

## Medicaid Innovation Accelerator Program Data Analytics: State Learning Webinar #10 Transcript

### Resourceful Data Analytics: Leveraging Accessible Tools and Techniques to Translate Results Into Action

Webinar Date and Time: August 5, 2020, 2:30 PM–4:00 PM ET

#### Welcome/Webinar Logistics

OLIVIA REDING: Hello, everyone, and welcome to today's Medicaid Innovation Accelerator Program, or more commonly known as IAP, state learning webinar, **Resourceful Data Analytics: Leveraging Accessible Tools and Techniques to Translate Results into Action**. My name is Olivia Reding, and I am a Research Project Manager with IBM Watson Health, which is supporting this technical assistance opportunity. [Webinar Logistics] For today's webinar, all participants are on muted lines. To submit a question during the webinar, please use the chat box on the Webex platform. Be sure to expand the chat panel on your screen or click on the ellipsis icon if you do not see the box. There will be three Q & A [question-and-answer] segments during the webinar, where today's presenters will respond to your submitted questions. Additionally, the slides, recording, and transcript from this webinar will be posted to Medicaid.gov within a few weeks of the webinar. And, without further ado, I'd like to pass the presentation to Keith Branham, from CMS [Centers for Medicare & Medicaid Services], to welcome today's attendees. Keith?

#### Welcome and Overview; Purpose and Learning Objectives

KEITH BRANHAM: Great; thanks, Olivia. Welcome, everyone, to today's webinar. My name is Keith Branham. I work with the CMCS [Centers for Medicaid and Children's Health Insurance Program Services] Data & Systems Group as a Research Analyst. My role is really with the Medicaid IAP Data Analytics team. I work to coordinate and plan the state learning webinars.

(next slide) The title, as Olivia mentioned, of today's webinar is **Resourceful Data Analytics**. Our goal is, essentially, that we'll be going over various data analytic and visualization platforms and talking about some of the benefits, challenges, pros, and cons to each. Those five are essentially Excel®, Tableau®, SAS®, and then open source platforms, including R and Python. Additionally, we're going to hear from two state Medicaid agencies, Iowa and Oklahoma, about their experience with the program using some of these data analytic tools.

(next slide) We're really excited for today's webinar. We originally planned to do this in the spring but because of coronavirus we had some delays. But, thankfully, we're able to do it now. Based on registration, we have seen a lot of interest in the webinar. I believe we have somewhere around 950. So, we would like to get some idea of who's joining today's webinar, so we have a polling question; we can open that now. We'll give it about a minute and look at the results.

#### Polling Question #1

KEITH BRANHAM: We have 424 participants, about 38 percent of which are from state Medicaid agencies, about 8 percent from other state agencies, 16 percent from state contractors or vendors, and then 23 percent nonresponses. Kristin, any standouts in the 16 percent of "other"?

KRISTIN SCHRADER: There were several responses from other organizations, including some other government agencies such as ASPE [Office of the Assistant Secretary for Planning and Evaluation] Office of Health Policy, Virginia University, HHS OIG [Department of Health and Human Services Office of the

Inspector General], and the Office of Behavioral Health. There were also a couple of nonprofit organizations as well as some health care organizations on the line; just a variety of different state offices look like they are also represented here, as well as managed care organizations are on the line.

KEITH BRANHAM: Excellent, so quite a variety of representation. That's great. Okay, so we can move onto the next slide.

## Agenda and Speakers

(next slide) A brief agenda for today. I'll start by introducing our speakers and giving a short overview of the Medicaid IAP program. We'll have three presentations today. Our first speaker is going to be going over those analytic tools I talked about and considerations and best practices. Then, we'll hear from our two state speakers. First up will be Oklahoma Health Care Authority and then the second will be Iowa Medicaid Enterprise. As mentioned before, we'll have some Q & A between each presentation and then at the end have a larger Q & A for all presenters. Finally, I'll wrap up with a few key takeaways at a high level.

(next slide) Our first presenter is from IBM Watson Health, which is CMCS's main contractor for the Medicaid Innovation Accelerator Program's Data Analytics component. That will be Shannon Harrer, the analytics lead with IBM. Our second presentation from Oklahoma Health Care Authority will be done by Ryan Nelson, a clinical outcomes analyst. Then, we have a few people from Iowa Medicaid Enterprise. First, Kimberly Köehler, who is the data analytics team lead.

(next slide) Also from Iowa we have Regina Kling-Navratil, a data analyst there, Bob Schlueter, who is a business analyst, and Mike Egan, who is a member/provider analyst.

## Overview of Medicaid IAP

(next slide) This webinar is produced through the Medicaid Innovation Accelerator Program, or IAP for short. IAP is a cross-center collaboration at CMS intended to support state payment and delivery reform efforts. We are in the data analytics functional area, and one approach we use to increase data analytic capacity in state Medicaid agencies is to host learning webinars like the one today on data-related topics that are relevant across a wide range of state Medicaid agencies. With that, I'll pass to our first presenter, Shannon Harrer.

## Considerations and Best Practices for Analytic Tools

SHANNON HARRER: Thanks so much, Keith. Welcome, everyone, and thanks for joining. My name is Shannon Harrer and I am an Analytics Lead at IBM Watson Health. I'm excited to talk with you about a few different analytic tools today. My goal is to really provide information on some of the benefits, the limitations, considerations and best practices for software that you may currently use or have been considering integrating into your workflow. Let's get started.

(next slide) I think it's no surprise to this audience that data has the power to inform decisions, and there's a lot of data out there; so much data, in fact, that conveying the information to others can be quite a task. In many cases, the approach that we take to share insights from our data can play a role in how long our audience stays engaged. Do they get through the entire report? Do they drill down on images in your dashboard?

The approach we take to share information also plays a role in the degree to which the audience really grasps the take-home message that we intended for them. Many states have had big successes sharing data insights by adding visualizations to their analytic workflows. So today, we're going to talk about four

commonly used tools and we'll talk about them in the context of data visualization with considerations for data analysis. We'll start with our trusty friend, Microsoft® Excel, then we'll move to Tableau, which has been growing in popularity. We'll cover SAS, and finally we'll talk about open source tools like R and Python.

(next slide) Let's talk about Microsoft Excel. Many of us currently use or have used Excel. It's a spreadsheet-based software that's great at organizing data, formatting that data, performing calculations, and even utilizing the data. Excel is really user friendly. It offers point-and-click functionality and most people are familiar with it. Excel has built-in features to transform and even QC [quality control] your data. It's fantastic for small datasets or data summaries, and includes functionality that a lot of users don't actually take advantage of, including interactive visualizations and macros. Excel is proprietary. However, most businesses and programs have use of it through purchasing a Microsoft Excel license, which includes other familiar tools to us like PowerPoint and Word. While you certainly can build and deploy a real-time dashboard with Excel, creating output that is visually engaging and available for collaboration takes a pretty specialized skillset with this tool. Finally, overall collaboration can be tricky. I'm sure many of us have experienced unexpected changes to our files from colleagues with shared files on shared directories in the servers.

Let's move to Tableau. Tableau is a tool that was designed for visualization. Similar to Excel, Tableau is a point-and-click tool, and you can be up and running using it relatively quickly. Tableau integrates with databases for real-time reporting and can integrate with multiple databases at once. Because Tableau is designed as a visualization tool, it can be very straightforward for users to create engaging output with a relatively short learning curve. Collaboration is also straightforward with products like Tableau Online or Tableau Server licenses. Use of Tableau requires a monthly or annual license and, thus, is proprietary. It is gaining popularity, but in most workplaces at the moment, there are still a limited number of staff members that are comfortable using it, which may be a consideration for folks. Finally, Tableau is fantastic for reporting data that has been transformed or summarized previously to importing. But, because it's highly specialized for visualizations, it's not as strong of a tool for complicated manipulations, so often is used to complement rather than replace existing analytic tools.

(next slide) We'll move to SAS. SAS is a common tool in the health care industry. I likely don't have to tell this audience that, and it's likely that I don't need to share a lot of the features of SAS as most are probably familiar. But, it supports heavy data manipulation. It supports statistical analyses and also data visualizations. SAS has the ability to connect to your databases and handle very large data loads. Capabilities with SAS products continue to expand and include features like data analytics, visual data mining, machine learning, and many, many others. Like Microsoft Excel and Tableau, SAS is proprietary. Something to note is that in some cases, accomplishing goals using the base SAS software license can be a bit cumbersome, while use of specialized features may be streamlined but possibly require additional licensing outside of that base. Lastly, something to note is that SAS is a procedural language. So, it's great for row-wise processing of your data, but this often results in programs with many, many lines of code.

(next slide) Open source tools are those with source code that is available for others to view or copy, learn from, alter, or share. There are a lot of open source tools out there today, but I'll be talking about open source with tools like R and Python in mind. As the title implies, open source tools are free to download. They're able to integrate with databases to produce real-time output. Both tools like R and Python have many capabilities for data manipulation, statistics, modeling, and visualization, including those to develop customized interactive dashboards and reports.

And unlike the tools we've already discussed, there really is little flexibility to accomplish tasks using point-and-click functionality with R and Python. This can be a barrier to acceptance for some users because there's very little time for learning a new programming language with some programs. Additionally, open source tools include prebuilt libraries and packages that are used for specific tasks. This makes programming more straightforward with these languages. However, some libraries may change or may not be maintained by that open source community. So, when libraries are not maintained, users may be required to develop updates to their code or integrate with new libraries to maintain the functionality that was initially developed.

(next slide) That was a lot of information and you're probably thinking, okay, great, which is best and which should I use? My answer is probably not fulfilling; it's that that depends on what you need to do. What are the tools that you have in place today and what's important to you? We put together a matrix here of some of the features that users might want to consider when deciding which tool is best for your group. If you're wanting to get away from proprietary tools or paying for annual licensing fees, you may want to consider looking at open source. However, you may also want to consider your team's experience and comfort, and any timelines that may be affected by a learning curve associated with learning that new language.

We didn't talk a lot about versioning, but these tools may have different release schedules, and users should be aware of any compatibility concerns. Compatibility issues may be less problematic with well-established tools like SAS and Excel, but may impact Tableau or open source users to varying extents.

The degree to which you have statistical or data manipulation needs may also be a really important factor to you. Excel and Tableau can handle basic functions and tasks, but you probably don't want to work in these to build a model or transform a huge dataset.

So, we began this discussion thinking about disseminating information to an audience, and if stakeholder-facing visualizations and dashboards are a priority for you, you may want to consider the degree to which visualizations and dashboards are going to be production quality. So, are those outputs visually appealing? Is the resolution high enough for placing on a website or into a document that will be shared? Are the dashboards that are created intuitive to use? Finally, how does the tool's flexibility and ease of use complement your team's timelines and experience? So, if you can consider these and any other questions that are important to your team, you'll be well on your way to answering which tool or tools is best for you.

(next slide) So, regardless of what you use to convey your data, we wanted to share some best practices to set yourself up for success. First and foremost, you want to know your audience. The method and, therefore, the tools you use to share your data really should be catered to the group that you're trying to reach. For example, if you're publishing a journal article, you'll want to include significance tests and detailed methods. But, if your goal is to communicate to the public that the obese beneficiaries had more health complications than those who are not obese, a bar graph or a magnitude difference among groups may be more effective.

You want to develop a plan. Once you know your audience, determine the questions and identify your analytic and visualization approach before you start developing. I think we have a lot of analytic folks joining today, and I think many of us know how easy it is to go down an interesting rabbit hole. So, you want to lay out that plan and stick to it.

The next two bullets are really best served together. You want to design and implement your plan iteratively. Identify points in your timeline beforehand to assess your approach in relation to your goals

and to keep yourself in check. Effective analyses and visualizations always integrate stakeholder feedback within each of these iterations, and that will help you to ensure that you continue to know your audience and their needs.

Lastly, think about how to minimize manual steps in your process. Can you create templates? Can you create macros or other automated logic to help increase your team's efficiency over time and to decrease the likelihood of human errors?

(next slide) Importantly, as you develop your plan, you want to lead with key data. You want to leave the grand finale for the Fourth of July and make sure that your audience has the most important information right up front. And, along those lines, be sure that you identify the key data. If you aren't sure what the take-home message is for that audience, the implementation plan that you put together may not reflect it and your audience may not actually take it home at the end of the day.

Once you identify that take-home message, you want to convey it using metrics that your audience will identify with. Beneficiaries diagnosed with obesity are twice as likely to have a heart attack than those who were not obese; small snippets to walk away with.

Finally, show those important metrics in ways that are straightforward to interpret. This may include visuals that clearly show a difference among groups, using large font for important numbers, [and] always using the minimum amount of text. And, how many of you open a really long email and think yikes, I'll read that later. The same idea applies here. We want small take-home messages that are very easy to extract by our audience.

(next slide) Because we've put so much focus on conveying important information with little text and more visualization, we want to leave you with a few best practices around visualizations in general. So, any visualization that you develop, you really want to be [able to] stand alone. What I mean by that is the reader should never have to ask questions like, what am I looking at? What are the units? What is the denominator? This means that you should always include axis labels or values for any thoughts you're planning to share with your audience.

You want to be consistent. Use a consistent color scheme where contrast is used to make a point or draw the audience's attention to something that you want to convey. Refer to your population or metrics in the same way throughout. This will avoid confusion among the visualizations for your audience.

Finally, simple is powerful. It's tempting to use complex-looking plots for a little diversity in your dashboard. But, if it's not easy to interpret, it doesn't help you or your audience to share that information.

## **Polling Question #2**

(next slide) With that, we'll jump into polling question number two. If you could kindly answer on the right here: *Which common data analytic and visualization platforms has your state used?* You can select multiple answers here. We'll leave the poll open for about one minute.

We have closed the poll. It looks like we have quite a few users who use Microsoft products and lots of Tableau users, followed by SAS, R, a little bit of Python, and we also had some other tools.

KRISTIN SCHRADER: Some of the top tools that came out of the "others" are SPSS, Qlik, and SQL, as well as ArcGIS came out, and Power BI was also noted as well as Stata, Cognos, and Access.

SHANNON HARRER: So, lots of tools, lots of additional Microsoft products. Fantastic, thanks everyone for your answers.

## Questions or Comments?

(next slide) We can do some quick questions. If you could type questions that you do have into comments, our team will extract the most commonly asked questions and share those out loud.

OLIVIA REDING: Thanks, Shannon. I am seeing one question in here: **About the tools that have been mentioned, what would be a level of support for reproducible research?** So, the idea that data analyses and claims are published with their data and software codes so that others may verify the findings.

SHANNON HARRER: That's a great question. Reproducibility, you think about, at least for the tools that we've considered here, it may be a little bit difficult to reproduce a series of macros in an embedded worksheet, so it could be difficult there. I think certainly if analyses are being completed in things like SAS, R, or Python, where you have programmatically manipulated and analyzed your data, it can be very straightforward to share a particular package that was used, a particular procedure, or even the code itself. I think in lots of disciplines, it's common to not only share your results, but share the code that you've used to manipulate that data. Similarly with Tableau, it gets a little tricky like Microsoft Excel in that it's a little less straightforward to be able to sort of follow the trail of what was completed. I hope that answers the question.

OLIVIA REDING: Great and we're getting a couple more of interest. One that we just received was: **Can you give a sense for what the learning curve is for these products and whether there's a good resource from which to learn about these tools on your own?**

SHANNON HARRER: That's a great question. Why don't we go through the same order we kind of presented here? So, Microsoft Excel: it is point and click, and I think it is taught to some degree throughout various education levels. So, there's often a general familiarity, but the learning curve I think is relatively short there. You're able to intuitively make spreadsheets and search them, and there's certainly point-and-click functionality.

Because Tableau is very specific to particular goals, those visualization goals, they really do make the user interface and the functionality pretty friendly because it's very focused on the sort of one or very few tasks that you have in mind.

SAS: I think when we get into programming languages, we start to get into those learning curves. SAS is a product that I think is a little bit harder to get into because you're writing lines of specific code and you need to be familiar with the way you flow with the data and also the language itself. Because SAS is proprietary, it has a really fantastic support system, so you can call in to customer support and ask questions. There is lots of documentation and lots of support out there to help you as you're learning.

Open source tools are obviously not proprietary and do not have a paid support system as you're starting to learn that. However, because you've got this big community of folks who are developing code and using it, it's pretty straightforward to find forums and various places. Stack Overflow is a very commonly used one where people freely post questions they have, including pieces of code, and it will be answered and addressed by other community members and even validated by community members.

So, I think there are avenues to learn with each of these. I think the point-and-click is clearly much easier to start up than programming languages, but I do believe that if you understand a programming language, adding new languages to your repertoire gets a little bit easier over time.

OLIVIA REDING: One question we wanted to raise was: **Shannon, your presentation indicated that Tableau may have better visual information or graphics, and if it would be possible to describe a few examples.**



SHANNON HARRER: Sure, I think what I had in mind is particularly thinking about Tableau versus something like Excel. I think it's—**better** is a strong word—I think it's more efficient to create those high-level or high-quality visualizations. So, because it is so specified with the visualizations in mind, if you're building a chart in Excel and building a chart in Tableau, the sort of base output looks very different from an aesthetic perspective. You are likely to have standard output, thus, higher resolution, which is what you would want for a website, or a sharable PDF, or document. Similarly, SAS (that sort of base output) is a little bit rougher in terms of aesthetics than Tableau. They just set it up to be visually appealing from the get-go, so that could again be the DPI [dots per inch], the resolution. It could be just putting trims around your bars or having it have base colors that are more attractive, including things like axes and values from the get-go. So, it's kind of like they've anticipated what you wanted for a visualization, or what best practices are is maybe a better way to put it. There are some best practices incorporated into kind of that first output for Tableau, whereas you need to specify and customize things in some of these other tools to get that.

OLIVIA REDING: Wonderful, thank you so much, Shannon. We've hit our time limit for this particular Q & A. As I mentioned, we will be going back to those questions that are submitted, there are a lot of great ones, over our next two Q & A segments. Our next speaker is Ryan Nelson from Oklahoma Health Care Authority.

### **Resourceful Data Analytics and Actions: A Perspective from Oklahoma**

RYAN NELSON: Good afternoon, everybody. This is Ryan Nelson. Thank you for joining this Webex and would also like to thank CMS and the IAP team for helping us with this project.

(next slide) A little background on the project that we had submitted an application for: the unit that I work in, we put together a series of chronic condition reports. There's 14 reports in total. Historically, we've published these reports internally and throughout the years the reports have went through various different iterations. In doing some self-reflection, we felt that we weren't doing a very good job in communicating three key data points. The three key data points are really the prevalence of the condition, demographic background, and an overview of costs associated with the chronic condition. In doing some self-reflection, we knew that we needed some help in visually communicating these data points. That's why we submitted an application. The ultimate goal was to create a series of reports that visually communicated key information about the population.

(next slide) Historically, these reports were published internally and we knew that that was problematic because, our agency, we partner with various different state agencies as well as outside organizations for intervention initiatives. So, we knew that we needed to make these reports accessible to users outside of our agency. In the process of doing some self-reflection, we had talked to some of the decision-makers and end users of our reports, and the feedback that we kind of got from them is that the reports had a textbook-like feel. I know from my own personal experience during college, I did not find textbooks enjoyable to read.

So, the question that came up, and Shannon kind of hit on this a little bit earlier, is that you want users engaged in the reports, and we did not have faith that users were engaged in these reports. So, that's why we knew that we needed to do something different to visually communicate key data points.

(next slide) Target audience: as I mentioned, historically, these reports were published internally, and they were really focused towards decision-makers that participated in various different work groups and intervention initiatives. However, the ultimate goal, we wanted to make these reports accessible to a wider audience. We wanted our other state agencies as well as external partners to have access to the

reports. Ultimately, we redesigned these reports into a format that allowed us to publish them on our public website, so anyone with an internet connection can access our agency's website and view the reports.

(next slide) Key stakeholders on the team within Oklahoma that participated in this project: Fred Oraene, the director of Data Governance and Analytics; Sarah Walker, she is our Clinical Outcomes Manager; myself; as well as Jennifer Gaskill, a Senior Research Analyst and our resident Tableau expert.

(next slide) Some of the platforms that our agency has considered or used in the past: Microsoft Office. The reports previously leveraged Microsoft Office in the process of creating the reports and what we found was that it was a very time-consuming process. We really weren't a fan of the data visualizations with Microsoft Office. Kind of the benefit of Microsoft Office [was that] everyone had it, so there was no additional investment for the agency. SAP, Lumira and Tableau were the other platforms that we had considered in the past. One of the benefits of Lumira is [in] our agency, we use SAP Business Intelligence to extract data from our data warehouse, so Lumira could easily integrate with Business Intelligence. Kind of the downfall of Lumira is that there is an additional investment needed from the agency. Likewise with Tableau, there was an additional investment that the agency had to do in order to procure Tableau.

Ultimately, our agency did decide for Tableau. I'm not here to advocate one program over another. This is what just best fit our needs at the time. So, the benefit that we really liked about Tableau was its ease of use. You have a learning curve with any new program you deal with or use. We just felt that Tableau had a much easier learning curve. One of the things that really helped with that learning curve was the extensive user community for Tableau. If you've got an issue or a problem you're experiencing, you can easily go onto one of the forums, do a key word search, and you can find a solution to the problem that you have. What we really liked about some of the feedback to the problems on these forums is that users will post a solution with an attached document that you're able to download and view and actually see what was done to resolve that issue.

(next slide) As I mentioned, [for] the previous process we used Microsoft Office; more specifically, Tableau as well as Word in developing the chronic condition reports. I do want to mention that [for] the previous report process, 14 reports were run 14 separate times. It was a very hands-on, time-consuming process. These reports are published annually. There were some years it wouldn't be a surprise it would take two months from the beginning to the completion of the report. So, very time-consuming.

(next slide) So, through this project and with the help of CMS and the IAP, we were able to really streamline this process. The benefit of being able to streamline it, we're less hands-on and we're able to minimize the propensity of error being introduced in the final product. We know that that's critical because decisions are being made based on the data that's in that final report.

In the new process, we are using Tableau to create the data visualizations, and so the greatest challenge that we had was [changing] the mindset of using a wide, short data file format, which we were used to using, to a narrow, long data file format, which Tableau prefers. Once we were able to overcome this challenge and really get our minds wrapped around how to properly format the narrow, long data file format, we've been able to take the knowledge learned there and apply it to various other projects that we work on in our units.

Then, kind of interesting with working with the IAP team in data visualizations, there was also another unique challenge that we had. We were all taught that a pie graph was great for certain visualizations of data. Come to find out, we were misusing pie graphs. So, being able to get buy-in from other folks throughout the agency, that was kind of another unique challenge that came about as well. But, we did



the report that we're able to apply what we've learned from this project to other reports throughout the agency.

(next slide) So, sustaining the gains: accountability, that's the big one that came about from these reports. I know as a state agency we need to be good stewards of tax dollars as well as we need to show what we're doing to improve the quality outcomes of our members. Our governor has also set certain outcome goals for the state, and by publishing the reports on the public website, we're able to have that additional layer of accountability for our agency. Even though the IAP project has concluded, our work on the chronic condition reports has not concluded. We are looking to continue to leverage Tableau's capabilities.

As I mentioned, there are 14 separate reports. Our next phase on this project is we want to move the 14 separate reports into a single dashboard, allowing users to view data from across the spectrum of chronic conditions that we report on off of one file versus having to open up 14 separate reports. Future plans beyond the single dashboard are we want to really empower the end user. To do that, we believe creating dynamic views in Tableau will help to empower that end user.

(next slide) This slide gives you a brief glimpse of one page off the previous report, front page off the updated report, and, as you can see in the previous report, very text-heavy. So, making sure that your users are engaged in the report, that was questioned with the old reports. The newer reports, you can see the data visualizations that took place.

Words of wisdom that I have from this initiative are [to] really continue to look for opportunities to improve your work. In doing so, what you're going to be able to do is really help with the decision-making process in your organization. One of the things that I noticed in publishing these updated reports, I'm able to go around in various different meetings as well as meet with other leaders throughout our organization, and I'll see people with printouts of these reports. Previously, I never really saw our reports printed out. So, it's great to see that the work we put in here is being utilized and it's helping to make decisions within our organization. That's all I've got for today.

### Questions or Comments?

OLIVIA REDING: Wonderful, thank you so much, Ryan. Again, to everyone on the webinar, we are opening another Q & A session. So, any questions that you have for Oklahoma, please send them through the chat. Our first question up for discussion is **whether you needed to deal with any PHI [protected health information] or PII [personally identifiable information] issues or any concurrence to publish as you were developing these reports?**

RYAN NELSON: Yes. What we ended up doing was having aggregated data as the data source. I know that as we're looking to our next version of the chronic condition reports into a dashboard that is a concern, and that's kind of the biggest hang-up, or hurdle, that we're having to overcome right now. We kind of have the dashboard built out, but making sure that we protecting PHI, that is the one sticking point right now. We have some plans in the works and we are working with our folks in legal to make sure that what we plan on doing is actually going to meet the standards of protecting PHI.

OLIVIA REDING: Awesome. Another question that came about is **asking about your output and whether your output more web-based or publicly accessible?** I know you got to it a bit in your presentation but if there's anything you can elaborate on there.

RYAN NELSON: Right now, the reports are PDF documents that people can click on and it just opens up in another window. So, dashboards, an end user does not need to have a Tableau license in order to view a published dashboard through Tableau at least.

OLIVIA REDING: Great. Another question that came up was **whether you could you expand on the dynamic view of Tableau; so, what they are and how they would be utilized?**

RYAN NELSON: So, the dynamic view is within the dashboard. Tableau has the capability of say, that you have multiple different graphs on a view, and maybe what I want to do is say I've got a demographic breakdown and there are various other graphs on the page that I can see. However, I'm interested in specifically adults. So, on my age graph, I can click on the Adults bar and then it automatically updates all the other views on that page to show only adults in the dataset. So, that's one basic example of the dynamic views we were talking about.

OLIVIA REDING: Great, I think we have time for one or two more questions. Another that came up, first of all, **if you could share the contact information to reach out to you about the steps taken before and those to date, and describe those here?** I know we have contact information in the slides that will be distributed and available on Medicaid.gov soon after the webinar, but, if you have any other insights on the steps you took to get to where you are, Ryan, that would be great.

RYAN NELSON: Some of the steps that we took: with any process you have, you're looking to do that internal audit in looking at how can I streamline X, Y and Z so that we can make the process less hands-on? Some of the stuff that comes with that is that the less hands-on you are, you're reducing the propensity of error in the final product. But, really the steps we took were just looking at what programs do we currently have available to us, and then what's our ultimate goal, and then we have a starting point. All right, let's see how we can minimize each step in the process so that we're less hands on and what we found was that we were using SPSS to do the data processing, so the manipulation of our claims data as well as member-level data, and analyzing it and then creating that output that Tableau is linked to. So, every time that we run our SPSS, that data source is updated and Tableau is automatically updated. So that helps with streamlining this process on an annual basis. But, if you want more specifics, I'm willing to go offline and our agency, we're currently working from home due to the pandemic, so if you contact our agency and want to talk to me specifically, they'll transfer you over to me. I'm more than willing to talk with people in more detail.

OLIVIA REDING: Wonderful, thank you so much, Ryan. I know we do have other questions; we will be getting to those in a longer Q & A session after our final presenters, so that way, questions that were already posed in the chat, as well as those that others may have over the next little bit can be answered. So, hold on to those questions! We are going to move on to our final presenters from Iowa Medicaid Enterprise.

### **Resourceful Data Analytics and Actions: A Perspective from Iowa**

MIKE EGAN: Thanks very much. Welcome to our presentation on Iowa's data analytics project solution. My name is Mike. I work closely with Kim Köehler, Regina Kling-Navratil, and Bob Schlueter on this presentation. This project solution was the fruit of their work with the IAP team and we thank CMS and the IAP team for the opportunity to present this information.

(next slide) To start, I'd like to put this project into context. At the time that this IAP opportunity was getting started, we had a new Medicaid Director who needed to get up to speed on Iowa Medicaid, and needed a go-to solution for communicating the Iowa Medicaid program to stakeholders, both internal and external. Some of those stakeholders that we looked at were state legislators, other government agencies, provider associations, and the general public. We needed our information to be programmatically specific while also differentiating between Medicaid and other programs; specifically, Medicare.

(next slide) When we reviewed our options for which data analytics and visualization platform to use, we leaned into our familiarity with Tableau as an analytics and visualization tool. The process that we worked through with the IAP team really focused on what story we wanted to tell and how best to tell that story. We identified the audience in the previous slide. In addition to the audience, the IAP team guided us through what datasets to include, how to organize our data, and what graphic representations would best help us tell our story in a consumable way for our audience.

(next slide) The challenges that we faced really centered around identifying data consistency and audience consumability. At the time that we were engaged in this process and working through the data, we were transitioning from three managed care organizations to two. Combining each of those data sources with fee-for-service data was a bit of a challenge. Additionally, we wanted to make sure that the data we were communicating was aligned with our reporting in other areas, like our quarterly performance reporting, our HEDIS [Healthcare Effectiveness Data and Information Set] reporting, BC reporting, and other internal reporting.

Another challenge we faced was identifying the methodology for Tableau to access the source data. Ultimately, we relied on a dated backbone of Excel as we did not have a direct connection to data servers in our data warehouse. So, what we did, we used SQL queries to pull the data and pulled those into Excel. Finally, all these data points needed to be in a format that allowed the information to be consumable by our audiences that we identified, such as state legislators, provider associations, and others. This required a bit of review from our internal team, from the colors of the data elements to the pictures that we chose to accompany the data.

(next slide) I actually went ahead and talked about this slide so let's go on to the next slide.

(next slide) While these two slides don't appear to be all that different at first glance, there was a ton of evolution that occurred with the data presented. It's important to note that while the image-less slide was mock data, the conceptual evolution is still relevant. Take, for example, the language at the top of each one of those slides. We cleaned up the language that identified who qualifies for Medicaid and clarified the mission. Look at the number of lowans enrolled on the back image and the fore image: we addressed detail-oriented critiques by generalizing population counts to make the data more consumable. Look at the categories represented and the numbers associated with the bar chart: we addressed total populations by eligibility categories as percentages of the whole population and adjusted the category names. We also reorganized the data to more clearly identify that this was showing membership volumes, making it clearer for the consumer to determine which membership groups had the largest population.

Other examples throughout the infographic included who's covered: so, we identify clear infographic images around who's covered. Cost and care: we narrowed down the services by setting into a tailored list rather than try to represent all of the services provided through Medicaid. And quality and outcomes: we wanted to show how Iowa has improved over time by comparing the data elements to ourselves year over year and to other states.

(next slide) In addition to updating the data year over year to make this standard information source, we also pursued other opportunities with the Medicaid Innovation Accelerator Program. Examples of this include the IAP for reducing substance use disorders dashboard affinity group, the serious mental illness dataset identification affinity group, and the value-based purchasing affinity group.

(next slide) Working with the IAP team really focused our thinking. Programmatically, what are the important data elements that inform our audience about what we do between programs? How do we differentiate ourselves from other sources of health care to our audience, and external context? How does

Iowa Medicaid compare not only to itself year over year, but also how do we compare it to other states over time? How are we improving?

Bob Schlueter was essential in helping us to identify this external context. Bob, would you like to talk further about this?

BOB SCHLUETER: I would echo some of the comments made earlier by Shannon and Ryan from Oklahoma around engaging the audience. Here, we're really trying to provide basic information along with some insights about the program. For a little context in Iowa that Michael was touching on, we had been through enormous transition from the years basically 2015 through 2019. It was in 2016 that we moved to full managed care from a largely fee-for-service model, and the nature of how that happened essentially as a line item in the governor's budget meant that there were a lot of people very surprised by the suddenness and scale of that transition. So, not only were we bringing in these statewide plans, we had to rearrange the entire Medicaid organization itself to try and administer a managed care model. So, there was a huge amount of change that was going on. We had lost a Medicaid Director who had been with Iowa for seven years and, ultimately, through the course of this time we had turnover in another Medicaid Director and two DHS [Department of Human Services] Directors. Medicaid in Iowa is a division under the Department of Human Services. So, there was a lot of change, and what had been largely an administrative function of the state that was pretty quiet, if you will, publicly became very political. And, in that arena, communication can be very, very difficult.

So using this IAP, this was one of a number of things that we did to try and be proactive about understanding our audience, what people needed to see, and putting out information we were putting out and continue to put out quarterly reports that are publicly facing. But, we continue to try and get better at what we're doing on communication. So, this is really just one of a larger effort that we have to try and show some of the investments that are made in the Medicaid program publicly, what some of the outcomes are, including what's happening under managed care in Iowa. So, this continues to be something that's important to this day and really was a great opportunity under this IAP.

Those are the main thoughts I would have about context, and it really is consistent with some of the things that have been discussed, both in Oklahoma but also initially in trying to choose a tool and how do you communicate and what's appropriate for your different audiences. Those are incredible things to really think through from the get-go.

MIKE EGAN: Thank you for the opportunity to present this information to you. With that, we can turn it back over to the IAP team and CMS.

### Questions and Comments?

OLIVIA REDING: Wonderful. Thank you so much for that presentation; really great to hear what you've done as a part of this project. At this time, we would like to again open it up to questions from the audience. This will be our longer Q & A session. So, any questions that you have for Iowa, Oklahoma or Shannon, feel free to post them in the chat. Our first question directed to Iowa and then perhaps after to Oklahoma as well: **What methods do you use to ensure quality and accuracy in your analytic and reporting processes?**

REGINA KLING-NAVRATIL: Since this is publicly posted information, all numbers are cross-referenced to other public postings.

OLIVIA REDING: Ryan, wanted to open this to you as well, if you have any methods Oklahoma is using to ensure quality and accuracy in your analytic and reporting processes?

RYAN NELSON: Actually, it's the accuracy aspect which takes the longest time in our process now. Some of the steps that we take are that once we extract the data, we go through a data validation process. Let me back up. Beforehand, we map out what we're going to do, and we make sure that what we write down as a process is actually going to achieve ultimately what we want. So then, when we're going through the process, we validate the data once we extract it. Then, once the final product has been produced, there are a few different sets of eyes in our unit that look at the final product to validate the results. There's another unit within our communications division that will review the reports for data accuracy and consistency as well before they're published on a public website. There are several different layers of quality control just because we know that the data's going to be shared to the public, so we want the most accurate information being presented.

OLIVIA REDING: Great, thank you so much. Next question specifically for Iowa: **What strategy did Iowa use specifically to communicate and build data literacy with a variety of stakeholders? So providers, families, legislators, etc. And what resources were needed to do this work?**

BOB SCHLUETER: I would say the key thing from my perspective as a Business Analyst is that when you start to publish things online, it has a natural effect of causing questions and feedback. So, one of the advantages actually of the environment that I was describing is there are a lot of critical eyes looking at what you're doing, a lot of things to answer to. So, these come as requests for information from legislators and the general public and advocates. So, you get all of this stuff coming in and you try and look at it in a summary way to understand if there are things that you need to do to your current reports to make better information available. I think in using the feedback that you're getting as a primary source to understand how effective you are being at communicating what is going on within your programming is a great way to start to get a handle on the idea of literacy from the perspective of what you need to be communicating about your program. So from my perspective, I would say the most important thing in our process has been to continue to refine what we're doing over the course of time based on that feedback loop that is coming in from various external sources. So, we have definitely leveraged some of the friction around the transition of the program to try and make the communication better, and, ultimately, that refinement process is really in my mind what I think about when I think about even data literacy. It's are you communicating effectively with your audience. I'm not sure if that's exactly what the questioner was looking for but that's where I go when I think about that. Anybody else in Iowa who would want to jump in can add to those comments.

OLIVIA REDING: I think our next question is also for both states, so maybe start with Oklahoma and then move to Iowa. This question asks: **How much staff time and training were needed to develop the skills and knowledge to do the data analytics of your Medicaid outcomes of interest? And were current staff trained? Do they need to be trained? Were new staff needed or hired? Anything you can provide on that process.** Let's start with Ryan.

RYAN NELSON: Just to begin with, the team that I work with, we have a very robust team with various different backgrounds. So, we're able to really lean on those various different backgrounds to help educate and inform one another in whatever area of weakness we may have. Having said that, our agency moved to Tableau. No one on our team had experience with Tableau prior to our agency acquiring it. Now I do know one of the factors in deciding to go with Tableau is we had a beta team test a few different platforms, and one of the key feedbacks from the beta testing was the ease of use, kind of that shortened learning curve, the point-and-click kind of stuff. So, developing the skillsets to get a base level understanding of how to use Tableau didn't take too long at all.

Now, once you want me to dive deeper and really leverage the full capabilities and capacity of Tableau, that takes a little bit more time and investment. I know for myself I'm continuing to learn new things with Tableau, and whenever I come across something that I don't know, there is a Tableau book and someone from the IAP team might be able to remind me what the name of the book is. Our agency purchased it. I've got a book in my office, and it helps to really inform us on what we need to do to perform certain functions. But, as I mentioned earlier, the user community: go to one of the forums. Type in through the key word search what issue you're having, and I've had to really lean on that to get me a resolution to the issue that I was dealing with. I hope that answered your question.

The other part of that was we didn't have to hire new staff or anything. We were able to use the current staff that we have. We're all continuously trying to learn more of Tableau to help us in our reporting efforts.

MICHAEL EGAN: This is Mike from Iowa. I think we're pretty lucky in the sense that we have some folks who are pretty knowledgeable with SQL, and then with regard to Tableau, we've got a visualization person who's just top-notch and she takes the data that's been put into Excel workbooks and uses our language, which is Power Query, for those familiar with Excel, and amalgamates all the data into the visualizations. And, we're constantly learning and evolving our skills on Tableau.

OLIVIA REDING: Thank you both for those great responses. Our next question is directed back to Shannon: **When it comes to knowing your audience, do you have any general advice for presenting to executive administrative staff?**

SHANNON HARRER: Sure, that's a great question. I think regardless of your audience, whether it's executive administrative staff or the public, a really good tactic for making sure that you do know your audience is to kind of take out that guesswork. Have a conversation, particularly if it's your executive administrative staff, at whatever level that needs to happen. Field those questions and actually ask what information do you need and can you give me context for how you intend to use it? Because I feel if you can understand their perspective and what the end goal is for that information, it's really easy to keep that perspective in mind. I think in most cases, folks who are using that information and certainly disseminating it widely, they're happy to have those types of conversations to get everyone aligned. It sets them up for success. It sets your teams up for success. And, while it can be somewhat intimidating to start that conversation, I think nine times out of ten, both parties are going to be really happy that it happened. I don't know if the state teams have any comments on that in practice as well. Feel free to jump in.

BOB SCHLUETER: This is Bob in Iowa. I would echo some of the things I said before based on what you were saying. I think it's really important to have that feedback loop because especially as somebody who spends now a couple of decades working around Medicaid, it's highly specialized. There are a lot of angles to it, as there are to a lot of these state programs. And to get that external voice, especially when you're communicating more publicly or with legislators, you are often very surprised as an insider who's exposed to certain things on a daily basis as to the limitations of the knowledge of those folks on the outside.

That's where I was saying there has been an advantage in the amount of scrutiny on our program because it really tells you where the level of knowledge is with the general public and with legislators and others who really need to be understanding and invested in such a big program as Medicaid. So making sure you're paying attention to those voices is a great way to get a sense of where people's baselines are at, because it's probably very different from your perspective sitting as somebody who's working in a state agency.



MIKE EGAN: Just to echo Bob's point, this is an external dashboard that we use, but we also have internal dashboards that we meet on a regular basis with our executive team for them to review the information, ask clarifying questions, and that really drives our data analytics work going forward.

OLIVIA REDING: Great, thank you all so much for those responses. I know that we're slowing a little bit on the questions that are coming in. Maybe one or two more questions. One just came in that would be good for both states to address. For both the Iowa and Oklahoma state teams: **What knowledge or skills are most beneficial to your analytic capabilities?**

RYAN NELSON: I'm going to answer the question and hope it answers what you're looking for. But knowledge or skills, most beneficial is really your ability to communicate the results. If you're not able to communicate the results in a way that people will understand, it doesn't matter what you're doing then. It's going to be Greek to them, and what you're really wanting to do is to analyze the data and present it in a way that can help in that decision-making process. It really comes down to an individual mindset or skill. It's just the willingness to learn.

BOB SCHLUETER: I would agree with that and add that it's not just a biased toward learning but it's also one that is a biased toward collaboration, because to do analytics well in terms of getting to the end result you need to have folks like me who are not technically proficient with tools and creating visualizations, but are more insightful in terms of how communication should be received, right alongside people who are very gifted at working with different tools to put things together. So, in your environment, those relationships between people are really critical to be able to have discussions and say hey, this doesn't make sense to me, and if it doesn't make sense to me, I don't know that it's going to make sense to somebody outside this building or to somebody on our leadership team. And to have some of those honest conversations can be difficult if the environment is one where people are like hey, I know what I'm doing and this is my thing. So, relationships cannot be underestimated in getting toward a good final product because it is often, as is the case in both of what Oklahoma and Iowa presented, the work of multiple hands and that means there needs to be good, honest communication as you go through the process.

OLIVIA REDING: Great. Thank you both so much. I think we may have time for one more question for both states: **What policies and processes are in place to handle requests for additional data visualizations?**

RYAN NELSON: This is Oklahoma. So our agency, we have a data request form that can be submitted for our internal folks within the agency, then we also have a form for external folks that can submit data requests. Then Fred Oraene, the Director of Data Governance and Analytics, he's part of the team that reviews the outside data requests and can help assign internally where it should go, as well as some of our supervisors internally, once we receive a data request assigns where the request should go. But, that's the process that our agency has for additional information.

BOB SCHLUETER: In Iowa we have what's called our RFI, request for information, process similar to what's being described in Oklahoma. All of those are routed in through the Department of Human Services and to different divisions including, but not limited to, Medicaid when there are requests for things. So, we will put those together in response to ad hoc requests. But, as I was getting out earlier, those are all some things that, in being smart, we want to make sure that we're looking at multiple requests for the same or similar things and how can we do a better job of just making those types of things more publicly available for people to look at on their own volition on their website.

OLIVIA REDING: Great, I think we're going to go with one final question with both of the states: **How are you identifying areas for enhancement or improvements?**

RYAN NELSON: I'm going to echo Iowa, and it's really that open communication. If you have open communication with leaders within your organization and if your organization has open communication with other partners in the state, that's where we really get that feedback from. Relationships are built, trust is built, and that's where we're able to get and solicit the honest feedback. It's a two-way conversation.

BOB SCHLUETER: Yeah, and of course I agree with that. I will just take it a little bit further. I spoke about the nature of our transition to managed care and the various leadership transitions that were associated with that. Our agency was really getting beat up pretty bad over this initial transition to managed care. Now, being on the other side of that and having more stability in the program, getting past implementation and so many other pieces that went into it, we have a better view now looking back on the progress that we've made. But it is very difficult to have that kind of openness and transparency when you feel like as an organization you are getting beat up publicly.

But, I would say it's still something important. It's an important principle to keep on the table, especially in the world in which we live today. Things can get very partisan very quickly and that changes the nature of communication for the point of legitimately informing and making decisions to the sort of gotcha game that plays out in the press, et cetera. So, we've been through that, we can respect that. But, you still have to, as a state agency and a steward of the public trust, keep first and foremost in your collective mind what can we do to inform the public of what is going on within the program.

OLIVIA REDING: Great. Well, I think we're getting close to the top of the hour. I'd like to thank our presenters for their presentations and thoughtful responses to questions.

### Key Takeaways for Today's Webinar

KEITH BRANHAM: Great, thanks, Olivia. A few key takeaways for today's webinar:

- When considering an appropriate analytic tool and approach, identify a concrete purpose and prepare for iterative testing.
- A few key analytic tools can support streamlined processes that promote efficiencies in Medicaid.
- Current and consistent data across sources is key to effectively convey analytic results and inform policy.

(next slide) Thank you for joining today's webinar. We hope you found it helpful and informative. If you could take a moment to please complete the evaluation form following the presentation, that helps us improve future webinars. For more information and resources please visit Medicaid.gov. Again, the slides and other materials for this webinar will be posted on Medicaid.gov in the next few weeks. And with that, that concludes our webinar and I hope everyone has a great rest of their afternoon.

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