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mHealth innovations as health system strengthening tools: 12 common applications and a visual framework

Alain B Labrique,[a] Lavanya Vasudevan,[a] Erica Kochi,[b] Robert Fabricant,[c] Garrett Mehl[d]

This new framework lays out 12 common mHealth applications used as health systems strengthening innovations across the reproductive health continuum.

The rapid proliferation of mHealth projects—albeit mainly pilot efforts—has generated considerable enthusiasm among governments, donors, and implementers of health programs.[1] In many instances, these pilot projects have demonstrated conceptually how mHealth can alleviate specific health system constraints that hinder effective coverage of health interventions.

Large-scale implementation or integration of these mHealth innovations into health programs has been limited, however, by a shortage of empirical evidence supporting their value in terms of cost, performance, and health outcomes.[1–4] Governments in low- and middle-income countries face numerous challenges and competing priorities, impeding their ability to adopt innovations.[2] Thus, they need robust, credible evidence about mHealth projects in order to consider mHealth alongside essential health interventions, and guidance about which mHealth solutions they should consider to achieve broader health system goals.[2] Their tolerance for system instability or failure can be low, even when the status quo may be equally, or more, unreliable.

Current larger-scale effectiveness and implementation research initiatives are working to address the evidence gaps and to demonstrate the impact of mHealth investments on health system targets.[1] Other efforts are underway to synthesize such findings.[5]

MHEALTH AS A HEALTH SYSTEMS STRENGTHENING TOOL

Recent mHealth reviews have proposed that innovators focus on the public health principles underlying mHealth initiatives, rather than on specific mHealth technologies.[6] International agencies and research organizations have also endeavored to frame mHealth interventions within the broader context of health system goals or health outcomes.[2] The term "health system" includes all activities in which the primary purpose is to promote, restore, or maintain health.[7] Some elements of a framework for evaluating health systems performance by relating the goals of the health system to its essential functions have been proposed previously, which we believe can serve as a model for articulating and justifying mHealth initiatives and investments.[7]

Applying a health systems lens to the evaluation of mHealth initiatives requires different indicators and methodologies, shifting the assessment from whether the mHealth initiative "works" to process evaluation or proxy indicators of the health outcome(s) of interest. This new way of thinking would facilitate selection of mHealth tools that are appropriate for identified challenges. In other words, it would drive people to first identify the key obstacles, or constraints, to delivering proven health interventions effectively, and to then apply appropriate mHealth strategies that could overcome these health system constraints.[8]

Presenting mHealth as a range of tools for overcoming known health system constraints, as a health systems "catalyst," may also improve communication between mHealth innovators and health program implementers. Communicating mHealth technologies as tools that can enhance delivery of life-saving interventions through improvements in health systems performance, such as coverage, quality, equity, or efficiency, will resonate with health decision-makers.[7]

Hence, rather than being perceived as siloed, stand-alone solutions, mHealth strategies should be viewed as integrable systems that should fit into existing health system functions and complement the health

[a] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA
[b] United Nations Children's Fund (UNICEF), New York City, NY, USA
[c] frog Design, New York City, NY, USA
[d] World Health Organization, Geneva, Switzerland
Correspondence to Garrett Mehl (mehlg@who.int).

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