

DIGITAL TECHNOLOGIES FOR HEALTH FINANCING: WHAT ARE THE BENEFITS AND RISKS FOR UHC? SOME INITIAL REFLECTIONS



World Health
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KEY MESSAGES:

- The objective of this paper is to outline potential benefits and to explore possible risks and challenges specifically in relation to health financing principles and UHC objective. A key premise of this paper is that digital technologies supporting health financing functions and tasks must contribute to progress towards universal health coverage.
- Digital technologies can have various benefits for health financing, such as improved purchasing processes as well as increased revenue raising for health - when these revenues flow into large pools and transform out-of-pocket expenditure into prepayment. Digital technologies can also enable efficiency gains and enhanced accountability and transparency, thus ideally improving quality of care, financial protection and access to health services.
- But there are equally risks and concerns. Caution is warranted when digital technologies contribute to a pooling architecture with limited or reduced redistributive capacity, which worsens or consolidates inequities in financial protection at the detriment of poor, vulnerable and disadvantaged population groups.
- One starting point for governments to reap the benefits of digital technologies for health financing and minimize their risks is to give sufficient attention to health financing and the use of digital technologies in a country's national digital health strategy. Strengthening technical and regulatory capacities in this area will also be useful.
- Last but not least, it is important to gain a detailed overview of the digital technologies being used for health financing. The impacts of digital technologies for health financing should be evaluated in order to gather evidence. This will be the basis for developing guidance and recommendations on the use and design of digital technologies for health financing to support progress towards universal health coverage.

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1. INTRODUCTION: WHY DO DIGITAL TECHNOLOGIES MATTER FOR HEALTH FINANCING?

Digital innovation for health care and illness prevention with its potential to transform health-service delivery has received strong public attention over the past decade in both high-income and low- and middle-income countries (LMICs) (1). However, the use of digital technologies and their role in enhancing health financing, and their implications for health systems transformation, are less well known, especially in LMICs. An important contribution and first step in this field was an article by Meessen (2) which looks at the role of digital strategies in health financing.

In this paper, we refer to digital technologies as electronic tools, systems and devices that generate, store, process or transmit data (cf. (3)). Digitalized data and information management systems, including data warehouse and related elements, are a wide and important area that is relevant to health financing. Moreover, this paper is particularly focused on digital technologies that significantly change “business as usual” – i.e. technologies that substantially transform the way in which health-financing tasks are undertaken by stewards, purchasers, providers, users and citizens in general. These technologies include mobile telephone applications, webpage interaction platforms, blockchain, big data analytics, and artificial intelligence including machine learning (1). Digital health is the term used to describe “the field of knowledge and practice associated with the development and use of digital technologies to improve health” (1). Consequently, digital technologies for health financing can be considered as one specific area within digital health.

With increasing spread of the Internet and mobile telephone connections, coupled with the digitalization of data and information management, new opportunities for health financing in LMICs may arise. There are, meanwhile, more than 7 billion cellular subscriptions around the world and 93% of the world’s population lives within reach of a mobile broadband (or Internet) service (4). The spread of Information-Communication-Technology is itself part of Sustainable Development Goal (SDG) No. 9 (5), with the idea of also advancing the other SDGs.

A key premise of this paper is that digital technologies for health financing should contribute to universal health coverage (UHC), which falls under Sustainable Development Goal No. 3 (5). The intermediate and final objectives of UHC include efficiency, equitable distribution of resources, accountability and transparency, as well as equity in access, fair financing and financial protection, and quality of care (6, 7). To achieve progress towards UHC, digital technologies should support the achievement of widely agreed health-financing principles and desirable attributes – i.e. largely relying on public finance, reducing out-of-pocket expenditure and expanding prepaid and pooled funding, and making purchasing more strategic (8, 9). These health financing principles and the UHC objectives can serve as assessment criteria for evaluating the benefits of digital technologies.

Nevertheless, digital technologies may pose risks to health financing and the application and implementation of digital technologies face various challenges that could jeopardize their health-financing benefits (1, 10). These specific risks for health financing need to be explored. Also importantly, digital technologies for health financing should be assessed against broader principles and criteria, such as data security and data protection for privacy and confidentiality of data. When big data analysis including algorithms and artificial intelligence are implied, other issues arise in relation to data accuracy, comprehensiveness and – importantly – minimization or elimination of biased algorithm outcomes, discrimination against specific population groups and erroneous prediction. One key question is how digital technologies, and particularly the use of artificial intelligence, affect health equity (11). The WHO Bulletin devoted a special issue to Artificial intelligence in the health sector: ethical considerations to this subject, emphasizing the relevance of these concerns (10).

The objective of this paper is to outline potential benefits and to explore possible risks and challenges specifically in relation

to health financing principles and UHC objectives on the basis of a scoping literature review, including published and grey literature, with a focus on LMICs. The next section provides an overview of digital technologies for health financing and assesses their potential benefits in contributing to UHC objectives.¹ This is followed by an exploration of the potential risks and challenges in relation to UHC objectives. These two sections are structured along the three core health financing functions – i.e. revenue-raising, pooling and purchasing, and they do not claim to be exhaustive. A mention or description of a specific digital technology or country case example in the sections below does not imply that it is considered beneficial or is endorsed by WHO. Finally, we provide initial conclusions and reflections on how to reap the benefits, and mitigate the risks and challenges, in relation to health financing.

The envisaged audience of this issue paper are decision-makers, policy analysts, advisors and managers working in the field of health financing as well as those dealing with digital technologies in relation to health financing.

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