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Equity and access to skilled birth attendant globally: protocol for a systematic review

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Equity and access to skilled birth attendant globally: protocol for a systematic review

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Keywords: skilled birth attendant, maternal mortality, childbirth, health equity, inequity, health determinants, health policy, health access, PRISMA-E

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, especially in low- and middle-income countries, 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 a decrease in maternal mortality. There is a need to evaluate the extent of inequity in access to 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 PRISMA-E 2012 guidelines. Studies of all languages and from all countries from 2004, the year of the WHO/ICM/FIGO joint statement on SBAs, and onwards will be included. PubMed/MEDLINE, CINAHL Complete, Cochrane Database of Systematic Reviews, POPLINE and the WHO Global Index Medicus will be searched, in addition to manual searches of references and grey literature. Our primary outcome is access to SBA services. Studies will be included if they evaluate equity and determinants of inequity 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 and determinants of inequity in access to SBAs globally and will inform development of indicators for monitoring of inequity as well as global policy related to SBA access and maternal mortality. Results will be disseminated via peer-reviewed manuscript, international conferences and stakeholder websites.

Trial registration:

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

Word Count: 300

STRENGTHS AND LIMITATIONS OF THIS STUDY

- This systematic review aims to evaluate equity in access to skilled birth attendants globally, which will include specific determinants of inequity. No previous review of quantitative studies has evaluated equity/inequity in access to SBAs during childbirth across the globe.
- This work will help to inform health policy at country level and within the global community by providing the necessary evidence on the current state of equity in the area of reproductive health for an individual country and globally.
- 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.
- Existing literature on health equity in reproductive health describes an array of different measures of equity/inequity in reproductive health. Our data extraction sheet and analysis plan will therefore be finalized only after the review has been completed.

91 INTRODUCTION

92
93 Equity is a cross cutting theme within the Sustainable Development Goals (SDGs) and central to
94 the effort to move towards improved global maternal, child and adolescent health [1, 2].

95 Despite Millennium Development Goals 4 and 5, and modest progress, preventable maternal
96 mortality especially in low- and middle-income countries (LMIC) has remained high [3, 4]. There
97 is a need to focus on inequity and underlying social and structural determinants that contribute
98 indirectly to maternal mortality. Special attention also needs to be paid to maternal mortality
99 among high risk groups such as adolescents and young women, particularly in humanitarian
100 settings and in countries with armed conflict [5].

101
102 Factors associated with inequity across all countries include sex, age, economic status,
103 education, and place of residence. In specific regions or countries, migrant status, race,
104 ethnicity, caste, religion can also be sources of inequity [2]. SDG 3.1 sets the target to reduce
105 global mortality ratio to less than 70 per 100,000 live births by 2030 and one of the key
106 strategies to prevent maternal deaths is assistance by a skilled birth attendant (SBA) at the time
107 of delivery, which is also reflected in the SDG Indicator 3.1.2 “Births attended by skilled health
108 personnel (%)” [1, 6, 7]. The SBA is defined in the joint statement by the World Health
109 Organization (WHO), the International Confederation of Midwives (ICM) and the International
110 Federation of Gynaecology and Obstetrics (FIGO) as a “midwife, doctor or nurse — who has
111 been educated and trained to proficiency in the skills needed to manage normal
112 (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the
113 identification, management and referral of complications in women and newborns” [8].
114 However, while the coverage of SBAs has increased globally, this has not been reflected in a
115 proportional decrease in the global burden of maternal deaths. Skilled birth attendants have
116 been found to have a variable amount of knowledge and skills and, due to inconsistencies in
117 data reporting, the definition of a SBA is currently under review [9-12]. Nevertheless, around
118 50% of low- and middle- income countries report that at least 80% rate of births are attended
119 by SBAs. This number varies across countries [12]. Inequity in SBA coverage has been found to
120 be associated with economic status, education and place of residence [12]. This disparity is
121 especially seen in LMICs where women in disadvantaged groups have SBA coverage rates of less
122 than 50% [2].

123
124 The definition of health inequity by Margaret Whitehead described disparities in health that are
125 “not only unnecessary and avoidable but, in addition [...] unfair and unjust” and that have
126 adverse effects on already disadvantaged groups within a population [13, 14]. In addition, these
127 health differences are systematic and not occasional or sporadic [14]. In evaluating preventable
128 maternal mortality and access to SBAs globally as an indicator for maternal health, it is
129 therefore important to assess the characteristics of women who are and who are not attended
130 by an SBA at childbirth. This will allow for identification of possible determinants of inequity,
131 development of potential interventions to address disadvantages and progress towards
132 increased equity in maternal health.

133
134

135 Study objectives and research questions

136

137 The objectives of this study are to

- 138 1. Conduct a systematic review of literature on attendance by a SBA at childbirth and
- 139 evaluate the extent of inequity that exists globally.
- 140 2. Identify determinants of inequity globally in access to SBAs at the time of childbirth
- 141 across regions and countries.

142

143 Our review seeks to answer the following research questions: 1) To what extent does inequality
144 in access to SBA exist globally? 2) What are themes of determinants of inequity across regions
145 or country world-wide?

146

147 METHODS AND ANALYSIS

148

149 Study registration

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

152

153

154 Study Design

155

156 The study method for this systematic review was developed based on the Preferred Reporting
157 Items for Systematic Reviews and Meta-Analyses with equity extension (PRISMA-E 2012)
158 guidelines and The Cochrane Collaboration (*Cochrane Handbook for Systematic Reviews*) [15-
159 18]. Please see Supplementary File 1 for the Prisma-E 2012 Checklist. The literature search will
160 follow the four-step flow diagram outline in the PRISMA statement [17].

161

162 Study Eligibility Criteria

163

164 Inclusion Criteria

165

166 Our research objectives will be assessed and studies selected based on criteria presented in
167 Table 1.

168

169

Table 1: Systematic review inclusion criteria

Population	Women of reproductive age who experienced childbirth within the specified timeframe of an individual study.
Intervention	Access to skilled care with SBA or institutional deliveries.
Comparison	Utilization of non- SBA birth attendants or traditional birth attendants at the time of childbirth.

Outcome	Evaluation of inequity in access to 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 1/1/2004 to the time of this study.

170

171

172 Population

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

177

178

179 Intervention/Comparison

180

181 Studies reporting access to SBA with or without comparison to utilization of non-skilled or
 182 traditional birth attendants will be included in this review. Institutional delivery may be used as
 183 a surrogate for SBA since the concept of SBA and their skill level, competency, education and
 184 accreditation are currently inconsistent across countries [9, 11]. For the purposes of this study,
 185 SBA is defined as a skilled health professional who is qualified by education and training and has
 186 skills proficient to provide intrapartum and immediate postpartum interventions with the goal
 187 of improving maternal and newborn health [8]. The purpose of this study, however, is not to
 188 evaluate the qualifications, competency or skills of specific SBA cadres in each study.

189

190

191 Outcome

192

193 We will include studies evaluating inequity in access to SBA care. Alternative search terms
 194 include but are not limited to disparities, inequality and barriers to care. Given the moral
 195 imperative of the word equity, additional search terms such as social justice will also be utilized
 196 [19]. Based on prior reviews of inequity in maternal care, determinants of inequity are
 197 hypothesized to include demographic, socioeconomic, reproductive and geographic factors [12,
 198 20-22]. For the purposes of this review, studies will be included if they compare at least two
 199 populations by one or more indicators. PROGRESS Plus, an established framework for socio-
 200 demographic factors that may contribute to inequity in health, is an acronym that stands for
 201 place of residence, race/ethnicity/culture and language, occupation, gender/sex, religion,
 202 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 [23-25]. 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 (EPMM) core maternal health indicators [26-33].

Study design

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

Context

Studies of all languages and across all settings 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 [8, 34].

Exclusion Criteria

Articles 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, etc.)
2. Only qualitative data is collected
3. They are systematic reviews
4. The sample selection and size does not provide results generalizable 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 gray literature of international organizations 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 (NICE); National Institute of

247 Health (NIH); United Nations Children’s Fund (UNICEF); United Nations Population Fund
248 (UNFPA); WHO. The search will be inclusive of all languages and will be conducted with specific
249 search terms related to 1) Childbirth; 2) SBA, non-SBA, facility and non-facility deliveries; 3)
250 Equity; 4) Access or utilization of care. Please see Supplementary File 2 for the detailed search
251 strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews.

252 253 254 **Study Selection**

255
256 Following a comprehensive and detailed literature search, all duplicate articles will be removed.
257 A team of two (AK/ABM) will screen titles and abstracts of retrieved studies for relevance and
258 eligibility for inclusion. Disagreements will be resolved by an additional reviewer (DC). All study
259 abstracts selected for inclusion will then undergo an independent full-text review with similar
260 methodology. All chosen full-text articles will then be evaluated again for inclusion based on
261 inclusion and exclusion criteria by all co-authors and studies that do not meet the criteria will
262 be eliminated from the study. Disagreements will be resolved by mutual agreement. The
263 authors of studies with unclear data will be contacted in order to evaluate the study for
264 inclusion. Full-text articles in languages other than English will be translated.

265 266 267 **Data Extraction**

268
269 A standardized data collection form was used as a template for development of a data
270 extraction form for this review [35]. Study details collected include but are not limited to study
271 characteristics (country, year and journal of publication, study design and dates), population
272 and setting (population description, setting description, inclusion/exclusion criteria, sample
273 size), intervention (SBA and non-SBA cadres, facility description), equity measures (primary
274 outcome, determinants, results, study quality and conclusions). During the review additional
275 fields on the data extraction form will allow for flexibility for additional data points or
276 determinants as needed. Two reviewers will independently extract data from the selected
277 studies and discrepancies will be discussed with a third reviewer. Please see Supplementary File
278 3 for the data extraction form. Results will be stratified based on WHO, World Bank Group
279 income and SDG regional groupings [36-38].

280 281 282 **Scientific Quality Assessment**

283
284 The risk for study bias will be assessed based on STROBE statement criteria for observational
285 studies [39, 40]. Study methodology will be classified as strong, moderate, or weak. Two
286 reviewers (AK/ABM) will independently evaluate each study and will resolve conflicts by
287 reviewing the articles together. Degree of study bias will be reported in the results.

291 **DISSEMINATION AND ETHICS**

292
293 This systematic review will provide information regarding equity and determinants of inequity
294 in access to SBAs globally. It will inform the development of indicators for monitoring and
295 evaluation of inequity in access to SBA globally, which is especially pertinent given the current
296 effort to revise the definition for SBA and measuring tools by collaborating international and
297 professional organizations. This work will also guide establishment of global policy on health
298 equity specifically related to access to SBA and maternal mortality. The provision of SBAs and
299 access to their services is essential in decreasing maternal mortality globally.

300
301 Final study results will be disseminated via a peer-reviewed publication, which will include all
302 supplemental materials on search strategy, data extraction, compilation and analysis. This
303 systematic review is a secondary analysis of previously published literature and therefore does
304 not require ethics review and approval.

305

306

307 **LIST OF ABBREVIATIONS:**

308

309 FIGO: International Federation of Gynaecology and Obstetrics; EPMM: Strategies towards
310 Ending Preventable Maternal Mortality; GIM: WHO Global Index Medicus; ICM: International
311 Confederation of Midwives; LMICs: Low- and middle-income countries; MeSH: Medical subject
312 headings; MDGs: Millennium Development Goals; NICE: National Institute for Health and
313 Clinical Excellence; NIH: National Institute of Health; PRISMA: Preferred reporting items for
314 systematic reviews and meta-analyses; PRISMA-E: Preferred reporting items for systematic
315 reviews and meta-analyses with equity extension; SBA: Skilled birth attendant; SDGs:
316 Sustainable Development Goals; STROBE: Strengthening the reporting of observational studies
317 in epidemiology; UNICEF: United Nations Children's Fund; UNFPA: United Nations Population
318 Fund; WHO: World Health Organization.

319

320

321 **AUTHORS CONTRIBUTIONS**

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

326

327

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336 Melinda Gates Foundation.

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339

340 **COMPETING INTERESTS STATEMENT**

341

342 None declared. The authors alone are responsible for the views expressed in this article and
343 they do not necessarily represent the views, decisions or policies of the funding bodies or
344 institutions with which they are affiliated.

345

346

347 **DATA SHARING STATEMENT**

348

349 All data generated or analyzed during this study will be included in the published article and its
350 supplementary information files.

351

352

353 **SUPPLEMENTARY FILES**

354

355 Supplementary File 1:

356

- File name: SUPPLEMENTARY FILE 1

357

- File format: .pdf

358

- Title of data: PRISMA-E 2012 Checklist - Equity and access to skilled birth attendant globally: protocol for a systematic review

359

360

- Description of data: PRISMA-E 2012 Checklist for this systematic literature review proposal.

361

362

363 Supplementary File 2:

364

- File name: SUPPLEMENTARY FILE 2

365

- File format: .pdf

366

- Title of data: Equity and access to skilled birth attendant globally: search strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews

367

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- Description of data: Search strategies for Pubmed/Medline and the Cochrane Database of Systematic Reviews.

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371 Supplementary File 3:

372

- File name: SUPPLEMENTARY FILE 3

373

- File format: .pdf

374

- Title of data: Equity and access to skilled birth attendant globally: data extraction form

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- Description of data: Data extraction form for this systematic review.

376

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33 494

PRISMA-E 2012 Checklist - Equity and access to skilled birth attendant globally: protocol for a systematic review

Checklist of Items for Reporting Equity-Focused Systematic Reviews				
Section	Item	Standard PRISMA Item	Extension for Equity-Focused Reviews	Pg #
Title				
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Identify equity as a focus of the review, if relevant, using the term equity	1
Abstract				
Structured summary	2	2. Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	State research question(s) related to health equity.	5
	2A		Present results of health equity analyses (e.g. subgroup analyses or meta-regression).	Not applicable for protocol
	2B		Describe extent and limits of applicability to disadvantaged populations of interest.	Not applicable for protocol
Introduction				
Rationale	3	Describe the rationale for the review in the context of what is already known.	Describe assumptions about mechanism(s) by which the intervention is assumed to have an impact on health equity.	4
	3A		Provide the logic model/analytical framework, if done, to show the pathways through which the intervention is assumed to affect health equity and how it was developed.	--
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Describe how disadvantage was defined if used as criterion in the review (e.g. for selecting studies, conducting analyses or judging applicability).	5-7
	4A		State the research questions being addressed with reference to health equity	5
Methods				
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.		5
Eligibility criteria	6	6. Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	Describe the rationale for including particular study designs related to equity research questions.	5-7
	6A		Describe the rationale for including the outcomes - e.g. how these are relevant to reducing inequity.	6-7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Describe information sources (e.g. health, non-health, and grey literature sources) that were searched that are of specific relevance to address the equity questions of the review.	7-8
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Describe the broad search strategy and terms used to address equity questions of the review.	See Supplementary File 2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).		5-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.		8 See Supplementary File 3
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	List and define data items related to equity, where such data were sought (e.g. using PROGRESS-Plus or other criteria, context).	6-8 See Supplementary File 3
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.		8 See Supplementary File 3
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).		See Supplementary File 2
Synthesis of	14	Describe the methods of handling data and combining results of studies, if done,	Describe methods of synthesizing findings on health inequities (e.g. presenting both	8

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1	results		including measures of consistency (e.g., I ²) for each meta-analysis.	relative and absolute differences between groups).	See Supplementary File 3
2					
3	Risk of bias across studies	15	15. Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).		8 See Supplementary File 3
4					
5	Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	Describe methods of <u>additional</u> synthesis approaches related to equity questions, if done, indicating which were pre-specified	Not applicable (protocol)
6					
7	Results				
8	Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.		Not applicable (protocol)
9					
10	Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Present the population characteristics that relate to the equity questions across the relevant PROGRESS-Plus or other factors of interest.	Not applicable (protocol)
11					
12	Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).		Not applicable (protocol)
13					
14	Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.		Not applicable (protocol)
15					
16	Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	Present the results of synthesizing findings on inequities (see 14).	Not applicable (protocol)
17					
18	Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).		Not applicable (protocol)
19					
20	Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	Give the results of <u>additional</u> synthesis approaches related to equity objectives, if done, (see 16).	Not applicable (protocol)
21	Discussion				
22	Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).		Not applicable (protocol)
23					
24	Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).		Not applicable (protocol)
25					
26	Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	Present extent and limits of applicability to disadvantaged populations of interest and describe the evidence and logic underlying those judgments.	Not applicable (protocol)
27					
28		26A		Provide implications for research, practice or policy related to equity where relevant (e.g. types of research needed to address unanswered questions).	Not applicable (protocol)
29					
30					
31	Funding				
32	Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.		9
33					

From: Source: Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, Waters E, White H, and the PRISMA-Equity Bellagio Group. (2012) [PRISMA-Equity 2012 Extension: Reporting Guidelines for Systematic Reviews with a Focus on Health Equity](#). PLoS Med 9(10): e1001333. doi:10.1371/journal.pmed.1001333

For more information: <http://equity.cochrane.org/equity-extension-prisma>

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SUPPLEMENTARY FILE 2:**Equity and access to skilled birth attendant globally: search strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews****1. Pubmed / MEDLINE search**

#	Section	Search Terms
1	Childbirth	<p>"parturition"[MeSH] OR "Delivery, Obstetric"[MeSH] OR "Perinatal Care"[MeSH] OR "Pregnancy Outcome"[MeSH] OR "Pregnancy Complications"[MeSH] OR "Labor, Obstetric"[MeSH] OR "Obstetrics"[MeSH] OR "Postpartum Period"[MeSH] OR "Maternal Health Services"[MeSH] OR "Women's Health Services"[Mesh] OR "Reproductive Health Services"[Mesh] OR "Pregnant Women"[Mesh] OR "Pregnancy"[Mesh] OR "Maternal Death"[Mesh] OR "Maternal-Fetal Relations"[Mesh] OR "Maternal Exposure"[Mesh] OR "Maternal Mortality"[Mesh] OR "Maternal Behavior"[Mesh] OR "maternal behaviour"[MeSH] OR "pregnant"[TIAB] OR "pregnancy"[TIAB] OR "Maternity"[TIAB] OR "perinatal"[TIAB] OR "peri-natal"[TIAB] OR "peri natal"[TIAB] OR "Postnatal"[TIAB] OR "post natal"[TIAB] OR "post-natal"[TIAB] OR "ante natal"[TIAB] OR "antenatal"[TIAB] OR "ante-natal"[TIAB] OR "Postpartum"[TIAB] OR "Post partum"[TIAB] OR "Post-partum"[TIAB] OR "puerperium"[TIAB] OR "childbirth care"[TIAB] OR "childbirth"[TIAB] OR "birth"[TIAB] OR "intrapartum"[TIAB] OR (labour[TI] AND delivery[TI]) OR (labor[TI] AND delivery[TI]) OR "maternal health"[TIAB] OR "maternal and child health"[TIAB] OR "maternity care"[TIAB] OR "c-section"[TIAB] OR "caesarean"[TIAB] OR "cesarean"[TIAB] OR "caesarean section"[TIAB] OR "cesarean section"[TIAB] OR "obstetric surgery"[TIAB] OR "signal functions"[TIAB] OR "obstetric interventions"[TIAB] OR "emergency obstetric care"[TIAB] OR "emergency obstetric"[TIAB] OR "emergency obstetrics"[TIAB] OR "EmOC"[TIAB] OR "emergency newborn care"[TIAB] OR "essential obstetric care"[TIAB] OR "vaginal delivery"[TIAB] or "normal delivery"[TIAB]</p>
2	Cadre/Facility Name	<p>"Health Personnel"[MeSH] OR Midwifery[MeSH] OR Obstetric Nursing[MeSH] OR "Professional Practice"[MeSH] OR "Emergency Responders"[MeSH] OR "Health Occupations"[Mesh] OR "Allied Health Occupations"[Mesh] OR "Students, Health Occupations"[Mesh] OR "Schools, Health Occupations"[Mesh] OR "Health Manpower"[Mesh] OR "health auxiliary"[TIAB] OR "health care manpower"[TIAB] OR "hospital personnel"[TIAB] OR "medical personnel"[TIAB] OR "health care personnel"[TIAB] OR "nursing home personnel"[TIAB] OR "paramedical personnel"[TIAB] OR "Health care workers"[TIAB] OR "Health care worker"[TIAB] OR "Medical Staff"[TIAB] OR "medical personnel"[TIAB] OR "General Practitioners"[TIAB] OR "General Practitioner"[TIAB] OR Caregiver*[TIAB] OR Nurses[TIAB] OR Nurse[TIAB] OR Midwife[TIAB] OR midwives[TIAB] OR midwife[TIAB] OR "Nursing Staff"[TIAB] OR "nurse midwife"[TIAB] OR "nurse midwives"[TIAB] OR "nurse-midwife"[TIAB] OR "nurse-midwives"[TIAB] OR auxiliary[TIAB] OR "Medical students"[TIAB] OR "Nursing students"[TIAB] OR (health*[TI] AND worker*[TI]) OR "Community Health Workers"[TIAB] OR "Community Health Worker"[TIAB] OR "Dental Staff"[TIAB] OR doctor[TIAB] OR doctors[TIAB] OR obstetrician[TIAB] OR obstetricians[TIAB] OR "skilled health</p>

		<p>provider"[TIAB] OR "skilled health providers"[TIAB] OR "skilled attendant"[TIAB] OR "skilled attendants"[TIAB] OR "skilled birth attendant"[TIAB] OR "skilled birth attendants"[TIAB] OR "skilled health"[TIAB] OR "skilled assistance"[TIAB] "skilled assistant"[TIAB] OR "skilled assistants"[TIAB] OR "skilled care"[TIAB] OR "skilled manpower"[TIAB] OR "skilled delivery"[TIAB] OR "skilled staff"[TIAB] OR "skilled person"[TIAB] OR "skilled birth personnel"[TIAB] OR "skilled health workers"[TIAB] OR "skilled health care worker"[TIAB] OR "skilled health care workers"[TIAB] OR "assistance at delivery"[TIAB] OR "assistance at birth"[TIAB] OR "attendant"[TIAB] OR "SAB"[TIAB] OR "SBA"[TIAB] or cadre[TIAB]or cadres[TIAB] OR "health care worker"[TIAB] OR "health care person"[TIAB] OR "health person"[TIAB] OR "health care provider"[TIAB] OR "care provider"[TIAB] OR "care providers"[TIAB] OR "health provider"[TIAB] OR "health providers"[TIAB] OR "health aide"[TIAB] OR "health aides"[TIAB] OR "traditional birth attendant"[TIAB] OR "birth attendant"[TIAB] OR "community birth attendant"[TIAB] OR "health assistant"[TIAB] OR "feldsher"[TIAB] OR "clinical officer"[TIAB] OR "clinical officers"[TIAB] OR "medical officer"[TIAB] OR "medical officers"[TIAB] OR "assistant medical officers"[TIAB] OR "Mother and Child Health Aides"[TIAB] OR "Mother and Child Health Aide"[TIAB] OR "MCHA"[TIAB] OR "mid-level provider"[TIAB] OR "mid-level cadre"[TIAB] OR "mid-level cadres"[TIAB] OR "mid-level healthcare workers"[TIAB] OR "mid-level health care workers"[TIAB] OR "mid-level health workers"[TIAB] OR "community-based skilled birth attendants"[TIAB] OR "community-based skilled birth attendant"[TIAB] OR "community based skilled birth attendants"[TIAB] OR "community based skilled birth attendant"[TIAB] OR "health visitor"[TIAB] or (health*[TI] AND worker*[TI]) OR "fieldworker"[TIAB] OR "task shifting"[TIAB] OR "nonphysicians"[TIAB] OR "non-physician clinicians"[TIAB] OR "non-physician"[TIAB] OR "clinician"[TIAB] OR "clinicians"[TIAB] OR "physicians"[MeSH] OR "ambulatory care facilities"[MeSH] OR "hospitals"[MeSH] OR "rural health services"[MeSH] OR "community health services"[MeSH] OR "hospitalization"[MeSH] OR "hospitalisation"[MeSH] OR "home birth"[TIAB] or "home births"[TIAB] OR "health facilities"[MeSH] OR "home childbirth"[MeSH] OR "maternal health services"[MeSH] OR "emergency medical services"[MeSH] OR "hospitals public"[MeSH] OR "community health services"[MeSH] OR "birthing centers"[MeSH] OR "birthing centres"[MeSH] OR "delivery of health care"[MeSH] OR "delivery rooms"[MeSH] OR "emergency service hospital"[MeSH] OR "hospitals teaching"[MeSH] OR "medical staff hospital"[MeSH] OR "hospitals university"[MeSH] OR "outpatient clinics hospital"[MeSH] OR "hospitals public"[MeSH] OR "personnel hospital"[MeSH] OR "hospitals general"[MeSH] OR "nursing service hospital"[MeSH] OR "academic medical centers"[MeSH] OR academic medical centres"[MeSH] OR "hospital unit"[MeSH] OR "community health service"[MeSH] OR "doulas"[MeSH Terms] OR "doulas"[All Fields] OR "doula"[All Fields]</p>
3	Equity	<p>"Health Status Disparities"[Mesh] OR "Health Equity"[Mesh] OR "Healthcare Disparities"[Mesh] OR "Social Justice"[Mesh] OR "Social responsibility"[Mesh] OR "social values"[Mesh] OR "Human Rights"[Mesh] OR "Socioeconomic Factors"[Mesh] OR "Health Status Indicators"[Mesh] OR "Maternal Welfare"[Mesh] OR "Human Rights"[Mesh] OR "Health Policy"[Mesh]) OR "Health Status"[Mesh] OR "Social Determinants of Health"[Mesh] OR "Health care reform"[MeSH] OR "Quality of health care"[Mesh] OR "Public health"[Mesh] OR</p>

		<p>“Global health”[Mesh] OR “Sex factors”[Mesh] OR “sex distribution”[Mesh] OR “Public policy”[Mesh] OR “Women s rights”[Mesh] OR “economics”[Mesh] OR “age factors”[Mesh] OR “age distribution”[Mesh] OR “adolescent”[Mesh] OR “Young adult”[Mesh] OR “policy making”[Mesh] OR “resource allocation”[Mesh] OR “financing government”[Mesh] OR “insurance”[Mesh] OR “risk factors”[Mesh] OR “risk assessment”[Mesh] OR “prejudice”[Mesh] OR “mortality”[Mesh] OR “quality of life”[Mesh] OR “medical ethics” OR “decision making”[Mesh] OR moral obligations”[Mesh] OR “social welfare”[Mesh] OR “patient advocacy”[Mesh] OR “cultural diversity”[Mesh] OR “health priorities”[Mesh] OR "socioeconomic factors"[All Fields] OR "inequality"[All Fields] OR "inequalities"[All Fields] OR equity[All Fields] OR inequity[All Fields] OR inequities[All Fields] OR socio-economic[All Fields] OR (“unmet”[All Fields] AND “need”[All Fields]) OR “barrier”[All Fields] OR "income"[MeSH Terms] OR "income"[All Fields] OR "socioeconomics"[All Fields]) OR “geographic”[All Fields] OR “exclusion”[All Fields] OR "poverty"[MeSH Terms] OR "poverty"[All Fields] OR "Poverty Areas"[Mesh] OR "Working Poor"[Mesh] OR "Vulnerable Populations"[Mesh] OR “vulnerability”[All Fields] OR “marginalized”[All Fields] OR “marginalised”[All Fields] OR “vulnerable”[All Fields] OR “marginalization”[All Fields] OR “marginalisation”[All Fields] OR "social distance"[MeSH Terms] OR "social distance"[All Fields] OR "social exclusion"[All Fields]) OR (social[All Fields] AND stratification[All Fields]) OR gradient[All Fields] OR determinant[All Fields] OR predictor[All Fields] OR propension[All Fields]) OR ("risk factors"[MeSH Terms] OR "risk factors"[All Fields] OR "risk factor"[All Fields]) OR residence[All Fields] OR location[All Fields] OR ("ethnology"[Subheading] OR "ethnology"[All Fields] OR "ethnicity"[All Fields] OR "ethnology"[MeSH Terms] OR "ethnicity"[All Fields] OR "ethnic groups"[MeSH Terms] OR "ethnic groups"[All Fields]) OR ("emigration and immigration"[MeSH Terms] OR ("emigration"[All Fields] AND "immigration"[All Fields]) OR "emigration and immigration"[All Fields] OR “emigrants and immigrants”[Mesh] OR “minority groups”[Mesh] OR “developing countries”[MeSH Terms] OR “social class”[Mesh] OR “health care rationing”[Mesh] OR “insurance care”[Mesh] OR “politics”[Mesh] OR “health expenditures”[Mesh] OR “demography”[Mesh] OR “health care costs”[Mesh] OR “urban population”[Mesh] OR “rural population”[Mesh] OR “universal coverage”[Mesh] OR “health resources”[Mesh] OR “employment”[Mesh] OR “educational status”[Mesh] OR “residence characteristics”[Mesh] OR “time factors”[Mesh] OR “risk assessment”[Mesh] OR “religion and medicine”[Mesh] OR “cultural characteristics”[Mesh] OR “cultural diversity”[Mesh] OR "Poverty"[Mesh]</p>
4	Access/ Provision	<p>"Health Care Quality, Access, and Evaluation"[Mesh] OR "Health Services Accessibility"[Mesh] OR "Health Promotion"[Mesh] OR "Culturally Competent Care"[Mesh] OR "Health Resources/economics"[MeSH Terms] OR "Maternal Health Services/standards"[MAJR]) OR "Maternal Health Services/economics"[MeSH Terms] OR "Quality of Health Care/economics"[MeSH Terms] OR "Quality of Health Care/standards"[MAJR] OR "Maternal Health Services/utilization"[MeSH Terms] OR "Prenatal Care/utilization"[MeSH Terms] OR “Prenatal Care/utilisation”[MeSH] OR "Urban Population/statistics and numerical data"[MAJR] OR "Rural Population/statistics and numerical data"[MAJR] OR "Medically Underserved Area"[MeSH Terms] OR "Prenatal Care/standards"[MAJR] OR "Health Services Needs and Demand"[MeSH Terms] OR “delivery of health</p>

	care"[MeSH Terms] OR "Health services needs and demand"[MeSH Terms] OR "Primary health care"[Mesh] OR "patient acceptance of health care"[Mesh] OR "Health knowledge attitudes practice"[Mesh] OR "health promotion"[Mesh] OR "delivery of health care"[Mesh] OR "health behavior"[Mesh] OR "health behaviour"[MeSH] OR "attitude to health"[Mesh] OR "personal autonomy"[Mesh] OR "attitude of health personnel"[Mesh] OR access[All Fields] OR accessibility[All Fields] OR "utilization"[Subheading] OR "utilisation"[Subheading] OR "utilization"[All Fields] OR "utilisation"[All Fields] OR "use"[All Fields] OR "coverage"[All Fields] OR "health services"[MeSH Terms] OR "access to health care"[All Fields] OR "delivery of health care"[MeSH Terms] OR "health services"[All Fields] OR "health facilities"[All Fields] OR "obstetric delivery"[All Fields] OR "delivery"[All Fields] OR "health care surveys"[Mesh] OR "needs assessment"[Mesh] OR "health care costs"[Mesh] OR "mental health services"[Mesh] OR "mental disorders"[Mesh] OR "health services research"[Mesh] OR "outcome assessment health care"[Mesh] OR "quality assurance health care"[Mesh] OR "rural health services"[Mesh] OR "social support"[Mesh] OR "insurance coverage"[Mesh] OR "community health services"[Mesh] OR "health education"[Mesh]
5	1 AND 2 AND 3 AND 4 AND Filter: Publication date from 2004/01/01 to present.

2. Cochrane Central search

ID	Search	Hits
#1	MeSH descriptor: [Parturition] explode all trees	266
#2	MeSH descriptor: [Delivery, Obstetric] explode all trees	4852
#3	MeSH descriptor: [Pregnancy] explode all trees	5608
#4	MeSH descriptor: [Maternal-Fetal Relations] explode all trees	14
#5	MeSH descriptor: [Maternal Mortality] explode all trees	124
#6	MeSH descriptor: [Maternal Health Services] explode all trees	1994
#7	MeSH descriptor: [Postpartum Period] explode all trees	1349
#8	MeSH descriptor: [Cesarean Section] explode all trees	2839
#9	MeSH descriptor: [Emergency Medical Services] explode all trees	3652
#10	MeSH descriptor: [Perinatal Mortality] explode all trees	45
#11	MeSH descriptor: [Vacuum Extraction, Obstetrical] explode all trees	81
#12	MeSH descriptor: [Obstetrical Forceps] explode all trees	53
#13	MeSH descriptor: [Vaginal Birth after Cesarean] explode all trees	58
#14	MeSH descriptor: [Labor, Obstetric] explode all trees	1945
#15	MeSH descriptor: [Obstetric Labor Complications] explode all trees	2697
#16	MeSH descriptor: [Prenatal Care] explode all trees	1302
#17	MeSH descriptor: [Prenatal Diagnosis] explode all trees	1071
#18	"maternal mortality":ti,ab,kw (Word variations have been searched)	435
#19	delivery:ti,ab,kw (Word variations have been searched)	25934
#20	pregnancy:ti,ab,kw (Word variations have been searched)	33283
#21	"maternal health services":ti,ab,kw (Word variations have been searched)	247
#22	vaginal delivery:ti,ab,kw (Word variations have been searched)	2532
#23	postpartum or prenatal or antenatal or antepartum:ti,ab,kw (Word variations have been searched)	10362
#24	"birth":ti,ab,kw (Word variations have been searched)	16054
#25	obstetrics:ti,ab,kw (Word variations have been searched)	2287

1			
2			
3	#26	c*sarean section:ti,ab,kw (Word variations have been searched)	6986
4	#27	"emergency obstetric*":ti,ab,kw (Word variations have been searched)	43
5	#28	lab*r:ti,ab,kw (Word variations have been searched)	10228
6	#29	childbirth*:ti,ab,kw (Word variations have been searched)	1739
7	#30	{or #1-#29}	69723
8	#31	MeSH descriptor: [Health Personnel] explode all trees	7620
9	#32	MeSH descriptor: [Community Health Workers] explode all trees	339
10	#33	MeSH descriptor: [Nurses] explode all trees	1158
11	#34	MeSH descriptor: [Allied Health Personnel] explode all trees	978
12	#35	MeSH descriptor: [Midwifery] explode all trees	324
13	#36	MeSH descriptor: [Emergency Responders] explode all trees	251
14	#37	MeSH descriptor: [Allied Health Occupations] explode all trees	1000
15	#38	MeSH descriptor: [Obstetric Nursing] explode all trees	41
16	#39	MeSH descriptor: [Health Occupations] explode all trees	20897
17	#40	MeSH descriptor: [Skilled Nursing Facilities] explode all trees	60
18	#41	MeSH descriptor: [Physicians] explode all trees	1686
19	#42	MeSH descriptor: [Nurse Clinicians] explode all trees	153
20	#43	MeSH descriptor: [Ambulatory Care Facilities] explode all trees	1886
21	#44	MeSH descriptor: [Maternal-Child Health Centers] explode all trees	49
22	#45	MeSH descriptor: [Rural Health Services] explode all trees	336
23	#46	MeSH descriptor: [Community Health Centers] explode all trees	572
24	#47	MeSH descriptor: [Birthing Centers] explode all trees	23
25	#48	MeSH descriptor: [Hospitals] explode all trees	3658
26	#49	nurse* or doctor* or physician* or midwife or midwives:ti,ab,kw (Word variations have been searched)	41259
27	#50	"health worker*":ti,ab,kw (Word variations have been searched)	1215
28	#51	"birth attendant*":ti,ab,kw (Word variations have been searched)	127
29	#52	"skilled attendant*":ti,ab,kw (Word variations have been searched)	5
30	#53	"skilled assistant*":ti,ab,kw (Word variations have been searched)	1
31	#54	obstetrician*:ti,ab,kw (Word variations have been searched)	921
32	#55	practitioner*:ti,ab,kw (Word variations have been searched)	3
33	#56	"clinical officer*":ti,ab,kw (Word variations have been searched)	23
34	#57	birth centre* or birth center*:ti,ab,kw (Word variations have been searched)	2023
35	#58	health centre* or health center*:ti,ab,kw (Word variations have been searched)	19565
36	#59	"health facilit*":ti,ab,kw (Word variations have been searched)	647
37	#60	"health provider*":ti,ab,kw (Word variations have been searched)	253
38	#61	"health institution*":ti,ab,kw (Word variations have been searched)	61
39	#62	clinic?:ti,ab,kw (Word variations have been searched)	9489
40	#63	hospital?:ti,ab,kw (Word variations have been searched)	15683
41	#64	"birth centre?" or "birth center?":ti,ab,kw (Word variations have been searched)	31
42	#65	{or #31-#64}	96129
43	#66	MeSH descriptor: [Health Equity] explode all trees	2
44	#67	MeSH descriptor: [Human Rights] explode all trees	1262
45	#68	MeSH descriptor: [Social Justice] explode all trees	60
46	#69	MeSH descriptor: [Health Status Disparities] explode all trees	142
47	#70	MeSH descriptor: [Healthcare Disparities] explode all trees	176
48	#71	MeSH descriptor: [Social Responsibility] explode all trees	87
49	#72	MeSH descriptor: [Human Rights] explode all trees	1262
50	#73	MeSH descriptor: [Social Values] explode all trees	164
51	#74	MeSH descriptor: [Socioeconomic Factors] explode all trees	8582
52	#75	MeSH descriptor: [Health Status Indicators] explode all trees	19398
53	#76	MeSH descriptor: [Health Policy] explode all trees	724
54	#77	MeSH descriptor: [Social Determinants of Health] explode all trees	11
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2			
3	#78	MeSH descriptor: [Quality of Health Care] explode all trees	424055
4	#79	MeSH descriptor: [Public Health] explode all trees	408036
5	#80	MeSH descriptor: [Global Health] explode all trees	212
6	#81	MeSH descriptor: [Sex Factors] explode all trees	5525
7	#82	MeSH descriptor: [Sex Distribution] explode all trees	783
8	#83	MeSH descriptor: [Public Policy] explode all trees	784
9	#84	MeSH descriptor: [Women's Rights] explode all trees	6
10	#85	MeSH descriptor: [Age Factors] explode all trees	9847
11	#86	MeSH descriptor: [Age Distribution] explode all trees	845
12	#87	MeSH descriptor: [Adolescent] explode all trees	90431
13	#88	MeSH descriptor: [Young Adult] explode all trees	266
14	#89	MeSH descriptor: [Policy Making] explode all trees	86
15	#90	MeSH descriptor: [Resource Allocation] explode all trees	145
16	#91	MeSH descriptor: [Social Welfare] explode all trees	845
17	#92	MeSH descriptor: [Patient Advocacy] explode all trees	75
18	#93	MeSH descriptor: [Socioeconomic Factors] explode all trees	8582
19	#94	MeSH descriptor: [Income] explode all trees	931
20	#95	MeSH descriptor: [Poverty] explode all trees	1377
21	#96	MeSH descriptor: [Poverty Areas] explode all trees	240
22	#97	MeSH descriptor: [Vulnerable Populations] explode all trees	220
23	#98	MeSH descriptor: [Social Distance] explode all trees	113
24	#99	MeSH descriptor: [Risk Factors] explode all trees	24525
25	#100	MeSH descriptor: [Ethnic Groups] explode all trees	3695
26	#101	MeSH descriptor: [Emigration and Immigration] explode all trees	79
27	#102	MeSH descriptor: [Minority Groups] explode all trees	316
28	#103	MeSH descriptor: [Developing Countries] explode all trees	1011
29	#104	MeSH descriptor: [Social Class] explode all trees	589
30	#105	MeSH descriptor: [Health Care Rationing] explode all trees	77
31	#106	MeSH descriptor: [Insurance, Long-Term Care] explode all trees	5
32	#107	MeSH descriptor: [Politics] explode all trees	48
33	#108	MeSH descriptor: [Health Expenditures] explode all trees	332
34	#109	MeSH descriptor: [Urban Population] explode all trees	1204
35	#110	MeSH descriptor: [Rural Population] explode all trees	1249
36	#111	MeSH descriptor: [Universal Coverage] explode all trees	7
37	#112	MeSH descriptor: [Health Resources] explode all trees	593
38	#113	MeSH descriptor: [Educational Status] explode all trees	1347
39	#114	MeSH descriptor: [Residence Characteristics] explode all trees	1179
40	#115	MeSH descriptor: [Time Factors] explode all trees	59415
41	#116	MeSH descriptor: [Religion and Medicine] explode all trees	59
42	#117	MeSH descriptor: [Cultural Characteristics] explode all trees	157
43	#118	MeSH descriptor: [Cultural Diversity] explode all trees	83
44	#119	equit* or inequit*:ti,ab,kw (Word variations have been searched)	544
45	#120	equal* or unequal*:ti,ab,kw (Word variations have been searched)	32042
46	#121	socio-economic? or socioeconomic?:ti,ab,kw (Word variations have been searched)	559
47	#122	"unmet need?":ti,ab,kw (Word variations have been searched)	232
48	#123	barrier?:ti,ab,kw (Word variations have been searched)	4561
49	#124	determinant?:ti,ab,kw (Word variations have been searched)	3279
50	#125	geographic:ti,ab,kw (Word variations have been searched)	1798
51	#126	"risk factor?":ti,ab,kw (Word variations have been searched)	38428
52	#127	"determinant* of health":ti,ab,kw (Word variations have been searched)	100
53	#128	marginali*ation:ti,ab,kw (Word variations have been searched)	22
54	#129	{or #66-#128}	498594
55	#130	MeSH descriptor: [Health Care Quality, Access, and Evaluation] explode all trees	430323
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3	#131	MeSH descriptor: [Health Services Accessibility] explode all trees	1084	
4	#132	MeSH descriptor: [Health Promotion] explode all trees	5485	
5	#133	MeSH descriptor: [Culturally Competent Care] explode all trees	30	
6	#134	MeSH descriptor: [Maternal Health Services] explode all trees	1994	
7	#135	MeSH descriptor: [Quality of Health Care] explode all trees	424055	
8	#136	MeSH descriptor: [Medically Underserved Area] explode all trees	112	
9	#137	MeSH descriptor: [Health Services Needs and Demand] explode all trees		532
10	#138	MeSH descriptor: [Delivery of Health Care] explode all trees	45744	
11	#139	MeSH descriptor: [Primary Health Care] explode all trees	6730	
12	#140	MeSH descriptor: [Patient Acceptance of Health Care] explode all trees	25535	
13	#141	MeSH descriptor: [Health Knowledge, Attitudes, Practice] explode all trees		5020
14	#142	MeSH descriptor: [Health Promotion] explode all trees	5485	
15	#143	MeSH descriptor: [Health Behavior] explode all trees	19176	
16	#144	MeSH descriptor: [Attitude of Health Personnel] explode all trees		2095
17	#145	MeSH descriptor: [Attitude to Health] explode all trees	31755	
18	#146	MeSH descriptor: [Personal Autonomy] explode all trees	170	
19	#147	MeSH descriptor: [Health Services] explode all trees	90269	
20	#148	MeSH descriptor: [Health Services Accessibility] explode all trees		1084
21	#149	MeSH descriptor: [Rural Health Services] explode all trees	336	
22	#150	access:ti,ab,kw (Word variations have been searched)	12815	
23	#151	utili*ation:ti,ab,kw (Word variations have been searched)	11183	
24	#152	coverage:ti,ab,kw (Word variations have been searched)	3228	
25	#153	"health service?":ti,ab,kw (Word variations have been searched)		10578
26	#154	{or #130-#153}	461529	
27	#155	#30 and #65 and #129 and #154 Online Publication Date from Jan 2004 to Jun 2017		654
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SUPPLEMENTARY FILE 3:**Equity and access to skilled birth attendant globally: data extraction form****Notes:**

- Please be consistent in the order and style used to enter information for each item.
- Please record missing data as unclear or missing in the study report.
- If an item is not applicable, please mark as NA.

General information

General Data	
1. Study ID	
2. Date form completed (dd/mm/yy)	
3. Primary author	
4. Name of reviewer	
5. Study title	
6. Year of publication	
7. Journal	
8. Country	
9. Study funding source	
10. Conflict of interest (reviewer)	<input type="checkbox"/> Yes <input type="checkbox"/> No

Study Eligibility

<i>Review of inclusion criteria</i>					
Study characteristics	Eligibility criteria	Eligibility criteria met?			Location in text or source (pg/fig/table)
		Yes	No	Unclear	
1. Population	Women who experienced childbirth within the scope of the specific study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Intervention	Access to skilled care with SBA or institutional deliveries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Comparison	Utilization of non-SBA birth attendants or traditional birth attendants at the time of delivery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Outcome	Evaluation of inequity in access to SBA at the time of childbirth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Study design	All observational quantitative studies on human subjects (including but not limited to prospective and retrospective cohort studies, cross-sectional studies, mix-methods studies).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Context	All countries with health facility and/or community-based services offering childbirth care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Results	Quantitative results of the association between potential determinants and access to SBA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Decision	<input type="checkbox"/> Include <input type="checkbox"/> Exclude				
9. Reason for exclusion					
Notes:					

DO NOT PROCEED IF STUDY IS EXCLUDED FROM THIS REVIEW

Methods

<i>Study characteristics</i>	
10. Aim of study	
11. Study design	<input type="checkbox"/> cross-sectional <input type="checkbox"/> cohort <input type="checkbox"/> mixed-methods <input type="checkbox"/> other: _____
12. Unit of allocation (part/person/group)	
13. Start date (dd/mm/yy)	
14. End date (dd/mm/yy)	
15. Duration of participation (from recruitment to last follow up)	
16. Ethics approval obtained?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not needed
Notes:	

<i>Population and setting</i>	
17. Population description (from which study participants are drawn)	
18. Setting (including location and social context)	
19. Specific geographic region	
20. Inclusion criteria	
21. Exclusion criteria	
22. Method(s) of participant recruitment	
23. Informed consent?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not needed

24. Participants (n)	_____
25. Subgroups (n)	_____ <i>SBA/institutional delivery</i>
	_____ <i>TAB or other non-SBA birth attendant delivery</i>
	_____ <i>Non-institutional delivery</i>
	_____ <i>Other</i>
Notes:	

Intervention

<i>Attendants at birth</i>	
26. SBA cadre included (check all correct answers)	<input type="checkbox"/> nurse <input type="checkbox"/> nurse-midwife <input type="checkbox"/> clinical officer/physician assistant <input type="checkbox"/> doctor <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
27. Non-SBA cadre included (check all correct answers)	<input type="checkbox"/> traditional birth attendant <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
28. Facility included (check all correct answers)	<input type="checkbox"/> birth centre <input type="checkbox"/> health centre <input type="checkbox"/> district/local hospital <input type="checkbox"/> referral/tertiary hospital <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
Notes:	

Outcomes

Equity/inequity and Results	
29. Primary outcome	
30. Participant determinants included ¹ (check all applicable)	<input type="checkbox"/> Place of residence: <i>Definition/stratification:</i> <ul style="list-style-type: none"> <input type="checkbox"/> Urban/rural/humanitarian <input type="checkbox"/> Geographic distinction <input type="checkbox"/> Transportation access <input type="checkbox"/> Road access <input type="checkbox"/> Race/Ethnicity/culture/language: <i>Definition/stratification:</i> <input type="checkbox"/> Occupation: <i>Definition/stratification:</i> <p><u>Gender:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Employment in non-agricultural sector <input type="checkbox"/> Children <15 years old working <input type="checkbox"/> Gender/Sex: <i>Definition/stratification:</i> <p><u>Gender:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Intimate partner violence (recent/ever)

¹ Adapted from the Progress-Plus framework; O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, et al. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol.* 2014;67(1):56-64.

	<p><input type="checkbox"/> Power differential</p> <ul style="list-style-type: none"> <input type="checkbox"/> Acceptability of suggesting condom use, refusing sex <input type="checkbox"/> Age difference of sex partner <input type="checkbox"/> Decision making about own health <p><input type="checkbox"/> Marriage/union</p> <ul style="list-style-type: none"> <input type="checkbox"/> choice of spouse <input type="checkbox"/> age < 15 years old / < 18 years old <p><u>Sexual health:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Sex before age 15 <input type="checkbox"/> History of sexual violence (recent/ever) and or by age 18 years <input type="checkbox"/> History of female genital cutting <p><u>Reproductive/maternal health:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Parity/grand-multiparity <input type="checkbox"/> Adolescent pregnancy <input type="checkbox"/> Obstetrical history <ul style="list-style-type: none"> <input type="checkbox"/> self – complications/adverse outcome <input type="checkbox"/> other – complications/adverse outcome <input type="checkbox"/> Four or more antenatal visits <input type="checkbox"/> Early postnatal/postpartum care (within 2 days) <input type="checkbox"/> Uterotonic immediately after birth (facility birth) <input type="checkbox"/> Contraception use <p><input type="checkbox"/> Religion:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Education:</p> <p><i>Definition/stratification:</i></p>
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	<p><u>Gender:</u></p> <p><input type="checkbox"/> Primary/secondary/tertiary education</p> <p><input type="checkbox"/> Literacy</p> <p><input type="checkbox"/> Socioeconomic status:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Access to safely managed sanitation services (e.g. hand-washing with water and soap)</p> <p><input type="checkbox"/> Children with stunting < 5 years of age</p> <p><input type="checkbox"/> Primary reliance on clean fuels and technology</p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Ownership (goods/land/bank account)</p> <p><input type="checkbox"/> Technology use (mobile phone/internet/media)</p> <p><input type="checkbox"/> Social capital:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Personal characteristics that attract discrimination:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Young/old age</p> <p><input type="checkbox"/> Orphan</p> <p><input type="checkbox"/> Sex worker</p> <p><input type="checkbox"/> Features of relationships:</p> <p><i>Definition/stratification:</i></p>
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	<p><u>Gender:</u></p> <p><input type="checkbox"/> Single/divorced/widowed</p> <p><input type="checkbox"/> Husband's characteristics (e.g. education, etc.)</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Time-dependent relationships:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Pregnant/postpartum/breastfeeding</p> <p><input type="checkbox"/> Humanitarian setting (e.g. refugee, internally displaced person)</p> <p><input type="checkbox"/> Political instability</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p>
<p>31. Systematic determinants included (<i>check all applicable</i>)</p>	<p><input type="checkbox"/> Maternal mortality ratio</p> <p><input type="checkbox"/> Maternal cause of death (based on ICD-MM coding)</p> <p><input type="checkbox"/> Maternal death registration</p> <p><input type="checkbox"/> Under-5 mortality rate</p> <p><input type="checkbox"/> Neonatal mortality rate</p> <p><input type="checkbox"/> Proportion of children < 5 years old with registered birth</p>

	<input type="checkbox"/> Stillbirth rate <input type="checkbox"/> C-section rate <input type="checkbox"/> Availability of functional Emergency Obstetric Care facilities <input type="checkbox"/> Adolescent mortality rate <input type="checkbox"/> Out-of-pocket as a percentage of total health expenditure <input type="checkbox"/> Current country health expenditure per capita <input type="checkbox"/> Presence of laws/regulations that guarantee SRH care
<p>32. Participant determinants that were statistically significant (check all correct answers)</p>	<input type="checkbox"/> Place of residence: <i>Definition/stratification:</i> <input type="checkbox"/> Urban/rural/humanitarian <input type="checkbox"/> Geographic distinction <input type="checkbox"/> Transportation access <input type="checkbox"/> Road access <input type="checkbox"/> Race/Ethnicity/culture/language: <i>Definition/stratification:</i> <input type="checkbox"/> Occupation: <i>Definition/stratification:</i> <u>Gender:</u> <input type="checkbox"/> Employment in non-agricultural sector <input type="checkbox"/> Children <15 years old working <input type="checkbox"/> Gender/Sex: <i>Definition/stratification:</i>

	<p><u>Gender:</u></p> <p><input type="checkbox"/> Intimate partner violence (recent/ever)</p> <p><input type="checkbox"/> Power differential</p> <p style="padding-left: 40px;"><input type="checkbox"/> Acceptability of suggesting condom use, refusing sex</p> <p style="padding-left: 40px;"><input type="checkbox"/> Age difference of sex partner</p> <p style="padding-left: 40px;"><input type="checkbox"/> Decision making about own health</p> <p><input type="checkbox"/> Marriage/union</p> <p style="padding-left: 40px;"><input type="checkbox"/> choice of spouse</p> <p style="padding-left: 40px;"><input type="checkbox"/> age < 15 years old / < 18 years old</p> <p><u>Sexual health:</u></p> <p><input type="checkbox"/> Sex before age 15</p> <p><input type="checkbox"/> History of sexual violence (recent/ever) and or by age 18 years</p> <p><input type="checkbox"/> History of female genital cutting</p> <p><u>Reproductive/maternal health:</u></p> <p><input type="checkbox"/> Parity/grand-multiparity</p> <p><input type="checkbox"/> Adolescent pregnancy</p> <p><input type="checkbox"/> Obstetrical history</p> <p style="padding-left: 40px;"><input type="checkbox"/> self – complications/adverse outcome</p> <p style="padding-left: 40px;"><input type="checkbox"/> other – complications/adverse outcome</p> <p><input type="checkbox"/> Four or more antenatal visits</p> <p><input type="checkbox"/> Early postnatal/postpartum care (within 2 days)</p> <p><input type="checkbox"/> Uterotonic immediately after birth (facility birth)</p> <p><input type="checkbox"/> Contraception use</p> <p><input type="checkbox"/> Religion:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Education:</p>
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	<p><i>Definition/stratification:</i></p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Primary/secondary/tertiary education</p> <p><input type="checkbox"/> Literacy</p> <p><input type="checkbox"/> Socioeconomic status:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Access to safely managed sanitation services (e.g. hand-washing with water and soap)</p> <p><input type="checkbox"/> Children with stunting < 5 years of age</p> <p><input type="checkbox"/> Primary reliance on clean fuels and technology</p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Ownership (goods/land/bank account)</p> <p><input type="checkbox"/> Technology use (mobile phone/internet/media)</p> <p><input type="checkbox"/> Social capital:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Personal characteristics that attract discrimination:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Young/old age</p> <p><input type="checkbox"/> Orphan</p> <p><input type="checkbox"/> Sex worker</p>
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	<p><input type="checkbox"/> Features of relationships:</p> <p><i>Definition/stratification:</i></p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Single/divorced/widowed</p> <p><input type="checkbox"/> Husband’s characteristics (e.g. education, etc.)</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Time-dependent relationships:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Pregnant/postpartum/breastfeeding</p> <p><input type="checkbox"/> Humanitarian setting (e.g. refugee, internally displaced person)</p> <p><input type="checkbox"/> Political instability</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p>
<p>33. Systematic determinants that were statistically significant (<i>check all correct answers</i>)</p>	<p><input type="checkbox"/> Maternal mortality ratio</p> <p><input type="checkbox"/> Maternal cause of death (based on ICD-MM coding)</p> <p><input type="checkbox"/> Maternal death registration</p> <p><input type="checkbox"/> Under-5 mortality rate</p> <p><input type="checkbox"/> Neonatal mortality rate</p>

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	<input type="checkbox"/> Proportion of children < 5 years old with registered birth <input type="checkbox"/> Stillbirth rate <input type="checkbox"/> C-section rate <input type="checkbox"/> Availability of functional Emergency Obstetric Care facilities <input type="checkbox"/> Adolescent mortality rate <input type="checkbox"/> Out-of-pocket as a percentage of total health expenditure <input type="checkbox"/> Current country health expenditure per capita <input type="checkbox"/> Presence of laws/regulations that guarantee SRH care
<p>34. Confounding factors/effect modifiers:</p>	
<p>35. Results (specify, e.g. OR, RR, IRR)</p>	

36. Limitations:	
37. Scientific quality	<input type="checkbox"/> high <input type="checkbox"/> moderate <input type="checkbox"/> low
38. Conclusions of authors	
<p>Notes:</p>	

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BMJ Open

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

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2017-019922.R1
Article Type:	Protocol
Date Submitted by the Author:	31-Jan-2018
Complete List of Authors:	Kachikis, Alisa B; University of Washington, Obstetrics and Gynecology Moller, Ann-Beth; World Health Organization, Department of Reproductive Health and Research Allen, Tomas; World Health Organization , Library and Information Networks for Knowledge Say, Lale; World Health Organization, Reproductive Health and Research Chou , D ; World Health Organization,
Primary Subject Heading:	Global health
Secondary Subject Heading:	Obstetrics and gynaecology, Health policy
Keywords:	skilled birth attendant, maternal mortality, childbirth, health equity, health determinants, PRISMA-E

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3 1 **Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic**
4 2 **review**
5 3

6 4 Authors

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31 29
32 30
33 31
34 32 **Keywords:** skilled birth attendant, maternal mortality, childbirth, health equity, inequity, health
35 33 determinants, health policy, health access, PRISMA-E
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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 PRISMA-E 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, Cochrane Database of Systematic Reviews, POPLINE, the 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.

Trial registration:

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

Word Count: 300

STRENGTHS AND LIMITATIONS OF THIS STUDY

- This systematic review aims to evaluate equity in intrapartum care by skilled birth attendants 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 PRISMA-E framework.
- This review will summarize 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.

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 [1, 2].

Despite some progress during the Millennium Development Goals era, preventable maternal mortality especially in low- and middle-income countries (LMIC) has remained high [3, 4]. 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 [5].

Factors associated with inequity across all countries include sex, age, economic status, education, and place of residence. In specific regions or countries, migrant status, race, ethnicity, caste, religion can also be sources of inequity [2]. SDG 3.1 sets the target to reduce 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 (%)” [1, 6, 7]. The SBA is defined in the joint statement by the World Health Organization (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” [8]. 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. Skilled birth attendants 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 [9-12]. Nevertheless, around 50% of low- and middle- income countries report that at least 80% rate of births are attended by SBAs. This number varies across countries [12]. 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 [12]. This disparity is especially seen in LMICs where women in disadvantaged groups have SBA coverage rates of less than 50% [2].

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 [13, 14]. In addition, these health differences are systematic and not occasional or sporadic [14]. 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.

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3 142
4 143 **Study objectives and research questions**
5 144

7 145 The objectives of this study are to:

- 8 146 1. Conduct a systematic review of literature on intrapartum care by a SBA at childbirth
9 147 and evaluate the extent of inequity that exists globally.
10 148 2. Identify determinants of inequity globally in intrapartum care by SBAs at the time of
11 149 childbirth across regions and countries.
12 150

14 151 Our review seeks to answer the following research questions: 1) To what extent does inequality
15 152 in intrapartum care by SBA exist globally? 2) What are determinants or themes of inequity that
16 153 emerge globally and across countries and regions?
17 154

19 155 **METHODS AND ANALYSIS**
20 156

21 157 **Study registration**

23 158 This review protocol was registered with the Prospero database (registration number:
24 159 CRD42017069021; date of registration: 26/06/2017).
25 160
26 161

28 162 **Study Design**
29 163

30 164 The study method for this systematic review was developed based on the Preferred Reporting
31 165 Items for Systematic Reviews and Meta-Analyses with equity extension (PRISMA-E 2012)
32 166 guidelines, the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols
33 167 (PRISMA-P 2015), and The Cochrane Collaboration (*Cochrane Handbook for Systematic Reviews*)
34 168 [15-19]. Please see Supplementary File 1 for the PRISMA-E 2012 Checklist and Supplementary
35 169 File 2 for the PRISMA-P 2015 Checklist. The literature search will follow the four-step flow
36 170 diagram outline in the PRISMA statement [17].
37 171
38 172

40 172 **Study Eligibility Criteria**
41 173

42 174 **Inclusion Criteria**
43 175

45 176 Our research objectives will be assessed and studies selected based on criteria presented in
46 177 Table 1.
47 178
48 179

50 **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 SBA or institutional deliveries.

Comparison	Utilization of non- SBA birth attendants 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 1/1/2004 to the time of this study.

180

181

182 Population

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

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188

189 Intervention/Comparison

190

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

203

204

205 Outcome

206

207 We will include studies evaluating inequity in intrapartum care by an SBA. Alternative search
208 terms include but are not limited to disparities, inequality and barriers to care. Given the moral
209 imperative of the word equity, additional search terms such as social justice will also be utilized
210 [20]. Based on prior reviews of inequity in maternal care, determinants of inequity are
211 hypothesized to include demographic, socioeconomic, reproductive and geographic factors [12,
212 21-23]. For the purposes of this review, studies will be included if they compare at least two
213 populations by one or more indicators. PROGRESS Plus, an established framework for socio-
214 demographic factors that may contribute to inequity in health, is an acronym that stands for
215 place of residence, race/ethnicity/culture and language, occupation, gender/sex, religion,
216 education, socioeconomic status, social capital while 'Plus' adds three additional context-
217 specific factors including personal characteristics that attract discrimination, features of
218 relationships, and time-dependent relationships [24-26]. The PROGRESS Plus framework has
219 been adapted for the purposes of this project to include indicators specific to gender, sexual
220 and reproductive health, including key indicators of the Global strategy for Women's, Children's
221 and Adolescents' Health (2016-2030), and Strategies towards Ending Preventable Maternal
222 Mortality (EPM) core maternal health indicators [27-34].

225 Study design

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

232 Context

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

242 Exclusion Criteria

244 Articles will not be eligible for inclusion if:

- 245 1. There are no details regarding determinants that may indicate inequity (e.g.
246 demographic factors, socioeconomic factors, reproductive history, geography, etc.)
- 247 2. Only qualitative data is collected
- 248 3. They are systematic reviews

- 1
2
3 249 4. The sample selection and size does not provide results generalizable to the general
4 250 population or a significant subgroup of the population (e.g. a country's second-level
5 251 administrative division).
6
7 252
8 253

9 254 **Search strategy**

10 255
11 256 In order to answer our research questions, a search for all literature based on related search
12 257 terms will be conducted using the following online bibliographic databases: PubMed/MEDLINE,
13 258 CINAHL Complete, POPLINE, the Cochrane Database of Systematic Reviews and the WHO Global
14 259 Index Medicus (GIM). In addition, a manual search of bibliographic references of retrieved
15 260 studies and systematic reviews as well as gray literature of international organizations and
16 261 websites relevant to the field of maternal and child health will be conducted, including, but not
17 262 limited, to National Institute for Health and Clinical Excellence (NICE); National Institute of
18 263 Health (NIH); United Nations Children's Fund (UNICEF); United Nations Population Fund
19 264 (UNFPA); WHO. The search will be inclusive of all languages and will be conducted with specific
20 265 search terms related to 1) Childbirth; 2) SBA, non-SBA, facility and non-facility deliveries; 3)
21 266 Equity; 4) Utilization of care or access. Please see Supplementary File 3 for the detailed search
22 267 strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews.
23 268
24 269

25 270 **Study Selection**

26 271
27 272 Following a comprehensive and detailed literature search, all duplicate articles will be removed.
28 273 A team of two (AK/ABM) will screen titles and abstracts of retrieved studies for relevance and
29 274 eligibility for inclusion. Disagreements will be resolved by an additional reviewer (DC). All study
30 275 abstracts selected for inclusion will then undergo an independent full-text review with similar
31 276 methodology. All chosen full-text articles will then be evaluated again for inclusion based on
32 277 inclusion and exclusion criteria by all co-authors and studies that do not meet the criteria will
33 278 be eliminated from the study. Disagreements will be resolved by mutual agreement. Full-text
34 279 articles in languages other than English will be translated.
35 280
36 281

37 282 **Data Extraction**

38 283
39 284 A standardized data collection form was used as a template for development of a data
40 285 extraction form for this review [36]. Study details collected include but are not limited to study
41 286 characteristics (country, year and journal of publication, study design and dates), population
42 287 and setting (population description, setting description, inclusion/exclusion criteria, sample
43 288 size), intervention (SBA and non-SBA cadres, facility description), equity measures (primary
44 289 outcome, determinants, results, study quality and conclusions). During the review additional
45 290 fields on the data extraction form will allow for flexibility for additional data points or
46 291 determinants as needed. Two reviewers will independently extract data from the selected
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292 studies and discrepancies will be discussed with a third reviewer. Please see Supplementary File
293 4 for the data extraction form.

294

295

296 **Scientific Quality Assessment**

297

298 The risk for study bias will be assessed based on STROBE statement criteria for observational
299 studies [37, 38]. Study methodology will be classified as strong, moderate, or weak. Two
300 reviewers (AK/ABM) will independently evaluate each study and will resolve conflicts by
301 reviewing the articles together. Degree of study bias will be reported in the results.

302

303 **Analysis plan**

304

305 We will evaluate quantitative measures of relations between possible determinants of inequity
306 and intrapartum care by SBA or institutional delivery. Results reported in published studies may
307 include proportions, means, percentages, rates or other quantifiable differences between two
308 or more groups. Methodology for analysing health disparities will be followed according to
309 published guidelines [39, 40]. All research studies reporting secondary analyses of nationally-
310 representative household surveys will be reviewed and only studies reporting the most recent
311 survey from an individual country will be considered. Sub-analyses may include evaluation of
312 inequity based on different measures of intrapartum care by SBA intrapartum care or
313 institutional deliveries. Results will be stratified based on WHO, World Bank Group income and
314 SDG regional groupings [41-43]. Data will be presented in tables by study, country, region
315 and/or theme.

316

317

318

319 **DISSEMINATION AND ETHICS**

320

321 This systematic review will provide information regarding equity and determinants of inequity
322 in intrapartum care by SBAs globally. It will inform the development of indicators for monitoring
323 and evaluation of inequity in intrapartum care by SBAs globally, which is pertinent given the
324 higher level of inequality reported with this maternal health intervention [12]. This work is also
325 especially relevant given the current effort to revise the definition for SBA and measuring tools
326 by collaborating international and professional organizations. This work will also guide
327 establishment of global policy on health equity specifically related to intrapartum care by SBA
328 and maternal mortality. The provision and presence of SBAs and utilization and access to their
329 services is essential in decreasing maternal and newborn mortality globally.

330

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

335

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3 336
4 337 **LIST OF ABBREVIATIONS:**

5 338
6
7 339 FIGO: International Federation of Gynaecology and Obstetrics; EPMM: Strategies towards
8 340 Ending Preventable Maternal Mortality; GIM: WHO Global Index Medicus; ICM: International
9 341 Confederation of Midwives; LMICs: Low- and middle-income countries; MeSH: Medical subject
10 342 headings; MDGs: Millennium Development Goals; NICE: National Institute for Health and
11 343 Clinical Excellence; NIH: National Institute of Health; PRISMA: Preferred reporting items for
12 344 systematic reviews and meta-analyses; PRISMA-E: Preferred reporting items for systematic
13 345 reviews and meta-analyses with equity extension; SBA: Skilled birth attendant; SDGs:
14 346 Sustainable Development Goals; STROBE: Strengthening the reporting of observational studies
15 347 in epidemiology; UNICEF: United Nations Children's Fund; UNFPA: United Nations Population
16 348 Fund; WHO: World Health Organization.

17 349
18 350
19 351 **AUTHORS CONTRIBUTIONS**

20 352 DC is the guarantor of this review. AK, ABM, DC and LS contributed to the initial conception and
21 353 design of this systematic review. AK, ABM, TA and DC developed the search strategies. AK
22 354 drafted the proposal manuscript. All authors participated in critically revising the protocol for
23 355 intellectual content. All authors read and approved the final manuscript.

24 356
25 357
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35 367
36 368
37 369
38 370 **COMPETING INTERESTS STATEMENT**

39 371
40 372 None declared. The authors alone are responsible for the views expressed in this article and
41 373 they do not necessarily represent the views, decisions or policies of the funding bodies or
42 374 institutions with which they are affiliated.

43 375
44 376
45 377 **DATA SHARING STATEMENT**

46 378

379 All data generated or analyzed during this study will be included in the published article and its
380 supplementary information files.

381

382

383 **SUPPLEMENTARY FILES**

384

385 Supplementary File 1:

- 386 - File name: SUPPLEMENTARY FILE 1
- 387 - File format: .pdf
- 388 - Title of data: PRISMA-E 2012 Checklist - Equity and intrapartum care by skilled birth
389 attendant globally: protocol for a systematic review
- 390 - Description of data: PRISMA-E 2012 Checklist for this systematic literature review
391 proposal.

392

393 Supplementary File 2:

- 394 - File name: SUPPLEMENTARY FILE 2
- 395 - File format: .pdf
- 396 - Title of data: PRISMA-P (Preferred Reporting Items for Systematic review and Meta-
397 Analysis Protocols) 2015 checklist - Equity and intrapartum care by skilled birth
398 attendant globally: protocol for a systematic review
- 399 - Description of data: PRISMA-P 2015 Checklist for this systematic literature review
400 proposal.

401

402 Supplementary File 3:

- 403 - File name: SUPPLEMENTARY FILE 3
- 404 - File format: .pdf
- 405 - Title of data: Equity and intrapartum care by skilled birth attendant globally: search
406 strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews
- 407 - Description of data: Search strategies for Pubmed/Medline and the Cochrane Database
408 of Systematic Reviews.

409

410 Supplementary File 4:

- 411 - File name: SUPPLEMENTARY FILE 4
- 412 - File format: .pdf
- 413 - Title of data: Equity and intrapartum care by skilled birth attendant globally: data
414 extraction form
- 415 - Description of data: Data extraction form for this systematic review.

416

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42 538

PRISMA-E 2012 Checklist - Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

Checklist of Items for Reporting Equity-Focused Systematic Reviews				
Section	Item	Standard PRISMA Item	Extension for Equity-Focused Reviews	Pg #
Title				
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Identify equity as a focus of the review, if relevant, using the term equity	1
Abstract				
Structured summary	2	2. Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	State research question(s) related to health equity.	5
	2A		Present results of health equity analyses (e.g. subgroup analyses or meta-regression).	Not applicable for protocol
	2B		Describe extent and limits of applicability to disadvantaged populations of interest.	Not applicable for protocol
Introduction				
Rationale	3	Describe the rationale for the review in the context of what is already known.	Describe assumptions about mechanism(s) by which the intervention is assumed to have an impact on health equity.	4
	3A		Provide the logic model/analytical framework, if done, to show the pathways through which the intervention is assumed to affect health equity and how it was developed.	--
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Describe how disadvantage was defined if used as criterion in the review (e.g. for selecting studies, conducting analyses or judging applicability).	5-7
	4A		State the research questions being addressed with reference to health equity	5
Methods				
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.		5
Eligibility criteria	6	6. Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	Describe the rationale for including particular study design related to equity research questions.	5-7
	6A		Describe the rationale for including the outcomes - e.g. how these are relevant to reducing inequity.	6-7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Describe information sources (e.g. health, non-health, and grey literature sources) that were searched that are of specific relevance to address the equity questions of the review.	7-8
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Describe the broad search strategy and terms used to address equity questions of the review.	See Supplementary File 2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).		5-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.		8 See Supplementary File 3
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	List and define data items related to equity, where such data were sought (e.g. using PROGRESS-Plus or other criteria, context).	6-8 See Supplementary File 3
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.		8 See Supplementary File 3
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).		9 See Supplementary File 2

PRISMA-E 2012 Checklist - Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	Describe methods of synthesizing findings on health inequities (e.g. presenting both relative and absolute differences between groups).	8-9 See Supplementary File 3
Risk of bias across studies	15	15. Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).		8 See Supplementary File 3
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	Describe methods of additional synthesis approaches related to equity questions, if done, indicating which were pre-specified	9
Results				
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.		Not applicable (protocol)
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Present the population characteristics that relate to the equity questions across the relevant PROGRESS-Plus or other factors of interest.	Not applicable (protocol)
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).		Not applicable (protocol)
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.		Not applicable (protocol)
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	Present the results of synthesizing findings on inequities (see 14).	Not applicable (protocol)
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).		Not applicable (protocol)
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	Give the results of additional synthesis approaches related to equity objectives, if done, (see 16).	Not applicable (protocol)
Discussion				
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).		Not applicable (protocol)
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).		Not applicable (protocol)
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	Present extent and limits of applicability to disadvantaged populations of interest and describe the evidence and logic underlying those judgments.	Not applicable (protocol)
	26A		Provide implications for research, practice or policy related to equity where relevant (e.g. types of research needed to address unanswered questions).	Not applicable (protocol)
Funding				
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.		10

From: Source: Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, Waters E, White H, and the PRISMA-Equity Bellagio Group. (2012) [PRISMA-Equity 2012 Extension: Reporting Guidelines for Systematic Reviews with a Focus on Health Equity](https://doi.org/10.1371/journal.pmed.1001333). PLoS Med 9(10): e1001333. doi:10.1371/journal.pmed.1001333

For more information: <http://equity.cochrane.org/equity-extension-prisma>

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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol* -- Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

Section and topic	Item No	Checklist item	Page number
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	N/A
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	
Authors:			5
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	1
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	N/A
Support:			
Sources	5a	Indicate sources of financial or other support for the review	10
Sponsor	5b	Provide name for the review funder and/or sponsor	10
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	1, 10
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	5-7
METHODS			
Eligibility	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years	5-7

criteria		considered, language, publication status) to be used as criteria for eligibility for the review	
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	7-8
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	See Supplementary File 2
Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	8
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	8
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	8 See Supplementary File 3
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	See Supplementary File 3
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	9 See Supplementary File 3
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	8 See Supplementary File 3
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	N/A (not a meta-analysis)
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall's τ)	N/A (not a meta-analysis)
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	9
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	8
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	N/A

***It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*. 2015 Jan 2;349(jan02 1):g7647.

For peer review only

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SUPPLEMENTARY FILE 3:**Equity and intrapartum care by skilled birth attendant globally: search strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews****1. Pubmed / MEDLINE search**

#	Section	Search Terms
1	Childbirth	<p>"parturition"[MeSH] OR "Delivery, Obstetric"[MeSH] OR "Perinatal Care"[MeSH] OR "Pregnancy Outcome"[MeSH] OR "Pregnancy Complications"[MeSH] OR "Labor, Obstetric"[MeSH] OR "Obstetrics"[MeSH] OR "Postpartum Period"[MeSH] OR "Maternal Health Services"[MeSH] OR "Women's Health Services"[Mesh] OR "Reproductive Health Services"[Mesh] OR "Pregnant Women"[Mesh] OR "Pregnancy"[Mesh] OR "Maternal Death"[Mesh] OR "Maternal-Fetal Relations"[Mesh] OR "Maternal Exposure"[Mesh] OR "Maternal Mortality"[Mesh] OR "Maternal Behavior"[Mesh] OR "maternal behaviour"[MeSH] OR "pregnant"[TIAB] OR "pregnancy"[TIAB] OR "Maternity"[TIAB] OR "perinatal"[TIAB] OR "peri-natal"[TIAB] OR "peri natal"[TIAB] OR "Postnatal"[TIAB] OR "post natal"[TIAB] OR "post-natal"[TIAB] OR "ante natal"[TIAB] OR "antenatal"[TIAB] OR "ante-natal"[TIAB] OR "Postpartum"[TIAB] OR "Post partum"[TIAB] OR "Post-partum"[TIAB] OR "puerperium"[TIAB] OR "childbirth care"[TIAB] OR "childbirth"[TIAB] OR "birth"[TIAB] OR "intrapartum"[TIAB] OR (labour[TI] AND delivery[TI]) OR (labor[TI] AND delivery[TI]) OR "maternal health"[TIAB] OR "maternal and child health"[TIAB] OR "maternity care"[TIAB] OR "c-section"[TIAB] OR "caesarean"[TIAB] OR "cesarean"[TIAB] OR "caesarean section"[TIAB] OR "cesarean section"[TIAB] OR "obstetric surgery"[TIAB] OR "signal functions"[TIAB] OR "obstetric interventions"[TIAB] OR "emergency obstetric care"[TIAB] OR "emergency obstetric"[TIAB] OR "emergency obstetrics"[TIAB] OR "EmOC"[TIAB] OR "emergency newborn care"[TIAB] OR "essential obstetric care"[TIAB] OR "vaginal delivery"[TIAB] or "normal delivery"[TIAB]</p>
2	Cadre/Facility Name	<p>"Health Personnel"[MeSH] OR Midwifery[MeSH] OR Obstetric Nursing[MeSH] OR "Professional Practice"[MeSH] OR "Emergency Responders"[MeSH] OR "Health Occupations"[Mesh] OR "Allied Health Occupations"[Mesh] OR "Students, Health Occupations"[Mesh] OR "Schools, Health Occupations"[Mesh] OR "Health Manpower"[Mesh] OR "health auxiliary"[TIAB] OR "health care manpower"[TIAB] OR "hospital personnel"[TIAB] OR "medical personnel"[TIAB] OR "health care personnel"[TIAB] OR "nursing home personnel"[TIAB] OR "paramedical personnel"[TIAB] OR "Health care workers"[TIAB] OR "Health care worker"[TIAB] OR "Medical Staff"[TIAB] OR "medical personnel"[TIAB] OR "General Practitioners"[TIAB] OR "General Practitioner"[TIAB] OR Caregiver*[TIAB] OR Nurses[TIAB] OR Nurse[TIAB] OR Midwife[TIAB] OR midwives[TIAB] OR midwife[TIAB] OR "Nursing Staff"[TIAB] OR "nurse midwife"[TIAB] OR "nurse midwives"[TIAB] OR "nurse-midwife"[TIAB] OR "nurse-midwives"[TIAB] OR auxiliary[TIAB] OR "Medical students"[TIAB] OR "Nursing students"[TIAB] OR (health*[TI] AND worker*[TI]) OR "Community Health Workers"[TIAB] OR "Community Health Worker"[TIAB] OR "Dental Staff"[TIAB] OR doctor[TIAB] OR doctors[TIAB] OR obstetrician[TIAB] OR obstetricians[TIAB] OR "skilled health</p>

		<p>provider"[TIAB] OR "skilled health providers"[TIAB] OR "skilled attendant"[TIAB] OR "skilled attendants"[TIAB] OR "skilled birth attendant"[TIAB] OR "skilled birth attendants"[TIAB] OR "skilled health"[TIAB] OR "skilled assistance"[TIAB] "skilled assistant"[TIAB] OR "skilled assistants"[TIAB] OR "skilled care"[TIAB] OR "skilled manpower"[TIAB] OR "skilled delivery"[TIAB] OR "skilled staff"[TIAB] OR "skilled person"[TIAB] OR "skilled birth personnel"[TIAB] OR "skilled health workers"[TIAB] OR "skilled health care worker"[TIAB] OR "skilled health care workers"[TIAB] OR "assistance at delivery"[TIAB] OR "assistance at birth"[TIAB] OR "attendant"[TIAB] OR "SAB"[TIAB] OR "SBA"[TIAB] or cadre[TIAB]or cadres[TIAB] OR "health care worker"[TIAB] OR "health care person"[TIAB] OR "health person"[TIAB] OR "health care provider"[TIAB] OR "care provider"[TIAB] OR "care providers"[TIAB] OR "health provider"[TIAB] OR "health providers"[TIAB] OR "health aide"[TIAB] OR "health aides"[TIAB] OR "traditional birth attendant"[TIAB] OR "birth attendant"[TIAB] OR "community birth attendant"[TIAB] OR "health assistant"[TIAB] OR "feldsher"[TIAB] OR "clinical officer"[TIAB] OR "clinical officers"[TIAB] OR "medical officer"[TIAB] OR "medical officers"[TIAB] OR "assistant medical officers"[TIAB] OR "Mother and Child Health Aides"[TIAB] OR "Mother and Child Health Aide"[TIAB] OR "MCHA"[TIAB] OR "mid-level provider"[TIAB] OR "mid-level cadre"[TIAB] OR "mid-level cadres"[TIAB] OR "mid-level healthcare workers"[TIAB] OR "mid-level health care workers"[TIAB] OR "mid-level health workers"[TIAB] OR "community-based skilled birth attendants"[TIAB] OR "community-based skilled birth attendant"[TIAB] OR "community based skilled birth attendants"[TIAB] OR "community based skilled birth attendant"[TIAB] OR "health visitor"[TIAB] or (health*[TI] AND worker*[TI]) OR "fieldworker"[TIAB] OR "task shifting"[TIAB] OR "nonphysicians"[TIAB] OR "non-physician clinicians"[TIAB] OR "non-physician"[TIAB] OR "clinician"[TIAB] OR "clinicians"[TIAB] OR "physicians"[MeSH] OR "ambulatory care facilities"[MeSH] OR "hospitals"[MeSH] OR "rural health services"[MeSH] OR "community health services"[MeSH] OR "hospitalization"[MeSH] OR "hospitalisation"[MeSH] OR "home birth"[TIAB] or "home births"[TIAB] OR "health facilities"[MeSH] OR "home childbirth"[MeSH] OR "maternal health services"[MeSH] OR "emergency medical services"[MeSH] OR "hospitals public"[MeSH] OR "community health services"[MeSH] OR "birthing centers"[MeSH] OR "birthing centres"[MeSH] OR "delivery of health care"[MeSH] OR "delivery rooms"[MeSH] OR "emergency service hospital"[MeSH] OR "hospitals teaching"[MeSH] OR "medical staff hospital"[MeSH] OR "hospitals university"[MeSH] OR "outpatient clinics hospital"[MeSH] OR "hospitals public"[MeSH] OR "personnel hospital"[MeSH] OR "hospitals general"[MeSH] OR "nursing service hospital"[MeSH] OR "academic medical centers"[MeSH] OR academic medical centres"[MeSH] OR "hospital unit"[MeSH] OR "community health service"[MeSH] OR "doulas"[MeSH Terms] OR "doulas"[All Fields] OR "doula"[All Fields]</p>
3	Equity	<p>"Health Status Disparities"[Mesh] OR "Health Equity"[Mesh] OR "Healthcare Disparities"[Mesh] OR "Social Justice"[Mesh] OR "Social responsibility"[Mesh] OR "social values"[Mesh] OR "Human Rights"[Mesh] OR "Socioeconomic Factors"[Mesh] OR "Health Status Indicators"[Mesh] OR "Maternal Welfare"[Mesh] OR "Human Rights"[Mesh] OR "Health Policy"[Mesh]) OR "Health Status"[Mesh] OR "Social Determinants of Health"[Mesh] OR "Health care reform"[MeSH] OR "Quality of health care"[Mesh] OR "Public health"[Mesh] OR</p>

		<p>“Global health”[Mesh] OR “Sex factors”[Mesh] OR “sex distribution”[Mesh] OR “Public policy”[Mesh] OR “Women s rights”[Mesh] OR “economics”[Mesh] OR “age factors”[Mesh] OR “age distribution”[Mesh] OR “adolescent”[Mesh] OR “Young adult”[Mesh] OR “policy making”[Mesh] OR “resource allocation”[Mesh] OR “financing government”[Mesh] OR “insurance”[Mesh] OR “risk factors”[Mesh] OR “risk assessment”[Mesh] OR “prejudice”[Mesh] OR “mortality”[Mesh] OR “quality of life”[Mesh] OR “medical ethics” OR “decision making”[Mesh] OR moral obligations”[Mesh] OR “social welfare”[Mesh] OR “patient advocacy”[Mesh] OR “cultural diversity”[Mesh] OR “health priorities”[Mesh] OR "socioeconomic factors"[All Fields] OR "inequality"[All Fields] OR "inequalities"[All Fields] OR equity[All Fields] OR inequity[All Fields] OR inequities[All Fields] OR socio-economic[All Fields] OR (“unmet”[All Fields] AND “need”[All Fields]) OR “barrier”[All Fields] OR "income"[MeSH Terms] OR "income"[All Fields] OR "socioeconomics"[All Fields]) OR “geographic”[All Fields] OR “exclusion”[All Fields] OR "poverty"[MeSH Terms] OR "poverty"[All Fields] OR "Poverty Areas"[Mesh] OR "Working Poor"[Mesh] OR "Vulnerable Populations"[Mesh] OR “vulnerability”[All Fields] OR “marginalized”[All Fields] OR “marginalised”[All Fields] OR “vulnerable”[All Fields] OR “marginalization”[All Fields] OR “marginalisation”[All Fields] OR "social distance"[MeSH Terms] OR "social distance"[All Fields] OR "social exclusion"[All Fields]) OR (social[All Fields] AND stratification[All Fields]) OR gradient[All Fields] OR determinant[All Fields] OR predictor[All Fields] OR propension[All Fields] OR ("risk factors"[MeSH Terms] OR "risk factors"[All Fields] OR "risk factor"[All Fields]) OR residence[All Fields] OR location[All Fields] OR ("ethnology"[Subheading] OR "ethnology"[All Fields] OR "ethnicity"[All Fields] OR "ethnology"[MeSH Terms] OR "ethnicity"[All Fields] OR "ethnic groups"[MeSH Terms] OR "ethnic groups"[All Fields]) OR ("emigration and immigration"[MeSH Terms] OR ("emigration"[All Fields] AND "immigration"[All Fields]) OR "emigration and immigration"[All Fields] OR “emigrants and immigrants”[Mesh] OR “minority groups”[Mesh] OR “developing countries”[MeSH Terms] OR “social class”[Mesh] OR “health care rationing”[Mesh] OR “insurance care”[Mesh] OR “politics”[Mesh] OR “health expenditures”[Mesh] OR “demography”[Mesh] OR “health care costs”[Mesh] OR “urban population”[Mesh] OR “rural population”[Mesh] OR “universal coverage”[Mesh] OR “health resources”[Mesh] OR “employment”[Mesh] OR “educational status”[Mesh] OR “residence characteristics”[Mesh] OR “time factors”[Mesh] OR “risk assessment”[Mesh] OR “religion and medicine”[Mesh] OR “cultural characteristics”[Mesh] OR “cultural diversity”[Mesh] OR "Poverty"[Mesh]</p>
4	Access/ Provision	<p>"Health Care Quality, Access, and Evaluation"[Mesh] OR "Health Services Accessibility"[Mesh] OR "Health Promotion"[Mesh] OR "Culturally Competent Care"[Mesh] OR "Health Resources/economics"[MeSH Terms] OR "Maternal Health Services/standards"[MAJR]) OR "Maternal Health Services/economics"[MeSH Terms] OR "Quality of Health Care/economics"[MeSH Terms] OR "Quality of Health Care/standards"[MAJR] OR "Maternal Health Services/utilization"[MeSH Terms] OR "Prenatal Care/utilization"[MeSH Terms] OR “Prenatal Care/utilisation”[MeSH] OR "Urban Population/statistics and numerical data"[MAJR] OR "Rural Population/statistics and numerical data"[MAJR] OR "Medically Underserved Area"[MeSH Terms] OR "Prenatal Care/standards"[MAJR] OR "Health Services Needs and Demand"[MeSH Terms] OR “delivery of health</p>

	care"[MeSH Terms] OR "Health services needs and demand"[MeSH Terms] OR "Primary health care"[Mesh] OR "patient acceptance of health care"[Mesh] OR "Health knowledge attitudes practice"[Mesh] OR "health promotion"[Mesh] OR "delivery of health care"[Mesh] OR "health behavior"[Mesh] OR "health behaviour"[MeSH] OR "attitude to health"[Mesh] OR "personal autonomy"[Mesh] OR "attitude of health personnel"[Mesh] OR access[All Fields] OR accessibility[All Fields] OR "utilization"[Subheading] OR "utilisation"[Subheading] OR "utilization"[All Fields] OR "utilisation"[All Fields] OR "use"[All Fields] OR "coverage"[All Fields] OR "health services"[MeSH Terms] OR "access to health care"[All Fields] OR "delivery of health care"[MeSH Terms] OR "health services"[All Fields] OR "health facilities"[All Fields] OR "obstetric delivery"[All Fields] OR "delivery"[All Fields] OR "health care surveys"[Mesh] OR "needs assessment"[Mesh] OR "health care costs"[Mesh] OR "mental health services"[Mesh] OR "mental disorders"[Mesh] OR "health services research"[Mesh] OR "outcome assessment health care"[Mesh] OR "quality assurance health care"[Mesh] OR "rural health services"[Mesh] OR "social support"[Mesh] OR "insurance coverage"[Mesh] OR "community health services"[Mesh] OR "health education"[Mesh]
5	1 AND 2 AND 3 AND 4 AND Filter: Publication date from 2004/01/01 to present.

2. Cochrane Central search

ID	Search	Hits
#1	MeSH descriptor: [Parturition] explode all trees	266
#2	MeSH descriptor: [Delivery, Obstetric] explode all trees	4852
#3	MeSH descriptor: [Pregnancy] explode all trees	5608
#4	MeSH descriptor: [Maternal-Fetal Relations] explode all trees	14
#5	MeSH descriptor: [Maternal Mortality] explode all trees	124
#6	MeSH descriptor: [Maternal Health Services] explode all trees	1994
#7	MeSH descriptor: [Postpartum Period] explode all trees	1349
#8	MeSH descriptor: [Cesarean Section] explode all trees	2839
#9	MeSH descriptor: [Emergency Medical Services] explode all trees	3652
#10	MeSH descriptor: [Perinatal Mortality] explode all trees	45
#11	MeSH descriptor: [Vacuum Extraction, Obstetrical] explode all trees	81
#12	MeSH descriptor: [Obstetrical Forceps] explode all trees	53
#13	MeSH descriptor: [Vaginal Birth after Cesarean] explode all trees	58
#14	MeSH descriptor: [Labor, Obstetric] explode all trees	1945
#15	MeSH descriptor: [Obstetric Labor Complications] explode all trees	2697
#16	MeSH descriptor: [Prenatal Care] explode all trees	1302
#17	MeSH descriptor: [Prenatal Diagnosis] explode all trees	1071
#18	"maternal mortality":ti,ab,kw (Word variations have been searched)	435
#19	delivery:ti,ab,kw (Word variations have been searched)	25934
#20	pregnancy:ti,ab,kw (Word variations have been searched)	33283
#21	"maternal health services":ti,ab,kw (Word variations have been searched)	247
#22	vaginal delivery:ti,ab,kw (Word variations have been searched)	2532
#23	postpartum or prenatal or antenatal or antepartum:ti,ab,kw (Word variations have been searched)	10362
#24	"birth":ti,ab,kw (Word variations have been searched)	16054
#25	obstetrics:ti,ab,kw (Word variations have been searched)	2287

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3	#26	c*sarean section:ti,ab,kw (Word variations have been searched)	6986
4	#27	"emergency obstetric*":ti,ab,kw (Word variations have been searched)	43
5	#28	lab*r:ti,ab,kw (Word variations have been searched)	10228
6	#29	childbirth*:ti,ab,kw (Word variations have been searched)	1739
7	#30	{or #1-#29}	69723
8	#31	MeSH descriptor: [Health Personnel] explode all trees	7620
9	#32	MeSH descriptor: [Community Health Workers] explode all trees	339
10	#33	MeSH descriptor: [Nurses] explode all trees	1158
11	#34	MeSH descriptor: [Allied Health Personnel] explode all trees	978
12	#35	MeSH descriptor: [Midwifery] explode all trees	324
13	#36	MeSH descriptor: [Emergency Responders] explode all trees	251
14	#37	MeSH descriptor: [Allied Health Occupations] explode all trees	1000
15	#38	MeSH descriptor: [Obstetric Nursing] explode all trees	41
16	#39	MeSH descriptor: [Health Occupations] explode all trees	20897
17	#40	MeSH descriptor: [Skilled Nursing Facilities] explode all trees	60
18	#41	MeSH descriptor: [Physicians] explode all trees	1686
19	#42	MeSH descriptor: [Nurse Clinicians] explode all trees	153
20	#43	MeSH descriptor: [Ambulatory Care Facilities] explode all trees	1886
21	#44	MeSH descriptor: [Maternal-Child Health Centers] explode all trees	49
22	#45	MeSH descriptor: [Rural Health Services] explode all trees	336
23	#46	MeSH descriptor: [Community Health Centers] explode all trees	572
24	#47	MeSH descriptor: [Birthing Centers] explode all trees	23
25	#48	MeSH descriptor: [Hospitals] explode all trees	3658
26	#49	nurse* or doctor* or physician* or midwife or midwives:ti,ab,kw (Word variations have been searched)	41259
27			
28	#50	"health worker*":ti,ab,kw (Word variations have been searched)	1215
29	#51	"birth attendant*":ti,ab,kw (Word variations have been searched)	127
30	#52	"skilled attendant*":ti,ab,kw (Word variations have been searched)	5
31	#53	"skilled assistant*":ti,ab,kw (Word variations have been searched)	1
32	#54	obstetrician*:ti,ab,kw (Word variations have been searched)	921
33	#55	practitioner*:ti,ab,kw (Word variations have been searched)	3
34	#56	"clinical officer*":ti,ab,kw (Word variations have been searched)	23
35	#57	birth centre* or birth center*:ti,ab,kw (Word variations have been searched)	2023
36	#58	health centre* or health center*:ti,ab,kw (Word variations have been searched)	19565
37	#59	"health facilit*":ti,ab,kw (Word variations have been searched)	647
38	#60	"health provider*":ti,ab,kw (Word variations have been searched)	253
39	#61	"health institution*":ti,ab,kw (Word variations have been searched)	61
40	#62	clinic?:ti,ab,kw (Word variations have been searched)	9489
41	#63	hospital?:ti,ab,kw (Word variations have been searched)	15683
42	#64	"birth centre?" or "birth center?":ti,ab,kw (Word variations have been searched)	31
43	#65	{or #31-#64}	96129
44	#66	MeSH descriptor: [Health Equity] explode all trees	2
45	#67	MeSH descriptor: [Human Rights] explode all trees	1262
46	#68	MeSH descriptor: [Social Justice] explode all trees	60
47	#69	MeSH descriptor: [Health Status Disparities] explode all trees	142
48	#70	MeSH descriptor: [Healthcare Disparities] explode all trees	176
49	#71	MeSH descriptor: [Social Responsibility] explode all trees	87
50	#72	MeSH descriptor: [Human Rights] explode all trees	1262
51	#73	MeSH descriptor: [Social Values] explode all trees	164
52	#74	MeSH descriptor: [Socioeconomic Factors] explode all trees	8582
53	#75	MeSH descriptor: [Health Status Indicators] explode all trees	19398
54	#76	MeSH descriptor: [Health Policy] explode all trees	724
55	#77	MeSH descriptor: [Social Determinants of Health] explode all trees	11
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3	#78	MeSH descriptor: [Quality of Health Care] explode all trees	424055
4	#79	MeSH descriptor: [Public Health] explode all trees	408036
5	#80	MeSH descriptor: [Global Health] explode all trees	212
6	#81	MeSH descriptor: [Sex Factors] explode all trees	5525
7	#82	MeSH descriptor: [Sex Distribution] explode all trees	783
8	#83	MeSH descriptor: [Public Policy] explode all trees	784
9	#84	MeSH descriptor: [Women's Rights] explode all trees	6
10	#85	MeSH descriptor: [Age Factors] explode all trees	9847
11	#86	MeSH descriptor: [Age Distribution] explode all trees	845
12	#87	MeSH descriptor: [Adolescent] explode all trees	90431
13	#88	MeSH descriptor: [Young Adult] explode all trees	266
14	#89	MeSH descriptor: [Policy Making] explode all trees	86
15	#90	MeSH descriptor: [Resource Allocation] explode all trees	145
16	#91	MeSH descriptor: [Social Welfare] explode all trees	845
17	#92	MeSH descriptor: [Patient Advocacy] explode all trees	75
18	#93	MeSH descriptor: [Socioeconomic Factors] explode all trees	8582
19	#94	MeSH descriptor: [Income] explode all trees	931
20	#95	MeSH descriptor: [Poverty] explode all trees	1377
21	#96	MeSH descriptor: [Poverty Areas] explode all trees	240
22	#97	MeSH descriptor: [Vulnerable Populations] explode all trees	220
23	#98	MeSH descriptor: [Social Distance] explode all trees	113
24	#99	MeSH descriptor: [Risk Factors] explode all trees	24525
25	#100	MeSH descriptor: [Ethnic Groups] explode all trees	3695
26	#101	MeSH descriptor: [Emigration and Immigration] explode all trees	79
27	#102	MeSH descriptor: [Minority Groups] explode all trees	316
28	#103	MeSH descriptor: [Developing Countries] explode all trees	1011
29	#104	MeSH descriptor: [Social Class] explode all trees	589
30	#105	MeSH descriptor: [Health Care Rationing] explode all trees	77
31	#106	MeSH descriptor: [Insurance, Long-Term Care] explode all trees	5
32	#107	MeSH descriptor: [Politics] explode all trees	48
33	#108	MeSH descriptor: [Health Expenditures] explode all trees	332
34	#109	MeSH descriptor: [Urban Population] explode all trees	1204
35	#110	MeSH descriptor: [Rural Population] explode all trees	1249
36	#111	MeSH descriptor: [Universal Coverage] explode all trees	7
37	#112	MeSH descriptor: [Health Resources] explode all trees	593
38	#113	MeSH descriptor: [Educational Status] explode all trees	1347
39	#114	MeSH descriptor: [Residence Characteristics] explode all trees	1179
40	#115	MeSH descriptor: [Time Factors] explode all trees	59415
41	#116	MeSH descriptor: [Religion and Medicine] explode all trees	59
42	#117	MeSH descriptor: [Cultural Characteristics] explode all trees	157
43	#118	MeSH descriptor: [Cultural Diversity] explode all trees	83
44	#119	equit* or inequit*:ti,ab,kw (Word variations have been searched)	544
45	#120	equal* or unequal*:ti,ab,kw (Word variations have been searched)	32042
46	#121	socio-economic? or socioeconomic?:ti,ab,kw (Word variations have been searched)	559
47	#122	"unmet need?":ti,ab,kw (Word variations have been searched)	232
48	#123	barrier?:ti,ab,kw (Word variations have been searched)	4561
49	#124	determinant?:ti,ab,kw (Word variations have been searched)	3279
50	#125	geographic:ti,ab,kw (Word variations have been searched)	1798
51	#126	"risk factor?":ti,ab,kw (Word variations have been searched)	38428
52	#127	"determinant* of health":ti,ab,kw (Word variations have been searched)	100
53	#128	marginali*ation:ti,ab,kw (Word variations have been searched)	22
54	#129	{or #66-#128}	498594
55	#130	MeSH descriptor: [Health Care Quality, Access, and Evaluation] explode all trees	430323
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3	#131	MeSH descriptor: [Health Services Accessibility] explode all trees	1084	
4	#132	MeSH descriptor: [Health Promotion] explode all trees	5485	
5	#133	MeSH descriptor: [Culturally Competent Care] explode all trees	30	
6	#134	MeSH descriptor: [Maternal Health Services] explode all trees	1994	
7	#135	MeSH descriptor: [Quality of Health Care] explode all trees	424055	
8	#136	MeSH descriptor: [Medically Underserved Area] explode all trees	112	
9	#137	MeSH descriptor: [Health Services Needs and Demand] explode all trees		532
10	#138	MeSH descriptor: [Delivery of Health Care] explode all trees	45744	
11	#139	MeSH descriptor: [Primary Health Care] explode all trees	6730	
12	#140	MeSH descriptor: [Patient Acceptance of Health Care] explode all trees	25535	
13	#141	MeSH descriptor: [Health Knowledge, Attitudes, Practice] explode all trees		5020
14	#142	MeSH descriptor: [Health Promotion] explode all trees	5485	
15	#143	MeSH descriptor: [Health Behavior] explode all trees	19176	
16	#144	MeSH descriptor: [Attitude of Health Personnel] explode all trees		2095
17	#145	MeSH descriptor: [Attitude to Health] explode all trees	31755	
18	#146	MeSH descriptor: [Personal Autonomy] explode all trees	170	
19	#147	MeSH descriptor: [Health Services] explode all trees	90269	
20	#148	MeSH descriptor: [Health Services Accessibility] explode all trees		1084
21	#149	MeSH descriptor: [Rural Health Services] explode all trees	336	
22	#150	access:ti,ab,kw (Word variations have been searched)	12815	
23	#151	utili*ation:ti,ab,kw (Word variations have been searched)	11183	
24	#152	coverage:ti,ab,kw (Word variations have been searched)	3228	
25	#153	"health service?":ti,ab,kw (Word variations have been searched)		10578
26	#154	{or #130-#153}	461529	
27	#155	#30 and #65 and #129 and #154 Online Publication Date from Jan 2004 to Jun 2017		654
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SUPPLEMENTARY FILE 4:**Equity and intrapartum care by skilled birth attendant globally: data extraction form****Notes:**

- Please be consistent in the order and style used to enter information for each item.
- Please record missing data as unclear or missing in the study report.
- If an item is not applicable, please mark as NA.

General information

General Data	
1. Study ID	
2. Date form completed (dd/mm/yy)	
3. Primary author	
4. Name of reviewer	
5. Study title	
6. Year of publication	
7. Journal	
8. Country	
9. Study funding source	
10. Conflict of interest (reviewer)	<input type="checkbox"/> Yes <input type="checkbox"/> No

Study Eligibility

<i>Review of inclusion criteria</i>					
Study characteristics	Eligibility criteria	Eligibility criteria met?			Location in text or source (pg/fig/table)
		Yes	No	Unclear	
1. Population	Women who experienced childbirth within the scope of the specific study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Intervention	Access to skilled care with SBA or institutional deliveries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Comparison	Utilization of non-SBA birth attendants or traditional birth attendants at the time of delivery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Outcome	Evaluation of inequity in access to SBA at the time of childbirth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Study design	All observational quantitative studies on human subjects (including but not limited to prospective and retrospective cohort studies, cross-sectional studies, mix-methods studies).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Context	All countries with health facility and/or community-based services offering childbirth care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Results	Quantitative results of the association between potential determinants and access to SBA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Decision	<input type="checkbox"/> Include <input type="checkbox"/> Exclude				
9. Reason for exclusion					
Notes:					

DO NOT PROCEED IF STUDY IS EXCLUDED FROM THIS REVIEW

Methods

<i>Study characteristics</i>	
10. Aim of study	
11. Study design	<input type="checkbox"/> cross-sectional <input type="checkbox"/> cohort <input type="checkbox"/> mixed-methods <input type="checkbox"/> other: _____
12. Unit of allocation (part/person/group)	
13. Start date (dd/mm/yy)	
14. End date (dd/mm/yy)	
15. Duration of participation (from recruitment to last follow up)	
16. Ethics approval obtained?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not needed
Notes:	

<i>Population and setting</i>	
17. Population description (from which study participants are drawn)	
18. Setting (including location and social context)	
19. Specific geographic region	
20. Inclusion criteria	
21. Exclusion criteria	
22. Method(s) of participant recruitment	
23. Informed consent?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not needed

24. Participants (n)	_____
25. Subgroups (n)	_____ <i>SBA/institutional delivery</i>
	_____ <i>TAB or other non-SBA birth attendant delivery</i>
	_____ <i>Non-institutional delivery</i>
	_____ <i>Other</i>
Notes:	

Intervention

<i>Attendants at birth</i>	
26. SBA cadre included <i>(check all correct answers)</i>	<input type="checkbox"/> nurse <input type="checkbox"/> nurse-midwife <input type="checkbox"/> clinical officer/physician assistant <input type="checkbox"/> doctor <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
27. Details of SBA care	Any additional measure (add details to note section below): <input type="checkbox"/> time spent <input type="checkbox"/> intrapartum care only <input type="checkbox"/> postpartum care only <input type="checkbox"/> quality of care received <input type="checkbox"/> felt respected by SBA <input type="checkbox"/> Other _____
28. Non-SBA cadre included <i>(check all correct answers)</i>	<input type="checkbox"/> traditional birth attendant <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
29. Facility included <i>(check all correct answers)</i>	<input type="checkbox"/> birth centre <input type="checkbox"/> health centre <input type="checkbox"/> district/local hospital <input type="checkbox"/> referral/tertiary hospital <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
Notes:	

Outcomes

Equity/inequity and Results	
30. Primary outcome	
31. Participant determinants included ¹ (check all applicable)	<input type="checkbox"/> Place of residence: <i>Definition/stratification:</i> <ul style="list-style-type: none"> <input type="checkbox"/> Urban/rural/humanitarian <input type="checkbox"/> Geographic distinction <input type="checkbox"/> Transportation access <input type="checkbox"/> Road access <input type="checkbox"/> Race/Ethnicity/culture/language: <i>Definition/stratification:</i> <input type="checkbox"/> Occupation: <i>Definition/stratification:</i> <p><u>Gender:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Employment in non-agricultural sector <input type="checkbox"/> Children <15 years old working <input type="checkbox"/> Gender/Sex: <i>Definition/stratification:</i> <p><u>Gender:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Intimate partner violence (recent/ever)

¹ Adapted from the Progress-Plus framework; O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, et al. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol.* 2014;67(1):56-64.

	<p><input type="checkbox"/> Power differential</p> <ul style="list-style-type: none"> <input type="checkbox"/> Acceptability of suggesting condom use, refusing sex <input type="checkbox"/> Age difference of sex partner <input type="checkbox"/> Decision making about own health <p><input type="checkbox"/> Marriage/union</p> <ul style="list-style-type: none"> <input type="checkbox"/> choice of spouse <input type="checkbox"/> age < 15 years old / < 18 years old <p><u>Sexual health:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Sex before age 15 <input type="checkbox"/> History of sexual violence (recent/ever) and or by age 18 years <input type="checkbox"/> History of female genital cutting <p><u>Reproductive/maternal health:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Parity/grand-multiparity <input type="checkbox"/> Adolescent pregnancy <input type="checkbox"/> Obstetrical history <ul style="list-style-type: none"> <input type="checkbox"/> self – complications/adverse outcome <input type="checkbox"/> other – complications/adverse outcome <input type="checkbox"/> Four or more antenatal visits <input type="checkbox"/> Early postnatal/postpartum care (within 2 days) <input type="checkbox"/> Uterotonic immediately after birth (facility birth) <input type="checkbox"/> Contraception use <p><input type="checkbox"/> Religion:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Education:</p> <p><i>Definition/stratification:</i></p>
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	<p><u>Gender:</u></p> <p><input type="checkbox"/> Primary/secondary/tertiary education</p> <p><input type="checkbox"/> Literacy</p> <p><input type="checkbox"/> Socioeconomic status:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Access to safely managed sanitation services (e.g. hand-washing with water and soap)</p> <p><input type="checkbox"/> Children with stunting < 5 years of age</p> <p><input type="checkbox"/> Primary reliance on clean fuels and technology</p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Ownership (goods/land/bank account)</p> <p><input type="checkbox"/> Technology use (mobile phone/internet/media)</p> <p><input type="checkbox"/> Social capital:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Personal characteristics that attract discrimination:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Young/old age</p> <p><input type="checkbox"/> Orphan</p> <p><input type="checkbox"/> Sex worker</p> <p><input type="checkbox"/> Features of relationships:</p> <p><i>Definition/stratification:</i></p>
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	<p><u>Gender:</u></p> <p><input type="checkbox"/> Single/divorced/widowed</p> <p><input type="checkbox"/> Husband's characteristics (e.g. education, etc.)</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Time-dependent relationships:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Pregnant/postpartum/breastfeeding</p> <p><input type="checkbox"/> Humanitarian setting (e.g. refugee, internally displaced person)</p> <p><input type="checkbox"/> Political instability</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p>
<p>32. Systematic determinants included (<i>check all applicable</i>)</p>	<p><input type="checkbox"/> Maternal mortality ratio</p> <p><input type="checkbox"/> Maternal cause of death (based on ICD-MM coding)</p> <p><input type="checkbox"/> Maternal death registration</p> <p><input type="checkbox"/> Under-5 mortality rate</p> <p><input type="checkbox"/> Neonatal mortality rate</p> <p><input type="checkbox"/> Proportion of children < 5 years old with registered birth</p>

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	<input type="checkbox"/> Stillbirth rate <input type="checkbox"/> C-section rate <input type="checkbox"/> Availability of functional Emergency Obstetric Care facilities <input type="checkbox"/> Adolescent mortality rate <input type="checkbox"/> Out-of-pocket as a percentage of total health expenditure <input type="checkbox"/> Current country health expenditure per capita <input type="checkbox"/> Presence of laws/regulations that guarantee SRH care
<p>33. Participant determinants that were statistically significant (check all correct answers)</p>	<input type="checkbox"/> Place of residence: <i>Definition/stratification:</i> <input type="checkbox"/> Urban/rural/humanitarian <input type="checkbox"/> Geographic distinction <input type="checkbox"/> Transportation access <input type="checkbox"/> Road access <input type="checkbox"/> Race/Ethnicity/culture/language: <i>Definition/stratification:</i> <input type="checkbox"/> Occupation: <i>Definition/stratification:</i> <u>Gender:</u> <input type="checkbox"/> Employment in non-agricultural sector <input type="checkbox"/> Children <15 years old working <input type="checkbox"/> Gender/Sex: <i>Definition/stratification:</i>

	<p><u>Gender:</u></p> <p><input type="checkbox"/> Intimate partner violence (recent/ever)</p> <p><input type="checkbox"/> Power differential</p> <p style="padding-left: 40px;"><input type="checkbox"/> Acceptability of suggesting condom use, refusing sex</p> <p style="padding-left: 40px;"><input type="checkbox"/> Age difference of sex partner</p> <p style="padding-left: 40px;"><input type="checkbox"/> Decision making about own health</p> <p><input type="checkbox"/> Marriage/union</p> <p style="padding-left: 40px;"><input type="checkbox"/> choice of spouse</p> <p style="padding-left: 40px;"><input type="checkbox"/> age < 15 years old / < 18 years old</p> <p><u>Sexual health:</u></p> <p><input type="checkbox"/> Sex before age 15</p> <p><input type="checkbox"/> History of sexual violence (recent/ever) and or by age 18 years</p> <p><input type="checkbox"/> History of female genital cutting</p> <p><u>Reproductive/maternal health:</u></p> <p><input type="checkbox"/> Parity/grand-multiparity</p> <p><input type="checkbox"/> Adolescent pregnancy</p> <p><input type="checkbox"/> Obstetrical history</p> <p style="padding-left: 40px;"><input type="checkbox"/> self – complications/adverse outcome</p> <p style="padding-left: 40px;"><input type="checkbox"/> other – complications/adverse outcome</p> <p><input type="checkbox"/> Four or more antenatal visits</p> <p><input type="checkbox"/> Early postnatal/postpartum care (within 2 days)</p> <p><input type="checkbox"/> Uterotonic immediately after birth (facility birth)</p> <p><input type="checkbox"/> Contraception use</p> <p><input type="checkbox"/> Religion:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Education:</p>
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	<p><i>Definition/stratification:</i></p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Primary/secondary/tertiary education</p> <p><input type="checkbox"/> Literacy</p> <p><input type="checkbox"/> Socioeconomic status:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Access to safely managed sanitation services (e.g. hand-washing with water and soap)</p> <p><input type="checkbox"/> Children with stunting < 5 years of age</p> <p><input type="checkbox"/> Primary reliance on clean fuels and technology</p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Ownership (goods/land/bank account)</p> <p><input type="checkbox"/> Technology use (mobile phone/internet/media)</p> <p><input type="checkbox"/> Social capital:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Personal characteristics that attract discrimination:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Young/old age</p> <p><input type="checkbox"/> Orphan</p> <p><input type="checkbox"/> Sex worker</p>
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	<p><input type="checkbox"/> Features of relationships:</p> <p><i>Definition/stratification:</i></p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Single/divorced/widowed</p> <p><input type="checkbox"/> Husband’s characteristics (e.g. education, etc.)</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Time-dependent relationships:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Pregnant/postpartum/breastfeeding</p> <p><input type="checkbox"/> Humanitarian setting (e.g. refugee, internally displaced person)</p> <p><input type="checkbox"/> Political instability</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p>
<p>34. Systematic determinants that were statistically significant (<i>check all correct answers</i>)</p>	<p><input type="checkbox"/> Maternal mortality ratio</p> <p><input type="checkbox"/> Maternal cause of death (based on ICD-MM coding)</p> <p><input type="checkbox"/> Maternal death registration</p> <p><input type="checkbox"/> Under-5 mortality rate</p> <p><input type="checkbox"/> Neonatal mortality rate</p>

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	<input type="checkbox"/> Proportion of children < 5 years old with registered birth <input type="checkbox"/> Stillbirth rate <input type="checkbox"/> C-section rate <input type="checkbox"/> Availability of functional Emergency Obstetric Care facilities <input type="checkbox"/> Adolescent mortality rate <input type="checkbox"/> Out-of-pocket as a percentage of total health expenditure <input type="checkbox"/> Current country health expenditure per capita <input type="checkbox"/> Presence of laws/regulations that guarantee SRH care
<p>35. Confounding factors/effect modifiers:</p>	
<p>36. Results (specify, e.g. OR, RR, IRR)</p>	

37. Limitations:	
38. Scientific quality	<input type="checkbox"/> high <input type="checkbox"/> moderate <input type="checkbox"/> low
39. Conclusions of authors	
Notes:	

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BMJ Open

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

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2017-019922.R2
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Primary Subject Heading:	Global health
Secondary Subject Heading:	Obstetrics and gynaecology, Health policy
Keywords:	skilled birth attendant, maternal mortality, childbirth, health equity, health determinants, PRISMA-E

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3 1 **Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic**
4 2 **review**
5 3

6 4 Authors

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31 29
32 30
33 31
34 32 **Keywords:** skilled birth attendant, maternal mortality, childbirth, health equity, inequity, health
35 33 determinants, health policy, health access, PRISMA-E
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37 ABSTRACT

39 Introduction:

40 Equity is a cross cutting theme within the Sustainable Development Goals (SDGs) and central to
41 the effort to improve maternal and child health globally. One key strategy to prevent maternal
42 death set out in SDG 3 is assistance by a skilled birth attendant (SBA) at childbirth (Indicator
43 3.1.2). However, the increased coverage of SBAs globally has not been reflected by the same
44 degree of decrease in maternal mortality and has been reported to have higher levels of
45 inequality than other maternal health interventions. There is a need to evaluate the extent of
46 inequity in intrapartum care by SBAs and evaluate themes in determinants of inequity across
47 regions and specific country characteristics.

49 Methods and Analysis:

50 The protocol for this review follows The Cochrane Handbook for Systematic Reviews and
51 PRISMA-E 2012 guidelines. Studies of all languages and from all countries from 2004, the year
52 when the WHO/ICM/FIGO joint statement on SBAs was published, and onwards will be
53 included. PubMed/MEDLINE, CINAHL Complete, Cochrane Database of Systematic Reviews,
54 POPLINE, the WHO Global Index Medicus, and grey literature will be searched. Our primary
55 outcome is intrapartum care by SBA. Studies will be included if they evaluate equity and its
56 determinants adapted from the Progress-Plus grouping of characteristics affecting health
57 outcomes. Results will be stratified based on WHO, World Bank Group income and SDG regional
58 groupings.

60 Ethics and dissemination:

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

67 Trial registration:

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

71 **Word Count: 300**

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STRENGTHS AND LIMITATIONS OF THIS STUDY

- This systematic review aims to evaluate equity in intrapartum care by skilled birth attendants 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 PRISMA-E framework.
- This review will summarize 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.

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 [1,2].

Despite some progress during the Millennium Development Goals era, preventable maternal mortality especially in low- and middle-income countries (LMIC) has remained high [3,4]. 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 [5].

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 [2]. SDG 3.1 sets the target to reduce 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 (%)” [1,6,7]. The SBA is defined in the joint statement by the World Health Organization (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” [8]. 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. Skilled birth attendants 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 [9-12]. Nevertheless, around 50% of low- and middle- income countries report that at least 80% rate of births are attended by SBAs. This number varies across countries [12]. 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 [12]. This disparity is especially seen in LMICs where women in disadvantaged groups have SBA coverage rates of less than 50% [2].

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 [13,14]. In addition, these health differences are systematic and not occasional or sporadic [14]. 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.

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4 143 **Study objectives and research questions**
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7 145 The objectives of this study are to:

- 8 146 1. Conduct a systematic review of literature on intrapartum care by a SBA at childbirth
9 147 and evaluate the extent of inequity that exists globally.
10 148 2. Identify determinants of inequity globally in intrapartum care by SBAs at the time of
11 149 childbirth across regions and countries.
12 150

14 151 Our review seeks to answer the following research questions: 1) To what extent does inequality
15 152 in intrapartum care by SBA exist globally? 2) What are determinants or themes of inequity that
16 153 emerge globally and across countries and regions?
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19 155 **METHODS AND ANALYSIS**
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21 157 **Study registration**

23 158 This review protocol was registered with the Prospero database (registration number:
24 159 CRD42017069021; date of registration: 26/06/2017).
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28 162 **Study Design**
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30 164 The study method for this systematic review was developed based on the Preferred Reporting
31 165 Items for Systematic Reviews and Meta-Analyses with equity extension (PRISMA-E 2012)
32 166 guidelines, the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols
33 167 (PRISMA-P 2015), and The Cochrane Collaboration (*Cochrane Handbook for Systematic Reviews*)
34 168 [15-19]. Please see Supplementary File 1 for the PRISMA-E 2012 Checklist and Supplementary
35 169 File 2 for the PRISMA-P 2015 Checklist. The literature search will follow the four-step flow
36 170 diagram outline in the PRISMA statement [17].
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40 172 **Study Eligibility Criteria**
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42 174 **Inclusion Criteria**
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45 176 Our research objectives will be assessed and studies selected based on criteria presented in
46 177 Table 1.
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50 **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 SBA or institutional deliveries.

Comparison	Utilization of non- SBA birth attendants 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 1/1/2004 to the time of this study.

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182 Population

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

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190 Intervention/Comparison

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

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206 Outcome

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208 We will include studies evaluating inequity in intrapartum care by an SBA. Alternative search
209 terms include but are not limited to disparities, inequality and barriers to care. Given the moral
210 imperative of the word equity, additional search terms such as social justice will also be utilized
211 [20]. Based on prior reviews of inequity in maternal care, determinants of inequity are
212 hypothesized to include demographic factors such as age race/ethnicity, socioeconomic status,
213 place of residence or geographic factors, as well as reproductive indicators [12,21-23]. For the
214 purposes of this review, studies will be included if they compare at least two populations by
215 one or more indicators. PROGRESS Plus, an established framework for socio-demographic
216 factors that may contribute to inequity in health, is an acronym that stands for place of
217 residence, race/ethnicity/culture and language, occupation, gender/sex, religion, education,
218 socioeconomic status, social capital while 'Plus' adds three additional context-specific factors
219 including personal characteristics that attract discrimination, features of relationships, and
220 time-dependent relationships [24-26]. The PROGRESS Plus framework has been adapted for the
221 purposes of this project to include indicators specific to gender, sexual and reproductive health,
222 including key indicators of the Global strategy for Women's, Children's and Adolescents' Health
223 (2016-2030), and Strategies towards Ending Preventable Maternal Mortality (EPMM) core
224 maternal health indicators [27-34].

225 226 227 Study design

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

232 233 234 Context

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

242 243 244 Exclusion Criteria

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246 Articles will not be eligible for inclusion if:

- 247 1. There are no details regarding determinants that may indicate inequity (e.g.
248 demographic factors, socioeconomic factors, reproductive history, geography, etc.)
- 249 2. Only qualitative data is collected
- 250 3. They are systematic reviews

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3 251 4. The sample selection and size does not provide results generalizable to the general
4 252 population or a significant subgroup of the population (e.g. a country's second-level
5 253 administrative division).
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9 256 **Search strategy**

10 257
11 258 In order to answer our research questions, a search for all literature based on related search
12 259 terms will be conducted using the following online bibliographic databases: PubMed/MEDLINE,
13 260 CINAHL Complete, POPLINE, the Cochrane Database of Systematic Reviews and the WHO Global
14 261 Index Medicus (GIM). In addition, a manual search of bibliographic references of retrieved
15 262 studies and systematic reviews as well as gray literature of international organizations and
16 263 websites relevant to the field of maternal and child health will be conducted, including, but not
17 264 limited, to National Institute for Health and Clinical Excellence (NICE); National Institute of
18 265 Health (NIH); United Nations Children's Fund (UNICEF); United Nations Population Fund
19 266 (UNFPA); WHO. The search will be inclusive of all languages and will be conducted with specific
20 267 search terms related to 1) Childbirth; 2) SBA, non-SBA, facility and non-facility deliveries; 3)
21 268 Equity; 4) Utilization of care or access. Please see Supplementary File 3 for the detailed search
22 269 strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews.
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26 272 **Study Selection**

27 273
28 274 Following a comprehensive and detailed literature search, all duplicate articles will be removed.
29 275 A team of two (AK/ABM) will screen titles and abstracts of retrieved studies for relevance and
30 276 eligibility for inclusion. Disagreements will be resolved by an additional reviewer (DC). All study
31 277 abstracts selected for inclusion will then undergo an independent full-text review with similar
32 278 methodology. All chosen full-text articles will then be evaluated again for inclusion based on
33 279 inclusion and exclusion criteria by all co-authors and studies that do not meet the criteria will
34 280 be eliminated from the study. Disagreements will be resolved by mutual agreement. Full-text
35 281 articles in languages other than English will be translated.
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39 284 **Data Extraction**

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41 286 A standardized data collection form was used as a template for development of a data
42 287 extraction form for this review [36]. Study details collected include but are not limited to study
43 288 characteristics (country, year and journal of publication, study design and dates), population
44 289 and setting (population description, setting description, inclusion/exclusion criteria, sample
45 290 size), intervention (SBA and non-SBA cadres, facility description), equity measures (primary
46 291 outcome, determinants, results, study quality and conclusions). During the review additional
47 292 fields on the data extraction form will allow for flexibility for additional data points or
48 293 determinants as needed. Two reviewers will independently extract data from the selected
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294 studies and discrepancies will be discussed with a third reviewer. Please see Supplementary File
295 4 for the data extraction form.

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298 **Scientific Quality Assessment**

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

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306 **Analysis plan**

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

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320 **Patient and Public Involvement**

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

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326 **DISSEMINATION AND ETHICS**

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328 This systematic review will provide information regarding equity and determinants of inequity
329 in intrapartum care by SBAs globally. It will inform the development of indicators for monitoring
330 and evaluation of inequity in intrapartum care by SBAs globally, which is pertinent given the
331 higher level of inequality reported with this maternal health intervention [12]. This work is also
332 especially relevant given the current effort to revise the definition for SBA and measuring tools
333 by collaborating international and professional organizations. This work will also guide
334 establishment of global policy on health equity specifically related to intrapartum care by SBA
335 and maternal mortality. The provision and presence of SBAs and utilization and access to their
336 services is essential in decreasing maternal and newborn mortality globally.

337

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.

LIST OF ABBREVIATIONS:

FIGO: International Federation of Gynaecology and Obstetrics; EPMM: Strategies towards Ending Preventable Maternal Mortality; GIM: WHO Global Index Medicus; ICM: International Confederation of Midwives; LMICs: Low- and middle-income countries; MeSH: Medical subject headings; MDGs: Millennium Development Goals; NICE: National Institute for Health and Clinical Excellence; NIH: National Institute of Health; PRISMA: Preferred reporting items for systematic reviews and meta-analyses; PRISMA-E: Preferred reporting items for systematic reviews and meta-analyses with equity extension; SBA: Skilled birth attendant; SDGs: Sustainable Development Goals; STROBE: Strengthening the reporting of observational studies in epidemiology; UNICEF: United Nations Children's Fund; UNFPA: United Nations Population Fund; WHO: World Health Organization.

AUTHORS CONTRIBUTIONS

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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COMPETING INTERESTS STATEMENT

None declared. The authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions or policies of the funding bodies or institutions with which they are affiliated.

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4 383 **DATA SHARING STATEMENT**
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7 385 All data generated or analyzed during this study will be included in the published article and its
8 386 supplementary information files.
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11 389 **SUPPLEMENTARY FILES**
12 390

13 391 Supplementary File 1:

- 14 391
15 392 - File name: SUPPLEMENTARY FILE 1
16 393 - File format: .pdf
17 393
18 394 - Title of data: PRISMA-E 2012 Checklist - Equity and intrapartum care by skilled birth
19 395 attendant globally: protocol for a systematic review
20 396 - Description of data: PRISMA-E 2012 Checklist for this systematic literature review
21 397 proposal.
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23 399 Supplementary File 2:

- 24 399
25 400 - File name: SUPPLEMENTARY FILE 2
26 401 - File format: .pdf
27 401
28 402 - Title of data: PRISMA-P (Preferred Reporting Items for Systematic review and Meta-
29 403 Analysis Protocols) 2015 checklist - Equity and intrapartum care by skilled birth
30 404 attendant globally: protocol for a systematic review
31 405 - Description of data: PRISMA-P 2015 Checklist for this systematic literature review
32 406 proposal.
33 407

34 408 Supplementary File 3:

- 35 408
36 409 - File name: SUPPLEMENTARY FILE 3
37 410 - File format: .pdf
38 410
39 411 - Title of data: Equity and intrapartum care by skilled birth attendant globally: search
40 412 strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews
41 413 - Description of data: Search strategies for Pubmed/Medline and the Cochrane Database
42 414 of Systematic Reviews.
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44 416 Supplementary File 4:

- 45 416
46 417 - File name: SUPPLEMENTARY FILE 4
47 418 - File format: .pdf
48 419 - Title of data: Equity and intrapartum care by skilled birth attendant globally: data
49 420 extraction form
50 420
51 421 - Description of data: Data extraction form for this systematic review.
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PRISMA-E 2012 Checklist - Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

Checklist of Items for Reporting Equity-Focused Systematic Reviews				
Section	Item	Standard PRISMA Item	Extension for Equity-Focused Reviews	Pg #
Title				
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Identify equity as a focus of the review, if relevant, using the term equity	1
Abstract				
Structured summary	2	2. Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	State research question(s) related to health equity.	5
	2A		Present results of health equity analyses (e.g. subgroup analyses or meta-regression).	Not applicable for protocol
	2B		Describe extent and limits of applicability to disadvantaged populations of interest.	Not applicable for protocol
Introduction				
Rationale	3	Describe the rationale for the review in the context of what is already known.	Describe assumptions about mechanism(s) by which the intervention is assumed to have an impact on health equity.	4
	3A		Provide the logic model/analytical framework, if done, to show the pathways through which the intervention is assumed to affect health equity and how it was developed.	--
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Describe how disadvantage was defined if used as criterion in the review (e.g. for selecting studies, conducting analyses or judging applicability).	5-7
	4A		State the research questions being addressed with reference to health equity	5
Methods				
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.		5
Eligibility criteria	6	6. Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	Describe the rationale for including particular study design related to equity research questions.	5-7
	6A		Describe the rationale for including the outcomes - e.g. how these are relevant to reducing inequity.	6-7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Describe information sources (e.g. health, non-health, and grey literature sources) that were searched that are of specific relevance to address the equity questions of the review.	7-8
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Describe the broad search strategy and terms used to address equity questions of the review.	See Supplementary File 3
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).		5-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.		8 See Supplementary File 4
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	List and define data items related to equity, where such data were sought (e.g. using PROGRESS-Plus or other criteria, context).	6-8 See Supplementary File 4
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.		8 See Supplementary File 4
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).		9 See Supplementary File 4

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PRISMA-E 2012 Checklist - Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I ²) for each meta-analysis.	Describe methods of synthesizing findings on health inequities (e.g. presenting both relative and absolute differences between groups).	8-9 See Supplementary File 4
Risk of bias across studies	15	15. Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).		8 See Supplementary File 4
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	Describe methods of <u>additional</u> synthesis approaches related to equity questions, if done, indicating which were pre-specified	9
Results				
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.		Not applicable (protocol)
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Present the population characteristics that relate to the equity questions across the relevant PROGRESS-Plus or other factors of interest.	Not applicable (protocol)
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).		Not applicable (protocol)
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.		Not applicable (protocol)
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	Present the results of synthesizing findings on inequities (see 14).	Not applicable (protocol)
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).		Not applicable (protocol)
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	Give the results of <u>additional</u> synthesis approaches related to equity objectives, if done, (see 16).	Not applicable (protocol)
Discussion				
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).		Not applicable (protocol)
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).		Not applicable (protocol)
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	Present extent and limits of applicability to disadvantaged populations of interest and describe the evidence and logic underlying those judgments.	Not applicable (protocol)
	26A		Provide implications for research, practice or policy related to equity where relevant (e.g. types of research needed to address unanswered questions).	Not applicable (protocol)
Funding				
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.		10

From: Source: Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, Waters E, White H, and the PRISMA-Equity Bellagio Group. (2012) [PRISMA-Equity 2012 Extension: Reporting Guidelines for Systematic Reviews with a Focus on Health Equity](https://doi.org/10.1371/journal.pmed.1001333). PLoS Med 9(10): e1001333. doi:10.1371/journal.pmed.1001333

For more information: <http://equity.cochrane.org/equity-extension-prisma>

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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol* -- Equity and intrapartum care by skilled birth attendant globally: protocol for a systematic review

Section and topic	Item No	Checklist item	Page number
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	N/A
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	
Authors:			5
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	1
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	N/A
Support:			
Sources	5a	Indicate sources of financial or other support for the review	10
Sponsor	5b	Provide name for the review funder and/or sponsor	10
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	1, 10
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	5-7
METHODS			
Eligibility	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years	5-7

criteria		considered, language, publication status) to be used as criteria for eligibility for the review	
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	7-8
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	See Supplementary File 3
Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	8
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	8
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	8 See Supplementary File 4
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	See Supplementary File 4
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	9 See Supplementary File 4
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	8 See Supplementary File 4
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	N/A (not a meta-analysis)
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall's τ)	N/A (not a meta-analysis)
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	9
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	8
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	N/A

***It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*. 2015 Jan 2;349(jan02 1):g7647.

For peer review only

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SUPPLEMENTARY FILE 3:**Equity and intrapartum care by skilled birth attendant globally: search strategy for PubMed/Medline and the Cochrane Database of Systematic Reviews****1. Pubmed / MEDLINE search**

#	Section	Search Terms
1	Childbirth	<p>"parturition"[MeSH] OR "Delivery, Obstetric"[MeSH] OR "Perinatal Care"[MeSH] OR "Pregnancy Outcome"[MeSH] OR "Pregnancy Complications"[MeSH] OR "Labor, Obstetric"[MeSH] OR "Obstetrics"[MeSH] OR "Postpartum Period"[MeSH] OR "Maternal Health Services"[MeSH] OR "Women's Health Services"[Mesh] OR "Reproductive Health Services"[Mesh] OR "Pregnant Women"[Mesh] OR "Pregnancy"[Mesh] OR "Maternal Death"[Mesh] OR "Maternal-Fetal Relations"[Mesh] OR "Maternal Exposure"[Mesh] OR "Maternal Mortality"[Mesh] OR "Maternal Behavior"[Mesh] OR "maternal behaviour"[MeSH] OR "pregnant"[TIAB] OR "pregnancy"[TIAB] OR "Maternity"[TIAB] OR "perinatal"[TIAB] OR "peri-natal"[TIAB] OR "peri natal"[TIAB] OR "Postnatal"[TIAB] OR "post natal"[TIAB] OR "post-natal"[TIAB] OR "ante natal"[TIAB] OR "antenatal"[TIAB] OR "ante-natal"[TIAB] OR "Postpartum"[TIAB] OR "Post partum"[TIAB] OR "Post-partum"[TIAB] OR "puerperium"[TIAB] OR "childbirth care"[TIAB] OR "childbirth"[TIAB] OR "birth"[TIAB] OR "intrapartum"[TIAB] OR (labour[TI] AND delivery[TI]) OR (labor[TI] AND delivery[TI]) OR "maternal health"[TIAB] OR "maternal and child health"[TIAB] OR "maternity care"[TIAB] OR "c-section"[TIAB] OR "caesarean"[TIAB] OR "cesarean"[TIAB] OR "caesarean section"[TIAB] OR "cesarean section"[TIAB] OR "obstetric surgery"[TIAB] OR "signal functions"[TIAB] OR "obstetric interventions"[TIAB] OR "emergency obstetric care"[TIAB] OR "emergency obstetric"[TIAB] OR "emergency obstetrics"[TIAB] OR "EmOC"[TIAB] OR "emergency newborn care"[TIAB] OR "essential obstetric care"[TIAB] OR "vaginal delivery"[TIAB] or "normal delivery"[TIAB]</p>
2	Cadre/Facility Name	<p>"Health Personnel"[MeSH] OR Midwifery[MeSH] OR Obstetric Nursing[MeSH] OR "Professional Practice"[MeSH] OR "Emergency Responders"[MeSH] OR "Health Occupations"[Mesh] OR "Allied Health Occupations"[Mesh] OR "Students, Health Occupations"[Mesh] OR "Schools, Health Occupations"[Mesh] OR "Health Manpower"[Mesh] OR "health auxiliary"[TIAB] OR "health care manpower"[TIAB] OR "hospital personnel"[TIAB] OR "medical personnel"[TIAB] OR "health care personnel"[TIAB] OR "nursing home personnel"[TIAB] OR "paramedical personnel"[TIAB] OR "Health care workers"[TIAB] OR "Health care worker"[TIAB] OR "Medical Staff"[TIAB] OR "medical personnel"[TIAB] OR "General Practitioners"[TIAB] OR "General Practitioner"[TIAB] OR Caregiver*[TIAB] OR Nurses[TIAB] OR Nurse[TIAB] OR Midwife[TIAB] OR midwives[TIAB] OR midwife[TIAB] OR "Nursing Staff"[TIAB] OR "nurse midwife"[TIAB] OR "nurse midwives"[TIAB] OR "nurse-midwife"[TIAB] OR "nurse-midwives"[TIAB] OR auxiliary[TIAB] OR "Medical students"[TIAB] OR "Nursing students"[TIAB] OR (health*[TI] AND worker*[TI]) OR "Community Health Workers"[TIAB] OR "Community Health Worker"[TIAB] OR "Dental Staff"[TIAB] OR doctor[TIAB] OR doctors[TIAB] OR obstetrician[TIAB] OR obstetricians[TIAB] OR "skilled health</p>

		<p>provider"[TIAB] OR "skilled health providers"[TIAB] OR "skilled attendant"[TIAB] OR "skilled attendants"[TIAB] OR "skilled birth attendant"[TIAB] OR "skilled birth attendants"[TIAB] OR "skilled health"[TIAB] OR "skilled assistance"[TIAB] "skilled assistant"[TIAB] OR "skilled assistants"[TIAB] OR "skilled care"[TIAB] OR "skilled manpower"[TIAB] OR "skilled delivery"[TIAB] OR "skilled staff"[TIAB] OR "skilled person"[TIAB] OR "skilled birth personnel"[TIAB] OR "skilled health workers"[TIAB] OR "skilled health care worker"[TIAB] OR "skilled health care workers"[TIAB] OR "assistance at delivery"[TIAB] OR "assistance at birth"[TIAB] OR "attendant"[TIAB] OR "SAB"[TIAB] OR "SBA"[TIAB] or cadre[TIAB]or cadres[TIAB] OR "health care worker"[TIAB] OR "health care person"[TIAB] OR "health person"[TIAB] OR "health care provider"[TIAB] OR "care provider"[TIAB] OR "care providers"[TIAB] OR "health provider"[TIAB] OR "health providers"[TIAB] OR "health aide"[TIAB] OR "health aides"[TIAB] OR "traditional birth attendant"[TIAB] OR "birth attendant"[TIAB] OR "community birth attendant"[TIAB] OR "health assistant"[TIAB] OR "feldsher"[TIAB] OR "clinical officer"[TIAB] OR "clinical officers"[TIAB] OR "medical officer"[TIAB] OR "medical officers"[TIAB] OR "assistant medical officers"[TIAB] OR "Mother and Child Health Aides"[TIAB] OR "Mother and Child Health Aide"[TIAB] OR "MCHA"[TIAB] OR "mid-level provider"[TIAB] OR "mid-level cadre"[TIAB] OR "mid-level cadres"[TIAB] OR "mid-level healthcare workers"[TIAB] OR "mid-level health care workers"[TIAB] OR "mid-level health workers"[TIAB] OR "community-based skilled birth attendants"[TIAB] OR "community-based skilled birth attendant"[TIAB] OR "community based skilled birth attendants"[TIAB] OR "community based skilled birth attendant"[TIAB] OR "health visitor"[TIAB] or (health*[TI] AND worker*[TI]) OR "fieldworker"[TIAB] OR "task shifting"[TIAB] OR "nonphysicians"[TIAB] OR "non-physician clinicians"[TIAB] OR "non-physician"[TIAB] OR "clinician"[TIAB] OR "clinicians"[TIAB] OR "physicians"[MeSH] OR "ambulatory care facilities"[MeSH] OR "hospitals"[MeSH] OR "rural health services"[MeSH] OR "community health services"[MeSH] OR "hospitalization"[MeSH] OR "hospitalisation"[MeSH] OR "home birth"[TIAB] or "home births"[TIAB] OR "health facilities"[MeSH] OR "home childbirth"[MeSH] OR "maternal health services"[MeSH] OR "emergency medical services"[MeSH] OR "hospitals public"[MeSH] OR "community health services"[MeSH] OR "birthing centers"[MeSH] OR "birthing centres"[MeSH] OR "delivery of health care"[MeSH] OR "delivery rooms"[MeSH] OR "emergency service hospital"[MeSH] OR "hospitals teaching"[MeSH] OR "medical staff hospital"[MeSH] OR "hospitals university"[MeSH] OR "outpatient clinics hospital"[MeSH] OR "hospitals public"[MeSH] OR "personnel hospital"[MeSH] OR "hospitals general"[MeSH] OR "nursing service hospital"[MeSH] OR "academic medical centers"[MeSH] OR academic medical centres"[MeSH] OR "hospital unit"[MeSH] OR "community health service"[MeSH] OR "doulas"[MeSH Terms] OR "doulas"[All Fields] OR "doula"[All Fields]</p>
3	Equity	<p>"Health Status Disparities"[Mesh] OR "Health Equity"[Mesh] OR "Healthcare Disparities"[Mesh] OR "Social Justice"[Mesh] OR "Social responsibility"[Mesh] OR "social values"[Mesh] OR "Human Rights"[Mesh] OR "Socioeconomic Factors"[Mesh] OR "Health Status Indicators"[Mesh] OR "Maternal Welfare"[Mesh] OR "Human Rights"[Mesh] OR "Health Policy"[Mesh]) OR "Health Status"[Mesh] OR "Social Determinants of Health"[Mesh] OR "Health care reform"[MeSH] OR "Quality of health care"[Mesh] OR "Public health"[Mesh] OR</p>

		<p>“Global health”[Mesh] OR “Sex factors”[Mesh] OR “sex distribution”[Mesh] OR “Public policy”[Mesh] OR “Women s rights”[Mesh] OR “economics”[Mesh] OR “age factors”[Mesh] OR “age distribution”[Mesh] OR “adolescent”[Mesh] OR “Young adult”[Mesh] OR “policy making”[Mesh] OR “resource allocation”[Mesh] OR “financing government”[Mesh] OR “insurance”[Mesh] OR “risk factors”[Mesh] OR “risk assessment”[Mesh] OR “prejudice”[Mesh] OR “mortality”[Mesh] OR “quality of life”[Mesh] OR “medical ethics” OR “decision making”[Mesh] OR moral obligations”[Mesh] OR “social welfare”[Mesh] OR “patient advocacy”[Mesh] OR “cultural diversity”[Mesh] OR “health priorities”[Mesh] OR "socioeconomic factors"[All Fields] OR "inequality"[All Fields] OR "inequalities"[All Fields] OR equity[All Fields] OR inequity[All Fields] OR inequities[All Fields] OR socio-economic[All Fields] OR (“unmet”[All Fields] AND “need”[All Fields]) OR “barrier”[All Fields] OR "income"[MeSH Terms] OR "income"[All Fields] OR "socioeconomics"[All Fields]) OR “geographic”[All Fields] OR “exclusion”[All Fields] OR "poverty"[MeSH Terms] OR "poverty"[All Fields] OR "Poverty Areas"[Mesh] OR "Working Poor"[Mesh] OR "Vulnerable Populations"[Mesh] OR “vulnerability”[All Fields] OR “marginalized”[All Fields] OR “marginalised”[All Fields] OR “vulnerable”[All Fields] OR “marginalization”[All Fields] OR “marginalisation”[All Fields] OR "social distance"[MeSH Terms] OR "social distance"[All Fields] OR "social exclusion"[All Fields]) OR (social[All Fields] AND stratification[All Fields]) OR gradient[All Fields] OR determinant[All Fields] OR predictor[All Fields] OR propension[All Fields]) OR ("risk factors"[MeSH Terms] OR "risk factors"[All Fields] OR "risk factor"[All Fields]) OR residence[All Fields] OR location[All Fields] OR ("ethnology"[Subheading] OR "ethnology"[All Fields] OR "ethnicity"[All Fields] OR "ethnology"[MeSH Terms] OR "ethnicity"[All Fields] OR "ethnic groups"[MeSH Terms] OR "ethnic groups"[All Fields]) OR ("emigration and immigration"[MeSH Terms] OR ("emigration"[All Fields] AND "immigration"[All Fields]) OR "emigration and immigration"[All Fields] OR “emigrants and immigrants”[Mesh] OR “minority groups”[Mesh] OR “developing countries”[MeSH Terms] OR “social class”[Mesh] OR “health care rationing”[Mesh] OR “insurance care”[Mesh] OR “politics”[Mesh] OR “health expenditures”[Mesh] OR “demography”[Mesh] OR “health care costs”[Mesh] OR “urban population”[Mesh] OR “rural population”[Mesh] OR “universal coverage”[Mesh] OR “health resources”[Mesh] OR “employment”[Mesh] OR “educational status”[Mesh] OR “residence characteristics”[Mesh] OR “time factors”[Mesh] OR “risk assessment”[Mesh] OR “religion and medicine”[Mesh] OR “cultural characteristics”[Mesh] OR “cultural diversity”[Mesh] OR "Poverty"[Mesh]</p>
4	Access/ Provision	<p>"Health Care Quality, Access, and Evaluation"[Mesh] OR "Health Services Accessibility"[Mesh] OR "Health Promotion"[Mesh] OR "Culturally Competent Care"[Mesh] OR "Health Resources/economics"[MeSH Terms] OR "Maternal Health Services/standards"[MAJR]) OR "Maternal Health Services/economics"[MeSH Terms] OR "Quality of Health Care/economics"[MeSH Terms] OR "Quality of Health Care/standards"[MAJR] OR "Maternal Health Services/utilization"[MeSH Terms] OR "Prenatal Care/utilization"[MeSH Terms] OR “Prenatal Care/utilisation”[MeSH] OR "Urban Population/statistics and numerical data"[MAJR] OR "Rural Population/statistics and numerical data"[MAJR] OR "Medically Underserved Area"[MeSH Terms] OR "Prenatal Care/standards"[MAJR] OR "Health Services Needs and Demand"[MeSH Terms] OR “delivery of health</p>

	care"[MeSH Terms] OR "Health services needs and demand"[MeSH Terms] OR "Primary health care"[Mesh] OR "patient acceptance of health care"[Mesh] OR "Health knowledge attitudes practice"[Mesh] OR "health promotion"[Mesh] OR "delivery of health care"[Mesh] OR "health behavior"[Mesh] OR "health behaviour"[MeSH] OR "attitude to health"[Mesh] OR "personal autonomy"[Mesh] OR "attitude of health personnel"[Mesh] OR access[All Fields] OR accessibility[All Fields] OR "utilization"[Subheading] OR "utilisation"[Subheading] OR "utilization"[All Fields] OR "utilisation"[All Fields] OR "use"[All Fields] OR "coverage"[All Fields] OR "health services"[MeSH Terms] OR "access to health care"[All Fields] OR "delivery of health care"[MeSH Terms] OR "health services"[All Fields] OR "health facilities"[All Fields] OR "obstetric delivery"[All Fields] OR "delivery"[All Fields] OR "health care surveys"[Mesh] OR "needs assessment"[Mesh] OR "health care costs"[Mesh] OR "mental health services"[Mesh] OR "mental disorders"[Mesh] OR "health services research"[Mesh] OR "outcome assessment health care"[Mesh] OR "quality assurance health care"[Mesh] OR "rural health services"[Mesh] OR "social support"[Mesh] OR "insurance coverage"[Mesh] OR "community health services"[Mesh] OR "health education"[Mesh]
5	1 AND 2 AND 3 AND 4 AND Filter: Publication date from 2004/01/01 to present.

2. Cochrane Central search

ID	Search	Hits
#1	MeSH descriptor: [Parturition] explode all trees	266
#2	MeSH descriptor: [Delivery, Obstetric] explode all trees	4852
#3	MeSH descriptor: [Pregnancy] explode all trees	5608
#4	MeSH descriptor: [Maternal-Fetal Relations] explode all trees	14
#5	MeSH descriptor: [Maternal Mortality] explode all trees	124
#6	MeSH descriptor: [Maternal Health Services] explode all trees	1994
#7	MeSH descriptor: [Postpartum Period] explode all trees	1349
#8	MeSH descriptor: [Cesarean Section] explode all trees	2839
#9	MeSH descriptor: [Emergency Medical Services] explode all trees	3652
#10	MeSH descriptor: [Perinatal Mortality] explode all trees	45
#11	MeSH descriptor: [Vacuum Extraction, Obstetrical] explode all trees	81
#12	MeSH descriptor: [Obstetrical Forceps] explode all trees	53
#13	MeSH descriptor: [Vaginal Birth after Cesarean] explode all trees	58
#14	MeSH descriptor: [Labor, Obstetric] explode all trees	1945
#15	MeSH descriptor: [Obstetric Labor Complications] explode all trees	2697
#16	MeSH descriptor: [Prenatal Care] explode all trees	1302
#17	MeSH descriptor: [Prenatal Diagnosis] explode all trees	1071
#18	"maternal mortality":ti,ab,kw (Word variations have been searched)	435
#19	delivery:ti,ab,kw (Word variations have been searched)	25934
#20	pregnancy:ti,ab,kw (Word variations have been searched)	33283
#21	"maternal health services":ti,ab,kw (Word variations have been searched)	247
#22	vaginal delivery:ti,ab,kw (Word variations have been searched)	2532
#23	postpartum or prenatal or antenatal or antepartum:ti,ab,kw (Word variations have been searched)	10362
#24	"birth":ti,ab,kw (Word variations have been searched)	16054
#25	obstetrics:ti,ab,kw (Word variations have been searched)	2287

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3	#26	c*sarean section:ti,ab,kw (Word variations have been searched)	6986
4	#27	"emergency obstetric*":ti,ab,kw (Word variations have been searched)	43
5	#28	lab*r:ti,ab,kw (Word variations have been searched)	10228
6	#29	childbirth*:ti,ab,kw (Word variations have been searched)	1739
7	#30	{or #1-#29}	69723
8	#31	MeSH descriptor: [Health Personnel] explode all trees	7620
9	#32	MeSH descriptor: [Community Health Workers] explode all trees	339
10	#33	MeSH descriptor: [Nurses] explode all trees	1158
11	#34	MeSH descriptor: [Allied Health Personnel] explode all trees	978
12	#35	MeSH descriptor: [Midwifery] explode all trees	324
13	#36	MeSH descriptor: [Emergency Responders] explode all trees	251
14	#37	MeSH descriptor: [Allied Health Occupations] explode all trees	1000
15	#38	MeSH descriptor: [Obstetric Nursing] explode all trees	41
16	#39	MeSH descriptor: [Health Occupations] explode all trees	20897
17	#40	MeSH descriptor: [Skilled Nursing Facilities] explode all trees	60
18	#41	MeSH descriptor: [Physicians] explode all trees	1686
19	#42	MeSH descriptor: [Nurse Clinicians] explode all trees	153
20	#43	MeSH descriptor: [Ambulatory Care Facilities] explode all trees	1886
21	#44	MeSH descriptor: [Maternal-Child Health Centers] explode all trees	49
22	#45	MeSH descriptor: [Rural Health Services] explode all trees	336
23	#46	MeSH descriptor: [Community Health Centers] explode all trees	572
24	#47	MeSH descriptor: [Birthing Centers] explode all trees	23
25	#48	MeSH descriptor: [Hospitals] explode all trees	3658
26	#49	nurse* or doctor* or physician* or midwife or midwives:ti,ab,kw (Word variations have been searched)	41259
27			
28	#50	"health worker*":ti,ab,kw (Word variations have been searched)	1215
29	#51	"birth attendant*":ti,ab,kw (Word variations have been searched)	127
30	#52	"skilled attendant*":ti,ab,kw (Word variations have been searched)	5
31	#53	"skilled assistant*":ti,ab,kw (Word variations have been searched)	1
32	#54	obstetrician*:ti,ab,kw (Word variations have been searched)	921
33	#55	practitioner*:ti,ab,kw (Word variations have been searched)	3
34	#56	"clinical officer*":ti,ab,kw (Word variations have been searched)	23
35	#57	birth centre* or birth center*:ti,ab,kw (Word variations have been searched)	2023
36	#58	health centre* or health center*:ti,ab,kw (Word variations have been searched)	19565
37	#59	"health facilit*":ti,ab,kw (Word variations have been searched)	647
38	#60	"health provider*":ti,ab,kw (Word variations have been searched)	253
39	#61	"health institution*":ti,ab,kw (Word variations have been searched)	61
40	#62	clinic?:ti,ab,kw (Word variations have been searched)	9489
41	#63	hospital?:ti,ab,kw (Word variations have been searched)	15683
42	#64	"birth centre?" or "birth center?":ti,ab,kw (Word variations have been searched)	31
43	#65	{or #31-#64}	96129
44	#66	MeSH descriptor: [Health Equity] explode all trees	2
45	#67	MeSH descriptor: [Human Rights] explode all trees	1262
46	#68	MeSH descriptor: [Social Justice] explode all trees	60
47	#69	MeSH descriptor: [Health Status Disparities] explode all trees	142
48	#70	MeSH descriptor: [Healthcare Disparities] explode all trees	176
49	#71	MeSH descriptor: [Social Responsibility] explode all trees	87
50	#72	MeSH descriptor: [Human Rights] explode all trees	1262
51	#73	MeSH descriptor: [Social Values] explode all trees	164
52	#74	MeSH descriptor: [Socioeconomic Factors] explode all trees	8582
53	#75	MeSH descriptor: [Health Status Indicators] explode all trees	19398
54	#76	MeSH descriptor: [Health Policy] explode all trees	724
55	#77	MeSH descriptor: [Social Determinants of Health] explode all trees	11
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3	#78	MeSH descriptor: [Quality of Health Care] explode all trees	424055
4	#79	MeSH descriptor: [Public Health] explode all trees	408036
5	#80	MeSH descriptor: [Global Health] explode all trees	212
6	#81	MeSH descriptor: [Sex Factors] explode all trees	5525
7	#82	MeSH descriptor: [Sex Distribution] explode all trees	783
8	#83	MeSH descriptor: [Public Policy] explode all trees	784
9	#84	MeSH descriptor: [Women's Rights] explode all trees	6
10	#85	MeSH descriptor: [Age Factors] explode all trees	9847
11	#86	MeSH descriptor: [Age Distribution] explode all trees	845
12	#87	MeSH descriptor: [Adolescent] explode all trees	90431
13	#88	MeSH descriptor: [Young Adult] explode all trees	266
14	#89	MeSH descriptor: [Policy Making] explode all trees	86
15	#90	MeSH descriptor: [Resource Allocation] explode all trees	145
16	#91	MeSH descriptor: [Social Welfare] explode all trees	845
17	#92	MeSH descriptor: [Patient Advocacy] explode all trees	75
18	#93	MeSH descriptor: [Socioeconomic Factors] explode all trees	8582
19	#94	MeSH descriptor: [Income] explode all trees	931
20	#95	MeSH descriptor: [Poverty] explode all trees	1377
21	#96	MeSH descriptor: [Poverty Areas] explode all trees	240
22	#97	MeSH descriptor: [Vulnerable Populations] explode all trees	220
23	#98	MeSH descriptor: [Social Distance] explode all trees	113
24	#99	MeSH descriptor: [Risk Factors] explode all trees	24525
25	#100	MeSH descriptor: [Ethnic Groups] explode all trees	3695
26	#101	MeSH descriptor: [Emigration and Immigration] explode all trees	79
27	#102	MeSH descriptor: [Minority Groups] explode all trees	316
28	#103	MeSH descriptor: [Developing Countries] explode all trees	1011
29	#104	MeSH descriptor: [Social Class] explode all trees	589
30	#105	MeSH descriptor: [Health Care Rationing] explode all trees	77
31	#106	MeSH descriptor: [Insurance, Long-Term Care] explode all trees	5
32	#107	MeSH descriptor: [Politics] explode all trees	48
33	#108	MeSH descriptor: [Health Expenditures] explode all trees	332
34	#109	MeSH descriptor: [Urban Population] explode all trees	1204
35	#110	MeSH descriptor: [Rural Population] explode all trees	1249
36	#111	MeSH descriptor: [Universal Coverage] explode all trees	7
37	#112	MeSH descriptor: [Health Resources] explode all trees	593
38	#113	MeSH descriptor: [Educational Status] explode all trees	1347
39	#114	MeSH descriptor: [Residence Characteristics] explode all trees	1179
40	#115	MeSH descriptor: [Time Factors] explode all trees	59415
41	#116	MeSH descriptor: [Religion and Medicine] explode all trees	59
42	#117	MeSH descriptor: [Cultural Characteristics] explode all trees	157
43	#118	MeSH descriptor: [Cultural Diversity] explode all trees	83
44	#119	equit* or inequit*:ti,ab,kw (Word variations have been searched)	544
45	#120	equal* or unequal*:ti,ab,kw (Word variations have been searched)	32042
46	#121	socio-economic? or socioeconomic?:ti,ab,kw (Word variations have been searched)	559
47	#122	"unmet need?":ti,ab,kw (Word variations have been searched)	232
48	#123	barrier?:ti,ab,kw (Word variations have been searched)	4561
49	#124	determinant?:ti,ab,kw (Word variations have been searched)	3279
50	#125	geographic:ti,ab,kw (Word variations have been searched)	1798
51	#126	"risk factor?":ti,ab,kw (Word variations have been searched)	38428
52	#127	"determinant* of health":ti,ab,kw (Word variations have been searched)	100
53	#128	marginali*ation:ti,ab,kw (Word variations have been searched)	22
54	#129	{or #66-#128}	498594
55	#130	MeSH descriptor: [Health Care Quality, Access, and Evaluation] explode all trees	430323
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3	#131	MeSH descriptor: [Health Services Accessibility] explode all trees	1084	
4	#132	MeSH descriptor: [Health Promotion] explode all trees	5485	
5	#133	MeSH descriptor: [Culturally Competent Care] explode all trees	30	
6	#134	MeSH descriptor: [Maternal Health Services] explode all trees	1994	
7	#135	MeSH descriptor: [Quality of Health Care] explode all trees	424055	
8	#136	MeSH descriptor: [Medically Underserved Area] explode all trees	112	
9	#137	MeSH descriptor: [Health Services Needs and Demand] explode all trees		532
10	#138	MeSH descriptor: [Delivery of Health Care] explode all trees	45744	
11	#139	MeSH descriptor: [Primary Health Care] explode all trees	6730	
12	#140	MeSH descriptor: [Patient Acceptance of Health Care] explode all trees	25535	
13	#141	MeSH descriptor: [Health Knowledge, Attitudes, Practice] explode all trees		5020
14	#142	MeSH descriptor: [Health Promotion] explode all trees	5485	
15	#143	MeSH descriptor: [Health Behavior] explode all trees	19176	
16	#144	MeSH descriptor: [Attitude of Health Personnel] explode all trees		2095
17	#145	MeSH descriptor: [Attitude to Health] explode all trees	31755	
18	#146	MeSH descriptor: [Personal Autonomy] explode all trees	170	
19	#147	MeSH descriptor: [Health Services] explode all trees	90269	
20	#148	MeSH descriptor: [Health Services Accessibility] explode all trees		1084
21	#149	MeSH descriptor: [Rural Health Services] explode all trees	336	
22	#150	access:ti,ab,kw (Word variations have been searched)	12815	
23	#151	utili*ation:ti,ab,kw (Word variations have been searched)	11183	
24	#152	coverage:ti,ab,kw (Word variations have been searched)	3228	
25	#153	"health service?":ti,ab,kw (Word variations have been searched)		10578
26	#154	{or #130-#153}	461529	
27	#155	#30 and #65 and #129 and #154 Online Publication Date from Jan 2004 to Jun 2017		654
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SUPPLEMENTARY FILE 4:**Equity and intrapartum care by skilled birth attendant globally: data extraction form****Notes:**

- Please be consistent in the order and style used to enter information for each item.
- Please record missing data as unclear or missing in the study report.
- If an item is not applicable, please mark as NA.

General information

General Data	
1. Study ID	
2. Date form completed (dd/mm/yy)	
3. Primary author	
4. Name of reviewer	
5. Study title	
6. Year of publication	
7. Journal	
8. Country	
9. Study funding source	
10. Conflict of interest (reviewer)	<input type="checkbox"/> Yes <input type="checkbox"/> No

Study Eligibility

Review of inclusion criteria					
Study characteristics	Eligibility criteria	Eligibility criteria met?			Location in text or source (pg/fig/table)
		Yes	No	Unclear	
1. Population	Women who experienced childbirth within the scope of the specific study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Intervention	Access to skilled care with SBA or institutional deliveries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Comparison	Utilization of non-SBA birth attendants or traditional birth attendants at the time of delivery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Outcome	Evaluation of inequity in access to SBA at the time of childbirth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Study design	All observational quantitative studies on human subjects (including but not limited to prospective and retrospective cohort studies, cross-sectional studies, mix-methods studies).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Context	All countries with health facility and/or community-based services offering childbirth care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Results	Quantitative results of the association between potential determinants and access to SBA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Decision	<input type="checkbox"/> Include <input type="checkbox"/> Exclude				
9. Reason for exclusion					
Notes:					

DO NOT PROCEED IF STUDY IS EXCLUDED FROM THIS REVIEW

Methods

Study characteristics	
10. Aim of study	
11. Study design	<input type="checkbox"/> cross-sectional <input type="checkbox"/> cohort <input type="checkbox"/> mixed-methods <input type="checkbox"/> other: _____
12. Unit of allocation (part/person/group)	
13. Start date (dd/mm/yy)	
14. End date (dd/mm/yy)	
15. Duration of participation (from recruitment to last follow up)	
16. Ethics approval obtained?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not needed
Notes:	
Population and setting	
17. Population description (from which study participants are drawn)	
18. Setting (including location and social context)	
19. Specific geographic region	
20. Inclusion criteria	
21. Exclusion criteria	
22. Method(s) of participant recruitment	
23. Informed consent?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not needed

24. Participants (n)	_____
25. Subgroups (n)	_____ <i>SBA/institutional delivery</i>
	_____ <i>TAB or other non-SBA birth attendant delivery</i>
	_____ <i>Non-institutional delivery</i>
	_____ <i>Other</i>
Notes:	

Intervention

<i>Attendants at birth</i>	
26. SBA cadre included (check all correct answers)	<input type="checkbox"/> nurse <input type="checkbox"/> nurse-midwife <input type="checkbox"/> clinical officer/physician assistant <input type="checkbox"/> doctor <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
27. Details of SBA care	Any additional measure (add details to note section below): <input type="checkbox"/> time spent <input type="checkbox"/> intrapartum care only <input type="checkbox"/> postpartum care only <input type="checkbox"/> quality of care received <input type="checkbox"/> felt respected by SBA <input type="checkbox"/> Other _____
28. Non-SBA cadre included (check all correct answers)	<input type="checkbox"/> traditional birth attendant <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
29. Facility included (check all correct answers)	<input type="checkbox"/> birth centre <input type="checkbox"/> health centre <input type="checkbox"/> district/local hospital <input type="checkbox"/> referral/tertiary hospital <input type="checkbox"/> unspecified <input type="checkbox"/> other: _____
Notes:	

Outcomes

Equity/inequity and Results	
30. Primary outcome	
31. Participant determinants included ¹ (check all applicable)	<input type="checkbox"/> Place of residence: <i>Definition/stratification:</i> <input type="checkbox"/> Urban/rural/humanitarian <input type="checkbox"/> Geographic distinction <input type="checkbox"/> Transportation access <input type="checkbox"/> Road access <input type="checkbox"/> Race/Ethnicity/culture/language: <i>Definition/stratification:</i> <input type="checkbox"/> Occupation: <i>Definition/stratification:</i> <u>Gender:</u> <input type="checkbox"/> Employment in non-agricultural sector <input type="checkbox"/> Children <15 years old working <input type="checkbox"/> Gender/Sex: <i>Definition/stratification:</i> <u>Gender:</u> <input type="checkbox"/> Intimate partner violence (recent/ever)

¹ Adapted from the Progress-Plus framework; O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, et al. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol.* 2014;67(1):56-64.

	<p><input type="checkbox"/> Power differential</p> <p style="padding-left: 20px;"><input type="checkbox"/> Acceptability of suggesting condom use, refusing sex</p> <p style="padding-left: 20px;"><input type="checkbox"/> Age difference of sex partner</p> <p style="padding-left: 20px;"><input type="checkbox"/> Decision making about own health</p> <p><input type="checkbox"/> Marriage/union</p> <p style="padding-left: 20px;"><input type="checkbox"/> choice of spouse</p> <p style="padding-left: 20px;"><input type="checkbox"/> age < 15 years old / < 18 years old</p> <p><u>Sexual health:</u></p> <p><input type="checkbox"/> Sex before age 15</p> <p><input type="checkbox"/> History of sexual violence (recent/ever) and or by age 18 years</p> <p><input type="checkbox"/> History of female genital cutting</p> <p><u>Reproductive/maternal health:</u></p> <p><input type="checkbox"/> Parity/grand-multiparity</p> <p><input type="checkbox"/> Adolescent pregnancy</p> <p><input type="checkbox"/> Obstetrical history</p> <p style="padding-left: 20px;"><input type="checkbox"/> self – complications/adverse outcome</p> <p style="padding-left: 20px;"><input type="checkbox"/> other – complications/adverse outcome</p> <p><input type="checkbox"/> Four or more antenatal visits</p> <p><input type="checkbox"/> Early postnatal/postpartum care (within 2 days)</p> <p><input type="checkbox"/> Uterotonic immediately after birth (facility birth)</p> <p><input type="checkbox"/> Contraception use</p> <p><input type="checkbox"/> Religion:</p> <p style="padding-left: 20px;"><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Education:</p> <p style="padding-left: 20px;"><i>Definition/stratification:</i></p>
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	<p><u>Gender:</u></p> <p><input type="checkbox"/> Primary/secondary/tertiary education</p> <p><input type="checkbox"/> Literacy</p> <p><input type="checkbox"/> Socioeconomic status:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Access to safely managed sanitation services (e.g. hand-washing with water and soap)</p> <p><input type="checkbox"/> Children with stunting < 5 years of age</p> <p><input type="checkbox"/> Primary reliance on clean fuels and technology</p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Ownership (goods/land/bank account)</p> <p><input type="checkbox"/> Technology use (mobile phone/internet/media)</p> <p><input type="checkbox"/> Social capital:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Personal characteristics that attract discrimination:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Young/old age</p> <p><input type="checkbox"/> Orphan</p> <p><input type="checkbox"/> Sex worker</p> <p><input type="checkbox"/> Features of relationships:</p> <p><i>Definition/stratification:</i></p>
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	<p><u>Gender:</u></p> <p><input type="checkbox"/> Single/divorced/widowed</p> <p><input type="checkbox"/> Husband's characteristics (e.g. education, etc.)</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Time-dependent relationships:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Pregnant/postpartum/breastfeeding</p> <p><input type="checkbox"/> Humanitarian setting (e.g. refugee, internally displaced person)</p> <p><input type="checkbox"/> Political instability</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p>
<p>32. Systematic determinants included (check all applicable)</p>	<p><input type="checkbox"/> Maternal mortality ratio</p> <p><input type="checkbox"/> Maternal cause of death (based on ICD-MM coding)</p> <p><input type="checkbox"/> Maternal death registration</p> <p><input type="checkbox"/> Under-5 mortality rate</p> <p><input type="checkbox"/> Neonatal mortality rate</p> <p><input type="checkbox"/> Proportion of children < 5 years old with registered birth</p>

	<input type="checkbox"/> Stillbirth rate <input type="checkbox"/> C-section rate <input type="checkbox"/> Availability of functional Emergency Obstetric Care facilities <input type="checkbox"/> Adolescent mortality rate <input type="checkbox"/> Out-of-pocket as a percentage of total health expenditure <input type="checkbox"/> Current country health expenditure per capita <input type="checkbox"/> Presence of laws/regulations that guarantee SRH care
<p>33. Participant determinants that were statistically significant (check all correct answers)</p>	<input type="checkbox"/> Place of residence: <i>Definition/stratification:</i> <input type="checkbox"/> Urban/rural/humanitarian <input type="checkbox"/> Geographic distinction <input type="checkbox"/> Transportation access <input type="checkbox"/> Road access <input type="checkbox"/> Race/Ethnicity/culture/language: <i>Definition/stratification:</i> <input type="checkbox"/> Occupation: <i>Definition/stratification:</i> <u>Gender:</u> <input type="checkbox"/> Employment in non-agricultural sector <input type="checkbox"/> Children <15 years old working <input type="checkbox"/> Gender/Sex: <i>Definition/stratification:</i>

	<p><u>Gender:</u></p> <p><input type="checkbox"/> Intimate partner violence (recent/ever)</p> <p><input type="checkbox"/> Power differential</p> <p style="padding-left: 40px;"><input type="checkbox"/> Acceptability of suggesting condom use, refusing sex</p> <p style="padding-left: 40px;"><input type="checkbox"/> Age difference of sex partner</p> <p style="padding-left: 40px;"><input type="checkbox"/> Decision making about own health</p> <p><input type="checkbox"/> Marriage/union</p> <p style="padding-left: 40px;"><input type="checkbox"/> choice of spouse</p> <p style="padding-left: 40px;"><input type="checkbox"/> age < 15 years old / < 18 years old</p> <p><u>Sexual health:</u></p> <p><input type="checkbox"/> Sex before age 15</p> <p><input type="checkbox"/> History of sexual violence (recent/ever) and or by age 18 years</p> <p><input type="checkbox"/> History of female genital cutting</p> <p><u>Reproductive/maternal health:</u></p> <p><input type="checkbox"/> Parity/grand-multiparity</p> <p><input type="checkbox"/> Adolescent pregnancy</p> <p><input type="checkbox"/> Obstetrical history</p> <p style="padding-left: 40px;"><input type="checkbox"/> self – complications/adverse outcome</p> <p style="padding-left: 40px;"><input type="checkbox"/> other – complications/adverse outcome</p> <p><input type="checkbox"/> Four or more antenatal visits</p> <p><input type="checkbox"/> Early postnatal/postpartum care (within 2 days)</p> <p><input type="checkbox"/> Uterotonic immediately after birth (facility birth)</p> <p><input type="checkbox"/> Contraception use</p> <p><input type="checkbox"/> Religion:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Education:</p>
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	<p><i>Definition/stratification:</i></p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Primary/secondary/tertiary education</p> <p><input type="checkbox"/> Literacy</p> <p><input type="checkbox"/> Socioeconomic status:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Access to safely managed sanitation services (e.g. hand-washing with water and soap)</p> <p><input type="checkbox"/> Children with stunting < 5 years of age</p> <p><input type="checkbox"/> Primary reliance on clean fuels and technology</p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Ownership (goods/land/bank account)</p> <p><input type="checkbox"/> Technology use (mobile phone/internet/media)</p> <p><input type="checkbox"/> Social capital:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Personal characteristics that attract discrimination:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Young/old age</p> <p><input type="checkbox"/> Orphan</p> <p><input type="checkbox"/> Sex worker</p>
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	<p><input type="checkbox"/> Features of relationships:</p> <p><i>Definition/stratification:</i></p> <p><u>Gender:</u></p> <p><input type="checkbox"/> Single/divorced/widowed</p> <p><input type="checkbox"/> Husband's characteristics (e.g. education, etc.)</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Time-dependent relationships:</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> Pregnant/postpartum/breastfeeding</p> <p><input type="checkbox"/> Humanitarian setting (e.g. refugee, internally displaced person)</p> <p><input type="checkbox"/> Political instability</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p> <p><input type="checkbox"/> other: _____</p> <p><i>Definition/stratification:</i></p>
<p>34. Systematic determinants that were statistically significant (<i>check all correct answers</i>)</p>	<p><input type="checkbox"/> Maternal mortality ratio</p> <p><input type="checkbox"/> Maternal cause of death (based on ICD-MM coding)</p> <p><input type="checkbox"/> Maternal death registration</p> <p><input type="checkbox"/> Under-5 mortality rate</p> <p><input type="checkbox"/> Neonatal mortality rate</p>

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	<input type="checkbox"/> Proportion of children < 5 years old with registered birth <input type="checkbox"/> Stillbirth rate <input type="checkbox"/> C-section rate <input type="checkbox"/> Availability of functional Emergency Obstetric Care facilities <input type="checkbox"/> Adolescent mortality rate <input type="checkbox"/> Out-of-pocket as a percentage of total health expenditure <input type="checkbox"/> Current country health expenditure per capita <input type="checkbox"/> Presence of laws/regulations that guarantee SRH care
<p>35. Confounding factors/effect modifiers:</p>	
<p>36. Results (specify, e.g. OR, RR, IRR)</p>	

