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Digital Tools for CHWs

Strengthening the community supply chain with data visibility

Authors: Rebecca Alban, Christine Lenihan, Edwin Mulwa, Naomi Printz, Lusubiro Mwamswamali, Jaya Chimnani, Anne Mungai, Jessicah Zulu

Photo: Jodi-Ann Burey

Community Health Workers (CHWs) are the backbone of responsive primary health care systems, bridging the gap between hard-to-reach areas and essential health services. Their pivotal role in preventive health care[1] and their unique rapport with communities[2] can only be effective, however, if they have the necessary resources, support, commodities and tools to serve their communities.

One critical way to support CHWs is through strengthening the community supply chain. **Research shows that CHWs globally are stocked out of medicines one-third of the time.**[3] This is at a significantly higher rate than the health facilities they are associated with, indicating specific challenges with the community supply chain. Without regular access to quality medicines and supplies, CHWs' ability to reduce disease burden is hindered significantly. Thus, CHWs in low- and middle-income countries (LMICs) need more programs and tools that are tailored to their needs. This technical brief provides guidance for supply chain stakeholders (i.e., government, CHWs and other health workers, donors, technical partners, private sector) on developing and implementing digital tools to increase community-level supply chain data visibility.

Photo: Jodi-Ann Burey

1 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8507089/

2 Boyd, L.M., Mehra, R., Thomas, J. et al. Features and Impact of Trust-Based Relationships Between Community Health Workers and Low-Resource Perinatal Women with Chronic Health Conditions. Matern Child Health J 25, 1866–1874 (2021). https://doi.org/10.1007/s10995-021-03242-z

3 Olaniran, A., Briggs, J., Pradhan, A. et al. Stock-outs of essential medicines among community health workers (CHWs) in low- and middle-income countries (LMICs): a systematic literature review of the extent, reasons, and consequences. Hum Resour Health 20, 58 (2022). https://human-resources-health.biomedcentral.com/articles/10.1186/s12960-022-00755-8

Guidance for CHW Supply Chain Digital Tools

Supply chain digital tools for CHWs can streamline inventory management tasks and assist CHWs in:

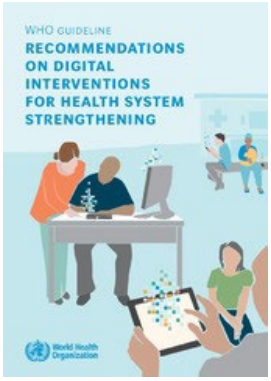
- Logging stock on hand for distribution, including redistribution;
- Anticipating resupply needs well in advance of stockouts;
- Monitoring stock and verifying expiration dates; and
- Enforcing buffer stock policy.

These tools facilitate easier and faster communication between CHWs, their supervisors and health facilities, as well as provide CHWs with a sense of empowerment and motivation. Supply chain digital tools offer CHWs access to health information on best practices, new treatments and protocols; as well as provide governments with critical information on stock data and trends for provincial and national-level supply chain planning. However, the effectiveness of supply chain digital tools is often undermined by poor design and implementation and/or contextual challenges. To improve the successful development and implementation of supply chain digital tools for CHWs, a group of donors, government representatives, technical partners and private sector digital companies collaborated to develop this guidance for other stakeholders interested in developing similar tools.

A Collaborative Effort

This guidance is the product of a collaborative effort between Amref Health Africa, BlueCode Systems, GHSC-PSM, inSupply Health, Johnson & Johnson, the Kenyan Government, Last Mile Health, the Liberian Government, Living Goods, Lwala Community Alliance, Medic, Medtronic LABS, Ona, TIP Global Health, USAID and VillageReach. During two workshops, we discussed our experiences implementing supply chain digital tools for CHWs in several African countries. From these experiences, we gathered lessons learned and key success factors to develop general guidance for governments and partners interested in designing and implementing digital tools to support CHW supply chain management.

Together we work across Africa



We used the World Health Organization's (WHO) recommendations for digital interventions to organize our insights and experiences to develop guidance related to:

1. ***Governance, Finance & Policy***
2. ***Iterative User-Centered Design***
3. ***Technology & Process Alignment***
4. ***Training & Support***

1 Governance, Finance & Policy

Strong leadership and governance structures are necessary for a successful digital tool. During the development of a supply chain digital tool stakeholders should work closely with governments to:

- Gain buy-in;
- Manage competing priorities;
- Ensure the tool aligns with relevant national strategies and policies; and
- Avoid duplication and silos.

> *"Before embarking on developing a CHW [digital] tool, some key enabling factors should include the presence of a national e-health strategy and also a supply chain policy that is aligned with the digitization agenda."*
>
> **Lusubiro Mwamsamali,** VillageReach

Involving the government early is critical for sustainability and ensuring long-term commitment to maintain and finance the digital tool. Any new tool needs to align with relevant policies defining CHWs' compensation, duties, processes and training requirements, as well as digital health strategies and regulations (such as data governance and privacy) to ensure the tool's success, scalability and financial sustainability.

2 Iterative, User-Centered Design

Requirements for community supply chain tools may vary widely between and within countries. An iterative, user-centered design approach is critical to ensure that a tool is **user-friendly,** adequately addresses **user needs** and is designed appropriately for the **specific country context.**

> *"A beautifully designed tool that doesn't take the user's perspective, in this case, CHWs, remains just that—a beautiful tool. Without early involvement and taking users' needs and feedback into account, we have not set ourselves up for success."*
>
> **Jaya Chimnani,** GHSC-PSM

An effective user-centered design process should identify and define different user types (or user personas) and the specific requirements for each user type. For example, a CHW supervisor may need to see supply chain data for all the CHWs he/she supervises, while individual CHWs would only need to see their community data. CHWs may also have different requirements depending on their specific geographies, catchment areas and the services they provide. Clearly identifying and documenting requirements by user type ensures the tool is flexible and meets the needs of all users. Ongoing user consultation and feedback throughout the development stage and after implementation should drive further improvements to enhance effectiveness and maintain usability.

DESIGNING USER-FRIENDLY TOOLS FOR THE LOCAL CONTEXT

Use appropriate language and terminology to ensure availability in the language(s) spoken by CHWs and vocabulary or terms that align with their training.

Adapt workflows and processes to the context to find a balance between critical supply chain data collection, best practice workflows and simple streamlined processes that CHWs can easily complete.

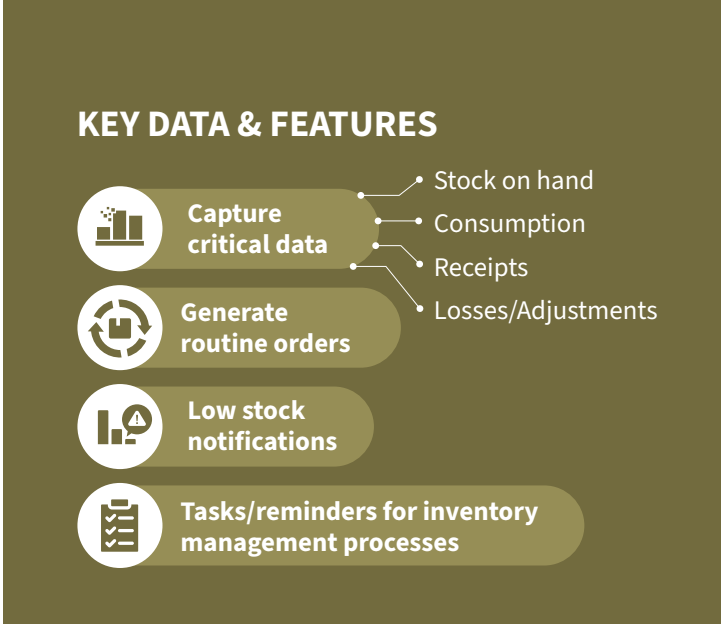
Account for users' digital and general literacy and include accessibility features (i.e., visuals, text-to-speech, speech recognition) to ensure the tool is inclusive and reduces potential barriers to use.

Consider the digital infrastructure and conditions in-country when selecting or developing a tool and the hardware needed to use it, such as offline functionality and large local device storage capacity, as well as what additional hardware or accessories might be needed, such as spare battery packs, solar chargers and protective cases.

3 Technology & Process Alignment

Successful tools should align with existing supply chain standard operating procedures (SOPs) and workflows at the community and national levels. They also need to align with relevant digital health policies, architecture, strategy, standards and regulations. Ensuring alignment with policies, SOPs and national and/or programmatic data standards can help avoid duplicative tools and ensure the data collected is useful and consistent across a country's health system.

In addition to these broader considerations, supply chain digital tools should support and streamline CHWs' workload. This means supply chain tools should:



- **Integrate into existing CHW tools** to avoid duplicative data collection and processes. Supply chain features should be added to existing service delivery and data collection tools or, at minimum, be on the same device to make the user experience more seamless.

> *"Community supply chains don't exist in isolation, they exist in a system."*
>
> **George Nzioka,** VillageReach

- **Integrate into other supply chain and health information systems** beyond the community level (i.e., national electronic logistics management information systems, or health management information systems). Additionally, integration or alignment with national reference data systems (i.e. master data) such as product, facility and health worker registries are critical to facilitate digital tool integration.
- **Utilize common definitions, calculations and standards** for data elements, key performance indicators and interoperability. This includes national and international standards and definitions.
- **Leverage technology to support workflow and automate processes** to provide value to CHWs and ease the data burden. Automating calculations, including validation and skip logic and adding reminders, can help CHWs perform their duties, improve data quality and save time.

4 Training & Support

CHWs need the right training and support to use supply chain digital tools effectively. Governments and partners should look at current supply chain training modules for CHWs and incorporate digital tools into current training programs. If supply chain training for CHWs does not exist, training with the new tool should be coupled with supply chain management training so CHWs can safely store and distribute health products. National CHW programs should also consider integrating key supply chain concepts into initial CHW onboarding/pre-service training. This will not only reduce the need for ongoing in-service training, but also ensure CHWs have a foundational understanding of their supply chain responsibilities and their impact on reducing stockouts and wastage.

> *Countries sometimes want to skip the process [improvements] and go straight to the digital…the status of CHWs in some countries is unclear and as a consequence the supply chain is not necessarily standardized, documented and is an ad hoc process. Technology [alone] cannot necessarily solve that."*
>
> **Paul Dowling,** USAID

At a national level, a country must have the technical capacity to provide end-user support, system administration and manage ongoing system operations and maintenance for a digital tool prior to development. This means having adequate human resources in place, whether directly or through vendors, with the relevant technical skills to operate and maintain a digital tool for CHWs.

> *"Strong community health systems, and community supply chains, are essential… This document is an important resource for countries and programs who are interested in harnessing technology to ease the burden of stock management and increase the visibility of stocks at the community level, so CHWs can focus on patient care."*
>
> **Naomi Printz,** USAID

Using this Guidance

The WHO estimates a global shortfall of 10 million health workers by 2030.[4] CHWs are poised and ready to fill this gap if they are respected as a professional health workforce that is salaried, supervised, skilled and supplied. The time for providing CHWs with the tools they need to effectively do their jobs is now. This collaborative effort to create guidance for developing and implementing digital supply chain tools for CHWs provides a unique opportunity for governments and their partners to learn from the expertise and experience of various partners across various sectors and to build on what works. This guidance can help countries enhance CHWs' ability to serve their communities through effective and impactful digital solutions to ensure people everywhere have access to health products when and where they need them.

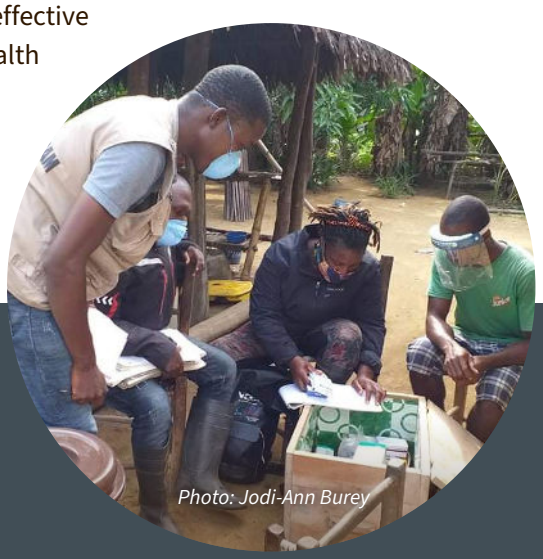


Photo: Jodi-Ann Burey

4 https://www.who.int/news/item/02-06-2022-global-strategy-on-human-resources-for-health--workforce-2030

RESOURCES

Several existing references and tools can guide the creation of an information system, including shaping key enabling environment factors, designing a community information system, training, tool selection, data use and more:

USAID GHSC-PSM: CHW Mobile Tool Landscape

- Technical Report: Analyzing The Landscape: Supply Chain Mobile Tools for Community Health Workers
- Landscape Analysis CHW Mobile Apps

UNICEF DICE

- Community Health Information System Roadmap
- Community Health Workers Guidance on Strategic Information Training Materials

Health Data Collaborative: Community Data

- Use of Community Health Data: Best Practices at the Community Level
- Guidance for Community Health Workers: Strategic Information and Service Monitoring

VillageReach

- Supply Chain for Community Health Workers Toolkit

Learn more about how to use this guidance and gain access to other tools and resources for building supply chain digital tools for CHWs. **Contact Christine Lenihan, Senior Manager - Digital Solutions, VillageReach christine.lenihan@villagereach.org**

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