident that their fee for service claims data are pretty accurate. Over time you have had enough experience to have cleaned up major flaws. Also, states with a long history using managed care have probably gained more confidence over time with their encounter data. But states new to managed care will need to assess which data elements are reliable. The technical resource is specific about what data is needed, but it is critical that you work with the members of your data team from the very beginning to understand what data you can reliably use in the analyses we suggest in the technical resource.

We have invited Dr. David Kelley, the Medical Director from Pennsylvania's Medicaid program, to share some insights of his related to preliminary considerations when understanding an analysis of individuals with serious mental illness. Dr. Kelley has been part of a group of reactors who have graciously provided us with feedback on early drafts of the technical resource while it was under development. The project he will be referencing was more operational and not statewide, so it is not exactly like what we are

suggesting here, but it did involve some similar considerations and was focused on the Medicaid population with serious mental illness.

DR. DAVID KELLEY: (Slide 19) Thanks for allowing me to share some of our preliminary considerations when we were developing this program several years ago. Again, we started by defining the focus population and we had an agreed upon definition of serious mental illness. We obtained stakeholder input into the program we designed to see if we needed to modify that definition, and we ended up sticking with the state's definition based on ICD-9 (International Classification of Diseases, Ninth Revision, Clinical Modification) codes at the time, now ICD-10 codes. It is important to clearly think in terms of how you are defining the population based on what it is you would like to study.

We are a managed care state, so we had physical health and behavioral health managed care plans working together on this project, and we wanted to make sure there was a common definition. We also wanted to establish some parameters around those individuals with high costs and high needs that have serious mental illness. There was a lot of discussion during this project about those definitions; and while sometimes time-consuming, this discussion is very important, especially when you're thinking about preliminarily evaluating any program that you are going to put in place. In our program we included schizophrenia and bipolar disorder.

We also wanted to think in terms of how we were going to evaluate the effectiveness of the interventions we were making with the program. We took a little different angle here. We had already done some preliminary analyses that showed clearly that individuals with serious mental illness had a lot of comorbidities and were very costly. Knowing this, we wanted to focus on identifying our comparison groups. First, the intervention was in two areas of the state, in the southwest around Pittsburgh, and in the southeast, several counties surrounding Philadelphia. We decided to also look at individuals with serious mental illness and compare those that underwent the intervention between their physical health and behavioral health managed care plans with the individuals that did not have the intervention. Simply stated, we looked at individuals with serious mental illness and compared those with particular interventions to those without interventions.

In the southwest it was mainly an urban population in Pittsburgh; and in the southeast it was more of a suburban and rural population outside Philadelphia. We wanted to design the study to look at individuals geographically – both by area and by urban versus rural/suburban – and we also wanted to compare what was happening to individuals just with serious mental illness that did or did not have the interventions. I will talk about those a little bit later. We used encounter information from our managed care plans, and we have a unified data enterprise warehouse that brings in encounters from both our physical and behavioral health partners, so we were able to utilize that common data encounter set.

Our External Quality Review Organization also has access to our encounters and helped with some of the analysis. We were fortunate to be able to leverage this common data set. To the points made earlier, when you are in the preliminary stages of designing a study, you need to make sure you are actually going to have access to the data that is going to help you evaluate the program. We were fortunate enough to have both the physical health and behavioral health encounter data available, so we could look at levels of care and various data elements across the entire spectrum of care. We also had the capability of looking at costs.

In this program we were very focused on certain outcomes, like emergency department and inpatient care utilization. We were also focused on looking at readmissions, and we leveraged some of our pharmacy data as well. Those were just some of the preliminary considerations we took in as we were in the planning phases of this program. It is important to identify these early to make sure stakeholders

involved in the program understand what the measurements are, they have buy-in on the measurements, and everyone agrees on definitions and the types of data necessary.

IZANNE LEONARD-HAAK: (Slide 20) Thank you, Dr. Kelley. It was helpful to have you reinforce some of the preliminary considerations we have outlined in the technical resource we are introducing today. As I walk our listeners through the framework for the analysis we propose in the technical resource, it will become even clearer why these preliminary considerations will be important for state Medicaid agencies wishing to analyze the population with serious mental illness.

(Slide 21) Let me start by explaining how we have organized the material within the body of the technical resource. There are nine analyses included in the technical resource and they are broken out into three focus areas: beneficiary, utilization, and cost. These core analyses are only suggestions. Each of the core analyses, as Suzanne mentioned, can be adapted to meet specific state needs. They can be modified, combined, built upon, or even dived deeper into.

(Slide 22) Within each core analysis, we have included five parts. In a minute I will walk through one example of the type of guidance we include in the technical resource for each part shown on this slide. Before that, I want to point out the double asterisk in the callout box. All the data in this presentation and in our technical resource is mock data, which were developed so we could illustrate how the sample output might work. You are going to see a lot of tables in the material I will share. We want to make it clear that data should not be used for benchmarking purposes. As discussed earlier, each state will need to define your population with serious mental illness for your own purposes and will apply that analytic definition to your unique population. Our mock examples will not apply and should not be used to draw conclusions related to your own analyses.

(Slide 23) In walking you through an example of the parts we outline within each of the nine analyses, you will note that I am using the analysis which focuses on co-occurring conditions. I am not going to focus on the specific content, as I explained how we put these parts together, but I do want to talk about what the different parts are that we include in each analysis.

The first part in each of the nine core analyses included in the technical resource outlines the questions the analysis will answer. We have tried to be very clear upfront about the primary questions each analysis will answer. Clearly, once the user sees the resulting data it may answer other questions as well as raise additional questions that could merit research.

(Slide 24) We also outline the data needed to complete the analysis. In the example shown here, we include the specific data sets and data elements needed to do the analysis. Note in this example that the user is instructed to use a previously created reference table. This is because the analyses provided in the technical resource often build on each other. This co-occurring condition analysis is actually number four of the nine analyses in the technical resource. The reference to number one is to the first analysis in the series.

(Slides 25 and 26) The third part in each analysis outlines the approach, that is the steps the user would follow to complete the analysis. Again, the steps summarized in the bullets are for the co-occurring conditions analysis and include instructions for calculating the results. This is just a summary of the type of instructions we give in the approach part of each analysis. All of this is high level, but we believe it is sufficient to guide your data analysis in developing the logic to pull the data needed and calculate the percentages, totals, and other formulas.

(Slide 27) In the fourth part of each analysis in the technical resource, we provide a sample output, and that is a suggestion for how the results can be effectively displayed. The user may choose to show the

data in alternate ways depending on the audience or the point you want to emphasize. For example, it might be more effective to use bar charts, graphs or other data to display the information shown in this example. For now, I am just sharing this table as an example of the type of output the technical resource includes. In a minute, I will briefly walk through the sample tables from all nine analyses and will revisit this table to focus in on it a little more.

(Slide 28) The final part included in each analysis provides some guidance on what the results in the output tables might tell you. Of course, in practice the results will also vary by each state, but our conclusions will suggest what you might want to look for in each respective analysis. In our example, you might see early indications of which conditions are possibly driving utilization, or the data might help you understand where targeted interventions or care management programs are needed.

That should give you a sense of the five parts within each of the nine analyses. Now I am going to preview all nine analyses included in the technical resource. I am not going to walk through all parts of all nine. I will just share the primary questions and sample output table from each analysis, so you can get a sense of what the analyses focus on.

(Slides 29 and 30) I am going to begin with the analysis of the beneficiary data. The first four analyses are focused on the beneficiary. As the sample questions on this analysis confirm, we are answering the questions related to count and percent in analysis number one of the adults with serious mental illness as well as for the comparison group. That is what we will be focusing on.

(Slide 31) This is a mock-up of an output table and of how the results would be presented from the first analysis. We believe this information is foundational to all additional data analysis for your population with serious mental illness. Not only do you now have a sense of the size of your population with this table, but you have a definition for the serious mental illness target population for your state Medicaid purposes. In addition, you will also have separated out the claims and encounter information for the population with serious mental illness and the comparison group for use in the other analyses outlined in this technical resource.

(Slide 32) For analysis number two, we are focused on helping you to understand the prevalence of a behavioral health diagnosis included in your definition of serious mental illness. It is recommended that you do analysis number two early in your analytic process as what you learn at this step may cause you to reconsider the scope of your analysis.

(Slide 33) We suggest how you might display the results from analysis number two. Keep in mind that the sample table lists the diagnoses we use in our analytic definition of serious mental illness. Your analytic definition may vary so the diagnoses you include may also vary. Note how this table enables you to view the differences in prevalence of the various diagnoses within the population you have defined with serious mental illness as well as the comparison population. And on the far right, the table displays the prevalence of each behavioral health diagnosis in the population as a whole.

(Slide 34) We have used the same mock data you saw on the previous slide to develop some sample outputs but have demonstrated how the outputs might be displayed differently depending on your audience or the point you want to make. Comparing the distribution of behavioral health diagnoses between the population with serious mental illness (the left bar) and the comparison group (the right bar) may help you understand how to target interventions. For example, a state may want to develop specialized programs which target the population with serious mental illness where the prevalence of diagnosis is high among the population with serious mental illness. On the other hand, where the prevalence is similar among the population with serious mental illness and in the comparison group, interventions might be more generally applicable.

(Slide 35) The third analysis in our technical resource focuses on providing a demographic profile of the adult population with serious mental illness. You can see the questions in this analysis focus on age, race, gender, and delivery systems.

(Slide 36) We show the sample output to the analyses from analysis number three. Each of the categories in the left-hand column can be modified for a given state's purposes. For example, your state might break out the age ranges differently or prefer a unique distribution of race. But all categories included can and should be adjusted to reflect your population and need. Your state may also wish to break out additional categories such as populations in Medicaid waiver programs or in health homes.

(Slide 37) Moving to analysis number four, you will recall that I showed the sample questions in this analysis earlier in the presentation. I have included them again to reinforce the fact that this analysis would not be completed until you have at least done analyses number one and two. And waiting until you have completed analysis number three, the demographic analysis, may be helpful in determining if you want to break out the results of your co-occurring conditions analysis by some of your demographic categories.

(Slide 38) I have provided the same sample output I shared earlier, but this time I want to point out that we selected the co-occurring conditions for this mock analysis. Your state Medicaid director or clinical team may suggest including other diagnoses or excluding some for purposes of your analysis.

Back to the point I made previously about breaking the data out by some of your demographic categories, this table could also be very useful if you produced it by gender or by ethnicity or by geographic areas, as Dr. Kelley suggested that Pennsylvania did for their analysis.

(Slide 39) Outputs from the previous table can also be displayed as a bar chart. Regardless of whether a data table or a bar chart is used, examining the prevalence of selected co-occurring chronic physical conditions can inform initiatives for population health management strategies. If a particular physical health condition is more prevalent in the population with serious mental illness, this may be an important factor for the state to consider when prioritizing conditions specific to disease management within your integrated physical and behavioral health program. Tables like this may also be useful in encouraging collaboration between your physical health and behavioral health colleagues.

(Slides 40 and 41) The next three types of core analyses we suggest in the technical resource look at service utilization. In the fifth analysis we look into the top procedures used by the population with serious mental illness and contrast those service utilization figures with the service utilization by the comparison population. We also suggest that the output be converted to a units per thousand rate to make it easier to see the differences in usage between the serious mental illness population and the comparison group.

(Slide 42) We have provided the sample output for analysis number five. When used in a specific state, you may choose to display more or fewer procedures than shown here, and certainly the procedures at the top of your list may vary as utilization patterns vary significantly by state and population. But note how calculating the per thousand rate shows more clearly and dramatically the difference in usage.

(Slides 43 and 44) Moving to the sixth area of analysis, we focus on selected behavioral health services, largely those provided in a community setting. The purpose is to see whether there may be service gaps. In the sample output from analysis number six, you see displayed procedures our team suggested for inclusion in this analysis. Each state will want to consider if these are the appropriate lists for your purposes. Utilization of key behavioral health services among the population with serious mental illness may serve as an initial indicator of the adequacy of behavioral health provider networks or provide insight into whether there is an appropriate balance between acute and non-acute services. Again, breaking this

information out by geographic or other ways may further enhance the ability to see variances in utilization and if there is over- or under-consumption of services in some areas.

(Slides 45 and 46) In analysis number seven, we zero in on inpatient stays. Looking into this data may provide insight into the availability of specific physical or behavioral health outpatient services, both preadmission and post-discharge. Looking at this sample output may also help the state Medicaid agency understand whether beneficiaries with serious mental illness are prone to longer lengths of stay than in the comparison group; notice that we are showing outputs for three different types of facilities. For example, if the average length of stay in an acute inpatient setting is longer for beneficiaries with serious mental illness, it may indicate the need for improved behavioral health support post discharge. As noted previously, a state can dig deeper on any of the core analyses we suggest in the technical resource. In this case, you may wish to add readmission rates as another dimension to the results of the analysis in number seven, and readmission data is available in the claims and encounter data.

(Slides 47 and 48) The final section of analysis in the technical resource focuses on cost. Of course, cost information can be added to the other analyses presented, but there are some specific analyses we are going to suggest in the next two analyses. As indicated in the sample questions for analysis number eight, we suggest breaking out the cost data between duals and non-duals. The dual eligible population—i.e. those beneficiaries who are eligible for both Medicare and Medicaid—may have sufficiently different Medicaid services and cost profiles. As such, separating them out may help in designing more focused policy and care management approaches.

(Slide 49) Our first output table for analysis number eight shows the cost for non-duals. You will notice this table is laid out differently than the other sample tables in this technical resource. It reads down. The first line shows the total Medicaid population; the second line shows the comparison group; the third line shows the adults with serious mental illness; and then we break out some specific diagnoses. As you read left to right you will see total annual expenditures, annual average expenditures per beneficiary, and the monthly per member per month. These types of analyses can help Medicaid agencies identify if a specific diagnosis should be the focus of initiatives which could emphasize preventive care and early interventions, such as behavioral health homes or co-located behavioral health and physical health services.

(Slide 50) The next table is also an output of number eight but includes data results just for the duals because we believe by examining these costs states can better understand which populations and which behavioral health conditions may be having the greatest impact on total cost of care for duals. As with all the core analyses we include in this technical resource, states may want to dive deeper. For example, the state Medicaid agency may want to perform this cost analysis on dual eligible Medicaid beneficiaries who reside in nursing homes as the facility cost may be inflating the total cost of care.

(Slides 51 and 52) The final analysis in the technical resource looks at the total cost for the top services or procedures for the population. The analysis in number nine is very similar to the analysis in number five, which looked at volume, but in this case, we are putting an emphasis on cost because you will get a different perspective. In our sample output from the final table, number nine, we display 10 services, but the user might want to display more or fewer services than we have. By examining service level expenditures, the state Medicaid agencies can determine which services are driving higher costs for the serious mental illness population and consider developing interventions specifically targeting those services. For example, if ground ambulance mileage was an outlier for the population with serious mental illness, rather than making broad changes in ambulance transportation policy, the state might focus on the specific transportation needs of the Medicaid beneficiaries with serious mental illness.

As I wrap up this series of snapshots on the technical resource, I want to emphasize that this table and all the core analyses included can easily be combined with other analysis in the resource or can be the basis for deeper dives into the data related to the population with serious mental illness. Back to Suzanne Fields.

SUZANNE FIELDS: (Slide 53) Our presenters for the next segment are: Dr. James Becker from West Virginia Dr. Kate Neuhausen from Virginia, and Dr. David Kelley from Pennsylvania. Each of these individuals serves as the medical director in their respective Medicaid agencies, and while none have completed the specific analyses discussed in the webinar and described in the technical resource, each has conducted aspects of these analytic approaches for their respective states, either for the population of persons with serious mental illness or for a similar high-cost high-needs subset of beneficiaries with complex needs. Also, each of these individuals was part of an initial review for the technical resource. Each will provide brief insights from their own analytic efforts in their state as well as perspectives on how such a technical resource could assist others. Each will present in turn. Now Dr. James Becker.

DR. JAMES BECKER: (Slide 54) I was invited to be a reactor and my reaction is I wish I had this system five years ago to work with. But I am happy to talk about the efforts we have made in West Virginia to handle data related to the serious mental illness population. We started in 2011, analyzing data in our system, mainly claims and pharmacy data, for the purpose of making coverage decisions, tracking trends in care, anticipating what our exposure would be in the future on certain new therapies, and to really assess the availability of coverage for some of the individuals in the more rural areas of West Virginia.

What I want to talk about this afternoon are the efforts we made with our Health Homes. West Virginia got involved in the Health Homes State Plan Option created under the Affordable Care Act starting in 2014, and initially we started out with a pilot project. We did not see a way we could really do a full statewide Health Homes program, so it was very important for us to be able to take the serious mental illness population and do some data analysis to figure out which vulnerable population we really wanted to concentrate our effort on. We did that based on high-risk behaviors, disease rates and what we could see out of our claims data. Unfortunately, we did not have access to a lot of encounter data to help guide us on this. But by merging our pharmacy data and claims data we were able to extrapolate and produce better information than would have been contained in the encounter data.

One step we took when developing a Health Homes model was to engage a contractor to collect key elements of the clinical data out of the office notes of the mental health practices, so we could have the information we at least felt was essential to guiding the Health Homes program. Program design was one of the first things we used our serious mental illness data for.

The second thing we did with the data was to attempt to analyze utilization patterns, and we used those utilization patterns to decide what regions of the state would benefit the most from our Health Homes program. The Health Homes program we designed was one around the bipolar population and their risk of viral hepatitis. Everyone will understand that that is a really challenging combination and also a challenge to the system because of the high cost of treatment for viral hepatitis.

Finally, we analyzed the beneficiaries for their co-occurring conditions. A new Health Homes program was implemented two years ago, and we looked at things like obesity, pre-diabetes, diabetes, comorbid depression, anxiety, and substance use disorder.

(Slide 55) This is an example of early data in 2014 that reflects the percentage of Medicaid beneficiaries with a serious mental illness diagnosis, by county in West Virginia. You can see certain counties have fairly high rates, and some of those counties are in the more rural areas of the state and areas where access to mental health services is not as readily available.

(Slide 56) One of the things we chose to do was look at the distribution of mental health clinics, psychologists, and behavioral health and social service providers so we could take the population that we were considering enrolling in our Health Homes care coordination model and actually find counties where they would have the highest likelihood of being able to obtain the services that we thought were going to be necessary to change the pattern of utilization and ultimately to change some of the spend for the high-cost patients that carry the serious mental illness diagnosis.

(Slide 57) This is a little summary of what happened with the first program, lessons learned and what we anticipate in the future. In the first year of the initial Health Homes program, which was the pilot program regarding bipolar disorder, we enrolled 1,500 patients who had that diagnosis and we offered care coordination to that group. We also had a control population in another part of the state that was not eligible for the care coordination services as described in the State Plan Amendment. Patients who stayed continuously engaged for 10 months or more had significant savings when we compared their spend trends to their historical spend and also when we compared it to the control population in the area where the care coordination services were not available under the Health Homes model.

The lessons I think we particularly learned from this were that we wanted to screen carefully for outliers. One of the things we learned early on from our data was that high utilizers are not all equivalent high utilizers. There are some people at the high end of the curve whose high spend is actually a consequence of the multiple complex chronic, and comorbid conditions they have along with very serious mental illness. Looking for outliers became important for us. Not every high utilizer is in that sweet spot for changing behavior.

The second lesson we learned was that you have to look for misleading data within the data set and sometimes there are things that deserve more exploration. I think we saw some examples earlier on in the templates presented as models for how to do this, but I think it takes time to sit down and analyze that data and figure out what groups seem to be most opportune for the interventions planned.

Third, it is important to define what you want to call high utilization. That became obvious when we did our work with the patients with anxiety and substance use disorder, because if you simply count the number of office visits, those patients are going to have quite a few office visits if they're in active treatment in something like a Medication Assisted Treatment program.

My final lesson learned on this was that it is really important to work the data and test the data frequently and not wait for perfection. We found it was better to pull data starting in 2011, then ask why it seemed right and why it did not and work it continuously, trying to understand what we were really getting out of the data sets we were collecting. Now Dr. Neuhausen.

DR. KATE NEUHAUSEN: (Slide 58) I will be talking about data in a slightly different context. Virginia has not done an analysis focused on serious mental illness. I also would love to have data like this in hand. But where we have used data and are using data on an ongoing basis to improve our program is in our treatment of Medicaid members with substance use disorders through our Addiction and Recovery Treatment Services (ARTS) program. We initially used data not nearly as in-depth as this serious mental illness analysis but performed some high-level analyses to identify our population with substance use disorder. We were able to obtain general funds from our legislature to support and enhance substance use disorder benefits by showing the extent to which members with substance use disorder were driving emergency department and inpatient hospital costs. Then we focused on the geographic hotspots where we had the highest number of Medicaid members with substance use disorder and the highest death rates for fatal overdoses. It was very helpful to make the case that Virginia needed a more robust addiction treatment program.

Regarding this use of data with our legislators, we were particularly indebted to Virginia Commonwealth University, our state university partner. They created a brief using Medicaid claims data to identify the economic impact of the opioid crisis on the Medicaid program, and that helped create more of a sense of urgency. Based on the data and the case that was made, our General Assembly allocated \$22 million for Medicaid to implement a comprehensive continuum of evidence-based addiction treatment services based on the American Society of Addiction Medicine National Criteria in April 2017.

Throughout the implementation, we used data as a lever to recruit providers, so one of the most important analyses we did was drilling down and looking at the Medicaid members with substance use disorder and opioid use disorder by city and county. We shared that information with providers, with Federally Qualified Health Centers, and with hospitals, to show them there was a demand for these services. That helped them make the business case to their leadership to expand addiction treatment. We think that was fundamental to our successful increase in providers.

Virginia Commonwealth University (VCU) is now looking at our Medicaid claims data to evaluate the program and we meet weekly with them to look at data and see how to improve our program. They just produced their one-year evaluation, which showed a 173 percent increase in providers treating Medicaid members with substance use disorder. We went from about 1,000 providers submitting claims for Medicaid members with substance use disorder to about 3,000. We have had a dramatic increase in the number of Medicaid members with substance use disorder receiving treatment. The number is up by about 16,000, from 12,000 in the year prior to ARTS to almost 30,000 in the year after ARTS, and about a 50 percent increase in Medicaid members with opioid use disorder receiving treatment. We have also been able to demonstrate a 25 percent decrease in Medicaid members with opioid use disorder visiting the emergency department.

(Slide 59) One area for which I received data during the evaluation that I wish I had had during the design related to pregnant women, data that we obtained through a more recent deep dive. This chart shows a table from VCU where they looked at pregnant Medicaid members with substance use disorder in the year prior to ARTS, so March-April 2016 to March 2017, and then the year after ARTS. We found in the year prior to our ARTS program only 2 percent of pregnant women covered by Medicaid with substance use disorder were receiving treatment, and that increased to 18 percent in the year after ARTS. This was a dramatic increase, but I think if I had known when we were designing the program that only 2 percent of pregnant women were receiving treatment, we would have designed very specific interventions around pregnant women with substance use disorder and substance-exposed infants. After the fact we are going in to add more intensive services that would have been easier to implement upfront if we had had this data.

(Slide 60) Again, I think the lesson learned is that when Medicaid agencies implement new programs, it is really helpful to use upfront data such as we have seen in this serious mental illness analysis, which really detailed and helped target the program based on data and made sure that programs and interventions are effective. I think one of the reasons we did not have these data capabilities before is we did not have an enterprise data warehouse, which we are building now, that is going to house all our encounter and claims data. We are looking at connecting to other data sources, like bringing in public health vital statistics data such as fatal drug overdose data. We are bringing in real-time emergency department admission and discharge transfer fees, lab data, data on social determinants of health such as housing, and comprehensive health risk assessment data. We will be using that to populate our population health dashboards and to inform our future program design and implementation. Back to Dr. Kelley.

DR. DAVID KELLEY: (Slide 61) I previously described our program considerations, but one thing I did not mention earlier was that we purposely excluded the dually eligible Medicare-Medicaid beneficiaries from

our analysis because we did not have timely access to Medicare data and our managed care plans did not have the dual eligibles as part of that program except for children under 21. So, again, you have to think about what data are actually available.

For the pilot we did several years ago, we basically worked with our physical health and behavioral health plans to first identify individuals with persistent serious mental illness, and then we worked together to stratify these individuals into high-cost, high-need categories. We also worked together to develop joint care plans between the physical and behavioral health managed care plans. We required that each of the managed care plans participating in both the southeast and southwest parts of the state do this for 1,000 patients in each of those zones.

(Slide 62) We also asked the plans to within one day notify each other of hospitalizations of individuals that either had a physical health or behavioral health hospitalization, and we asked them to do that 90 percent of the time. In the southeast and southwest, there were also different interventions they were allowed to do, using patient navigators to more fully engage individuals into treatment either at their mental health centers or within their patient-centered medical homes. That is a little bit of intervention, but we wanted to make sure we were doing an analysis to see if these interventions were helping. This table demonstrates some of the differences we saw.

As I mentioned previously, we had a comparison group of individuals that had serious mental illness living in those regions that were not part of the intervention. You could see there were declines in the southeast in emergency department visits in the pilot population, while there was a fairly significant increase in the southeast in the comparison group in emergency department visits. In the southwest we saw again declines in emergency department visits, but we also saw a decline in mental health hospitalizations and all-cause readmissions. This demonstrates the beauty of having a comparison group because you can draw inferences based on what is happening within your intervention and what is also happening to that comparison group. There is a web link on the slide that details this specific study. Back to Suzanne for questions and answers.

SUZANNE FIELDS: (Slides 63 and 64) Thank you, Drs. Becker, Neuhausen, and Kelley for your insights into your analytical approaches. We would like to open up the webinar to questions from participants through the chat box. For our final polling question, please select the types of additional analyses related to the population with serious mental illness that would be most helpful to you. Check all that apply: provider access; deeper dive into service utilization, hospitalizations, readmissions and emergency department use; medication utilization; corrections; and other. For the other category, please provide additional details using the chat box function.

From the poll results, we can see the additional analyses that would be most helpful to the states. We have about 78 percent of states looking for additional details about hospitalizations, readmissions and emergency department use. We have about 57 percent of states looking at provider access. We have 63 percent looking at service utilization. We have a small percentage looking at corrections. I can begin to see for those of you who looked at and responded to the other category kind of the convergence with the substance use disorder data would be helpful as well. We appreciate this input as considerations are given to other ways the Innovation Accelerator Program could be helpful.

We have received several questions. Some are specific to the analyses within the technical resource and others to insights by Drs. Becker, Neuhausen, and Kelley. First, we will address questions about the technical resource and the presentations.

As the first question, what was discussed very much focused on the use of claims and encounter data and did not necessarily include analysis based on other data. Can you address that issue a bit and why this technical resource set out to look at claims and encounter data?

IZANNE LEONARD-HAAK: I will tackle this question first. We did look broader to see whether there was a way we could suggest to states they bring in things like social determinants of health and other types of data. But in checking we found that most states did not have a readily available means of bringing in that kind of data or the actual clinical data, and that the only data that was readily available in most states was claims and encounters. That is why we have emphasized throughout this webinar that we think you can still get a pretty good handle on the serious mental illness population, their needs, and some of the problems with getting services to them, by looking at the claims and encounter data, because we wanted states to go ahead and try to do an analysis to better understand this high-cost, high-need population. But there is no question that if you have other data available and can pull it into your analysis, we think that would be great. It is just that it is not always easy. We have heard people talk about using Z-codes for functional assessment but even there our understanding is that this data is not recorded consistently enough yet so may not be really good for these types of analyses. So, we do encourage it. We do not want people to wait until they have all the perfect data. Go ahead and try to get a better handle on the types of problems around accessing services or getting the services they need to help the population with serious mental illness, because they are a critical group.

SUZANNE FIELDS: Gina, anything to add?

GINA ECKART: No. I think Izanne did a great job answering the question. Just to reiterate, we wanted to make sure the tool included data sets that all states had access to and would still produce relevant information for any kind of data analysis.

SUZANNE FIELDS: Thank you both. As we are talking through what the technical resource was built on, which is the claims and encounter data, we also recognize that there are contextual factors, so we are seeing several questions coming in related to issues about social determinants of health. As such, why did the technical resource not suggest some specific data sources or data approaches regarding inclusion of social determinants in any of these analyses?

IZANNE LEONARD-HAAK: I will take a stab at this one. I can't emphasize enough that we do think social determinants of health have a significant impact on this population, but we are not sophisticated enough yet, at least I believe that to be the case in many states, to be able to harness that information and bring it in to these types of analyses. It is much more labor intensive to try to pull together that kind of information. So, we focused on what we thought was doable.

SUZANNE FIELDS: Dr. Kelley, as we reflect upon your insights and efforts, do you have further reflections on the social determinant of health issue as it related to what you learned from your work?

DR. DAVID KELLEY: I think that increasingly providers are using things like Z-codes but, as Izanne mentioned, that is not widespread at this point. I think there are other resources available to collect data, for example in care management software managed care plans may have access to that would enhance the understanding of what exactly is happening to members. However, that information may not always be available to the state Medicaid agency, hence a challenge. Some states may have initial health risk assessments that are required and perhaps in electronic format. This data may include certain aspects of social determinants like housing stability or food security. These are some additional examples, but I think as Izanne mentioned, these data may not be readily available to the state Medicaid agencies.

I know one of the things we have looked at in Pennsylvania is linking to our feeding programs and our other programs around food security, to get a better understanding of the individuals taking advantage of those particular state or federally funded programs that we have access to from a data standpoint. But then a lot of it comes down to what data is available within your state. We have some limited housing information through working with our county partners, but again many states may not have that in some type of standardized format. There are other databases available and states should consider them, but I think the purpose of today's discussion is really to look at what is uniformly available to most Medicaid programs.

SUZANNE FIELDS: As we think about beneficiaries with serious mental illness, Izanne, you had mentioned the adult duals population. Could you explain again what you offered related to how the adult duals population with serious mental illness could potentially skew the results of the cost analyses? Could you help us also understand how that skewing may potentially impact some other data tables as well?

IZANNE LEONARD-HAAK: One thing about the duals is they are likely to incur extended skilled nursing stays, so that information could skew the results if you included them with the non-duals. In addition, some of the duals' outpatient services, including services in the hospital emergency department, may be covered by Medicare, so you really need to pull them out and look at them separately. If you look at data for the non-duals independently, you should be able to get a good feel for that population's service use and how you can work with them and develop the appropriate interventions for them, and then look at the duals as a separate group. Even within the duals group you may want to pull out some subsets. And sometimes when you are trying to analyze the duals, it depends on whether you have access to the crossover claim services and costs, too. That could make a difference in the result. So, separating them out might just be a cleaner way to be able to focus in on the appropriate interventions.

SUZANNE FIELDS: Regarding the tool and tables as well as the information you presented on utilization data and analyses of utilization, are there specific services that would be most helpful to select for utilization analyses for both a comparison and a control group?

IZANNE LEONARD-HAAK: We are suggesting that you might look at emergency department services, inpatient care, readmissions, and similar or related services, as those are more likely to indicate where there may be problems. One thing I want to emphasize is that sometimes when you are looking at inpatient or emergency department usage, it is really telling you more about what is occurring on an outpatient basis rather than in the inpatient setting. It may be what services are missing before the individuals even get to those points. Then, when it comes to readmissions, it may be that the individuals are not receiving the necessary services following discharge. And sometimes the data will tell you whether there are primary care providers or specialists available to meet the needs of the population with severe mental illness.

SUZANNE FIELDS: Most helpful. Dr. Becker, could you revisit and expand on how you address the issue of outliers or misleading data, and how and when during the analytic process did you encounter that challenge?

DR. BECKER: We first encountered the issue when we were doing a high utilizer project statewide with several of our academic medical centers. What we discovered was that we had patients who appeared to be high utilizers of services, and for a variety of complicated reasons they were high utilizers that were predictably high utilizers. One of the most straightforward examples would be someone who is schizophrenic with end-stage renal disease and who is having dialysis, and who is probably decompensating periodically so requiring emergency department services. Individuals with that level of complexity pose a problem when you are trying to analyze the data because they fall out at the extreme

end of the curve. Another example occurred when we tried to look at assessments and laboratory services that were done for patients in treatment for substance use disorder with comorbid conditions like bipolar disorder and schizophrenia. This told us that utilization patterns need to be evaluated in the context of the full problem set for the individual.

SUZANNE FIELDS: Thank you. Dr. Neuhausen, we have a question for you. You described your analysis specific to persons with substance use disorder, but we are seeking your insights about the application or inclusion of substance use disorder data as people pursue or potentially consider some drilldowns related to their population with serious mental illness. Could you offer insights about inclusion of the substance use disorder data as states consider those potential drilldown areas?

DR. KATE NEUHAUSEN: Are you speaking specifically to people with serious mental illness with substance use disorder comorbidities or just looking at the substance use disorder population in general?

SUZANNE FIELDS: The serious mental illness population with substance use disorder comorbidities.

DR. KATE NEUHAUSEN: One interesting finding we looked at is opioid pain reliever prescriptions, and we have seen about a 27 percent decrease in opioid prescriptions overall since we implemented the Centers for Disease Control and Prevention's Opiate Prescribing Guideline. One of the most interesting analyses we did was to look at the percent of members with different chronic disease diagnoses on opioids, and we found that 49 percent of our population with serious mental illness had an opioid prescription, which was the highest of any chronic condition. That is consistent with national data, that about 50 percent of the population with serious mental illness is taking an opioid pain reliever. So, there is a lot of potential in Medicaid to look at your serious mental illness population and the rate of opioid prescriptions among that group if that is an opportunity. I also think if you look at comorbidities with serious mental illness and substance use disorder, we have seen about a 10 percent comorbidity. We also looked at the population with serious mental illness and a substance use disorder, and it was about 10 percent compared to about 5 percent of our population with chronic physical illness that had a substance use disorder. So, there are some interesting analyses that can be performed.

One interesting analysis could include pregnant women with comorbid serious mental illness and substance use disorder, because this is a population that could really benefit from a maternal health home and would need intensive care coordination. Again, I would say that while we have not done a specific deep dive, as we looked at the interface of serious mental illness and substance use disorder with other conditions through the comprehensive overall evaluation of our program, we have seen a number of interesting findings.

SUZANNE FIELDS: (Slides 65 and 66) Very helpful as states consider those potential drilldowns. Now summarizing some key takeaways:

- It is important for state Medicaid agencies to find ways to better understand their adult Medicaid beneficiaries with serious mental illness.
- The types of analytic approaches described in the technical resource and highlighted in the webinar today support states to identify ways to provide appropriate care and implement approaches that can positively impact these high-cost high-need beneficiaries.
- As highlighted by our panelists from Pennsylvania, West Virginia and Virginia, these approaches can aid in identifying opportunities for impact that might otherwise not have been identified, can potentially confirm existing assumptions that are right on the money, or potentially allow you to get

data to shift assumptions to inform effective approaches for your Medicaid agency and toward reaching your goals.

Now back to David Shillcutt from CMS for closing remarks.

DAVID SHILLCUTT: (Slides 67 and 68) We would like to remind the listeners on today's webinar of our website, where you will find the serious mental illness Data Analytic Resource. There are several other interesting things on this site. You can see on the left-hand side of the page the four program areas under the Innovation Accelerator Program. The serious mental illness Data Analytic Resource and related resources will be posted in the section on improving care for Medicaid beneficiaries with complex care needs and high costs. There is also a wealth of resources around substance use disorder, community integration through long-term supports and services, and physical and mental health integration. We also have four functional areas where you can find additional resources regarding data analytics and value-based purchasing, among other topics.

We will be sending out a link to the tool when it is posted. Please stay tuned for that email.

Thank you to all presenters and participants. Please let us know of any questions about this technical resource or any other Medicaid Innovation Accelerator Program resources or programs. Our contact information is MedicaidIAP@cms.hhs.gov.

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