Original Research

Cost savings through implementation of an integrated home-based record: a case study in Vietnam

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Abstract

Objectives: In Vietnam, there are three major home-based records (HBRs) for maternal and child health (MCH) that have been already nationally scaled up, i.e., Maternal and Child Health Handbook (MCH Handbook), Child Vaccination Handbook, and Child Growth Monitoring Chart. The MCH Handbook covers all the essential recording items that are included in the other two. This overlapping of recording items between the HBRs is likely to result in inefficient use of both financial and human resources. This study is aimed at estimating the magnitude of cost savings that are expected to be realized through implementing exclusively the MCH Handbook by terminating the other two.

Study design: Secondary data collection and analyses on HBR production and distribution costs and health workers’ opportunity costs.

Methods: Through multiplying the unit costs by their respective quantity multipliers, recurrent costs of operations of three HBRs were estimated. Moreover, magnitude of cost savings likely to be realized was estimated, by calculating recurrent costs overlapping between the three HBRs.

Results: It was estimated that implementing exclusively the MCH Handbook would lead to cost savings of United States dollar 3.01 million per annum. The amount estimated is minimum cost savings because only recurrent cost elements (HBR production and distribution costs and health workers’ opportunity costs) were incorporated into the estimation. Further indirect cost savings could be expected through reductions in health expenditures, as the use of the MCH Handbook would contribute to prevention of maternal and child illnesses by increasing antenatal care visits and breastfeeding practices.
Conclusion: To avoid wasting financial and human resources, the MCH Handbook should be exclusively implemented by abolishing the other two HBRs. This study is globally an initial attempt to estimate cost savings to be realized through avoiding overlapping operations between multiple HBRs for MCH.

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Introduction

A number of different types of home-based records (HBRs) for maternal and child health (MCH) have been globally operationalized as the self-monitoring tools for pregnant women, mothers, and children. The most commonly implemented HBR for MCH is a child vaccination card which enables mothers to monitor immunization status of their children. It can serve as the reliable data source for estimating child immunization coverage. Another HBR commonly implemented is a growth monitoring chart which enables mothers to monitor growth progress of their children. Growth monitoring charts have been implemented in over 150 countries. There is also a pregnancy care card exclusively for pregnant women and mothers, which focuses on recording the results of antenatal care checkups, deliveries, and postnatal care checkups. Thus, HBRs for MCH are fragmented into several types according to MCH-related vertical programs. This fragmented implementation of HBRs hampers the promotion of continuum of care for pregnant women, mothers, and children, an essential package for reducing maternal and neonatal deaths. For this reason, some countries implement the Maternal and Child Health Handbook (MCH Handbook), an integrated HBR for both a mother and her child applicable to all stages of maternal, newborn, and child health, throughout pregnancy, delivery, birth, postnatal, infancy, and childhood.

Several previous studies conducted international comparisons of the prevalence of nationally representative child vaccination cards between countries. Yet, there is only one study that identified and analyzed the prevalence of HBRs at subnational level within a country. The study further reported the levels of fragmentation and overlapping among those multiple HBRs between provinces and between MCH-related vertical programs. However, no previous study estimated the magnitude of cost savings to be realized through avoiding overlapping HBR operations.

Vietnam is one of the most successful countries in achieving both Millennium Development Goals 4 and 5. Earlier studies reported that HBRs for MCH are likely to have contributed to reductions in the mortality rates, by promoting timely and adequate utilizations of maternal, newborn, and child health services. Yet, it was found that parallel operationalization of multiple fragmented HBRs at subnational level has been confusing not only health workers by requiring them to record the same data into several HBRs but also mothers about which HBR they should refer to and rely on at home. Thus, it was recommended that HBRs for MCH be standardized and integrated into a single national version, for reduction of confusions, operational efficiency, and financial sustainability of the HBR. In view of the recommendation, the Vietnamese Ministry of Health (MoH) piloted the MCH Handbook to assess the feasibility of its nationwide scaling-up, through implementing the Maternal and Child Health Handbook Project (the Project) during the period from 2011 to 2014.

This study is aimed at estimating the magnitude of cost savings that will be realized through standardizing and integrating HBRs into a single MCH Handbook and replacing it for several existing fragmented HBRs. Note that this is globally the first study that attempts to estimate cost savings to be realized through avoiding overlapping operations of multiple HBRs for MCH.

Methods

The previous study conducted in 28 provinces of Vietnam identified 23 HBRs for MCH that were implemented as of 2014. Only part of the 23 HBRs were nationally implemented as the requirement by the central MoH. The others were the province-specific HBRs whose operations were neither required nor controlled by the MoH. To estimate the minimum magnitude of cost savings likely to be realized commonly in all provinces of Vietnam, this study targets only HBRs that have been already nationally scaled up, i.e., the MCH Handbook, Child Vaccination Handbook and Child Growth Monitoring Chart (Fig. 1). Of them, the MCH Handbook was the only HBR that covers all the key recording items specified by the national MCH-related policies and guidelines. Thus, cost savings to be realized through implementing exclusively the MCH Handbook by terminating or abolishing the other two were estimated. Recurrent costs of respective HBRs were analyzed by dividing them into two major categories, i.e., HBR production and distribution costs, and health workers’ opportunity costs. Then, the magnitude of cost savings was estimated, through calculating these two categories of recurrent costs related to respective HBR operations, by applying the equation (1).

\[
C_t = \sum C_i = C_p + U_p Q_p + U_o Q_o
\]

where \(C_t\) is total cost of an HBR operation per year; \(C_p\) is cost of HBR production and distribution per year; \(C_o\) is cost of health workers’ opportunity per year; \(U_p\) is unit cost of production and distribution per HBR copy; \(U_o\) is unit cost of health workers’ opportunity per data recording in HBR; \(Q_p\) is

\[\text{Cost of HBR production and distribution per year} = C_p = \text{Total cost of HBR production and distribution per year} \]

\[\text{Cost of health workers’ opportunity per year} = C_o = \text{Total cost of health workers’ opportunity per year} \]

\[\text{Unit cost of production and distribution per HBR copy} = U_p = \text{Unit cost of production and distribution per HBR copy} \]

\[\text{Unit cost of health workers’ opportunity per data recording in HBR} = U_o = \text{Unit cost of health workers’ opportunity per data recording in HBR} \]
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