Digitization a game changer in humanitarian services and research: Lessons from the Jengu Handwashing study in Daadab

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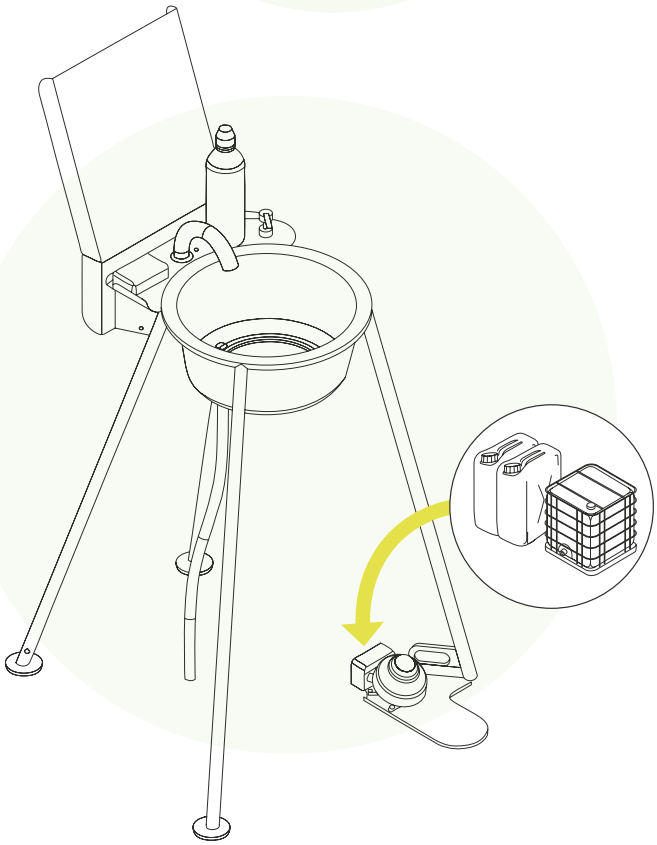
Background

Digital technologies are becoming an integral part of humanitarian responses and increasingly facilitate access to critical support in crises. Studies have shown that digital platforms can strengthen transparency, accountability, and operational efficiency in resource-constrained environments (Agung, 2017; Ólafsson, 2024). For instance, the Open Data Kit tool (ODK), is widely used in humanitarian settings for data collection, due to its ability to function offline and support real-time data validation (UNOCHA, 2024). Similarly, several digital platforms such as Redrose, 121, amongst others are used for cash and in-kind assistance programming and have been recognized for enhancing traceability and enabling digital audits in aid distribution (CaLP, 2018).



Efficient and transparent aid distribution is a central concern in humanitarian programming, particularly in complex refugee settings where the risk of exclusion, duplication, or data inaccuracy can compromise impact. Between 2021 and 2024, the Kenya Red Cross Society (KRCS) collaborated with the African Population and Health Research Center (APHRC), London School of Hygiene and Tropical Medicine (LSHTM), ARUP, International Federation of Red Cross and Red Crescent Societies (IFRC), and the British Red Cross (BRC) to integrate digital technologies in the implementation of the Jengu Handwashing Study in the Dadaab refugee camp, Kenya.

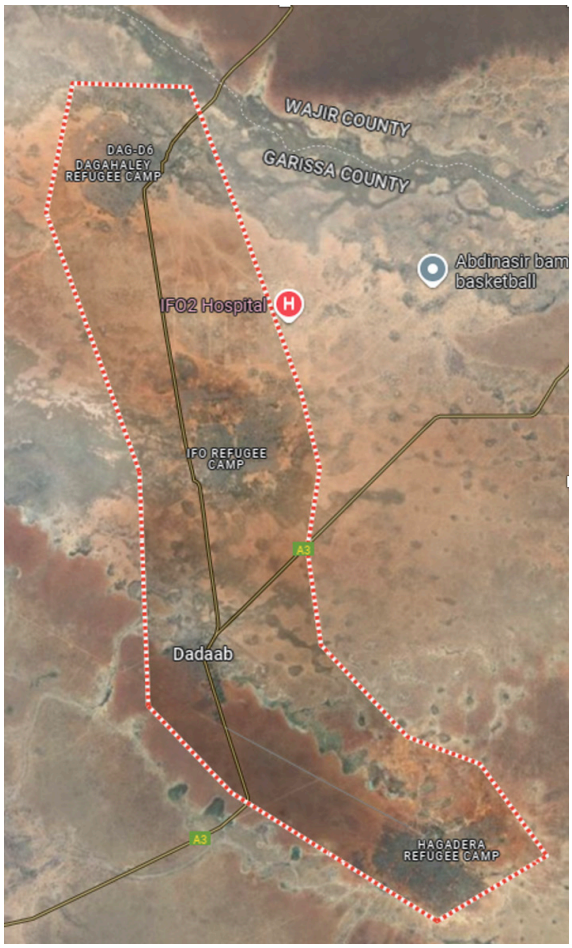
About the Study

The study aimed to assess the effectiveness of the Jengu Handwashing Facility in improving hand hygiene among crisis-affected populations. In addition to behavior change, the study sought to build evidence on the Jengu unit's acceptability, usability, durability, maintenance needs, cost-effectiveness, and potential for sustainable local production.

Digital tools were deployed to support execution of the randomized control study for data collection and distribution of hygiene supplies (soap). This case study describes how these tools, combined with community engagement and systematic monitoring enhanced data accuracy, transparency, and operational efficiency, contributed to high-quality research and intervention implementation within an emergency context.

This study was implemented in the Dadaab refugee camp located in Northeastern Kenya.

Figures 1 and 2: Ariel and geographical location of Dadaab

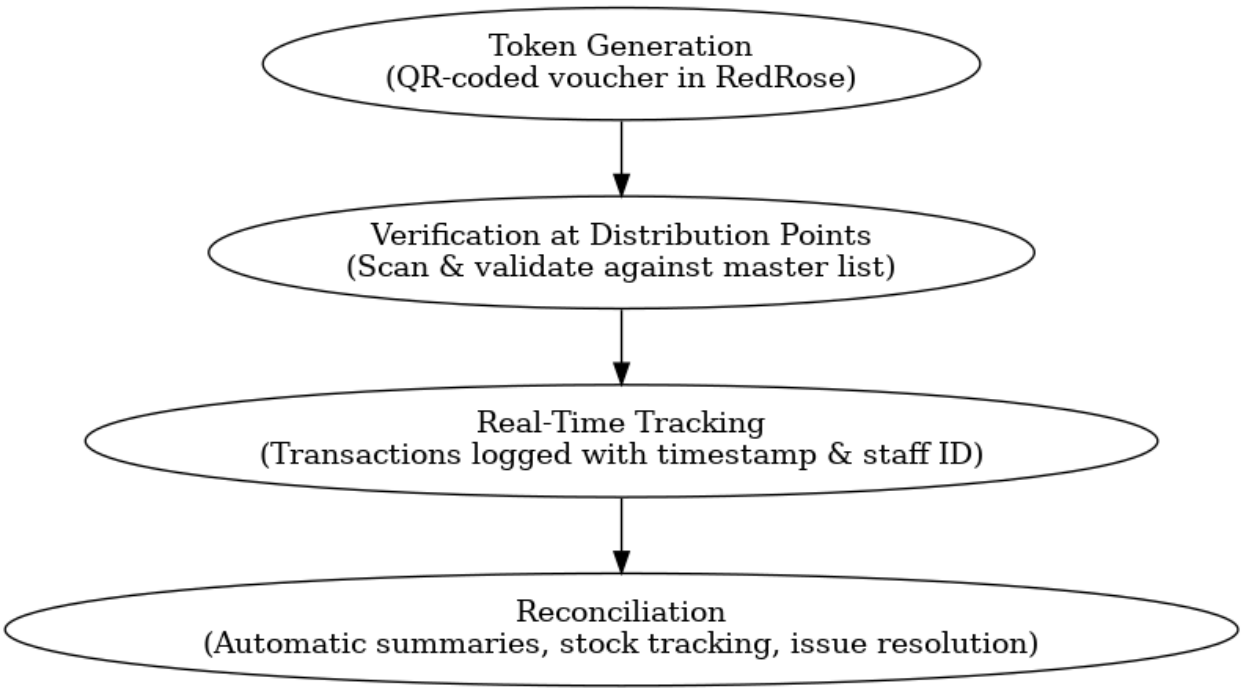


What Was Done

The study applied digital tools, KoboCollect for data collection and RedRose for beneficiary management, to support a randomized control trial involving 300 households. Households were randomly assigned into two groups: Soap only group and Soap and Jengu handwashing unit group. The tools enabled household registration, voucher generation, real-time verification, and transparent tracking of soap across four rounds and tracking of distributed Jengu units to 150 beneficiaries.

Key Innovations – How the digital process transformed the process

- **Digital Registration & Baseline Survey:** Using KoboCollect mobile app, enumerators gathered data for household registration with GPS tagging, minimizing duplication and data loss. The household list created through this baseline survey became the sampling frame for random assignment into two groups: soap only and soap and Jengu unit.
- **Integration of digital Platforms for efficient data collection:** To streamline operations, the KoboCollect data was integrated into RedRose, an in-kind beneficiary management system which generated a comprehensive master list of all eligible households.
- **Community Engagement and mobilization:** Pre-distribution meetings with section leaders and community representatives to build trust and clarify the study objectives and activities. This participatory approach ensured transparency, strengthened community ownership, and minimized disputes during distribution. Section leaders played a key role in ensuring that beneficiaries understood the study objectives, selection criteria for the households and distribution schedule.
- **Capacity Building of community-based staff and volunteers:** KRCS conducted targeted training sessions for all staff and enumerators involved in the implementation and use of RedRose for voucher generation, scanning, and real-time verification. Additionally, they also learned documentation standards, including tallying, distribution reporting, stock tracking using both RedRose and physical inventory management systems and ethical engagement with beneficiaries, especially in a research context. This built local capacity to manage a technically sound, efficient, and ethically grounded distribution process that aligned with both humanitarian and research standards.
- **Real-time Tracking:** RedRose facilitated real-time monitoring of distribution, stock management, and audit trails, improving accountability.



Key Results and outcomes of the digitization

The integration of the digital platform in the distribution component of the study significantly enhanced the effectiveness of the intervention in the following ways:

Improved accuracy in distribution
The digital platform utilized biometric data and unique household identifiers to verify recipients before redeeming vouchers. Only registered and verified beneficiaries would redeem the items. This controlled fraud and ensured the research and control groups remained intact for research validity. Introduction of the digitized system helped solve issues associated with duplicate supplies and missing soap.

Operational efficiency of the distribution process
The digital scanning of IDs and vouchers reduced waiting times and errors from manual paperwork. This freed up time to allow the project team to engage and address on-the-ground issues more proactively.

Transparency
Real-time data logging provided full accountability and easy monitoring of the distribution progress. The system provided up-to-date information on soap stock levels, identified participants who had not yet redeemed their vouchers (facilitating targeted follow-ups), and tracked the total number of completed distributions.

Built Community Trust and buy-in
Transparent communication and digital accountability reduced disputes and increased confidence in both the research and humanitarian teams.

Lessons Learned

1. **Digitization enhances research quality and operational integrity.** The integration of digital tools significantly strengthened the quality and credibility of both research and humanitarian processes. Tools such as KoboCollect and RedRose minimized human error, ensured data completeness, and improved traceability from household registration to final distribution. Mobile and digital platforms ensure accuracy, efficiency, and ethical integrity in humanitarian studies, even in challenging contexts.
2. **Interoperability between systems improves coordination and reduces duplication.** The successful integration between KoboCollect and RedRose demonstrated the importance of interoperability in humanitarian research and programming. When data systems "speak" to one another, operational bottlenecks are reduced, and teams can make evidence-based decisions fasterSeamless integration between data collection and beneficiary management platforms minimizes duplication and strengthens coordination.
3. **Capacity building is fundamental to sustainability.** Capacity building is key. Training field teams on digital literacy ensures sustainability and local ownership of digital systems The study highlighted the need to invest in the digital literacy of local teams from the onset. Training field staff and volunteers on digital platforms improved not only their technical proficiency but also their confidence in using new tools for research and aid delivery. This localized capacity ensured that the systems remained functional even after the initial technical support phase.
4. **Community engagement strengthens trust and legitimacy.** Community engagement underpins success. Combining digital innovation with participatory approaches fosters transparency, accountability, and acceptance. The participatory engagement with section leaders, refugee representatives, and community mobilizers was essential in building trust, ensuring inclusion, and mitigating scepticism around technology use. Through transparent communication on selection criteria, data protection, and distribution procedures, the community viewed digitization as a fair and accountable process rather than a monitoring tool.
5. **Digital tools can bridge humanitarian and research objectives.** This study illustrates that humanitarian operations and research objectives can be harmonized through technology. The same data platforms used for aid distribution generated real-time evidence that strengthened both program management and scientific inquiry. This dual functionality reduced duplication of effort and resources while promoting a shared understanding of accountability and learning between humanitarian and research partners.

Conclusion

The Jengu Handwashing Study demonstrates how digital innovation can transform humanitarian research and operations. In Dadaab, the use of digital tools not only improved logistical efficiency but also safeguarded research integrity, enhanced community trust, and strengthened accountability. Digitization is not simply the use of technology but a system of building trust, collaboration, efficiency and transparency among humanitarian stakeholders. The complementarity between digital tools, deliberate community engagement, capacity building and coordination frameworks have the potential to revolutionize humanitarian work and research in crisis contexts. Digitization, therefore, is not just a technological shift, it is a catalyst for more transparent, efficient, and inclusive humanitarian programming.

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