

# Promoting a Continuum of Care for Wasted Children Lessons Learned from Democratic Republic of Congo

Webinar Transcript

### **Amanda Yourchuck**

We have four speakers today. I'll start by reintroducing myself again. My name is Amanda Yourchuck and I'm a senior emergency nutrition advisor with USAID Advancing Nutrition and I've been providing support to our DRC work for the past three years on the project. We'll also be hearing from Marcel Ntumba who is a project management specialist with the USAID Bureau for Humanitarian Assistance and he is based in DRC.

We also have Ben Hatch who is a senior technical advisor with the JSI Health Logistics team, and he provided support to our supply chain work that we'll be sharing today. Then we have Mike Manske who is a nutrition advisor with the USAID Bureau for Humanitarian Assistance based in Washington. If you would like any more information about any of today's speakers, a link with bios will also be shared in the chat. Next slide.

This is just a brief overview of what we'll be covering during today's webinar. I just wanted to note that in the webinar advertisement, we did mention that we'd also be covering findings from our blanket supplementary feeding program learning activity during today's event. Unfortunately, these findings aren't quite yet finalized, so we won't be sharing those today, but we do have a lot of other really interesting content that we plan to share.

We'll be providing an overview of USAID Advancing Nutrition's work in DRC, followed by more detailed summaries of findings on our work related to coordination and collaboration along the continuum of care for wasting, as well as results from our analysis of the last mile delivery of our ready-to-use therapeutic foods. Lastly, we'll be sharing some key takeaways from across our work that we hope have relevance to practitioners in countries beyond DRC. Next slide, please.

Before we hear from Marcel with some opening remarks, I invite you all to take part in a Mentimeter poll that we've put together. You can scan the QR code here on the screen or go to menti.com and enter this code. These have also been shared in the chat. We'd like you to share your thoughts on what you think are the most critical activities or interventions that need to be in place to ensure a continuum of care for wasted children.

In terms of continuum of care for this work, we mean services that are inclusive of both prevention and treatment. We'll take a couple of minutes to let you get into the Mentimeter and then, Yaritza, if you can go ahead and show the real-time results. In just a few words, what do you think are some of the most important aspects of a continuum of care for wasting?

# Yaritza Rodriguez

The original code for the Mentimeter might have been incorrect. Please look in the chat. There is a link to the correct Mentimeter so that you can submit your answers. I'll type into the chat the link that you'll need to follow. Please click that link to submit your answer.

### Amanda Yourchuck

Thanks for that, Yaritza. We'll see some more answers starting to come in as people access the Mentimeter. I'm seeing WFP and UNICEF, joint coordination, supply chain, integration with health, adequate human resources, follow-up, a couple of mention of referral systems, family support, SAM plus MAM, IYCF, all kinds of really important services and linkages being highlighted here. I think you'll hear a lot of these same terms coming up as we start discussing our work and some of the findings and learning that we've documented. Give it just a couple more minutes. You can see this word cloud come together.

Home-based SAM treatment, quality counseling, lifecycle approach. Some mentions of different products, access to food. Right. As you can already see from this word cloud that's coming together, providing a holistic continuum of care for wasting requires a lot of different elements that are likely being implemented by a lot of different actors. Hence why coordination and communication and collaboration amongst all of these individuals is essential to ensure that all of the services that these children need are available and accessible. Thank you for that. We can go back to the slides. I will hand it over to Marcel for some opening remarks.

#### Marcel Ntumba

Hello, everyone. I think everyone can see me. Thank you for joining us today to this webinar on Promoting a Continuum of Care for Wasted Children. We focus on lessons learned from the DRC. My name is Marcel Ntumba. I work for USAID in the Bureau for Humanitarian Assistance as a project management specialist in the Democratic Republic of Congo. Maybe for some reason, I think I'll turn off my camera because of internet connectivity. Thank you.

Due to the complexity of the humanitarian needs and development context in DRC, every year, USAID through the DHA office, found several hundreds of millions of US dollars to save the lives of vulnerable populations and build resilience to cope with future shocks in the country. DRC is one of 10 countries that makes up 60% of the global burden of wasting in children under five. DHS work covers many sectors, including protection, health, nutrition, wash, food security, and shelters.

USAID, nutrition Leadership Council selected 14 nutrition priority countries, one of which is DRC. DHA is part of the USAID DRC mission. We have a CDCS, that's the Country Development Cooperation Strategy, that constitutes the framework for the design, implementation, monitoring, and evaluation of all our development works. USAID DRC nutrition programming prioritizes high-impact nutrition-specific and nutrition-sensitive intervention in the provinces with the highest level of malnutrition to address both the direct and underlining causes of malnutrition.

Our nutrition program is resilience-focused through resilience food security activities, and emergency focus through support to actors like UNICEF, WFP, and support NGOs providing treatment to children with severe acute malnutrition in health facilities to displaced populations and other urban populations as well. However, considering that over 2.6 million wasted children reported in the humanitarian response plan for DRC are in need of nutrition assistance, and considering also the BHA's mandates, today's learning focus on the number of opportunities and challenges around wasted children, programming, coordination, collaboration, and supply chain in DRC.

The evidence generated through implementation of this learning agenda will help us to identify best practices, new approaches, and other improvements across BHA operations, whether technical, programmatic, managerial, or logistical. I encourage your active participation with constructive feedback during and after the webinar. Your input, along with a finding from this learning agenda, will also help us to substantiate or modify our understanding of the causal linkage that inform our child-wasting intervention and the context in which we operate.

Furthermore, it can guide the development of future BHA strategies, program, design, new or improved policy, implementation planning, resource allocation, or process improvement. We are here to learn more from you and replicate the best practices around continuum of care for wasted children in our humanitarian and resilience activities. I'll hand over now to the next presenter. Thank you.

#### Amanda Yourchuck

Thank you so much, Marcel, for those opening remarks and a bit of background on how BHA is supporting wasting and broader nutrition programming in DRC. Can we have the next slide, please? Great. Now I'm going to provide an overview of what USAID Advancing Nutrition has done in DRC over the past five years, and also give a bit of information on the implementation context for wasting programming in DRC. Next slide.

This timeline summarizes our five years of work and highlights major themes for each year, although there has been some overlap across the different activities year on year, but this more or less will give you an overview of how this work has been evolving over the past five years. The initial request that USAID Advancing Nutrition received from BHA was to conduct a facilitated learning activity to bring nutrition partners together to identify opportunities and a path forward to collectively achieve improved nutrition outcomes. Partners would achieve this objective by establishing and articulating a shared vision of their role within the nutrition continuum of care, identifying programmatic linkages with the potential to improve impact, and strengthening coordinated and collaborative action around identified linkages.

Our work towards achieving this initial objective began in 2019 with a desk review to better understand the implementation landscape in DRC as it related to wasting programming. This desk review involved reviewing policy and protocol documents and mapping roles and responsibilities at the different administrative levels of the health system, so looking all the way from the national, down to the community level, and trying to see how wasting services were linked with other services within the health system.

Based on this work, we then held a national-level stakeholder workshop in Kinshasa to deepen our understanding of coordination challenges and strengthen collaboration among actors as they identified ways to implement a more holistic continuum of care for wasted children. These two initial activities made up the initial design phase for this ongoing work.

Then in 2020, the original intention was to replicate the national-level workshop in four selected provinces, which included Kasai-Central, Kasai-Oriental, Sud-Kivu, and Tanganyika. However, due to the onset of the COVID-19 pandemic, we had to adapt our approach since we were unable to travel to DRC as we had in the past. Instead, we developed a learning agenda to guide primarily distance-based information gathering that was undertaken by two regionally-based consultants and supported by a Kinshasa-based consultant along with a team from USAID Advancing Nutrition.

Information was collected through virtual province-level consultations with government officials, implementing partners, and UN agencies. We also completed activity and partner mapping and additional secondary data review to understand what types of services were available in the health zones within our selected provinces. The consultants also participated virtually in coordination mechanisms,

such as the nutrition cluster meetings, to understand the participation of different partners in these mechanisms and how people were interacting.

Then in 2021, building on what we learned from the more in-depth look at wasting activities at the province level, we then selected five health zones where we worked with health zone and province-level stakeholders to develop nutrition coordination and collaboration action plans. Due to ongoing restrictions on inter-province travel in DRC, this phase of work focused on health zones in Kasai-Oriental and Sud-Kivu provinces as this is where our consultants were based. Although inter-province travel was restricted, DRC's COVID-19 prevention requirements did eventually allow us to bring together health zone and province-level stakeholders in a workshop setting where they identified root causes of wasting and wasting management challenges in their health zones and developed action plans to address them.

The next two activities that took place in 2022 and 2023 are follow-on activities based on area of interest or areas for further learning that came out of the original coordination and collaboration work. The first took place in 2022 and was an analysis of the last-mile delivery of the ready-to-use therapeutic food supply chain. For this work, we looked at four different RUTF delivery mechanisms across a total of six health zones in Kasaï-Oriental and North-Kivu provinces. Ben will be sharing more details from this work later in this session.

Then lastly, in 2023, we are in the process of finalizing a learning activity on blanket supplementary feeding programming. We conducted an evidence review and stakeholder interviews to learn more about how BSFP is implemented in DRC, and we also looked at this through a lens of BSFP as a wasting prevention activity. Next slide, please.

Now a few words on the implementation context in DRC. As Marcel highlighted in his opening remarks, DRC is 1 of 10 countries globally that makeup 60% of the burden of wasting in children under five. At the end of last year, it was estimated that 26.4 million people were food insecure. In DRC specifically, there are an estimated 2.8 million children with moderate wasting and just under 900,000 children with severe wasting.

As is the case in many countries, the burden of wasting is not spread evenly throughout the country. The most recent integrated phase classification, acute malnutrition estimates projected that in the first half of this year, about 24% of the analyzed geographic zones, so health zones or territories, would reach the critical phase of wasting levels, which was IPC 4, meaning that 10% to 14.9% of children, aged 6 to 59 months in those geographic areas, will be classified as either moderately or severely wasted.

In addition to the food security challenges, there are also a number of other contextual factors that contribute to high levels of wasting in the country, including shocks from natural disasters or communicable disease outbreaks such as cholera or Ebola, as well as ongoing insecurity that has led to population movements, including internally displaced persons, and movements of refugees, both back returning from other countries to DRC, as well as other refugees from neighboring countries who seek refuge in DRC.

Lastly, poor infrastructure makes service delivery and humanitarian support even more complex to deliver. Many roads are often seasonally inaccessible, and as we'll hear later from Ben, there are challenges with warehousing infrastructure and general transport availability. Next slide, please.

In terms of wasting treatment services in DRC, it is primarily humanitarian actors who are supporting care for moderately and severely wasted children. Despite that, there are policies in DRC that stipulate that treatment services are to be provided through the health system following the standard community-based management of acute malnutrition model, or in the case of DRC, they use the term

integrated management of acute malnutrition, and you can see all of those components illustrated here on the slide.

In addition, the nutrition cluster has been activated in DRC since 2006 and has either regional or province-based coordinators based throughout the country. According to a mapping that we completed in 2021 using nutrition cluster data, we identified at least 20 different partners that were supporting severe or moderate wasting treatment activities within the four provinces that we were documenting. Next slide, please.

Now just a very brief overview on what's happening in terms of prevention because this is a very broad space. Given the protracted nature of the crisis in DRC, there are a wide range of actors who are engaging in activities more in the development or resilience space. This slide highlights just some of the USAID-funded activities that were active during our time that we were working in DRC. I just wanted to note that amongst these activities, which of course there are many others funded by other donors and other NGOs that are taking place, but within just the USAID sphere, these activities represent a range of different USAID funding mechanisms and offices.

There are activities from the Bureau of Humanitarian Assistance, both in the development and emergency funding streams. We have activities supported by the Bureau for Global Health, as well as Feed the Future. All of these projects listed here included nutrition-related components that, if wellcoordinated, should support the prevention and overall reduction of wasting. This is one of the aspects that we looked at as part of our coordination work. Next slide, please.

With that background, I'll now move into discussing some of our findings from the coordination and collaboration work that took place from 2019 to 2021. If you have any questions on what I've covered so far in terms of the overview of what USAID Advancing Nutrition has done in DRC or anything about the implementation context, please feel free to put those in the Q&A chat box as we'll have a Q&A session after I present this first set of findings. Next slide, please.

As I mentioned earlier, due to the COVID-19 pandemic, we had to shift the approach to our work, and we ended up using a learning agenda to guide remote information gathering. The learning agenda had three objectives, and they were to firstly, document partners' experiences collaborating to deliver the continuum of care for wasting. Then we identified and piloted actions to strengthen coordination and collaboration. Lastly, based on learning, developed recommendations for how to strengthen collaboration to deliver a more holistic continuum of care. Next slide, please.

Through our discussions with stakeholders about their experiences with coordination and collaboration, we identified a number of challenges, a few of which we'll discuss here today. Firstly, we found that wasting services are very fragmented. We looked at nutrition cluster mapping data for 90 health zones, so those are the health zones that were within the four provinces where we were working, and we found that in only two health zones was the same partner used to support both treatment for severe wasting and moderate wasting. In all other instances, either both services weren't available or different partners were used to deliver those services within the same geographic area.

As is the case in many other countries, we also noted that in DRC, severe and moderate wasting treatment services use different client registers, client cards, and supply chains. Additionally, we found a lack of coordination between facility and community-based services, particularly around screening, referral, and follow-up. As an example, there are many projects doing community-level work and conduct screening through activities such as care groups or through work with community health volunteers, and then identify and refer those children for treatment at the health centers.

However, we didn't find any evidence or very little evidence of those children actually being followed up. There was no systematic communication of the number of referrals to the health center and no followup to see how many of those children actually sought and received treatment after being referred. Then on the other end of the spectrum, when children were discharged from treatment services, they were not systematically referred back into programs that could help prevent relapse or provide additional support to potentially at-risk households.

Next, we also found some areas for improvement in terms of coordination of prevention activities, and we found challenges both within individual projects in terms of how their prevention activities fit together, as well as between projects. I'll highlight just an example of a disconnect that happened within a particular project.

Something we found in reviewing some of our secondary information, which included program evaluations, was that there was a project that planned to distribute recipe booklets to its care group members in order to encourage the use of local ingredients for the treatment of moderate wasting, which made sense for the implementation context as there were frequent supply chain gaps and limited coverage of moderate wasting treatment services. However, there was some poor communication and disconnects that happened within the different projects, technical sectors, that meant that the broader multisectoral effort towards prevention was unsuccessful.

Firstly, there were delays in the delivery of these recipe booklets, which meant that the corresponding cooking demonstrations couldn't start as planned. However, health promoters began discussing these recipes with care groups, which led to confusion because the written materials weren't available. Then additionally, the project had planned agricultural interventions like seed distribution and small animal husbandry activities that were meant to provide some of the foods required to actually prepare the recipes but those were also delayed. It meant that when the recipes were being shared, households didn't have access to the ingredients they needed to prepare them.

All of these compounding problems were found to have led to a loss of credibility of the care group leaders in the eye of the care group members, and then ultimately, the positive nutrition outcomes and particularly the possibility for prevention of moderate wasting was not realized. Next slide.

Another challenge that came up a lot in our coordination and collaboration work was a lack of information sharing. While the nutrition cluster has a rather robust mechanism for collecting information from humanitarian partners, more broadly, the continuum of care suffered from parallel data systems between different projects, government, and between emergency and development actors. Again, as part of our desk review and in one of the project evaluations, it was cited that there had been a missed opportunity for a project to share monitoring data with government health officials so that it could be integrated into the district health information management system.

Additionally, in the same project, nutrition surveillance data was routinely collected through several community-level platforms, including care groups and through community health volunteers, but there was no mention of sharing this information with the nutrition cluster, UNICEF, or WFP where it could have been used to provide insight into wasting trends and to potentially inform decisions about product forecasting.

Then lastly, platforms for coordination of multi-sectoral actors were found to be underutilized. The reason we bring in this multi-sectoral perspective is because, for prevention activities, we do need to look beyond just nutrition and beyond just the health sector to ensure that we are tackling all of the root causes of wasting. In DRC, there are policies in place at the national level to establish multi-sectoral

nutrition coordination platforms but none of them were active in the places where we were working at that time.

Some development actors we found, did participate, to some extent, in nutrition cluster meetings. However, it remains a bit of an open question about if this is really the right platform for broader multisectoral nutrition participation. The nutrition cluster has a very specific mandate that relates to the coordination of humanitarian activities and already has very full agendas for each of their meetings. It's trying to find this balance, not adding too much of a burden to the nutrition classroom meetings but also recognizing, for the context in DRC at the time, they were probably the most viable platform for having some of these conversations.

Considering all of this, there really was a significant gap in terms of the availability of an appropriate platform where a broader range of multi-sectoral actors could come together to discuss linkages between treatment and prevention, both within and outside of the health sector, which really is critical for ensuring that the prevention aspects of the continuum of care are functioning well. Next slide, please.

In an effort to help stakeholders begin to address some of these challenges, we worked with five different health zones, so three in Kasai-Oriental and two in Sud-Kivu, to conduct a more in-depth look at some of their coordination and collaboration challenges. We did this by bringing together government officials, which included health zone management teams, the National Nutrition Program, or PRONANUT, and the Provincial Departments of Health, implementing partners, and UN entities to discuss root causes of wasting management challenges. Then for each identified action, there was to be a responsible entity, a time frame for action and a target to be achieved within that time frame. Also, whenever possible a budget for that activity was to be indicated.

It's important to note here that USAID Advancing Nutrition was not engaged in any direct implementation as part of this work and we did not provide any additional funding to partners to take up the activities that were identified in these action plans. If activities were to take place, they had to be done either through existing government or implementing partner resources. We did see some instances where both government and partners were able to integrate things into their work plans. However, I would say generally that the implementation of the activities in the plans was mixed. Despite that, we did find the act of bringing together stakeholders to discuss these challenges lead to other improvements in coordination and collaboration. Next slide, please.

Some of the improvements that we documented over the course of the coordination and collaboration work included an increase in joint planning. An example of this was a collaboration that took place between a health zone management team, an NGO partner, and WFP, where they discussed how to manage wasting admissions during a RUSF supply chain break.

Partners came together and agreed to temporarily adjust criteria to ensure that children who are being discharged from treatment with severe wasting were fully cured because the follow on treatment for moderate wasting and those products were not available, and then once the supply chain break was resolved, they went back to the original discharge protocol. Prior to this, we didn't have any type of this collaboration happening.

We also documented examples of partners who were better-coordinating activities within their overlapping areas of implementation. One example of this was, there were two partners who are implementing infant and young child feeding and emergency activities within the same geographic area and they actually took the time to plan together to ensure that their activities were complementary, rather than risking a potential duplication of efforts. For example, potentially training the same health

workers in IYCF feeding, and instead targeting different areas to really expand their overall reach. Next slide, please.

We also saw some examples of more partner engagement with the government. This was particularly true for one of the DFSA projects that we documented. At the outset of our work when we were first discussing with partners in government, we found that there was very little engagement between this project and the Provincial Health Department, and the Provincial Health Department is supposed to provide oversight and coordination for all health partners acting within the province, and really should have some sort of engagement with all partners. Over time, we found that the project began inviting these government officials on their supervision visits, and also took a step to sign a memorandum of understanding with the Provincial Health Department to formalize the relationship and further clarify roles and responsibilities around their programming.

Lastly, we found that the coordination and collaboration action planning process brought together emergency and development actors when this otherwise might not have happened. As I mentioned, there really was a lack of space where these partners could come together and take the time to have really detailed discussions about how their activities could come together and create this holistic continuing continuum of care.

Towards the end of our three years of work on this particular topic, we asked partners how our activities sort of impacted their work and how coordination and collaboration had changed during that period, and it was mentioned that the coordination and collaboration workshops had rekindled some of the conversations between a Feed the Future projects and DFSA projects working in Sud Kivu. These projects had previously had quarterly meetings, but they fizzled away and these meetings were an opportunity for them to reconnect and start having some of these conversations again. Next slide, please.

That was a very, very high-level overview of some of the main highlights of our coordination and collaboration work. There really was a lot of ground covered in those three years, so I encourage you to please take a look at the full reports which are available on our website in both English and French, and you will find a lot more detail and a lot of richness of information, but for now, I'm going to pause and we can take maybe two to three questions, and then the team will also do our best to answer questions in the chat. I'm just going to take a look now and see which questions we can discuss. I don't see too many questions in the Q&A section, so please make sure if you have questions, you're putting them in the Q&A chat.

#### Yaritza Rodriguez

Amanda, we have one that came through the regular webinar chat. Often we observe relapses and regressions after total recovery for severe wasting, how to maintain children with wasting to remain in a good nutritional state.

#### Amanda Yourchuck

Yes, absolutely. The issue of relapse was definitely in our minds as we were looking at all of these different activities. As I mentioned, we did see that there was a lack of counter-referrals happening, so if children did seek treatment if they were cured, there was no systematic counter-referral back into other supportive services, which ideally would be done to help ensure that those children didn't relapse, and also that those households receive support so that siblings in that same household didn't become wasted as well.

I think this is definitely an area that needs further strengthening and I think it's something that comes up a lot in different countries as an area for further strengthening. Unfortunately, we didn't find a good example of where this was really being dealt with well. I think that's definitely something to highlight as an area for ongoing attention and further improvement.

I'm seeing a question here about programs using enriched porridge using local ingredients as a backup. Yes, this came out in some of the supply chain work, although it's not something that's discussed during this presentation, so I can mention it briefly. We did see instances where partners were using, I think it's the five-star porridge in DRC, so if there was a supply chain break for RUTF, mothers would receive counseling on how to prepare this porridge. However, we didn't get specific information about if these women would actually have access to the ingredients needed to make these porridges.

I think there can be some level of assumption that if a household has a wasted child, there could be broader issues around food security. As far as we know from that information, the partners weren't providing anything to actually make the porridge or any monetary support for the households to buy the ingredients, it was just a counseling element, but porridges were mentioned. Yaritza, do we have time for one or two other questions, or?

#### Yaritza Rodriguez

I think we need to wrap up and move on.

#### **Amanda Yourchuck**

Okay. Perfect. We will try to respond to some of these other questions in the chat box. If we can have the next slide, I will hand it over to Ben to talk about some of our supply chain work.

#### **Ben Hatch**

Thanks, Amanda. Hi, everyone. Again, my name is Ben Hatch. I'm a senior technical advisor with the JSI Centre for Health Logistics. I helped USAID Advancing Nutrition with a supply chain study in DRC over the past year or so, so I'll be going into some of the results of that. Next slide, please.

First, an overview of the activity. The purpose was to examine the degree to which the four different supply chain pipelines in DRC, and I'll go into a minute what that means, can deliver RUTF as per the six rights of a well-functioning logistic system, and then to document what factors may be contributing to different differences in pipeline performance. We did this through key informant interviews, warehouse visits, and stock record reviews at health facilities.

A quick review of the six rights of a logistics system, for anyone who's not familiar with supply chain terminology. The purpose of a supply chain or logistics system is to ensure first, that it delivers the right goods. In this case, if you want to start someone on treatment for severe acute malnutrition, it's not enough to have just the RUTF there, you need the therapeutic milks to get them started on treatment, for example, you want it in the right quantities so that the facility both has the product when it's needed and doesn't run out of it, but on the other hand, doesn't have so much that they either run out of storage space or else the products are expiring on the shelves.

You want to deliver the products in the right condition. In the case of nutrition products, these tend to be perishable, so we want to make sure that when they arrive to the facility where they're needed, they're still usable. We want to deliver them to the right place. Again, so we want to make sure that the products are reaching the last-mile facilities where they're needed. They're not staying in a provincial warehouse or something like that. They need to be delivered at the right time to ensure that when the

facility places an order, that it arrives there in good time to make sure that the facility gets more stock before they run out, and finally, for the right cost.

The right cost here refers both general cost. The more efficient a supply chain is in delivering the product, then the less money you have to invest in supply chain itself, and the more money you can invest in either more products or other programmatic interventions. Also, the right cost can mean who pays that cost. Is it the implementing partner that is paying to deliver the products all the way to the end health facilities or the government itself, or does that cost fall on either the clients or patients who have to travel to get their products, or to the last-mile health facilities that might have to travel to get their products? Next slide, please.

The four research questions that we were trying to dig into; what are the different supply chain pipelines in use in the selected provinces? The selected provinces were Kasai-Oriental and North Kivu. How are these pipelines structured and how do they differ? What are the costs associated with each pipeline and what drives differences in key costs? How does the supply chain performance differ across pipelines? Here, we're measuring supply chain performance as stock availability at the last mile. What are the key challenges to product availability identified by key informants working in each pipeline, and how do they differ across pipelines? Next slide, please.

In the two provinces in which we were doing a study, there are four general pipelines in use. When I say pipeline, that refers to the set of physical warehouses, transport infrastructure, the people that deal with the product as it makes its way from, in this case, usually international vendors who are fabricating the product, as it makes its way through the country to the people that need it at the last mile. The four pipelines in use in these two provinces can generally be subdivided into those that are supported by UNICEF and those that are supported directly by the implementing partner NGOs, often with USAID direct financing.

Within the universe of UNICEF, UNICEF-supported pipelines, some organizations have what's called a Programme Cooperative Agreement, or a PCA. This generally means that these programs are receiving, not only the RUTF from UNICEF but also some financing to deliver the RUTF. There's a PCA Intrant agreement, which generally means that the organization is receiving in kind. That is they receive the product from UNICEF but not additional funding to do the onward distribution. They're responsible for that themselves. Historically, that's been the case often in Goma. Although during the time of this study, what we found was that there were no active PC Intrant agreements in the study area.

Finally, there's the Programme Document or PRODOC. This is generally government actors who have an agreement with UNICEF where they receive both the RUTF supplies, and also some financing to help them deliver it on to the health facilities. Some of the entities that help support these various pipelines are the Social Development Center, Heal Africa, the National Nutrition Program of DRC, Save the Children, and Première Urgence Internationale. Next slide, please.

Some key findings about the pipeline structure. As there were some importation challenges, all the pipelines needed to import the product. Although there has been, in the past, some local fabrication of the product, currently, there doesn't really seem to be, so all the products are imported. UNICEF generally has a good deal of success in importing the product relatively smoothly. They have all the necessary agreements in place, so that they can import it without paying taxes. By contrast, some of the local implementers can face problems once the product gets to the border, and that's negotiating for it to pass through customs without paying taxes. That can block product importation at the border for as many as three to four months sometimes.

The government and health facility staff generally didn't feel engaged in RUTF planning. What we learned about the targeting is it often happens at the national level for each of the programs, and it often doesn't

take the last mile actors, be they the zonal officials or the actual health center officials, aren't really involved in decisions on what numbers to use for targeting. The targeting can also be dated on outdated information, sometimes. In this case, on a study that was done back in 2018, so that can lead to targeting that doesn't match with the current need.

Finally, health facilities generally didn't feel that their orders were respected, which means that the health facilities were placing order for a specific quantity that they needed, and either it wasn't delivered in the timeline that they expected it, or they didn't receive as much of the product as they had requested, with one notable exception being in Cilundu, where there's a health zone level warehouse that's used for interim storage before delivery to facilities. There was, in that case, a much closer relationship between the last mile facilities and where the warehouse from which they were receiving their products. Next slide, please.

There's also some variation in secondary warehousing. Products coming in both from the key port into Goma, it's coming in from other countries over land. It's coming in from Lubumbashi, and it's coming in from the capital. Often, this is transported by truck, but sometimes in the rainy season, the trucks can't get by, so you have to transport it by plane. Even within provinces, so for example, the map we're seeing here, in Mbuji-Mayi, there's a Save the Children warehouse that's importing it both from Lubumbashi and also from the Save the Children warehouse in Goma.

In the case of Kasansa, the Save the Children is distributing the product directly from the warehouse in Mbuji-Mayi to the facilities in Kasansa, whereas in Cilundu, Save the Children is delivering it from the Mbuji-Mayi warehouse to a different government warehouse in Cilundu, and then on from the government warehouse to the health facilities in Cilundu. There's a lot of variation even within the same health zones, about how the product is eventually getting to the last mile. Next slide, please.

Some key findings here on pipeline performance. We'll just go through quickly, these different indicators. The first indicator was facilities with stock cards that showed stockout within the previous six months. Across all of the different pipelines, in the different health zones, this was common. In Dibindi, in Goma, in Kibua, in Walikale, all of the health centers that we visited, that had stock records, those stock records showed that they'd experienced a stockout within the previous six months. It was only in Cilundu and Kasansa where that wasn't the case, of all the facilities that we visited.

Stocked out on the day of the visit, Cilundu and Walikale were the only two health zones where there weren't any stockouts among the facilities that we visited on the day we visited them. By contrast, in Goma and Kibua, most of the facilities were stocked out, and even in Dibindi and Kasansa, a significant number. Two of the five facilities in each of those health zones were stocked out on the day we visited them.

The third stockout indicator is whether the facility have records that indicate that the facility has less than one month of stock left. Now, in the national guidelines, each facility is supposed to manage their stock so that they have, at minimum, one month of stock, and at maximum, three months of stock at any given time. This indicator is keeping track of, do the facilities actually have at least that minimum one month of stock needed? Very few of them did.

Finally, the percentage of time for the facilities that had records, the percentage of time over the previous six months that it was stocked out. This is a gauge of how severe the stockouts were among those facilities that had stockouts. Again, Cilundu fared the best here. It was widely variable among the other health zones, which with as little as 15% of the time being stocked out, which is still a lot, to as many as 72% of the time. Next slide, please.

In studying the costs, we found there was a high level of variability in the delivery schedules and the transportation methods. We couldn't really compare the total costs of the last mile transportation for

the different pipelines, because it was so ad hoc and variable depending on the season, depending on whether air transportation was available, as well as funding to pay for it. The type of transportation varied. Four-by-four vehicles were the most common. Air freight availability was limited and usually cost prohibitive. Other common modes of moving the product include boats, motorcycles, bicycles, and carrying on foot, especially during the rainy season when the roads can be impassable.

Most partners delivered supplies all the way to the health facilities. Where this did not occur, the facilities mentioned that they collect their RUTF supplies as part of their other routine tasks. This is actually good, compared to what we usually see in most direct government-supported supply chains, is that the government delivers the supplies to something like the zonal or the district warehouse, but the facilities are often required to travel to those warehouses to collect their supplies, which can be a burden on those health facilities' staff.

About, this is actually a good thing for most in DRC, is that most of the implementing partners are delivering those supplies to the last mile health facilities, even if, as we've seen, there's challenges in ensuring that those facilities stay in stock. None of the key informants mentioned the cost of RUTF as itself as a challenge. The challenge was more framed as a general lack of funding for adequate wasting treatment coverage overall. That's programmatic funding as well as transportation funding. Next slide, please.

Some opportunities for strengthening through improved coordination. Amanda touched on coordination a little bit already, but some opportunities include the involvement of government and facility-level staff in targeting and planning. For example, in the nutrition sector, we often see that, as I mentioned, those targeting decisions are made at the higher-level, based on case counts and prevalence. The best practice in supply chains, and in fact, the official position of the DRC government is that, again, the inventory of nutrition products should be managed on that min/max inventory system, depending on the actual monthly use at the health facilities rather than targeting decisions.

Having the zone level and health facility staff, and just using their data and having that more involved in those targeting decisions can help that data use be more up to date. That can be an expanded role for the Nutrition Cluster in RUTF supply coordination. They're already supporting some ad hoc lending of stock between partners. What does that mean often? What we see in DRC is that across different provinces, or even zones, the implementing partners that are delivering the products, it's a very fractured market.

One implementing partner is responsible in one province, or even one health zone. Then in the zone next door, there's a different implementing partner, with a different agreement. They often face problems where in one zone, an implementing partner might have stock, and in the neighboring one, they don't, but it can be difficult to transfer from one zone to the next because the financing that got the RUTF to the first zone specified that it should be used in that zone. Then you have to coordinate across the financers and all the key partners to make sure that you can smooth those transfers where they're needed.

Finally, an opportunity is to advocate for coordination with health system actors for improved infrastructure and potential supply integration. Obviously, it's not the role of the nutrition sector to build out the entire road structure for DRC. This is a common problem across sectors, but improved warehousing and improved coordination across actors, including the DRC government, to improve road infrastructure is essential and can benefit all sectors equally.

As I mentioned, the supply chains are currently fractured for nutrition products with parallel supply chains to the government supply chains run by different implementing partners, in different zones, in different provinces. There's actually a current project that has not started yet, but will be piloting

integrating the RUTF and the nutrition sector products into the government supply chain to see if that can improve the delivery to the last mile. Of course, that's not always a panacea. You have to make sure that the government has the proper capacity to to take in those products.

RUTF products and nutrition products can be bulkier and heavier than some of the other sector products. They're also quite perishable. Those can present additional problems that the government actors might not face as much with the other products they're using. That's a promising, I would say, opportunity to look at how that fares. I believe that's my last slide. I can move on to some questions and answers.

#### Amanda Yourchuck

Thanks, Ben. I've been taking a look at some of these questions, and I think there are a few questions that touch on what some of the strategies that could be used to mitigate some of these stockout impacts, and perhaps there are some examples or just general best practice from supply chain, more broadly that you can share, because I think in the case of DRC, what we found was that it was very much ad hoc.

We didn't touch on it too much in this presentation, but the Nutrition Cluster does play an important role in helping to share and coordinate sharing of supplies across partners. We did hear a lot about partners borrowing from other entities if they had a stockout, and then sharing back when their supplies came in. A lot of this was related to importation. Ben, are there any other mitigation strategies that, from other contexts or just general best practice, that people might want to consider?

#### **Ben Hatch**

Yes. I would say, as I touched on, the nutrition products tend to be managed differently than the other products in that, again, those decisions for how much is needed for a given year are made more at the central level, and often on targeting based on case counts and prevalence levels, of which I would say that's not the best practice for supply chain structure. The best practice would be to manage products based on the data from the last mile, according to what's actually used at the last mile health facilities. Of course, in order to do that properly, you need reliable data from those health facilities, which is not a small thing.

Also, with the level of stockouts that we're seeing in DRC, it can be problematic, for example, if a facility was stocked out for two months out of a six-month period, then that will artificially decrease their consumption of a product compared to what they might have consumed if they'd been able to keep stock of that product for the entire time. Jumping straight from the targeting methods that you're doing now, to using the health facility data, you'd need to involve all actors in the system to figure out how to account for some of those ongoing problems.

In a well-functioning supply chain, where the stockout rates are low, you would ideally be using the average monthly consumption from the facility level. Either the facility level facilities or at least something like the zonal warehouses to determine your quantification of annual needs, things like that. Yes, just in general, in terms of coordination with the level of fracturedness of the supply chains in DRC, just making sure that all of the various actors have a platform where they can coordinate goes a long way in terms of when one actor is out in one particular zone, they can bring that to the coordination mechanism.

So, they can talk to people in either the zone next door, to make sure if there's stock that could be transferred to them, first figuring out where that stock is, and then talking to all the various people involved to smooth that transfer, if that's possible.

## Amanda Yourchuck

Thanks, Ben. Yaritza, how are we doing on time? Do we need to move on, or is there time for any other questions?

#### Yaritza Rodriguez

I think we should move on to our next speaker.

#### Amanda Yourchuck

Okay, perfect. We'll try to respond to some of those other questions in the chat then, and if we can have the next slide, please. Now we'd like to share some of our main takeaways about what is needed to strengthen the continuum of care for wasted children. Although we draw our examples from DRC, and we base these recommendations on that learning, we do hope that they resonate with practitioners working in other countries as well. Next slide, please.

The first thing we want to highlight is the need for a change in perspective. Within the community of wasting practitioners, I think for a very long time, when we talk about wasting, we think first of treatment, and then we think of the humanitarian sector as the primary provider of those services. That has slowly been changing, as treatment services have become more integrated into national health systems, and as conversations about the importance of prevention of wasting have also come a bit more to the forefront.

What we found was, as we were trying to develop recommendations and conclusions for our various pieces of work, we found that there was a great deal of overlap between what needs to happen to ensure a continuum of care for wasting, inclusive of prevention particularly, and more general multi-sectoral nutrition activities. We found that it really didn't make sense for us to be differentiating our recommendations in terms of recommendations about prevention activities for wasted children versus just talking about those same activities that were happening in a broader space around general nutrition or multi-sectoral nutrition.

Really, what we do want to advocate for is we're starting to open up this conversation, particularly when it does come to wasting prevention, to just recognize where wasting is situated within this broader range of nutrition services and other sector services that can help address those root causes, and really trying to unsilo wasting both within nutrition, because I think there is a tendency of that to happen as well, but also within the broader health sector and more development and resilient sectors as well, and bringing those emergency and development actors closer together.

The Global Action Plan on Child Wasting, which takes a systems-level approach, really is a step in the right direction to keep this conversation moving forward in that way. Actors from the food system, health system, WASH, and social protection systems that are all highlighted as part of the Global Action Plan on Child Wasting are also those same actors that we're talking about, in addition to others, when we're speaking of either prevention activities for wasting or just part of multi-sectoral nutrition coordination efforts more broadly. Next slide, please.

As a direct follow-on to the need for this change of perspective, we then need to look at how nutrition and wasting actors in particular are able to better coordinate with other sectors. In our work in DRC, as I mentioned, we did see some examples of development actors engaging with the nutrition cluster,

and that is positive, but again, we remain on the fence about if that's the most appropriate way to tackle this challenge.

In DRC, there wasn't the alternative of having a multi-sectoral nutrition platform to test out if this would work well as a space to really talk more about wasting prevention as part of a more holistic set of nutrition services, but we do think that is probably the best way to go, or something to look into a little bit more. However, for this to work, we really need to make sure that both governments, implementing partners and donors are investing in the functionality and capacity strengthening of these multi-sectoral nutrition platforms.

As part of the scaling up nutrition movement, you see that these platforms exist in a number of countries, how they have very variable levels of functionality, particularly when you get down to the subnational level. We've noted that governments should really invest in these structures beyond just mandating their creation in their multi-sectoral nutrition policies and plans, and that implementing partners and donors really also need to recognize that supporting these platforms is a long-term investment.

When it comes to multi-sectoral nutrition coordination generally, even outside just thinking about the wasting aspects, it can take a lot of time to build up relationships between the sectors, to get sectors to understand their role in nutrition, particularly if we're looking at non-traditional sectors, like education, or trade, or gender, or things like that. It takes a lot of time to build those connections, and then really start to benefit from having synergies between these different activities, that then ultimately lead to prevention, not just of wasting, but of a number of other nutrition conditions as well.

Lastly, as we've mentioned before, in settings such as DRC with protracted crises, where we do have a lot of development actors, but also an active Nutrition Cluster, we do see an expanded role for the Nutrition Cluster to act as a link between these different platforms, and between emergency and development actors. As I've mentioned a few times, we don't want to overburden the Nutrition Cluster with a lot of things that are outside of the humanitarian mandate.

However, active participation by the Nutrition Cluster in multi-sectoral nutrition coordination platforms could serve as the link between these two entities and ensure that information is flowing in both directions to help strengthen that coordination between the two. Lastly, as Ben touched upon in his presentation, we do see an opportunity for a stronger coordination and alliances between nutrition and wasting actors in particular, with health systems strengthening actors. Again, infrastructure problems, which are such important barriers to the delivery of essential nutrition commodities to the health facilities, they really aren't within the mandate of the nutrition community to fix.

Nutrition is not providing funding to build new roads. However, things like warehouses are really within that realm of health systems strengthening. If there's some alliance there and joint advocacy between nutrition and wasting actors and other health systems strengthening actors, there might be an opportunity to gain a little bit more traction by bringing some ground truth consequences to the fore about what it means when we don't have adequate warehousing space, or we don't have adequate transportation infrastructure. Next slide, please.

Another significant challenge that we found across all of our work was a need to improve targeting. This comes-- The problem really originates with the need to have more accurate caseload estimates. What we found is that typically, caseload estimates were being underestimated. When you start with an

already underestimated amount of children in need, and then you apply a target on top of that, which is usually not 100% of children in need, you're then further underestimating, which can lead to supply shortages and all kinds of other implementation problems down the road.

It really is important to make sure that you're getting that first caseload estimate right. One of the problems we saw in DRC was that there is a lack of recent smart survey data, which is what is typically used to provide those wasting prevalence estimates. What we acknowledge in DRC in particular, there are security and access issues, and there was a slowdown in surveys globally due to COVID-19. Despite that, the funding for these surveys in DRC has been declining year on year by about 50%, since 2019.

Some parts of the country are relying on survey data from 2018, which really, given the context, is not reliable considering the high levels of population movement due to insecurity, natural disasters, but also just all of the global bubble shocks that have happened since the onset of the pandemic. We recommend that we really should think about investing in routine smart survey data, but acknowledging that it's expensive, it's time-consuming, and likely not feasible to have new surveys every single year, so we need to couple that as well with efforts to really improve routine data quality. Particularly in the DHIS-2.

We encountered a number of challenges in our work as well, around trying to use some of the DHIS-2 data. We saw that it was really difficult to ascertain any trends in wasting caseload. Between years or within years, caseloads were really erratic, and they didn't make sense, and it would've taken a really detailed analysis and a lot of follow-up to determine if the highs and lows in the data were due to data entry error or if there were shocks.

I think, in general, ensuring that you have that routine data, at a really high quality, to help you triangulate potentially older prevalence data, and also data from health facilities can really help you ensure that, are these numbers we're generating from prevalence estimates, do they make sense, and try to ground truth that a little bit. Related to that, is again, coming back to what Ben mentioned, is the need for better coordination with government and facility-level counterparts.

As Ben mentioned, for a lot of other sectors, best practice is to use that facility-level data, but given the somewhat unique way that nutrition commodities are structured and planned for and delivered, there are some issues with that data due to stockouts, but I think there is definitely room to improve that coordination and communication and triangulation of information to work on those caseload estimates.

Lastly, there are some questions that have arisen about how caseload estimates are calculated. There are two aspects that I'm going to touch briefly on. This is the incident rate that's being used in those caseload estimates, and as well as considerations for buffer stock. For the incidence rate, for those of you who are less familiar with how caseload estimation formulas for wasting are calculated, incidence is the measure of how many people in a population develop a condition over a specific period of time, usually within one year. Because we don't tend to have this specific data for wasting, we tend to use incidence correction factors to help factor this into the overall expected caseload for a year.

Right now, in DRC, a correction factor 2.8 is being used, and that was actually adjusted upwards, from 2.6 during COVID, to account for an anticipated increase in wasting caseload. However, there has been some recent research that's been looking at country-specific caseload-- Sorry, incidence correction factors, and for DRC, it was noted that the correction factor could potentially be as high as five, so that's quite different from 2.8. If that is in fact what it should be for DRC, then that means there's already a pretty significant underestimation when that formula is applied.

On top of that, when we talk about buffer stock, and how that's done, also factored into planning, when you're looking at your caseload, we found that the inclusion of buffer stock in supply estimates varied a lot due to caseload estimations, but also, it was often very dependent on available funding. If there was enough funding, additional buffer stock might be included, but if not, it might be reduced or left out completely.

The other challenge was that because of caseload underestimations, and some population movement across health zone borders, buffer stock was often used up just as part of routine programming. That meant that if there was a true shock or an unforeseen emergency, there was no buffer stock left to address that. That's another element that needs to be looked at a little more closely in terms of thinking through the targeting and the caseload estimates, and then the onward supply planning.

Lastly, again, echoing what Ben mentioned, is really a need to improve transparency in decision-making. It came up a lot in our work, particularly from government and health facility level staff, that they didn't feel consulted, they didn't understand where these decisions, caseload estimates, decisions about the amount of products to be sent were coming from, and I think there's a lot of room for improvement in terms of just communicating the trade-offs about targeting, funding constraints, and elements like that. To make sure that we have everyone on the same page, and just have a better working relationship between all of these different entities.

Next slide, please. Then, of course, we have to speak a little bit about purposeful co-location of activities, as that was our original task, was to look at co-location. There are a lot of actors in DRC, a lot of different activities. While we did see a few examples of more organic coordination between partners, often there are a lot of constraints that partners face in terms of having their own work plan objectives that are fixed at the beginning of the year, or funding limitations that impact their ability to be flexible and adapt midway through. Therefore, it is always best to be purposeful about both the co-location of activities, but also plan for how that coordination is going to happen between partners.

We realize that donors face many of the same constraints as the partners, in terms of how they can coordinate across a few of those and funding streams, but we do recommend, whenever possible, to think about these different elements at every stage of the project cycle. Starting with design, think about where you can integrate these linkages into the projects that you're planning to have, in the same area. Make coordination part of reporting and evaluation requirements. We found that for some of the projects that we looked at, and it was very, very helpful, and did actually lead to some improvements.

Lastly, if feasible, encourage joint work planning and shared results areas, outputs, outcomes between these projects as appropriate. If projects are committed to reaching shared goals, they're much more likely to work together towards them. Also on this co-location aspect, UN agencies and international NGOs also should look at supporting local partners to ensure that a single partner has the technical capacity to deliver both severe and moderate wasting treatment services. This not only facilitates a smoother transition between the services for the affected children, but it can also help streamline the number of actors working in a given area as well.

If a development partner or someone working on a prevention activity needs to know where to refer children for treatment, they have just one person in mind. They're not wondering if it's different for severe wasting or moderate wasting, it just helps streamline a lot of those different things. As we noted at the beginning of this webinar, in the places where we were working, in those initial four provinces, we

only found two examples where the same partner was able to deliver both types of services. Next slide, please.

Lastly, again, talking about trying to have that closer coordination between emergency and development actors in these areas of protracted crises. This really echoes the ongoing conversations that have been happening in this humanitarian development nexus space, about how to bring these actors closer together. I think one of the key issues that came up a lot was the funding cycles that don't align. Emergency funding timelines tend to be shorter, whereas development programs are longer. There has been a movement, on the side of donors, to lengthen emergency funding horizons for both their bilateral projects as well as the funding that goes to UN agencies.

What we saw in DRC, particularly with contracts that local partners had with UNICEF or WFP, was that these longer funding time horizons were not trickling down. The contracts tended to still be only six months to one year, at a maximum, which creates a lot of uncertainty not only for the implementing partner, as well as additional administrative burden, which can, of course, then impact on their technical capacity and service delivery quality, but it also makes it harder for development actors to coordinate their longer-term activities with these partners, and to keep track of who they need to be working with. Especially if partners are changing potentially on a six-month to 12-month basis. Next slide, please.

I think we were originally hoping to have time for Q&A on this, but I'm seeing the time we have remaining. I'm going to hand it right over to Mike, for a few closing remarks. Do feel free to put questions in the chat as well, in the meantime.

#### **Mike Manske**

Thanks, Amanda. Wow. This is really a great opportunity to share with you all. I'm so pleased that we had a lot of people to join, and there were so many questions, so I'm going to try to be brief. I'll just reintroduce myself very quickly. I'm Mike Manske. I am a nutrition advisor based in Washington, D.C. I've been supporting DRC in some way or another for about 10 years, closer to 11 years now. Marcel and I have been collaborating for quite some time.

He didn't mention it early on, but he conceived up this idea to really look at something that the DRC mission had prioritized, which was trying to co-locate partners within the country. Given DRC, as we all know, has a lot of need and resources, of course, are limited. I appreciated all of the questions related to that. Really, this was an idea to look at. We have all these different partners. This was, of course, legacy Food for Peace at the time. We have the development partners, or resilience partners, as well as the mission-funded activities that Amanda mentioned, such as the IHP project, also known as PROSANI. We really wanted to examine, what does it work, what does it look like to have-- Using the lens of continuum of care, what is needed to have everything in place, to try to address wasting more holistically? I think there was a lot of important work done on continuum of care by the Global Nutrition Cluster, as well as ENN, and other stakeholders, including, I believe, Tufts University have been discussing this issue, and really operationalizing it requires so many different actors. I think when you look at it from just an emergency lens, there's some limitations, really, to doing that. Even though it's sometimes messy, but I'm glad that this work by Advancing Nutrition has been able to examine what some call nexus programming. We'll notice that we didn't necessarily use that terminology. I noticed, from the Mentimeter, and as well as some of the key recommendations and remarks, that really, this is not just about the nutrition sector, and this is not just about implementing interventions. I think Amanda used the term systems many times. I think many people ask questions

about, what about the other services? What about the health center, the health services, WASH, et cetera? Really, all of those things are potentially needed.

I do appreciate some of these key findings related to coordination, but more importantly, I would say collaboration. I don't need to summarize again all of those key points that Amanda made. However, I will mention something on behalf of Marcel, you wanted to mention that BHA is taking some corrective actions as a result of these studies, and the reports, whether related to supply chain, BHA is now increasing the timeline for implementation by our UN partners for nutrition and emergencies. We are working to accept a more appropriate level of buffer stock for RUTF, for our partners, and finally, we're examining the duration of the MOU between UN agencies and their sub-partners. Those are some actions that are being taken as a result of this work. That's why this is important, is that this has not just been a report. This has led to some corrective actions, and also thinking, but I think there's a lot to be examined here beyond just we, nutrition advisors, there's a broader governance and systems issues.

Once again, I really just want to thank Amanda, Ben, Abby, Kavita, Yaritza, and Ann, who's been a consultant, and Richard, who's based in DRC, for all of their work on this. Thank you so much, again, to everybody who's joined the webinar today.

#### **Amanda Yourchuck**

Thanks, Mike. We can just have the next slide for a big thank you to everyone. I do encourage you all to visit the USAID Advancing Nutrition website, to find the full reports for all of this work. They're going to be posted over the next coming months in both English and French. Just to echo Mike, a big thank you to everyone that's contributed to this work. There's been a lot of interesting learning. Do reference those reports for even more detail than what was shared here today. Thank you so much, and have a great rest of your day.



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