Knowledge Translation for Zero-Dose Immunization Research

Zero-Dose
LEARNING HUB

Gavi Zero-Dose Learning Hub (ZDLH)

Funded by Gavi, the Zero-Dose Learning Hub (ZDLH) serves as the global learning partner and is led by JSI Research & Training Institute, Inc. (JSI) with two consortium partners, The Geneva Learning Foundation (TGLF) and the International Institute of Health Management Research (IIHMR). Together, the consortium enables sharing and learning across four Country Learning Hubs (CLHs) in Bangladesh, Mali, Nigeria, and Uganda to advance the uptake of evidence by synthesizing and disseminating key learnings. The ZDLH also focuses on improving immunization equity and reducing the number of zero-dose (ZD) and under-immunized children globally by facilitating high-quality evidence generation and uptake.

Recommended Citation

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Acronyms

CLH	Country Learning Hub
HCD	human-centered design
JSI	JSI Research & Training Institute, Inc.
KT	knowledge translation
LIU	Learning Innovation Unit
LTEM	Learning Transfer Evaluation Model
MOH	Ministry of Health
Q&A	questions and answer
TGLF	The Geneva Learning Foundation
TMF	theories, models, and frameworks
UI	under-immunized
ZD	zero-dose
ZDLH	Zero-Dose Learning Hub
ZDLH-X	ZDLH Inter-Country Peer Learning Exchange

Executive Summary

Knowledge translation (KT) is a systematic process of moving research findings into practical application so that knowledge is effectively communicated, adopted, and used. The continuum of KT, from dissemination to impact, is pivotal for ensuring that research not only reaches its intended audience but is also understood and applied to affect meaningful change in practices and policies. Ultimately, KT narrows the gap between what we know and what we do, known as the *know-do* gap, thereby encouraging evidence-based practices and driving change. This gap between generating knowledge and putting that knowledge into action exists because people underestimate the importance of KT on the impact of their work. Researchers may feel that once evidence is published, their role is complete. However, their desired audience may not be aware the publication exists, they may not understand its content, or they may not feel that it is important. The published findings are only effective if stakeholders use them to inform tangible action. Researchers can take steps to close this gap by proactively planning targeted KT strategies to share their findings with different audiences, each of which may have different information needs.

Effective KT for zero-dose (ZD) immunization research requires early involvement of stakeholders to align research with policy needs and ensure research findings are relevant and promptly applied. Proactive engagement with stakeholders facilitates the use of preliminary findings for immediate impact, capacity strengthening in KT, and efficient resource use. Setting clear KT goals, defining specific objectives, and involving frontline staff in target districts are crucial for the immediate and impactful application of research findings. This strategy acknowledges the critical role of frontline staff in health care delivery and their direct interaction with communities, particularly those with high numbers of ZD or under-immunized (UI) children. A comprehensive approach to KT is essential for leveraging ZD immunization research to inform and influence real-world changes, emphasizing the importance of adapting strategies based on continuous evaluation and feedback to refine future efforts. This toolkit describes the KT continuum and the factors that improve evidence use for policymaking and planning.

The Zero-Dose Learning Hub (ZDLH) designed this KT toolkit to support the Country Learning Hubs (CLHs) in Bangladesh, Mali, Nigeria, and Uganda in their efforts to effectively translate their ZD immunization research findings into action. The toolkit provides an introduction to KT and outlines a step-by-step process for researchers to develop a KT plan, with guiding questions for each step (Planning for Effective KT: Steps & Guiding Questions) and links to related tools and additional resources.

Researchers can use these steps to guide their efforts to customize and disseminate findings to identified stakeholders and ensure that their findings are accessible, understandable, and usable to ultimately support informed decision-making and change policy and practices. The toolkit also provides guidance on approaches to evaluating KT outcomes to assess the effectiveness of KT strategies.

Photo Credit: Unsplash.com/sita2

For questions about ZDLH or using this toolkit, contact zero_dose@jsi.com.

Recommendations to Support Knowledge Translation of Evidence to Identify and Reach ZD Children

In its role as the Learning Innovation Unit (LIU) lead, The Geneva Learning Foundation (TGLF) conceptualized a baseline strategy for knowledge translation (KT). TGLF developed the following recommendations to support the Country Learning Hubs' (CLH) KT work. The recommendations are intended to improve the use of evidence generated by research, ensuring it effectively informs practices, policies, and interventions targeting vaccine equity. Each recommendation is accompanied by a rationale and example.

Table 1. KT Recommendations from TGLF

Recommendation	Example
Perform a rapid capacity audit for KT to inform strategies. Diagnose organizational capacity for KT and builds on available infrastructure and expertise, while tailoring strategies to address limitations.	Rapid capacity audit questions include: (1) what percent of resources are committed to KT?, (2) what competencies are needed for KT?, and (3) what networks are needed for KT?
Integrate KT planning from the research inception. Get buy-in from stakeholders, and capitalize on emerging insights. This will also allow sufficient time for capacity strengthening, prevent lags between results and translation, and create efficiencies.	Establish KT goals at the beginning of the project, and consider the KT goals while designing evaluation frameworks and stakeholder engagement plans.
Engage intended stakeholders/audiences throughout the evidence generation process. Drive relevance, applicability, and shared ownership of emerging findings.	Include sub-national practitioners on advisory committees, and engage stakeholders and communities in developing research questions.
Implement co-creation and participatory processes. Foster a culture that values active listening; encourages engagement with diverse viewpoints; and supports questioning, feedback, and experimentation. This approach underpins the development of a shared vision for collective progress and innovation.	Involve a diverse group of stakeholders. Explore rapid feedback mechanisms. Establish platforms or forums for peer-to-peer exchange, where individuals can share their success stories and challenges.

Table 1. KT Recommendations from TGLF (continued)

Recommendation	Example
Tailor methods and communications materials to the audience(s). Contribute to the effectiveness and impact of KT efforts.	Identify audience(s) and their preferred mode(s) of communication and needs (i.e., busy policymakers may prefer short, non-technical policy briefs).
Leverage informal networks and create continuous learning opportunities to translate evidence. Tap into peer learning and try new ideas; facilitate cost-effective diffusion that enables adaptation.	Identify influencers. Support sharing through professional networks and learning collaboratives.
Capture user feedback systematically on value and use. Demonstrate the value and use of the translated knowledge.	Distribute short usage surveys when research outputs are accessed (post-webinar/event surveys, follow-up email/surveys after sharing resources).
Monitor changes in policies and practices beyond dissemination metrics. Facilitate evidence uptake and measurable improvements from application.	Establish key indicators on changes adopted across networks based on research findings.
Share experiences. Encourage learning from real-world examples of how evidence-based practices have been adapted and implemented. This can inform efforts to tailor interventions to unique settings, fostering innovation and problem-solving.	Develop and disseminate case studies that highlight the pathway from learning to action, facilitating peer-to-peer learning and accelerating the adoption of effective practices.

Together, these recommendations aim to build a robust and efficient approach to KT that maximizes the impact of research findings on identifying and reaching ZD and UI children, ultimately contributing to improved immunization equity. This toolkit provides researchers with a list of steps for planning for KT with guiding questions (see Planning for Effective KT).

Introduction

Gavi's Zero-Dose Learning Hub (ZDLH) helps generate, synthesize, and share ZD data and evidence at both the global and country levels. The ZDLH is structured as a hub-and-spoke model and includes a global learning partner (consortium) and four Country Learning Hubs (CLHs) located in Bangladesh, Mali, Nigeria, and Uganda. The CLHs are comprised of local partners and consortiums and capture and use country-level programmatic and evidence that contribute to performance reporting to the Gavi Board and other key stakeholders. The global consortium is led by JSI Research & Training Institute, Inc. (JSI), in partnership with the International Institute of Health Management Research, New Delhi (IIHMR) and The Geneva Learning Foundation (TGLF). The global consortium provides technical and operational support to the CLHs and disseminates learnings at the community, regional, national, and global levels.

How Do We Define Knowledge Translation?

Knowledge translation (KT) is a systematic process of moving research findings into practical application so that knowledge is effectively communicated, adopted, and used. KT addresses the *know-do* gap, the gap between what we know and what we do. It involves multiple stakeholders in the generation, adaptation, and application of knowledge. In this guide, we define KT as turning research findings into action, results, and measurable change.
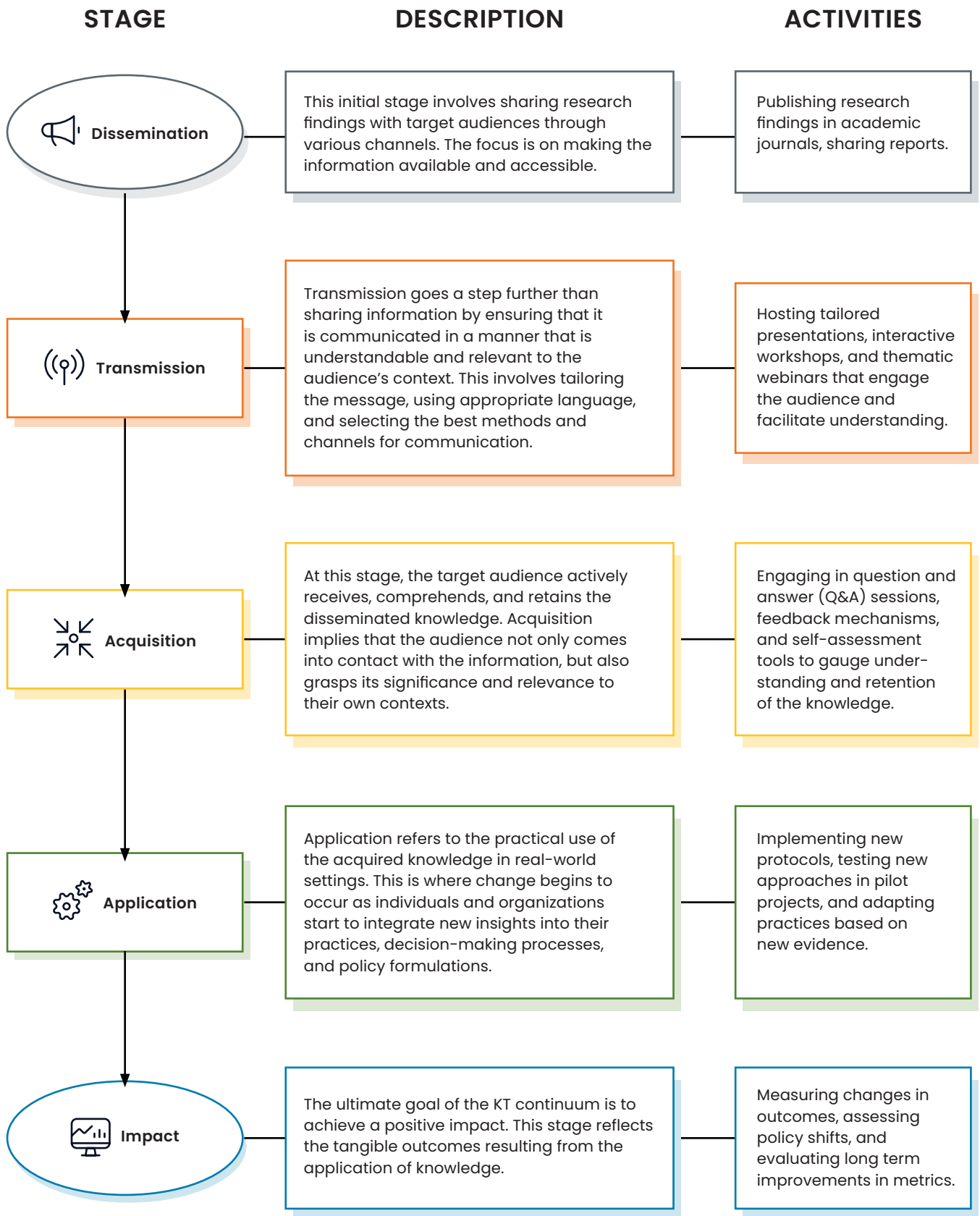
By effectively bridging the gap between the generation of new knowledge and its practical application, KT aims to accelerate the journey of research findings from the laboratory, clinical, or academic studies into real-world practices and policies. It seeks not only to increase the uptake and application of evidence-based interventions, but also to enhance the quality and effectiveness of decisions made in public health and clinical care. Through targeted strategies, KT facilitates the customization and dissemination of knowledge to different audiences, ensuring that it is accessible, understandable, and usable to support informed decision-making.

The continuum of KT, from dissemination to impact, is pivotal for ensuring that research not only reaches its intended audience but is also comprehensively understood, appropriately applied, and leads to meaningful change in practices and policies. The stages of this continuum encompass dissemination, transmission, acquisition, application, and impact, each critical for successful translation of research findings into tangible action.

> **The know-do gap (Bennett & Jessani 2011) occurs when people with the ability and authority to use information to inform their actions either:**
>
> 1. ***Don't know*** that the information exists, or what action to take.
>
> 2. ***Don't understand*** the information, what it means, or why it is important.
>
> 3. ***Don't care*** because they see the information as irrelevant or not a priority.
>
> 4. ***Don't agree*** because they think the information is false.

Figure 1: Continuum of Knowledge Translation

STAGE	DESCRIPTION	ACTIVITIES
Dissemination	This initial stage involves sharing research findings with target audiences through various channels. The focus is on making the information available and accessible.	Publishing research findings in academic journals, sharing reports.
Transmission	Transmission goes a step further than sharing information by ensuring that it is communicated in a manner that is understandable and relevant to the audience's context. This involves tailoring the message, using appropriate language, and selecting the best methods and channels for communication.	Hosting tailored presentations, interactive workshops, and thematic webinars that engage the audience and facilitate understanding.
Acquisition	At this stage, the target audience actively receives, comprehends, and retains the disseminated knowledge. Acquisition implies that the audience not only comes into contact with the information, but also grasps its significance and relevance to their own contexts.	Engaging in question and answer (Q&A) sessions, feedback mechanisms, and self-assessment tools to gauge under-standing and retention of the knowledge.
Application	Application refers to the practical use of the acquired knowledge in real-world settings. This is where change begins to occur as individuals and organizations start to integrate new insights into their practices, decision-making processes, and policy formulations.	Implementing new protocols, testing new approaches in pilot projects, and adapting practices based on new evidence.
Impact	The ultimate goal of the KT continuum is to achieve a positive impact. This stage reflects the tangible outcomes resulting from the application of knowledge.	Measuring changes in outcomes, assessing policy shifts, and evaluating long term improvements in metrics.

Knowledge Translation Process

The KT process emphasizes the importance of both early planning and stakeholder engagement to ensure the relevance, engagement, and eventual uptake of research findings. Involving key partners in early strategic planning aligns research goals with stakeholder needs, which enhances the impact and application of research outcomes. Early planning also allows for preliminary findings to be used even before the final results are available and provides ample time for capacity strengthening in KT, a concept still new in many contexts. This proactive approach minimizes delays between research completion and knowledge translation, leading to efficient use of time and resources, and builds excitement and momentum among stakeholders about the potential for research to drive real-world changes.

The KT process involves setting clear goals, starting with understanding the scope of knowledge to be translated and identifying the primary beneficiaries. It requires defining specific, realistic objectives based on the type and needs of the stakeholders, establishing practical timelines, and formulating indicators to measure success. The action planning phase includes outlining methods, assigning responsibilities, allocating resources, and setting deadlines. The execution phase involves initiating KT methods, ensuring ongoing communication among team members, and tracking progress against timelines and metrics.

Photo Credit: Nigeria Country Learning Hub

The evaluation phase is critical for assessing the impact of KT activities and includes a post-implementation review to analyze feedback, outcomes, and reach. It requires measuring achievements against indicators and making necessary adjustments to the strategy based on data analysis. Documenting both quantitative and qualitative outcomes helps refine future KT efforts, ensuring continuous improvement in translating research into practice. This comprehensive KT process is essential for effectively using ZD immunization research to inform and influence immunization practices and policies.

Looking for KT steps and guiding questions? See Planning for Effective KT.

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The *Know-Do* Gap in Global Health

Public Health Evidence, Guidance, and Tools to Address the Know-Do Gap

An enduring global challenge is using research to bridge the gap from knowledge generation to knowledge application. The phenomenon of research not adequately informing policies, programs, and practices is often called the *know-do* gap or *knowledge-to-actio*n gap.

A range of theories, models, frameworks, and tools have emerged over recent decades to address this gap through improved KT and exchange. Annex 1 curates key literature reviewing evidence-based approaches for translating knowledge into action to positively impact public health, particularly in low-resource settings. It provides an overview of systematic reviews, proposed frameworks, toolkits, and other resources that grapple with why health research does not reliably lead to changes in health systems and commensurate gains in population health.

Common recommendations that emerge across these resources include tailoring KT strategies to user needs, developing participatory processes, ensuring leadership support, strengthening capacities, and providing resources and tools to facilitate research uptake. However, rigorous evaluation of KT effectiveness remains limited. This literature review on the *know-do* gap provides a useful starting point for researchers seeking to ensure their work creates measurable improvements in health outcomes through appropriate translation pathways. It underscores the need for deliberate, evidence-based planning and execution when seeking to convert health knowledge into sustainable health gains.

Photo Credit: Bill & Melinda Gates Foundation Stronger Systems for Routine Immunization

When preparing KT activities, researchers can use the following probing questions to refine their KT planning. These evidence-based questions are adapted to the ZDLH KT context from the work of Karen Watkins and Victoria Marsick (2013).

- How can we get people to **use new evidence** to try new ways to identify and reach ZD children on the job?
- How can we **foster dialogue and inquiry** about new evidence among immunization staff?
- How can we encourage immunization staff to **discuss new evidence**, across boundaries of system levels and hierarchy?
- How can we **establish systems** to capture and share learning about the use of new evidence, without additional burden for immunization staff?
- How can we support people toward a **collective vision** through the use of new evidence?
- How can we help immunization staff **adapt new evidence to their local context** to improve ZD work?
- How can **immunization leaders model, champion, and support** use of new evidence?

Improving Evidence Use for Policymaking and Planning

Understanding the catalysts for effective evidence use in policymaking is critical. Ozaltin et al. (2022) outlines factors that can significantly elevate the impact of research findings. Crucially, evidence must meet the demand of policymakers and practitioners, aligning with broader goals and highlighted by influential country champions. Its timeliness and relevance during critical policy decisions, along with methodological soundness, ensure credibility. Early engagement with multi-disciplinary teams, particularly involving a Ministry of Health (MOH) focal point, strengthens relationships and promotes evidence use. Tailoring evidence to the decision-making landscape and stakeholder needs enhances its applicability. Clear communication and adaptation to policy needs, alongside a supportive implementation climate, are essential for successful evidence application and advancing ZD immunization efforts. These insights offer a blueprint for researchers aiming to translate their findings into meaningful policy action and, ultimately, toward immunization equity.

Figure 2. Factors that Improve Evidence Use for Policeymaking or Planning (Ozaltin et. al, 2022)

DEMAND Policymaker and practitioner demand for evidence relevant to their overall policy and program priorities increases the likelihood that it is used. A country champion can help elevate its importance, increasing demand.

RIGHT PLACE, RIGHT TIME Evidence needs to be available at key moments or within windows of opportunity for policymakers and practitioners to act on it.

EVIDENCE STRENGTH & QUALITY Evidence is considered more credible if it is developed following an endorsed and rigorous methodology.

RELATIONSHIPS & NETWORKS Evidence is more likely to be used if a MOH focal point is engaged and if research teams are multidisciplinary and involve stakeholders from the start.

DECISION SPACE An understanding of the decision space—and the types of decisions that evidence at various levels of the health system can affect—can help ensure evidence is relevant for different stakeholders and increase its usability.

PACKAGING & TARGETING Simple, easy-to-understand formats with clear messages and calls to action are important for busy policymakers and practitioners.

POLICY TRANSLATION The format of the evidence might need to be adapted to align with requirements for policy or program use. Policy makers and practitioners may benefit from additional support to translate the evidence to different contexts.

IMPLEMENTATION CLIMATE Stakeholder readiness to use evidence can depend on their receptiveness—country fiscal space issues, policy priorities, and political and administrative structures can support or impede the use of evidence.

Planning for Effective KT: Steps and Guiding Questions

What are the Steps in Knowledge Translation Planning?

A series of steps can help plan for KT efforts. While the process can vary depending on the specific context and goals, a general approach to KT typically includes the following steps. Please note that this stepwise process is cyclical and should include continuous assessment and adaptation of both the KT approach and messages while moving through this process.

Figure 3. Responsive Feedback in KT Planning
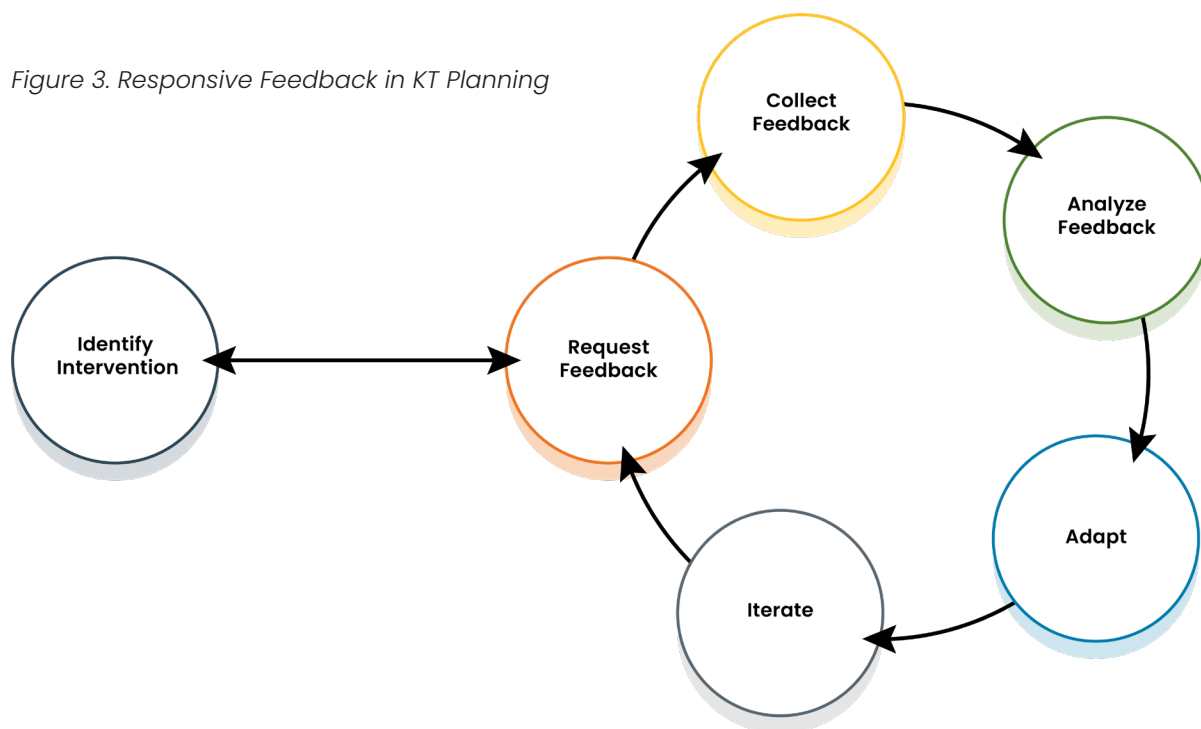
Responsive Feedback

Responsive feedback aims to make appropriate changes to refine interventions while in progress. It enables researchers and practitioners to understand how well information or interventions are being received, comprehended, and applied by the target audiences. This feedback can come from multiple sources, such as direct user feedback, performance metrics, or observational studies.

Responsive feedback blends feedback collection, ongoing learning, and active engagement. This method emphasizes the importance of listening to feedback, learning from it, and making iterative changes to ensure programs are as effective as possible. The responsive aspect of the mechanism emphasizes the importance of not only collecting feedback, but also analyzing and acting upon it promptly. By fostering a culture of responsiveness, researchers can ensure that their efforts are more effective, user-centered, and aligned with the goal of achieving positive outcomes.

By systematically incorporating responsive feedback into their KT planning, researchers can ensure their findings are not only disseminated widely but are also meaningful and actionable to their intended audiences, maximizing their real-world impact.

Additional Resource:
In-depth guidance to embedding responsive feedback in your program.

1. **Engage with stakeholders**: Throughout the process, actively involve key stakeholders who can influence or be affected by research findings. Their engagement can help ensure the relevance of KT activities and facilitate uptake. Key questions to consider include:

   - Who are the key stakeholders who can **influence**, or will be **affected** by, your research?
   - What strategies or approaches will be most effective in engaging these stakeholders throughout the KT process to **ensure their perspectives and needs are incorporated**?

2. **Identify the knowledge to be translated and set KT goals**: Start by pinpointing the key findings, evidence, or information that has the potential to impact practice or policy. Determine which results are **surprising** and **new**, compared to those that confirm or validate existing knowledge. This involves reviewing research outcomes to determine what is **relevant** and **actionable**. Key questions to consider include:

   - What are the **specific goals** you aim to achieve by translating ZD research findings? Are you looking to change **attitudes**, change **practice**, or inform **policy**?
   - How do these **goals align with the needs and priorities** of your stakeholders?
   - Do the research findings show the need to create or revise practical **implementation processes or tools** (data collection, training materials, supportive supervision, etc.)?
   - How can you **measure the success of your KT efforts**? What indicators or metrics can you use to assess whether your KT goals are being met and the knowledge is effectively being translated into action?
   - Consider using an **outcomes map**[1] (see figure below).

Figure 4. Outcomes Mapping (HSE Research & Development, 2021)
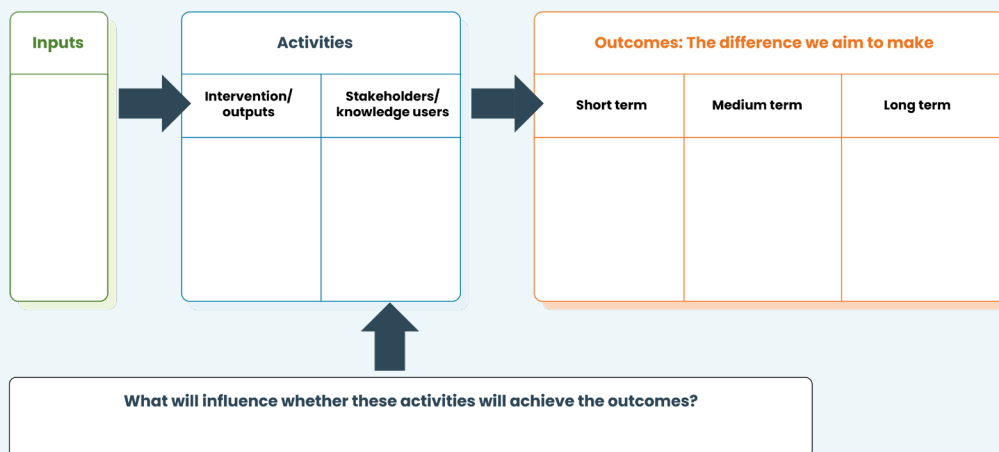
Outcomes mapping is a participatory approach focused on changes in behaviors, relationships, actions, and activities of people and organizations involved, making it a valuable tool for preparing and measuring KT efforts. An outcomes map can be a useful tool in planning what you want to achieve through your KT activities and measurable outcomes. It helps ensure that measurement goes beyond traditional output metrics and captures the meaningful changes in behavior and understanding within the target audience.

Inputs – What you need to do and what support you need for your KT activities.

Activities – Identify the tasks and outputs. Which stakeholders/knowledge users should the KT activities reach?

Outcomes – What do you want to achieve in the short term, medium term, and long term (raise awareness, influence policy or guidelines, change the way a service is delivered, or inform practice)?

[1] *Outcomes mapping for KT is different and less robust than the complexity-aware outcome mapping evaluation method.*

3. **Define the target audience(s)**: Clearly identify who needs to receive the information. Audiences can vary widely, from policymakers and health care professionals to communities. Understanding the audience is crucial for tailoring the communication effectively. Key questions to consider include:

- Who are the **primary, and secondary, audiences** for the research findings you want to translate? Are they policymakers, health providers, community leaders, or caregivers?

- Which audience segments have the **most influence** over or stand to benefit the most from the application of the research findings? How can you **prioritize** your efforts to ensure the greatest impact?

4. **Assess the needs and context of the audience**: Before translating research findings, it's important to understand the specific needs, preferences, and context of the target audience. This may involve assessing barriers and facilitators to knowledge uptake and use. Key questions to consider include:

- What are the specific **needs, preferences, and challenges** of the identified audiences? How do they prefer to receive and engage with information?

- Are the findings in line with expectations, **validating existing knowledge**? Or are the findings **unexpected or novel**?

- What are the main **barriers** and **facilitators** to knowledge uptake within the target audience's context?

- How do cultural, social, and economic factors influence the audience's **ability to access**, **understand**, and **apply** the research findings?

- What is the current level of **awareness**, **knowledge**, and **skills** among the target audience(s)? How does this influence their needs for additional information or support?

5. **Determine key messages**: Based on the knowledge to be translated and the audience's context, distill the information into clear, concise, and relevant messages. Key questions to consider include:

- How can the research findings be **simplified** into key messages that are both **relevant** and clear to the target audience? Are these messages actionable?

- Which aspects of the research findings are **most important** for the target audience to understand and act upon? How can these be effectively prioritized in the messaging?

- Are the key messages **culturally sensitive** and **appropriate** for the target audience (i.e. in local language)?

6. **Select appropriate channels and tools for dissemination**: Choose the most effective methods and tools for communicating with the target audience. This could include policy briefs, workshops, social media campaigns, professional conferences, among others. Key questions to consider include:

- Which channels and tools are **most accessible** to the target audience, and align with their preferences for receiving information?

- How **effective** are the selected channels and tools in reaching the target audience(s) and achieving KT goals? Do they allow for **interactive engagement** or feedback?

- Considering resources and time constraints, which channels and tools offer the most **efficient** way of disseminating the key messages without compromising quality and impact?

- What upcoming opportunities could benefit from this evidence? Opportunities could include policy discussions, program management meetings, and conferences.

7. **Develop and implement the KT plan**: Create a detailed plan that outlines **how** research findings will be translated and disseminated. This plan should include **specific** activities, timelines, and responsibilities. Package and disseminate evidence using **compelling and visually appealing formats** to share evidence with those who need it. Key questions to consider include:

- Is the plan **realistic** given current resources, timelines, and capacities?

- Are the activities, roles, and timelines **clearly defined** and **specific** enough to guide implementation?

- How will you ensure **ongoing stakeholder engagement** and collaboration throughout the implementation of the KT plan? Are there mechanisms for **feedback** and adaptation throughout the process?

- Have you integrated methods for **evaluating the effectiveness** of the KT activities and their impact on your target audience? How will you **measure success** and **learn** from the process?

- When will you schedule opportunities to **pause and reflect** throughout implementation?

8. **Evaluate impact**: Assess the effectiveness of the KT activities in achieving the desired outcomes, such as changes in **awareness, attitudes, practices**, or **policies**. This evaluation should inform adjustments to the strategy as needed. Key questions to consider include:

- What **specific criteria** or **indicators** will you use to measure the success of your KT activities? How do these align with your initial goals and objectives?

- How will you **collect** and **analyze data** to evaluate the impact of your KT activities? Do we have the necessary tools and expertise to conduct this evaluation effectively?

9. **Sustain and scale-up to foster the use of evidence**: Based on the evaluation, identify successful strategies that can be **sustained** or **scaled up** to amplify the impact of the KT efforts. Consider how to **institutionalize** successful practices for long-term benefits. Key questions to consider include:

- How can the research findings be **integrated** into ongoing or new programs, policies, or practices at a larger scale? What **modifications** are needed to adapt these findings to different contexts or settings?

- What mechanisms are in place to ensure that lessons are **documented** and used to improve ongoing and future efforts?

- Which stakeholders can help in **amplifying the reach and impact** of your research findings? How can you engage them effectively to advocate for or implement changes based on your evidence?

- What mechanisms can be put in place to **monitor the long-term impact** of scaling up your research findings?

10. Reflect and Learn: Finally, reflect on the entire process to identify **lessons learned** and best practices through an **after-action review**. This reflection can inform future effortsand contribute to a **culture of continuous improvement and learning**. Key questions to consider include:

- What **worked well** in your KT process, and what could be **improved**? How effective were your strategies in achieving your goals?

- What **challenges** did you face in translating ZD research findings? Were there any gaps in your understanding or approach that hindered your efforts?

- Based on your experiences, what strategies should be **continued, modified**, or **abandoned**? How can you better prepare for or mitigate challenges encountered during this process?

Effective KT is a dynamic process that requires careful planning, stakeholder engagement, and continuous evaluation. By following these steps and asking critical questions at each stage, ZD researchers can enhance the relevance, reach, and impact of their research findings. Sustained efforts to reflect on lessons learned and adapt strategies accordingly are essential for fostering a culture of continuous learning. Through these efforts, researchers can contribute to improving ZD outcomes and promoting evidence-informed decision-making in their countries and communities.

CONSIDERATION:

Translating Research into Recommendations for Implementation Tools

Reviewing research findings and how they may inform the need to create or revise practical implementation tools is a critical step in KT. Research findings may identify gaps in current processes or tools; these insights can lead to the creation or revision of data collection methods, supportive supervision tools/strategies, standard operating procedures/processes, or training materials. This ensures that evidence directly informs the development and optimization of tools supporting the implementation of interventions. Researchers themselves may not engage directly in the development of these tools; however, they can provide well-informed, actionable recommendations that ministries of health, policymakers, and implementers can adopt to enhance the efficiency and effectiveness of their immunization programs. This pragmatic approach closes the *know-do* gap by giving stakeholders the information they need to implement evidence-based changes, driving meaningful and sustainable improvements within immunization programs.

Identifying Key Audiences

Identifying audiences is a critical step in planning KT activities for ZD immunization, ensuring that research findings effectively reach and impact stakeholders. Research findings may be relevant to multiple audiences. By recognizing and tailoring communication to distinct groups, researchers can ensure that their findings and recommendations are actionable and relevant to each audience's specific needs and roles in the immunization landscape.

For Gavi and Alliance partners, understanding the nuances of ZD immunization challenges and successes identified by research findings can inform strategic decisions and funding priorities. MOH Expanded Programmes on Immunization and country partners can use research findings to refine national and sub-national immunization strategies, enhancing overall program effectiveness. Target districts can implement practical interventions and best practices tailored to their local context and address specific gender-related and other barriers to ZD immunization. Equipping ZD practitioners with targeted knowledge can improve their outreach and service delivery on the ground and directly impact immunization coverage and equity. For caregivers and communities, particularly those in areas with high numbers of ZD children, tailored communication about the importance of immunization can significantly increase awareness and acceptance of vaccines. Engaging these groups through accessible, culturally sensitive messaging helps to address myths and misconceptions, builds trust in health services, and motivates caregivers to seek immunization for their children. With practical information on vaccine schedules, the benefits of immunization, and where to access services, communities can take proactive steps toward improving health outcomes. Additionally, practitioners can increase the effectiveness of messaging by co-creating content and materials with key audiences. Co-creation allows for continuous testing and feedback from audience members, ensuring content is relevant to each key audience.

By effectively identifying and engaging with these varied audiences, KT activities can foster a more coordinated, informed, and responsive immunization ecosystem, ultimately contributing to increased vaccine equity. See sample tools for stakeholder mapping and identification.

Prioritizing Frontline Staff from Target Districts

Engagement with frontline staff through peer learning is powerful and can identify what works and how at the local levels to strengthen approaches for KT and evidence use. Targeted KT activities should include subnational staff, recognized sources of local expertise and implementers who test evidence validity and applicability, alongside national partners. Focusing on frontline staff in target districts maximizes the potential for immediate and meaningful changes in immunization practices, directly contributes to the goals of increasing vaccine coverage and equity, and strengthens the overall health system's responsiveness to population needs. Ultimately, prioritizing frontline staff for KT activities maximizes the potential for impactful and immediate enhancements in immunization practices and fortifies the health system's capacity to respond effectively to the needs of populations underserved by health services, paving the way for a more equitable health landscape. To learn more about reaching frontline staff, please refer to Annex 3 to review the ZDLH's approach to a virtual experience-sharing event.

Building Engagement to Support Effective KT

The journey toward effective KT in public health, particularly in the context of immunization programs, acknowledges there are no simple, one-size fits all solutions. Instead, it emphasizes the transformative potential of strategic, engagement-focused methods. The aim is not merely to share information but to create a setting that propels knowledge into actionable change. Strategies to foster deep engagement and bolster successful KT include:

- **Peer-to-peer connections**: Use storytelling and case studies on digital or physical platforms to foster a supportive peer network.

- **Bridging practices and evidence**: Connect everyday practices with the latest research findings to improve knowledge application in familiar settings.

- **Contextualized guidance**: Offer tools and resources tailored to local socio-cultural contexts to help practitioners use evidence effectively.

- **Practitioner experiences**: Encourage practitioners to share their experiences and feedback, through forums or surveys, on using research findings, emphasizing the importance of their contributions.

- **Continuous learning culture**: Support reflective practice and adaptability with regular review cycles to ensure KT efforts remain responsive.

- **Leadership and policy support**: Secure leadership endorsement and policy backing to provide the necessary resources and foster practitioner engagement.

By weaving these strategies into the fabric of KT initiatives, organizations can cultivate a highly engaged community of practitioners who are not only consumers of knowledge but also active participants contributing to the collective goal of immunization equity.

Learn more: See Annex 3 to learn more about ZDLH-X peer exchanges as a KT approach.

Photo Credit: Nigeria Country Learning Hub

Opportunities for Packaging and Disseminating Research Findings

Audiences have a wide range of learning styles and preferences. Some individuals grasp concepts better through visual aids such as infographics or videos, while others prefer written materials or interactive experiences. Packaging and disseminating research findings to match these preferences enhances comprehension and retention of information. Tailoring communication materials to each audience is not only strategic; it's a necessary practice that recognizes and respects the diversity of audiences. It facilitates deeper engagement, enhances learning, and more effectively drives the intended outcomes of improved knowledge, attitudes, and behaviors.

Co-Creation

As global health challenges evolve and new technologies emerge, public health solutions must be creative, data-led, and, most importantly, people-focused. Human-centered design (HCD) is a process that fosters innovation, prioritizes learning, and puts people at the center of public health solutions. Learn more about HCD at JSI.

Co-creation is a bottom-up approach using HCD mindsets and methods. At the program level, co-creation involves collaborative engagement between researchers, practitioners, and the target audience to develop and refine materials. This approach ensures the content disseminated resonates with the audience, addressing their specific needs and contexts. By involving the audience in the creation process, practitioners can produce more effective and actionable messages. To effectively incorporate co-creation, it's essential to maintain open and continuous communication channels throughout the KT process by:

· Encouraging **transparency** and **mutual respect** among all participants to foster a productive co-creation environment.

· Establishing **ground rules** or **terms of engagement** to recognize the unique contributions of each participant and respect their expertise and experience, which can build their confidence and encourage continued engagement.

· Encouraging **equitable participation** and facilitate **collaborative decision-making** using consensus-building techniques.

In addition, allocate adequate time and resources to support the co-creation activities, as this process can be more time-consuming than traditional content development methods.

· Through **co-creation workshops or meetings**, stakeholders can help translate complex research findings and data into clear, actionable messages that resonate with specific audiences. For example, health workers might need detailed information on vaccine storage and handling, while parents might benefit from understanding the safety and efficacy of vaccines.

· Co-creation ensures that **educational materials** and **communication strategies** are not only scientifically accurate but also culturally sensitive and linguistically appropriate. This might include the development of visual aids for communities with low literacy rates or the adaptation of messaging to align with local beliefs and values.

· Before widespread rollout, it's important to **pilot test KT materials** with members of your target audience(s) to gauge their effectiveness. Feedback gathered during this phase can lead to iterative modifications that fine-tune the materials or activities based on real-world input and experiences.

Explore a Case Study: Enhancing the Microplanning Process with Human-Centered Design: Lessons from Ga South District, Ghana.

Syntheses

Research Briefs

A research brief is a succinct, accessible summary designed for a non-specialist audience, including policymakers and practitioners. It distills a research study down to its key findings and implications for policy or practice, and it raises awareness on specific research issues. Typically, 1-2 pages in length, a research brief provides an overview of the research problem, the questions addressed, the methodology employed, and the main findings. It concludes with the study's implications and recommendations, presenting the essential points in a non-technical language to facilitate understanding and application by those outside the research community.

Policy Briefs

Creating a policy brief is an effective way to translate research findings into actionable insights for policymakers. It involves crafting a document that is accessible, clear, and persuasive to policymakers. A well-structured policy brief typically includes a title that captures the essence of the content, an executive summary that outlines the main points, an introduction to the background of the issue, key research findings, the policy context, best practices or case studies, and a conclusion with recommendations or a call to action. Tailoring the content to the needs of policymakers ensures the brief is both engaging and influential.

Methodological Briefs

A methodological brief is a succinct guide designed to explain a specific research methodology or technique to researchers, practitioners, or policymakers. It serves multiple purposes, including introducing new methodologies or techniques, providing overviews of existing ones, outlining application steps, discussing strengths and limitations, and offering practical advice for implementation. This document is essential for those looking to understand or apply a particular research method in their work.

Case Studies

Case studies are valuable tools that illustrate the practical application of research findings in real-world situations, making theoretical knowledge more tangible and relevant. They bridge the gap between theory and practice by providing clear examples of how research is implemented to support evidence-based decision-making for practitioners and policymakers. By highlighting successful outcomes and innovative solutions, case studies encourage the adoption of evidence-based practices across different fields. Additionally, they document challenges and solutions, aiding in troubleshooting and enabling stakeholders to adapt strategies to their specific contexts. Review sample ZD case studies on the ZDLH website.

Infographics and Visual Summaries

Infographics translate complex research into actionable insights through visually appealing and easily understandable combinations of data visualizations, illustrations, text, and images. By focusing on meaningful visuals and minimal text, they make information more accessible, engaging, and memorable to diverse audiences. Infographics serve as an essential bridge from research to action by explaining details like methodology, results, and applications in a format adaptable across various media, including brochures, social media, and posters. This ability to relay information quickly and efficiently makes them a vital tool in communicating research findings to a broad audience.

Learn more about infographic design for knowledge mobilization (e-learning module).

Events & Media Engagement

Stakeholder Meetings

National and district-level meetings offer a valuable platform for engaging a diverse array of stakeholders, including government representatives, to discuss how research findings can inform collective action and collaboration. By facilitating direct interaction between researchers and stakeholders, the meetings aim to align research outcomes with stakeholder priorities, enhancing the likelihood of successful knowledge translation and practical application. Face-to-face interactions build essential relationships and trust and can encourage stakeholders to use research findings in their decision-making. Stakeholders provide insights on barriers, facilitators, and strategies for implementation and adapting the research to different contexts. Involving policymakers in these discussions increases their commitment to the research, influences policy decisions, and supports sustainable implementation efforts. When structuring the stakeholder meeting agenda, meeting planners could consider using one or more interactive meeting techniques to encourage dialogue and collaboration.

Policy Dialogues

Effective KT tailors research to meet policymakers' needs, emphasizing the importance of policy dialogues in transforming research into actionable policies. These dialogues provide a platform for direct engagement on policy issues and can boost research-informed decision-making and bridge the gap between research and policy implementation. Through interactive exchanges, policymakers and researchers collaborate, combining empirical evidence with practical insights to inform policy decisions. This collaborative setting fosters problem-solving, allowing for the exploration of solutions, evaluation of policy options, and consensus on implementation strategies. Policy dialogues also support the implementation and evaluation phases by addressing challenges, monitoring progress, and assessing policy impact. This ensures policies are not only founded on research but are also effectively applied and adapted to achieve desired outcomes.

Media Engagement

Researchers can extend the reach of their immunization research and influence public perception, policies, and practices through press releases and media interviews. Effective media outreach involves providing context and explaining the significance of the research with relevant examples to illustrate its real-world impact. Engaging in meaningful two-way dialogues with journalists, sharing stories or case studies, and clarifying misconceptions are key strategies to humanize the research and make it more relatable. Highlighting practical applications and encouraging collaboration emphasizes the research's benefits and the collective effort needed for success. It's crucial to communicate in accessible language and provide journalists with additional resources like fact sheets and visuals to help them craft detailed stories. When crafting press releases, it's important to create compelling headlines, distribute them widely to reach diverse audiences, articulate the research's significance in non-technical terms, incorporate visuals to simplify complex information, and tailor content for different media outlets. Highlighting actionable insights encourages the public to take action based on the research findings, ensuring the message not only spreads widely but also leads to informed action.

Learn more:
· Working with the media to promote your research
· Media interviews
· What are the best practices for preparing for a media interview as a scientist?

Data Reviews

Data Review Meetings

Data review meetings can be effective tools for improving immunization program performance and the capacity of health staff. They can provide an opportunity for health workers to analyze, appreciate, and use the data that they generate themselves to make programmatic improvements and strengthen their capacity; foster a culture of using data for decision making, regular performance monitoring, and self-assessment; enable sharing of best practices, lessons learned, peer review, and benchmarking using adult learning methods and principles; and serve as an opportunity to update district teams and health workers on latest technical information and provide feedback and dialogue on results and indicators. **Learn more**: Immunization Review Meetings: "Low Hanging Fruit" for Capacity Building and Data Quality Improvement?

Data Walks

During a "Data Walk," stakeholders including community members and health providers jointly review data presentations in small groups, interpret what the data mean, and collaborate to use their individual expertise to improve policies and programs. Participants rotate through stations where data is displayed (text and visuals) on the wall to tell a story for participants to interpret, discuss, and reflect on in small groups. Data walks aim to share key data and findings with communities and/or health providers; ensure a more robust analysis and understanding of the data; inform better programming and policies to address both the strengths and the needs of the community; and inspire individual and collective action among caregivers, health workers, and immunization champions.

Learn more about Data Walks.

Online Engagement

Collaborative Platforms and Networks

Collaborative platforms serve as hubs for sharing research findings, best practices, and evidence-based interventions. Networks can curate and share resources, toolkits, and practical guides based on research findings. This facilitates easy access to valuable materials that practitioners can use in their work. A collaborative approach enhances the understanding of complex issues and promotes the development of comprehensive, multi-faceted solutions. These platforms also provide a space for stakeholders to provide feedback on research findings. This feedback loop is essential for researchers to refine their work and ensure that it aligns with the practical needs of those who will use the knowledge. Visit the Zero-Dose Community of Practice.

Webinars

Webinars offer researchers a virtual stage to present their findings to a diverse audience. Webinars can be part of a larger KT strategy to keep stakeholders regularly informed of ongoing research, updates, and evolving practices. The interactive nature of live webinars allows for real-time discussions and Q&A sessions. Researchers can use webinars to provide training and capacity-strengthening sessions, transferring skills and knowledge to practitioners and decision-makers who may be involved in implementing research-based interventions. Researchers can also use webinars to showcase practical applications of their research findings through case studies and other. Webinars provide a convenient and accessible way for a diverse audience to participate by overcoming geographical barriers to in-person meeting participation. Webinar recordings can also be made available for later viewing, further increasing accessibility.

Social Media Campaigns

Social media platforms reach broad and diverse audiences, including researchers, practitioners, policymakers, and the public, for wide dissemination of research findings. They enable two-way communication by fostering engagement through comments, shares, and discussions and facilitating direct interaction with the audience. Visual content like infographics and short videos can convey complex research findings in a digestible format, enhancing their appeal and shareability. Specific hashtags consolidate discussions, make information searchable, and foster community around a topic. Live video streaming features can support real-time engagement, while partnerships with influencers can amplify campaigns to reach a wider audience. Researchers can use social media to provide updates, share new findings, and offer additional resources. Analytics tools provide insights on reach, engagement, and impact that can inform future strategies.

Zero-Dose Learning Platforms

ZDLH conducted surveys with digital platform and network managers and their users to better understand how these platforms and networks are currently being used by immunization practitioners working to identify and reach ZD children—including in applying Gavi's Identify, Reach, Monitor, Measure, Advocate framework. Survey participants included:

- CORE Group
- Immunization Agenda Watch
- Movement for Immunization Agenda 2030
- Teach to Reach
- Technical Network for Strengthening Immunization Services (TechNet-21)
- International Association of Public Health Logisticians
- Linked Immunization Action Network
- Social Norms Learning Collaborative, Global
- Social Norms Learning Collaborative, Nigeria

Learn more from the Zero-Dose Learning Platforms: Platform Manager and User Surveys Report.

Community Engagement

Community Days / Workshops

Community engagement activities, including community days and workshops, can play a role in translating ZD immunization research findings into action. These events can increase understanding and awareness of immunization's importance through clear language and visuals. Workshops allow for direct interaction, building trust and credibility, and make research relatable through real-world examples and success stories. Addressing vaccine hesitancy and incorporating community feedback refines future research. Engaging leaders and conducting interactive Q&A sessions fosters ongoing dialogue. Collaborative planning identifies steps to boost immunization uptake, with continuous feedback mechanisms. Preparation involves targeting communities, forming committees, setting objectives, and planning activities, including presentations in local languages and feedback sessions. Post-event feedback evaluates outcomes and guides future efforts, promoting a participatory approach to enhance health outcomes.

Storytelling and Community Theater

Storytelling using narrative techniques and real-life experiences can make health information memorable and engaging. It can make research relatable and impactful by highlighting personal stories and showcasing tangible effects on communities. Effective storytelling involves structuring narratives with relatable characters, outlining problems and solutions in accessible language, and aligning with the audience's values. Community theater provides interactive engagement, with audience feedback refining future messaging. This approach ensures storytelling communicates effectively and inspires action. **Learn more**: Leveraging the Power of Storytelling to Increase Vaccine Demand in Nigeria.

Community Radio

Community radio can be an effective platform for disseminating research findings to communities because of its accessibility and ability to engage diverse audiences, including those with varying literacy levels. By tailoring content to reflect local cultures, languages, and issues, radio can deliver messages that resonate with its listeners. Creating engaging content through a blend of storytelling, expert interviews, and discussions ensures that complex research findings are presented in an understandable and captivating way. Incorporating interactive elements like call-ins and live Q&A sessions allows for real-time engagement, addressing listeners' questions and concerns directly. Offering varied program formats, such as panel discussions and talk shows, caters to different listener preferences and keeps the content dynamic and engaging. Sharing success stories within these programs can inspire and motivate the community, while segments dedicated to debunking myths and clarifying misconceptions can provide the community with accurate immunization information. Featuring local voices and experts lends authenticity to the programs, strengthening trust and credibility among listeners. Implementing evaluation mechanisms like listener surveys or feedback sessions to gauge the effectiveness of these radio initiatives is crucial.

Photo Credit: Nigeria Country Learning Hub

Engaging Traditional Leaders

Engaging traditional and religious leaders is a pivotal aspect of KT strategies in communities where these figures wield considerable influence over perceptions, beliefs, and practices. Recognizing and respecting the cultural and religious context is fundamental, and tailoring messages to harmonize with local customs, traditions, and belief systems ensures cultural sensitivity and acceptability. Involving these leaders early in the planning stages and soliciting their input on messaging and delivery methods helps align KT efforts with community values. Securing endorsements from traditional and religious leaders lends credibility to key messages and fosters community trust and adoption of the information. Integrating health information into sermons and speeches, particularly when it aligns with religious values, can further reinforce the importance of these messages. Establishing a feedback mechanism for these leaders to share community reactions and inquiries provides a feedback loop.

Learning Circles

A learning circle is a collaborative, participatory approach where a small group comes together to explore a topic and share knowledge for collective learning. It emphasizes peer interaction, shared leadership, and a learner-centered approach, aiming to foster community and collaborative learning experiences. The structure promotes meaningful interaction and active participation. Learning circles are often peer-led. A facilitator provides guidance but the activity emphasizes group-led collaborative learning through discussions, case studies, problem-solving, and hands-on projects, leveraging the group's collective expertise. By incorporating reflective practices, these circles encourage sharing insights and continuous improvement. They can vary in format, including in-person, online, or hybrid models, and aim to create an inclusive, supportive environment for all participants. Unlike traditional learning models, learning circles should be ongoing, supporting continuous development over time.

Learn more about learning circles for family planning.

Photo Credit: Unsplash.com/simonreza_

Engaging Traditional Barbers to Identify & Refer Newborns for Routine Immunization Services in Sokoto, Nigeria

A study evaluated the effectiveness of an intervention that engaged traditional barbers to inform parents about the importance of vaccination and then refer newborns for vaccination services.

Mothers who received a yellow referral card from a traditional barber were **two-to-three times more likely to vaccinate their children** with the three immunizations recommended for newborns.

Qualitative findings indicated that the intervention influenced parents' decision to vaccinate their newborn because the barbers were considered a trusted community advisor.

Considerations: Developing Communications Products

Developing effective communication products is crucial for researchers focusing on increasing immunization equity. These products can guide stakeholders by influencing budgeting, policy strategy, program design and offer evidence-based recommendations to decision-makers and health workers. To ensure clarity and impact, distill your research findings into clear, simple main messages that allow readers to grasp the communication product's aims and importance. This approach ensures that the core information and intent are immediately apparent.

Consider following the inverted pyramid framework of storytelling, in which the most important information is presented at the beginning and again at the end:

- **Key findings**: Begin with the critical findings and data relevant to your objective, including the recommendations and call to action. Select the most pertinent information to form a concise summary that logically leads to your recommendations.

- **Implications**: Explain the significance of your findings within the context of your audience's programmatic needs or geographical location. This helps the audience grasp the relevance and urgency of the issue, highlighting the potential consequences of inaction or the benefits of specific solutions.

- **Recommendations and call to action**: Reinforce the recommendations and call to action by clearly articulating the desired actions, specifying who should do what and by when. Recommendations should be SMART—specific, measurable, action-oriented, realistic, and time-bound—to ensure they are actionable and effective.

By structuring your communication around these elements, you guide your audience through a logical narrative from evidence to action, making it easier for them to understand and engage with the critical messages and calls to action in your research.

Access more guidance and tools for developing communication products.

Photo Credit: Unsplash.com/meganescobosaphotography

Considerations for Engaging Lower-literacy Populations

When engaging with populations with lower literacy levels, it's vital to use culturally sensitive, understandable, and accessible communication strategies:

- **Simple written materials with visual aids**: Create straightforward written content with minimal text, using clear language to convey critical information. Use simple, culturally relevant visuals to convey key messages to make complex information more digestible.

- **Local language use**: Ensure all communication is in the local language using simple, everyday terms and dialects to improve comprehension and engagement.

- **Involvement of influential leaders**: Collaborate with traditional and religious leaders to endorse and promote immunization, leveraging their influence to build community trust.

- **Community workshops and demonstrations**: Host interactive, hands-on workshop, using visual aids and practical activities for clearer understanding.

- **Storytelling and oral tradition**: Use storytelling and local oral traditions to share success stories that make the information more relatable and memorable.

- **Community radio programs**: Consider developing radio content with storytelling, interviews, and music to reach wider audiences in an accessible format.

- **Collaboration with local organizations**: Work with community-based organizations for tailored KT strategies that benefit from their in-depth understanding of the community.

- **Community dialogues and feedback**: Encourage open dialogues and feedback sessions that allow community members to voice concerns and suggestions, which can foster ownership and trust.

These approaches ensure that communication about immunization is accessible, engaging, and effective, promoting wider understanding and acceptance.

Evaluating Knowledge Translation Outcomes

Measuring the impact of KT is crucial for researchers to assess the effectiveness of their KT strategies, identify areas for improvement, and make informed decisions about resource allocation.

Process-oriented measures: These measures track the implementation of KT activities and assess their reach, relevance, and appropriateness.

- **Reach**: Determining the number of people or organizations exposed to KT activities.
- **Relevance**: Assessing whether KT efforts are addressing the needs and interests of the target audience(s).
- **Appropriateness**: Evaluating whether researchers are using the most effective methods and channels to reach target audiences.

Intermediate measures: These measures assess intermediate steps in the KT process, such as knowledge acquisition, attitude change, and intention to change behavior.

- **Knowledge acquisition**: Assessing whether target audiences have gained new knowledge.
- **Attitude change**: Evaluating whether target audiences have developed more positive attitudes toward evidence-based practices or behaviors.
- **Intention to change behavior**: Assessing whether target audiences are willing or motivated to adopt new practices or behaviors.

Outcome-focused measures: These measures assess the direct or indirect impact of KT activities on specific, often longer-term outcomes, such as changes in policy, practice, or behavior.

- **Policy changes**: Examining whether research findings have informed policy decisions or led to new policy, guidance, or standard operating procedures.
- **Practice changes**: Assessing whether health providers have adopted new practices or guidelines.
- **Behavior change**: Evaluating whether individuals or communities have adopted new behaviors.

What Can We Learn from the Literature on the Science of Learning Transfer That Can Help Effective KT?

The science of learning transfer underscores the importance of applying learned knowledge in new situations, a key to enhancing KT in ZD immunization research. For impactful KT, the focus should be on practical application to ensure learners not only understand but can also apply knowledge in challenging situations.

Effective KT encompasses clear expectations, support, and opportunities for real-world application, with success depending on factors like learner motivation and a supportive environment.

To really know if knowledge translation is working, we need to check if and how the learning is being used, not just if people think it's useful.

Table 2. Types of Indicators to Measure KT (HSE Research & Development, 2021)

Indicator Type	What It Measures
Process	Process indicators measure **inputs**: the resources, strategies, and plans put into the KT strategy, including the approach chosen for KT and whether the activities were completed. They help evaluate the efficiency and feasibility of the KT process.
Reach	Reach indicators assess **engagement**, who and how many: the dissemination of KT outputs, including the number and types of stakeholders who receive the information. • Who and how many stakeholders are receiving the outputs from the research? (Number of people; type of stakeholder). • Number of clicks on social media/websites; how long people spend on the site. • Number of stakeholders attending events/training. • Number of publications published and disseminated.
Use	Use indicators assess **application** and **perception**: exploring how stakeholders or knowledge users are applying the evidence or knowledge shared, their opinions about the quality and relevance of the information, and whether there has been an improvement in their knowledge, skills, awareness, or confidence. This helps in assessing the effectiveness of KT in enhancing capacity and competence. • How are stakeholders using the research findings? • What do they think about it? • Did their knowledge, skills, awareness, and/or confidence improve as a result?
Action	Action indicators measure **implementation**: looking at the concrete actions taken by stakeholders or knowledge users as a result of the KT efforts. This could include the adoption of new practices, application of learned skills, or initiation of new activities. • What did stakeholders/knowledge users **do** as a result of KT? Could they make a decision based on the findings?
Change	Change indicators measure **systemic and behavioral changes**: assessing whether there have been changes in policy, guidance, systems, or practices as a direct result of the KT initiative. They also look at behavioral changes among individuals or groups, indicating the actual impact of KT on practices. • Did policy, guidance, systems, and/or practice change as a result of the KT? • Did behaviors change?
Outcomes	Outcome indicators measure **impact on health outcomes**: the ultimate goal of many KT initiatives, especially in the health sector, is to improve health outcomes. These indicators measure the tangible changes in health conditions, practices, or behaviors that can be directly attributed to the application of new knowledge and evidence from the KT activities. • Did health outcomes change as a result of the new knowledge and evidence?

Each type of indicator plays a crucial role in evaluating the comprehensive impact of KT initiatives, from planning and execution to the eventual outcomes on policy and practice, toward improved immunization equity.

Learn more about evaluating KT.

Additional Resources & Tools

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Annex 1. Public Health Evidence, Guidance, and Tools to Address the *Know-Do* Gap

Table 3. Evidence, Guidance, and Tools to Address the Know-Do Gap

Tool	Description
What Research Tells Us About Knowledge Transfer Strategies to Improve Public Health in Low-Income Countries: A Scoping Review	According to this review, most studies evaluated strategies that used multiple activities (training with demonstration and supervision sessions, workshops) or combined more than one strategy (distribution of materials, public dissemination, local facilitators). More innovative strategies are also highlighted (artistic performances, games, picture books). This review describes conditions facilitating the use of research results: participative approach, involving local leadership, low cost, rapid feedback, accessible/flexible approach, and messages tailored to context. The review identified organizations' lack of resources to implement recommended transfer strategies as a condition impeding knowledge use.
Key Components of Knowledge Transfer and Exchange in Health Services Research: Findings from a Systematic Scoping Review	There are over 60 models of knowledge transfer and exchange designed for various health care areas. Many models are untested and unproven and lack the necessary guidelines to scale up successful implementation of research findings to ensure that patients have access to optimal, research-guided health care. This review provides an overview of some of the KT models.
EMTReK: An Evidence-based Model for the Transfer & Exchange of Research Knowledge	The EMTReK model outlines six essential components necessary for effective knowledge transfer and exchange, emphasizing the multifaceted nature of KTE processes: (1) social, cultural, and economic context; (2) the message; (3) the process; (4) the stakeholders; (5) the local context; and (6) efficacy/outcomes.
U.S. Agency for International Development Learning Lab Research Technical Assistance Center: Research Translation Toolkit	This toolkit provides exercises, fillable forms, templates, and links to examples and resources to support research translation.

Tool	Description
Evidence. Knowledge Translation. Impact: Closing evidence-to-policy gaps, improving health outcomes.	This overview offers examples of tools to translate evidence into actionable steps. Priority-setting mechanisms aid in establishing agendas for health concerns and relevant policies at both national and local levels; evidence briefs condense research findings to shape policy decisions; policy dialogues and deliberative forums gather essential stakeholders to encourage evidence-based actions; clearinghouses, observatories, and rapid response systems offer timely, high-quality research syntheses addressing pertinent policy issues; and implementation support tools promote rapid learning.
Applying the Knowledge to Action (K2A) Framework: Questions to Guide Planning	The Knowledge to Action (K2A) framework outlines the essential processes for transitioning from discovery to implementation by translating evidence-based programs, practices, or policies. This includes a range of interventions and tools such as communications, campaigns, and guidelines. The framework highlights three key components: research, translation, and institutionalization. It also details the decision points, interactions, and supporting structures required within these components to convert knowledge into lasting action.
A Scoping Review of Full-Spectrum Knowledge Translation Theories, Models, and Frameworks	While applying KT theories, models, and frameworks (TMFs) is a proven method for incorporating evidence into clinical care, the abundance of options and lack of guidance on selection pose challenges. This study addressed this gap by identifying and describing available full-spectrum KT TMFs.
The Knowledge Translation Toolkit: Bridging the Know-Do Gap: A Resource for Researchers (The Compass)	This toolkit provides an overview of KT and how to use it to bridge the *know-do* gap between research, policy, practice, and people. It presents theories, tools, and strategies for evidence-informed decision-making. The primary audience is systems and policy researchers seeking to strengthen individual and organizational KT capacity.

Annex 2. The Learning-Transfer Evaluation Model

The literature on *learning transfer* from learning science offers valuable insights for effective KT. *Transfer* refers to applying learned skills or concepts to improve real-world work performance. For researchers, integrating transfer principles means not only disseminating evidence but also ensuring its practical application. Key learning science findings highlight that transfer is more likely in similar contexts, requires more than comprehension, and depends on factors like motivation, timely application opportunities, and supportive environments. To translate evidence effectively, researchers should:

- Create knowledge products that facilitate research application in relevant contexts.

- Embed strategies to enhance memory, motivation, skill-building, and barrier navigation.

- Involve users from the outset to ensure relevance and drive motivation.

- Build support networks and offer skill-building tied to evidence use.

- Develop indicators for and monitor actual evidence application.

- Engage leadership to underscore the importance of evidence application.

- Provide practical tools and resources to facilitate putting evidence integration into practice.

By adopting a comprehensive approach that addresses these factors, researchers can foster meaningful knowledge translation to ensure that evidence reaches its audience and is actively applied, leading to measurable improvements in practice.

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The Learning Transfer Evaluation Model

The Learning Transfer Evaluation Model (LTEM) is a framework designed to evaluate the effectiveness of learning programs in terms of how well they transfer knowledge and skills to learners and, ultimately, how these learnings are applied in practice. LTEM differentiates between knowledge, decision-making, and task competence. The model is structured around eight tiers, each representing a different level of outcome; the lower tiers represent inadequate methods of learning evaluation. Tier eight, effects of transfer, represents the ultimate goal: the benefits that learning enables (Thalheimer, 2018).

Table 4. The LTEM

Tier	Description	Confirmation Method
Attendance	The most basic level ensures that participants are present and engaged in the training/event.	Participation can be observed through engagement metrics such as participation in discussions, activities, or completion of in-session polls and quizzes.
Activity	At this level, the focus is on the learners' active participation and engagement with the training material.	Use interactive activities and engagement tools (e.g., live polls, breakout sessions) and track participation rates. Surveys or direct observation can also be used to gauge engagement levels during the training.
Learners' perceptions	This tier assesses the learners' perceptions of the training/learning, including their satisfaction and the relevance to their work or personal development.	Distribute post-training surveys or conduct interviews/focus groups to gather partici-pants' feedback on relevance, satisfaction, and perceived value. Questions should explore whether participants found the content useful and applicable.
Knowledge	This level evaluates whether learners have acquired the knowledge presented in the training.	Administer pre- and post-training assessments (quizzes, tests) to measure knowledge gained. Comparing scores before and after the training can indicate the level of knowledge acquired.

Tier	Description	Confirmation Method
Decision-making competence	This level assesses whether learners retain knowledge over time.	Conduct follow-up assessments or quizzes weeks or months after the training to evaluate how much knowledge participants retain over time.
Task competence	This level measures whether learners have developed or improved skills and decision-making capabilities as a result of the training.	Use skill-based assessments, simulations, or role-playing scenarios that replicate real-world challenges. Peer or supervisor evaluations and self-assessments can also help measure improvements in skills and decision-making.
Transfer	This tier evaluates whether and how learners apply knowledge and skills to perform tasks successfully.	Use follow-up surveys, interviews, or direct observations to assess how participants apply what they've learned in their work or daily practices. Case studies or success stories can also illustrate the application and transfer of learning.
Effects of transfer	The highest level assesses the broader impacts of the training, including changes in behavior, improvements in performance, and effects on the organization or community.	Measure broader impacts using performance metrics, indicators, or other organizational outcomes linked to the training objectives. This could involve comparing productivity rates, quality of work, behavioral changes, or any other relevant metrics before and after the training. Feedback from colleagues, supervisors, and stakeholders can also provide insights into the training's effects on the organization or community.

LTEM emphasizes the importance of not just learning, but also the effective application and impact of that learning. Confirming each tier effectively requires a combination of direct measurement, qualitative feedback, and observational data. This comprehensive approach ensures a holistic evaluation of the effectiveness of the training or activity from basic participation to successful impact on an individual and their community.

Annex 3. ZDLH-X Peer Exchange as a KT Model

TGLF hosted the first ZDLH Inter-Country Peer Learning Exchange session (ZDLH-X)1, in May 2023 with a focus on Bangladesh and Mali. The second online peer learning exchange, ZDLH-X2, in September 2023 focused on Nigeria and Uganda. The ZDLH-X events were the centerpiece of a mini learning program that includes three general steps. First, providers completed a questionnaire, provided by TGLF, on local ZD challenges, practices, and priorities. Second, there was a series of online events to share and curate ZD practices. Finally, there were follow-up events online for reflection on learning, and participants completed post-event questionnaires. Through this process, TGLF identified stories to be featured in a January 2024 ZDLH webinar event. The stories reveal how practitioners in Bangladesh, Mali, Nigeria, and Uganda are developing local solutions to increase equity in immunization.

The peer learning events provide a framework for addressing the complex problem-solving required to address the ZD challenge. The ZDLH-X approach uses multidisciplinary participation, narrative-based mental model building, peer inspiration, reflective sessions, and collaborative activities to address multidimensional challenges like reaching ZD children.

Table 5. ZDLH-X Peer Exchange as a KT Model

Driver for complex problem-solving	How ZDLH-X provides a model
Learning from each other	The events connected over 3,000 practitioners working on ZD issues globally, enabling peer exchange of insights from across contexts. This diversity of knowledge and perspectives mirrors the need identified by research to assimilate inputs from different domains when solving complex problems.
Utilizing mental models *(reflective thinking)*	Through presentations, participants shared local strategies for reaching communities with ZD children. These stories and visuals helped others envision new ways to make a difference, showcasing the power of learning from peers to expand the problem-solving toolkit.
Enabling metacognition *(thinking about thinking)*	Q&A sessions encouraged participants to think critically about their current methods and attitudes. These reflective conversations are crucial for understanding and improving thought processes, a key element in tackling complex issues.
Managing affective factors *(motivation)*	Peer testimonials provided motivation through relatable stories of overcoming barriers, such as vaccine hesitancy or gender-related barriers. Psychology research links such motivation and emotional regulation to complex problem-solving success.
Supporting collaboration	The event facilitated group discussions, allowing for a collective examination of challenges specific to different communities. Research shows that collaborative efforts lead to better outcomes in solving complex problems, thanks to a shared understanding among team members.

Prior TGLF research on immunization learning culture revealed *continuous learning* as the weakest dimension, characterized by few opportunities, low risk tolerance, limited incentives, and a focus on tasks over capacity strengthening. By incorporating evidence-based strategies to strengthen continuous learning, the ZDLH-X events were designed to provide the missing elements through blended peer, social, remote, and networked learning.

Value Creation Framework

A value creation framework measured the ZDLH-X events' impact across five areas: professional change, social connections, practice improvement, influence, and mindset shifts. Value creation questions provide a method to assess value through both quantitative and qualitative responses. These evidence-based inquiries, made optional to encourage participation, can provide deeper understanding of how resources or events facilitate knowledge application, ensuring more accurate evaluation of the effectiveness of KT activities.

Respondents rated agreement with statements in each area. Results were benchmarked against a 10,000-participant cohort. Across all five areas assessed, ZDLH-X participants reported substantially higher value creation versus the 10,000-respondent benchmark, demonstrating the effectiveness of the peer learning approach.

Sample value creation questions

- Participation changed me as a professional (change in skills, attitudes, identity, self-confidence, feelings, etc.).
- Participation helped my professional practice (get new ideas, insights, materials, procedures, etc.)
- Participation made me see my world differently (change in perspective, new understandings of the situation, redefine success, etc.)

Relating Learning to Performance

Previous large-scale TGLF research (n=6,185) demonstrated significant predictive relationships between strengthening immunization learning culture and enhancing knowledge and mission performance. These causal links contextualize ZDLH-X outcomes within a broader performance framework.

When asked about applying learnings, 99 percent of ZDLH-X respondents expressed intent to use new ZD strategies. Post-event feedback included examples of adaptations based on ideas gained, illustrating tangible practice changes. This evidence indicates that structured, blended peer learning can reliably extract practical insights on local ZD solutions from frontline staff and spur knowledge translation. Quantitatively and qualitatively, the methodology generated value for participants while enabling continuous learning. Coupled with prior research linking learning culture to performance, it is reasonable to hypothesize that such methods may positively influence coverage outcomes. Additional research should replicate these findings across contexts and connect observed practice changes to immunization results.

The ZDLH-X model leverages peer exchange to sustainably strengthen continuous learning and identify how to better reach ZD children. Initial findings suggest this approach could complement traditional learning agendas to build immunization system resilience. Wider application and validation is warranted based on the events' promising outcomes. Practitioners gained the knowledge of relevant solutions while advancing the learning culture needed to continuously adapt and perform in our complex world.

ZDLH-X Recommendations to Support Engagement Conducive to Effective KT

Table 6. ZDLH-X Recommendations to Support Engagement Conducive to Effective KT

Virtual Peer Exchange Model Recommendations	Implementation Guidance and Questions
Help ZD practitioners relate their own experiences to what is shared.	Ask: "When you listen to your colleague, how different is this from the ZD challenge you face? Tell us about this challenge."
Explain the role of global and national-level experts as a guide on the side rather than sage on the stage.	Remind them to listen attentively to each person sharing their experience: "Examine this experience in light of your global expertise. Identify questions for follow-up to clarify the story. Share short, specific feedback first, and then generalize to bring in the big picture. Be concise and get to the point. The longer you speak, the less we will learn from ZD practitioners."
Emphasize that participant experience is valued and recognized as legitimate.	Share that there will be no slide presentations. Instead, participants are invited to share stories and respond to stories shared. National/global staff are invited to listen, learn, and contribute as a *guide on the side*.
Provide explicit guidance to help participants structure their thinking to act as scaffolding for knowledge translation.	Tell participants, "Prepare to listen and share your feedback. As you listen to fellow ZD practitioners, reflect on your own experience. What experience do you want to share and why? How do you think this experience will be helpful to colleagues working on ZD? Be concise."
Share rules of engagement to ensure all participants are included and feel recognized.	Reminder: if a person from one country or region has spoken, the next person should be from a different country or region. When possible, if a man has spoken, the next person should be a woman. Tell participants, "We will be very strict about timing. Remember that you can also share your thoughts by writing in the comments. Respect diversity and differences, and one another as peers."
Acknowledge connectivity challenge in a frontline event to encourage participation.	Remember that practitioners from remote areas may have connectivity issues, despite interest and motivation. Consider organizing "viewing parties" where staff gather to watch and listen from a location with reliable internet.
Share supportive messaging to help build engagement that increases motivation to translate knowledge into practice.	Tell participants, "We are here to listen and learn from you. Trust your experience. Focus on what you know because you are there every day. Do not forget to introduce yourself: who you are and where you work. Be concise. You will be asked questions by the facilitation team, by guides on the side, and by attendees. It is okay if you do not have all the answers. Listen to the experiences of your peers, as you will be asked questions about them."

Emphasize the value proposition of the opportunity to translate knowledge into practice.	Tell participants, "Learn from the experiences of other immunization professionals on how they have successfully identified and reached ZD and UI communities; gain understanding about the specific tools and interventions that were effective in other contexts and be able to adapt them to your context. Share your own experience, including success stories, lessons learned and challenges; reflect on your own ZD practices and identify areas for improvement."
Share criteria to help participants share relevant experience.	Advise participants, "Be as precise and concrete as possible. Describe what you did and why, step by step. How do you know it worked? What did you do that is new or different? What facilitated and complicated this intervention? How does what you did connect to broader health system components (e.g., HRH, data/monitoring, planning, financing, supply chain/logistics)? For challenges that are relevant to others: In what specific ways does your intervention impact a ZD problem? What other challenges relate to this one (e.g., gender, conflict, urban/rural, demand, finance)? What about your intervention do you think is common or relevant to others—in your country or in another country?"
Provide guiding questions to help practitioners share their ZD experience.	Ask: "What is the ZD situation where you work? How do you know? What are you doing about it, why, and how? How is it different from what you did before? How has it turned out so far? How do you know what you are doing is successful?"
Consider the determinants of KT for individuals.	When trying to translate knowledge into practice: 1. Give me enough time to work on knowledge translation. 2. Ensure progress is monitored by my supervisor. 3. Make available someone to coach or mentor me. 4. Facilitate access to fellow practitioners for guidance and support. 5. Encourage co-workers to support. 6. Make job aids available for guidance. 7. Periodically remind of need for change in practice.
Share relevant content with platforms, with an invitation to disseminate and report back on KT.	Follow up with each platform to analyze KT effectiveness and lessons learned.

Learn more: Access the ZDLH-X recordings, synthesis reports, a list of frequently asked questions, and conceptual framework.