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## BHUTAN: Development of the electronic MCH register linked to MCH Handbook



MCH Handbook, Bhutan, 2019

### Background

Maternal and Child Health (MCH) Handbook, an integrated home-based record for MCH, is used in Bhutan, for recording the results of antenatal and postnatal check-ups of mothers, immunization, vitamin A supplementation, deworming, and growth monitoring of their children. UNICEF and WHO have been both technically and financially supporting the Ministry of Health (MOH) in developing and implementing the MCH Handbook since 2007. The MCH Handbook replaced the three different home-based records implemented in the past: (i) Antenatal Record Card; (ii) Postnatal Clinic Card; and (iii) Child Immunization and Growth Chart Card.

The MCH Handbook aims to better ensure continuum of maternal and child health care by tracking pregnant women and children from pregnancy, delivery/birth, and postnatal period through childhood (<6 years of age). To enable health workers to comprehensively track service utilizations by mothers and children over time, a coding system for the unique MCH registration number is embedded into the Handbook. The unique MCH registration number is assigned by health workers, when a pregnant woman reports her pregnancy to the nearest home health center upon the first antenatal care visit. An home health center is the most accessible health facility at which mothers and their children utilize essential MCH services on a routine and regular basis. When a mother has not had her pregnancy registered, her child receives the MCH Handbook upon the first visit to a health facility in search for child care (e.g. immunization or growth monitoring) along with the unique identification number.

### MCH registration number

An MCH registration number is composed of combinations of letters and numbers, e.g. "AA-BBB-xx-yyyy-0". Its initial part "AA-BBB-xx-yyyy" signifies mother-unique identifier, while its final part "0" signifies child-unique identifier. The first two and three letters of the number ("AA" and "BBB") represent the names of district and home health center in which a pregnant woman live and utilize health services, respectively. The subsequent two-digit number "xx" and four-digit number "yyyy" represent registration year and serial number of a mother at a given health facility, respectively. This mother-unique identifier (AA-BBB-xx-yyyy) is assigned to a woman for each pregnancy. One-digit number "0" of the final part of the MCH registration number represents the number of children born as an outcome of pregnancy. Thus, "0" means that no child has been born yet and a woman is pregnant, or miscarriage or stillbirth (Table 1). Then, when a child is liveborn, then "0" will be replaced by "1", signifying a singleton. In case of twin birth, an additional MCH Handbook is distributed to the mother (i.e. MCH Handbooks with MCH registration numbers of "AA-BBB-xx-yyyy-1" and "AA-BBB-xx-yyyy-2"). In addition to the unique MCH identifier, other information (incl. emergency contacts) is recorded in the MCH Handbook, to ensure the practical ways of reaching and following up mothers and their children.

Along with the MCH Handbook, a paper-based MCH register is used to keep maternal and child health data recorded at health facilities. When a mother and/or child having been registered at their home health center utilize services at a different health facility, the health facility is required to report

▼ Table 1. Examples of registration of pregnant women

| Event date | Health facility | Number of ANC visits | MCH registratoin number | Phone no of pregnant woman | Name of pregnant woman | Phone no of pregnant woman's kin | Name of pregnant woman's kin |
|---|---|---|---|---|---|---|---|
| 25 Jan 2019 | CHU X | >8 | TP-THI-18-0877-0 | xxx-xxxx | XXXX XXX | xxx-xxxx | XXXX XXX |
| 23 Jan 2019 | CHU X | >8 | TP-THI-18-0878-0 | yyy-yyyy | YYYY YYY | yyy-yyyy | YYYY YYY |
| 18 Jan 2019 | CHU X | >8 | TP-THI-18-0967-0 | zzz-zzzz | ZZZZ ZZZ | zzz-zzzz | ZZZZ ZZZ |

[Note] Patient information is anonymized.

Health workers using the MCH Handbook when providing MCH services

to the home health center to update the MCH register. This procedure helps prevent mothers and their children from missing in follow-up process and further pre-empt duplicated recording and reporting. Health facilities are required to forward monthly reports to district health offices. Then, those data are compiled at provincial and further national levels for publishing the Annual Health Bulletin.

## Estimation of the MCH Handbook coverage

Since its formal introduction in 2007, an adequate number of the MCH Handbooks have been printed in Bhutan. Moreover, the publication year started being printed at the top of the front covering page in 2017. Publication year of the MCH Handbook is useful, when tracking mothers. In the Annual Health Bulletin 2017, the MCH Handbook coverage was estimated at >95%. The MCH Handbook contains a birth certification page in which the date of birth and parental data should be recorded. This page encouraged parents to have their child's birth registered in local civil registration system, which is operated by the Ministry of Home and Cultural Affairs.

The MCH Handbook facilitates interactions between health workers and caregivers in a smoother manner. Some health workers stated that having a complete set of the following records in one handy booklet helped them deliver health services in an efficient and timely manner: (i) antenatal checkups; (ii) post-natal checkups; (iii) child care and feeding practices; (iv) child immunizations; (v) growth monitoring; (vi) vitamin A supplementation; and (vii) deworming. However, there remains a need for conducting qualitative assessments on the user-friendliness of the MCH Handbook, particularly on its counselling sections.

## Development of an MCH electronic register and web-based tracking

Manual data entry at home health centers does not help regular review to be practiced at the higher level. Moreover, there were a series of operational issues: (i) underreporting; (ii) duplicated reporting; (iii) incomplete data recording; and (iv) delay in reporting. To address the limitations of manual data entry, the MOH and Office of the Government to Citizen Services initiated a web-based MCH tracking system, in collaboration with UNICEF and WHO, in 2016. The system was nationally scaled up in 2017. The paper-based MCH Handbook was converted into the web-based format being linked to District Health Information System 2 (DHIS-2), to ensure tracking of continuum of MCH care. This web-based tracking system was piloted for a year at nine health facilities in Punakha district and then nationally scaled up at all hospitals, all Grade-I Basic Health Units (BHUs), and selected Grade-II BHUs having internet connectivity. Currently, over 120 health facilities (>40% of all the health facilities in the country) use the DHIS-2 for data visualization and analysis (Figure 1). Mother-unique identifier is one of the key elements that enable the results of service utilizations to be tracked.

Web-based MCH tracking based MCH registration number consisting of mother-unique and child-unique identifiers would help avoid duplicated reporting and underreporting of service utilizations. The data collected through the web-based MCH tracking system can be aggregated at both district and national levels.
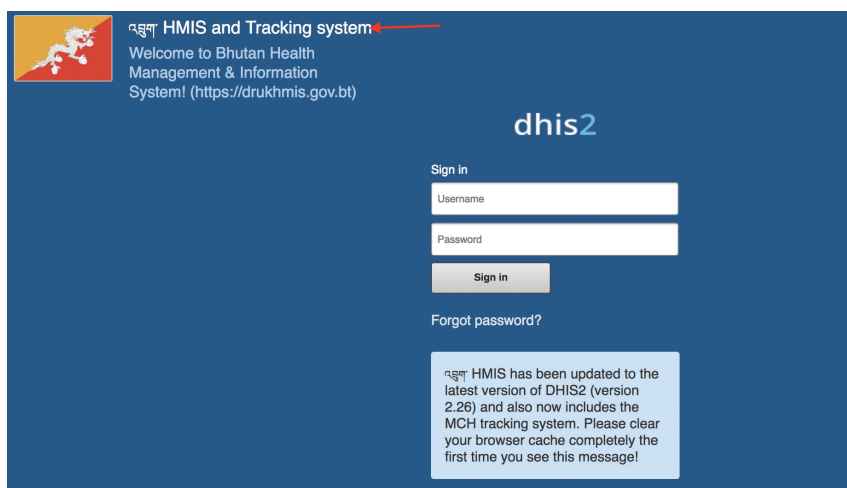
## Challenges and way forwards

Specific challenges include: (i) health workers' inadequate capacity of data recording and transcription; (ii) poor digital literacy among health workers; (iii) inadequate internet connectivity; and (iv) poor availability of computers at health facilities. In 2018, the MCH Handbook and web-based MCH tracking system were revised by adding (i) growth chart for weight-for-height; (ii) updated immunization schedule; and (iii) health-related messages. Capacity building of all health workers responsible for operation of the revised MCH Handbook and web-based MCH tracking system will be one of priority activities during the period from 2019 to 2020.

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▲ **Figure 1. Web-based MCH tracking system features into the DHIS-2**

### Further readings

1. MOH. *Annual Health Bulletin*. Timphu: MOH, 2017.