

WHO recommendations on
home-based records
for maternal, newborn and child health



World Health
Organization

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Acronyms and abbreviations

ANC	antenatal care
ANC4	antenatal care (four visits)
APGAR	appearance, pulse, grimace, activity and respiration score
ARI	acute respiratory infection
CASP	Critical Appraisal Skills Programme
CERQual	Confidence in the Evidence from Reviews of Qualitative research
CI	confidence interval
DOI	declaration of interests
DTP3	diphtheria-tetanus-pertussis immunization 3 doses
EPI	Expanded Programme on Immunization
EtD	Evidence to Decision
GDG	Guideline Development Group
GER	WHO Department of Gender, Equity and Human Rights
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HIV	human immunodeficiency virus
IER	WHO Department of Innovation, Information, Evidence and Research
IVB	WHO Department of Immunization, Vaccines and Biologicals
JICA	Japan International Cooperation Agency
MCA	WHO Department of Maternal, Newborn, Child and Adolescent Health
MCH	maternal and child health
MD	mean difference
M&E	monitoring and evaluation
MNCH	maternal, newborn and child health
NHD	WHO Department of Nutrition for Health and Development
OHCHR	United Nations Office of the High Commissioner for Human Rights
OR	odds ratio
PICO	population (P), intervention (I), comparator (C), outcome (O)
PND	WHO Department of Prevention of Noncommunicable Diseases
RCT	randomized controlled trial
RHR	WHO Department of Reproductive Health and Research
RR	relative risk
SBA	skilled birth attendant
TT2	two doses of tetanus toxoid vaccination
TWG	Technical Working Group
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Works Agency
WHO	World Health Organization

Executive summary

Introduction

A home-based record is a health document used to record the history of health services received by an individual. It is kept in the household, in either paper or electronic format, by the individual or their caregiver and is intended to be integrated into the health information system and complement records maintained by health facilities. They range from antenatal notes or vaccination-only cards, progressing to more expanded vaccination-plus cards, child health books or integrated maternal and child health books, which often include health education messages. For simplicity, the term “home-based record” is used throughout this document.

The use of some form of home-based record is widespread globally. They vary greatly across countries and regions, in terms of their design and the information they document. Ownership is near universal in some countries, but very patchy in others.

While home-based records have been widely implemented for decades, the evidence of the benefits and harms has not been systematically reviewed and summarized. This guideline seeks to address this gap by reviewing the evidence of the effects of home-based records on maternal, newborn and child health (MNCH) outcomes and health service delivery outcomes.

Guideline development methods

This guideline was developed using the standard process described in the *WHO handbook for guideline development*. Briefly, the process includes:

- identifying priority questions and outcomes;
- retrieving and synthesizing evidence;
- assessing the evidence;
- formulating the recommendations;
- planning for dissemination, implementation, evaluation and updating of the guideline.

The quality of the evidence underpinning the recommendations was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) and the Confidence in the Evidence from Reviews of Qualitative Research (CERQual) approaches. The GRADE Evidence to Decision Framework (EtD), including intervention effects, values, resources, equity, acceptability and feasibility criteria, guided the development of the recommendations by the Guideline Development Group (GDG), an international group of experts who participated in two technical consultations in November 2017 and April 2018.

Recommendations

The GDG consultations led to the development of two recommendations. To ensure that each recommendation is correctly understood and applied in practice, the contributing experts provided additional remarks where needed. Table 1 summarizes the recommendations on home-based records; additional material important to understanding the recommendations and the underlying evidence are included in two web annexes.¹ During the technical consultations, the GDG also discussed several implementation considerations and identified important research gaps. These are included in the main part of this document.

In accordance with the process for updating WHO guidelines, the WHO Steering Group will continue to monitor research developments around home-based records, particularly in relation to questions for which no evidence was found and those supported only by low-certainty evidence, and for the research gaps identified to promote their uptake. In the event that important new evidence is identified that could impact on the recommendations, this guideline will be updated. WHO welcomes suggestions regarding additional questions for inclusion in future updates.

¹ The web annexes are available at: <http://apps.who.int/iris/bitstream/handle/10665/274285/WHO-MCA-18.04-eng.pdf>
<http://apps.who.int/iris/bitstream/handle/10665/274286/WHO-MCA-18.05-eng.pdf>

Table 1. Recommendations on home-based records

Recommendations
<ol style="list-style-type: none"> 1. The use of home-based records, as a complement to facility-based records, is recommended for the care of pregnant women, mothers, newborns and children, to improve care-seeking behaviours, male involvement and support in the household, maternal and child home care practices, infant and child feeding, and communication between health providers and women/caregivers. (<i>Low-certainty evidence</i>) 2. There was insufficient evidence available to determine if any specific type, format or design of home-based records is more effective. Policy-makers should involve stakeholders to discuss the important considerations with respect to type, content and implementation of home-based records.
Rationale
<p>The GDG considered the evidence presented and judged that, overall, the certainty of evidence of the effectiveness of home-based records was low. They recognized that the existing evidence base has limitations, including: the small number of studies found, half of which were conducted in high-income countries; the age of these, with some conducted before 2000; and the variety in the studies, which looked at different types of home-based records and measured a broad array of outcomes.</p> <p>The impact varied by outcome. Some studies showed a positive effect on maternal health immunization care-seeking, outcomes related to a supportive home environment for maternal and child health (MCH) care, improved infant feeding and other child health care practices, improved child growth and development, improved continuity of care across MCH, and improved communication with health providers. However, there was also no significant effect reported on many maternal, newborn and child care-seeking and care practice outcomes. For many outcomes, no studies were found.</p> <p>Although the evidence base has its limitations, the GDG determined that the desirable effects outweigh any undesirable effects, and also considered in their judgements the fact that home-based records have a long history and are implemented in at least 163 countries. Furthermore, they considered the qualitative evidence that reports women, caregivers and providers from a variety of settings value different forms of home-based records. The GDG also noted that home-based records contribute to a larger objective of ensuring the right to access to information, and are in line with global efforts for people-centred care, which WHO embraces.</p>
Remarks
<ul style="list-style-type: none"> ■ In remote and fragile settings, where health systems are weak or where health information systems are absent or poor, and in locations where caregivers may use multiple health facilities, home-based records may be of greater value than in more developed settings and health systems. ■ Concerns about the privacy of online or electronic records were reported in studies. The GDG highlighted the potential sensitivity of information in home-based records on HIV testing, status or treatment. Careful consideration should be given as to what personal information is necessary to include in home-based records, to avoid stigma and discrimination. ■ Countries currently using home-based records should consider appropriate use, design and content, as well as sustainable financing to maximize their use and impact. ■ Additional research is needed on the benefits of using home-based records for recording information on single aspects of care, versus home-based records that include wider MNCH aspects for health education purposes. Evidence was not available at this time to inform this priority question for countries.

1. Home-based records: an overview

1.1 Functions of home-based records

A home-based record is a health document used to record the history of health services received by an individual. Its primary purpose is to record essential information related to maternal, newborn and child health (MNCH), including health status, visits to a health care provider, vaccinations received and the child's growth and development. A home-based record is kept in the household, in either paper or electronic format, for use by the woman for maternal health and/or by the caregiver of the household's newborns and children. It is intended to be integrated into the health information system and complement records maintained in health facilities.

Home-based records vary greatly across countries and regions in their design and the information they document. They can be: maternal home-based records that include identifying information, antenatal notes, and care during childbirth and after birth; vaccination-only cards which record vaccination history; expanded vaccination-plus cards which provide a record of vaccinations and health care, growth and development and illness management for newborns and children. Another type of home-based record is child health books, which record vaccinations, health care, growth and development and illness management specifically for newborns and children. Meanwhile, integrated maternal and child health (MCH) books record all aspects of MNCH care, illness management and vaccinations. For simplicity, the term "home-based record" is used throughout this document.

1.2 History of home-based records

Home-based records have a long history and, over time, their content has expanded and their use has changed. They were initially used to record proof of smallpox vaccinations in the mid-1800s and were subsequently used to document health services and health education for mothers in Japan in the mid-1900s. More recently, they have been used to record maternal and newborn vaccinations, for example in the roll-out of the global Expanded Programme on Immunization (EPI), and the inclusion of child growth and development in the "Road to Health" card in South Africa the 1970s (Donald & Kibel, 1984).

In the 1990s, they were assimilated into other health areas, for example to record visit history, laboratory results, medication information and illness management for children with disabilities (Moore et al., 2000), children with chronic conditions (Byczkowski, Munafò & Britto, 2014) and children living with cancer (Hully & Hyne, 1993; Sharp et al., 2014).

Today, ownership of a home-based record is near universal in some countries, but patchy in others. From analysis of 180 demographic and health surveys between 1993 and 2013, home-based vaccination record ownership was estimated at over 80% in 23 countries and less than 50% in 24 countries (Brown & Gacic-Dobo, 2015). Their use in Bangladesh, Ethiopia, Indonesia, Nigeria and Pakistan is estimated at less than 50%; these are five of the ten countries with the largest number of births per year (Brown & Gacic-Dobo, 2015).

Despite these discrepancies in coverage, at least 163 countries or territories are known to use some form of home-based record² (TechNet-21, 2018). Although home-based records have been widely implemented for decades, evidence of their benefits and challenges has not been systematically reviewed and summarized.

² A repository of home-based records that have been used in many countries is available at: <https://www.technet-21.org/en/topics/home-base-records>

1.3 Potential benefits of home-based records

Early versions of home-based maternal records were developed to improve monitoring during pregnancy, childbirth and the postnatal period. For health care providers and health care service delivery, the potential benefits of home-based records include: access to important health data about women, newborns and children; better risk detection and prompt referral of women; improved communications with women and caregivers; and strengthened links among different health workers and services (WHO, 1994). For women, caregivers of children and family members, home-based records can: facilitate learning and awareness of health problems; promote detection of risks and timely action; encourage continuity of care and encourage positive health behaviours during pregnancy; and improve MNCH care practices in the home (WHO, 1994).

The information collected in home-based records can be used by programme managers for routine health information reporting, monitoring and planning purposes (WHO, 1994). They can also contribute to a key right to access to information for users, as part of commitments made in the Convention on the Rights of the Child to protect children's health through primary health care and engagement of caregivers in making decisions about the health care of their child (UN-OHCHR, 1990), and the Human Rights resolution on preventable maternal mortality and morbidity to enable women to make informed choices about their health and access to services (UN-OHCHR, 2010).

1.4 Challenges with using home-based records

Potential challenges to the use of home-based records include lack of awareness and understanding of the content and completion requirements among health workers, inadequate or incomplete use, and health workers' illegible handwriting when completing records (WHO, 2015). For example, health workers may not complete home-based records for a variety of reasons: because they are too busy, perceive it

as extra work, have not received appropriate training, or assume caregivers will not read them (WHO, 2015). Meanwhile, women or caregivers may lose records or leave them at home when attending a facility.

Community demand for home-based records may be low because people do not know about them (WHO, 1994; Brown et al., 2015; TechNet-21, 2018). Other challenges include inadequate integration of home-based records across MNCH programmes, stock-outs of records and lack of government resources to sustain implementation (WHO, 2015).

1.5 About this guideline

1.5.1 Target audience

There are three main audiences for this guideline. First are policy-makers and managers of MNCH and immunization programmes in ministries of health where decisions are made and policies created on the use and implementation of home-based records. Second are health care providers, including community health workers, who are tasked with using home-based records as a tool for recording information and providing health education or communicating key information. Development and international agencies and non-governmental organizations that support the implementation of home-based records are the third.

1.5.2 Scope of the guideline

Previous WHO guidance on home-based records has been fragmented across health programmes. A WHO document developed in 1994 (WHO, 1994) provided guidance on the development, adaptation and evaluation of maternal home-based records to help in the early detection of risk conditions. The guidelines provided detailed information on the functions and benefits of these records, how they should be adapted, used and introduced in primary care, and steps to scale up their use. However, while these guidelines are comprehensive for maternal health, they were based on field experience in countries. The document was published prior to WHO's guideline development process, and the recommendations are not based on the research evidence available at that time.

In 2015, WHO published a practical guide to the design, use and promotion of home-based records in immunization programmes (WHO, 2015). It targets immunization programme managers and aims to standardize the immunization content in home-based records. It also considers the function, benefits and content of the records and includes implementation guidance. However, as with the 1994 document, it is based on field experience and practice across countries, rather than the available research evidence; it is not a formal WHO guideline developed through the established guideline development process.

The *WHO recommendations on antenatal care for a positive pregnancy experience* (WHO, 2016) include a recommendation that each pregnant woman carries her own case notes during pregnancy to improve continuity of care, quality of care and her pregnancy experience. This guideline was developed according to the standard WHO guideline development process, and evidence on the effects of women-held case notes, as well as acceptability and implementation considerations, was taken from published systematic reviews.

While the past WHO documents offer separate guidance on the use of home-based records in specific health areas, this guideline looks at their effect for a broader range of MNCH outcomes and quality of care outcomes, and it is in line with the standard WHO guideline development process.

1.5.3 Objectives of the guideline

This guideline seeks to provide evidence-based recommendations on the use of home-based records for MNCH outcomes. This will enable country-level decision-makers and health care providers to better understand the value of home-based records, their impact on a broad set of outcomes, and their potential contribution to strengthening the quality of health service delivery and health systems. It is intended to be used by policy-makers and programme managers to help them decide whether home-based records should feature more prominently in their MCH programmes, and to encourage more effective implementation.

Annex 1 lists the priority questions and outcomes that guided the evidence retrieval, synthesis and decision-making for this guideline. The questions identified relate to the effect of home-based records, acknowledging that their use by health programmes may vary and that different types of home-based record are currently in use. The outcomes identified across MNCH are related to the functions of home-based records and what are considered to be the different benefits, including more proximal outcomes (e.g. improved knowledge among pregnant women and/or caregivers; improved care practices in the home; care-seeking and vaccination uptake; improvements to the quality of care provided) and more distal health outcomes (e.g. reduced morbidity and mortality).

2. Methods

This guideline was developed using the process described in the *WHO handbook for guideline development* (WHO, 2014). The process involved: (i) formation of technical groups; (ii) declarations of interest; (iii) identification of priority questions and outcomes; (iv) evidence retrieval and synthesis; (v) quality assessment and grading of evidence; (vi) formulation of the recommendations; and (vii) planning for disseminating, implementing and updating the guideline.

2.1 Formation of technical groups

2.1.1 WHO Steering Group

The WHO Steering Group that supervised the guideline development process comprised staff members from the WHO Departments of Maternal, Newborn, Child and Adolescent Health (MCA), Immunization, Vaccines and Biologicals (IVB), and Reproductive Health and Research (RHR), as well as representation from WHO regional offices. The WHO Steering Group consulted as needed with other WHO departments with relevant technical expertise, and with those for which these recommendations may have implications: Gender, Equity and Rights (GER), Prevention of Noncommunicable diseases (PND), Information, Evidence and Research (IER), and Nutrition for Health and Development (NHD).

The Steering Group conducted the initial scoping review; facilitated the scoping meeting in December 2016 to identify key research questions and outcomes; contributed to and supervised the evidence retrieval, assessment and synthesis led by the Technical Working Group (TWG); organized the Guideline Development Group (GDG) meetings; and drafted the recommendations and final guideline. Annex 2 lists the members of the Steering Group, the TWG and the GDG.

2.1.2 Guideline Development Group (GDG)

The WHO Steering Group invited 12 external experts and stakeholders to form the GDG.

They comprised academics with expertise in guideline development, research or policy development related to home-based records, as well as international and country-level policy-makers and implementers of home-based record programmes. This diverse group was drawn from every WHO region, and efforts were made to ensure geographic representation and gender balance, and that they had no important conflicts of interest.

An initial scoping meeting was held in Geneva in December 2016 and contributed to the identification of priority questions and outcomes for the guideline (participants are listed in Annex 2). During a meeting held in Geneva in November 2017, the GDG members reviewed the evidence presented and drafted the recommendations. In April 2018, a virtual meeting was held to consult the GDG on changes made to finalize the recommendation, and to review the Summary of Findings and Evidence to Decision (EtD) framework, which were modified in response to the queries raised at the November meeting, as well as a review by external experts and the WHO Steering Group. The GDG reviewed and approved the final guideline through virtual consultation.

2.1.3 Technical Working Group (TWG)

The TWG comprised the team that led the systematic reviews and other research conducted to respond to the priority questions identified, and two guideline methodologists.

2.1.4 External partners and observers

Representatives of the United Nations Relief and Works Agency (UNRWA), United Nations Population Fund (UNFPA), United Nations Children's Fund (UNICEF) and Japan International Cooperation Agency (JICA) were invited to the GDG meeting in Geneva in November 2017 as observers (see Annex 2); they did not participate in decision-making or voting processes. These organizations actively collaborate with WHO in guideline dissemination and are potential implementers of this guideline. JICA funded the development of this guideline.

2.2 Declaration of interests by external contributors

In accordance with the *WHO handbook for guideline development* (WHO, 2014) all GDG, TWG members and external experts were asked to declare in writing any competing interests (academic, financial or other) at the time of invitation to participate in the guideline development process. Annex 3 provides the details of this process, as well as a summary of the DOI statements and information on how conflicts of interest were managed.

2.3 Identifying priority questions and outcomes

The WHO Steering Group conducted an initial review of the literature. This confirmed that no global guidelines relevant to the use of home-based records for MNCH were either in use or in development by other international agencies. The review and the existing WHO guidance (see section 1.5.2) informed the development of draft priority questions by WHO staff.

These draft questions were presented and discussed at a scoping meeting in Geneva in December 2016, which was attended by selected members of the WHO Steering Group, selected members of the GDG and other external experts. The aim of the meeting was to prioritize the questions and define the scope of the guideline in terms of focus, population of interest, interventions, comparisons and outcomes. A set of outcomes were also identified, based on the initial scoping review, experience of the GDG and Steering Group members, and discussions held after the scoping meeting. The scoping and prioritization process led to the identification of six priority questions and outcomes related to MNCH and health services. Annex 1 lists these in full, and they are discussed in more detail in section 3.

This guideline is focused on the use of home-based records to improve care-seeking and care practices related to MNCH, including: communication within the household; maternal,

newborn and child morbidity and mortality; and health service outcomes, including communication between women/caregivers and health care providers, satisfaction with services and provider performance. Outcomes relating to women's and caregivers' knowledge were considered less important, since knowledge of MNCH is usually reflected in improvements in more direct outcomes, such as care-seeking or home care practices. However, given the importance of these as a pathway in the chain of outcomes (knowledge leads to improved practices and care-seeking, which leads to improved health), evidence on the impact of home-based records on knowledge is presented in Annex 4 (although the quality is not appraised).

2.4 Evidence retrieval and synthesis

To summarize the evidence and factors relating to the use of home-based records, the TWG conducted three systematic reviews and a framework analysis of barriers and facilitators to implementation. Section 3 has additional information on the studies conducted for this guideline.

- A systematic review was conducted to identify the evidence of the effect of home-based records on the priority outcomes. Studies in this effectiveness review also provided evidence of the impact of home-based records on equity. Inclusion criteria were specified according to the population, intervention, comparator, outcome (PICO) questions (Annex 1). Methods for conducting the review can be found in Magwood et al. (2018b).
- A systematic review of cost-effectiveness or economic evaluations of home-based records was conducted, but no studies were found that met the inclusion criteria. To show the potential budget impacts of producing and delivering home-based records, a cost-estimate exercise was conducted based on average costs provided by JICA for home-based records in Burundi, Indonesia and Viet Nam (Magwood et al. 2018b and Thavron 2018).

- A qualitative evidence synthesis was conducted to identify and summarize evidence on: how much women/caregivers, families and providers value home-based records and their outcomes; the acceptability of home-based records to women/caregivers and providers; potential differences in the effect of home-based records across sub-populations (equity); and the feasibility of implementing home-based records. The synthesis included qualitative and mixed-method studies. The search strategy, screening and inclusion, and methods for quality assessment and synthesis can be found in Magwood et al. (2018a).
- The framework analysis combined grey literature referred to the team from implementation experts and key informant interviews to provide information on barriers and facilitators to implementation, as well as the EtD domains (values, resources, equity, acceptability and feasibility). Grey literature included non-peer reviewed reports and documents from relevant organizations, technical partners or governments that described the implementation of home-based records. Key informants (n=12) included international and national organizations who are knowledgeable about implementation. Methods used for identifying grey literature and conducting the interviews, as well as the matrix-based analytical framework, can be found in a final report, available from the WHO Department of Maternal, Newborn, Child and Adolescent Health.³

2.5 Quality assessment and grading of evidence

The quality of randomized and non-randomized controlled trials included in the systematic review of effects was assessed using the Cochrane Risk of Bias tool (Cochrane Bias Methods Group, 2018). Non-randomized studies were judged as being at “high risk of bias” for randomization and allocation concealment by default.

Individual studies included in the qualitative evidence synthesis were assessed using the Critical Appraisal Skills Programme (CASP) tool for qualitative research (CASP, 2018).

The GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach to appraising the quality of quantitative evidence (GRADE, 2017) was used for all critical and important outcomes identified in the PICO questions. A GRADE profile was prepared for each outcome for each priority question (see Web Annex A). The GRADE process rates the certainty of evidence for each quantitative finding as “high”, “moderate”, “low” or “very low”, based on a set of criteria. By default, randomized controlled trials are considered to provide high-certainty evidence, while non-randomized and observational studies provide low-certainty evidence. This baseline quality rating is then downgraded depending on study design limitations (risk of bias), inconsistency, imprecision, indirectness and publication bias.

The key findings of the qualitative evidence synthesis were assessed for quality using the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative research) tool (Lewin et al., 2018). The CERQual tool is conceptually similar to GRADE and provides a transparent method for assessing the level of confidence to place in a qualitative finding. Confidence is determined according to four components: methodological limitations; adequacy of data; coherence; and relevance to the review question of the individual studies contributing to a review finding. In CERQual assessments, all findings start as “high” confidence and are then downgraded if there are important concerns about any of the four components (see Web Annex A).

A GRADE-CERQual profile was prepared for each key finding and an overall judgement made on the level of confidence in the evidence. Both assessments report confidence or certainty in evidence, using the same levels (see Table 2).

³ Please contact: mncah@who.int

Table 2. Levels of evidence used in GRADE and CERQual assessments

Level of evidence	GRADE	GRADE-CERQual
HIGH	Further research is very unlikely to change certainty in the estimate of effect	It is highly likely that the review finding is a reasonable representation of the phenomenon of interest
MODERATE	Further research is likely to have an important impact on certainty in the effect	It is likely that the review finding is a reasonable representation of the phenomenon of interest
LOW	Further research is very likely to have an important impact on estimates of effect and is likely to change the estimate	It is possible that the review finding is a reasonable representation of the phenomenon of interest
VERY LOW	Any estimate of effect is uncertain	It is not clear whether the review finding is a reasonable representation of the phenomenon of interest

2.6 Formulating the recommendations and decision-making

The WHO Steering Group with the TWG prepared the Summary of Findings and the Evidence to Decision (EtD) tables using the GRADE DECIDE framework (GRADE, 2017). This framework allows for systematic consideration of the evidence in relation to specified domains: effects for each outcome, potential harms, values, resources required (including cost-effectiveness), equity, acceptability and feasibility. For each priority question, the GDG made judgements on the impact of home-based records on each domain, to inform and guide the decision-making process when formulating the recommendations.

The summary of findings per key question, the completed EtD table, and the accompanying GRADE and CERQual profiles were all reviewed and discussed at the GDG consensus meeting in Geneva in November 2017, attended by the GDG, the WHO Steering Group, the TWG and external observers. Towards the end of the meeting, guideline recommendations, which had been drafted by the WHO Steering Group based on the evidence, were also reviewed and debated, and GDG members suggested revisions.

The overall purpose of the meeting was to reach consensus on the recommendations for

home-based records. This was reached by discussion among the GDG, and where members were unable reach a consensus, voting was used. Consensus was defined as majority agreement by the GDG, and no strong feelings among those who disagreed. Voting involved a show of hands among members of the GDG. Members of the TWG, external observers and WHO staff present at the meeting were not permitted to vote.

Some issues were raised in the GDG meeting, including queries on the data and the GRADE profiles, and the identification of a study due to be published in 2018. Following this, the draft guideline, summary of findings per key question, completed EtD table and accompanying GRADE and CERQual profiles were reviewed by the WHO team, the GDG Chair, and a guideline methodologist.

A second, virtual meeting of the GDG, WHO Steering Group and external observers was convened in April 2018 to consult on the comments received, and to review suggested changes (including additional data for some outcomes, some additional outcomes and corrections to the GRADE and CERQual profiles). DOIs were again reviewed. A discussion was held among the GDG members to review the changes made to the summary of findings, reach consensus on the decisions in the EtD table, and finalize the wording of the recommendations.

The GDG consultations led to the development of two recommendations. Based on assessments of all criteria in the EtD table, the GDG classified each recommendation into one of the following categories:

- **Recommended:** the intervention or option should be implemented.
- **Not recommended:** the intervention or option should not be implemented.
- **Recommended in specific contexts:** the intervention or option is applicable only to the condition, setting or population specified in the recommendation, and should only be implemented in these contexts.
- **Recommended only in the context of rigorous research:** there are important uncertainties about the intervention or option. In such instances, implementation can still be undertaken on a large scale, provided that it takes the form of research that is able to address unanswered questions and uncertainties related to both the effectiveness of the intervention or option, and its acceptability and feasibility.

To ensure that each recommendation is correctly understood and applied in practice, the contributing experts provided additional remarks where needed.

2.7 Document preparation and review

Following the virtual GDG meeting, members of the Steering Group and the guideline methodologist finalized the draft guideline document and returned the electronic version to the GDG for approval. Once approved, the WHO Guidelines Review Committee and a technical editor reviewed the guideline document and provided feedback. The Steering Group and methodologist made the necessary modifications, respecting the decisions of the GDG.

Before the guideline was finalized, two additional external reviewers with an interest in MNCH and the provision or use of home-based records undertook a peer review of the draft guideline, checking it for accuracy, clarity, specificity and feasibility. These reviews did not change the recommendations formulated by the GDG.

3. Recommendations and evidence on home-based records for MNCH

3.1 Recommendations

Following the method outlined in section 2, the GDG put forward the following recommendations (Table 3).

Table 3. Recommendations on home-based records

Recommendations
<ol style="list-style-type: none"> 1. The use of home-based records is recommended for the care of pregnant women, mothers, newborns and children, to complement facility-based records, to improve care-seeking behaviours, male involvement and support in the household, maternal and child home care practices, infant and child feeding, and communication between health providers and women/caregivers. (<i>Low-certainty evidence</i>) 2. There was insufficient evidence available to determine if any specific type, format or design of home-based records is more effective. Policy-makers should involve stakeholders to discuss the important considerations with respect to type, content and implementation of home-based records.
Rationale
<p>The GDG considered the evidence presented and judged that, overall, the certainty of evidence of the effectiveness of home-based records was low. They recognized that the existing evidence base has limitations, including: the small number of studies found, half of which were conducted in high-income countries; the age of these, with some conducted before 2000; and the variety in the studies, which looked at different types of home-based records and measured a broad array of outcomes.</p> <p>The impact varied by outcome. Some studies showed a positive effect on maternal health immunization care-seeking, outcomes related to a supportive home environment for maternal and child health (MCH) care, improved infant feeding and other child health care practices, improved child growth and development, improved continuity of care across MCH, and improved communication with health providers. However, there was also no significant effect reported on many maternal, newborn and child care-seeking and care practice outcomes. For many outcomes, no studies were found.</p> <p>Although the evidence base has its limitations, the GDG determined that the desirable effects outweigh any undesirable effects, and also considered in their judgements the fact that home-based records have a long history and are implemented in at least 163 countries. Furthermore, they considered the qualitative evidence that reports women, caregivers and providers from a variety of settings value different forms of home-based records. The GDG also noted that home-based records contribute to a larger objective of ensuring the right to access to information, and are in line with global efforts for people-centred care, which WHO embraces.</p>
Remarks
<ul style="list-style-type: none"> ■ In remote and fragile settings, where health systems are weak or where health information systems are absent or poor, and in locations where caregivers may use multiple health facilities, home-based records may be of greater value than in more developed settings and health systems. ■ Concerns about the privacy of online or electronic records were reported in studies. The GDG highlighted the potential sensitivity of information in home-based records on HIV testing, status or treatment. Careful consideration should be given as to what personal information is necessary to include in home-based records, to avoid stigma and discrimination. ■ Countries currently using home-based records should consider appropriate use, design and content, as well as sustainable financing to maximize their use and impact. ■ Additional research is needed on the benefits of using home-based records for recording information on single aspects of care, versus home-based records that include wider MNCH aspects for health education purposes. Evidence was not available at this time to inform this priority question for countries.

3.2 Summary of evidence and considerations

3.2.1 Methods for the studies that provided the evidence

A systematic review was conducted to identify the evidence of the effect of home-based records on the priority outcomes. Inclusion criteria were specified according to the population, intervention, comparator, outcome (PICO) questions (Annex 1). Methods for conducting the review can be found in Magwood et al. (2018b).

Thirteen studies were included: nine randomized controlled trials (RCTs); one cluster RCT, and a three-year follow-up RCT; and two non-randomized controlled studies. Studies were conducted in high-income countries: Australia (n=1), England (n=4), Norway (n=1), United States of America (USA) (n=1); and in low- and middle-income countries: Cambodia (n=1), Indonesia (n=1), Mongolia (n=1) and Pakistan (n=2).

Participants were pregnant or postpartum women, infants or children attending immunization clinics, or children with disabilities (see Table “Characteristics of included studies (systematic review of effects)”, in Web Annex B). Home-based records included pregnancy or maternity health records or case notes, maternal and child health (MCH) handbooks, child health records, vaccination only records, and child health with vaccination plus child growth and development records. Seven studies compared the use of home-based record versus no record (Lakhani et al., 1984; Moore et al., 2000; Stille et al., 2001; Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006; Mori et al., 2015; Davadorj et al., 2017; Osaki et al., 2018⁴). Six studies compared the use of different types of records (Elbourne et al., 1987; Lovell et al., 1987; Homer, 1999; Usman, 2009; Usman et al., 2011; Yanagisawa et al., 2015). No studies were found that compared intensity of use.

A qualitative evidence synthesis was conducted to identify and summarize evidence on: how much women/caregivers, families and providers valued home-based records and their outcomes; the acceptability of home-based records to women/caregivers and providers; potential differences in the effect of home-based records across sub-populations (equity); and the feasibility of implementing home-based records. The synthesis included qualitative and mixed-method studies. The search strategy, screening and inclusion, and methods for quality assessment and synthesis can be found in Magwood et al. (2018a).

Eighteen qualitative and mixed method studies were identified. The studies were conducted in five high-income countries: Australia (n=3), Canada (n=1), New Zealand (n=1), United Kingdom (n=4), USA (n=5); and three low- and middle-income countries: Brazil (n=1), Cambodia (n=1), South Africa (n=1), and in the occupied Palestinian territory, including east Jerusalem, oPt (n=1; grouped with the low- and middle-income countries). Participants were pregnant or postpartum women, parents or caregivers of infants or healthy children, parents of hospitalized children or children with chronic diseases, teachers, residential caseworkers, health care professionals see Table “Characteristics of included studies (qualitative evidence synthesis)”, in Web Annex B. Electronic and hand-held home-based records included pregnancy or maternity health records, case notes, MCH handbooks, child health records, vaccination only records, and child health with vaccination plus child growth and development records.

The framework analysis (Broaddus, Mahadevan & Vogel, 2018) combined grey literature and key informant interviews to provide information on barriers and facilitators to implementation, as well as values, resources, equity, acceptability and feasibility. Methods used for identifying grey literature and conducting the interviews, as well as the matrix-based analytical framework, can be found in the final report, available from the WHO Department of Maternal, Newborn, Child and Adolescent Health.⁵

⁴ In the cluster RCT by Osaki et al. (2018), the MCH handbook was only sporadically available in the control areas, which may have led to contamination and reduced observed effects. It was decided to keep this study in the comparison of use versus no use of home-based records, as there was no coordinated attempt to use records in the control areas.

⁵ Please contact: mncah@who.int

Eighteen documents describing the implementation of home-based records, including factors that facilitated or posed barriers to implementation, were included. Document types included in the review were technical briefs or reports (n=5) and presentations (n=8), as well as a case study, a blog post, a working paper, a newspaper article and a project proposal. The documents described implementation in low- and middle-income countries including Afghanistan (n=1), Bangladesh (n=1), Cameroon (n=1), Ethiopia (n=2), Ghana (n=3), India (n=2), Jordan (n=1), Kenya (n=1), Liberia (n=1), Madagascar (n=3), Nepal (n=1), Pakistan (n=1) and Viet Nam (n=1). Three documents addressed implementation in numerous countries in different regions (24 countries in Africa and Asia; countries in the WHO African Region; and the UNRWA region covering Jordan, Lebanon, Syria, and the oPt); see Tables “Characteristics of documents: framework analysis” and “Characteristics of key informants: framework analysis”, in Web Annex B.

In addition, 13 key informants were interviewed. Interviewees included individuals associated with JICA (n=2), John Snow, Inc. (n=5), United Nations Relief and Works Agency for Palestine Refugees in the Near East (n=1) and UNFPA (n=5), at both international and country levels, who are knowledgeable about the implementation of home-based records. They participated via phone or Skype.

No studies were found that met the inclusion criteria in the review of cost-effectiveness and economic evaluations (Magwood et al. 2018b). A cost exercise was then conducted based on average costs provided by JICA for home-based records in Burundi, Indonesia and Viet Nam. (Thavron, 2018). JICA provided costing items, including costs for design (meetings and pre-testing), printing and distribution, orientation and training, monitoring and supervision, evaluation, scale-up and routine maintenance. Printing costs for the different types of home-based records were also provided for an MCH handbook, and maternal, child, child development, child vaccination handbook and tetanus immunization records.

Because the unit cost was limited to three countries, a scenario analysis was performed to calculate the printing cost of home-based records by multiplying the printing cost per vaccination record indicated in a study by Young, Gacic-Dobo and Brown (2015)⁶ by the number of births reported by the United Nations. Costs of designing and developing the home-based records, training health personnel to use them and other implementation costs and costs for maintaining records were not included in the calculation. The GDG noted that the utility of the cost-estimate exercise (Thavron, 2018) was limited, as the unit cost could not be determined from the analysis carried out and the results were not applicable beyond the countries for which information was available.

3.3 Effects of using home-based records on maternal, newborn and child health outcomes

The following text provides a brief summary of the findings. Please see Annex 4 for knowledge outcomes and Annex 5 for more complete information on the reference sources and significance values. Annex 5 describes the full range of studies consulted, including those where no difference was found between use and no use of home-based records.

3.3.1. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does use of any home-based records (I), compared with no use of any home-based records (C), improve MNCH outcomes (O)?

Maternal outcomes

- No significant effect on antenatal visits (**low-certainty evidence**)
- More care-seeking for pregnancy complications in the intervention area compared with the control area, but the difference was not significant (**low-certainty evidence**)

⁶ This shows the results from a survey of 140 countries to obtain information on home-based records, including: the type of record used, the number of records printed, whether records were provided free of charge or required by schools, whether there was a stock-out and the duration of any stock-outs that occurred, as well as the total expenditure for printing home-based records during 2013.

- More women in the intervention area reported two doses of tetanus immunization (TT2) in pregnancy compared with women in the control group (**moderate-certainty evidence**)
- Slightly more women in the intervention area reported professional childbirth care, but the difference was not significant (**low-certainty evidence**)
- More care-seeking for postpartum complications in the intervention area compared with the control area, but the difference was not significant (**very low-certainty evidence**)
- Significant small reduction in smoking behaviour among other members of the household for women receiving the MCH handbook (**low-certainty evidence**)
- Only one of six identified behaviours relating to their husband's support for birth preparation showed a significant effect (saving money for childbirth) (**low-certainty evidence**).

Newborn outcomes

- More care-seeking for newborn complications in the intervention area, but the difference was not significant (**very low-certainty evidence**)
- Slight improvements in breastfeeding initiation between women who had access to an MCH handbook versus no handbook, but there was no significant difference (**moderate-certainty evidence**)
- Only one of three behaviours identified relating to their husband's support for newborn care had a significant effect (keeping the infant warm) (**very low-certainty evidence**)
- There was a small but not significant difference in Appearance, Pulse, Grimace, Activity and Respiration (APGAR) scores with the use of MCH handbooks compared with the control group (**moderate-certainty evidence**).

Child outcomes

- For children with chronic diseases, 17.0% more parents in the control group (no home-based record) visited a health centre than the group receiving the parent-held child health record (no test for significance was reported; **very low-certainty evidence**)

- Women using the MCH handbook were less likely to report exclusive breastfeeding for six months than the control group where the MCH handbook was sporadically available, although the difference was not significant (**low-certainty evidence**)
- Women in the MCH handbook group were much more likely than the control group to practice complementary feeding after six months (**moderate-certainty evidence**)
- Women in the MCH handbook group were much more likely than the control group to continue breastfeeding for their children up to 23 months (**moderate-certainty evidence**)
- Respondents in the intervention area were more likely to ensure children took Vitamin A supplements compared with women in the control group (where the MCH handbook was sporadically available) (**moderate-certainty evidence**)
- Home care for children with coughs was more likely in the MCH handbook group than the control group (**low-certainty evidence**)
- Women in the intervention area reported that one of four behaviours identified relating to their husband's support for child care had a significant effect (giving development stimulation) (**very low-certainty evidence**)
- There were fewer underweight children in the intervention area compared with the control area (where the MCH handbook was sporadically available) (**very low-certainty evidence**)
- There were moderately fewer children with stunted growth in the intervention area compared with the control area, to a statistically significant level (**low-certainty evidence**)
- There was a moderate reduction in the risk of cognitive delay in the group receiving the MCH handbook versus the control group (who received the handbook after a seven-month delay), at a three-year follow-up (**very low-certainty evidence**).

Care-seeking across the MNCH continuum

One cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported the following findings for the MCH handbook versus the control group (where the MCH handbook was sporadically available):

- Maternal health (TT2, ANC4, SBA): no significant difference (**low-certainty evidence**)

- Maternal and newborn (TT2, ANC4, SBA, Vitamin A, exclusive breastfeeding): significant difference (**very low-certainty evidence**)
- Maternal newborn and child (TT2, ANC4, SBA, Vitamin A, exclusive breastfeeding, practised complementary feeding after six months): significant difference (**low-certainty evidence**).

3.3.2. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of any home-based records (I), compared with inconsistent use (low use) of any home-based records (C), improve MNCH outcomes (O)?

No studies were found.

3.3.3. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of different types of home-based records (I and C), improve MNCH outcomes (O)?

Maternal outcomes

- One study suggested a significant increase in the proportion of women attending ANC four or more times in the intervention group using the Cambodian version of the MCH handbook (**very low-certainty evidence**)
- In one study, women given their own maternity case notes were less likely to miss antenatal appointments, compared with women in the group who held the standard cooperation card (**low-certainty evidence**)
- One study suggested a significant increase in childbirth with a skilled attendant in the intervention group using the standard Cambodian Child Health Card and Mother Health Record, and a significant increase in both the intervention and control groups in childbirth at health facilities (**very low-certainty evidence**).

Newborn outcomes

- Mothers in both groups (Cambodian version of the MCH Handbook versus standard Cambodian Child Health Card and Mother Health Record) had increased early breastfeeding overall (**very low-certainty evidence**).

Child outcomes

- Studies suggest a significant improvement in completion of DPT3 with a redesigned immunization card (**moderate-certainty evidence**).

3.3.4. For women during pregnancy and after birth, and for caregivers (P), does any use of home-based records (I), compared with no use of any home-based records (C), improve health service outcomes (O)?

Maternal outcomes

- Improvements from the baseline after a two-year follow-up in the MCH handbook versus the control group (where the MCH handbook was sporadically available) in relation to mothers having ever received an explanation from health personnel (**very low-certainty evidence**)
- Moderate increase in identification of pregnancy complications in women receiving the MCH handbook at their first ANC visit, versus women in the control group who received it seven months later (**very low-certainty evidence**).

Newborn outcomes

- No studies reported.

Child outcomes

- Improvements from the baseline after a two-year follow-up period in the MCH handbook versus the control group (where the MCH handbook was sporadically available) when: (a) the handbook was brought to more than two facilities; (b) it was brought on more than two occasions; and (c) it was filled in by more than two health personnel (**very low-certainty evidence**).

3.3.5. For women during pregnancy and after birth, and for caregivers (P), does any use of home-based records (I), compared with inconsistent use (low use) of any home-based records (C), improve health service outcomes (O)?

No studies were found.

3.3.6. For women during pregnancy and after birth, and for caregivers (P), does the use of different types of home-based records (I and C) improve health service outcomes (O)?

- Multipara women who carried their own records were significantly more likely to report that their health care providers explained everything in their records to them, compared with women in the control group who held a small abbreviated card (**very low-certainty evidence**)
- Women who carried their own records and women who held small abbreviated cards both reported that the cards helped them to talk with the doctor/midwife, but there was no significant difference (**very low-certainty evidence**)
- Women who held their own obstetric notes until 10 days after birth were significantly more likely to say they found it easier to talk to doctors and midwives during antenatal care than women holding an abbreviated cooperation card (**very low-certainty evidence**)
- The case notes group were more frequently satisfied with aspects of their care than the cooperation card group during pregnancy, labour, delivery and postnatally (all pregnancy care); overall maternity care satisfaction was 69.5% in the case notes group and 56.9% in the cooperation card group (**very low-certainty evidence**)
- Holding obstetric notes until 10 days after delivery enhanced women's feelings of control compared with women holding an abbreviated cooperation card (**very low-certainty evidence**)
- In another study, both intervention (full pregnancy case notes) and control (abbreviated co-op card) groups of women were positive about their experience (**very low-certainty evidence**).

3.4 Undesirable effects

3.4.1 Research evidence

No studies from the review of effectiveness reported undesirable effects.

3.4.2 Additional considerations

Findings from the qualitative evidence synthesis (see section 2) noted that mothers and caregivers had concerns about the privacy, confidentiality and data security of online or electronic health records (Byczkowski, Munafo & Britto, 2014; Kitayama et al., 2014; Quinlivan, Lyons & Peterson, 2014; Sharp et al., 2014; O'Connor et al., 2016) (**low-confidence evidence**). The GDG also discussed privacy concerns about information related to HIV in home-based records, and related to electronic health records, as well as concerns of over-diagnosis by providers in certain settings.

3.5 Values

3.5.1 Research evidence

Patient/caregiver values

The framework analysis indicated that women/caregivers valued home-based records, and the extent to which loss of the home-based records was a big challenge varied among the key informants (n=12) and documents reviewed (n=18). Some respondents reported that patients/caregivers greatly valued the records and that loss was not a problem in the contexts with which they were familiar. Several explained that caregivers felt the records demonstrated that they were "aware about their health" and that the provider would pay more attention to them if they had their record with them.

However, some informants noted that the loss of records was a challenge. Multiple factors were thought to influence the extent to which women/caregivers valued and retained their records. These included: record appearance and material durability; the way in which records were introduced and explained by health workers; patient/caregiver education level; distance travelled to reach the clinic; vaccination record requirements for school enrolment (and level of awareness of such requirements); and record-replacement policies. Two key informants familiar with refugee populations noted that refugee women and caregivers placed significant value on owning a home-based record.

Health care provider values

Qualitative evidence from high- and middle-income countries suggests that health care providers value the educational and logistical aspects of home-based records (Harrison et al., 1998; Phipps, 2001; Grippo & Fracolli, 2008; Hagiwara et al., 2013; Lee et al., 2016; King et al., 2017). These allow them to provide more comprehensive health education and counselling, and with greater confidence and accuracy, explaining what was being recorded and why things were done, connecting health care providers to families, and helping them provide culturally appropriate care (Phipps, 2001; Hagiwara et al., 2013; Lee et al., 2016). Service providers using electronic home-based records saw the usefulness of the portal in setting up appointments and providing secure messaging to families (King et al., 2017).

In one study in South Africa, however, many physicians did not see the value in filling out child health books, and in private clinics this type of record was abandoned (Harrison et al., 1998). The value of home-based record outcomes was low, possibly due to lack of local practitioner input into their design and implementation (**low-confidence evidence**).

Mother, caregiver and provider interaction

Qualitative evidence, mainly from high-income countries (Hully & Hyne, 1993; Phipps, 2001; Hunter et al., 2008; Hamilton & Wyver, 2012; Hagiwara et al., 2013; Byczkowski, Munafo & Britto, 2014; Quinlivan, Lyons & Peterson, 2014; Sharp et al., 2014; Lee et al., 2016; King et al., 2017), suggests that the use of home-based records for MCH facilitated communication between mothers/caregivers and health care professionals, and improved person-centred care (**low-confidence evidence**).

Qualitative evidence, again mainly from high-income settings (Hully & Hyne, 1993; Grippo & Fracolli, 2008; Clendon & Dignam, 2010; Hamilton & Wyver, 2012; Quinlivan, Lyons & Peterson, 2014; Lee et al., 2016; Sharp et al., 2014), suggests that the use of home-based records for MCH reduces fear during patient-provider interactions among users, and improves confidence and feelings of empowerment (**low-confidence evidence**).

Qualitative evidence from various countries (Clendon & Dignam, 2010; Hamilton & Wyver, 2012; Hagiwara et al., 2013; Yanagisawa et al., 2015; Lee et al., 2016) indicates that home-based records act as a point of commonality between caregivers/women and nurses, and allow nurses to provide more comprehensive and tailored health education (**low-confidence evidence**).

Improved knowledge and decision-making

Qualitative evidence, mainly from high-income countries using various forms of home-based records (Phipps, 2001; Byczkowski, Munafo & Britto, 2014; Kitayama et al., 2014; Yanagisawa et al., 2015; Lee et al., 2016; Kelly, Hoonakker & Dean, 2017), suggests that these improve women's knowledge and help them share in decision-making, and improve caregivers' knowledge about their child's health status (**moderate-confidence evidence**).

Communication within the household

Qualitative evidence from various settings (Phipps, 2001; Hagiwara et al., 2013; Yanagisawa et al., 2015) indicates that for women who shared home-based records with partners or husbands, partner involvement during pregnancy increases and helps to reduce misconceptions about pregnancy among family members (**low-confidence evidence**).

Continuity of care

Qualitative evidence from high-income countries (Hully & Hyne, 1993; Hamilton & Wyver, 2012; Quinlivan, Lyons & Peterson, 2014; King et al., 2017) suggests that use of home-based records (paper and electronic) for MCH facilitates continuity of care (**very low-confidence evidence**).

3.5.2 Additional considerations

Satisfaction with home-based records

An RCT conducted in Norway comparing use of a parent-held record with no use indicated that 65% of parents were satisfied with having the parent-held record available; of these, 92% were in favour of making its availability permanent. Satisfaction and support for parent-held records was especially high for parents of children with chronic diseases (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006).

3.6 Balance of effects

3.6.1 Research Evidence

Overall, there were statistically significant effects of low- to very low-certainty evidence on the use of antenatal care and improved communication and supportive household environments for maternal and newborn health outcomes. Further effects, also of low certainty, were seen for child health, including immunization completion, infant feeding, growth and development, and reduced risk of cognitive delay. There was a moderate certainty effect from one study on increasing the uptake of care across MNCH. Uncertain effects were noted in relation to health service outcomes, with different studies regarding communication between mothers/caregivers and providers. There is likely to be an effect on women's satisfaction and sense of control in antenatal care, according to two studies.

However, there is considerably more evidence, albeit of low confidence, from different types of studies that report women, caregivers and providers valuing home-based records in their different forms. Concerns about the privacy of online or electronic records were reported in qualitative studies. Key informants and three RCTs suggest the loss of home-based records does not happen often.

3.6.2 Additional considerations

The GDG discussed concerns regarding the privacy of information related to HIV in home-based records, and concerns of over-diagnosis in certain regions. However, no studies reported on these issues. Qualitative findings did report concerns for privacy with electronic records, though.

3.7 Resources required

3.7.1 Research evidence

As indicated, no studies of the cost-effectiveness of home-based records, or economic evaluations, were found in the review (Magwood et al. 2018b). As described (section 2), a cost-estimate exercise was conducted. The GDG noted that the usefulness of this exercise (Thavron, 2018) was limited, as the unit cost could not be determined, and the costs estimated were only applicable to the countries for which the information was provided.

Findings from the framework analysis provide additional information on resource requirements for home-based records:

- Most country-level respondents were not familiar with funding mechanisms for home-based records. However, findings from international-level respondents and grey literature suggest that costs are covered by donors, particularly during initial stages of implementation. This was considered problematic for a variety of reasons, including a lack of reliability regarding the amount and timing of funding and whether it would be sustained over time.
- The findings suggest that government funding is preferable, but that transitioning from donor to government funding takes time and planning. Governments allocating funding for home-based records within their budgets were highlighted as important.
- Some key informants and documents mentioned the potential of charging for records to recover costs. However, only Benin and Malawi are known to have employed this strategy.
- The per person cost is estimated to be low, but the global scale of the intervention meant significant resources are required. Key informants emphasized the importance of taking into account all aspects of implementation when planning for and allocating resources to cover costs associated with home-based records, including: designing and printing home-based records; the costs of distribution; training; and ongoing monitoring and evaluation (M&E). Several respondents noted that funding for these latter aspects (distribution, training, M&E) are often neglected during planning processes.
- Two key informants emphasized that printing costs are influenced by the length of the record/amount of content; whether it is printed in colour or in black and white; and the material used. They noted that the subsequently higher costs for documents that included multiple health areas may make them unrealistic in low-resource settings.

3.8 Cost-effectiveness

3.8.1 Research evidence

As indicated, no studies were found in a systematic review of cost-effectiveness or economic evaluations (Magwood et al. 2018b). Two RCTs conducted in the United Kingdom (Elbourne et al., 1987; Lovell et al., 1987) reported that a women-held records system has potential to save clerical resources, in terms of reducing the time spent by medical records clerks retrieving notes from and returning them to a central filing system. Clinical time was reported to be saved by eliminating the need to write duplicate notes, for instance in the full medical record and the cooperation card.

3.8.2 Additional considerations

The GDG discussed whether additional cost savings could be significant, but information was not provided (e.g. revaccinating children, treatment and follow-up). The review concluded that cost-saving has never been properly estimated, and this may be due to the fact it is difficult to demonstrate a temporal causation of home-based records and outcomes (such as revaccinations or incidence of preventable infectious diseases).

3.9 Equity

3.9.1 Research evidence

Four studies included in the systematic review of effects provided information on possible different effects in sub-populations. Two RCTs evaluating a redesigned simpler and larger immunization card compared with the standard EPI card in urban and rural Pakistan (Usman et al., 2009; Usman et al., 2011) showed that interventions were more effective at rural EPI centres than urban ones, and resulted in a higher percentage increase in DTP3 completion in all three intervention groups (Usman et al., 2011). Additionally, in the same study in rural Pakistan (Usman et al., 2011), a secondary analysis showed that the individual and combined effects on DTP3 completion were weaker in non-Mohajir⁷ children than Mohajir children.

⁷ An ethnic group in Pakistan.

One RCT in Mongolia (Mori et al., 2015), which compared immediate receipt of an MCH handbook at the first ANC visit with receipt of the handbook seven months later, found that socioeconomic background significantly influenced antenatal clinic attendance for both intervention and control groups. It also found that participants in the wealthiest two quintiles were more likely to attend antenatal clinics more than six times.

However, in one RCT comparing home-based record booklets and no intervention in the United Kingdom (Lakhani et al., 1984), analysis of the number of weight points, record page entries and developmental milestone entries (as indicators of book use), disaggregated by mothers' first language, education and social class, showed that these comments were largely unfounded. The only statistically significant difference was that mothers whose first language was English made more developmental milestone entries.

Findings from the key informant interviews conducted as part of the framework analysis suggest potential differences in the effect of home-based records across sub-populations. For example, many noted that the loss of home-based records was higher among those with lower education and those living in rural areas. Respondents were asked whether low literacy posed a barrier to home-based record implementation, and most highlighted the importance of including pictures to help convey key messages. The importance of pictures for addressing low literacy was also apparent in the document review.

Key informants familiar with refugee populations mentioned that owning a home-based record could increase health equity for this marginalized group, by giving them a physical item to take with them wherever they travelled to maintain continuity of care for themselves and/or their children.

3.9.2 Additional considerations

The GDG discussed the fact that some findings show that home-based records may reach certain vulnerable populations. It also recognized that in remote and fragile settings where health systems are weak, or where health information systems are absent or poor, home-based records may be of greater value than in more developed settings and health systems.

3.10 Acceptability

3.10.1 Research evidence

Women and health care providers prefer home-based records

Qualitative evidence from high-, middle- and low-income settings, using various forms of home-based records, indicates that women, caregivers and care providers appreciate and value home-based records (Harrison et al., 1998; Kitayama et al., 2014; Yanagisawa et al., 2015). Evidence suggests that parents value the ease, speed and convenience of online records and expressed strong interest in accessing their children's records online, but at the same time were concerned about privacy and confidentiality (Kitayama et al., 2014). Health care providers in low-income settings value the design of home-based records and preferred them due to their appearance, practical information, convenience and long-term value (Harrison et al., 1998; Yanagisawa et al., 2015) (**low-confidence finding**).

From the framework analysis, several key informants explained that, in their experience, health workers viewed the use of home records as adding an additional and unnecessary task to their already heavy workloads. Both key informants and the grey literature indicated that providers had heavy work burdens due to high patient volume, and that they also had to complete their own registers and sometimes other duplicate records; completing home-based records was therefore often viewed as "double work".

Key informants indicated that providers sometimes or often failed to accurately complete all portions of home-based records. They attributed this to a lack of understanding of their value, particularly of their dual purpose as both recording tools and as educational or communication tools.

Key informants described the importance of pre-testing to identify levels of understanding, acceptance and attractiveness of home-based records among women and caregivers, as well as whether home-based records can be easily utilized by health workers. One key informant and two documents mentioned the need to consider multilingual contexts and to translate home-based records into local languages.

Preference for carrying notes

Three RCTs conducted in Australia and the United Kingdom, which compared different types of health cards, reported that women holding their own case notes were in favour of carrying them in future pregnancies (Elbourne et al., 1987; Lovell et al., 1987; Homer, Davis & Everitt, 1999).

Use or non-use of home-based records

Three RCTs reported on the use of records by women and caregivers. Two reported low levels of parental use, with 54% returning educational immunization cards at well-child visits in the USA (Stille et al., 2001) and 40% bringing the parent-held child health record regularly or occasionally when visiting their doctor in Norway (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006). An RCT from the United Kingdom reported higher levels of use of a home-based record booklet, with 85% of mothers indicating they always took it to the clinic and 70% saying they made entries in it themselves (Lakhani et al., 1984).

Two RCTs reported concerns about provider use of home-based records. In Norway, 89% of parents said the record would have been used more if professionals showed more interest (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006); in the United Kingdom, families had reservations about the commitment of professionals to write in or read the child health record for children with a disability (Moore et al., 2000).

Understanding or reading home-based records

Two RCTs conducted in the United Kingdom noted that women had problems understanding and reading home-based records (Elbourne et al., 1987), and identified illegible handwriting as the main problem (Lovell et al., 1987).

Preferences for type of card

In RCTs conducted in Cambodia, Mongolia and the United Kingdom, mothers reported that they preferred the MCH handbook or access to full pregnancy case notes as opposed to the current (abbreviated or non-integrated) record system (Elbourne et al., 1987; Lovell et al., 1987; Homer, Davis & Everitt, 1999; Yanagisawa, 2011 et al.; Dagvadorj et al., 2017). In one RCT conducted in Australia (Homer, Davis & Everitt, 1999), pregnant women in the control group expressed

a preference for more information and to be able to carry their own notes in a future pregnancy, despite having no experience of it.

3.10.2 Additional considerations

Studies included in the systematic review of effects provided additional evidence relating to the acceptability of home-based records.

3.11 Feasibility

3.11.1 Research evidence

The qualitative evidence synthesis did not report findings on feasibility. Findings from the framework analysis did, however, identify some key factors related to the feasibility of implementing home-based records. They highlighted the importance of ensuring that home-based records are aligned with

the government's health system, including structures, guidelines and capacity. Key informants described the need to ensure that government and development partner priorities are aligned in terms of the purpose of any home-based records being introduced, their content, and how they will be used by patients/ caregivers, providers and/or community health workers. Integration of home-based records into functioning supply chains was also seen as important, as well as pre-service and in-service training and supervision for health workers. Finally, key informants noted the need to consider financial feasibility, including realistically assessing costs of production and local funding capacities.

3.11.2 Additional considerations

GDG members noted that home-based records are widely implemented (in at least 163 countries), which shows implementation is feasible.

Table 4. Summary of judgements by the GDG for the evidence to decision criteria

Desirable effects	Don't know	Varies		Trivial	Small	Moderate	Large
Q1. Use of any home-based records versus no use (MNCH):							
- maternal health					X		
- newborn health	X						
- child health					X		
- care-seeking across MNCH					X		
Q2. Use of home-based records versus low-intensity use (MNCH)	X						
Q3. Use of different types of home-based record (MNCH):							
- maternal health					X		
- newborn health				X			
- child health					X		
- care-seeking across MNCH	X						
Q4. Use of any home-based records versus no use on health service outcomes					X		
Q5. Use of home-based records versus low-intensity use on health service outcomes	X						
Q6. Use of different types of home-based record on health service outcomes					X		
Undesirable effects	Don't know	Varies		Large	Moderate	Small	Trivial
Certainty of evidence of effects	No included studies	Very low		Very low	Low	Moderate	High
Values				Important uncertainty or variability	Possible important uncertainty or variability	Probably no important uncertainty or variability	No uncertainty or variability
Balance of effects	Don't know	Varies	Favours no use of home-based records	Probably favours no use of home-based records	Does not favour either use or no use of home-based records	Probably favours use of home-based records	Favours use of home-based records
Resources required	Don't know	Varies	Large costs	Moderate costs	Negligible costs or savings	Moderate savings	Large savings
Certainty of evidence of required resources	No included studies			Very low	Low	Moderate	High
Cost-effectiveness	Don't know	Varies	Favours no use of home-based records	Probably favours no home-based records	Does not favour either use or no use of home-based records	Probably favours use of home-based records	Favours use of home-based records
Equity	Don't know	Varies	Reduced	Probably reduced	Probably no impact	Probably increased	Increased
Acceptability	Don't know	Varies		No	Probably no	Probably yes	Yes
Feasibility	Don't know	Varies		No	Probably no	Probably yes	Yes

4. Implementation considerations

Implementation considerations were derived from the framework analysis and were discussed within the GDG. Broadly, these deal with the content and design of home-based records, integration into health services and systems, costs, and addressing the needs of health workers, women and caregivers.

The GDG emphasized that every stage of the implementation process, from design to the training of providers to utilization by end-users, should be planned and funded, as each stage can affect the home-based record's potential impact on outcomes. These considerations may apply to national and subnational levels. In particular:

- Countries should plan to involve all key stakeholders from the outset.
- Strong government ownership and leadership of home-based records is important to prioritizing these, as is government-led planning, integration into the health system and national budget allocation. These are key to the sustainable use of home-based records.
- For countries with home-based records that cut across multiple health areas, planners need to ensure that content is harmonized, to avoid the duplication or fragmentation of information. This can promote continuity of care, including from mother to child, when the record is used.
- Home-based records need to be adapted to local contexts, including health priorities, available services and key health messages. Testing records is important to ensure end-users needs are met and to increase comprehension, acceptance and use. This can include presentation of the card, the use of local languages, acceptable and durable design, an appropriate amount of text, appropriate images, and ensuring effective orientation and use of the information by health workers.
- Where literacy levels are low, it is important that the design of records considers including images and reducing the amount of text.
- Regular redesigns of home-based records are important, especially for keeping immunization and health information up to date. Redesigns should be approached in a similarly collaborative manner to the initial design, with all relevant health areas involved.
- Careful consideration and adherence to redesign timelines are needed, to avoid delays in updating cards or gaps in availability, which could result in stock-outs or compromise programmes that need an uninterrupted supply (e.g. immunization). Platforms that bring together different areas of the ministry of health, key stakeholders or a technical advisory board may offer a forum for these discussions.
- Similarly, health-system planners should plan to ensure a continuous supply and availability of updated home-based records.
- Sustainable funding needs to be secured for all of the costs of home-based records. Market-shaping opportunities to achieve lower prices for durable paper products and printing services may exist at regional or subregional levels.
- Distribution of home-based records is often ad hoc, but can work efficiently when done through existing health system supply chains and structures.
- Health workers are vital in ensuring the success of home-based records. Initial and refresher training and supervision to emphasize appropriate use, including discussion of the records with women and caregivers and how the records should be completed, are important. Health workers should note that the information they write needs to be legible.

- Concerns for privacy need to be taken into account, particularly related to information that women or family members may wish to keep confidential, including HIV testing, status or treatment.
- Using home-based records to provide health education messages and information alone may not impact on care practices and care-seeking. Comprehensive strategies should be considered, and home-based records may be one component in that strategy.
- Although there is no documentation, GDG members raised concerns regarding advertising on home-based records, which may present potential conflicts of interests and potential harm, for example allowing advertisements from formula milk or from political parties. However, the GDG also noted that responsible advertising can bring valuable revenues. A country programme should carefully assess the risks and benefits. The Framework of Engagement with Non-State Actors, endorsed in 2016 by the Sixty-ninth World Health Assembly (Resolution WHA69.10), may be useful to countries weighing up these benefits and risks, and steps for due diligence and risk assessment.

5. Research gaps

During the guideline development process, the GDG identified gaps that need to be addressed in future research:

1. More research is needed on the impact of home-based records on MNCH and health service outcomes. The evidence available is limited; of low confidence; some studies are from before 2000; and almost half were conducted in high-income countries.
2. Home-based records were initially implemented to support caregivers or health systems. The content of these records and their use has changed and, in some cases, become more complex. Evaluations have used a broad range of outcomes. To address this complexity and the multiple uses, it will be important for future research to define the key components and harmonize key outcome measurements. Outcomes need to be defined and standardized for better and more consistent measurement across studies. A logic model that shows causal pathways and clearly illustrates proximal outcomes (e.g. care-seeking and care practices) and distal outcomes (e.g. morbidity, mortality and early childhood development), as well as potential mediators of other social, clinical and health system factors, would help to guide future research.
3. The GDG noted a lack of research on the effect of home-based records on provider behaviour and health service performance. There are a few studies showing improved communication between women/caregivers and providers and only one study shows improved identification of pregnancy complications.
4. There was insufficient evidence to recommend one format of home-based record over another. Future research should include comparisons of using home-based records to record information on single-aspects of care versus multiple-MNCH records versus records that also are designed for health education purposes. More research is also needed on the use of electronic home-based records and how these may complement the use of paper records.
5. There is a lack of high-quality evidence on effects, including cost-effectiveness, of integrating different home-based records, particularly maternal and child health parts. It is suggested that integrated records can help to ensure the integration of MNCH services and reduce missed opportunities to address a health issue, as the record reminds the provider of required interventions during a clinic visit; however, additional research is needed to confirm this.
6. More research is required on potential harms, especially in relation to online or electronic records and the sensitivity of information in home-based records related to HIV testing, status or treatment.
7. Existing data sources may provide information about the use and impact of home-based records, including analysis of longitudinal studies, nationally representative household surveys (e.g. Demographic and Health Surveys, Multiple Indicator Cluster Surveys or the upcoming Policy Survey to be conducted by the WHO Department of Maternal, Newborn, Child and Adolescent Health).

8. For ongoing assessment of coverage and impact, a special database or global monitoring and implementation survey would be helpful. This could capture the types of home-based record in use, the content of these, and what population coverage is achieved. This would provide valuable cross-country data, as well as challenges, success factors and ways to improve implementation, and could be used as a learning platform.
9. In relation to adolescents, none of the included studies used home-based records in adolescent populations. The GDG discussed that home-based records are used specifically for adolescents in a few countries, including Japan and Sri Lanka. Further research to examine the value of home-based records in adolescent screening health visits and health promotion would be valuable.
10. No studies were found in the review of costs and cost-effectiveness of home-based records. To make any judgements on the cost of home-based records, the costs of designing and developing home-based records, training health workers in their use, as well as ongoing costs (e.g. storage, distribution, supervision of health workers, replacement) must all be considered. Further research, including cost-effectiveness analyses, is needed to determine the size of each of these costs, who is responsible for each cost item, and the sustainability of funding. This will help policy-makers better consider the cost-effectiveness and feasibility of different implementation strategies in their particular setting.
11. Further research that compares different methods of linking home-based records to formal health information systems, and explores how this would work, is needed. In the area of health information systems, there has been extensive work on the interoperability of information systems, in order to improve programme monitoring and implementation. Yet there is little or no research on linking home-based records to existing health information systems, especially facility-based records, on how best to link them, or on the impact of doing so.
12. There is a gap in research on the impacts of home-based records on equity and across sub-populations, including different religious groups, socioeconomic status, ethnicity or sexual orientation. Four studies included in the systematic review of effects provided information on possible different effects in sub-populations including rural and urban populations, minority populations, socioeconomic background and mothers' first language.
13. One recent study in Mongolia suggests a reduction in the risk of delays in cognitive development in the group receiving the MCH handbook (Dagvadorj et al., 2017). It is not clear how home-based records would impact on this, early child development or other child development outcomes, though. Further research and documentation of implementation is necessary. Efforts should be linked to the recently launched Nurturing Care Framework for Early Child Development (WHO, UNICEF and World Bank Group, 2018).
14. Implementation research is needed to determine how best to design home-based records that capture the necessary information for usefulness and ease of use, for both health workers and women/caregivers. This will also help to answer questions related to durability, optimal use, distribution supply chains and health care provider training/retraining. An important implementation question, where there is currently little evidence and where countries have noted they would appreciate guidance, is whether home-based records should be distributed for free, or at a small cost to the mother or caregiver – a policy that operates in some countries, for example Benin and Malawi.
15. The reviews conducted did not identify studies exploring the use of incentive schemes (both financial and non-financial) to influence behaviour around the availability, retention and appropriate utilization of home-based records. The GDG was made aware of two projects on conditional incentives for immunization services, but these have not been formally evaluated.

6. Planned dissemination of this guideline

Following the GDG consensus meeting in November 2017 in Geneva, a further two-day meeting was held. This brought together some GDG members, WHO staff from Geneva and regional offices, and representatives of UN agencies and international partner organizations. The purpose was to discuss the priorities for home-based records going forward, decide what country support will be needed for implementation of this guideline, and map out the entry points for its dissemination. Different products for different audiences were discussed, including the development of a policy brief for decision makers that highlighted the recommendations and implementation considerations.

Priority actions identified included establishing a global coordinating platform for home-based records, M&E of home-based record use via existing routine information systems, developing materials for training in and scaling-up of pre- and in-service training on record use, and mapping out research priorities and harmonization of key components of those priorities including documentation of implementation and outcome measurements. A copy of the full meeting report is available from the WHO Department of Maternal, Newborn, Child and Adolescent Health.⁸

⁸ Please contact: mncah@who.int

7. Updating of the guideline

It is anticipated that an update would be appropriate five years after publication (2023), unless significant new evidence emerges in the meantime. This time frame will allow new and updated practice, evaluations and research to be taken into account. In accordance with the process for updating WHO guidelines, the WHO Steering Group will continue to monitor research developments around home-based records, particularly in relation to questions for which no evidence was found and those supported by low-quality evidence.

Towards the end of the five-year period, the relevance of the guidelines will be assessed,

and another scoping review performed to identify additional evidence and priority areas where guidance may be required. Depending on the nature of the evidence found, the systematic reviews addressing the primary questions may be updated, and/or new research questions that arise will undergo a similar rigorous methodological process of evidence retrieval, synthesis and certainty grading. It is hoped that when the time for updating these guidelines comes, the implementation considerations will have been taken into account, and many of the important research gaps, especially relating to impacts on outcomes and implementation research, will have been addressed.

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Annex 1.

Priority guideline questions and outcomes

Priority guideline questions P=Population; I=Intervention; C=Comparison; O=Outcomes	Main outcomes
<p>1. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of any home-based records (I), compared with no use of any home-based records (C), improve MNCH outcomes (O)?</p>	<p>Maternal care-seeking Antenatal care visits; care-seeking for pregnancy complications; childbirth with a skilled attendant or in a health facility; maternal immunization; postnatal care visits</p> <p>Maternal self-care practices Healthy pregnancy nutrition and behaviours, healthy household environment, postpartum family planning</p> <p>Communication within the household</p> <p>Knowledge of maternal health</p> <p>Maternal mortality and morbidity</p>
<p>2. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of any home-based records (I), compared with inconsistent use (low use) of any home-based records (C), improve MNCH outcomes (O)?</p>	<p>Newborn care-seeking Care-seeking for newborn illness; postnatal care visits</p> <p>Newborn care practices Immediate and continued exclusive breastfeeding; warmth and hygiene of the newborn</p> <p>Communication within the household</p> <p>Knowledge of newborn health</p> <p>Perinatal mortality and morbidity</p>
<p>3. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of different types of home-based records (I and C), improve MNCH outcomes (O)?</p>	<p>Vaccination uptake Vaccination initiation and series completion</p> <p>Child care-seeking Care-seeking for childhood illness</p> <p>Child-care practices Infant and young child feeding; infant and child illness management; growth and development monitoring; early child development practices</p> <p>Communication within the household</p> <p>Knowledge of child health</p> <p>Child mortality and morbidity</p> <p>Care-seeking across the MNCH continuum</p>
<p>4. For women during pregnancy and after birth, and for caregivers (P), does any use of home-based records (I), compared with no use of any home-based records (C), improve health service outcomes (O)?</p>	<p>Quality of care</p> <p>Health provider performance</p>
<p>5. For women during pregnancy and after birth, and for caregivers (P), does any use of home-based records (I), compared with inconsistent use (low use) of any home-based records (C), improve health service outcomes (O)?</p>	<p>Communication between women/caregivers and health care providers</p> <p>Satisfaction with services</p>
<p>6. For women during pregnancy and after birth, and for caregivers (P), does the use of different types of home-based records (I and C) improve health service outcomes (O)?</p>	<p>Continuity of care</p>

Annex 2.

WHO staff and external experts involved in preparing this guideline

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Annex 3.

Summary of declarations of interest and their management

The standard WHO declaration of interests (DOI) form was completed and signed by each expert and sent electronically to the responsible technical officer, along with an electronic copy of their curriculum vitae. The WHO Steering Group reviewed all the DOI forms before finalizing experts' invitations to participate. In addition, internet searches (review of the first 10 hits) and published article searches in PubMed (articles published after 2013) were completed for each proposed member to identify any sources of funding, publications, commercial business interests and positions held or collaborations related to the guideline topic and controversies of any sort related or not to the guideline topic. All experts were instructed to notify the responsible technical officer of any change in relevant interests during the course of the process, in order to review and update conflicts of interest accordingly.

The Steering Group collated and reviewed signed DOI forms, curriculum vitae and search returns

to determine whether a conflict of interest existed, as per the criteria for assessing the severity of a conflict of interest as provided in the *WHO handbook for guideline development* (WHO, 2014). Where any conflict of interest was declared, the Steering Group determined whether it was serious enough to affect the individual's ability to make objective judgements about the evidence or recommendations.

All findings from the received DOI statements were managed in accordance with the WHO DOI guidelines on a case-by-case basis. For those participants who declared current funding for research, the Secretariat assessed that this was not considered significant enough to pose any risk to the guideline development process or reduce its credibility. At the GDG face-to-face and virtual meetings, members were required to state these interests openly to the entire group. The Chair was advised before the meeting of the declaration of interests and of the Steering Groups proposal on how to manage these interests.

Name and expertise contributed to the guideline development	Declaration of interest(s)	Management of conflict(s) of interest
Xavier Bosch-Capblanch Expertise: immunization; research expert	Research support from an organization with an interest related to the subject in the form of a grant from Bill and Melinda Gates Foundation (BMGF) to conduct research on health information systems	We assessed that this did not present a conflict of interest nor would it in any way influence the outcomes of the recommendations.
David Brown Expertise: vaccination; topic expert	Research support from an organization with an interest related to the subject in the form of grants from UNICEF, BMGF and WHO for work on an immunization programme performance assessment, recording/reporting and home-based records	We assessed that this did not present a conflict of interest nor would it in any way influence the outcomes of the recommendations. However, as some of the grants are directly related to home-based records, we recommended the member declare the funding at the opening of the meeting for the information of all present.

Name and expertise contributed to the guideline development	Declaration of interest(s)	Management of conflict(s) of interest
Adolphus Clarke Expertise: end-user; implementer	None declared	None
Bandana Das Expertise: end-user; implementer	None declared	None
Ilgi Ertem Expertise: newborn and child health; research expert	None declared	None
Hiranya Senani Jayawickrama Expertise: end-user; implementer	Research support from an organization with an interest related to the subject in the form of grants from the Government of Australia for research on infant feeding	We assessed that this did not present a conflict of interest nor would it in any way influence the outcomes of the recommendations
Lydia Karimurio Expertise: end-user; implementer	None declared	None
Rintaro Mori Expertise: women and child health; research expert	None declared	None
Kirana Pritasari Expertise: end-user; implementer	None declared	None
Maria Ximena Rojas Reyes Expertise: maternal and newborn health; research expert	None declared	None
Jesca Nsungwa Sabiiti Expertise: end-user; implementer	None declared	None
Lora Shimp Expertise: maternal and child health; topic expert	Research support from an organization with an interest related to the subject in the form of grants from BMGF for work on the design and improvement of home-based records	We assessed that this did not present a conflict of interest nor would it in any way influence the outcomes of the recommendations. However, as some of the grants are directly related to home-based records, we recommended the member declare the funding at the opening of the meeting for the information of all present.

Annex 4.

Knowledge outcomes

Studies reporting on knowledge

Question: Use versus no use of any home-based record		
Study by author and year	Study design	Study outcome
Bjerkeli Grøvdal, Grimsmo & Nilsen (2009)	Randomized controlled trial (RCT)	Norway: Found little or no difference in knowledge about child health over a one-year period between parents with a parent-held child health record versus the control group (no home-based record). Examples of the domains of knowledge assessed were: newborn view of the mother; calling a doctor for fever; use of a baby walker or jumping rein ($P = 0.84, 0.22$ and 0.40 , respectively).
Osaki et al. (2018)	RCT	Indonesia (rural): Found women in both the group receiving the MCH handbook and the control group (where the handbook was sporadically available) had increased knowledge about danger signs for maternal and newborn complications, birth preparedness and complication readiness, and signs for child sickness and prevention and care of sick child at home between the baseline and follow-up. No test for significance between groups was provided.

Question: Intensity of use of any home-based record		
Study by author and year	Study design	Study outcome
No studies found		

Question: Use of different types of home-based record		
Study by author and year	Study design	Study outcome
Yanagisawa et al. (2015)	Non-RCT	<p>Cambodia: Found that, overall, mothers in both groups had increased knowledge of all danger signs during pregnancy and delivery (except for severe bleeding after birth and placenta accreta) and prevention of anaemia, parasite transmission and mother-to child transmission of HIV. There was no test for significance.</p> <p>From seven qualitative studies: Home-based records improve the knowledge of mothers and help them share in pregnancy decision-making and improve caregivers' knowledge about their child's health status (Phipps 2001; Byczkowski, Munafò & Britto, 2014; Kitayama et al., 2014; Yanagisawa et al., 2015; Lee et al., 2016; Kelly, Hoonakker & Dean, 2017).</p>

Studies reporting on agency

Question: Use versus no use of any home-based record		
Study by author and year	Study design	Study outcome
Elbourne et al. (1987)	RCT	United Kingdom: Suggests that holding obstetric notes until 10 days after delivery enhances women's feelings of control compared with women holding an abbreviated cooperation card (1 trial, 454 women; RR 1.56, 95% CI: 1.19 to 2.05).
Homer, Davis & Everitt (1999)	RCT	Australia: Both intervention (full pregnancy case notes) and control (abbreviated cooperation card) groups of women were positive about their experience. Positive comments (89%) from the intervention group who received their full pregnancy care notes included a sense of control during pregnancy antenatal visits. The majority of women from the control group, who received an abbreviated cooperation card, also responded positively (89%). The women who did not like carrying their cooperation card (11% of the control group) stated that they would have liked more information, and 52% said they would have been happier with their entire record, despite having no experience of it ($P \leq 0.01$).

Annex 5.

Effects of using home-based records on maternal, newborn and child health outcomes

1. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does use of any home-based records (I), compared with no use of any home-based records (C), improve MNCH outcomes (O)?

1.1. Maternal outcomes

Maternal care-seeking

Antenatal care (ANC) visits

Two RCTs (955 women) suggest an unclear effect on the average number of ANC visits in women with maternal and child health (MCH) handbooks compared with women without a home-based record. In one cluster randomized controlled trial (RCT) in Mongolia (Mori et al., 2015), women receiving the MCH handbook at their first ANC visit attended antenatal clinics an average 6.6 times, compared with 6.4 times for women in the control group who received the handbook seven months later; this is not significant, though (MD 0.21 more visits; 95% CI: -0.71 to 1.13).

In the other cluster RCT in rural Indonesia (Osaki et al., 2018), women in the intervention area attended an average of 6.3 (+/- 2.5) antenatal appointments, compared with 5.6 (+/- 3.1) appointments for women in the control group (**low-certainty evidence**).

The two cluster RCTs show different effects on six or more ANC visits. The RCT conducted in Mongolia (Mori et al., 2015) suggests no significant difference in the proportion of women having six or more ANC visits, when comparing women receiving the MCH handbook on their first visit and those in the control group (RR 1.16, 95% CI: 0.88 to 1.53). In the cluster RCT in Indonesia (Osaki et al., 2018), more women in the intervention area went to more than six ANC appointments than in the control area (OR 1.67; 95% CI: 1.12 to 2.49) (**very low-certainty evidence**).

The cluster RCT in Indonesia (Osaki et al., 2018) showed an insignificant effect on four or more ANC visits (OR 1.25, 95% CI: 0.81 to 1.95) (**moderate-certainty evidence**).

Care-seeking for pregnancy complications

The cluster RCT in rural Indonesia (Osaki et al., 2018) reported more care-seeking for pregnancy complications in the intervention area (11/13) compared with the control area (36/53) but this was not significant (**very low-certainty evidence**).

Maternal immunization

In one cluster RCT in rural Indonesia (Osaki et al., 2018), more women in the intervention area reported two doses of tetanus immunization (TT2) in pregnancy compared with women in the control group (76.0% versus 59.8%) where the MCH handbook was sporadically available (OR 1.98, 95% CI: 1.29 to 3.04) (**moderate-certainty evidence**).

Childbirth with a skilled birth attendant (SBA) or at a health facility

In one cluster RCT in rural Indonesia (Osaki et al., 2018), slightly more women in the intervention area reported professional childbirth care/SBA (OR 1.1; 95% CI: 0.75 to 1.74) compared with women in the control group (where the MCH handbook was sporadically available), although this difference was not significant (**low-certainty evidence**).

Postpartum care visits

None of the studies reported on this outcome.

Care-seeking for postpartum complications

One cluster RCT from rural Indonesia (Osaki et al., 2018) reported more care-seeking for postpartum complications in the intervention area (4/6) compared with the control area (8/28), but this was not significant (**very low-certainty evidence**).

Maternal care practices

Healthy pregnancy behaviours

One cluster RCT in Mongolia (Mori et al., 2015) showed no significant effect of MCH handbooks on reducing smoking during pregnancy (RR 1.01, 95% CI: 0.98 to 1.04) (**very low-certainty evidence**).

There was no significant effect of MCH handbooks on reducing alcohol consumption during pregnancy (RR 1.07, 95% CI: 0.97 to 1.18) in one cluster RCT in Mongolia (Mori et al., 2015) (**very low-certainty evidence**).

Healthy household environment

There was a significant small reduction in smoking behaviour among other members of the household for women receiving the MCH handbook (RR 0.84, 95% CI: 0.71 to 0.99) in one cluster RCT in Mongolia (Mori et al., 2015) (**low-certainty evidence**).

Postpartum family planning

No studies reported on this outcome.

Improved communication within the household

Male partner/husband support (proxy)

In one cluster RCT from rural Indonesia (Osaki et al., 2018), women in the intervention area reported that only one of six identified behaviours relating to their husband's support for birth preparation showed a significant effect – saving money for childbirth (OR 1.82, 95% CI: 1.20 to 2.76). There was no significant effect on the other five behaviours (**low-certainty evidence**).

Maternal mortality and morbidity

Postnatal depression

One cluster RCT in Mongolia (Mori et al., 2015) showed no significant effect on postnatal depression (RR 0.99; 95% CI: 0.94 to 1.04) among those receiving the MCH handbook at their first ANC visit versus women in the control group who received it seven months later (**very low-certainty evidence**).

Knowledge outcomes

These are listed in Annex 4.

1.2. Newborn outcomes

Newborn care-seeking

Care-seeking for newborn illness

In one cluster RCT from rural Indonesia (Osaki et al., 2018), more care-seeking for newborn complications in the intervention area (10/14) were reported compared with the control area (17/29), but this was not significant (**very low-certainty evidence**).

Postnatal care visits

None of the studies reported on this outcome.

Newborn care practices

Immediate breastfeeding

One RCT in Mongolia (Mori et al., 2015) suggested slight improvements in breastfeeding initiation between women who had access to an MCH handbook (versus no handbook), but there was no significant difference (RR 1.07; 95% CI: 0.97 to 1.18) (**moderate-certainty evidence**).

Continued breastfeeding/warmth and hygiene of the newborn

No studies reported on these outcomes.

Improved communication within the household

Male partner/husband support (proxy)

In one cluster RCT from rural Indonesia (Osaki et al., 2018), women in the intervention area reported that only one of three behaviours identified relating to their husband's support for newborn care had a significant effect – keeping the infant warm (OR 1.58, 95% CI: 1.02 to 2.46). There was no significant effect on the other two behaviours (**very low-certainty evidence**).

Perinatal mortality and morbidity

Neonatal deaths

One cluster RCT in Mongolia (Mori et al., 2015) reported no difference in neonatal deaths with the use of MCH handbooks compared with the control group (RR 1.0, 95% CI: 0.99 to 1.02) (**very low-certainty evidence**).

APGAR score

One cluster RCT in Mongolia (Mori et al., 2015) reported a small but not statistically significant difference in Appearance, Pulse, Grimace, Activity and Respiration (APGAR) scores with the use of MCH handbooks compared with the control group (MD 0.21; 95% CI: -0.21 to 0.63) (**moderate-certainty evidence**).

1.3. Child outcomes

Vaccination use

DTP3 completion

One RCT comparing home-based records booklets and no intervention, and one non-randomized controlled trial of educational immunization cards plus explanation of the cards compared with no intervention, showed no statistically significant effect on Diphtheria-Tetanus-Pertussis immunization 3 doses (DTP3) (OR 0.82; 95% CI: 0.52 to 1.30) (Lakhani et al., 1984; Stille et al., 2001) (**very low-certainty evidence**).

Child care-seeking

Care-seeking for childhood illness

One cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported no significant difference for care-seeking for child illnesses (acute respiratory infection, long-lasting diarrhoea and fever) between the MCH handbook group and the control group (where the MCH handbook was only sporadically available) (**very low-certainty evidence**).

One RCT conducted in Norway (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006) showed no significant change in frequency of contact with health care services between parent-held child health record and control groups (non-routine care, $P = 0.58$; specialist or hospital care, $P = 0.84$) (**very low-certainty evidence**).

One RCT conducted in Norway (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006) reported that for children with chronic diseases, 17% more parents in the control group (no home-based record) visited a health centre than the group receiving the parent-held child health record. No test for significance was reported (**very low-certainty evidence**).

Child care practices

Exclusive breastfeeding

One cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported women using the MCH handbook were less likely to report exclusive breastfeeding for six months than the control group where the MCH handbook was sporadically available, although the difference was not significant (OR 0.76, 95% CI: 0.51 to 1.14) (**low-certainty evidence**).

Complementary feeding

The same cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported that women in the MCH handbook group were much more likely than the control group to practice complementary feeding after six months (OR 4.35, 95% CI: 2.85 to 6.65) (**moderate-certainty evidence**).

Continued breastfeeding

Women in the MCH handbook group were much more likely than the control group to continue breastfeeding for their children up to 23 months (OR 2.31, 95% CI: 1.22 to 4.39) (**moderate-certainty evidence**).

Infant and child illness management

Vitamin A use

In one cluster RCT in rural Indonesia (Osaki et al., 2018), respondents in the intervention area were more likely to ensure children took Vitamin A supplements (OR 2.00; 95% CI: 1.16 to 3.47) compared with women in the control group (where the MCH handbook was sporadically available) (**moderate-certainty evidence**).

Home care for coughs

One cluster RCT conducted in rural Indonesia (Osaki, 2018) reported home care for children with coughs was more likely in the MCH handbook group than the control group (OR 3.50, 95% CI: 1.44 to 8.52) ($P \leq 0.01$) (**low-certainty evidence**).

Home care for diarrhoea

In the same cluster RCT (Osaki et al., 2018), home care for diarrhoea showed no significant difference between the intervention and control groups (**very low-certainty evidence**).

Growth monitoring/development monitoring

No studies reported on these outcomes.

Improved communication within the household

Male partner/husband support (proxy)

In one cluster RCT from rural Indonesia (Osaki et al., 2018), women in the intervention area reported that one of four behaviours identified relating to their husband's support for child care had a significant effect – giving development stimulation. There was no significant effect on the other three behaviours (OR 1.62, 95% CI: 1.06 to 2.48) (**very low-certainty evidence**).

Child mortality and morbidity

Underweight children

In one cluster RCT in rural Indonesia (Osaki et al., 2018), there were fewer underweight children in the intervention area (OR 0.33; 95% CI: 0.12 to 0.94) compared with the control area (where the MCH handbook was sporadically available) (**very low-certainty evidence**).

Stunted growth

The same RCT (Osaki et al., 2018) showed moderately fewer children with stunted growth (OR 0.53; 95% CI: 0.30 to 0.92) in the intervention area compared with the control area, to a statistically significant level (**low-certainty evidence**).

Wasting

The same RCT (Osaki et al., 2018) showed no significant difference in wasting between the intervention and control groups (OR 0.59; 95% CI: 0.24 to 1.47) (**very low-certainty evidence**).

Risk of cognitive delay

One cluster RCT conducted in Mongolia (Dagvadorj et al., 2017) showed a moderate reduction in the risk of cognitive delay in the group receiving the MCH handbook versus the control group (who received the handbook after seven-month delay), at a three-year follow-up (adjusted OR 0.32; 95% CI: 0.14 to 0.73) (**very low-certainty evidence**).

1.4. Care-seeking across the MNCH continuum

One cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported the following findings for the MCH handbook versus the control group (where the MCH handbook was sporadically available):

- **Maternal health (TT2, ANC4, SBA):** no significant difference (OR 1.46, 95% CI: 0.89 to 2.40) (**low-certainty evidence**)
- **Maternal and newborn (TT2, ANC4, SBA, Vitamin A, exclusive breastfeeding):** significant difference (OR 2.38, 95% CI: 1.22 to 4.64) (**very low-certainty evidence**)
- **Maternal newborn and child (TT2, ANC4, SBA, Vitamin A, exclusive breastfeeding, practised complementary feeding after six months):** significant difference (OR 7.13, 95% CI: 2.43 to 20.90) (**low-certainty evidence**).

2. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of any home-based records (I), compared with inconsistent use (low use) of any home-based records (C), improve MNCH outcomes (O)?

No studies were found.

3. For women during pregnancy and after birth, and for newborns, children and caregivers (P), does the use of different types of home-based records (I and C), improve MNCH outcomes (O)?

3.1. Maternal outcomes

Maternal care-seeking

Antenatal care visits

One non-randomized controlled trial in Cambodia (Yanagisawa et al., 2015) suggested a significant increase in the proportion of women attending ANC four or more times in the intervention group using the Cambodian version of the MCH handbook, a non-significant increase compared with the group using the standard Cambodian Child Health Card and Mother Health Record. There was, however, a non-significant difference in the change in use between the intervention group and the control group (**very low-certainty evidence**).

Missed antenatal care appointments

One RCT in urban United Kingdom (Lovell et al., 1987) showed that women given their own maternity case notes were less likely to miss antenatal appointments, compared with women in the group who held the standard cooperation card (74.7% versus 62.1% of women missed no ANC appointments); the difference was not statistically significant, however (**low-certainty evidence**).

Care-seeking for pregnancy complications/maternal immunization

No studies reported on these outcomes.

Childbirth with SBA or at a health facility

One non-randomized controlled trial in Cambodia (Yanagisawa et al., 2015) suggested a significant increase in childbirth with a skilled attendant in the intervention group using the standard Cambodian Child Health Card and Mother Health Record, and a significant increase in both the intervention and control groups in childbirth at health facilities. However, there was a non-significant difference in the change in use between the intervention group and the control group (**very low-certainty evidence**).

Postpartum care visits/care-seeking for postpartum complications

No studies reported on these outcomes.

Maternal care practices

Healthy pregnancy behaviours

Evidence from two RCTs in urban and rural United Kingdom (Elbourne et al., 1987; Lovell, 1987) showed no significant difference in:

- *abstinence from smoking* in women who were given their own maternity case notes versus women in the control group who held the standard cooperation card at 8–16 weeks (75.5% versus 75.2%) and at 32–34 weeks (74.5% versus 73.3%) (Lovell et al., 1987) (**low-certainty evidence**)
- *number of cigarettes smoked* at 34 weeks' gestation, 10 days and 6 months postpartum between the women who held their own obstetric case notes until 10 days after birth, and women who held a cooperation card (Elbourne et al., 1987) (**very low-certainty evidence**)
- *drinking behaviour*: one RCT in urban United Kingdom (Lovell, 1987) showed no significant difference in drinking behaviour in women who were given their own maternity case notes versus women in the control group who held the standard cooperation card at 8–16 weeks (66.3% versus 73.0%) and 32–34 weeks (60.2% versus 68.2%) (**low-certainty evidence**).

Healthy household environment/postpartum family planning/husband support (proxy)

No studies reported on these outcomes.

Maternal mortality and morbidity

Clinical outcomes of the mother

One RCT in urban United Kingdom (Lovell et al., 1987) showed no significant difference in clinical outcomes of the pregnancy for women who were given their own maternity case notes versus women in the control group who held the standard cooperation card ($P = < 0.49$). Maternal outcomes considered included: normal pregnancy and delivery; pregnancy complications; delivery complications; miscarriage (normal pregnancy and delivery in the case notes group was 52.9% and 63.9% in the co-operation care group) (**very low-certainty evidence**).

Knowledge outcomes

These are listed in Annex 4.

3.2. Newborn outcomes

Newborn care-seeking

Care-seeking for newborn illness/postnatal care visits

No studies reported on these outcomes.

Newborn care practices

Early breastfeeding

In one non-randomized controlled trial in Cambodia (Yanagisawa et al., 2015), mothers in both groups (Cambodian version of the MCH Handbook versus standard Cambodian Child Health Card and Mother Health Record) had increased early breastfeeding overall (a 16.2% increase in the intervention group and 10.0% increase in the control group). There was no test for statistical significance (**very low-certainty evidence**).

Immediate breastfeeding

Evidence from one RCT in the United Kingdom (Lovell et al., 1987) suggests there is no statistically significant difference in immediate breastfeeding between women who had access to their maternity case notes (74.7%) versus those using a cooperation card (79.4%) (**very low-certainty evidence**).

Warmth and hygiene of the newborn

No studies reported on this outcome.

Improved communication within the household*Husband support (proxy)*

One RCT in rural United Kingdom (Elbourne et al., 1987) showed no significant difference between the use of obstetric case notes versus a cooperation card on involvement by the baby's father. No data were presented (**very low-certainty evidence**).

Perinatal mortality and morbidity*Neonatal deaths or stillbirths*

One RCT in urban United Kingdom (Lovell et al., 1987) showed no significant difference in neonatal deaths or stillbirths in women who were given their own maternity case notes (1.9%) versus women in the control group who held the standard cooperation card (1.8%) (OR 1.04; 95% CI: 0.10 to 7.52) (**very low-certainty evidence**).

Newborn outcomes

One RCT in urban United Kingdom (Lovell et al., 1987) showed no significant difference in newborn outcomes in the group who were given their own maternity case notes versus women in the control group who held the standard cooperation card (OR 1.58; 95% CI: 0.91 to 2.73) ($P = 0.49$). Newborn outcomes considered included: complications in the baby and stillborn or newborn death (normal pregnancy and delivery with no complications for mother or newborn in the case notes group was 52.9% and 63.9% in the cooperation care group) (**very low-certainty evidence**).

3.3. Child outcomes**Vaccination uptake***DTP3 completion*

Two RCTs conducted in rural and urban Pakistan (Usman et al., 2009; Usman et al., 2011) suggest a significant improvement in completion of DTP3 with a redesigned immunization card that is simpler and larger (67.9%) compared with the standard EPI card (47.0%) (OR 2.39; 95% CI: 1.45 to 3.92) (**moderate-certainty evidence**).

Child care-seeking*Care-seeking for childhood illness*

No studies reported this outcome.

Child health care practices*Infant and young child feeding/infant and child illness management/growth monitoring/development monitoring*

No studies reported on these outcomes.

Communication within the household

No studies reported on this outcome.

Child mortality and morbidity

No studies reported on this outcome.

4. For women during pregnancy and after birth, and for caregivers (P), does any use of home-based records (I), compared with no use of any home-based records (C), improve health service outcomes (O)?

4.1. Maternal outcomes**Communication between women/caregivers and health care providers***Communication (proxy)*

One cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported improvements from the baseline after a two-year follow-up in the MCH handbook versus the control group (where the MCH handbook was sporadically available) in relation to mothers having ever received an explanation from health personnel (131/183 versus 31/271; a difference in differences of 60.1%) (**very low-certainty evidence**).

Identification of pregnancy complications

One cluster RCT in Mongolia (Mori et al., 2015) showed a moderate increase in identification of pregnancy complications in women receiving the MCH handbook at their first ANC visit, versus women in the control group who received it seven months later (OR 2.33; 95% CI: 1.21 to 4.51) (**very low-certainty evidence**).

4.2. Newborn outcomes

No studies reported on newborn outcomes.

4.3. Child outcomes

Communication between women/caregivers and health care providers

Communication (proxy)

An RCT conducted in Norway (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006) found little or no difference in the difficulty parents felt in talking to health personnel (nurse, doctor, other doctors and other health personnel) over a one-year period between parents with a parent-held child health record versus the control group (no home-based record) (**very low-certainty evidence**).

One RCT conducted in the United Kingdom (Moore et al., 2000) reported that child health records for children with a disability had no detectable positive influence on communication. No data were presented (**very low-certainty evidence**).

Satisfaction with services

Satisfaction with information provided (proxy)

An RCT conducted in Norway (Bjerkeli Grøvdal, Grimsmo & Nilsen, 2006) found no difference in parents' satisfaction with information provided about child health between parents with a parent-held child health record versus the control group (no home-based record) (**very low-certainty evidence**).

Continuity of care

One cluster RCT conducted in rural Indonesia (Osaki et al., 2018) reported improvements from the baseline after a two-year follow-up period in the MCH handbook versus the control group (where the MCH handbook was sporadically available) when:

- the handbook was brought to more than two facilities (94/183 versus 17/271; a difference in differences of 45.0%) (**very low-certainty evidence**)
- it was brought on more than two occasions (95/183 versus 36/271; a difference in differences of 38.6%) (**very low-certainty evidence**)
- it was filled in by more than two health personnel (76/183 versus 24/271; a difference in differences of 33.7%) (**very low-certainty evidence**).

5. For women during pregnancy and after birth, and for caregivers (P), does any use of home-based records (I), compared with inconsistent use (low use) of any home-based records (C), improve health service outcomes (O)?

No studies were found.

6. For women during pregnancy and after birth, and for caregivers (P), does the use of different types of home-based records (I and C) improve health service outcomes (O)?

6.1. Maternal outcomes

Communication between women/caregivers and health care providers

Communication (proxy)

One RCT conducted in Australia (Homer, Davis & Everitt, 1999) found that multipara women who carried their own records were significantly more likely to report that their health care providers explained everything in their records to them, compared with women in the control group who held a small abbreviated card ($P = 0.03$) (**very low-certainty evidence**).

One RCT conducted in Australia (Homer, Davis & Everitt, 1999) found that women who carried their own records (1.7 mean score) and women who held small abbreviated cards (1.8 mean score) both reported that the cards helped them to talk with the doctor/midwife, but there was no significant difference ($P = 0.40$) (**very low-certainty evidence**).

One RCT conducted in the United Kingdom (Elbourne et al., 1987) found that women who held their own obstetric notes until 10 days after birth were significantly more likely to say they found it easier to talk to doctors and midwives during antenatal care than women holding an abbreviated cooperation card (Rate Ratio 1.73; 95% CI: 1.16 to 2.59) (**very low-certainty evidence**).

Satisfaction with services

Satisfaction

In one RCT in the United Kingdom (Lovell et al., 1987), the case notes group were more frequently satisfied with aspects of their care than the cooperation card group during pregnancy, labour, delivery and postnatally (all pregnancy care). Overall maternity care satisfaction was 69.5% in the case notes group and 56.9% in the cooperation card group (**very low-certainty evidence**).

One RCT conducted in the United Kingdom (Elbourne et al., 1987) found no statistically significant difference between women who held their own obstetric notes until 10 days after birth and women holding an abbreviated cooperation card in relation to satisfaction with their care. No data were provided (**very low-certainty evidence**).

Feeling in control during antenatal care

One RCT in the United Kingdom (Elbourne et al., 1987) suggested that holding obstetric notes until 10 days after delivery enhances women's feelings of control compared with women holding an abbreviated cooperation card (RR 1.45; 95% CI: 1.08 to 1.95) (**very low-certainty evidence**).

In one RCT conducted in Australia (Homer, Davis & Everitt, 1999), both intervention (full pregnancy case notes) and control (abbreviated co-op card) groups of women were positive about their experience. There was no significant difference (OR: 1.05; 95% CI: 0.35 to 3.20). Positive comments (89.0%) from the intervention group who received their full pregnancy care notes included a sense of control during pregnancy antenatal visits. The majority of women from the control group, who received an abbreviated co-op card, also responded positively (89.0%) (**very low-certainty evidence**).

Continuity of care

No studies reported on this outcome.

IMMUNIZATION PASSPORT

carnet de santé

pregnancy case notes

child health and development passport

MATERNAL AND CHILD HEALTH BOOK

CARTÃO DE SAÚDE INFANTILE

cartillas nacionales de salud

road to health booklet

family health book

CHILD HEALTH RECORD

carte de vaccination

infant immunization card

BABY BOOK

CHILD HEALTH PROFILE BOOK

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