**////Title: Investigating Facilitators and Barriers to Electronic Immunisation Registry Implementation in Tanzania and Zambia**

**////Stand-first**:

Digital health interventions have the potential to revolutionalise the management of health information. Despite reduced costs and increased accessibility of technology across the world, the implementation of digital health technologies in low- and middle-income countries has been less than optimal. Dr Samantha Dolan at PATH and the University of Washington and her colleagues investigated the perceived facilitators and barriers to electronic immunisation registry implementation in Tanzania and Zambia, and provide important recommendations for future practice.

**////Body text:**

In recent years, the availability of digital health interventions has increased in health programs in low- and middle-income countries. Boosted by ever lowering costs and increasing accessibility, digital technologies have the potential to revolutionise how health information is managed and utilised, as highlighted in 2018 by the World Health Assembly.

One example of a digital health intervention is that of electronic immunisation registries. Such programmes can be used to capture, store, access, and share health information about individuals over their lifetimes. Amongst many potential benefits, this form of digitised record-keeping could usefully be applied to managing vaccination uptake and adherence to vaccination schedules. In Vietnam, for example, improvements to vaccination coverage resulted from the successful implementation of an electronic immunisation registry only a few years ago.

However, despite the increased accessibility and availability of technology in low- and middle-income countries, the corresponding utilisation of digital health interventions at the regional and national scale is, unfortunately, lagging behind. Many projects have failed to move beyond the pilot stage or had only ever been intended to demonstrate feasibility. Additional problems arise in that many projects and systems were not built to sustain increasing volumes of work and as such, do not have the resources required to scale and thus, become common practice.

Undoubtedly, digital health interventions are complex, and successful utilisation requires coordination and support across different health system levels and government departments. Furthermore, significant capacities in technology and information need to be properly implemented. This important and upcoming area is poorly researched, however, and further studies on large-scale implementations across geographic areas are needed.

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The BID Initiative, led by the global non-profit public health organisation PATH, and funded by the Bill and Melinda Gates Foundation, worked with the governments of Tanzania and Zambia to introduce an electronic immunisation registry at the sub-national level in both countries within 5 years, as part of a larger complex intervention package.

From 2013, the BID Initiative had sought to address key challenges in immunisation data collection, quality and use, through their partnership with the Tanzania and Zambia governments. By 2018, the subsequently developed intervention package had been introduced in the regions of Arusha, Dodoma, Kilimanjaro, and Tanga of Tanzania, and also the Southern Province of Zambia.

In 2019, Dr Samantha Dolan at PATH and the University of Washington and her colleagues took this unique opportunity to understand how the introduction of an electronic immunisation registry could be implemented effectively by national governments, and how this strategy could be adapted for all immunising health facilities beyond the pilot phase. They were keen to look specifically at the perceived facilitators and barriers to the electronic immunisation registry implementation across the two countries.

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The mHealth (or mobile health) Assessment and Planning for Scale Toolkit was adopted as the study’s conceptual framework to guide data collection, interview questions and analytic framework. Dr Dolan and her colleagues then collected data via key informant interviews with appropriate project personnel, a desk review to assess data quality and completeness, electronic immunisation registries, and health management information systems. Data were obtained from 905 active facilities in Tanzania and 302 facilities in Zambia.

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In terms of perceived facilitators identified from the key informant interviews, no one single factor seemed to positively influence either the introduction or sustained adoption of the electronic immunisation registries. To achieve effective introduction, strong strategic engagement among partners was identified as important. Adoption was influenced by adequate staffing at facilities, training, use of data for supervision, internet and electricity connectivity, and community sensitisation (more generally known as raising awareness).

Dr Dolan and her colleagues found that significant barriers included the available human and financial resources, the level of training and capacity building needed, and existing health system challenges. The adoption of electronic immunisation registries was also likely to have been affected by lack of internet and electricity, along with lack of personnel.

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Reflecting on these key findings, the researchers note that the challenges identified are not unique or specific to immunisation programmes, but rather, represent commonly observed difficulties across the spectrum of digital health interventions. The researchers also point to the need for future research to adopt different methodologies in the quest to better understand the influence of contextual factors on digital health intervention implementation.

Dr Dolan and her colleagues conclude that to have a meaningful impact on health outcomes, digital health interventions, including the introduction and adoption of electronic immunisation registries, have to be sustained over time. As immunisation programmes and other digital health interventions emerge and evolve, organisations will have to be flexible in adapting to these to their existing resources, capacity and their changing technological landscapes to reap the benefits these can offer.

This SciPod is a summary of the paper ‘Perceptions of factors influencing the introduction and adoption of electronic immunization registries in Tanzania and Zambia: a mixed methods study’, published in Implementation Science Communications. DOI: https://doi.org/10.1186/s43058-020-00022-8

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