16th TechNet Conference

Shaping a resilient and adaptive immunization program

20-21 OCTOBER 2020

#TechNetConference2020

Conference Report

Prepared by Dan Brigden, Frédéric Palazy and Alex Pascutto

21/12/2020

Contents

Preface

The TechNet Conference is held every two years and gathers together key stakeholders in immunization programmes from around the world: managers of national immunization programmes, WHO and UNICEF staff members, vaccine and cold chain equipment manufacturers, representatives from public health agencies, development partners, academia, and independent experts.

The 16th TechNet Conference was held virtually on October 20th and 21, 2020. The event was originally scheduled to take place in February 2021. However, the COVID-19 pandemic imposed a series of travel restrictions preventing the members of the TechNet community to travel internationally, making it impossible for them to attend the event in person. In these circumstances, it became evident that we would not be able to hold a physical conference as anticipated.

The TechNet conference brings together immunization professionals and offers a valuable platform to share knowledge and coordinate response to the disease. Hence, cancelling or postponing the conference would have been a loss for the TechNet community. In that context, we decided to hold the first virtual TechNet conference in October 2020 to support our community during the COVID-19 crisis.

Conference organisation

Planning Committee

The organization of the 16th TechNet Conference was driven by a Conference Planning Committee composed of 13 committed stakeholders representing the engagement and collaboration of various organizations involved with TechNet.

Members of the Planning Committee:

- Adebayo Adekola (UNICEF)
- Daniel Brigden (WHO)
- Maricel Castro (WHO)
- Dmitri Davydov (UNICEF)
- Olivier Defawe (Village Reach)
- Isaac Gobina (WHO)
- Denise Habimana (PATH)
- Souleymane Kone (WHO)
- Matt Morio (PATH)
- Fred Palazy (consultant)
- Helen Petach (USAID)
- Alex Pascutto (WHO)
- Wendy Prosser (JSI)

Theme focal points

The agenda was built around four main themes. The focal points for each theme were:

- ISC strategies (Dan Brigden, WHO)
- COVID-19 (Olivier Defawe, Village Reach)
- Effective vaccine management (Wendy Prosser, JSI)
- Cold chain equipment (Matt Morio, PATH)

Conference Secretariat

The organizational leadership was assumed by the World Health Organization with the support of:

- Frédéric Palazy, project manager (consultant)
- Géraldine Nemrod (consultant)

External support

The following external support made it possible to deliver the conference:

- Head technician: Tom Leemans (Triplus Solutions) and his team
- Zoom technician: Ben Spruyt (Butterfly Effect)
- Video Editor: Stephaan Borgers
- Website: Alex Lee (Storytelling Media)
- Interpretation Coordinator: Carmen María González (Octopus Translations)
- French Interpreters: Lucille Goutéraux, Guillaume Giraud, Luci Burguet, Brigitte Lafrechoux Lucil Chauvière and Viviane Arnoud
- Spanish Interpreters: Antonio M. Regueiro, Natalia Olatz Prio Platz, Carlos Cegarra Sanmartin, Naia Hernando, Isabel Roca García and Marcela Nicolao
- Elsa Derobert and Carlos Streijffert (WHO)

Funding

The 16th TechNet Conference would not have been possible without the generous support of the Bill and Melinda Gates Foundation.

Conference format

The conference was held virtually using Zoom as a digital event platform. The program was developed over two days around the theme **"Shaping a resilient and adaptive immunization program".** The program was divided into four key themes.

- ISC strategies
- Responding to Covid-19
- Effective vaccine management
- Cold chain equipment

The first day of the conference focused on ISC Strategies and Covid-19 while the second day focused on Effective vaccine management and Cold chain equipment.

Over 100 speakers located across the world shared their knowledge and experience through the 28 virtual sessions that made up our agenda. The full conference agenda can be found here:

www.technet-21.org/en/conference/2020

All the sessions are now available to watch online, and the links are displayed on the on-line agenda. Presentations are available in PDF format in the TechNet Resource Library:

www.technet-21.org/en/library

The program included twelve 30 minutes sessions presented every morning from 9:00 am to noon (Central European Time) and broadcasted a second time in the evening from 19:30 to 22:30 to accommodate participants connecting from different time zones.

Daily plenary sessions started every day at 15:00 in order to make it easier for participants across the world to join live. Plenary sessions were intended to provide overall updates while other sessions went into more depth on the two daily focus themes.

The plenary sessions were followed by breakout sessions running in parallel in three different streams. A total of 12 breakout session lasting one hour gave our audience an opportunity to exchange with the speakers via Questions and answers (Q&A) periods.

In addition, the conference included a virtual "Marketplace" to give participants the chance to get to know the Partnership of Immunization Networks (PIN) and WHO PQS cold chain equipment manufacturers.

Themes

ISC strategies

- An introduction to VIPS: outcomes of the prioritization process and next steps
- How, where and when are we going to use microarray patches to deliver measles and rubella vaccines?
- The cost-effectiveness of delivering vaccines through a controlled temperature chain (CTC)

- The future of countries' cold chain systems: Achieving cost-efficiency in managing storage of primary health care commodities
- ISC leadership & governance at country level
- Capacity development with sustainable impact
- Immunization supply chain interventions that enable coverage and equity and contribute to resilient systems
- Strategies for catch-up and reducing missed opportunities for vaccination (MOV)
- Service experience: interlinking supply and demand for immunization

Responding to Covid-19

- OpenLMIS COVID edition to support supply chains during COVID
- Interoperability of data management system to support COVID response in Malawi
- CHW PPE effort in Liberia - lessons learned about trying to get visibility and data use during a crisis
- Private sector engagement for COVAX
- Reaching Covid-19 vaccine priority target groups

Effective vaccine management

- How changing vial size can improve your immunization services
- Data use for supply chain management: From zero to hero
- EVM2: A New tool for resilient programmes and continuous ISC performance improvement
- Building a more resilient supply chain through design

Cold chain equipment

- Improving cold chain equipment management in Uganda with a data-centred approach and ODK-X
- Gavi and UNICEF - CCEOP, IMPT and procurement updates
- Temperature monitoring and performance management of cold chain equipment– two complementary approaches
- Cold chain management during Covid-19 - Panel discussion
- WHO PQS – Your Cold Chain's First Line of Defence
- Cold chain innovations - learnings from field evaluations of freeze protection and energy harvesting

Virtual marketplaces

PIN Marketplace

The PIN Marketplace gave participants an opportunity to meet the teams behind the five organizations represented in the Partnership of Immunization Networks (PIN). Each organization had their own virtual breakout room, presented their network and answered questions from participants via Zoom chat.

The following PIN partners participated in the PIN Marketplace:

- BOOST
- IAPHL
- Immunization Academy
- TechNet-21
- The Geneva Learning Foundation

PQS Manufacturers Marketplace

Where vaccine and equipment manufacturers showcased their latest devices, products and cold chain technologies. It was an opportunity for 145 participants to ask questions to the manufacturers. The following PQS Manufacturers participated in the PQS Marketplace:

Technology

We used Zoom as a platform for this virtual event. The quality of the conference relied heavily on technology and depended on the quality of the platform, but also on the internet connection of each participants. Having speakers located in all areas of the world, with different access to strong internet connection, we decided to use an easy to use and well-known conferencing platform and opted for Zoom. In addition, we decided to pre-record all the sessions in advance of the conference in order to avoid major technical issues live during the conference. Tree recording studios were set-up in Belgium and all 28 sessions were recorded remotely over three days using Zoom. Nine technicians were involved in that process and all videos were edited to fit the length of each session in our agenda.

We also had a full team of nine technicians managing technology during the conference. Their main role was to ensure smooth transition between the different sessions, manage the presentations, organize the live Q&A sessions, record each session in all languages and ensure technical support in case of technical issues with Zoom during the event.

The event was broadcasted live on the TechNet YouTube channel:

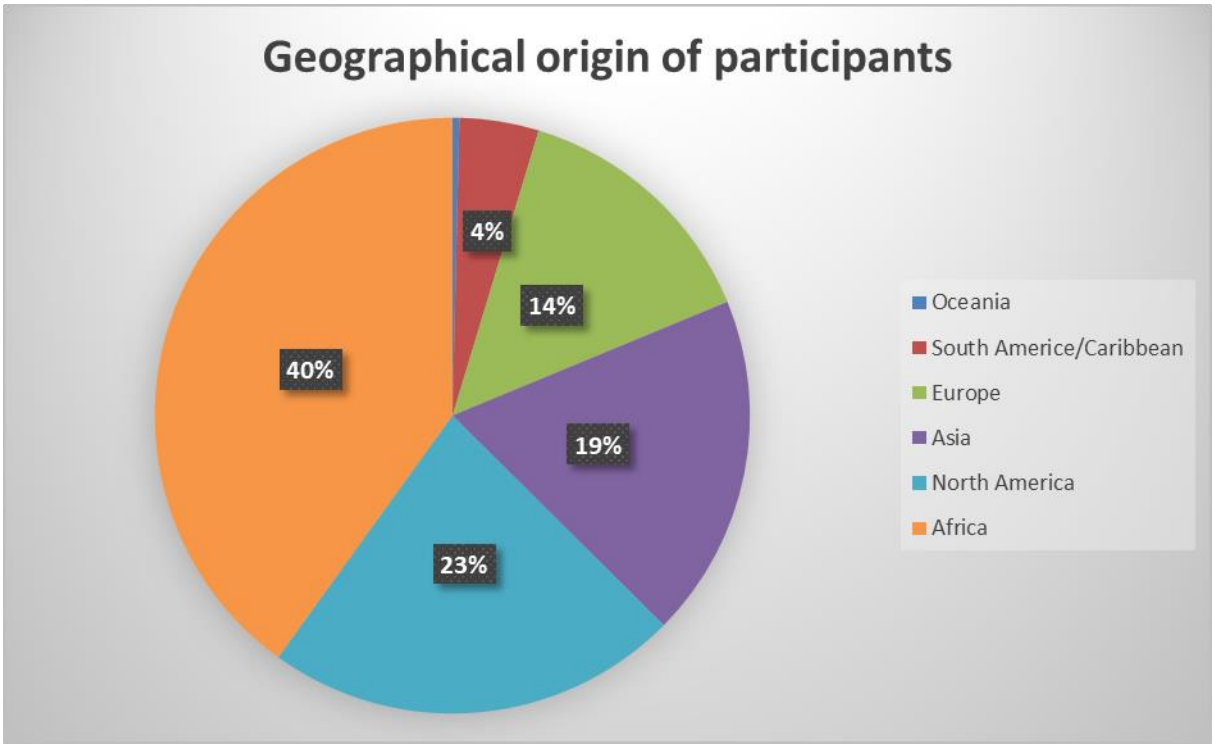
www.youtube.com/user/TechNet21

Most sessions were conducted in English and were simultaneously interpreted into French and Spanish. A team of 12 interpreters and a coordinator were involved to make sure our content was made available to our international audience. We used the ''Zoom interpretation'' functionality allowing participants to listen to the content in their preferred language. Most of the sessions were recorded and are available in French and Spanish on the TechNet YouTube Channel.

Attendance

A total of 1066 participants registered to the 16th TechNet Conference. 779 individual participants joined the event on the first day and 529 joined on the second day. That audience represented a wide spectrum of stakeholders from public and private sector.

Participants originated from 106 countries across all continents. Most participants (40%) joined the conference from Africa, 23% from North America, 19% from Asia, 14% from Europe, 4% from South America and the Caribbean and only a few participants (0,4%) joined from Oceania.



**16th TechNet Conference - Geographical origin of participants (based on registration)*

Participants joined from the following countries:

Afghanistan, Albania, Argentine, Australia, Bangladesh, Barbados, Belgium, Benin, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Canada, Central African Republic, China, Colombia, Congo, Côte d'Ivoire, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Ethiopia, France, Gabon, Gambia, Georgia, Germany, Ghana, Guatemala, Guinea, Guyana, Haiti, India, Indonesia, Iraq, Ireland, Italy, Jordan, Kenya, Korea, Lao people's Democratic Republic, Lebanon, Lesotho, Liberia, Luxembourg, Madagascar, Malawi, Mali, Mauritania, Mexico, Moldova, Morocco, Mozambique, Myanmar, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palestine, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Portugal, Qatar, Russian Federation, Rwanda, Saint-Lucia, Saudi Arabia, Senegal, Sierra Leone, Singapore, Solomon Islands, Somalia, South Africa, South Sudan, Spain, Sri Lanka, Sudan,

Sweden, Switzerland, Tanzania, Togo, Turkey, Uganda, United Arab Emirates, United Kingdom, United States, Uruguay, Viet Nam, Yemen, Zambia, Zimbabwe.

The relative participation by country is represented in the following word-cloud.

Social media

The conference was promoted on Twitter, Facebook, and LinkedIn. Engagement has been much higher on Twitter while not seeing much increase on Facebook compared to previous months.

Twitter

The TechNet Community manager posted 61 tweets on Twitter during the conference month that generated 26,6k tweet impressions and 1,2k profile visits. The number of followers increased by 3% from 908 to 936 followers.

Compared to an average month in 2020, the campaign generated:

- 4.5 times more engagement
- 6 times more retweets
- 44 times more replies
- 2 times better engagement rate

We received support from our main partners with mentions, retweets, and use of our hashtag #TechNetConference2020:

- WHO main account, @WHO
- UNICEF main account @UNICEF
- JSI @JSIhealth
- VillageReach @VillaReach
- Immunization Academy @ImmunAcademy
- Nexleaf Analytics @Nexleaf, 2 tweets
- Sabine Vaccine Institute @sabinevaccine, 1 tweet
- Dulas Solar @DulasSolar, 2 tweets
- International Geneva @Geneve_int, 1 tweet

We are still generating content and interactions as we are sharing recordings of sessions until mid-December.

Day 1 – ISC strategies; COVID-19

Opening Plenary: Conference opening

View: https://youtu.be/u--67xlBMck

Slides: https://www.technet-21.org/en/library/main/6669

Rapporteur: Dan Brigden, WHO

Day one of the 16th TechNet Conference opened with the conference opening ceremony. During this one-hour session, the following presentations were given.

Welcome - Souleymane Kone (WHO)

In addition to providing some logistical guidance on how the online conference was organised, including how to switch between languages, Solo provided a short summary of the history of TechNet since its creation in 1989.

Opening remarks - Ann Lindstrand (WHO), Robin Nandy (UNICEF), Alex de Jonquieres (Gavi)

Representatives from WHO, UNCIEF and Gavi provided some opening remarks. Ann's focus was on introducing the Immunization Agenda 2030, while Robin explored the topicality of immunization supply chain discussions in the context of the Covid-19 pandemic. Alex summarised many of the initiatives that Gavi are involved with towards responding to the Covid-19 pandemic.

Building resilience in the 'global South': A message from Senegal - Dr Marie Khémesse Ngom Ndiaye (Director-General, Ministry of Health, Senegal)

Presenting from her office in Dakar, Dr Ndiaye discussed some of the most pressing challenges currently facing Senegal.

Ensuring that countries are ready for a Covid-19 vaccine - Benjamin Schreiber (UNICEF)

Benjamin provided an interesting verbal update on the Country Readiness and Delivery workstream (CRaD) of the COVAX initiative.

Innovating to minimize the impact of COVID-19: A message from the winner of the Oman Youth Covid-19 Innovation Challenge - Saada Al Salti (Team Teryaq)

Saada Al Salti of Team Teryaq introduced the Oman Youth Covid-19 Innovation Challenge as an example of how young people contributing their talents and passion to helping those in need, and making societies more resilient.

The opening ceremony was well attended with around two hundred simultaneous participants. There was no formal Q&A; however, the session was promoted and discussed on social media channels.

The future of countries' cold chain systems: Achieving cost-efficiency in managing storage of primary health care commodities

Maricel Castro (WHO), Michelle Seidel (UNICEF PD), Tariku Berhanu Desalegn (UNICEF Ethiopia), Monjurul Islam Fuad (Bangladesh MoH)

Rapporteur: Maricel Castro (WHO)

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Slides: https://www.technet-21.org/en/library/main/6670

This session focused on providing guidance on how to safely and effectively implement an integrated storage, transport and stock management of primary health care commodities in the immunization supply chain. Over the years, many countries are facing a challenge on where to store heat-sensitive health commodities since only the immunization programme has available cold chain capacity. The immunization supply chain system is often managed separately and due to the high value placed on vaccines, some countries prohibit the storage of other products in the vaccine cold chain to preserve vaccine quality. However, the recent innovations and technologies on monitoring temperatures and vaccines make management of vaccines and cold chain easier, enabling storage integration with other heat-sensitive health products feasible.

The WHO and UNICEF developed a joint statement encouraging greater health commodity supply chain integration for temperature-sensitive pharmaceuticals where safe and appropriate. Michelle (UNICEF) and Maricel (WHO) explained the benefits of integration and how it can be safely and efficiently implemented. Experiences of Ethiopia and Iraq - presented by Dr Berhanu and Dr Fuad, respectively - on integrating immunization supply chain to the wider health supply chain in the context of system design and information management were featured during this session.

Private sector engagement for COVAX

Olivier Defawe (VillageReach), Maeve Magner (consultant), Chris Larson (UPS)

Rapporteur: Mariah Kunz, Village Reach

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Slides: https://www.technet-21.org/en/library/main/6671

The aim of this session was to describe the range of roles the private sector can play in preparing for and distributing COVID-19 vaccines. For example, private sector partnerships can provide direct support transporting vaccines – whether by flying vaccines into countries by plane, or supplying drones for last mile delivery. Private sector might also provide its expertise or capabilities, as UPS has done creating a model that quantifies freezer capacity for a cold chain. Speakers emphasized the importance of involving the private sector at the local level where possible, both to support local economies and encourage long term sustainability.

Speakers also noted private sector partnerships – along with the support of governments and funders – are contributing to greater innovation in the supply chain area. However, they cautioned that support for proof-of-concept or pilot projects must be complemented by funding to bring solutions to scale, when and where appropriate. For example, we know it is possible to deliver health products with drones, but there needs to be a financial mechanism to show that a pilot solution with impact can transition to a more scalable solution.

ISC leadership & governance at country level: The role of leadership and governance in ISC coordination in countries', using NLWGs experience during COVID-19

Patrick Gaparayi (UNICEF), Hassan Sibomana (Rwanda Biomedical Centre), Marius Vouking (Cameroon MoH)

Rapporteur: Adebayo Adekola, UNICEF

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Slides: https://www.technet-21.org/en/library/main/6672

The session aimed to highlight the role of logistics coordination groups like the national logistics working group in maintaining immunization supply services during the COVID-19 pandemic and readiness for the introduction of COVID-19 vaccines. Using country experiences from Rwanda, Cameroon and lesson learned from specific countries, the conversations centred mainly on the role of coordinated country planning, with a focus on business continuity planning for emergencies, and preparedness to meet the changing demands, logistics disruptions, and new way of work posed by the COVID-19 pandemic. The function of the logistics coordination group was further emphasized in its role in providing leadership, coordination among multiple partners, maintaining data visibility, and technical expertise across the supply chain operations and enablers.

The session brought to light the need for stakeholders' engagement and coordination in supply planning, inventory management, emergency response, and workforce safety through Infection, Prevention & Control (IPC). With regards to country preparedness for the new COVID vaccine, most countries that have faced similar challenges in the past are much confident to manage their in-country immunization supply chain with prior experiences. They should however be well prepared and have operational plans for a smooth introduction of the COVID-19 vaccine without significant disruption to the routine immunization services.

Reaching Covid-19 vaccine priority target groups

Souleymane Kone (WHO), Adama Sawadogo (UNICEF PD), Serge Ganivet (UNICEF WCARO), Oleg Benes (WHO EURO), Claude Mangobo (WHO AFRO)

Rapporteur: Souleymane Kone, WHO

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Slides: https://www.technet-21.org/en/library/main/6673

This session, moderated by Souleymane Kone from WHO EPI, explored the ways in which national immunization programs can reach Covid-19 vaccine target groups, such as healthcare workers and the elderly.

While most countries have conducted multiple mass vaccination campaign for infants and adolescents, many others may not yet have developed adequate experience vaccinating the elderly. A panel of global and regional supply chain experts from WHO (Oleg Benes from WHO EURO and Claude Mangobo from WHO AFRO) and UNICEF (Adama Sawadogo and Serge Ganivet) discussed different strategies for adapting existing practices to ensure

that the future requirements of immunizing target groups with a new Covid-19 vaccine can be met. Perspectives from two regions (Europe and Africa) were highlighted and questions were submitted to the panellists using the Zoom chat.

Capacity development with sustainable impact

Dmitri Davydov (UNICEF Programme Division), Arletty Pinel (advisor, global health and systems strengthening), Graça Masinhe (Director, Mozambique EPI), Moussa Yazi (Head, Business Development Unit, CESAG)

Rapporteur: Dmitri Davydov, UNICEF

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Slides: https://www.technet-21.org/en/library/main/6674

The COVID-19 pandemic has made evident the need to move from internationally-dependent TA towards a continuous and sustainable capacity development approach. The increasing complexities of the supply chains merit more distributed TA models that can be implemented by a network of national institutions, such as, government agencies, academic institutions, vocational training centres, private companies and NGOs. New EVM2 functionalities enable its use as a continuous capacity development delivery mechanism addressing equity gaps of the ISCM workforce at subnational level, thus making EVM2 a tool for measurement of TA delivery effectiveness.

The session showcased three perspectives on TA delivery. Dr Arletty Pinel presented a framework for localized knowledge-based TA delivery systems. She interviewed Dr Graça Matsinhe, Director of EPI in Mozambique, who articulated a country programme-centred vision for TA delivery. Finally, Mr. Moussa Yazi provided an overview of some of the innovative models used by CESAG to build national capacities and empowered leaders at all levels across francophone Africa.

Immunization supply chain interventions that enable coverage and equity and contribute to resilient systems

Mod: Srihari Dutta (UNICEF ROSA), Ahmadu Yakubu (UNICEF), Michelle Seidl (UNICEF), Ranjit Dhiman (UNICEF), Kibura Daradara (NPHCDA)

Rapporteur: Srihari Dutta, UNICEF

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Slides: https://www.technet-21.org/en/library/main/6675

The supply chain is a key driver of the immunization program. To achieve high and sustainable coverage with equity, the immunization program needs to redesign. Reaching the zero dose children certainly requires additional resources, efforts and often requires a special strategy. To address the equity issues in the immunization program ERG has identified four broad areas, remote rural, urban, conflict-affected, and gender. In 2019, globally 20 million children are un-or unvaccinated. These are the children who missed consistently polio, measles, or routine immunization programs. In 2020, the Covid-19 pandemic has hit the health services and has affected immunization services maximum. In

Africa alone, more than 1million children are less immunized compared to the same period in 2019.

Afghanistan, Pakistan and Nigeria have shown an excellent example of supply chain work that has facilitated coverage with equity and has increased the resilience of the immunization program. Pakistan's presentation very clearly demonstrated that closure of the vaccine storage point to the community higher is the service uptake. Besides, there is a need to redesign the system to make it more efficient but achieve high coverage. Nigeria's example of stock out mitigation for areas with repeated low coverage helped in improving coverage from 33% in 2016 to 67% in 2019. In Afghanistan, with more than 70% area without electricity and present coverage of 51%, the country still has a reliable supply chain program and national logistics working group is established in every region to monitor coverage and equity in vaccine delivery.

TechNet-21 & the Partnership of Immunization Networks

Rapporteur: Dan Brigden, WHO

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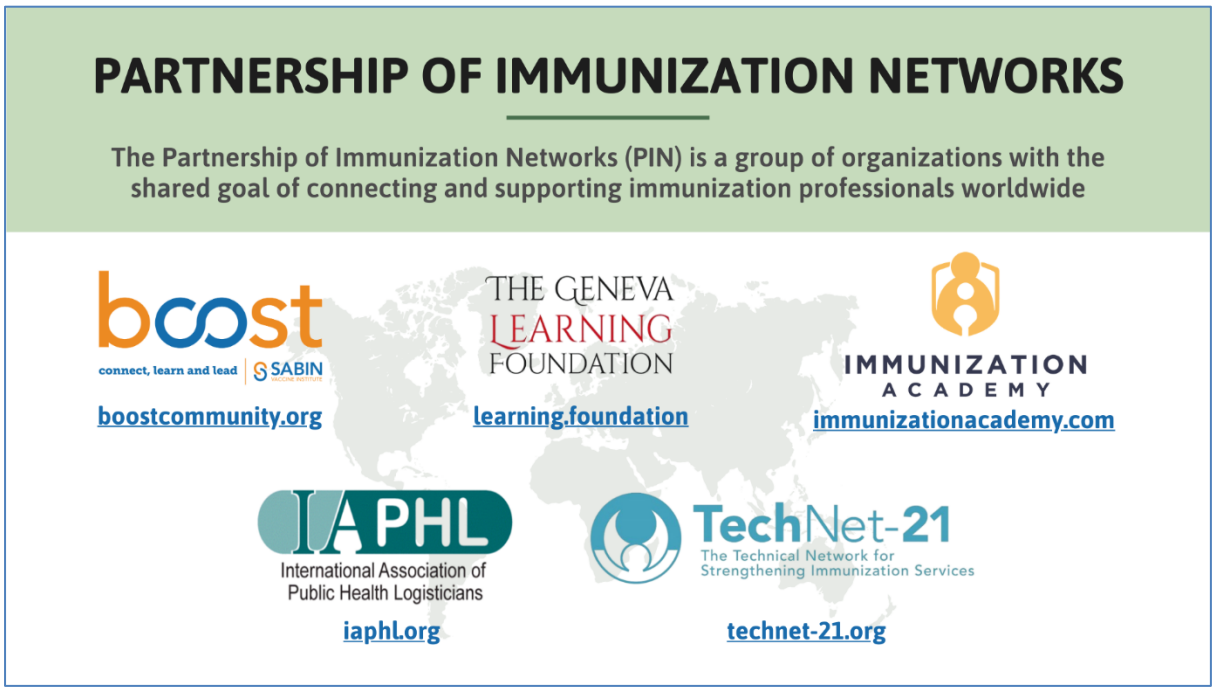
Slides: https://www.technet-21.org/en/library/main/6676

The 30-minute closing plenary was devoted to introducing the "Partnership of Immunization Networks". This partnership was created by TechNet-21 to strengthen collaboration between organizations that serve distinct yet interconnected online communities of immunization professionals and provides a convening mechanism for organizations to better meet the needs of their respective communities. In addition to TechNet-21, the organisations in the partnership are: BOOST, the Geneva Learning Foundation, Immunization Academy, and the International Association of Public Health Logisticians (IAPHL).



Each organisation briefly presented themselves and their networks.

- TechNet-21 (Alex Pascutto)
- BOOST (Sarah Kester)
- Immunization Academy (Nathan Pienkowski)
- IAPHL (Walter Proper)
- The Geneva Learning Foundation (Reda Sadki)

The conference then went directly to the PIN Marketplace, where participants could interact with each organisation.

An introduction to VIPS: outcomes of the prioritization process and next steps

Birgitte Giersing (WHO), Marion Menozzi-Arnaud (Gavi)

Rapporteur: Birgitte Giersing (WHO)

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Slides: https://www.technet-21.org/en/library/main/6663

The Vaccine Innovation Prioritisation Strategy (VIPS) was created in 2018, to prioritise product innovations with the greatest potential to improve vaccine coverage and equity and address countries' critical barriers to immunization. VIPS is a collaboration between Gavi, the Vaccine Alliance; the World Health Organization; Bill & Melinda Gates Foundation; United Nations Children's Fund; and PATH. Over the last three years, these partners successfully developed and implemented a framework and methodology to evaluate 24 classes of vaccine product innovations. The process included engagement with country immunization programs, technology developers, vaccine manufacturers and regulators, with oversight from an expert steering committee.

The innovations included novel primary containers, delivery technologies, packaging and safety devices, formulation enhancements to improve vaccine thermostability, and primary

container indicator labels. Evaluation criteria focused on the potential impacts of these innovations on health, coverage and equity, safety, economic costs, and environment as well as their technology readiness and commercial feasibility. Microarray patches, heat stable and controlled temperature chain qualified vaccines, and barcodes on primary packaging have been prioritised. VIPS is now developing five-year action plans to advance these innovations and aims to coordinate efforts that will inform and influence investment decisions, to ensure that vaccine innovations offering superior value propositions reach those who need them.

How, where and when are we going to use microarray patches to deliver measles and rubella vaccines?

Mateusz Hasso-Agopsowicz (WHO)

Rapporteur: Mateusz Hasso-Agopsowicz, WHO

View: https://youtu.be/wAcQx5SI6c8

Slides: https://www.technet-21.org/en/library/main/6664

The global goal of reaching 95% coverage for measles containing vaccines (MCV) is not reached due to multiple challenges with the current MCV delivery. Microarray patches (MAPs) consist of hundreds of tiny projections that deliver dry vaccine just below the skin surface. They avoid reconstitution and are easy to use, can save time for healthcare workers and have a potential for enhanced heat stability and freeze resistance. The Strategic Advisory Group of Experts on Immunization (SAGE) recommended in 2016 to identify the most expeditious pathway to MR-MAP development. To understand the priority attributes for MR-MAP, World Health Organization (WHO) developed a Target Product Profile (TPP) that describes minimum and optimum product attributes required for MR-MAP to make an impact in low-and-middle income countries (LMICs). To understand how MR-MAPs will be used in countries, WHO conducted a landscape analysis to develop six MR-MAP use scenarios (use cases). These include: 1) delivery by health worker (HW) or community HW (CHW) in fixed post, 2) outreach delivery by HW, 3) outreach delivery by CHW, 4) delivery by CHW in their "home" community, 5) self-administration with HW or CHW assistance, 6) self-administration without assistance. The six use cases were validated in an open survey and through country interviews and use cases 3 and 4 were found to be most suitable for MR-MAP delivery. WHO is now working with experts to identify assumptions to calculate the maximum potential size of each of the use cases, and working with Vaccine Innovation Prioritisation strategy to develop 5 years plans to accelerate the MR-MAP development.

The cost-effectiveness of delivering vaccines through a controlled temperature chain (CTC)

Anna-Lea Kahn (WHO), Mercy Mvundura (PATH)

Rapporteur: Anna-Lea Kahn, WHO

View: https://youtu.be/eYZdTWh1IPQ

Slides: https://www.technet-21.org/en/library/main/6665

This session addressed the potential economic value of delivering vaccines without the constraints of the cold chain such as is possible when relying on a controlled temperature chain (CTC). CTC use of vaccines allows for removal of the vaccine from the standard cold chain into ambient temperatures typically up to +40°C for a minimum of 3 days, for one permanent occasion prior to administration.

Relying on CTC reduces programmatic logistics costs compared to using the cold chain. Overall, a compelling evidence-based argument was made supporting the notion that even with a marginal price premium, the potential economic and programmatic gains offered by the CTC approach justify seeking CTC licensure and prequalification for a thermostable vaccine, as well as applying CTC during last mile delivery whenever feasible.

While there are specific programmatic implementation parameters that must be respected when adopting CTC, and these can vary from one CTC-qualified product to another, the recognized programmatic economic and operational benefits are consistently the same and appear to outweigh any associated risks. These benefits include increased delivery efficiencies and reduced burdens on healthcare workers, resulting in reduced delivery costs. The culmination of these advantages can translate into increased reach, higher vaccination coverage and equity for a given vaccine, which also can mean greater health impact.

Advocacy is required with industry partners to make sure the right kind of products get qualified for CTC use. Countries must also be made more aware of the case in support of CTC. For either of these important objectives to be achieved, the evidence base on CTC must be expanded and relevant implementation research facilitated and conducted.

OpenLMIS COVID edition to support supply chains during COVID

Wes Brown (OpenLMIS community)

Rapporteur: Madeline May, Village Reach

View: https://youtu.be/vR_yYY4951Y

Slides: https://www.technet-21.org/en/library/main/6666

Wes Brown of VillageReach presented on a rapid adaptation of OpenLMIS to support supply chains during COVID-19. OpenLMIS is an open source logistics management information system specifically designed for LMICs. Features include requisitions, order fulfilment, stock/inventory management, analytics and reporting, mobile integration and equipment tracking.

When the impact of COVID-19 first became apparent, VillageReach and CHAI saw a great opportunity to use OpenLMIS to help countries monitor commodities like PPE and, eventually, a vaccine. VillageReach and CHAI swiftly adapted a version to allow countries to easily utilize OpenLMIS with little cost or training required. They also adapted the product catalogue to include COVID-related commodities.

The COVID-19 edition of OpenLMIS allows countries to see what health products are on hand at each health facility, respond to shortages or surpluses, track and have visibility into the functional status of critical equipment like ventilators, and use data visualization to look at what is going on in their country. When a COVID-19 vaccine is available tracking the

allocation and usage will be critical, as will the monitoring of cold chain equipment. OpenLMIS can be a critical tool used by countries to aid in their COVID-19 response.

Interoperability of data management system to support COVID response in Malawi

Upile Kachila (VillageReach), Bwighane Mwalwanda (Luke International)

Rapporteur: Madeline May, Village Reach

View: https://youtu.be/jon4FHmld84

Slides: https://www.technet-21.org/en/library/main/6667

The Chipatala cha pa Foni (CCPF) platform is a toll-free mobile health hotline providing communities across Malawi with access to a wealth of information on health and nutrition. Now, during the COVID-19 pandemic, this includes information on COVID-19. In March 2020 the hotline was marked as the primary resource to provide MoH-approved information related to COVID-19. Since then, calls to the hotline have increased tremendously which provides an opportunity to use call data to inform government decision-making around COVID-19.

Upile Kachila of VillageReach and Bwighane Clive Mwalwanda of the Malawi Ministry of Health presented how data from the CCPF platform can be used to support the COVID-19 response in Malawi. They describe how the Malawi Ministry of Health has activated a DHIS2 tracker program instance, One Health Surveillance Platform (OHSP) for COVID-19 surveillance, providing opportunity for CCPF data to be integrated via an interoperability layer.

CHW PPE effort in Liberia - lessons learned about trying to get visibility and data use during a crisis

Arthur Loryoun (VillageReach)

Rapporteur: Madeline May, Village Reach

View: https://youtu.be/c7kGdTj-iRY

Slides: https://www.technet-21.org/en/library/main/6668

Community Health Workers (CHW) are critical in mitigating the spread and impact of COVID-19. They are often the first point of contact for patients, can implement rapidly changing community level response, and can contribute to community sensitizations for vaccines campaigns. However, to do all this, they must be protected.

In this session, Arthur Loryoun of VillageReach describes his experience working with the Liberian Ministry of Health's Supply Chain Management Unit (SCMU) and partner Last Mile Health to develop a quantification tool to ensure all CHWs in Liberia have the PPE needed to protect themselves and their communities from COVID-19. Key lessons learned include knowing that an emergency requires a no-regrets approach to planning and decision-making like quantification. While imperfect, the process provided valuable directional information to begin PPE procurement. In addition, it highlighted the importance of

addressing the short-term while planning for the future. The team is already seeing how the tool will help optimize the supply chain for all products that CHWs need.

Day 2 - Effective vaccine management, Cold chain equipment

Opening Plenary

Rapporteur: Dan Brigden, WHO

View: https://youtu.be/8s6-yUi2GXg

Slides: https://www.technet-21.org/en/library/main/6695

The one-hour opening plenary for Day 2 of the conference included the following presentations were given.

Welcome back - Adama Sawadogo (UNICEF)

Adama succinctly went over the conference logistics and introduced the speakers who followed.

The impact of Covid-19 on immunization services and guiding principles for immunization activities during severe disruptions - Diana Chang-Blanc (WHO)

Diana provided an extended version of the presentation she made the week before for SAGE on the extensive impact of Covid-19 on immunization services worldwide. She highlighted some key WHO publications that provide guidance to countries on how to address the challenges they are facing.

Love in the time of COVID: How can resilient supply chains save health systems in the long term? Peter Okebukola (McKinsey & Co)

This presentation highlighted the critical role of supply chains in building resilient health systems, in light of the Covid-19 pandemic and provides some suggestions for tactical steps that decision makers can take to position the supply chains for success in the long term.

Building resilience in a fast-changing world - Sena Kwawu (Board Member, VillageReach)

Sharing relevant private sector experience around resilience and different ways of problem solving.

Data use for supply chain management: From zero to hero

Adriana Alminana (JSI), Angela Montesanti Porter (CDC), Heather Scobie (CDC), Amare Bayeh (JSI), Harrison Mariki (inSupply), Daniel Kinyanjui (inSupply)

Rapporteur: Adriana Almiñana, JSI

View: https://youtu.be/ZgBex6YRstM

Slides: https://www.technet-21.org/en/library/main/6696

Data is an important aspect of any immunization program. Effective data use for decision making can be achieved through data use processes that include multi-disciplinary teams and through data triangulation – the synthesis of existing data from two or more sources to address relevant questions for program improvement.

This session featured three short presentations: 1) guidance on data triangulation developed by CDC and WHO; 2) a practical tool for triangulating program and supply data developed by JSI in Ethiopia; 3) best practices of and human-centred design findings on data review "IMPACT" teams by inSupply. A subsequent Q&A discussion centred on the impact of data quality on triangulation, routinizing triangulation and data use processes, and how to foster a data culture. Various resources were linked in the presentations for further use by participants.

Cold chain management during Covid-19, a panel discussion

Matt Morio (PATH), Christine Lanyero (MOH / UNEPI), Ernest Some (MoH / NVIP Kenya), Yogesh Bhamare (NCCRC-INDIA), Gisele Iraguha (MoH/EPI Rwanda)

Rapporteur: Matt Morio, PATH

View: https://youtu.be/6B2HMRrlo-c

Slides: N/A

This session brought cold chain experts from four countries together to share the challenges Covid-19 has created for cold chain maintenance during pandemic lockdowns in India, Kenya, Rwanda, and Uganda, and more importantly, how they are overcoming these challenges to maintain an effective cold chain. Several key themes emerged from the discussion across all panellists: Communication, Data, and Empowerment.

Communication: adapting to inability to travel or meet face to face has emphasized the need to use other communication methods for updates, reporting, and even training. Becoming comfortable with online meetings and teaching healthcare workers and cold chain technicians how to use the technology is an important first step.

Data: Covid-19 has emphasized the need to make data actionable. Temperature monitoring data helps indicate which CCE needs attention. Asset management tools like ODK-X helps update inventories and functional status of CCE. Dashboards and connectivity allow the data to flow both UP and DOWN and enable users to plan and respond.

Empowerment: Providing travel waivers for cold chain maintenance during lockdowns and providing access to PPE and SOPs to protect staff is essential. Healthcare workers are being asked to take on more responsibility for preventative maintenance in many settings so providing them with proper training (via zoom or calls) and protocols available, as well as the needed tools is key to help communicate and monitor CCE amidst the challenges of the pandemic.

WHO PQS – Your Cold Chain's First Line of Defence

Isaac Gobina (WHO), Paul Mallins (WHO PQS), Edda Magnus (PATH), Léon Kapenga Mukonkole (PATH DRC), Denise Habimana (PATH)

Rapporteur: Gemma Huckerby

View: https://youtu.be/WSgYAqKz_OM

Slides: https://www.technet-21.org/en/library/main/6698

Denise Habimana shared key statistics that speak to PQS' role as the first line of defence for the immunization cold chain, highlighting performance standards and product features developed and introduced since the 2017 TechNet conference. Next, Denise announced the launch of the revitalized PQS website, available here:

https://extranet.who.int/pqweb/immunization-devices

And reminded listeners that the effective PQS process relies on product users and other members of the immunization community providing feedback on product performance.

Paul Mallins next provided an overview of the ongoing post-market monitoring pilot project which aims to systematically track CCE performance data and integrate sentinel surveillance into national EPI. He noted that an evaluation of the pilot will take place in spring 2021 to assess the feasibility and organization of roll-out. Paul went on to describe the goals, plans and insights of the sentinel surveillance project. He noted that several key tools are already being trailed, including the ODK-X data collection tool and a taxonomy of CCE failures – this latter he encouraged product users and manufacturers to begin using for all product feedback as of now.

Dr Léon Kapenga Mukonkole reported on how the DRC immunization supply chain has adapted to the COVID-19 pandemic, noting in particular the importance of human resource management preparations, a rapid transition to remote data gathering and readiness to recoup delayed maintenance visits once restrictions were lifted.

Concluding the set of presentations, Isaac Gobina introduced the ongoing work to integrate ULT vaccine devices into the supply chain process. Isaac first laid out the timeline for the development and publishing of the ULT product specifications; foreseen for December of the current year. Isaac then highlighted that the ULT freezer specification will define requirements for 3 temperature zones and (anticipated) that some freezers may have to operate in a temperature-controlled or air-conditioned environment. For ULT passive devices, Isaac noted that the specification will update long-term passive cooler and PCM specifications and will address the health and safety aspects inherent in low temperature environments as well as the temperature monitoring requirements.

After outlining several programmatic considerations Isaac summarized that the largescale introduction of ULT will require considerable adjustments and investments in vaccine cold chain, as well as training for healthcare workers and the securing of power supply. Specifications will be published in time for any COVID-19 vaccines.

Cold chain innovations - learnings from field evaluations of freeze protection and energy harvesting

Sandeep Kumar (PATH), Surendra Uranw (BPKIHS), Abdoulaye Gueye (PATH)

Rapporteur: Denise Habimana, PATH

View: https://youtu.be/4f3hkvWWhvg

Slides: https://www.technet-21.org/en/library/main/6699

Learnings from field evaluations of freeze preventive vaccine carriers in India, and Energy Harvesting technologies in Senegal were presented during the Cold Chain Innovations session on October 21. 91 participants attended the session and several of them shared their thanks and appreciation to the presenters at the end of the hour-long breakout session.

A couple of comments were made during the freeze preventive vaccine carrier presentation (Sandeep Kumar/PATH, Surendra Uranw/BPKIHS) on the trade-offs of freeze preventive barriers on vaccine carrier storage capacity and external dimensions.

With regards to the EHC presentation (Abdoulaye Gueye/PATH), one participant felt that EHC technologies offered a genuine solution to vaccine storage challenges.

EVM2: A New tool for resilient programmes and continuous ISC performance improvement

Maricel Castro (WHO EPI), Dan Brigden (WHO EPI), Souleymane Kone (WHO EPI), Firas Al Mosawi (EPI Manager, Iraq MoH), Mudher Subhey (National Cold Chain Officer, Iraq MoH), Hajiya Kubura Daradara (Director Logistics and Health Commodities, NPHCDA, Nigeria), Dmitri Davydov (UNICEF)

Rapporteur: Maricel Castro, WHO

View: https://youtu.be/4YnKVoQMedI

Slides: https://www.technet-21.org/en/library/main/6700

This session highlights the benefits and uses of the new and improved EVM2 tool. Compared to EVM1, EVM2 is easier to use for data collection and in analysing the assessment scores. Using the EVM2, countries can choose the type of assessment that suits their purpose and enable them to manage self-assessments at any level. The tool generates a report that guides the development of a supply chain continuous improvement plan (CIP). Recognizing the value of an EVM assessment, some countries continued preparing for an assessment during the pandemic.

Countries will be using the EVM2 for the first time and they would initially need technical support; due to the pandemic this support cannot be done "business as usual." Partners are exploring innovative approaches to build the capacity to effectively support implementation of EVM assessments. Iraq acknowledges the initial support and guidance given by partners helped in building their confidence in using the EVM2. Nigeria discussed how EVM2 made implementing the recent EVM assessment easier. EVM2 helps countries in strengthening their immunization supply chain from assessment to the development, implementation and monitoring of the supply chain CIP. The EVM process supports national resilience through capacity development and empowered workforce.

Building a more resilient supply chain through design

Wendy Prosser (JSI), Dalia Khattab (JSI), Olamide Folorunso (UNICEF), Francis Mwansa (MOH/Zambia), Freddy Nkosi (VillageReach)

Rapporteur: Wendy Prosser, JSI

View: https://youtu.be/yKedhcOtrEw

Slides: https://www.technet-21.org/en/library/main/6701

Through country examples, this session presented system design for the immunization supply chain, which is an evidence-based approach to analysing and modifying the supply chain to find efficiencies and improvements in performance. DRC has moved forward with designing and rolling out a Next Generation of Supply Chain through government engagement, supply chain assessment, route optimization, improved management though coordination and training, and improved operational aspects such as data collection, supervision and commodity distribution.

Changes have resulted in increased vaccine consumption and vaccine availability, and a decrease in total supply chain costs. In Zambia, the country shifted the responsibility of

distribution from facility-level health workers to district-level staff. Improvements have been seen in stock availability, data quality, and timely submission of reports. Interestingly, spill over benefits have created district-level ownership, an opportunity for supportive supervision during distribution, and integration of other products when possible. Finally, the system design analysis from Niger, Guinea and Madagascar demonstrated how evidence is used to make design decisions. Commonalities across these three countries include the importance of using cost implications and program- and performance-related indicators to assess different design options. Integrating other health products was also a common interest that can be explored when feasible. Based on the various country examples, there is a consensus that supply chain interventions need to be stakeholder-driven and evidence-based and promote local ownership for them to have positive impact.

Closing Plenary

Rapporteur: Dan Brigden, WHO

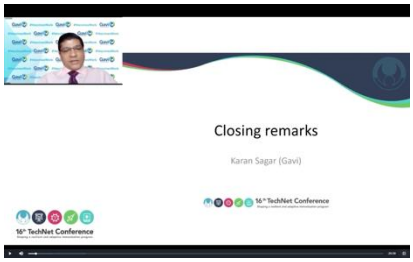
View: https://youtu.be/lJtXrW3hVdU

Slides: https://www.technet-21.org/en/library/main/6702

In the closing plenary session of Day two and the whole conference, the presenters looked back as well as forward, and introduced the Manufacturer Marketplace that immediately followed.

Closing remarks - Karan Sagar (Gavi)

Karan gave a summary of progress that has been made in recent years to meet the goals set by the Gavi Alliance's Immunization Supply Chain Steering Committee (ISC2). He also explained the ISC2 Theory of Change and where we are today in effecting this change. In closing, he called upon all stakeholders to work together in the coming years to harness the wealth of knowledge and share experience from the community, to ensure that we build resilient and robust supply chains for the future to meet the equity goals. He thanked all the participants, presenters and panellists for taking time out to be with us over the last 2 days and wished everyone the best.



A word of appreciation - Adama Sawadogo (UNICEF)

Adama provided a touching tribute to two departing colleagues who retired recently. Michel & Ousmane are well known for their expertise in Supply and Logistics, and broadly the immunization programme.

As he noted: "These are two gentlemen that worked very hard for many years to strengthen the immunization system, cold chain and vaccine supply management. They were huge assets to our organizations. Michel & Ousmane brought extensive wealth of field experience, specialized knowledge, leadership and most importantly interpersonal skills to advise and mentor on ways to advance supply chains in countries. With such on-the-ground skills, talents and human touch, they have influenced global policies and strategies to ensure relevancy and to meet field needs. We appreciate their service and wish them well in whatever comes next and hope to keep in touch."

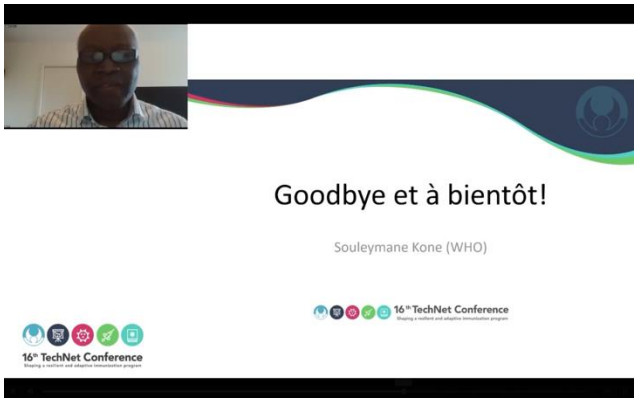
Let's keep talking - Dan Brigden (WHO)

Dan gave a short tribute to Ousmane and Michel. He celebrated also the wider TechNet community, which has remained active in strengthening immunization services over several decades. He closed by exhorting the TechNet community to "keep talking" by sharing their knowledge on the TechNet-21 website and looking out for future events.

Conference closing - Souleymane Kone (WHO)

Solo said "Goodbye et à bientôt!" to all participants at the conference. He thanked TechNet's partners: the Gavi Immunization Supply Chain Task Force Steering Committee (iSC2) and the Partnership of Immunization Networks, and especially to the Bill & Melinda Gates Foundation.

He also thanked all the CCE companies in the Manufacturer Marketplace, the Planning Committee members, the Conference Secretariat, and finally gave a MASSIVE thanks to the **107** presenters, panellists, moderators & rapporteurs. He finished with the promise: "Either online or in-person, the next TechNet Conference will take place next year. Keep an eye on our website for news. Until then, stay safe and see you in 2021!"



How changing vial size can improve your immunization services

Kirstin Krudwig (JSI), Wendy Prosser (JSI)

Rapporteur: Wendy Prosser, JSI

View: https://youtu.be/o96nxD2s5ZA

Slides: https://www.technet-21.org/en/library/main/6690

The aim of this session was to present the results of the Dose Per Container Partnership, focusing on the results of the implementation study in Zambia substituting 5-dose MR vials for 10-dose vials. The study showed an increase in coverage for both MR1 and MR2 with 5-dose vials (a 5% and 3.5% intervention effect respectively), lower wastage rates (16% for 5-dose vials, 31% with 10-dose vials), and no cold chain constraints at the facility level (the 5% increase in required space was easily accommodated). The discussion highlighted the somewhat surprising finding that the cold chain space requirement does not double even with a smaller vial size due to the trade-off of a lower wastage rate. The presentation also pointed out the new RITAG recommendation for countries to use 5-dose measles

containing vaccine vials, as well as how smaller vial size would benefit the WHO current recommendation for smaller session sizes to reduce the risk of COVID. The results are timely and are supported by a guidance document to help decision makers consider the change.

Strategies for catch-up and reducing missed opportunities for vaccination (MOV)

Laura Nic Lochlainn (WHO), Stephanie Shendale (WHO)

Rapporteur: Stephanie Shendale, WHO

View: https://youtu.be/qxvInKd3mRw

Slides: https://www.technet-21.org/en/library/main/6691

Timely vaccination is important for ensuring populations are fully protected against life-threatening illnesses as early as possible and preventing large outbreaks of vaccine-preventable diseases. Yet, scheduled vaccinations may be missed for several reasons, including health system, caregiver, or health worker related issues. No one should miss out on the right to the protection that vaccines offer, simply because they are unable to access services in time.

The WHO **Missed Opportunities for Vaccination (MOV) strategy** focuses on identifying and addressing the underlying reasons for why an individual may not receive one or more of the vaccines they are due, even when present at a health facility. One health system barrier commonly identified is a lack of or insufficient policy or practices for **catch-up vaccination**. This session discussed the importance of establishing a catch-up vaccination strategy and incorporating approaches to better integrate service delivery and reduce missed opportunities for vaccination as important aspects of immunization system strengthening that can contribute significantly to closing population immunity gaps.

Service experience: interlinking supply and demand for immunization

Francine Ganter Restrepo (WHO), Kate Bagshaw (JSI)

Rapporteur: Kate Bagshaw, JSI and Francine Ganter Restrepo, WHO

View: https://youtu.be/AijoYREsviw

Slides: https://www.technet-21.org/en/library/main/6692

The session presentation unpacks the many different components that make for people-centred, positive, and high-quality immunization service experiences. Ultimately, these positive experiences can drive repeat visits, generating demand and uptake of life saving vaccines and even greater engagement with health services more broadly. Service delivery models are explained using case studies to highlight how service-side decisions (including resource management and supply) impact the everyday tasks of health workers, and, in turn, the experience of clients seeking immunization.

Attention is needed to ensure that health workers are empowered to deliver people-centred, quality services. This means giving health workers the tools, training and working environment necessary to meet the needs and expectations of quality service delivery from the community. Similarly, communities must have a voice in planning and designing services to ensure that their needs are appropriately met. Involving communities in these decisions not only results in services that are tailored to local needs, it also increases ownership—combined, these outcomes can lead to greater engagement with primary health services (including immunization).

JSI's experience of implementing RED-QI in Ethiopia illustrates the far-reaching benefits of positioning the community and health workers as equal and valued stakeholders in the planning, delivery and continued management of primary health services. Strong political will and bottom up, community-engaged planning was a critical factor in Ethiopia, enabling tangible results even years following the RED-QI project's close.

Above all, the session describes the many different components—including supply—that comprise immunization service experience and how these are intricately interlinked. Only when we acknowledge these interlinkages can we adequately address service quality and delivery improvements and better leverage them to improve supply / service-side decisions and demand for immunization.

Improving cold chain equipment management in Uganda with a data-centred approach and ODK-X

John Kissa (UNEPI), Jacqueline Anena (PATH)

Rapporteur: Matt Morio, PATH

View: https://youtu.be/mQ3DPq4LoDM

Slides: https://www.technet-21.org/en/library/main/6693

Uganda has deployed the ODK-X Cold Chain app, an open-source Android based application that allows for two-way data-transfer (different from ODK) so that UNEPI can have a real time updated cold chain inventory. The app is designed to update and maintain a cold chain inventory, display functional status, create maintenance and repair logs, and track spare part consumption across the cold chain. This session touched on some highlights and lessons learned during the two-month pilot of the ODK-X CCE app.

The pilot was conducted in 3 districts and in just 2 months the users were able to update 394 facilities and 486 cold chain equipment or 81% of the 3 districts. Through this process UNEPI was able to identify broken CCE and plan corrective measures with greater ease and speed. The app also allowed them to track activities and provide data about the types of repairs conducted as well as spare parts consumed.

The app was deemed easy to use and intuitive by users and the data was helpful for UNEPI to plan and manage resources during the pandemic. In fact, the country will be scaling the app nationally for the entire cold chain in 2021.

Gavi and UNICEF – CCEOP, IMPT and procurement updates

Karuna Luthra (Gavi), Jalia Nanfuka (Gavi), Michelle Seidel (UNICEF), Thomas Sorensen (UNICEF)

Rapporteur: Jalia Nanfuka, Gavi

View: https://youtu.be/AzFBooZXk4w

Slides: https://www.technet-21.org/en/library/main/6694

The aim of the presentation was to share the latest updates on implementation of the CCEOP programme and IMPT. The presentation covered an overview of the CCEOP programme, impact of covid-19 and mitigation measures adopted, impact of CCEOP including lessons learned, the Cold Chain Equipment (CCE) programme in Gavi 5.0 and status of IMPT implementation. The CCEOP programme has evolved since inception. The Alliance is piloting the country led deployment model in 6 countries to assess impact on costs and country ownership among others. All Gavi eligible countries have applied to the CCEOP platform with 52 countries currently approved. The Alliance is still working towards meeting its targets to procure 65K and 85K units by end of 2020 and 2021 respectively. The CCEOP evaluation also noted that CCEOP improved immunization service offerings and overall, the service bundle approach achieved timely installations though some concerns on costs were noted. As the Alliance redesigns the CCE programme in Gavi 5.0, a review of the product offerings and platform eligibility requirements will be done. The need to strengthen maintenance systems within countries informed by CCE performance data was also emphasized by highlighting the role of IMPT in this space.

Temperature monitoring and performance management of cold chain equipment– two complementary approaches

Ngwegwe Bulula (Tanzania MoH), Brian Pal (NHGHL), Ernest Some (Kenya MoH), Abubakar Sani (Bauchi State)

Rapporteur: Brian Pal, New Horizons

View: https://youtu.be/DCAb2cE3dpI

Slides: https://www.technet-21.org/en/library/main/6697

In the first part of this presentation, the Varo Android application was introduced as a free tool that enables users to capture 30DTR and generate emailed CCE reports. These emailed reports can be sent to the EPI program for aggregation/analysis. Case studies were presented to show how Varo has been implemented in EPI programs. Questions and discussion during the session covered some of the details of using the Varo application and how Varo reports can be aggregated.

In the second part, the Tanzania MOH shared the country's experience with national scale of RTM (~ 5,000 sites). This presentation covered how real-time data on fridge performance and power availability can lead to MOH taking quick actions to respond to cold chain failures or inform planning at the national level, such as reviewing performance of CCEOP equipment. Actions taken by the MOH staff because of RTM has improved the cold chain uptime in Tanzania.

In both the Varo and Tanzania RTMD presentations, it was articulated that regardless of the technology used for CCE data transmission, for the data to be actionable it is critical that EPI personnel budget resources and implement processes to regularly review data and plan interventions for maintenance.

Resources

All the sessions can be viewed online. Click "Watch video" on the specific session: https://www.technet-21.org/en/conference/2020

All the sessions are available in French and Spanish on the TechNet channel: https://www.youtube.com/user/TechNet21

All the presentations can be found in the TechNet library:

https://www.technet-21.org/en/library

TechNet-21 website: https://www.technet-21.org/en/

Conference agenda: https://www.technet-21.org/en/conference/2020