

# BMJ Open Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

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## ABSTRACT

**Introduction** Equity is a cross-cutting theme within the Sustainable Development Goals (SDGs) and central to the effort to improve maternal and child health globally. One key strategy to prevent maternal death set out in SDG 3 is assistance by a skilled birth attendant (SBA) at childbirth (indicator 3.1.2). However, the increased coverage of SBAs globally has not been reflected by the same degree of decrease in maternal mortality and has been reported to have higher levels of inequality than other maternal health interventions. There is a need to evaluate the extent of inequity in intrapartum care by SBAs and evaluate themes in determinants of inequity across regions and specific country characteristics.

**Methods and analysis** The protocol for this review follows The Cochrane Handbook for Systematic Reviews and Preferred Reporting Items for Systematic Reviews and Meta-Analyses with equity extension 2012 guidelines. Studies of all languages and from all countries from 2004, the year when the WHO/ICM/FIGO joint statement on SBAs was published, and onwards will be included. PubMed/MEDLINE, CINAHL Complete, the Cochrane Library, POPLINE, the World Health Organization (WHO) Global Index Medicus, and grey literature will be searched. Our primary outcome is intrapartum care by SBA. Studies will be included if they evaluate equity and its determinants adapted from the Progress-Plus grouping of characteristics affecting health outcomes. Results will be stratified based on WHO, World Bank Group income and SDG regional groupings.

**Ethics and dissemination** This review is a secondary analysis of published literature and does not require ethics review. Results will provide information regarding equity in intrapartum care by SBAs globally and will inform development of indicators for monitoring of inequity as well as global policy related to intrapartum care and maternal mortality. Results will be disseminated via peer-reviewed manuscript, international conferences and stakeholder websites.

**PROSPERO registration number** CRD42017069021.

## INTRODUCTION

Equity is a cross-cutting theme within the Sustainable Development Goals (SDGs) and central to the effort to move towards improved global maternal, child and adolescent health.<sup>1 2</sup> Despite some progress during the Millennium Development Goals era,

## Strengths and limitations of this study

- This systematic review aims to evaluate equity in intrapartum care by skilled birth attendants (SBAs) globally, which will include specific determinants of inequity. No previous review of quantitative studies has evaluated equity/inequity in intrapartum care by SBAs during childbirth across the globe.
- The search strategy for this review is broad and comprehensive including studies in all languages and from all countries from multiple electronic databases, grey literature and websites.
- Intrapartum care by SBA as reported in observational studies may not report important nuances of care including comprehensiveness of care, time spent with the individual woman or quality of care.
- This literature review will evaluate a reproductive health indicator (intrapartum care by SBA) within the context of equity/inequity with attention to and expansion of validated tools to evaluate equity such as PROGRESS-Plus and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses with equity extension framework.
- This review will summarise data collected using instruments not specifically designed to evaluate equity/inequity in relation to SBA intrapartum care; however, based on available data, it will help inform development of tools for future monitoring and evaluation of healthcare and equity related to SDG indicator 3.1.2.

preventable maternal mortality especially in low-income and middle-income countries (LMIC) has remained high.<sup>3 4</sup> There is a need to focus on inequity and underlying social and structural determinants that contribute indirectly to maternal mortality. Special attention also needs to be paid to maternal mortality among high-risk groups such as adolescents and young women, particularly in humanitarian settings and in countries with armed conflict.<sup>5</sup>

Factors associated with inequity across all countries include place of residence, gender/sex, socioeconomic status, education, as well as age. In specific regions or countries, migrant status, race, ethnicity,

caste, religion can also be sources of inequity.<sup>2</sup> SDG indicator 3.1 sets the target to reduce the global mortality ratio to less than 70 per 100 000 live births by 2030 and one of the key strategies to prevent maternal deaths is assistance by a skilled birth attendant (SBA) at the time of childbirth, which is also reflected in the SDG indicator 3.1.2 'Births attended by skilled health personnel (%)'.<sup>1 6 7</sup> The SBA is defined in the joint statement by the WHO, the International Confederation of Midwives (ICM) and the International Federation of Gynaecology and Obstetrics (FIGO) as a 'midwife, doctor or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns'.<sup>8</sup> However, while the coverage of SBAs has increased globally, this has not been reflected in a proportional decrease in the global burden of maternal deaths. SBAs have been found to have a variable amount of knowledge and skills and, due to inconsistencies in data reporting, the definition of a SBA is currently under review.<sup>9–12</sup> Nevertheless, around 50% of LMICs report that at least 80% rate of births are attended by SBAs. This number varies across countries.<sup>12</sup> Inequity in SBA coverage has been found to be associated with economic status, education and place of residence and presence of SBA at birth has higher inequality rates than other maternal health interventions.<sup>12</sup> This disparity is especially seen in LMICs where women in disadvantaged groups have SBA coverage rates of less than 50%.<sup>2</sup>

The definition of health inequity by Margaret Whitehead described disparities in health that are 'not only unnecessary and avoidable but, in addition (...) unfair and unjust' and that have adverse effects on already disadvantaged groups within a population.<sup>13 14</sup> In addition, these health differences are systematic and not occasional or sporadic.<sup>14</sup> In evaluating preventable maternal mortality and intrapartum care by SBAs globally as an indicator for maternal health, it is therefore important to assess the characteristics of women who are and who are not attended by an SBA at childbirth. This will allow for identification of possible determinants of inequity, development of potential interventions to address disadvantages and progress towards increased equity in maternal health.

## Study objectives and research questions

The objectives of this study are to:

1. Conduct a systematic review of literature on intrapartum care by a SBA at childbirth and evaluate the extent of inequity that exists globally.
2. Identify determinants of inequity globally in intrapartum care by SBAs at the time of childbirth across regions and countries.

Our review seeks to answer the following research questions. (1) To what extent does inequality in intrapartum care by SBA exist globally? (2) What are determinants or themes of inequity that emerge globally and across countries and regions?

## METHODS AND ANALYSIS

### Study registration

This review protocol was registered with the Prospero database (registration number: CRD42017069021; date of registration: 26/06/2017).

### Study design

The study method for this systematic review was developed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses with equity extension (PRISMA-E 2012) guidelines, the PRISMA Protocols (PRISMA-P 2015) and The Cochrane Collaboration (Cochrane Handbook for Systematic Reviews).<sup>15–19</sup> Please see online Supplementary file 1 for the PRISMA-E 2012 checklist and online Supplementary file 2 for the PRISMA-P 2015 Checklist. The literature search will follow the four-step flow diagram outline in the PRISMA statement.<sup>17</sup>

### Study eligibility criteria

#### Inclusion criteria

Our research objectives will be assessed and studies selected based on criteria presented in [table 1](#).

#### Population

The population selected for this review include women of reproductive age who experienced childbirth within the timeframe of each individual research study. Surrogate search terms for this population centre on maternity care, pregnancy, childbirth, intrapartum care and obstetrics.

**Table 1** Systematic review inclusion criteria

Population	Women of reproductive age who experienced childbirth within the specified timeframe of an individual study.
Intervention	Intrapartum care by skilled birth attendant (SBA) or institutional deliveries.
Comparison	Utilisation of non-SBA or traditional birth attendants at the time of childbirth as well as unattended births.
Outcome	Evaluation of inequity in provision of intrapartum care by SBA at the time of childbirth with quantitative evaluation of determinants of inequity.
Study design	All observational quantitative studies (including but not limited to prospective and retrospective cohort studies, cross-sectional studies, mix-methods studies).
Context	All countries with health facility and/or community-based services offering childbirth care. Years of publication ranging from 1 January 2004 to the time of this study.

### Intervention/comparison

Studies reporting intrapartum care by SBA with or without comparison to utilisation of non-skilled or traditional birth attendants as well as unattended births will be included in this review. Intrapartum care is defined as care during the labour and childbirth of a woman which includes immediate post-delivery care around the third stage of labour. Intrapartum care by an SBA may be indicated with the presence of SBA at the time of childbirth or by access to SBA whether or not a woman chooses to utilise care by an SBA. Institutional delivery may be used as a proxy for SBA since the concept of SBA and their skill level, competency, education and accreditation are currently inconsistent across countries.<sup>9 11</sup> For the purposes of this study, SBA is defined as a skilled health professional who is qualified by education and training and has skills proficient to provide intrapartum and immediate postpartum interventions with the goal of improving maternal and newborn health.<sup>8</sup> The purpose of this study, however, is not to evaluate the qualifications, competency or skills of specific SBA cadres in each study.

### Outcome

We will include studies evaluating inequity in intrapartum care by an SBA. Alternative search terms include but are not limited to disparities, inequality and barriers to care. Given the moral imperative of the word equity, additional search terms such as social justice will also be utilised.<sup>20</sup> Based on prior reviews of inequity in maternal care, determinants of inequity are hypothesised to include demographic factors such as age/race/ethnicity, socioeconomic status, place of residence or geographic factors, as well as reproductive indicators.<sup>12 21–23</sup> For the purposes of this review, studies will be included if they compare at least two populations by one or more indicators. PROGRESS-Plus, an established framework for sociodemographic factors that may contribute to inequity in health, is an acronym that stands for place of residence, race/ethnicity/culture and language, occupation, gender/sex, religion, education, socioeconomic status, social capital while 'Plus' adds three additional context-specific factors including personal characteristics that attract discrimination, features of relationships and time-dependent relationships.<sup>24–26</sup> The PROGRESS-Plus framework has been adapted for the purposes of this project to include indicators specific to gender, sexual and reproductive health, including key indicators of the Global strategy for Women's, Children's and Adolescents' Health (2016–2030) and Strategies towards Ending Preventable Maternal Mortality core maternal health indicators.<sup>27–34</sup>

### Study design

All observational quantitative or semiquantitative studies of any design will be included if they evaluate inequity in intrapartum care by SBAs which includes barriers to care, disparities or similar.

### Context

Studies of all languages and across all settings with health facility and/or community-based services offering childbirth care will be eligible for inclusion. Studies published from 2004 until the time of this review will be considered given the increased global interest in maternal health and SBAs after the United Nations' Millennium Declaration in 2000 and establishment of the Millennium Development Goals and WHO, ICM and FIGO's joint statement on the importance of SBAs in 2004.<sup>8 35</sup>

### Exclusion criteria

Studies will not be eligible for inclusion if:

1. There are no details regarding determinants that may indicate inequity (e.g., demographic factors, socioeconomic factors, reproductive history, geography and so on).
2. Only qualitative data is collected.
3. They are systematic reviews.
4. The sample selection and size does not provide results generalisable to the general population or a significant subgroup of the population (e.g., a country's second-level administrative division).

### Search strategy

In order to answer our research questions, a search for all literature based on related search terms will be conducted using the following online bibliographic databases: PubMed/MEDLINE, CINAHL Complete, POPLINE, the Cochrane Database of Systematic Reviews and the WHO Global Index Medicus (GIM). In addition, a manual search of bibliographic references of retrieved studies and systematic reviews as well as grey literature of international organisations and websites relevant to the field of maternal and child health will be conducted, including, but not limited, to National Institute for Health and Clinical Excellence, National Institute of Health, United Nations Children's Fund, United Nations Population Fund and WHO. The search will be inclusive of all languages and will be conducted with specific search terms related to (1) childbirth; (2) SBA, non-SBA, facility and non-facility deliveries; (3) equity and (4) utilisation of care or access. Please see online Supplementary file 3 for the detailed search strategy for PubMed/Medline and the Cochrane Library.

### Study selection

Following a comprehensive and detailed literature search, all duplicate articles will be removed. A team of two (AK/ABM) will screen titles and abstracts of retrieved studies for relevance and eligibility for inclusion. Disagreements will be resolved by an additional reviewer (DC). All study abstracts selected for inclusion will then undergo an independent full-text review with similar methodology. All chosen full-text articles will then be evaluated again for inclusion based on inclusion and exclusion criteria by all co-authors and studies that do not meet the criteria will be eliminated from the



study. Disagreements will be resolved by mutual agreement. Full-text articles in languages other than English will be translated.

### Data extraction

A standardised data collection form was used as a template for development of a data extraction form for this review.<sup>36</sup> Study details collected include but are not limited to study characteristics (country, year and journal of publication, study design and dates), population and setting (population description, setting description, inclusion/exclusion criteria, sample size), intervention (SBA and non-SBA cadres, facility description), equity measures (primary outcome, determinants, results, study quality and conclusions). During the review, additional fields on the data extraction form will allow for flexibility for additional data points or determinants as needed. Two reviewers will independently extract data from the selected studies and discrepancies will be discussed with a third reviewer. Please see online Supplementary file 4 for the data extraction form.

### Scientific quality assessment

Scientific quality of studies will be assessed based on the Effective Public Health Practice Project's quality assessment tool for quantitative studies which includes an assessment for study bias.<sup>37</sup> Study methodology will be classified as strong, moderate, or weak. Two reviewers (AK/ABM) will independently evaluate each study and will resolve conflicts by reviewing the articles together. Degree of bias will be reported in the results.

### Analysis plan

We will evaluate quantitative measures of relations between possible determinants of inequity and intrapartum care by SBA or institutional delivery. Results reported in published studies may include proportions, means, percentages, rates or other quantifiable differences between two or more groups. Methodology for analysing health disparities will be followed according to published guidelines.<sup>38–39</sup> All research studies reporting secondary analyses of nationally representative household surveys will be reviewed and only studies reporting the most recent survey from an individual country will be considered. Subanalyses may include evaluation of inequity based on different measures of intrapartum care by SBA intrapartum care or institutional deliveries. Results will be stratified based on WHO, World Bank Group income and SDG regional groupings.<sup>40–42</sup> Data will be presented in tables by study, country, region and/or theme.

### Patient and public involvement

Patients and the public were not involved in the development of this protocol. This systematic review of published literature will not involve recruitment and participation of patients.

### DISSEMINATION AND ETHICS

This systematic review will provide information regarding equity and determinants of inequity in intrapartum care by SBAs globally. It will inform the development of indicators for monitoring and evaluation of inequity in intrapartum care by SBAs globally, which is pertinent given the higher level of inequality reported with this maternal health intervention.<sup>12</sup> This work is also especially relevant given the current effort to revise the definition for SBA and measuring tools by collaborating international and professional organisations. This work will also guide establishment of global policy on health equity specifically related to intrapartum care by SBA and maternal mortality. The provision and presence of SBAs and utilisation and access to their services is essential in decreasing maternal and newborn mortality globally.

Final study results will be disseminated via a peer-reviewed publication, which will include all supplemental materials on search strategy, data extraction, compilation and analysis. This systematic review is a secondary analysis of previously published literature and therefore does not require ethics review and approval.

**Contributors** DC is the guarantor of this review. AK, ABM, DC and LS contributed to the initial conception and design of this systematic review. AK, ABM, TA and DC developed the search strategies. AK drafted the proposal manuscript. All authors participated in critically revising the protocol for intellectual content. All authors read and approved the final manuscript.

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**Data sharing statement** All data generated or analysed during this study will be included in the published article and its supplementary information files.

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