Appendix A - Systematic review protocol

Systematic Literature Review on the utilisation of Sexual and Reproductive Health (SRH) interventions in Humanitarian Crises Settings

1. Aim
We aim to conduct a mixed-methods systematic review to address the following question: what is the evidence base for the service utilisation of SRH interventions including the MISP from the onset of emergencies?

Specifically, we will focus on examining the evidence base for the change in service-use over time of the MISP overall and its four pillars (i.e. Use of EmONC services, use of condoms and/or contraceptives, use of HIV and STI screening services, use of abortion services, use of adolescent health services, and use of psychological support services by sexual violence survivors).

Determinants of service utilisation of SRH interventions including the MISP will also be examined to inform the quantified change in service-use (i.e. Population targeting, costs, knowledge of services, perceived quality of services through provider/client satisfaction).

2. Methods
This systematic literature review aims to provide a situational analysis of the existing evidence on the service utilisation of SRH interventions including the Minimum Initial Service Package (MISP) in humanitarian crises settings from January 1, 1980 to April 10, 2017.

As this review will use both quantitative and qualitative data, the systematic review methodology will adhere to both the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement for quantitative data [2] and the Critical Appraisal Skills Programme (CASP) tool for Qualitative Research. [5]

2.1 Key terms:
The following key terms and concepts relate to this systematic literature review, their definitions having been adapted from the World Health Organization (WHO) Humanitarian Health Action Dictionary. [3]

Public Health Intervention: Public health actions that seek to improve health outcomes.

Humanitarian crisis: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources, necessitating a request to national or international level for external assistance. The disaster situation may be either manmade (e.g. armed conflict) or a natural phenomenon (e.g. drought).

Man-made humanitarian disasters: These include international armed conflicts; non-international armed conflicts; and other situations of violence. [4]
Natural disasters: These include hazardous natural phenomena leading to humanitarian crises such as earthquakes; volcanic activity; landslides; tsunamis; tropical cyclones and other severe storms; tornadoes and high winds; floods, and droughts.

Early Recovery: Early Recovery is defined as recovery that begins early in a humanitarian setting. It is a multi-dimensional process, guided by development principles. It aims to generate self-sustaining nationally owned and resilient processes for post-crisis recovery.

2.2 Search strategy and search terms
This literature review will use peer-reviewed literature, which will be located using the following electronic bibliographic databases: Medline, Embase, Global Health, and PsychINFO. The search structure will consist of the following:
- terms related to humanitarian crises;
- AND terms related to public health interventions;
- AND terms related to lower and middle income economies;
- AND terms related to SRH interventions including the MISP
- AND terms related to service utilisation

The search terms used for the main bibliographic databases are given in Section 2. The additional specific search terms related to the MISP and service utilisation will then be added on (see Section 3 and 4).

Searches were supplemented by reviewing the reference lists (‘references of references’) of selected articles to find any other relevant papers.

2.3 Inclusion/exclusion criteria
The following seven key inclusion criteria will be used in this review:

- **Types of studies:** Primary quantitative research studies. Study designs including randomised controlled trials, non-randomised controlled trials, controlled before-after studies, controlled interrupted time series studies, economic studies (cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis, economic modelling) of public health which the outcome is measured before and after the intervention or an intervention is studied against another intervention with baseline or control group.
  
  Primary qualitative studies. Study designs including focus group discussions, in-depth interviews, and structured observations, limiting studies to those with an observable contrast of time and/or a control group.

- **Populations of interest:** Populations affected by humanitarian crises and receiving humanitarian assistance in low and middle-income countries (based upon World Bank country classification).

- **Health outputs of interest:** Primary quantitative research studies: To assess service utilisation, specific indicators used will include self-reported use and/or confirmed use of MISP services (i.e. use of EmONC services, use of condoms and/or contraceptives, use of HIV and STI screening services, use of abortion services, use of adolescent health services, and use of psychological support services by sexual violence survivors). Self-reported use is when a beneficiary reports the use of a product or service without additional verification; this indicator is often biased.
Confirmed use is when the evaluation tests, observes or confirms a product or service was used in some way (e.g. via observation).

*Primary qualitative research studies:* Studies that use focus group discussions, in-depth interviews, or semi-structured interviews to explore the determinants of service utilisation of the MISP and its components will be included.

- **Crisis Phase:** Studies that occur in humanitarian crises including those that evaluate: i) the impact of preparedness and resilience on public health outcomes during a humanitarian crises and/or ii) studies that evaluate the impact of public health interventions during the acute, chronic, or early recovery phases of humanitarian crises. An acute phase is defined as an outbreak of a crisis situation which results in destruction of lives and property, as well as population displacements. Chronic phase encompasses a prolonged crisis, when displaced populations (e.g. forced migrants) are settled in temporary locations, either in camps or within host communities. Early recovery phase is defined as when the affected population(s) are in a more stable period of transition.

- **Data type(s):** Must include primary data.

- **Date of intervention and publication:** January 1, 1980 – April 10, 2017.

- **Publication language:** English, French.

The following criteria will be used to exclude studies from this review:

- Studies with no specific health intervention and no outputs (i.e., excluding studies that examine only health needs, prevalence, health risk-factors, health outcomes, co-ordination).
- Studies that examine preparedness and resilience not linked to health outcomes in humanitarian crises (e.g. studies on housing fortification before flooding).
- Review papers; only references listed in review papers were screened to find more primary data sources.

### 2.4 Study screening and data extraction

The systematic literature review will be conducted by two reviewers for quality assurance.

Data will be screened with the following five stages:

- **Stage One:** electronic database search using terms; with results imported into reference management software, and duplicates removed.
- **Stage Two:** title and abstract reviewed to remove studies not meeting the inclusion criteria (see above).
- **Stage Three:** manuscript review to remove studies that did not meet inclusion criteria; paper selection.
- **Stage Four:** review of references of selected papers (from Stage Three).
- **Stage Five:** final paper selection, data extraction, and quality assessment.
Data will be extracted based on the specific points noted below and inputted into a standardised Excel database:

- study authors or agency, year
- study country
- setting: urban or rural
- population type (refugee; internally displaced; entrapped population; host population)
- humanitarian crises type (armed conflict or natural disaster)
- health outcome(s) addressed by the public health intervention
- type(s) of public health intervention
- study design
- target age group: i) infants: under 6 months; ii) infants and young children: under two years; iii) children under five: 6 months - 59 months; iv) school age children: 6 years - 15 years; v) adolescents: 10 years - 19 years;* vi) adults: 20 years - 49 years; vii) elderly: 50+ years
- quality of the evidence on specific interventions
- change in quantity of evidence over time
- change in quality of evidence over time
- research strengths from the literature
- research gaps from the literature
- measurement outputs for quantitative data (e.g. confirmed use and/or self-reported use of services, etc)
- major themes in determinants of service utilisation from qualitative data

2.5 Quantitative data categorisation and analysis

Data findings will be organised in relation to the key issues of quantity and quality of the evidence base. To increase clarity of the final results, the studies selected at Stage Five will be arranged into three main categories of evidence (Error! Reference source not found.):

Table 1: Categorisation of selected literature

<table>
<thead>
<tr>
<th>Category A:</th>
<th>Studies that measure statistical associations between intervention and health-related outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category B:</td>
<td>Studies that measure changes in health-related outcome, but do not report statistical associations.</td>
</tr>
<tr>
<td>Category C:</td>
<td>Outcomes not measured (e.g. outputs, processes, perceptions)</td>
</tr>
</tbody>
</table>

As indicated in Error! Reference source not found., Categories A and B roughly correspond to evidence that is expected to be of high to moderate quality. Given the generally much weaker value of evidence in Category C, data extracted from studies classified as Category C was limited to the existence of the study alone.
The quality assessment of quantitative studies (Categories A and B) that will be included in the systematic literature review will be reviewed based upon criteria adapted from the STROBE and CONSORT standards for observational studies and clinical trials, respectively. The adaptations are outlined in Error! Reference source not found. and scoring levels given in Error! Reference source not found..

Table 2: Quality review criteria for quantitative studies (adapted from STROBE and CONSORT)

<table>
<thead>
<tr>
<th>STROBE Criteria for Observational Studies*</th>
<th>CONSORT Criteria for Clinical Trials*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention:</td>
<td>Eligibility</td>
</tr>
<tr>
<td>1. Is the intervention clearly described?</td>
<td>1. Did study state # not meeting inclusion criteria?</td>
</tr>
<tr>
<td>Selection of participants:</td>
<td>2. Did study state # declined to participate?</td>
</tr>
<tr>
<td>2. Is the target population defined?</td>
<td>Once Randomized:</td>
</tr>
<tr>
<td>3. Is there a comparison group (e.g. baseline, control)?</td>
<td>Allocation:</td>
</tr>
<tr>
<td>4. Are the inclusion and exclusion criteria defined?</td>
<td>3. Did study state # receiving intervention?</td>
</tr>
<tr>
<td>Statistical methods:</td>
<td>4. Did study state # not receiving intervention?</td>
</tr>
<tr>
<td>5. Is the sample size / method justified with statistical basis?</td>
<td>Follow-Up:</td>
</tr>
<tr>
<td>6. Is there a statistical test (p-value or confidence interval)?</td>
<td>5. Did study state # lost to follow-up?</td>
</tr>
<tr>
<td>7. Is there adjustment for confounding?</td>
<td>6. Did study provide reasons for loss to follow-up?</td>
</tr>
<tr>
<td>Limitations:</td>
<td>Analysis:</td>
</tr>
<tr>
<td>8. Are study limitations explained (e.g. biases)?</td>
<td>7. Did study state reasons participants were excluded from analysis?</td>
</tr>
<tr>
<td></td>
<td>8. Are limitations of the study explained (e.g. biases)</td>
</tr>
</tbody>
</table>

Table 3: Quality assessment corresponding to adapted STROBE and CONSORT criteria for quantitative studies

<table>
<thead>
<tr>
<th>Level of Quality</th>
<th>Rating of Evidence per STROBE / CONSORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH</td>
<td>7-8 criteria met = high quality evidence</td>
</tr>
<tr>
<td>MODERATE</td>
<td>4-6 criteria met = moderate quality evidence</td>
</tr>
<tr>
<td>LOW</td>
<td>1-3 criteria met = low quality evidence</td>
</tr>
</tbody>
</table>
2.6 Qualitative data categorisation and analysis

To assess the determinants of service utilisation, a comparative thematic analysis will be conducted through the meta-analysis of common themes that emerge (e.g. Population targeting, costs, knowledge of services, perceived quality of services through provider/client satisfaction). Although some themes will be identified a priori, the analysis will be guided by emerging findings. The CASP Qualitative Appraisal checklist will be used to determine the quality of qualitative studies.

The quality assessment of qualitative studies that will be included in the systematic literature review. The adaptations are outlined in Table 4 and scoring levels given in Table 5.

Table 4: Quality review criteria for qualitative studies (adapted from CASP)

<table>
<thead>
<tr>
<th>CASP Checklist for Qualitative Studies</th>
<th>Yes</th>
<th>No</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research design:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Was the research design appropriate to address the aims of the research?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Was the data collected in a way that addressed the research issue?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Selection of participants:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Was the recruitment strategy appropriate to the aims of the research?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ethical considerations:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Has the relationship between researcher and participants been adequately considered?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Have ethical issues been taken into consideration?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analysis:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Was the data analysis sufficiently rigorous?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Is there a clear statement of findings?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. How valuable is the research?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Quality assessment corresponding to adapted CASP criteria for qualitative studies

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</tr>
<tr>
<td>LOW</td>
<td>1-3 criteria met = <strong>low</strong> quality evidence</td>
</tr>
</tbody>
</table>
3. Search terms used for key bibliographic databases
(see Section 4 and 5 for specific search terms related to the effectiveness and service utilisation of SRH interventions which were added on to these)

1 exp Disasters
2 exp Relief Work
3 Rescue Work
4 Emergencies
5 Emergency Medicine
6 Emergency Medical Services
7 Disaster Medicine
8 Mass Casualty Incidents
9 Emergency Responders
10 Medical Missions, Official
11 (humanitarian adj2 (crisis or crises or relief or response or agenc$)).tw.
12 humanitarian.tw.
13 (disaster adj3 (relief or plan$)).tw.
14 ((relief or aid) adj2 work$).tw.
15 Refugees
16 (refugee or evacuee or evacuated).tw.
17 (displace$ adj2 (force$ or population or human or internal$)).tw.
18 Altruism
19 exp War
20 war.tw.
21 ((armed or zone) adj2 conflict$).tw.
22 (conflict affected adj3 (population$ or person$ or communit$)).tw.
23 Avalanches
24 Earthquakes
25 Floods
26 Landslide
27 Tidal Waves
28 Tsunamis
29 Cyclonic Storms
(typhoon$ or hurricane$ or cyclone$).tw.
(avalanche$ or earthquake$ or flood or floods or flooding or flooded or landslide$ or tsunami$).tw.
(disaster adj2 (natural or victim)).tw.
Droughts
drought$.tw.
Starvation
(starvation or famine$).tw.
or/1-36
randomized controlled trial
controlled clinical trial
cross-sectional studies
case-control studies
cohort studies
piot studies
(random$or controlled).tw.
(control adj3 (area or cohort? or compare? or condition or design or group? or intervention? or participant? or study)).ab. not (controlled clinical trial or randomized controlled trial).pt.
((evaluat$ or prospective or retrospective) adj1 study).tw.
(“quasi-experiment$” or quasixperiment$ or ”quasi random$” or quasirandom$ or “quasi control$” or quasicontrol$ or ((quasi$ or experimental) adj3 (method$ or study or trial or design$))).tw.
("time series" adj2 interrupt$).tw.
(intervention$ or impact or effectiveness or efficacy or service$ or outcome$ or output or treatment$ or management or program$ or project$).tw.
((("semi-structured" or semistructured or unstructured or informal or "in-depth" or indepth or "face-to-face" or structured or guide) adj3 (interview* or discussion* or questionnaire*))).ti,ab. or (focus group* or qualitative or ethnograph* or fieldwork or "field work" or "key informant").ti,ab. or interviews as topic/ or focus groups/ or narration/ or qualitative research/
economics
cost-benefit analysis
cost control
Cost savings
cost of illness
cost $utility.tw.
(Cost$ adj2 effective$).tw.
cost-effective$.tw.
(cost adj3 utility).tw.
cost-utilit$.tw.
or/38-60
developing countries
exp asia
exp africa
exp pacific islands
exp eastern europe
exp china
balkan peninsula/ or europe, eastern/ or transcaucasia
caribbean region/ or central america/ or "gulf of mexico"/ or latin america/ or south america
atlantic islands/ or indian ocean islands/ or macau/ or pacific islands/ or philippines/ or prince edward island/ or svalbard/ or west indies
or/62-70
Japan
71 not 72
37 and 61 and 73
limit 74 to yr="1980 -2017"
4. Search terms specific to the Utilisation of SRH interventions including the MISP

Sources:
Published literature: Embase, Global Health, Medline, International Bibliography of the Social Sciences (IBSS), PsychINFO and Web of Science.

Sexual and Reproductive Health


Contraception


Emergency Contraception:

Medical abortion

Surgical abortion

Abortion-related complications
HIV/AIDS

STIs

PMTCT

Pregnancy, Maternal and Newborn Health

Vaginal Injury & Fistulas

Adolescent Health

Gender-based violence

5. Search terms specific to service utilisation of SRH interventions including the MISP

Sources:
Published literature: Embase, Global Health, Medline, International Bibliography of the Social Sciences (IBSS), PsychINFO and Web of Science.