



eHealth Commission

April 10, 2024 | 12pm | Virtual Meeting Only

Type of Meeting Monthly eHealth Commission Meeting

Facilitator Rachel Dixon, eHealth Commission Vice Chair

Note Taker Amanda Malloy Time Keeper Amanda Malloy

Commission

Rachel Dixon, Cory Hussain, Toni Baruti, Jackie Sievers, Mona Baset, Krystal **Attendees**

Morwood, Amy Bhikha, Michael Feldmiller, Sophia Gin, Parrish Steinbrecher,

Micah Jones

Absent: KP Yelpaala, Michael Archuleta, Patrick Gordon, Misgana Tesfaye

Call to Order

Rachel Dixon

Roll call was taken. 9 voting members present. Quorum Met: Yes

Voting of Meeting Minutes: Yes

March Meeting Minutes Approved

Corrections: None

In favor of approving March minutes: Krystal Morwood

• Second to approve March minutes: Toni Baruti

Announcements

Karen Shimamoto

 Good Afternoon eHealth Commissioners, Advisors, and attendees. I just wanted to take this time to acknowledge that our Lt. Governor Dianne Primavera is traveling and will be joining from her car later today so you might see her on the screen. Even though she won't be giving remarks, she is here and will be present. Also, last week, our Lt. Governor, John Kennedy, and I visited the Snowmass Clinic. We had a great discussion with their staff and all the challenges they face as a rural resort community that is perceived to be better funded than they actually are. This was also our first road trip to begin the refresh of our Health IT Roadmap. We are really excited to get that underway and are working really hard to include a more patient centered perspective in the upcoming Roadmap - we have heard you and we need all of your help to reach families and individuals in your communities. Be aware of some things going out to our social media channels, our website, and so forth. You should have also received our newsletter for how to get involved in our Roadmap Refresh efforts and I will make sure to get it to you if you did not receive that. With that, I am going to turn it over to Ashley Heathfield, one of our Sr. Project Managers, who is going to give us an update on the Roadmap Refresh.

Ashlev Heathfield:

We have a couple of opportunities for folks to get involved. The OeHI team is set to travel the state. We are reaching out to clinics now and we plan to meet with staff, ask a set of questions, have food, to hear from folks, and to see what their challenges and barriers with Health IT are. We also want to know what is going well and what we can continue doing and support them in those efforts or if there are things that we can start doing. Another thing is to incorporate that patient/Colorado perspective and reach parts of the state that we may not be able to travel to. We have a funding opportunity which you should have seen in Constant Contact, on the website, on social media platforms and you'll see a lot of that coming from OeHI in the next month or so. We are funding organizations to host listening sessions either with their own staff, community based organizations, and more funding for organizations that

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host listening sessions with the communities that they serve. There is additional funding if they provide additional languages. All of this information is on the website with a timeline for what that looks like so feel free to share on a simple google form to show that you are interested to host a listening session and get paid for it or for have OeHI come to them - there are two forms on the website for that. Please feel free to spread that far and wide and I am happy to take any questions if there are any.

Cassi Niedziela:

- I have a couple of updates on our Social Health Information Exchange or SHIE. The first part is that we just built two new SHIE web pages on our website. Those are live and out there now so you can take a look. We still have one main overarching page explaining our vision and the overall program. Then we built a new page focusing on our statewide unifying architecture which is the piece that we procured for their invitation to negotiate last year and working with Resultant. Then we have another page focused specifically on our general hub approach. Both of those pages have new information and resources so please feel free to check those out and let us know if you have any questions. I also wanted to note that we have a monthly newsletter called the SHIE Bulletin so we will be sharing some pretty exciting updates in the near future about our regional hub approach. Please sign up for that newsletter because it is where we will be sharing those upcoming announcements. Another exciting update for our regional hubs is that we will be hosting a live webinar on May 1st from 11am - 12pm. It will be a Zoom webinar and I will put the registration link in the chat. The webinar will be to provide an overview of our vision for the regional hub approach and how we would like to see that program roll out. We also want to note that the exact program guidelines are still subject to Federal approvals. We will be having a Request For Information coming soon for Social Determinants of Health service providers which is an open opportunity for different technology vendors who provide services in Colorado to share information about their products and services which we will post on our social media channels and on our website. I am happy to answer any questions if you have any.
 - NEW SHIE Statewide Unifying Architecture Web Page: https://oehi.colorado.gov/shie/unifyingarchitecture
 - NEW SHIE Regional Hubs Web Page: https://oehi.colorado.gov/shie/regionalhubs

 - May 1 Regional Hubs Webinar Registration: https://us02web.zoom.us/webinar/register/WN -bSyjRjXRu6v8Dtp87wQXQ

Jackie Sievers:

- Just a reminder that the QHN Summit is coming up on April 25th and registration information
 is on our website and I will place that in the chat if it is helpful for folks. We would love to see
 a lot of you attending that event as there will be some really great speakers coming.
 - https://gualityhealthnetwork.org/ghn-summits/

Rachel Dixon:

Any other announcements from Commissioners? Those were great announcements. Thank you Ashley and kudos on the great work. Then, Cassi thank you for all those great updates on the SHIE. It sounds like you guys are doing a lot and I can't wait to check out the resources. Now, I'll be going over our agenda and kicking us off there. Today joining us is the Colorado Department of Public Health and Environment (CDPHE) and an eHealth Commission spotlight on Krystal Morwood, Manager of the Health Information Systems Branch and all the great work





that she and others at CDPHE are doing. At this time, I will turn it over to Krystal.

MAIN SPEAKER

Krystal Morwood:

- My name is Krystal Morwood and I am the Health Information Branch Manager at the Center for Health at the Center for Health and Environmental Data at the Colorado Department of Health and Environment (CDPHE). I've been at CDPHE since 2011 in various roles and the vein of all my roles is to change health systems and the healthcare system through population health. I am excited to have had the opportunity to follow in the footsteps of Chris Wells. He was the initial eHealth Commissioner for CDPHE. Today's spotlight may be a bit different in that mine is less on my personal history and more as a public servant on the work we do at the state. I am excited to be able to introduce the team and show the work that we are doing and get some good questions and answers going. There will be five presentations today starting off with Andrew Putnam who will talk about our public health infrastructure grant, which really encompasses all of the rest of the work that we are going to talk about today. Next will be Aleis Malouff and Keegan McCaffrey talking about Epitrax and Data Lakehouse from the Disease Control and Public Health Response Division. In addition to that Kelsey Minor will be talking about our Health Information Data Systems Portal. And finally we will end with our Air Pollution Data Modernization & Visualization with Adam Wozniak. We will have contact information for all of these folks at the very end.
 - CDPHE at a glance it is split up into two entities with one on the environmental health side and one on the public health side. Much of the work we are talking about today is on the public health side. And of course there are the agencies, divisions, and offices that are in the middle that include the Administration Division, the Office of Health Equity, and the Office of Public Health Practice, Planning, and Local Partnerships. If there are any questions about how we are set up, I can take it now or otherwise we will turn it over to Andy Putnam and we will hear about some great work.

Andy Putnam:

- I am Andy Putnam and I am the Business Technology Product Director for CDPHE. I coordinate
 across all the divisions and our sister agencies and Office of Information Technology (OIT) on
 technology related issues. I'm here to talk to you today about the data modernization work we
 have going on in the health programs and will then be passing it along to the various
 presenters.
 - ODPHE received a public health infrastructure grant from CDC a year ago and as part of that, we received a series of funding for data modernization. The funding is broken up into three parts. The CORE part I will be talking about in more detail. The acceleration part is really money that is there to actually help us do the improvements in the modernization. The laboratory data exchange is also there to help us do the data modernization and improvements. The first thing we need to do is to start working with the CORE funding. Under the CORE funding, we have five years to create a steering committee, document the state of all of our systems, develop a future state plan for all the health systems at the department, develop an implementation plan for each of the systems, and then prioritize the work. We are not going to have enough funding to do all the modernizations that we know we are going to have to do so that prioritization becomes very important and will feed back into the steering committee.
 - As a future state of where we think we are going is that we are driving to cloud implementation as we don't want servers located in the server farms and things like that. We will be talking about the data Lakehouses that we have already been setting up. We want to drive toward Application Programming Interface (API) for data ingestion and data access. Use standard visualization and move to low or no code solutions wherever possible so that we can make it easier to make changes, support long term, and keep our ongoing costs down.
 - The steering committee is going to be chaired by our Chief Medical Officer. I will be there, leaders of representation from the various health programs that are out there, representation from central IT, and then representation from other state agencies such





- as OeHI. Additionally, we will have representation from our local public health agencies to help us evaluate and prioritize the work.
- Just to give you a scale of what we are dealing with here. This is across the health divisions and how many systems we currently have in operation. These things are already on the block to be retired based on some work you will see here shortly and it's a lot. If you are interested in what these systems are we will be sharing this presentation out and at the end of it is a list of all the systems.
- The other thing we need to implement is Data Governance for CDPHE. The agency has been very good at data governance at the program level but we need to mature to have a much better data governance structure at the agency level. In doing that, we will be tying into North Star Architecture that the CDC has put out, working with the Governor's Data Advisory Board (GDAB) and taking what they have put out to incorporate in and building out our own data governance.
- The final thing I want to talk about are the projects we have going on. Some of these you're going to hear about are Lakehouse, EpiTrax, and HIDS data portal. We have also recently moved our Colorado Immunization Information System up to a cloud supported infrastructure. We have moved our Birth and Death system over to a cloud supported infrastructure. Over the next couple of years, we have funding to move our Women and Children's System over to a new platform and our health facilities system over to a new platform. With that, I am going to hand it over to Aleis and Keegan from our Disease Control and Public Health Response Division to talk about both the Epitrax project and Data Lakehouse.

Aleis Malouff:

• I want to jump in and talk about an overview of how we got here. During COVID the CDC started to focus on disease surveillance modernization system (DSSM) to address issues many were facing during that time. As a result, to the issues that were encountered during COVID Slolum was hired to take a look at systems and come up with ways to help with these issues. They focused on siloed systems that were breaking continuously, looked at the duplicate data sets that were coming out of those connections, as well as our inability to support large data volumes. We saw that data volumes increased significantly during that time and our infrastructure is not built to handle that. Out of the focus points, their recommendations were bringing all surveillance systems together in one application (which is what we now know as EpiTrax) as well as evaluating CDPHEs data storage and analytics environment to allow for informed decision making and this is how we got to the Data Lakehouse. I will send it over to Keegan to talk more about EpiTrax.

Keegan McCaffrey:

I've been with CDPHE for about a year and a half and came here from the Utah Department of Health that used and partially helped create EpiTrax. EpiTrax is a centralized infectious disease surveillance system for laboratory and case reporting, for public health investigation and workflow, for contract tracing, outbreak tracking and response, and data sharing with the CDC and our Local Public Health Agencies (LPHA). You can really think of EpiTrax as the EMR (Electronic Medical Records) for public health. This is where all new cases and new patients and work go in, we collect all of the data we need to do our public health response, to better understand what health threats are facing our communities, and we track that through the workflow to make sure we are taking appropriate action at the state and local level. EpiTrax is the EMR for public health and it was built by the EpiTrax Consortium. Which is all of the state departments that are highlighted in green on this slide (slide 15). Together we all make up the EpiTrax Consortium which are state and local departments with combined resources to create and improve EpiTrax. We have benefits in being part of this Consortium. First it means that it was designed by public health for public health. There are some off the shelf solutions that other states have had mixed experiences. It also means that we have been able to prioritize building EpiTrax by using open source software where all of the underlying technology allows us to deploy it how we want. Here in Colorado we are deploying it in our Google Cloud. Finally, it allows us to share enhancements. If Nevada comes up with a really great way to look at outbreaks, they can share that information back with the Consortium which helps improve health in our region. Recently, Wyoming and Washington have decided to join the other states





in this Consortium so it is growing more and more.

- What systems are moving to EpiTrax?
 - The first and the biggest one is CEDRS which is our current surveillance system. This is where we did all of the COVID tracking in. But we have a lot of subsystems that CEDRS just couldn't handle. CEDRS was built in-house and we've been using some version of CEDRS for over 20 years. It's really reached the end of its life and cannot handle some of the things we need to be doing coming out of the pandemic. We are also wrapping in outbreak databases but we have disease specific databases that we will be bringing into EpiTrax. Things like the Zoonotic Disease Database that we use to track rabies and west nile virus. All of the different databases have similar functionalities with similar needs that we will be bringing into EpiTrax.
- O Why EpiTrax?
 - EpiTrax is a single platform for disease surveillance. It is also going to be great for our security and reliability as well as our access control. EpiTrax allows us to see at the user level to see what conditions certain users can and cannot access. Another thing is that we are able to configure EpiTrax as needed from the front end. For example, if a new pandemic started tomorrow, we would be able to collect data that same day. Electronic Case reporting is also something that we are able to do with EpiTrax. It will also help us improve data sharing, it will help us manage our public health workflows things such as active monitoring, contact tracing, and outbreaks. Finally, we are integrating it with our immunization system and vital statistics which will help with how quickly we are able to respond.
- Looking in depth, EpiTrax is four pieces of software. The first one I would like to highlight is the Reportal which is a new front end website that will allow healthcare providers who can't yet be supported by ELR or eCR automated methods they can go in and report cases. This will give them a way to continue to report but also to bulk upload symptoms into the portal. Right now it has to be one by one, but they will now be able to do so in bulk. The second piece of software is EMSA which is our front door of EpiTrax where all the data comes in and lands in one place and we can decide what to do with it. So it is a rules engine. EMSA processes it, person matches it over to EpiTrax (our third system) and then we collect all the information, do our public health response in EpiTrax and it is directly accessible to CDPHE staff, LPHA, Tribes, and our Military public health authorities. Finally we have one final piece of software, NMI which allows us to automatically report all of this data back to the CDC.
- o Timeline:
 - We began working on EpiTrax in December of 2022. Right now we are preparing to launch it in the next five weeks. Our launch window right now is May 10th through May 13th. In fall of this year there will be a second launch to include the eCR transition to EpiTrax.

Aleis Malouff:

• After Slolam came in and made recommendations to build the Data Lakehouse our team went through the RFP process, Resultant won the award and began work in 2023. The problem we were focusing on was to provide one place for analytics having one location for data sources to save the state a significant amount of time and provide better analysis for all stakeholders. The CDPHE public health Data Lakehouse will provide improved data management and an analytics environment to benefit stakeholders through automation potential, improved access, centralized data storage, improved data sharing, data governance and security. Looking into the automation potential, the Lakehouse is providing a new shared platform for automation. This allows for easy low code automation and shared access to scheduled tasks as well as code for troubleshooting access. This will allow for data to be shared in the cloud as opposed to individual laptops. This further reduces the risk for errors and other issues we were facing in the past. Looking into improved access, Lakehouse creates a platform where the user can not only read data but also create their own tables and views on data tables itself. This type of freedom means that CDPHE can respond quickly to help challenges and analytic needs by

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creating relevant data sets. For centralized storage, previously CDPHE's data environments were highly siloed with several different applications serving different needs each with a complex set of integrations between them. The Lakehouse environment takes these diverse sets of applications and stores them in a central location with a single unified data model. All of the data can now be found under one roof. Looking at data sharing capacity, since the relevant data is stored in a single place, it makes data sharing much simpler. The Lakehouse is also implementing a standard matching data algorithm that uses matching records. This allows us to not only easily identify duplicate records but also match records between systems. Lastly, looking at security and data governance, it's become necessary to establish a data governance committee to manage the datasets that the Lakehouse stores. This committee contains representatives from all the teams who are contributing data to the system as well as other stakeholders. The technology of the Lakehouse also makes for more secure environment for data processing rather than what was previously possible

- On the next slide, we will share a demo with you: "Today we wanted to provide you with a brief demo that highlights the capabilities of the data analytics and Data Lakehouse environment by CDPHE. Through this, what we would like to show is how this new data warehouse and analytics environment enables people to quickly produce meaningful data reports and visualizations that can be given to the important decision makers in the public space within Colorado. To start this conversation, it's always nice to have a frame of reference. In this case we are looking at the Colorado COVID 19 dashboard. In order to have things like these dashboards, we need to enable people to have access to data, to have access to the tools they need to create visualizations, and to have a way to collaborate and share into something like the COVID 19 dashboard. To that end, we are going to jump into the environment to get an idea of what it looks like. What you see here is a secure environment and you can see that I am able to quickly write code and I am also pulling information about the counties that people are living in because I would like to make a map of what this data will look like. What I am able to do is to go into my code with pieces of python that will pull this information into an environment that an analyst will use to make visualizations. This gives people a new way to look at COVID data. In this case, what we are doing is showing a map with each county and it shows the number of COVID cases per capita. It's nice to have not just numbers on a page, but also seeing it geographically. This is just an example to show what is produceable in these environments. These are then accessible through a browser and in addition to this you can produce the tabular format. A really important thing to highlight, is that through this environment and the way that the Data Lakehouse is set up, we enable people to quickly go in, have access to the data, pilot and analyze it to produce useful visualizations.
- Lakehouse Timeline
 - Looking at our timeline, in December 2023, we were able to set up a Minimal Viable Product (MVP) with production data. The two data sets that we are currently focusing on are Colorado Information Immunization System (CIIS) as well as EpiTrax. Then in January, we built on the MVP to build data marts and train power users in the environment so they can feel comfortable and start to transfer reports into the environment. By the end of this month, we will have a full production lakehouse implemented with EpiTrax and CIIS as we go live. Our implementation contract goes until July 2024 and we will be looking at enhancing the environment ensuring that functionality meets every stakeholders needs. After implementation, we go into operations and maintenance from August 2024 until December 2024 which will be a time for reevaluating what data sets we should be prioritizing.

Kelsey Minor:

- Today I am going to be showing you our Health Information Data Portal (HIDS). There are three
 main components of the portal. The first is to collect data, the second is to manage the data,
 and the third is to make sure the data is accessible and I will walk you through these
 components in a little more detail.
 - Data Entry: HIDS is a secure data portal that uses role based access to allow partners and stakeholders the ability to provide data through numerous modalities
 - Manual data entry is the most common way. Currently HIDS has 11 customized

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- application solutions that are built in house to support each of the various programs that use the portal.
- Automatic data upload is the second way we collect data via secure data transfer methods. For our partners to either have their own data system or who use electronic medical records, we support and encourage them to be able to extract data from their current systems. We want to discourage duplicate data entry whenever possible. This is the most rapidly growing area through which we collect data.
- Then the third way we get data is through public data web collection tools. Through these tools, we are able to get data from the public and we are also able to get data requests from the public. This is certainly our smallest modality for collecting data.
- Data Management: HIDS is managed by a data team whose job is to:
 - Maintain the portal
 - Maintain the custom application solutions that live within the portal. So again, those are 11 customized applications.
 - Ensure that data is collected through program and funder specifications
 - Data analysis and reports
- Data Visualizations and Data Accessibility: The data management team is responsible for ensuring the data collected within HIDS is accessible to funders, partners, and the public as necessary via two main modalities:
 - The largest bucket is privately published data dashboards. These are dashboards that are published inside of the portal that we are able to use role based access to limit data sets based on user permissions.
 - We also work with a small amount of publicly published data dashboards that live on either the CDPHE website or on our partner website as well.
- HIDS collects non-communicable data for public health initiatives that target Coloradans across the lifespan largely focusing on vulnerable populations. There are eleven different programs that we support across CDPHE.
 - We collect data for our family planning program which provides free or low cost confidential family planning and preventative health services to any Colorado resident.
 - We support the WIC (Women, Infants and Children) program in providing benefits to those who are pregnant, breastfeeding, or postpartum or who have a baby or child under the age of 5.
 - We collect data from practitioners across the state who provide induced terminations of pregnancy,
 - We collect data on our newborns for the newborns hearing screening program for all newborns who are one month and younger to ensure they receive their newborn hearing screening. And that they are connected to the appropriate services if they fail that screening.
 - Our team maintains a data registry for Colorado children with special needs for ages
 0-5 with qualifying ICD-10 diagnoses.
 - We collect data on a care coordination program that connects children and youth with special health care needs for ages 0-21 to ensure that those children have both a medical home and a dental home.
 - We collect immunization data for all schools grades K-12 as well as child care centers, preschools, and Head Start Programs across the state.
 - We collect all Colorado marriage and dissolution data
 - We also collect data on breast and cervical cancer screenings for all Colorado women ages 21-64 with no health insurance or who are on a limited income.
 - We collect data on cardiovascular screenings for women ages 35-64 with no health insurance or who are on a limited income
 - We collect data for emergency medical and trauma services. This is our ambulance licensing program.
- HIDS uses role based access to restrict data that comes into the portal. We used the role based
 access to ensure that all data visualizations are securely accessible to partners, stakeholders,





and the public.

- My team manages about 200 tableau dashboards and most of those live inside the portal so they are not publicly accessible.
- Before I close, I wanted to touch on where HIDS is going. We are in the midst of a
 modernization project where we are moving from a web-based portal to a cloud based portal.
 This has been a long project. We started these discussions in 2019 and we are very excited to
 be nearing the first phase of deployment. We are in the testing phase of that now and will be
 pushing that first phase out on July 1st. And then we will continue to work through 2025 and
 half of 2026 to get all of the 11 programs that I talked about from their current locations to
 the cloud based environment.

Adam Wozniak:

- Air Pollution Data Modernization:
 - We have a 3-4 year project where we are going to take everything we have that comes from the 1990s and put it in current time. There are three areas of our project:
 - The first is how we get the data. Currently, we get the data from paper or PDFs. What that means is that we have folks within the air division who manually transfer that data into our current database. The more handoffs there are, the more potential there is for mistakes which is why we want to take everything to an electronic platform. More specifically, we have chosen Salesforce as our platform and it is where we are building everything for this project. This is going to allow us to reduce the administrative burden and we will use the technology to be much more efficient with the things we are doing.
 - The second is the Data Lake construction. We have chosen AWS (Amazon Web Services) to hold our data. This is going to open up a lot of possibilities when we get away from the current model of on premises server. With the current on premises server, we are always fighting for performance, storage, or maintenance. These things will go away when we are over in the Data Lakehouse and we will now be able to have structured files. This will allow us to bring in other data sets and then we can share these things out.
 - Data Visualization, Transparency, and Citizen Engagement is the third area of our project. We are working on version number two of the Data Visualization tool. OnBase is our records management tool which is where the user now has access to each document that the Air Pollution Control Division has for each specified facility. The information icon will take the user to a frequently asked questions document that we've created. It is a living document and we will make the questions and answers more clear as we get feedback from the public and add questions as we get them. It also includes some additional data tools that folks may find helpful. We also have a data access page on the division's website which is our landing page for everything we have on a specific visualization. The first icon takes us to the data visualization map. The next icon is a user manual. We have the entire tool broken out into different chapters with pictures, arrows, and user tips. The third icon takes us to the frequently asked questions document so you can get answers to the questions without being in the tool itself. There are two other icons that show the current permits that the air division currently has. The last icon is for additional data resources. This takes folks to the Colorado information marketplace where they can find different types of data which is going to open up more resources for data analysis to anybody who wants it.
 - For version number two, we are working on tools regarding emission trends, where the air pollution division is doing our work, where we are inspecting, and where we are finding violations. As we start to build out the source of this data, data elements may be bringing in different resources..
 - I'd now like to see if anyone has any questions:
 - Karen Haneke: I have a question for Adam and am curious. It was nice to see this air quality information. I was wondering if you could comment on where CDPHE plans to overlay any of this pollutant data with certain health conditions



in the future?

- Adam: Yes, that is exactly what I'd be alluding to towards the end. As
 we build our platform we really want to do exactly that to start
 overlaying these other things on the health side bridging the gap and
 telling a much bigger story. There are a lot of different data sources that
 can be part of that.
- Krystal: I want to jump back to the question that Tom Keller asked on chat: What is the timeliness of these data?
 - Kelsey: The answer to that varies depending on what program we are talking about. If we look at WWC (breast and cervical cancer screening program) they collect data primarily from community health centers. The way they proved that data is very different. WWC screening data is required to be manually entered into the HIDS portal within 30 days of the event occurring. Whereas family planning data is primarily uploaded from data that has been extracted from their HR and they do that on a quarterly basis. It's really going to vary and depend on the program.
 - Tom: This helps, but it's disappointing that it is not in real time.

Comments on Presentation

Rachel: Thank you so much everyone, that was an amazing series of presentations. It's always great to hear about the work that Colorado is doing to keep everyone healthy and environmentally safe.

Public Comment Period

No new public comments

Action Items

Rachel Dixon

Next meeting May 8, 2024 (Virtual)

Motion to Adjourn

Rachel Dixon

- Rachel Yelpaala requests motion to adjourn
- Krystal Morwood motions to adjourn
- Amy Bhikha seconds the motion
- Meeting adjourned at 1:20PM MST