WHO Guidelines on

Preventing Early Pregnancy and Poor Reproductive Outcomes

Among Adolescents in Developing Countries

World Health Organization

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Mengistu Asnake, Sylvia Deganus, Elizabeth Mapella, Eliya Zulu, Ximena Abarca, Michelle Hindin, Tania Lago, Ximena Luengo, Ruth Dixon-Mueller, James Rosen, Nancy Williamson, Sherine Shawky, Dan Apter, Quamrun Nahar, Sudha Sharma, Juanita Basilio, Natalie Gray, Saramma Mathai, Kechi Ogbuagu, Sylvia Wong, Patty Alleman, Marisaa Billowitz, Debra Jones and Roza Olyai.

The following WHO staff participated in the Guidelines Development Committee:

- Department of Child and Adolescent Health and Development: Elizabeth Mason, Venkatraman Chandra-Mouli, Alma Virginia Camacho and Jane Ferguson;
- Department of Research, Policy and Coordination: Regina Kulier;
- Department of Making Pregnancy Safer: Matthews Mathai, Razia Pendse and Anayda Portela;
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FOREWORD

About 16 million adolescent girls between 15 and 19 years of age give birth each year. Babies born to adolescent mothers account for roughly 11% of all births worldwide, with 95% occurring in developing countries. For some of these young women, pregnancy and childbirth are planned and wanted, but for many others they are not. There are several factors that contribute to unplanned and unwanted pregnancies in adolescence. Adolescents may be under pressure to marry and to bear children early, they may have limited educational and employment prospects. Some do not know how to avoid a pregnancy, while others are unable to obtain condoms and contraceptives to do so. Adolescents may be unable to refuse unwanted sex or to resist coerced sex. Those that do become pregnant are less likely than adults to be able to obtain legal and safe abortions to terminate their pregnancies. They are also less likely than adults to obtain skilled prenatal, childbirth and postnatal care.

Childbirth at an early age is associated with greater health risks for the mother. In low- and middle-income countries, complications of pregnancy and childbirth are the leading cause of death in young women aged 15–19 years. Unwanted pregnancies may end in abortions, which are often unsafe in this age group. There were an estimated 3 million unsafe abortions among 15–19 year olds in 2008.

The adverse effects of adolescent childbearing also extend to the health of their infants. Perinatal deaths are 50% higher among babies born to mothers under 20 years of age than among those born to mothers aged 20–29 years. Babies of adolescent mothers are also more likely to be of low birth weight, with the risk of associated long-term effects.

There is a growing recognition that adolescent pregnancy contributes to maternal mortality, to perinatal and infant mortality, and to the vicious cycle of ill-health and poverty. The Global Strategy for Women's and Children's Health, launched by the UN Secretary General in September 2010, stresses the importance of addressing the health and welfare of adolescent girls, especially towards achieving MDG-5 related to maternal mortality reduction.

The *WHO Guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries* provides recommendations on action and research for: a) preventing early pregnancy: by preventing marriage before 18 years of age; by increasing knowledge and understanding of the importance of pregnancy prevention; by increasing the use of contraception; and by preventing coerced sex; b) preventing poor reproductive outcomes: by reducing unsafe abortions; and by increasing the use of skilled antenatal, childbirth and postnatal care.

These guidelines are primarily intended for policy-makers, planners and programme managers from governments, nongovernmental organizations and development agencies. They are also likely to be of interest to public health researchers and practitioners, professional associations and civil society organizations.

They have been developed through systematic review of the evidence and technical expertise of policy-makers, programme managers and front-line workers from countries around the world, in partnership with many key international organizations working in this field. Similar partnerships have been forged to distribute them widely and to support their use.

FOREWORD

In July 2010, the United Nations General Assembly held a high-level meeting on youth. At this meeting heads of state and governments, ministers and other governmental representatives committed to ensuring that the needs and problems of young people are recognized and addressed. Twenty-five United Nations bodies, including the World Health Organization (WHO), endorsed a joint commitment to intensifying efforts to develop comprehensive policies, multisectoral programmes, strengthened capacities and effective youth participation for youth development. These guidelines are an expression of WHO's commitment to the health and well-being of the world's adolescents and young people.

Dr Elizabeth Mason
Director
Department of Maternal, Newborn, Child and Adolescent Health
World Health Organization

WHO

Executive Summary

EXECUTIVE SUMMARY

Objectives

WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries aims to improve adolescent morbidity and mortality by reducing the chances of early pregnancy and its resulting poor health outcomes.

The publication's two main objectives are to:

(1) identify effective interventions to prevent early pregnancy by influencing factors such as early marriage, coerced sex, unsafe abortion, access to contraceptives and access to maternal health services by adolescents; and

(2) provide an analytical framework for policy-makers and programme managers to use when selecting evidence-based interventions that are most appropriate for the needs of their countries and contexts.

Rationale

Adolescent maternal mortality and morbidity represent a substantial public health problem at the global level. Adolescents who are 15–19 years of age are twice as likely to die during pregnancy or childbirth compared to women over 20 years of age; adolescents under 15 years of age are five times more likely to die during pregnancy or childbirth (*1*). An estimated 2.0–4.4 million adolescents in developing countries undergo unsafe abortions each year (*2*). Additionally, adolescent mothers are more likely to have low birth weight babies who are at risk of malnourishment and poor development. Infant and child mortality is also highest among children born to adolescent mothers (*3*).

Policy-makers and programme managers in developing countries have requested guidance from the World Health Organization (WHO) on the most effective interventions to reduce maternal mortality and morbidity among adolescents and to prevent early pregnancies. These recommendations allow policy-makers and programme managers to determine the best next steps in policies and programming. Guidance on effective interventions is also critical to: achieving the Millennium Development Goals (MDGs); improving the health and well-being of adolescent mothers; and strengthening the health of families and communities.

Target Audiences

The primary audience for the recommendations is policy leaders/planners and programme managers from governments, nongovernmental organizations (NGOs) and donor organizations working in developing countries. The recommendations are also of interest to health-care providers and researchers at global and country levels, officials from ministries of health, professional associations, programme managers, technical and implementing agencies and advocacy groups.

Recommendations

The following pages contain a summary of the recommendations for each of the six major outcomes presented in this guideline. Both action and research recommendations are listed.

OUTCOME 1:
Reduce marriage before the age of 18 years

RECOMMENDATIONS FOR ACTION

Strong recommendations:

- Encourage political leaders, planners and community leaders to formulate and enforce laws and policies to prohibit marriage of girls before 18 years of age.
- Undertake interventions to delay marriage of girls until 18 years of age by influencing family and community norms. These interventions should be undertaken in conjunction with interventions directed at political leaders/planners.
- Implement interventions to inform and empower girls, in combination with interventions to influence family and community norms, to delay the age of marriage among girls under 18 years of age.
- Increase educational opportunities for girls through formal and non-formal channels, to delay marriage until 18 years of age.

RECOMMENDATIONS FOR FURTHER RESEARCH

Undertake research to:

- identify effective interventions that result in the formulation, enforcement and monitoring of laws and policies, including unintended harmful consequences;
- determine the feasibility, effectiveness and long-term impact of economic incentives to adolescent girls and their families as a means of delaying the age of marriage until 18 years of age;
- determine the feasibility and scale up of interventions to inform and empower girls, in combination with interventions to influence family community norms, to delay the age of marriage among girls until 18 years of age;
- assess the impact of improved educational availability and school enrolment on age of marriage;
- assess the feasibility of interventions to improve the livelihoods of adolescent girls as well as their impact on delaying the age of marriage.

OUTCOME 2:
Reduce pregnancy before the age of 20 years

RECOMMENDATIONS FOR ACTION

Strong recommendations:

- Advocate for adolescent pregnancy prevention among all stakeholders through interventions such as: information provision, sexuality and health education, life skills building, contraceptive counselling and service provision, and the creation of supportive environments.
- Maintain and improve efforts to retain girls in school, both at the primary and secondary levels.
- Offer interventions that combine curriculum-based sexuality education with contraceptive promotion to adolescents, in order to reduce pregnancy rates.
- Offer and promote postpartum and post-abortion contraception to adolescents through multiple home visits and/or clinic visits to reduce the chances of second pregnancies among adolescents.

RECOMMENDATIONS FOR FURTHER RESEARCH

Undertake research to:

- determine the effectiveness of interventions among adolescents and other stakeholders to reduce chances of pregnancy among girls under 20 years of age. This research should address varying sociocultural contexts;
- explore the effect of socioeconomic improvements, brought about by employment and school retention, for example, on adolescent pregnancy and its mediating determinants within family settings;
- determine the effect of availability of formal and non-formal education on adolescent pregnancy prevention. This research should consider potential mediating factors such as socioeconomic and marital status;
- determine the effect of targeted interventions for education retention (e.g. conditional or unconditional cash-transfer interventions) and policies (including support for adolescent mothers) on delaying pregnancy and reducing chances of second pregnancies:
- design and assess the feasibility and effectiveness of social support interventions to reduce repeat pregnancies among adolescents.

OUTCOME 3:
Increase use of contraception by adolescents at risk of unintended pregnancy

RECOMMENDATIONS FOR ACTION

Strong recommendations:

- Undertake efforts with political leaders and planners to formulate laws and policies to increase adolescent access to contraceptive information and services, including emergency contraceptives.
- Undertake interventions to influence community members to support access to contraceptives for adolescents.
- Implement interventions to improve health service delivery to adolescents as a means of facilitating their access to and use of contraceptive information and services.
- Implement interventions at scale that provide accurate information and education about contraceptives, in particular curriculum-based sexuality education (CBSE), to increase contraceptive use among adolescents.
- Conditional recommendation:
- Implement interventions to reduce the financial cost of contraceptives to adolescents.

RECOMMENDATIONS FOR FURTHER RESEARCH

Undertake research to:

- identify feasible and effective interventions that result in the formulation of such laws and policies;
- identify and evaluate interventions that influence community members' support for access to contraceptives for adolescents;
- identify feasible and effective interventions to improve the availability of over-the-counter hormonal contraceptives to adolescents;
- determine the effectiveness of interventions that provide accurate information and education about contraceptives in various settings and populations (both in-school and out-of-school);
- identify feasible and effective interventions that aim to involve adolescent and adult males in decisions about contraceptive use by partners as well as by themselves, including interventions that aim to transform gender norms;
- determine the feasibility, sustainability and impact of specifically reducing the financial cost of contraceptives to adolescents.

OUTCOME 4:
Reduce coerced sex among adolescents

RECOMMENDATIONS FOR ACTION

Strong recommendations:

- Continue efforts with political leaders, planners and the community to formulate laws and policies that punish perpetrators of coerced sex involving adolescent girls, to enforce these laws and policies in a way that empowers victims and their families, and to monitor their enforcement.
- Implement interventions to enhance adolescent girls' abilities to resist coerced sex and to obtain support if they experience coerced sex by:
- building their self-esteem;
- developing their life skills in areas such as communication and negotiation; and
- improving their links to social networks and their ability to obtain social support.
- The above interventions should be combined with interventions to create supportive social norms that do not condone coerced sex.
- Implement interventions to engage men and boys to critically assess gender norms and normative behaviours (e.g. gender transformative approaches) that relate to sexual coercion and violence. Combine these with wider interventions to influence social norms on these issues.

RECOMMENDATIONS FOR FURTHER RESEARCH

Undertake research to:

- assess how laws and policies to prevent coerced sex involving adolescent girls have been formulated, enforced and monitored;
- determine the effectiveness of these laws and policies in preventing coerced sex among adolescents.

OUTCOME 5:
Reduce unsafe abortion among adolescents

RECOMMENDATIONS FOR ACTION

Strong recommendations:

- Ensure that laws and policies enable adolescents to obtain safe abortion services.
- Enable adolescents to obtain safe abortion services by informing them and other stakeholders about:
- the dangers of unsafe methods of interrupting a pregnancy;
- the safe abortion services that are legally available; and
- where and under what circumstances these services can be obtained legally.
- Identify and overcome barriers to the provision of safe abortion services to adolescents.
- Ensure access to post-abortion by adolescents care as a life-saving medical intervention, whether or not the abortion or attempted abortion was legal.
- Ensure that adolescents who have had abortions can obtain post-abortion contraceptive information and services, whether or not the abortion was legal.

RECOMMENDATIONS FOR FURTHER RESEARCH

Undertake research to:

- assess their enforcement and impact of laws and policies that enable safe abortion services for adolescents (where they exist);
- determine the feasibility and effectiveness of interventions to reduce barriers to the provision of safe, legal abortion services to adolescents;
- investigate the feasibility and effectiveness of interventions to ensure access to post-abortion care by adolescents.

OUTCOME 6:
Increase use of skilled antenatal, childbirth and postnatal care among adolescents

RECOMMENDATIONS FOR ACTION

Strong recommendations:

- Provide information to all pregnant adolescents and other stakeholders about the importance of utilizing skilled antenatal care.
- Provide information to all pregnant adolescents and other stakeholders about the importance of utilizing skilled childbirth care.
- Promote birth and emergency preparedness in antenatal care strategies for pregnant adolescents (in household, community and health facility settings).
- Expand the availability and access to basic emergency obstetric care (BEmOC) and comprehensive emergency obstetric care (CEmOC) to all populations, including adolescents.

RECOMMENDATIONS FOR FURTHER RESEARCH

Undertake research to:

- identify interventions that improve access to and use of services by informing adolescents and other stakeholders about the importance of skilled antenatal and childbirth care for pregnant adolescents;
- identify the types of changes to health services that can improve adolescents' access to and use of skilled antenatal care;
- identify effective interventions to improve birth and emergency preparedness for adolescents (this research should examine both proximal outcomes, such as improved use of care, as well as distal outcomes, such as maternal mortality and morbidity);
- identify the types of changes that need to be made to health services in order to improve adolescents' access to and use of skilled childbirth care;
- identify effective interventions to reduce barriers to access and use of skilled care for adolescents during antenatal, childbirth and postnatal periods;
- identify effective interventions for tailoring antenatal, childbirth and postnatal care services to adolescents;
- identify interventions to expand the availability of and access to BEmOC and CEmOC for adolescents.

Methodology

The recommendations reflected in these guidelines were developed based on a systematic review of evidence of the effectiveness of interventions from low- and middle-income countries combined with an external expert panel consultation.

In 2009, the Child and Adolescent Health department of the World Health Organization (WHO) initiated a systematic review entitled "Preventing too-early pregnancies and poor reproductive outcomes among adolescents in developing countries" in collaboration with the departments of Reproductive Health and Research (RHR) and Making Pregnancy Safer (MPS). The group commissioned key technical institutions, including the Guttmacher Institute, the International Center for Research on Women (ICRW), the United Nations Population Fund (UNFPA), Family Health International (FHI), the Population Council and Centro Rosarino de Estudios Perinatales (CREP). Further review was provided by the United States Agency for International Development (USAID), UNFPA and the International Planned Parenthood Federation (IPPF), as well as other organizations included in the expert panel (see Annex 1).

Key steps in the systematic review process:[1]

KEY STEP	TIMELINE
1 **Proposal for WHO Guidelines Review Committee**	Approved April 2009
2 **Scoping:** • Review existing guidelines • Select critical outcomes and draft key questions	January 2009- April 2009
3 **Formation of and consultation with the expert panel**	May-August, 2009 (Internet)
4 **Implementation of a step-by-step methodology following GRC guidelines:** • Score critical outcomes and refining key questions • Develop and implement search strategies in electronic databases • Screen, abstract and review full text of relevant systematic reviews, individual studies and grey literature relevant to key questions • Synthesize and grade the evidence • Develop recommendations using GRADE[1] criteria	May 2009- October 2010
5 **Meeting of global panel of experts**	November 2010
6 **Final guidelines report**	December 2010
7 **Clearance by Guidelines Review Committee**	First Quarter 2011
8 **Publication and dissemination**	2011

[1] Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group (http://www.gradeworkinggroup.org, accessed 16 September 2011).

In November 2010, an expert panel meeting (see Annex and 2) was organized by the WHO CAH/RHR/MPS departments.

Summary of declaration of interest

During the guidelines development process, all authors including the expert panel, affirmed that they have no conflict of interest concerning the subject or materials, and individually completed the requisite Declaration of Interest form.

During the expert panel meeting, following an explanation of the declaration of interest process, each participant was asked to stand and make a declaration of interest (declaring a conflict of interest or no conflict of interest). Consultants who participated in the systematic reviews declared their participation in the process and therefore abstained from further commenting on the evidence and from articulating the recommendations. Other experts who were not responsible for data collection and synthesis mentioned that, while they had no specific conflicts, they were actively engaged in scholarly or professional work in one or more of the topic areas that were discussed.

Dissemination plan

WHO/CAH outlined a plan to disseminate the recommendations developed through the systematic review and expert panel process. The immediate plan is to disseminate the guidelines once approved, to identify the gaps in the evidence and areas for further research; and to develop guidance tools for developing priorities for action and research. The long-term objectives are to mobilize support to produce evidence at the country level and promote policy changes with respect to information, services and training at the global level.

Changes to the scope

There are no anticipated changes to the scope of this document.

Plan to review and update the guidelines

These guidelines should be reviewed and updated five years after publication. Between the publication and the review date, organizations may request WHO to revise specific aspects of the recommendations based on new evidence.

Joey O'Loughlin

Introduction

Against the backdrop of the Millennium Development Goals (MDGs) and other international commitments to reduce poverty and improve sexual and reproductive health outcomes among adolescents, together with the social context of adolescents in the global community, efforts to effectively address adolescent health outcomes present complex challenges. While some trends in adolescent health and social outcomes have improved over the past three decades, including school enrolment and retention, early marriage and early pregnancy (*5*), disparities in many adolescent health outcomes persist by age, income, gender, region and other sociocultural factors. Adolescents are a diverse group of people whose capacities and needs differ by age, sex, living arrangements, area of residence, level of education, and by their status in terms of marriage, childbearing and employment. These differences must be addressed when attempting to improve and maintain their health and development.

Adolescents are a critical target population with regard to influencing global public health outcomes. Young people below 25 years of age represent almost 50% of the world's population. Furthermore, nearly 85% of the world's adolescent population lives in developing countries (*6*). In a number of countries in sub-Saharan Africa, population below 15 years of age is five times greater than the population over 55 years of age (*5*). This subset of the world's population is often disproportionately affected by social and economic inequities that characterize the development landscape. This makes them more vulnerable to poor health outcomes, especially outcomes related to sexual and reproductive health.

Determinants and consequences of early pregnancy

Key determinants of adolescent pregnancy include early marriage, sexual coercion and lack of access to and use of contraception. Consequences of early pregnancy can include morbidity and mortality attributable to low access to skilled antenatal, childbirth and postnatal care as well as unsafe abortions (*7*). Structural inequities and the social environment place certain groups of adolescents at risk of engaging in behaviours that jeopardize healthy transitions to adulthood. For example, poor adolescents are less likely to complete their schooling (*8*). Consequently, they often have less access to health information, since sexual and reproductive health education (to the extent that it takes place) is often provided to students in the higher grades. Over the past 15 years, fertility rate among the poorest adolescents in many countries has increased (*9*), and adolescent girls from the poorest fifth of the population are four times more likely to become pregnant than those in the richest fifth.

Adolescence represents a key stage in development and a critical opportunity for ensuring successful transition to adulthood. Poor sexual and reproductive health outcomes can often be traced to adolescence, when most people become sexually active (*7*). Educational achievement, life skills and decision-making around sexual behaviour and childbearing have profound effects on the lives of adolescents as well as their families, communities and society.

The role and approach of WHO

WHO has articulated both a definition of health and the importance of a supportive legislative and regulatory framework. Implicit in the framework of WHO's definition of health are the right to be informed about and to have access to safe, effective, affordable and acceptable methods of fertility regulation, the right of access to appropriate health

care services that enable women to go safely through pregnancy and childbirth, and the right for couples to have the best chance of having healthy children.

WHO's *Global reproductive health strategy* emphasizes the importance of legislative and regulatory frameworks that support and facilitate universal and equitable access to sexual and reproductive health services. It notes that it may often be necessary to remove existing legal and policy barriers that impede the use of life-saving interventions and other necessary services. Political, legal and regulatory environments are key determinants of accessibility to, and availability and quality of health services. Further, the human rights to participation and non-discrimination are essential to the process of developing supportive laws and policies.

UN Photo/Shehzad Noorani

I. Detailed Methodology

Overview of the guidelines development process

I. DETAILED METHODOLOGY

Overview of the guidelines development process

The following is an overview of the key steps for the guidelines development process and timeline:

KEY STEP	TIMELINE
1 **Proposal for WHO Guidelines Review Committee**	Approved April 2009
2 **Scoping:** • Review existing guidelines • Select critical outcomes and draft key questions	January 2009–April 2009
3 **Formation of and consultation with the expert panel**	May–August, 2009 (Internet)
4 **Implementation of a step-by-step methodology as per the Guidelines Review Committee:** • Score critical outcomes and refining key questions • Develop search strategies and implementing them in electronic databases • Screen, abstract and review full text of relevant systematic reviews, individual studies and grey literature relevant to key questions • Synthesize and grade the evidence • Develop recommendations using GRADE[1]	May 2009–October 2010
5 **Meeting of global panel of experts**	November 2010
6 **Final guidelines report**	December 2010
7 **Clearance by Guidelines Review Committee**	First Quarter 2011
8 **Publication and dissemination**	2011

The six critical outcomes of focus for the guidelines are as follows:

1. Reduce marriage before age 18
2. Reduce pregnancy before age 20
3. Increase use of contraception by adolescents
4. Reduce coerced sex among adolescents
5. Reduce unsafe abortion among adolescents
6. Increase use of antenatal, childbirth, and postnatal care by adolescents

1 Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group (http://www.gradeworkinggroup.org, accessed 16 September 2011).

I. DETAILED METHODOLOGY

Proposal for WHO Guidelines Review Committee

The WHO Child and Adolescent Health (CAH) department developed and presented a proposal to the WHO Guidelines Review Committee, which gave its approval in April 2009. In compliance with the recommended process for development of WHO recommendations/ guidelines, a core group (WHO Guidelines Group) of professional staff from different WHO departments (CAH, Reproductive Health and Research (RHR), Making Pregnancy Safer (MPS) working in the area of sexual and reproductive health, and led by CAH, was formed to work on the development of guidelines.

Scoping

The CAH team drafted a list of main outcomes that impact adolescent sexual and reproductive health in developing countries with a focus on preventing early pregnancies among adolescents. The WHO CAH department developed a series of key questions for each of the selected outcomes. RHR and MPS staff provided inputs and participated in meetings where all outcomes and questions were revised.

Peer review plan

A peer review process was used to review key questions, summaries of evidence and draft recommendations emerging from the expert panel meeting. The WHO Guidelines Group sent the proposed questions to a multidisciplinary group of experts in the field (30 researchers, programme experts, advocates, policy-makers, UN partners and/or donors) for comments and peer review.

The experts were asked to rate the outcomes according to its importance in reducing adolescent pregnancy and adolescent maternal morbidity and mortality. Experts were asked to rate each outcome on a scale of 1–9. Outcomes were defined as critical if they scored between 7 and 9 on average; important but not critical if they scored between 4 and 6 on average; and not important if they scored less than 4 on average. In addition, experts were asked to provide their perspectives about the relevance of each question to the outcome and to the overarching goal of the review. Experts were requested to provide inputs for each of the questions related to each outcome. They were asked to add other outcomes and questions that they considered necessary. All expert responses were reviewed by the WHO Guidelines Group, which formulated the final list of outcomes and key questions (see Annex 3).

Systematic review by outcome and institution commissioned

In December 2009, CAH convened a meeting with the institutions commissioned for the review. The institutions were selected based on their technical expertise in research and in each of the topics relevant for the guidelines. See the table below listing the commissioned institutions by outcome.

Key outcome	Institution commissioned
Early marriage	International Center of Research on Women (ICRW)
Coerced sex	The Population Council
Adolescent pregnancy	Family Health International (FHI)
Access to contraception	FHI
Safe abortion	Alan Guttmacher Institute (AGI)
Access and use of MCH services among adolescents	Centro Rosarino de Estudios Perinatales (CREP) – a WHO Collaborating Centre for Maternal and Perinatal Health in Argentina

I. DETAILED METHODOLOGY

Developing search strategies

Based on agreed key outcomes and questions, the WHO Guidelines Group developed search strategies for each outcome. The search strategies are appended by outcome (see Annexes 4 and 5).

The following are the parameters of the search strategies:

- There were no language restrictions. Reviewers were able to read English, French, Portuguese and Spanish. Reports in other languages were translated into English for those who required an English translation. Those who were able to read documents in their original language did so.
- Published and unpublished studies were included.
- Studies published until January 2010 were included. The search terms used included adolescents and primary terms from the outcomes and key questions decided by the expert panel and finalized by the WHO/CAH core team.
- Specific definitions and principles underlying some search terms were as follows:
  - Children: Human rights agreements (e.g. Convention on the Rights of the Child) define children as up to 18 years of age.
  - Early marriage: Before 18 years of age. Marriage before this age truncates important processes of reproductive organs development.
  - Early pregnancy: Pregnancy at less than 20 years of age, based on the assumption of pregnancy occurring at least one year after marriage.
  - Marginalized adolescents: Girls who are marginalized due to poverty, societal traditions and/or geographic location. These marginalizing factors hinder adolescents' access to education, health information and services, and safe places for personal growth and development.
- The settings were included in the search terms, based on the list of countries that fall under the World Bank groupings of low-income, lower-middle-income and upper-middle-income countries.
- Search strategies were customized for each electronic database according to their individual subject headings or searching structure.
- The databases that were searched are indicated for each outcome.

Implementing search strategies

The search strategies were implemented between January 2009 and February 2010. Commissioned organizations were given an electronic file with a compilation of relevant abstracts and asked to screen the titles and abstracts for relevant systematic reviews and individual studies. For systematic reviews and studies that responded to key questions and fitted the inclusion criteria, the full text was reviewed. All consultants were asked to identify relevant studies and reports from the grey literature.

GRADE evidence profiles and evidence for expert review

To formulate recommendations for the guidelines the WHO followed a standard development process that is outlined in the *WHO handbook for guideline development (2010)* (*10*). The research group responsible for each outcome area conducted systematic

reviews of the literature. Once this evidence was collected it had to be summarized according to WHO methodology.

According to the revised WHO handbook (*10*), the formation of guidelines require the following:

- synthesis of all available evidence;
- formal assessment of quality of evidence;
- evidence summaries for group meetings using a standard template.

WHO uses the GRADE system for assessing evidence. The systematic reviews and individual studies that met the inclusion criteria were assessed for quality of evidence using the GRADE criteria (*10,11*).

A detailed description of the GRADE system is outlined below.

- Study design – randomized controlled trials or observational studies.
- Limitations of the study design – sources of bias including lack of allocation concealment, lack of blinding, incomplete accounting of patients and outcomes for randomized trials and failure to adequately control confounding; flawed measurement of exposure and outcome for observational studies.
- Consistency of results – variability of results across or within studies; heterogeneity.
- Direct applicability of evidence – are the studies assessing the outcome of interest? Is the study population the same as the population of interest?
- Imprecision – few patients and few events; wide confidence intervals.
- Publication bias – potential systematic over- or under-estimate of effect due to selective publication of studies.

The GRADE approach allows for "downgrading" of evidence based on the above criteria. For example, in considering limitations of study design an adjudicator has the option of selecting 'none', 'serious' or 'very serious'. If 'serious' or 'very serious' are selected then the reason for this must be provided in footnotes to the GRADE table. The same options ('none', 'serious', 'very serious') apply to all criteria. The quality of evidence can also be "upgraded", such as when there is a large effect or a dose–response relationship.

A quality level is assigned to the evidence based on the following criteria:

- High – further research is very unlikely to change our confidence in the estimate of effect;
- Moderate – further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate;
- Low – further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate;
- Very low – any estimate of effect is very uncertain.

The GRADE software (*4*) consists of a template for entering information about the evidence, potentially downgrading the quality of evidence due to the reasons mentioned above, or upgrading it.

For dichotomous outcomes the number experiencing the outcome (e.g. unintended pregnancy) is entered for both the intervention and control groups. The effect – whether a mean difference, relative risk, odds ratio, hazard ratio or another outcome, as well as 95% confidence intervals – is entered. GRADE then produces an estimate of relative effect and absolute effect.

Once this information of study quality as well as results are entered, a GRADE table can be produced – this table identifies the type of evidence used, any quality issues with the evidence (these are explained in footnotes to the GRADE table), the summary of findings, a ranking of the quality of evidence and the 'importance' of the outcome considered.

Limitations of GRADE for assessing evidence relevant to priority topics

Given that the research area – preventing early pregnancy and poor reproductive outcomes in adolescents in developing countries – does not lend itself to randomized controlled trials, or comparative observational studies, it is clear that much of the evidence available for the priority topics will not "fit" into GRADE. This is largely because many of the available studies are either non-comparative, or if comparisons are made they are not provided in a manner that fits into GRADE. For example, the findings from a study may report that 75% of adolescents receiving the intervention increased their use of contraceptives while 60% of those in the control group also increased contraceptive use – but neither a comparison of these proportions is provided, nor any indication of statistical significance.

Alternate evidence summaries

To summarize this type of evidence a summary table is compiled to document the following information:

- Study design;
- Objective of the study;
- Patient population and *n* (number of subjects);
- Intervention(s) used;
- Brief summary of key results;
- Statement on relevance – whether the study is relevant to the identified priority topic and questions specified to address the topic.

Evidence and recommendations

With the evidence entered into the GRADE system and/or summarized, the next step is to formulate recommendations. The recommendations take both the evidence and other factors (such as values and preferences) into account. The following are key points to consider when formulating recommendations:

- Recommendations are judgements, based on the quality of evidence, the trade-off between health benefits and harms, values, preferences and costs.

- The strength of a recommendation is the degree of confidence that the desirable effects of adherence to a recommendation outweigh the undesirable effects. Desirable effects are health benefits, low burden of disease and resource savings, while undesirable effects are harms, increased burden of disease and resource costs.
- WHO uses two categories for strengths of recommendation, strong and weak:
  i) A strong recommendation is one for which the panel is confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects.
  ii) A weak recommendation is one for which the panel concludes that the desirable effects of adherence to a recommendation *probably* outweigh the undesirable effects, but the panel is not confident about the trade-offs. The reasons for not being confident can include the absence of high quality evidence, the presence of imprecise estimates of health benefits or harms, uncertainty or variation in how different individuals value outcomes, small health benefits, or because benefits may not be worth the costs (including the costs of implementing the recommendation).

When making a judgement about the strength of a recommendation, the following should be considered:

- There is no precise threshold for going from a strong to a weak recommendation;
- The presence of important concerns about one or more of the factors regarding recommendation strength (quality of evidence, precision of estimates, uncertainty in value of outcomes; size of benefits; cost worthiness) make a weak recommendation more likely;
- Panels should consider all of these factors and make the reasons for their judgement explicit;
- Recommendations should specify the perspective that is taken (i.e. individual patient, health system) and which outcomes were considered (including which, if any, costs).

The implications of a strong recommendation are:

- Patients: most people in a particular situation would want the recommended course of action and only a small proportion would not.
- Clinicians: most patients should receive the recommended course of action.
- Policy-makers: the recommendation can be adapted as a policy in most situations.

The implications of a weak recommendation are:

- Patients: the majority of people in a particular situation would want the recommended course of action, but many would not.
- Clinicians: be prepared to help patients to make a decision that is consistent with their own values.
- Policy-makers: there is need for substantial debate and involvement of stakeholders.

An external methodologist, with expertise in GRADE methodology, reviewed systematic reviews and individual studies, assessed the quality of evidence based on GRADE criteria, and generated GRADE evidence profiles. For those studies that did not meet the GRADE criteria, separate tables were prepared to summarize the evidence in each study,

including details related to the study design and objectives, population, intervention, results, and the quality of study. These tables were shared with the expert panel to inform the formulation of recommendations in the absence of eligible[1] evidence or when eligible evidence was limited.

The protocol applied to generate the summary of evidence for each outcome is included in this document (see Annex 6).

Expert meeting

Once the systematic reviews and evidence tables were completed, the WHO core group drafted the recommendations. In November 2010, the WHO convened a multidisciplinary panel of experts that included experts in adolescent sexual and reproductive health, and maternal and neonatal health to discuss, review and achieve consensus on a set of recommendations based on their analyses of available evidence. The panel also included experts on systematic review methodology who were commissioned to conduct systematic reviews and grading of evidence.

For the panel meeting, background documents that included key questions, methodology, individual scientific articles, systematic reviews, summary tables and GRADE tables were made available to participants.

Summary of the decision-making process

A summary of the evidence for each of the six outcomes was presented. This included a brief narrative presentation of results of systematic reviews, including GRADE table profiles and summaries of ungraded evidence. All relevant documents related to systematic reviews and individual articles were provided for the panel members' reference during the meeting. The discussion focused on recommendations with changes based on group comments recorded electronically during the meeting. In formulating recommendations and rating their strengths, the panel was instructed to weigh four main factors:

1. quality of evidence;
2. balance of benefits and harms or burdens;[2]
3. differences in values;[3]
4. resource implications.[4]

Management of group process and methods for resolving disagreements

A group agreement was used for reformulating proposed recommendations. The definition of group agreement or consensus that was applied was that the majority agreed, those that disagreed did not have strong objections, and that all would have a chance to express their opinion. If consensus could not be reached, a vote would be taken.

Peer review process

After the expert meeting, WHO/CAH compiled the recommendations drafted during the meeting and sent them back to the experts for review and comment. CAH, in consultation with the RHR and MPS departments, and commissioned institutions, reviewed the input and made decisions about where and how to incorporate comments. WHO finalized the recommendations based on inputs and shared them with selected

[1] Eligibility refers to the suitability of the study for entry into a GRADE profile.

[2] The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.

[3] The greater the variability or uncertainty in values and preferences, the more likely a conditional or weak recommendation is warranted.

[4] The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.

external experts for further final comment (including originally commissioned institutions and UNFPA).

Planned dissemination of guidelines

WHO/CAH has outlined a plan to disseminate the recommendations developed through systematic review and expert panel process. The immediate plan is to disseminate the guidelines once approved, to identify the gaps in the evidence and areas for further research; and to develop guidance tools for developing priorities for action and research. The long-term objectives are to mobilize support to produce evidence at the country level and promote policy changes with respect to information, services and training and at the global level.

Channels for reaching the target audiences include guidelines publication; policy briefs and a CD-ROM toolkit; face-to-face meetings; and high-level launch events such as one global launch, and three regional launches in Africa, Asia and Latin America. Country level launches will take place in selected countries. Additional channels include webinars, social media, blogs, technical and scientific journals, presentations at conferences/workshops and grassroots advocacy efforts.

Key advocacy partners included:

- United Nations Secretary-General and the Global Strategy for Women's and Children's Health;
- UN agencies;
- UN Adolescent Girls Task Force;
- Campaign to End Obstetric Fistula;
- Countdown to 2015 and the Partnership for Maternal, Newborn and Child Health;
- IPPF, Family Care International, Women Deliver, FHI;
- Latin American Task Force on Maternal Mortality;
- African Public Health Alliance;
- USAID Connect;
- Reproductive Health Supplies Coalition.

Evaluation of guidelines

After dissemination, CAH/WHO will seek to secure additional funding in order to evaluate the usefulness and impact of the guidelines, as this was not included in the original implementation budget.

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II. Recommendations

OUTCOME 1: Reduce marriage before the age of 18 years

Question 1.1

Is there evidence that efforts directed at political leaders/planners, including those leaders at the community level, have resulted in formulation of laws and policies to make marriage for girls before age 18 illegal?

Question 1.2

Is there evidence that efforts directed at political leaders/planners, including those leaders at the community level, are effective in enforcing laws prohibiting marriage for girls before age 18?

Recommendation for action (in relation to Q 1.1 and 1.2) – Strong recommendation

1. Encourage political leaders, planners and community leaders to formulate and enforce laws and policies to prohibit the marriage of girls before 18 years of age.

Recommendation for research

Undertake research to identify effective interventions that result in the formulation, enforcement and monitoring of laws and policies, including unintended harmful consequences.

Remarks and summary of panel discussion

The systematic review process did not identify any studies that addressed this question. The panel observed that efforts to formulate laws and policies, to enforce and monitor their enforcement are unlikely to be addressed by intervention studies.

The panel noted the following factors that influence child marriage rates: the state of the country's civil registration system (which provides proof of age for children); the existence of an adequate legislative framework and an accompanying enforcement mechanism to address cases of child marriage; and the existence of customary or religious laws that condone the practice. Interventions are needed to protect and ensure the rights of those before 18 years of age (who are children as defined by the Convention on the Rights of the Child).

The panel agreed that interventions to prohibit marriage before 18 years of age through the formulation and enforcement of laws and policies are important from both rights-based and public health perspectives. Panel members noted that physical, social and psychological development of adolescent girls can be promoted by preventing too-early marriage and too-early pregnancy during adolescence. The panel also discussed the potential harms of these interventions. First, the enforcement of such laws could penalize those who contravene them such as to endanger the livelihoods and wellbeing of adolescent girls and their families. Second, the introduction of these laws and policies may create conflict by disrupting existing social norms.

Despite limited evidence, the panel concluded that ongoing efforts are needed to promote laws prohibiting marriage before 18 years of age as an important measure to fulfil girls' rights and to prevent too-early pregnancy.

II. RECOMMENDATIONS

Factors considered for Question 1.1

POPULATION: Political leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

II. RECOMMENDATIONS

Factors considered for Question 1.2

POPULATION: Political leaders/planners and community leaders		
INTERVENTION: None		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 1: Reduce marriage before the age of 18 years

Question 1.3

Is there evidence that efforts to influence family and community norms concerning marriage are effective in delaying marriage among girls under age 18?

Recommendation for action – Strong recommendation

1. Undertake interventions to delay the marriage of girls until 18 years of age by influencing family and community norms. These interventions should be undertaken in conjunction with interventions directed at political leaders/planners.

Remarks and summary of panel discussion

The systematic review process did not find any studies that were eligible for grading. The panel considered ungraded evidence (*1–10*) that demonstrated improvements in community members' knowledge and attitudes regarding the potential dangers of early marriage as a result of community-level and family-level interventions. The panel noted weaknesses in the methodology of these studies, such as lack of control groups, non-randomized sample selection, lack of significance testing, and the lack of intervention specificity.

The panel noted that these interventions would have several benefits. First, social norm change is an essential component for ending the practice of early marriage. Second, adolescent girls usually require approval from families and communities to participate in health and education programmes. Therefore, interventions to influence family and community norms can improve participation of girls in health and education programmes. Finally, communities can facilitate the implementation of interventions that are aimed at preventing early marriage. The panel recognized that these interventions may cause conflict in some communities by disrupting existing social norms. It also noted that the cost implications of these interventions were not formally assessed.

Despite the limited evidence, the panel recommended interventions directed at families and community members to change social norms regarding the age of marriage as a way to fulfil the rights of adolescent girls.

II. RECOMMENDATIONS

Factors considered for Question 1.3

POPULATION: Community members including parents and adolescents		
INTERVENTIONS: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong	

OUTCOME 1:
Reduce marriage before the age of 18 years

Question 1.4

Is there evidence that economic incentives for families are effective in delaying the marriage of girls under age 18?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research to determine the feasibility, effectiveness and long-term impact of economic incentives on adolescent girls and their families as a means of delaying the age of marriage until girls are 18 years of age.

Remarks and summary of panel discussion

The systematic review process did not find any evidence that was eligible for grading. The panel noted several ungraded studies (*1,2,10–13*) that collectively indicated an improvement in school retention as well as a reduction in early marriage due to interventions that involved economic incentives. Panel members noted methodological flaws in the evaluation design that limited the attribution of the outcomes observed to the interventions implemented.

The panel also discussed the following issues. First, there is considerable uncertainty about the balance between benefits and harms. For example, it is unclear whether girls who receive economic incentives directly could face increased risk to their safety and security as a result. In addition, these interventions could lead to discrimination against boys. Second, there is no information on the long-term sustainability of these interventions.

Given the weak evidence and the panel members' concerns, the panel concluded that further research on the effect of economic incentives to influence attitudes and behaviours related to early marriage is required.

II. RECOMMENDATIONS

Factors considered for Question 1.4

POPULATION: Adolescent girls and families		
INTERVENTIONS: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 1: Reduce marriage before the age of 18 years

Question 1.5

Is there evidence that efforts to inform and empower adolescents are effective in delaying marriage among girls under age 18?

Recommendation for action – Strong recommendation

1. Implement interventions to inform and empower girls, in combination with interventions to influence family and community norms, to delay the age of marriage among girls under 18 years of age.

Recommendation for research

Undertake research on the feasibility and scaling-up of these interventions.

Remarks and summary of panel discussion

The systematic review process did not identify any studies that were eligible for grading. The panel considered ungraded evidence (*3–5,7,8,10,12,14–19*) that demonstrated that interventions to inform and empower girls, in combination with interventions to influence family and community norms, can positively affect attitudes and behaviours related to delaying the age of marriage. Panel members noted several methodological flaws that limited the ability to attribute outcomes to the interventions including: selection bias of intervention participants, lack of randomization, lack of control groups, unclear sampling strategies, and the combined implementation of different types of interventions.

The panel agreed that informing and empowering adolescent girls is important from both rights-based and public health perspectives. It noted that the potential benefits of these interventions exceed the technical concerns about their implementation as well as any potential harms. However, panel members agreed that these interventions must be combined with interventions that target families and communities in order to create a supportive environment for adolescent girls to act on information that they receive and to express their empowerment. These interventions may encounter resistance in some communities because they challenge existing norms. The cost implications of these interventions were not assessed.

Despite the limited evidence, the panel recommended the implementation of these interventions to fulfil the rights of adolescent girls. The panel also agreed on the importance of research on the feasibility and scaling-up of these interventions.

II. RECOMMENDATIONS

Factors considered for Question 1.5

POPULATION: Adolescent girls, families and communities		
INTERVENTIONS: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 1: Reduce marriage before the age of 18 years

Question 1.6

Is there evidence that efforts to expand the availability of education for girls are effective in delaying marriage among girls under age 18?

Recommendation for action – Strong recommendation

1. Increase educational opportunities for girls through formal and non-formal channels to delay marriage until 18 years of age.

Recommendation for research

Undertake research to assess the impact of improved educational availability and school enrolment on the age of marriage.

Remarks and summary of panel discussion

The systematic review process did not identify any studies eligible for grading. The panel noted population-level data as well as ungraded evidence (*2,4,7,10,12–14,19,20*) that demonstrated a positive, protective relationship between the level of schooling and age of marriage. Panel members noted that methodological flaws, such as lack of randomization, lack of control groups, or lack of baseline data limited the ability to attribute outcomes to the interventions.

The panel observed that increasing educational opportunities for girls through formal and non-formal channels is important from both rights-based and public health perspectives. Also, it noted that improving access to education for adolescent girls had important economic and social benefits in addition to delaying the age of marriage. The panel recognized the potential for an increased risk of violence or harassment directed at adolescent girls while in school or on their way to and from school, especially in unstable or insecure environments. These interventions could also generate resistance in some communities as they challenge existing norms.

Despite the low quality of evidence, the panel concluded that increasing access to education for girls in order to delay marriage before the age of 18 years is important for social, economic and public health reasons.

II. RECOMMENDATIONS

Factors considered for Question 1.6

POPULATION: Policy leaders/planners and community leaders		
INTERVENTIONS: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 1: Reduce marriage before the age of 18 years

Question 1.7

Is there evidence that expanding the availability of livelihood opportunities for girls is effective in delaying marriage among girls under age 18?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research on the feasibility of interventions to improve the livelihoods of adolescent girls as well as their impact on delaying their age of marriage.

Remarks and summary of panel discussion

The systematic review process did not identify any studies eligible for grading. The panel noted ungraded evidence (*3,4,7,8,10,17,18,20, 21*) regarding interventions to improve the livelihoods of adolescent girls in relation to delaying marriage. While the interventions were effective at delaying marriage among girls under 18 years of age, panel members discussed the weaknesses in study design as well as challenges in implementing these interventions. The panel also noted that none of the studies tested the effect of livelihood approaches alone.

The panel observed that these interventions had important potential social, economic and health-related benefits, including changes in gender norms. However, it also discussed several potential harms of these interventions. First, participation in these interventions could pose safety and security challenges for adolescent girls in some communities. Second, these interventions could result in unfulfilled expectations about the ability of participants and their families to earn money. Third, income-generating activities could act as disincentives to send adolescent girls to school. The panel noted that interventions to increase participation of girls in the economy could encounter resistance in some communities as they challenge existing norms.

The panel recognized the importance of protecting very young adolescent girls from labour. However, it noted that improving the capacity of adolescents to earn could have social and economic benefits at the individual and community levels that override potential harms. Due to the limited evidence, the panel could not recommend a specific intervention. It therefore recommended additional research to determine effective interventions to delay the age of marriage by improving the livelihoods of adolescent girls.

II. RECOMMENDATIONS

Factors considered for Question 1.7

POPULATION: Policy leaders/planners and community leaders		
INTERVENTIONS: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 1:
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18. Shahnaz R, Karim R. *Providing microfinance and social space to empower adolescent girls: an evaluation of BRAC's ELA centres*. Working Paper No. 3. Dhaka, BRAC, 2008.
19. Nawaz F, Ahmed S. The effectiveness of adolescent development program of Bangladesh Rural Advancement Committee (BRAC) in strengthening awareness regarding social issues among rural adolescent girls in Bangladesh: an empirical study. *Studies on Home and Community Science,* 2009, 3:7–11.
20. Gandhi K, Krijnen J. *Evaluation of community-based rural livelihoods programme in Badakhshan, Afghanistan*. Oxford, Oxfam, 2006.
21. Pedersen KH et al. *Evaluation of 'Integrated Action on Poverty and Early Marriage' Programme in Yemen*. Oxford, Oxfam, 2008.

OUTCOME 2: Reduce pregnancy before the age of 20 years

Question 2.1

Is there evidence that efforts directed at adolescents and other stakeholders are effective in reducing pregnancy among girls under age 20?

Recommendation for action – Strong recommendation

1. Advocate for adolescent pregnancy prevention among all stakeholders through interventions such as: information provision, sexuality and health education, life skills building, contraceptive counselling and service provision, and the creation of supportive environments.

Recommendation for research

Undertake research to determine the effectiveness of interventions among adolescents and other stakeholders to reduce pregnancy among girls under the age of 20 years. This research should address varying sociocultural contexts.

Remarks and summary of panel discussion

The panel considered low to moderate quality evidence from a graded systematic review (GRADE Table 1 (1)) that demonstrated reductions in unintended pregnancies relative to control groups among those exposed to the interventions. The panel noted that while the studies reviewed achieved the outcome of reducing pregnancy before the age of 20 years, this effect could not be attributed to interventions targeted at a specific group, such as parents or community leaders. It observed that while some of the studies were conducted in developing countries (Mexico and Nigeria), most included in the review were done among high-risk groups such as low socioeconomic segments in developed countries. All intervention studies in this review targeted girls or specifically adolescent girls. Some targeted additional audiences such as males, parents and community members. None of the studies reviewed explicitly targeted policy makers. Given the limitations of the available evidence, the panel acknowledged the need for research to identify intervention strategies that are effective for different target groups in order to reduce the chances of pregnancy before the age of 20 years.

The panel noted that these interventions have clear social and health-related benefits and bear no identifiable harms. Panel members agreed that, although there are no identified conflicts in values, these interventions may generate resistance in some communities because they challenge accepted norms. Finally, the cost implications of these interventions were not formally assessed.

Despite the low quality of evidence, the panel recognized the importance of these interventions as well as the need for further research.

II. RECOMMENDATIONS

Factors considered for Question 2.1

POPULATION: Adolescent girls and other stakeholders (including political leaders/planners, community leaders, and family members such as parents, guardians and partners)

INTERVENTIONS: Life skills building, sexuality education, recreational activities, group/educational counselling, health education, financial literacy and pharmacy access that targeted adolescent girls and boys, health education, counselling and life skills building targeted at parents and community members

FACTOR	DECISIÓN	EXPLICACIÓN
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	Low to moderate quality evidence from a graded systematic review (GRADE Table 1 (1)) demonstrated reductions in unintended pregnancies for intervention groups compared to controls. The panel noted that while the studies reviewed achieved the outcome of reducing pregnancy before age 20, there was no way to attribute this effect to interventions targeted at a specific group, such as parents or community leaders. It observed that while some of the studies were conducted in developing countries, most of the studies included in the review were done among poorer socioeconomic segments in developed countries. All of the intervention studies in this review targeted girls or specifically adolescent girls. Some targeted additional audiences such as males, parents and community members. None of the studies reviewed explicitly targeted policy makers.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There are clear health-related and social benefits to reducing pregnancies before the age of 20 years and no identifiable harms.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There are no identified conflicts in values. However, these interventions could face resistance in some communities as they challenge current norms.
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	These interventions will require resources for implementation and monitoring. The cost implications of these interventions were not assessed.
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 2: Reduce pregnancy before the age of 20 years

Question 2.2

Is there evidence that efforts to improve the economic situation of girls are effective in reducing pregnancy among girls under age 20?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research to explore the effect of socioeconomic improvements brought about by employment and school retention on adolescent pregnancy and its mediating determinants.

Remarks and summary of panel discussion

The systematic review process did not find any eligible studies for inclusion. The panel considered one ungraded study (*2*) that demonstrated a reduction in pregnancy before the age of 20 years by using a cash transfer intervention. As the strength of the evidence was insufficient to recommend this intervention, the panel noted the need for further research to demonstrate the evidence-based link between adolescent pregnancy and economic betterment (including employment).

II. RECOMMENDATIONS

Factors considered for Question 2.2

POPULATION: Adolescent girls and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 2: Reduce pregnancy before the age of 20 years

Question 2.3a

Is there evidence that efforts to expand the availability of formal and non-formal education for girls are effective in reducing pregnancy among girls under age 20?

Question 2.3b

Is there evidence that efforts directed at adolescents and other stakeholders to increase school retention among girls are effective in reducing the chances of second pregnancies during adolescence?

Recommendation for action (for questions 2.3a and 2.3b) – Strong recommendation

1. Maintain and improve efforts to retain girls in schools, both at the primary and secondary levels.

Recommendations for research

Undertake research on the effect of availability of formal and non-formal education on adolescent pregnancy prevention. This research should consider potential mediating factors such as socioeconomic status and marital status.

Undertake research on the effect of targeted interventions for education retention (e.g. conditional or unconditional cash-transfer interventions) and policies (including support for adolescent mothers) on delaying pregnancy and reducing second pregnancy.

Remarks and summary of panel discussion

The systematic review process did not find any eligible studies for inclusion. The panel considered one ungraded review (*3*) that demonstrated reduced pregnancy rates as a result of a multi-component intervention that included early childhood education and youth development programs. The panel noted that these interventions were implemented only in developed-country settings. The panel recognized the significant protective association between secondary school retention and adolescent pregnancy and acknowledged that school retention for adolescent girls is important from both rights-based and public health perspectives. Despite limited evidence, the panel recommended action to increase school retention of adolescent girls in order to reduce pregnancies during adolescence.

In addition to recommending action, the panel recognized the need to conduct further research in several areas related to this issue. First, it suggested that research must explore the association between school retention and adolescent pregnancy. Second, panel members recognized the importance of disaggregating data by social status due to the differing barriers faced by married and unmarried adolescents in different sociocultural contexts. Third, the panel suggested that research should test conceptual models related to school retention and delaying pregnancy. Fourth, the panel recommended that research into school retention should include measures of both quality and coverage of education programmes. Finally, the panel discussed possible methodologies for researching these outcomes.

II. RECOMMENDATIONS

Factors considered for Question 2.3a and Question 2.3b

POPULATION: Adolescent girls and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional or weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 2: Reduce pregnancy before the age of 20 years

Question 2.4

Is there evidence that sexuality education programmes for adolescent boys and girls are effective in reducing pregnancy among girls under age 20?

Recommendation for action – Strong recommendation

1. Offer interventions that combine curriculum-based sexuality education[1] with contraceptive promotion to adolescents in order to reduce pregnancy rates.

Remarks and summary of panel discussion

The panel considered low to moderate quality evidence from a graded systematic review that demonstrated a reduction in rates of unintended pregnancy as a result of sexuality education for adolescents (GRADE Table 1 (*1*)). Although this review included studies from both developing and developed countries, the majority of the interventions were implemented in developed countries and the panel noted this limitation.

The panel members discussed several aspects of the delivery of this intervention. First, curriculum-based sexuality education may be delivered both in and out of school settings. Second, it is important to provide contraceptives in addition to education interventions. Third, policy-related and other barriers to implementation must be overcome if these interventions are to succeed. Fourth, since most pregnancy prevention studies focus on in-school populations there is a need for research on interventions for out-of-school adolescents. Fifth, building life skills (such as negotiation) is a critical component of sexuality education programmes. Finally, panel members suggested that research should also explore the role of parents (especially mothers) in influencing the behaviour of adolescent girls.

[1] International Technical Guidance on Sexuality Education: An Evidence Informed Approach for Schools Teachers and Health Educators. December 2009. UNESCO, UNAIDS, UNFPA, World Bank, WHO.

Factors considered for Question 2.4

POPULATION: Adolescent girls and boys		
INTERVENTION: Combined interventions including curriculum-based sexuality education and contraceptive promotion.		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	Low to moderate quality evidence (GRADE Table 1 (1)) suggests that interventions that include curriculum-based sexuality education (CBSE) can reduce rates of unintended pregnancy.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There are no identified harms. Despite common misconceptions, there is no evidence that sexuality education leads to early or increased sexual activity.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	In some communities these interventions may face resistance because they challenge existing norms.
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a weak recommendation is warranted.	☒ YES ☐ NO	The costs of this intervention have not been assessed.
Overall strength of recommendation	Strong	

OUTCOME 2: Reduce pregnancy before the age of 20 years

Question 2.5

Is there evidence that efforts to provide postpartum and post-abortion contraception are effective in reducing second pregnancies among adolescents?

Recommendation for action – Strong recommendation

1. Offer and promote postpartum and post-abortion contraception to adolescents through multiple home visits and/or clinic visits to reduce the chances of second pregnancies among adolescents.

Remarks and summary of panel discussion

The panel considered very low quality evidence from a graded systematic review to inform its recommendation (GRADE Table 2 (*4*)). The evidence demonstrated that interventions involving multiple postpartum contacts in home or health facility settings can improve contraceptive use and thereby reduce repeat pregnancies during adolescence. None of the interventions in the review examined the effect of providing post-abortion contraception to adolescents. The panel noted that the majority of the studies in this review were conducted in developed countries and a few were conducted in developing countries. It observed methodological flaws in the studies such as unclear methods, small sample sizes and short follow-up periods.

The benefits of interventions that provide postpartum and post-abortion contraception to adolescents are substantial with no identifiable harms. There are no conflicts in values associated with such interventions. The cost implications of these interventions have not been assessed. The panel noted that, where such services already exist, the cost of expanding access to these services for adolescents is minimal.

Despite the limited evidence, the panel recommended that these interventions should be offered to adolescent girls.

II. RECOMMENDATIONS

Factors considered for Question 2.5

POPULATION: Adolescent girls during the postpartum or post-abortion period.		
INTERVENTION: Multiple contacts through structured home visits and/or clinic visits.		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☒ YES ☐ NO	Very low quality evidence from a graded systematic review (GRADE Table 2 (4)) demonstrated that interventions involving multiple postpartum contacts in home or health facility settings can improve contraceptive use and thereby reduce repeat pregnancies in adolescence. None of the interventions in the review examined the effect of providing post-abortion contraception to adolescents. The panel noted that the majority of the studies in this review were conducted in developed countries and a few were conducted in developing countries with adolescent populations. It observed methodological flaws in the studies such as unclear methods, small sample sizes, and short follow-up periods.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	The benefits of these interventions are substantial. There are no identified harms.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There are no identified conflicts in values.
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	Where such programmes exist, the cost implications for expanding coverage to include adolescents are minimal.
Overall strength of recommendation	Strong	

OUTCOME 2: Reduce pregnancy before the age of 20 years

Question 2.6

Is there evidence that social support programmes are effective in reducing second pregnancies during adolescence?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research about the design, feasibility, and effectiveness of social support interventions to reduce the chances of repeat pregnancies among adolescents.

Remarks and summary of panel discussion

The systematic review process did not find any eligible studies for inclusion. The panel considered one ungraded review (*5*) that demonstrated a short-term reduction in repeat pregnancies as a result of an intervention that included home visits for social support.

The panel discussed several issues with respect to this question. First, it discussed the importance of establishing and testing definitions of social support within different sociocultural contexts. Second, the panel members acknowledged that efforts to prevent second pregnancy are consistent with efforts to increase birth spacing. Finally, since the evidence reviewed came only from developed countries, the panel highlighted the need for research in developing countries related to social support interventions to reduce the chances of repeat pregnancies among adolescents.

II. RECOMMENDATIONS

Factors considered for Question 2.6

POPULATION: Policy leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 2: References

1. Oringanje C et al. Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database of Systematic Reviews,* 2009, issue 4.
2. Baird S et al. The short-term impacts of a schooling conditional cash transfer program on the sexual behavior of young women. *Health Economics,* 2010, 19: 55–68.
3. Harden A et al. *Young people, pregnancy and social exclusion: a systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support.* London, EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, 2006.
4. Lopez LM et al. Education for contraceptive use by women after childbirth. *Cochrane Database of Systematic Reviews,* 2010, issue 1.
5. Corcoran J, Pillai VK. Effectiveness of secondary pregnancy prevention programs: a meta-analysis. *Research on Social Work Practice,* 2007, 17:5–18.

OUTCOME 3:
increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.1

Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that increase access to contraceptive information and services for adolescents?

Question 3.2

Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that increase access to emergency contraception for adolescents?

Recommendation for action (for Question 3.1 and 3.2) – Strong recommendation

1. Undertake efforts with political leaders and planners to formulate laws and policies to increase adolescent access to contraceptive information and services, including emergency contraceptives.

Recommendation for research

Undertake research to identify feasible and effective interventions that result in the formulation of such laws and policies.

Remarks and summary of panel discussion

The systematic review process did not find evidence that was eligible for grading. The panel remarked that efforts to influence laws and policies are rarely subject to evaluations of the type included in this review.

The panel observed that limitations to access that are stipulated in laws and policies most often relate to marital status and age. Therefore, it noted that the existence of laws and policies that mandate adolescent access to contraceptive information and services irrespective of their age or marital status can improve contraceptive use by adolescents. The panel agreed that contraceptive information and services can prevent unwanted pregnancies among all women including adolescents. There are no significant harms foreseen.

The panel agreed that the formulation of laws and policies to improve adolescents' access to contraceptive information and services is important from both rights-based and public health perspectives. It noted that the provision of contraceptive information and services to adolescents can be controversial as it challenges existing norms. It also recognized that this sensitivity is an important consideration for the design of interventions to influence laws and policies. The costs associated with efforts to influence the formulation of laws and policies were not assessed.

The panel concluded that the existence of laws and policies that improve adolescents' access to contraceptive information and services, irrespective of marital status and age, can contribute to preventing unwanted pregnancies among this group.

II. RECOMMENDATIONS

Factors considered for Question 3.1

POPULATION: Political leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely that a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

II. RECOMMENDATIONS

Factors considered for Question 3.2

POPULATION: Political leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely that a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 3: increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.3

Is there evidence that efforts directed at community members and leaders are effective in increasing access to contraceptives for adolescents?

Recommendation for action – Strong recommendation

1. Undertake interventions to influence community members to support access to contraceptives for adolescents.

Recommendation for research

Undertake research to identify and evaluate interventions that influence community members' support for access to contraceptives for adolescents.

Remarks and summary of panel discussion

The systematic review process did not find studies that were eligible for grading.

The panel noted ungraded evidence from several developing countries that demonstrated increased use of contraceptives resulting from interventions that included efforts directed at community members and leaders (*1–11*). These interventions ranged from community-wide mass media education to sensitization of individual parents in communities. The panel recognized the difficulties in attributing observed outcomes to those intervention components that specifically targeted community members and leaders. It also observed that the majority of these studies reported pregnancy as a secondary outcome.

The panel acknowledged that communicating the rationale for adolescent contraceptive provision to the community could facilitate access to and use of contraceptives by adolescents. Panel members noted that a potential harm of this intervention is that a negative response by the community can adversely affect adolescent health programmes including contraceptive provision.

The panel recognized that these interventions would encounter resistance in some communities because they challenge existing norms. Panel members agreed that acceptance of contraceptive provision by the community is important. They also agreed that interventions to understand and respond to a community's concerns about the health and development of adolescents should be implemented. No significant harms were foreseen. The costs of these interventions were not assessed.

Despite limited evidence, the panel recommended interventions to influence community members to support access to contraceptives by adolescents.

II. RECOMMENDATIONS

Factors considered for Question 3.3

POPULATION: Community members		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 3: increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.4

Is there evidence that efforts to improve health services are effective in increasing access to contraceptive information and services (including emergency contraception) for adolescents?

Recommendation for action – Strong recommendation

1. Implement interventions to improve health service delivery to adolescents as a means of facilitating their access to and use of contraceptive information and services.

Remarks and summary of panel discussion

The panel considered a number of graded studies to inform its recommendation. Very low quality evidence from a graded systematic review (GRADE Table 3) (*12*) reported an increase in subsequent contraceptive use as a result of multiple postnatal visits with health workers. The panel noted that although this review included studies from both developed and developing countries the majority were implemented in developed countries. Moderate quality evidence from another graded study (GRADE Table 4) (*13*) reported increased use of contraceptives as a result of a package of interventions that included improvements in health service delivery to adolescents. Very low quality evidence from a third graded study (GRADE Table 5) (*14*) reported an increase in the use of condoms at last sexual contact as a result of a voucher system to facilitate access to contraceptive information and services. The panel noted that these interventions collectively resulted in increased knowledge about contraceptives and improved use of contraceptive services by adolescents.

The panel also noted ungraded evidence from several low- and middle-income countries that demonstrated increase in knowledge about contraceptives and increased demand for and use of contraceptives among adolescents resulting from improvements to health services (*3,7,9,15–18*).

Panel members noted the importance of access to health services as an important component of adolescent health. The panel recognized that there are endeavours in many countries to improve adolescents' access to health services, including training health workers to influence their attitudes about the provision of contraceptives to adolescents. The panel concluded that, with adequate training, health workers would overcome their reticence and acknowledge the potential health benefits of providing contraceptive information and services to adolescents. The panel also agreed that health services for adolescents should be reoriented to improve access by overcoming the adolescent-specific barriers to their access and use. There are no ascertainable harms or burdens foreseen. The cost implications of these interventions were not assessed.

After examining the existing evidence, the panel made a strong recommendation to implement interventions to improve health service delivery to adolescents.

Factors considered for Question 3.4

POPULATION: Adolescents, health workers and managers, and policy leaders/planners

INTERVENTIONS: Multiple postnatal visits with health workers (*12*); multiple interventions that include changes to health facilities, engaging and informing community members and training providers to be youth friendly services (*13*); voucher system to facilitate access to sexual and reproductive health services (*14*)

FACTOR	DECISION	EXPLANATION
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	A graded (very low quality) systematic review (GRADE Table 3) (*12*) reported an increase in subsequent contraceptive use as a result of multiple postnatal visits with health workers. This review included studies from both developed and developing countries, though the majority were implemented in developed countries. A graded (moderate quality) study (GRADE Table 4) (*13*) reported increase in the use of condoms as a result of a package of interventions that included improvements in health service delivery to adolescents. A graded (very low quality) study (GRADE Table 5) (*14*) reported an increase in the use of condoms at last sexual contact as a result of a voucher system to facilitate access to contraceptive information and services.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There are no ascertainable harms or burdens based on this type of intervention. Access to health services by adolescents, including the provision of contraceptive information and services, is important for a variety of health reasons including current and future fertility regulation.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There are no identified conflicts in values.
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	The costs of these interventions were not assessed.
Overall strength of recommendation	Strong	

OUTCOME 3: increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.5

Is there evidence that efforts to make hormonal contraceptive methods, including emergency contraception, available over-the-counter are effective in increasing the access to contraceptives by adolescents?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research to identify feasible and effective interventions to improve the availability of over-the-counter hormonal contraceptives to adolescents.

Remarks and summary of panel discussion

The panel considered low quality evidence from a graded systematic review (GRADE Table 6) (*19*) that included studies assessing unlimited emergency contraceptive provision or pharmacy provision of contraceptives. The panel noted that, although this review included studies from both developed and developing countries, the majority were implemented in developed countries. The panel observed the many instances in which over-the-counter provision of condoms had improved access compared to static health service provision. However, the panel expressed concerns regarding the accuracy and thoroughness of information provided to adolescents about hormonal contraceptives (including emergency contraceptives) when delivered over-the-counter. The panel also recognized that misuse of contraceptives by adolescents due to inaccurate or incomplete information or lack of follow-up was a potential harm for this intervention.

The panel agreed that there could be bias or ambiguity among pharmacists or vendors regarding the acceptability of providing contraceptives in light of policies or community norms related to adolescent sexual activity. However, the reluctance of providers may be overcome by training or by appealing to their commercial interests.

Based on the limited research, the panel decided not to recommend a specific intervention but concluded that further research is required to identify interventions that improve contraceptive accessibility.

II. RECOMMENDATIONS

Factors considered for Question 3.5

POPULATION: Political leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☒ YES ☐ NO	Low quality evidence (GRADE Table 6) (19) showed an increased rate of hormonal contraceptive use in the intervention group compared to the control group for interventions that aimed to improve over-the-counter access to contraceptives for adolescents. The panel noted that most of the interventions in this systematic review were implemented in developed countries.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak is recommendation.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 3:
increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.6
Is there evidence that efforts to provide accurate information and education about contraceptives to adolescents are effective in increasing contraceptive use among adolescents?

Recommendation for action – Strong recommendation
1. Implement interventions at scale that provide accurate information and education about contraceptives, in particular CBSE, to increase contraceptive use among adolescents.

Recommendation for research:
Undertake research to determine the effectiveness of interventions that provide accurate information and education about contraceptives in various settings and populations (both in-school and out-of-school).

Remarks and summary of panel discussion
The panel considered a number of graded studies to inform its recommendations on this issue. First, it considered low quality evidence from a graded systematic review (GRADE Table 7) (*19*) that demonstrated increased condom use at last sex in intervention groups that were exposed to CBSE. Although this review included studies from both developed and developing countries, the majority were implemented in developed countries; a limitation noted by the panel. Very low quality evidence from a graded study in Brazil (GRADE Table 8) (*20*) demonstrated increased condom use with casual partners as a result of a CBSE intervention. Moderate quality evidence from a graded study of a school-based CBSE intervention in the Bahamas (GRADE Table 9) (*21*) demonstrated an increase in condom use at six and 12 months post-intervention among those exposed to CBSE. Moderate quality evidence from a graded study from rural Tanzania demonstrated increased condom use during the follow-up of a set of interventions that included CBSE (GRADE Table 4) (*13*). Finally, low quality evidence from a graded study of a culturally sensitive CBSE intervention implemented in Thailand demonstrated an increase in the intent to use condoms among adolescents in the intervention group (GRADE Table 10) (*22*).

The panel also noted the several ungraded studies in low- and middle-income countries that demonstrated increase in contraceptive use due to educational interventions for adolescents (*1,3–8,10,11,13,15,17,23–32*). These interventions varied widely in their level of structure (from peer education to CBSE) and setting (both in-school and out-of-school). The panel noted methodological issues such as small sample sizes, short follow-ups, and lack of comparison groups that limited the ability to attribute outcomes to the interventions. Panel members also noted as a limitation that some of the studies were primarily focused on condom use for HIV prevention rather than for contraception.

The panel recognized that these interventions are important from both rights-based and public health perspectives. It also did not identify any potential harm resulting from these interventions. Despite a common misconception in some communities, the panel noted evidence that CBSE has no effect on the age of sexual initiation (*20*). It opined that these interventions could encounter resistance in some communities as they challenge existing norms. The panel also noted that, although the costs of these interventions were not assessed, the cost of ensuring the quality and coverage of these interventions would be considerable.

Given the available evidence, the panel recommended interventions to provide accurate information and education about contraceptives to adolescents.

II. RECOMMENDATIONS

Factors considered for Question 3.6

POPULATION: Policy leaders/planners, community leaders, education sector workers and managers, and adolescents		
INTERVENTION: Curriculum-based sexuality education		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	The panel considered a number of graded studies to inform its recommendations on this issue. First, it considered low quality evidence from a graded systematic review (GRADE Table 7) (*19*) that demonstrated increased condom use at last sex in intervention groups that were exposed to CBSE. Although this review included studies from both developed and developing countries, the majority were implemented in developed countries. The panel noted this limitation. Very low quality evidence from a graded study in Brazil (GRADE Table 8) (*20*) demonstrated increased condom use with casual partners as a result of a CBSE intervention. Moderate quality evidence from a graded study of a school-based CBSE intervention in the Bahamas (GRADE Table 9) (*21*) demonstrated an increase in condom use at 6 and 12 months post-intervention among those exposed to CBSE. Moderate quality evidence from a graded study from rural Tanzania demonstrated increased condom use during the follow-up of a set of interventions that included CBSE (GRADE Table 4) (*13*). Finally, low quality evidence from a graded study of a culturally sensitive CBSE intervention implemented in Thailand demonstrated an increase in the intent to use condoms among adolescents in the intervention group (GRADE Table 10) (*22*).
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	These interventions are beneficial from rights-based and public health perspectives. No ascertainable harms were identified. The panel noted that CBSE has no effect on the age of sexual initiation (*20*).
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There were no identified conflicts in values.

II. RECOMMENDATIONS

Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	There are likely to be considerable costs in sustaining and ensuring wide coverage of good quality CBSE programmes.
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 3: increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.7

Is there evidence that efforts to involve males in contraceptive decisions 'by the couple' are effective in increasing contraceptive use among adolescents?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research to identify feasible and effective interventions that aim to involve adolescent and adult males in decisions about contraceptive use by partners as well as by themselves. This research should include interventions that aim to transform gender norms.

Remarks and summary of panel discussion

The systematic review process did not find evidence that was eligible for grading. The panel noted ungraded evidence related to interventions such as group educational sessions that targeted adolescent boys to transform inequitable gender attitudes (*33*). This study demonstrated that among males who had reduced agreement with inequitable gender norms as a result of the intervention, reduced STI symptoms and a greater likelihood of condom use at last sex with a primary partner were reported.

The panel examined ungraded evidence from a study in India that demonstrated increased demand for and use of contraceptives as a result of an intervention that included efforts directed at males (*3*). Ungraded evidence from a study in China demonstrated an increase in joint decisions by couples on contraceptive use as a result of an intervention that involved males (*7*). The panel observed methodological flaws in these studies that limited the ability to attribute the outcomes to those components of the interventions that were specifically directed at males.

The panel noted that involvement of males in decisions around contraceptive use can have important health-related and social benefits. The panel recognized the potential harm of causing conflict between partners over reproductive decision-making and noted the barriers that males can present to a woman's autonomous use of contraceptives. The panel recognized the need to work with males (including adolescent males) to reduce these barriers. It did not identify any conflicts in values.

Given the importance of both male and female contraceptive use for reducing early pregnancy, the panel recommended that further research be done to identify effective interventions that involve males in contraceptive decisions.

II. RECOMMENDATIONS

Factors considered for Question 3.7

POPULATION: Adolescent and adult males		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not find any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 3: increase use of contraception by adolescents at risk of unintended pregnancy

Question 3.8

Is there evidence that efforts to reduce the financial cost of contraceptives for adolescents are effective in increasing contraceptive use among adolescents?

Recommendation for action – Conditional recommendation

1. Implement interventions to reduce the financial cost of contraceptives to adolescents.

Recommendation for research

Undertake research on the feasibility, sustainability and impact of reducing the financial cost of contraceptives specifically to adolescents.

Remarks and summary of panel discussion

The panel considered low quality evidence from a graded systematic review (GRADE Table 6) (*19*) that included studies that demonstrated higher rates of hormonal contraceptive use as a result of free and advance provision of emergency contraceptives to adolescents. Although this review included studies from both developed and developing countries, the majority were implemented in developed countries; and the panel noted this limitation. The panel also considered very low quality evidence from a graded study (GRADE Table 5) (*14*) in which vouchers were distributed to adolescents for free access to health services. This study demonstrated higher use of modern contraceptives and higher use of condoms at last sex for those who received vouchers compared to those who did not.

The panel made note of ungraded evidence from studies conducted in low-and middle-income countries that demonstrated increased use of contraceptives as a result of interventions that reduced their financial cost (*9,10,25,27–29, 31*). One study in China (*28*) involved an intervention that reduced the financial barriers to accessing both health services as well as contraceptives. Panel members noted a lack of evidence for examining efforts to reduce the financial cost of non-condom contraceptives.

The panel noted that there are significant public health benefits to improving access to contraceptives for adolescents by reducing their financial cost. They recognized that these benefits outweigh both the potential costs associated with administering such programmes as well as the costs associated with subsidizing contraceptives for adolescents. The panel did not identify any potential harm associated with these interventions.

The panel noted that these interventions may encounter resistance in some communities because they challenge existing norms. It also noted that the subsidized provision of contraceptives exclusively to adolescents may be considered to discriminate against those adults without adequate financial resources to purchase contraceptives. The panel observed that the costs and sustainability of these interventions were not assessed.

The panel noted that cost is frequently a barrier for adolescents because of their limited financial resources. However, given the limited evidence about the effectiveness of interventions to reduce the cost of contraceptives, the panel recommended additional research on this question.

II. RECOMMENDATIONS

Factors considered for Question 3.8

POPULATION: Policy leaders/planners and adolescents		
INTERVENTION: Vouchers providing free access to services and free distribution of contraceptives		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	Low quality evidence from a graded systematic review (GRADE Table 6) (*19*) demonstrated higher rates of hormonal contraceptive use as a result of free and advance provision of emergency contraceptives to adolescents. Although this review included studies from both developed and developing countries, the majority were implemented in developed countries. The panel noted this limitation. The panel also considered one (very low quality) graded study (GRADE Table 5) (*14*) in which vouchers were distributed to adolescents for free access to services. This study demonstrated higher use of modern contraceptives and higher use of condoms at last sex for those who received vouchers compared to those who did not.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There is no uncertainty about the balance of benefits versus harms and burdens. The health benefits of contraception to prevent unsafe and/or unwanted pregnancy in adolescents outweigh the associated administrative costs and the real costs of subsidizing contraceptives.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	The panel noted that these interventions may encounter resistance in some communities because they challenge existing norms. It also noted that the subsidized provision of contraceptives exclusively to adolescents may be considered to discriminate against those adults without adequate financial resources to purchase contraceptives.
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	Sustainability of these interventions is likely to be an issue as the costs could be considerable.
Overall strength of recommendation	Conditional (for the action recommendation)	

OUTCOME 3: References

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OUTCOME 4: Reduce coerced sex among adolescents

Question 4.1

Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that punish perpetrators of coerced sex or support the reporting of coerced sex involving adolescent girls?

Question 4.2

Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in enforcing laws regarding coerced sex involving adolescent girls?

Recommendation for action (combined for 4.1 and 4.2) – Strong recommendation

1. Continue efforts with political leaders, planners and the community to formulate laws and policies that punish perpetrators of coerced sex involving adolescent girls, to enforce these laws and policies in a way that empowers victims and their families, and to monitor their enforcement.

Recommendation for research (combined for 4.1 and 4.2)

Undertake research:

- To assess how laws and policies to prevent coerced sex involving adolescent girls have been formulated, enforced and monitored.
- To determine the effectiveness of these laws and policies in preventing coerced sex among adolescents.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question. The panel observed that efforts to formulate, enforce, and monitor laws and policies are unlikely to be addressed by intervention studies. Panel members agreed that the evaluation of laws and policies requires a different methodology than that used to evaluate interventions for this review.

The panel noted that laws to protect women from sexual violence (including sexually coercive offences) and to provide options for redress have been enacted by two developing countries, India (*1,2*) and South Africa (*3,4*). The panel also noted that laws and policies that specifically criminalize the sexual coercion of adolescent girls have recently been adopted in other countries. However, the impact of these laws has not been formally evaluated.

Panel members agreed that laws and policies to reduce coerced sex are important from both rights-based and public health perspectives. The panel recognized that the formulation, enforcement and monitoring of laws and polices will contribute to reducing coerced sex only if individuals and families are aware of them and feel able and willing to collaborate with law enforcement officials to bring perpetrators to justice.

Despite the lack of evidence, the panel concluded that unwanted pregnancies among adolescents, that occur as a result of coerced sex, could be reduced by effective laws and policies to deter sexual coercion and violence.

II. RECOMMENDATIONS

Factors considered for Question 4.1 and Question 4.2

POPULATION: Political leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for action recommendation)	

OUTCOME 4:
Reduce coerced sex among adolescents

Question 4.3

Is there evidence that efforts directed at adolescent girls to resist coerced sex have an impact?

Recommendation for action – Strong recommendation

1. Implement interventions to enhance adolescent girls' abilities to resist coerced sex and obtain support if they experience coerced sex by:

- building their self-esteem;
- developing their life skills in areas such as communication and negotiation; and
- improving their links to social networks and their ability to obtain social support.

The above interventions should be combined with interventions to create supportive social norms that do not condone coerced sex.

Remarks and summary of panel discussion

The panel made note of very low quality evidence from one graded study (GRADE Table 11 and GRADE Table 12) (*5*) and moderate quality evidence from another graded study (GRADE Table 13) (*6*) demonstrating that interventions to influence social norms may have a positive effect on attitudes and behaviours to resist sexual coercion. The panel noted one ungraded study (*7*) that was also used to inform its discussion. Panel members recognized that these interventions yield significant benefits without any perceived harms. They also noted that implementing these interventions may result in social tension as it may challenge existing norms and practices in some communities. The cost implications of such interventions have not been assessed.

The panel members agreed that interventions to empower girls to resist coerced sex must also be combined with interventions among men and boys to change their behaviours regarding violence and coerced sex. Therefore the panel's recommendation on Question 4.3 should be read alongside its recommendation on Question 4.4.

II. RECOMMENDATIONS

Factors considered for Question 4.3

POPULATION: Adolescent girls and community members

INTERVENTIONS:

1. Communication programme involving mass media, small media and interpersonal communication directed at various community members to influence social norms.

COMBINED WITH:

2. Teaching and discussion sessions involving small groups of adolescent girls to enhance their ability to resist coerced sex by building their self esteem, by building their life skills in areas such as communication and negotiation, and by improving their links to social networks and their ability to obtain social support.

FACTOR	DECISION	EXPLANATION
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	The graded studies demonstrated positive direct and indirect effects on girls' attitudes and behaviours to resist sexual coercion. (GRADE Table 11 & 12) (5); GRADE Table 13) (6).
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	Strengthening the ability of adolescent girls to resist coerced sex would contribute to the outcome of reducing too-early pregnancy. There are no perceived harms.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	These types of interventions could result in some social tension as they may challenge existing social norms and practices.
Resource implications The higher the cost of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	The interventions listed will require resources for planning, implementation and monitoring.
Overall strength of recommendation	Strong	

OUTCOME 4:
Reduce coerced sex among adolescents

Question 4.4

Is there evidence that efforts to reduce the use of coercion by males to obtain sex have had an impact?

Recommendation for action – Strong recommendation

1. Implement interventions to engage men and boys to critically assess gender norms and normative behaviours (e.g. gender transformative approaches) that relate to sexual coercion and violence. Combine these with wider interventions to influence social norms on these issues.

Remarks and summary of panel discussion

The panel made note of very low quality evidence from one graded study (GRADE Table 11 and GRADE Table 12) (*5*) and moderate quality evidence from another graded study (GRADE Table 13) (*6*) that demonstrated that interventions aimed at challenging and transforming gender norms relating to sexual coercion and violence may have positive effects on adolescent boys' attitudes and behaviours. The panel concluded that the potential benefits of these interventions far outweigh any possible risks. Panel members noted that these interventions will contribute to challenging and changing gender norms and normative behaviours which hinder the lives of girls and women. The cost implications of such interventions have not been assessed. Despite the low quality of the evidence, the panel concluded that these interventions are important from both rights-based and public health perspectives.

Factors considered for Question 4.4

POPULATION: Adolescent boys and men

INTERVENTIONS: Communication programme involving mass media, small media and interpersonal communication directed at adolescent boys, men and community members to influence social norms on gender equity at the individual, family and community level.

FACTOR	DECISION	EXPLANATION
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☒ NO	The graded studies demonstrated that interventions aimed at challenging and transforming gender norms have positive direct and indirect effects on adolescent boys' attitudes and behaviours related to sexual coercion (GRADE Table 11 & 12) (5); GRADE Table 13) (6).
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely that a conditional/weak recommendation is warranted.	☒ YES ☐ NO	These interventions can contribute to decreasing sexually coercive behaviour and thereby contribute to the outcome of reducing too-early pregnancy. Interventions to reduce sexual coercion may result in men and boys using alternative strategies to reassume control in sexual encounters.
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☒ NO	There were no identified conflicts in values.
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☒ YES ☐ NO	The interventions listed will require resources for planning, implementation and monitoring.
Overall strength of recommendation	Strong	

OUTCOME 4:
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OUTCOME 5: Reduce unsafe abortion among adolescents

Question 5.1

Is there evidence that efforts directed at policy leaders/planners and community leaders are effective in improving access to safe abortion for adolescents according to existing laws?

Recommendation for action – Strong recommendation

1. Ensure that laws and policies enable adolescents to obtain safe abortion services.

Recommendation for research

Where laws and policies have been formulated to enable safe abortion services for adolescents, undertake research to assess their enforcement and impact.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question. The panel observed that intervention studies were unlikely to address the formulation, enforcement and impact of laws and policies to enable safe abortion services for adolescents.

Panel members noted that unsafe abortions contribute substantially to maternal mortality in adolescent and adult women. Further, restrictive legislation increases the likelihood of pregnant women and adolescents having unsafe abortions. The panel concluded that it is likely that the existence of laws and polices that enable adolescents to obtain safe abortion services could reduce unsafe abortion if their formulation is combined with efforts to apply them. Panel members noted that in some communities there may be a conflict of values regarding the legalization of abortion.

The panel recommended the formulation of such laws and policies from both rights-based and public health perspectives.

II. RECOMMENDATIONS

Factors considered for Question 5.1

POPULATION: Policy leaders/planners and community leaders		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely that a conditional/ weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/ weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the cost of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 5: Reduce unsafe abortion among adolescents

Question 5.2

Is there evidence that efforts to inform adolescents and other stakeholders about the conditions under which abortions are legal are effective in reducing unsafe abortions among adolescents?

Recommendation for action – Strong recommendation

1. Enable adolescents to obtain safe abortion services by informing them and other stakeholders about:
- the dangers of unsafe methods of interrupting a pregnancy;
- safe abortion services that are legally available; and
- where and under what circumstances these services can be obtained legally.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question. The panel noted that informing adolescents and other stakeholders about what abortion services are available, and where and under what circumstances they could be obtained legally could reduce unsafe abortion if there are complementary efforts to ensure their provision.

In some settings, some segments of the population could protest the provision of such information.

The panel concluded that such efforts to inform adolescents about abortion services (where legal) are important from both rights-based and public health perspectives.

II. RECOMMENDATIONS

Factors considered for Question 5.2

POPULATION: Adolescent girls and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians, and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the cost of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong	

OUTCOME 5: Reduce unsafe abortion among adolescents

Question 5.3

Is there evidence that efforts to reduce barriers are effective in increasing access to and use of safe abortion services among adolescents according to existing laws?

Recommendation for action – Strong recommendation

1. Identify and overcome barriers to the provision of safe abortion services to adolescents.

Recommendation for research

Undertake research about the feasibility and effectiveness of interventions to reduce barriers to the provision of safe, legal abortion services to adolescents.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question. The panel noted that where safe abortion services are legally available, identifying and overcoming barriers to their provision and use by adolescents could reduce unsafe abortions. This is because adolescent girls face barriers to obtaining these services even where they are legal and safe.

The panel concluded that efforts to identify and overcome these barriers are important from both rights-based and public health perspectives.

II. RECOMMENDATIONS

Factors considered for Question 5.3

POPULATION: Adolescent girls and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians, and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/ weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 5: Reduce unsafe abortion among adolescents

Question 5.4

Is there evidence that efforts to increase the availability of post-abortion services are effective in reducing post-abortion mortality and morbidity among adolescents?

Recommendation for action – Strong recommendation

1. Ensure access to post-abortion care by adolescents as a life-saving medical intervention, whether or not the abortion or attempted abortion was legal.

Recommendation for research

Undertake research to investigate the feasibility and effectiveness of interventions to ensure access to post-abortion care by adolescents.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question. The panel noted that ensuring access to post-abortion care services for adolescents could reduce maternal mortality. It also recognized that such efforts are important from both rights-based and public health perspectives.

Despite the lack of evidence, the panel concluded that interventions to ensure access to post-abortion care by adolescents should be implemented.

II. RECOMMENDATIONS

Factors considered for Question 5.4

POPULATION: Adolescent girls and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians, and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely that a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 5: Reduce unsafe abortion among adolescents

Question 5.5

Is there evidence that efforts to increase the availability of post-abortion *contraceptive* services are effective in reducing post-abortion mortality and morbidity among adolescents?

Recommendation for action – Strong recommendation

1. Ensure that adolescents who have had abortions can obtain post-abortion contraceptive information and services, whether or not the abortion was legal.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question. The panel concluded that ensuring adolescents who have had abortions are also offered contraceptive information and services could prevent future unintended pregnancies.

Despite the lack of evidence, the panel recommended these interventions from both rights-based and public health perspectives.

II. RECOMMENDATIONS

Factors considered for Question 5.5

POPULATION: Adolescent girls and other stakeholders (including policy makers, programme managers, community leaders, and family members such as parents, guardians, and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely that a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong	

OUTCOME 6A:
Increased use of skilled antenatal care among adolescents

OUTCOME 6B:
Increased use of skilled care during childbirth among adolescents

Question 6a.1
Is there evidence that efforts to inform adolescents and other stakeholders about skilled antenatal care are effective in increasing access to and use of skilled antenatal care among adolescents?

Question 6b.1
Is there evidence that efforts to inform adolescents and other stakeholders about the importance of skilled childbirth care are effective in increasing access to and use of skilled childbirth care among adolescents?

Recommendations for action (combined for Q6a.1 and Q6b.1) – Strong recommendations
1. Provide information to all pregnant adolescents and other stakeholders about the importance of utilizing skilled antenatal care.
2. Provide information to all pregnant adolescents and other stakeholders about the importance of utilizing skilled childbirth care.

Recommendation for research
Undertake research to identify interventions that improve access to and use of services by informing adolescents and other stakeholders about the importance of skilled antenatal and childbirth care for pregnant adolescents.

Remarks and summary of panel discussion
The systematic review process did not find evidence about the effect of providing adolescents with information to promote access to and use of skilled antenatal care. Nor did the process find evidence about the effect of providing adolescents with information to promote access to and use of skilled childbirth care.

In order to use health services, all pregnant adolescents need information on the importance of quality antenatal and childbirth care. There are no significant harms foreseen. However, unintended harms may result if the increased demand exceeds the availability of these services.

Adolescents have a right to information. There are no conflicts of values regarding the provision of information to adolescents about skilled antenatal and childbirth care.

The interventions listed above will require resources for implementation and monitoring.

The expert panel concluded that, despite the lack of evidence, it is critical to provide "appropriate" (*1*) information to adolescents and other stakeholders in order to promote access to and use of skilled antenatal and childbirth care. The panel also recognized that providing this information to adolescents is important from both rights-based and public health perspectives. It also noted that, when designing communication and education strategies, the special barriers that adolescents face must be considered. Research is required to identify the most effective information and communication strategies for improving the use of skilled antenatal and childbirth care by adolescents.

II. RECOMMENDATIONS

Factors considered for Question 6a.1 and Question 6b.1

POPULATION: Adolescents and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Adolescent-appropriate and targeted information to promote access to and use of skilled antenatal and childbirth care (*1*)		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendations)	

OUTCOME 6A: Increased use of skilled antenatal care among adolescents

Question 6a.2

Is there evidence that changes to health services have an impact on access to and use of skilled antenatal care among adolescents?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research to identify the types of changes to health services that can improve adolescents' access to and use of skilled antenatal care.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question.

The panel recognized that there are evaluations of adolescent-friendly health services in some developing countries. However, these services do not include antenatal care and therefore could not inform the panel's recommendations on this question. The panel members noted, based on their experiences, that certain subgroups of adolescents (for example very young or unmarried adolescents) may face special barriers to accessing care. These barriers must be identified and addressed.

Due to lack of evidence, the panel recommended further research into this question.

II. RECOMMENDATIONS

Factors considered for Question 6a.2

POPULATION: Pregnant adolescents and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications **The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.**	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 6A: Increased use of skilled antenatal care among adolescents

Question 6a.3

Is there evidence that efforts to increase birth preparedness are effective in improving pregnancy-related outcomes among adolescents?

Recommendation for action – Strong recommendation

1. Promote birth and emergency preparedness in antenatal care strategies for pregnant adolescents (in household, community, and health facility settings).

Recommendation for research

Undertake research to identify effective interventions to improve birth and emergency preparedness for adolescents. This research should examine both proximal outcomes, such as improved use of care, as well as distal outcomes, such as maternal mortality and morbidity.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question.

The panel noted that birth and emergency preparedness is a critical part of WHO's antenatal care package (*1–3*). Despite the lack of evidence, the panel concluded that the provision of birth preparedness interventions is important from both rights-based and public health perspectives.

II. RECOMMENDATIONS

Factors considered for Question 6a.3

POPULATION: Pregnant adolescents and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not Applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not Applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not Applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 6B: Increased use of skilled care during childbirth among adolescents

Question 6b.2

Is there evidence that changes to health services have an impact on increasing access to and use of skilled childbirth care among adolescents?

Recommendation for action

No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research

Undertake research to identify the types of changes that need to be made to health services in order to improve adolescents' access to and use of skilled childbirth care.

Remarks and summary of panel discussion

The systematic review process did not identify any evidence that addressed this question.

The panel recognized the lack of evidence available to inform its recommendations on this question. Panel members noted, based on their experiences, that certain subgroups of adolescents (for example the very young, or unmarried adolescents) may face special barriers to accessing care. These barriers must be identified and addressed.

The panel stated that all pregnant adolescents should have access to skilled care at birth in order to improve maternal, perinatal and neonatal outcomes. However, it agreed that an action recommendation on a specific intervention could not be made and therefore called for further research.

II. RECOMMENDATIONS

Factors considered for Question 6b.2

POPULATION: Pregnant adolescents and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 6C:
Increased use of skilled antenatal, childbirth and postnatal care among adolescents

Question 6c.1
Is there evidence that efforts to reduce barriers are effective in increasing access to and use of skilled antenatal, childbirth and postnatal care services among adolescents?

Recommendation for action
No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research
Undertake research to identify effective interventions for reducing barriers to accessing and using skilled care for adolescents during antenatal, childbirth and postnatal periods.

Remarks and summary of panel discussion
The systematic review process did not identify any evidence that was eligible for grading.

The panel noted that adolescents faced multiple barriers to accessing and using skilled care during and after pregnancy. Finances were a well-recognized and significant subset of these barriers. The panel reviewed one ungraded study which addressed this issue (*4*), which found that a conditional cash transfer (CCT) scheme resulted in increased use of skilled antenatal and childbirth care by a population of women that included adolescents. It demonstrated improvements in neonatal and perinatal mortality, but without any impact on maternal mortality. The panel also noted that the needs of particularly vulnerable subgroups (such as rural, isolated, unmarried or married adolescents) must be identified and addressed.

The panel could not recommend a specific intervention on the basis of available evidence. Research is required to identify and address the barriers faced by adolescents to obtaining skilled antenatal, childbirth and postnatal care. The panel recommended that existing data on cash transfer schemes be disaggregated by age to identify adolescent-specific outcomes. It also recommended research into other interventions including insurance enrolment schemes.

II. RECOMMENDATIONS

Factors considered for Question 6c.1

POPULATION: Pregnant adolescents and other stakeholders (including policy leaders/planners, programme managers, community leaders and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 6C:
Increased use of skilled antenatal, childbirth and postnatal care among adolescents

Question 6c.2
Is there evidence that efforts to tailor antenatal, childbirth and postnatal care services specifically to adolescents are effective in improving maternal and infant outcomes among adolescents?

Recommendation for action
No specific intervention is recommended. Please refer to the recommendation for research related to this question.

Recommendation for research
Undertake research to identify effective interventions for tailoring antenatal, childbirth and postnatal care services to adolescents.

Remarks and summary of panel discussion
The panel considered low quality evidence from one graded study to inform its recommendation (GRADE Table 14) (*5*). The study intervention combined facility-based antenatal care with home visits during the last trimester and postnatal period by community-based health educators. This intervention resulted in improvements in some health outcomes for adolescents.

The health benefits of these interventions are clear for adolescent mothers and their children, with no ascertainable harms or burdens. These interventions are consistent with the goal of improving health outcomes for adolescent mothers. However, these interventions may encounter resistance in some communities because of social norms regarding adolescent sexuality and adolescent pregnancy.

Given the limitations of the study, the panel decided to focus on the need for further research into these interventions and the need to evaluate such interventions in different sociocultural contexts.

II. RECOMMENDATIONS

Factors considered for Question 6c.2

POPULATION: Pregnant adolescents, postpartum adolescents and other stakeholders (including policy leaders/planners, programme managers, community leaders, and family members such as parents, guardians and partners)		
INTERVENTION: Not applicable		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☒ YES ☐ NO	The graded (low quality) study assessed access to standard antenatal care, including scheduled home visits by community-based health educators supervised by trained personnel (nurses, midwives), as well as postnatal scheduled home visits (up to 12 visits) by trained and supervised community based health educators (GRADE Table 14) (5). The evidence demonstrated improvements in maternal outcomes such as anaemia, overweight and underweight as a result of the intervention. The evidence also demonstrated improvements in infant outcomes such as infant underweight.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Not applicable	

OUTCOME 6C:
Increased use of skilled antenatal, childbirth and postnatal care among adolescents

Question 6c.3

Is there evidence that efforts to expand the availability of basic emergency obstetric care and comprehensive emergency obstetric care are effective in improving maternal and infant outcomes among adolescents?

Recommendation for action – Strong recommendation

1. Expand the availability and access to basic emergency obstetric care (BEmOC) and comprehensive emergency obstetric care (CEmOC) to all populations including adolescents.

Recommendation for research

Undertake research to identify interventions in order to expand the availability of and access to BEmOC and CEmOC for adolescents.

Remarks and summary of panel discussion

The systematic review process did not find any evidence that was eligible to address this question.

Basic emergency obstetric care and comprehensive emergency obstetric care are life-saving interventions that are included in current WHO guidelines (*6,7*). The panel noted that, despite the lack of available evidence, these interventions should be provided to adolescents from both rights-based and public health perspectives. It noted that when delivering BEmOC and CEmOC, it is essential to address the special barriers for adolescents with respect to abortion-related complications, as well as other complications such as obstructed labour and anaemia.

Despite the lack of evidence, the panel recommended the expansion of access to BEmOC and CEmOC for all populations including adolescent women. The panel also recommended further research to identify specific strategies to expand these services for adolescents.

II. RECOMMENDATIONS

Factors considered for Question 6c.3

POPULATION: Pregnant adolescents		
INTERVENTION: Basic emergency obstetric care (BEmOC) and comprehensive emergency obstetric care (CEmOC)		
FACTOR	**DECISION**	**EXPLANATION**
Lower quality evidence (is there lower quality evidence?) The higher the quality of evidence, the more likely a strong recommendation is warranted.	☐ YES ☐ NO	The systematic review process did not identify any eligible studies for inclusion.
Uncertainty about the balance of benefits versus harms and burdens (is there uncertainty?) The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation is warranted. The smaller the net benefit and the lower the certainty for that benefit, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Uncertainty or differences in values (is there uncertainty?) The greater the variability or uncertainty in values and preferences, the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Resource implications The higher the costs of an intervention – that is, the more the resources consumed – the more likely a conditional/weak recommendation is warranted.	☐ YES ☐ NO	Not applicable
Overall strength of recommendation	Strong (for the action recommendation)	

OUTCOME 6:
References

1. *WHO antenatal care randomized trial. Manual for the implementation of the new model*. Geneva, World Health Organization, 2001
2. *Birth and emergency preparedness in antenatal care. Integrated Management of Pregnancy and Childbirth (IMPAC).* Geneva, World Health Organization, 2006
3. *Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice*. Geneva, World Health Organization, 2006.
4. Lim SS et al. India's Janani Suraksha Yojana, a conditional cash transfer programme to increase births in health facilities: an impact evaluation. *Lancet*, 2010, 375: 2009–2023.
5. Aracena M et al. A cost-effectiveness evaluation of a home visit program for adolescent mothers. *Journal of Health Psychology,* 2009, 14:878–887.
6. *Monitoring emergency care: a handbook*. Geneva, World Health Organization, 2009.
7. *Managing complications in childbirth: A guide for midwives and doctors*. Geneva, World Health Organization, 2007.

WHO

III. Appendix: GRADE Tables

III: APPENDIX: GRADE TABLES

Guidelines for preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries

Author(s): P. Whyte
Date: 2010-10-07
Question: Should multiple interventions vs varying control groups; conventional interventions be used in adolescents?
Settings: USA
Bibliography: Oringanje C et al. Interventions for preventing unintended pregnancies among adolescents. Cochrane Database of Systematic Reviews, 2009, issue 4.

TABLE 1: GRADE evidence profile – comparison of multiple interventions to control interventions

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	MULTIPLE INTERVENTIONS	VARYING CONTROL GROUPS; CONVENTIONAL INTERVENTIONS	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
UNINTENDED PREGNANCY												
2[1]	Randomized trials	Serious[2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	43/397 (10.8%)	69/461 (15%)	Relative risk (RR) 0.72 (0.51 to 1.03)	42 fewer per 1000 (from 73 fewer to 4 more)	⊕⊕⊕O MODERATE	CRITICAL
UNINTENDED PREGNANCY (CLUSTER RANDOMIZED TRIALS)												
5[3]	Randomized trials	Serious[4]	Serious[5]	No serious indirectness	No serious imprecision	None	71/2009 (3.5%)	76/1140 (6.7%)	RR 0.50 (0.23 to 1.09)	33 fewer per 1000 (from 51 fewer to 6 more)	⊕⊕OO LOW	CRITICAL
SECOND UNINTENDED PREGNANCY												
1[6]	Randomized trials	Serious[7]	No serious inconsistency	No serious indirectness	No serious imprecision	None	8/70 (11.4%)	17/79 (21.5%)	RR 0.48 (0.22 to 1.02)	112 fewer per 1000 (from 168 fewer to 4 more)	⊕⊕⊕O MODERATE	CRITICAL
UNINTENDED PREGNANCY EXCLUDING TRIALS WITH HIGH ATTRITION												
2[8]	Randomized trials	Serious[9]	No serious inconsistency	No serious indirectness	No serious imprecision	None	10/314 (3.2%)	28/183 (15.3%)	RR 0.20 (0.1 to 0.39)	122 fewer per 1000 (from 93 fewer to 138 fewer)	⊕⊕⊕O MODERATE	CRITICAL

UNINTENDED PREGNANCY WITH CLUSTER RANDOMIZED AND INDIVIDUAL TRIALS COMBINED												
3[10]	Randomized trials	Serious[9]	Serious[11]	No serious indirectness	No serious imprecision	None	29/469 (6.2%)	56/402 (13.9%)	RR 0.49 (0.33 to 0.74)	71 fewer per 1000 (from 36 fewer to 93 fewer)	⊕⊕OO LOW	CRITICAL

1. Herceg-Brown (1): family support group or periodic support group compared to regular clinic services. 6-week programme with 15-month follow-up; Philliber (2): job clubs, academic skills, family and life sexuality education, developing personal art skills, recreational activities, group/individual counselling, contraceptive education and medical compared to an alternative youth programme (recreational activities, homework help, arts and crafts). Programme duration was a school year with 3-year follow-up.
2. The Herceg-Brown (1) trial had unclear allocation and was not blinded while the Philliber (2) trial had insufficient information provided regarding blinding.
3. Cabezon (3): school class on health education, contraceptive education, skills building and abstinence compared to no intervention. Programme duration 1 year with 4 year follow-up; Ferguson (4): health education, skills building, contraceptive education, abstinence, ethnic/cultural values, family options, career counselling taught by peer counsellors compared to same interventions taught by usual adult staff. Programme duration was 8 weeks with a 3-month follow-up; Howard (5): Five sessions (4 classroom periods in one week or one per week for 4 weeks with a 5th session 1–3 months later) on health/STD education, skills building, contraceptive education compared to existing human sexuality programme; Kirby (6): 8 sessions for 2 weeks of health education, contraceptive education, skills building, risks and consequences of teen sex and community resources compared to standard curriculum; Wight (7): 20 sessions package of health/sex education, skills building, contraceptive education through use of interactive video compared to conventional sex education.
4. Allocation was not concealed and trials were not blinded (with the exception of assessors in Wight) (7), or no information regarding allocation concealment or blinding was provided.
5. Relatively high degree of heterogeneity with I2=75%.
6. Black (8): comparing a home mentoring programme (approximately 19 visits) with no intervention.
7. Randomization and allocation concealment unclear; only evaluators blinded.
8. Cabezon (3): school class (one class per week for a year) on health education, contraceptive education, skills building and abstinence compared to no intervention; Ferguson (4) programme: 2 hours per week for 8 weeks health education, skills building, contraceptive education, abstinence, ethnic/cultural values, family options, career counselling taught by peer counsellors compared to same interventions taught by usual adult staff.
9. No allocation concealment and no information provided regarding blinding.
10. Cabezon (3): one school class per week for one year on health education, contraceptive education, skills building and abstinence compared to no intervention; Ferguson (1998) (4)programme: 2 hours per week for 8 weeks on health education, skills building, contraceptive education, abstinence, ethnic/cultural values, family options, career counselling taught by peer counsellors compared to same interventions taught by usual adult staff; Herceg-Brown (1): family support group or periodic support group with regular clinic services for 6 weeks.
11. High level of heterogeneity with I2=92%.

Author(s): P. Whyte
Date: 2010-10-09
Question: Should special postpartum care vs standard postpartum care be used in adolescent females?
Settings: USA, Australia
Bibliography: Lopez LM et al. Education for contraceptive use by women after childbirth. Cochrane Database of Systematic Reviews, 2010, issue 1.

TABLE 2: GRADE evidence profile – comparison of special postpartum care vs standard postpartum care

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	SPECIAL POSTPARTUM CARE	STANDARD POSTPARTUM CARE	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
REPEAT PREGNANCY BY 18 MONTHS												
1[1]	Randomized trials	Serious[2]	No serious inconsistency	Serious[3]	Serious[4]	None	0/0 (0%)[5]	0/0 (0%)[5]	Odds ratio (OR) 0.35 (0.17 to 0.7)	0 fewer per 1000 (from 0 fewer to 0 fewer)	⊕OOO VERY LOW	IMPORTANT
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		

1. O'Sullivan (9) compared special care (different staffing and services, goals included preventing repeat pregnancy, mother's return to school, immunizations for child, less use of emergency care for child, used reminder phone calls and letters for appointments) to routine well-baby care. Programme duration was 18 months.
2. No information is provided on randomization, allocation concealment or blinding.
3. All included trial(s) were conducted in developed countries.
4. Based on a single trial (n=243).
5. Systematic review does not provide results for the treatment groups and only provides odds ratio results for comparison.

Author(s): P. Whyte
Date: 2010-10-09
Question: Should special postpartum care vs standard postpartum care be used in adolescent females?
Settings: USA, Australia
Bibliography: Lopez LM et al. Education for contraceptive use by women after childbirth. *Cochrane Database of Systematic Reviews*, 2010, issue 1.

TABLE 3: GRADE evidence profile – comparison of special and standard postpartum care

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	SPECIAL POSTPARTUM CARE	STANDARD POSTPARTUM CARE	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
EFFECTIVE CONTRACEPTIVE USE FOLLOWING PREGNANCY												
1[1]	Randomized trials	Serious[2]	No serious inconsistency	Serious[3]	Serious[4]	None	0/0 (0%)[5]	0/0 (0%)[5]	OR 3.24 (1.35 to 7.79)	0 more per 1000 (from 0 more to 0 more)	⊕OOO VERY LOW	CRITICAL
								0%		0 more per 1000 (from 0 more to 0 more)		

1. Quinlivan (10) compared structured home visits (for 6 months) from nurse midwives along with routine postnatal support to routine natal support alone.
2. No information provided on blinding.
3. All included trial(s) were conducted in developed countries.
4. Single trial only with relatively small sample size (n=139).
5. Systematic review does not provide results for the treatment groups and only provides odds ratio results for comparison.

Author(s): P.Whyte
Date: 2010-10-31
Question: Should specially designed programme of interventions vs standard intervention be used in adolescents aged 14 to >18 years?[1]
Settings: rural communities in Tanzania
Bibliography: Ross DA et al. Biological and behavioural impact of an adolescent sexual health intervention in Tanzania: a community-randomized trial. *AIDS*, 2007, 21:1943-1955.

TABLE 4: GRADE evidence profile – comparison of specially designed interventions vs standard interventions for adolescents

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	SPECIALLY DESIGNED PROGRAMME OF INTERVENTIONS	STANDARD INTERVENTION	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
USED CONDOM AT LAST SEX (MALES)												
1[2]	Randomized trials[3]	Serious[4]	No serious inconsistency	No serious indirectness	No serious imprecision	None	431/2076 (20.8%)	326/2024 (16.1%)	RR 1.47 (1.12 to 1.93)[5]	76 more per 1000 (from 19 more to 150 more)	⊕⊕⊕O MODERATE	IMPORTANT
USED CONDOM AT LAST SEX (FEMALES)												
1[2]	Randomized trials[3]	Serious[4]	No serious inconsistency	No serious indirectness	No serious imprecision	None	284/1448 (19.6%)	238/1492 (16%)	RR 1.12 (0.85 to 1.48)[5]	19 more per 1000 (from 24 fewer to 77 more)	⊕⊕⊕O MODERATE	IMPORTANT
FIRST USED CONDOM DURING FOLLOW-UP (MALES)												
1[2]	Randomized trials[3]	Serious[4]	No serious inconsistency	No serious indirectness	No serious imprecision	None	548/2076 (26.4%)	427/2024 (21.1%)	RR 1.41 (1.15 to 1.73)[5]	86 more per 1000 (from 32 more to 154 more)	⊕⊕⊕O MODERATE	IMPORTANT
FIRST USED CONDOM DURING FOLLOW-UP (FEMALES)												
1[2]	Randomized trials[3]	Serious[4]	No serious inconsistency	No serious indirectness	No serious imprecision	None	387/1448 (26.7%)	297/1492 (19.9%)	RR 1.30 (1.03 to 1.63)[5]	60 more per 1000 (from 6 more to 125 more)	⊕⊕⊕O MODERATE	IMPORTANT

1. Standard interventions are not described in paper.
2. Ross DA et al. (11).
3. Community-randomized.
4. The trial was community-randomized, with no information provided regarding method of randomization used; trial was not blinded.
5. Adjusted relative risk - analysis adjusted for age group (<17, 18, >19 years of age), stratum, tribe, number of lifetime partners at baseline (0, 1, 2, >3)

Author(s): P. Whyte
Date: 2010-11-11
Question: Should vouchers for free access to sexual and reproductive health care vs. non-receivers of vouchers be used in female adolescents 12 to 20 years of age?
Settings: Nicaragua
Bibliography: Muewissen LE et al. Impact of accessible sexual and reproductive health care on poor and underserved adolescents in Managua, Nicaragua: a quasi-experimental intervention study. *Journal of Adolescent Health*, 2006; 56c1-56e9.

TABLE 5: GRADE Evidence profile – comparison of vouchers for sexual and reproductive health care vs no voucher

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	VOUCHERS FOR FREE ACCESS TO SEXUAL AND REPRODUCTIVE HEALTH CARE	NON-RECEIVERS OF VOUCHERS	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
USE OF CONDOMS IN LAST SEXUAL CONTACT												
1[1]	Observational studies[2]	No serious limitations	No serious inconsistency	No serious indirectness	Serious[3]	None	115/500 (23%)	64/335 (19.1%)	OR 1.84 (1.11 to 3.03)[4]	112 more per 1000 (from 17 more to 226 more)	⊕OOO VERY LOW	IMPORTANT

1. Muewissen LE et al. (12).
2. Study was quasi-experimental in that vouchers were distributed at selected disadvantaged areas in Managua, Nicaragua. 3 to 15 months following distribution female adolescents were surveyed however the survey was not linked to the voucher distribution programme or health services so that there was a 'random' sample of adolescents who received vouchers (intervention group) and those who did not (control group)
3. Based on a single study with number of events <300.
4. Analysis adjusted for survey site, school attendance and SE score area.

Author(s): P. Whyte
Date: 2010-10-09
Question: Should contraceptive intervention vs standard contraceptive distribution be used in adolescent females?
Settings: USA, UK
Bibliography: Oringanje C et al. Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database of Systematic Reviews*, 2009, issue 4. Article no.: CD005215.

TABLE 6: GRADE evidence profile – comparison of contraceptive intervention to standard intervention

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					IMPORTANCE
							NO. OF PARTICIPANTS		EFFECT		QUALITY	
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	CONTRACEPTIVE INTERVENTION	STANDARD CONTRACEPTIVE DISTRIBUTION	RELATIVE (95% CI)	ABSOLUTE		
USE OF BIRTH CONTROL METHODS – HORMONAL CONTRACEPTIVES (CLUSTER RANDOMIZED TRIAL)												
1[1]	Randomized trials	Serious[2]	No serious inconsistency	Serious[3]	No serious imprecision	None	63/195 (32.3%)	79/220 (35.9%)	RR 0.90 (0.69 to 1.18)	36 fewer per 1000 (from 111 fewer to 65 more)	⊕⊕OO LOW	CRITICAL
USE OF BIRTH CONTROL METHODS – CONDOM USE IN LAST SEX												
2[4]	Randomized trials	No serious limitations	No serious inconsistency	Serious[3]	No serious imprecision	None	457/1395 (32.8%)	622/1696 (36.7%)	RR 0.95 (0.87 to 1.04)[5]	18 fewer per 1000 (from 48 fewer to 15 more)	⊕⊕⊕O MODERATE	CRITICAL
USE OF BIRTH CONTROL METHODS – CONSISTENT CONDOM USE												
1[4]	Randomized trials	No serious limitations	No serious inconsistency	Serious[3]	No serious imprecision	None	99/826 (12%)	149/1124 (13.3%)	RR 0.90 (0.71 to 1.15)[5]	13 fewer per 1000 (from 38 fewer to 20 more)	⊕⊕⊕O MODERATE	CRITICAL
USE OF BIRTH CONTROL METHODS – HORMONAL CONTRACEPTIVES												
2[4]	Randomized trials	No serious limitations	Serious[6]	Serious[3]	No serious imprecision	None	366/1395 (26.2%)	279/1696 (16.5%)	RR 2.22 (1.07 to 4.62)	201 more per 1000 (from 12 more to 596 more)	⊕⊕OO LOW	CRITICAL

1. Graham (13): emergency contraceptives education compared to usual sex education.
2. Allocation concealment was unclear and trial was not blinded.
3. All included trial(s) were conducted in developed countries.
4. Raine (14): pharmacy access group (instructions for obtaining Levonorgestrel) or provision of 3 packets of Levonorgestrel EC compared to clinic access and instructions to return to clinic for EC if needed; Raymond (15): contraception distribution (2 packs of pills dispensed in advance with unlimited resupply at no charge) compared to standard contraceptive distribution of pills dispensed when needed at usual charge.
5. Although difference was not statistically significant, there was greater use of condoms at last sex in the control groups.
6. High heterogeneity with I^2=86%.

Author(s): P. Whyte
Date: 2010-10-09
Question: Should educational intervention vs. varying interventions be used in adolescents?
Settings: USA, Italy
Bibliography: Oringanje C et al. Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database of Systematic Reviews*, 2009, issue 4. Article no.: CD005215.

TABLE 7: GRADE evidence profile – comparison of educational interventions to standard interventions

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					IMPORTANCE
							NO. OF PARTICIPANTS		EFFECT		QUALITY	
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	EDUCATIONAL INTERVENTION	VARYING INTERVENTIONS	RELATIVE (95% CI)	ABSOLUTE		
USE OF BIRTH CONTROL METHODS – CONDOM USE AT LAST SEX												
2[1]	Randomized trials	Serious[2]	No serious inconsistency	Serious[3]	No serious imprecision	None	258/704 (36.6%)	190/727 (26.1%)	RR 1.18 (1.06 to 1.32)	47 more per 1000 (from 16 more to 84 more)	⊕⊕OO LOW	CRITICAL

1. Borgia (2005) (16): HIV/AIDS education and skills building by peers compared to the same intervention conducted by teachers; Dilorio (2006) (17): 7 sessions over 14 weeks on HIV education, communication skills, take-home activities and sexual decision making, consequences of early sexual intercourse or stress reduction exercise and specific type of at-risk behaviours including early sexual intercourse, take-home assignments and community service compared to a 1-hour HIV prevention session for adolescents and mothers.
2. Allocation concealment was unclear and no information was provided as to whether trials were blinded.
3. All included trial(s) were conducted in developed countries.

Author(s): P. Whyte
Date: 2010-11-11
Question: Should school-based sex education programme vs no intervention be used in adolescent students aged 14 to 19 years?
Settings: Brazil
Bibliography: Andrade H et al. Changes in sexual behaviour following a sex education program in Brazilian public schools. *Cadernos de Saude Publica*, 2009, 25(5): 1168-1176.

TABLE 8: GRADE evidence profile – school-based intervention vs school-based sex education[1*]

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					IMPORTANCE
							NO. OF PARTICIPANTS		EFFECT		QUALITY	
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	SCHOOL-BASED SEX EDUCATION PROGRAMME	NO INTERVENTION	RELATIVE (95% CI)	ABSOLUTE		
CONSISTENT CONDOM USE WITH CASUAL PARTNER												
1[1]	Observational studies	Serious[2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	156/217 (71.9%)	187/293 (63.8%)	OR 0.61 (0.38 to 0.99)[3]	120 fewer per 1000 (from 2 fewer to 237 fewer)	⊕OOO VERY LOW	IMPORTANT
CONSISTENT CONDOM USE WITH STEADY PARTNER												
1[1]	Observational studies	Serious[2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	137/195 (70.3%)	151/240 (62.9%)	OR 0.87 (0.56 to 1.34)[3]	33 fewer per 1000 (from 142 fewer to 65 more)	⊕OOO VERY LOW	IMPORTANT
USE OF MODERN CONTRACEPTIVE AT LAST INTERCOURSE												
1[1]	Observational studies	Serious[2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	191/244 (78.3%)	230/318 (72.3%)	OR 0.79 (0.55 to 1.14)[3]	50 fewer per 1000 (from 134 fewer to 25 more)	⊕OOO VERY LOW	IMPORTANT

1. Andrade H et al. (18).
2. Schools receiving intervention and control schools were 'selected'. The control group was non-equivalent.
3. Analysis was multilevel multiple logistic regression.

[1] * In this table, unlike in the other GRADE tables, the odds ratios are calculated comparing no intervention to curriculum-based sexuality education (CBSE).

Author(s): P. Whyte
Date: 2010-11-12
Question: Should Protection Motivation Theory-based HIV prevention programme vs no intervention be used in 10 to 11 year old youth?
Settings: Bahamas
Bibliography: Chen X et al. A cluster randomized controlled trial of an adolescent HIV prevention program among Bahamian youth: effect at 12 months post-intervention. *AIDS and Behavior*, 2009, 13:499-508.

TABLE 9: GRADE evidence profile – protection motivation theory-based HIV prevention programme vs no intervention

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	PROTECTION MOTIVATION THEORY –BASED HIV PREVENTION PROGRAMME	NO INTERVENTION	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
CONDOM USE AMONG SEXUALLY EXPERIENCED AT 6 MONTHS												
1[1]	Randomized trials	No serious limitations[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	20/79 (25.3%)	6/43 (14%)	Chi-square 3.04 (0 to 0)[4]	285 more per 1000 (from 140 fewer to 140 fewer)	⊕⊕⊕O MODERATE	IMPORTANT
CONDOM USE AMONG SEXUALLY EXPERIENCED AT 12 MONTHS												
1[1]	Randomized trials	No serious limitations[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	34/127 (26.8%)	11/71 (15.5%)	Chi-square 3.30 (0 to 0)[5]	356 more per 1000 (from 155 fewer to 155 fewer)	⊕⊕⊕O MODERATE	IMPORTANT

1. Chen X et al. (19).
2. Community-randomized study using schools as the basis of randomization.
3. Based on a single study with number of events <300.
4. No 95% CI; p=0.081.
5. No 95% CI; p=0.050.

Author(s): P. Whyte
Date: 2010-11-11
Question: Should culturally sensitive comprehensive sex education programme vs no intervention be used in adolescent students aged 14 to 19 years?1
Settings: Thailand
Bibliography: Thato R et al. Effects of the culturally-sensitive comprehensive sex education programme among Thai secondary school students. *Journal of Advanced Nursing*, 2008, 62(4):457-469.

TABLE 10: GRADE evidence profile – culturally sensitive sexuality education vs no intervention

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					IMPORTANCE
							NO. OF PARTICIPANTS		EFFECT		QUALITY	
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	CULTURALLY SENSITIVE COMPREHENSIVE SEX EDUCATION PROGRAMME	NO INTERVENTION	RELATIVE (95% CI)	ABSOLUTE		
CONSISTENT CONDOM USE												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	6/12 (50%)[5]	16/34 (47.1%)[5]	OR 0.85[6] (0.14 to 2.02)[7]	40 fewer per 1000 (from 360 fewer to 172 more)	⊕⊕OO LOW	IMPORTANT
INTENTION TO USE CONDOMS (BETTER INDICATED BY HIGHER VALUES)												
1[2]	Randomized trials	Serious[8]	No serious inconsistency	No serious indirectness	Serious[9]	None	230[10]	189[10]	-	1.37 higher (0.97 to 1.77 higher)[11]	⊕⊕OO LOW	IMPORTANT

1. The programme emphasized Thai values and attitudes toward premarital sex. It consisted of six one-hour modules, with one module addressing contraception and condom use. Modalities used in each session included group discussion, videos, games, role-play, demonstration, brain-storming and skill building activities.
2. Thato R et al. (20).
3. Quasi-experimental study with community-randomization of schools to receive intervention. Assessment of condom use was based on a small sub-sample of sexually experienced students.
4. Based on a single study with number of events <300.
5. These values are for the 6-month follow-up although the adjusted odds ratio presented by the publication is based on both 3- and 6-month follow-up.
6. For this outcome, OR and absolute effect are calculated for no intervention vs CBSE
7. Adjusted for age and grade point average.
8. Quasi-experimental study with community-randomization of schools to receive intervention.
9. Based on a single study.
10. Includes both sexually experienced and inexperienced subjects.
11. Analysis used repeated measures analysis with Generalized Estimating Equations to consider results at 3- and 6-month follow-up.

Author(s): P. Whyte
Date: 2010-10-27
Question: Should two interventions (creating supportive environments and meeting needs-Site A) vs. control (Site C) be used in adolescents 10-19 years?
Settings: Kenya
Bibliography: Askew I et al. and Kenya Ministry of Health, Ministry of Education, Science and Technology, Ministry of Gender, Sport, Culture and Social Services. *A multi-sectoral approach to providing reproductive health information and services to young people in western Kenya: Kenya Adolescent Reproductive Health Project*. June 2004.

TABLE 11: GRADE evidence profile – comparison of two interventions (creating supportive environments and meeting needs) vs no intervention in Kenya

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					IMPORTANCE
							NO. OF PARTICIPANTS		EFFECT		QUALITY	
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	TWO INTERVENTIONS (CREATING SUPPORTIVE ENVIRONMENTS AND MEETING NEEDS-SITE A)	CONTROL (SITE C)	RELATIVE (95% CI)	ABSOLUTE		
FORCED FIRST SEX (FORCED SEXUAL EXPERIENCE AND SEX AS RESULT OF BEING THREATENED COMBINED) – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	13/225 (5.8%)	26/291 (8.9%)	RR 0.43 (0.21 to 0.87)	51 fewer per 1000 (from 12 fewer to 71 fewer)	⊕OOO VERY LOW	CRITICAL
TRICKED FIRST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	7/225 (3.1%)	76/291 (26.1%)	RR 0.08 (0.04 to 0.18)	240 fewer per 1000 (from 214 fewer to 251 fewer)	⊕OOO VERY LOW	CRITICAL
SWEET-TALKED FIRST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	53/225 (23.6%)	59/291 (20.3%)	RR 0.77[4] (0.49 to 1.20)	47 fewer per 1000 (from 103 fewer to 41 more)	⊕OOO VERY LOW	CRITICAL
CONVINCED FIRST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	1/225 (0.4%)	4/291 (1.4%)	RR 0.21 (0.02 to 1.94)	11 fewer per 1000 (from 13 fewer to 13 more)	⊕OOO VERY LOW	CRITICAL

FORCED LAST SEX (FORCED SEXUAL EXPERIENCE AND SEX AS RESULT OF BEING THREATENED COMBINED) – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	10/225 (4.4%)	14/291 (4.8%)	RR 0.80 (0.34 to 1.84)	10 fewer per 1000 (from 32 fewer to 40 more)	⊕OOO VERY LOW	CRITICAL
TRICKED LAST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	2/225 (0.9%)	33/291 (11.3%)	RR 0.07 (0.02 to 0.29)	105 fewer per 1000 (from 81 fewer to 111 fewer)	⊕OOO VERY LOW	CRITICAL
SWEET-TALKED LAST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	33/225 (14.7%)	38/291 (13.1%)	RR 0.97[4] (0.58 to 1.61)	4 fewer per 1000 (from 55 fewer to 80 more)	⊕OOO VERY LOW	CRITICAL
CONVINCED LAST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	1/225 (0.4%)	10/291 (3.4%)	RR 0.11 (0.01 to 0.88)	31 fewer per 1000 (from 4 fewer to 34 fewer)	⊕OOO VERY LOW	CRITICAL
PERPETRATED COERCION – FORCED (MALES)												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	6/135 (4.4%)	11/140 (7.9%)	RR 0.44 (0.16 to 1.24)	44 fewer per 1000 (from 66 fewer to 19 more)	⊕OOO VERY LOW	CRITICAL
PERPETRATED COERCION – TRICKED (MALES)												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	4/135 (3%)	16/140 (11.4%)	RR 0.20 (0.07 to 0.63)	91 fewer per 1000 (from 42 fewer to 106 fewer)	⊕OOO VERY LOW	CRITICAL
PERPETRATED COERCION – SWEET-TALKED (MALES)												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	7/135 (5.2%)	13/140 (9.3%)	RR 0.44 (0.17 to 1.14)	52 fewer per 1000 (from 77 fewer to 13 more)	⊕OOO VERY LOW	CRITICAL

1. Askew I et al. and Kenya Ministry of Health, Ministry of Education, Science and Technology, Ministry of Gender, Sport, Culture and Social Services (21).
2. 'Community randomized' means that locations were randomly allocated to be experimental or control sites. No details provided on how randomization was completed and participants were not blinded. Analyses presented here are post-hoc analyses – the published paper did not provide any comparisons of the intervention and control groups.
3. Based on single study with number of events <300.
4. For this outcome, OR and absolute effect are calculated for control vs intervention.

Author(s): P.Whyte
Date: 2010-10-27
Question: Should three interventions (creating supportive environments; meeting needs; educating in-school-Site B) vs. control (Site C) be used in adolescents 10-19 years?
Settings: Kenya
Bibliography: Askew I et al. and Kenya Ministry of Health, Ministry of Education, Science and Technology, Ministry of Gender, Sport, Culture and Social Services. *A multi-sectoral approach to providing reproductive health information and services to young people in western Kenya: Kenya Adolescent Reproductive Health Project*. June 2004.

TABLE 12: GRADE evidence profile – comparison of three interventions (creating supportive environments; meeting needs and educating in-school) vs no intervention in Kenya

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT			
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	THREE INTERVENTIONS (CREATING SUPPORTIVE ENVIRONMENTS; MEETING NEEDS; EDUCATING IN-SCHOOL-SITE B)	CONTROL (SITE C)	RELATIVE (95% CI)	ABSOLUTE	QUALITY	IMPORTANCE
FORCED FIRST SEX (FORCED SEXUAL EXPERIENCE AND SEX AS RESULT OF BEING THREATENED COMBINED) – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	18/162 (11.1%)	26/291 (8.9%)	RR 1.52 (0.77 to 2.99)	46 more per 1000 (from 21 fewer to 178 more)	⊕OOO VERY LOW	CRITICAL
TRICKED FIRST SEX – FEMALES												
1	Randomized trials	Very serious	No serious inconsistency	No serious indirectness	Serious[3]	None	11/162 (6.8%)	76/291 (26.1%)	RR 0.32 (0.16 to 0.64)	178 fewer per 1000 (from 94 fewer to 219 fewer)	⊕OOO VERY LOW	CRITICAL
SWEET-TALKED FIRST SEX – FEMALES												
1	Randomized trials	Very serious	No serious inconsistency	No serious indirectness	Serious[3]	None	59/162 (36.4%)	59/291 (20.3%)	RR 2.19 (1.36 to 3.53)	241 more per 1000 (from 73 more to 513 more)	⊕OOO VERY LOW	CRITICAL
CONVINCED FIRST SEX – FEMALES												
1	Randomized trials	Very serious	No serious inconsistency	No serious indirectness	Serious[3]	None	3/162 (1.9%)	4/291 (1.4%)	RR 1.64 (0.36 to 7.59)	9 more per 1000 (from 9 fewer to 91 more)	⊕OOO VERY LOW	CRITICAL

FORCED LAST SEX (FORCED SEXUAL EXPERIENCE AND SEX AS RESULT OF BEING THREATENED COMBINED) – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	19/162 (11.7%)	14/291 (4.8%)	RR 3.31 (1.58 to 6.91)	111 more per 1000 (from 28 more to 284 more)	⊕OOO VERY LOW	CRITICAL
TRICKED LAST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	8/162 (4.9%)	33/291 (11.3%)	RR 0.59 (0.26 to 1.34)	46 fewer per 1000 (from 84 fewer to 39 more)	⊕OOO VERY OW	CRITICAL
SWEET-TALKED LAST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	41/162 (25.3%)	38/291 (13.1%)	RR 2.63 (1.58 to 4.39)	213 more per 1000 (from 76 more to 443 more)	⊕OOO VERY LOW	CRITICAL
CONVINCED LAST SEX – FEMALES												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	8/162 (4.9%)	10/291 (3.4%)	RR 1.95 (0.74 to 5.12)	33 more per 1000 (from 9 fewer to 142 more)	⊕OOO VERY LOW	CRITICAL
PERPETRATED COERCION – FORCED (MALES)												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	9/91 (9.9%)	11/140 (7.9%)	RR 1.69 (0.65 to 4.36)	54 more per 1000 (from 28 fewer to 264 more)	⊕OOO VERY LOW	CRITICAL
PERPETRATED COERCION – TRICKED (MALES)												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	2/91 (2.2%)	16/140 (11.4%)	RR 0.26 (0.06 to 1.17)	85 fewer per 1000 (from 107 fewer to 19 more)	⊕OOO VERY LOW	CRITICAL
PERPETRATED COERCION – SWEET-TALKED (MALES)												
1[1]	Randomized trials	Very serious[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	25/91 (27.5%)	13/140 (9.3%)	RR 3.97 (1.86 to 8.47)	276 more per 1000 (from 80 more to 694 more)	⊕OOO VERY LOW	CRITICAL

1. Askew I et al. and Kenya Ministry of Health, Ministry of Education, Science and Technology, Ministry of Gender, Sport, Culture and Social Services (21).
2. 'Community randomized' means that locations were randomly allocated to be experimental or control sites. No details provided on how randomization was completed and participants were not blinded. Analyses presented here are post-hoc analyses – the published paper did not provide any comparisons of the intervention and control groups.
3. Based on single study with number of events <300.

Author(s): P. Whyte
Date: 2010-08-30
Question: Should programme of interventions vs. standard activities be used in adolescents aged 14 to 18?[1]
Settings: Tanzania
Bibliography: Ross DA et al. Biological and behavioural impact of an adolescent sexual health intervention in Tanzania: a community-randomized trial. *AIDS*, 2007, 21:1943-55.

TABLE 13: GRADE evidence profile – programme of interventions vs standard activities in adolescents aged 14 to 18

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					
							NO. OF PARTICIPANTS		EFFECT		QUALITY	IMPORTANCE
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	PROGRAMME OF INTERVENTIONS	STANDARD ACTIVITIES	RELATIVE (95% CI)	ABSOLUTE		
ATTITUDES TO SEX – MALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	454/2076 (21.9%)	247/2024 (12.2%)	RR 1.77 (1.42 to 2.22)	94 more per 1000 (from 51 more to 149 more)	⊕⊕⊕O MODERATE	IMPORTANT
ATTITUDES TO SEX – FEMALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	383/1448 (26.5%)	283/1492 (19%)	RR 1.42 (1.11 to 1.81)	80 more per 1000 (from 21 more to 154 more)	⊕⊕⊕O MODERATE	IMPORTANT
KNOWLEDGE REGARDING HIV ACQUISITION – MALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	1356/2076 (65.3%)	908/2024 (44.9%)	RR 1.44 (1.25 to 1.67)	197 more per 1000 (from 112 more to 301 more)	⊕⊕⊕O MODERATE	IMPORTANT
KNOWLEDGE REGARDING HIV ACQUISITION – FEMALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	832/1448 (57.5%)	601/1492 (40.3%)	RR 1.41 (1.14 to 1.75)	165 more per 1000 (from 56 more to 302 more)	⊕⊕⊕O MODERATE	IMPORTANT
KNOWLEDGE REGARDING STD ACQUISITION – MALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	1074/2076 (51.7%)	807/2024 (39.9%)	RR 1.28 (1.07 to 0.54)[5]	112 more per 1000 (from 28 more to 183 fewer)	⊕⊕⊕O MODERATE	IMPORTANT
KNOWLEDGE REGARDING STD ACQUISITION – FEMALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	522/1448 (36%)	376/1492 (25.2%)	RR 1.41 (1.06 to 1.88)	103 more per 1000 (from 15 more to 222 more)	⊕⊕⊕O MODERATE	IMPORTANT

KNOWLEDGE REGARDING PREGNANCY PREVENTION – MALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	1746/2076 (84.1%)	1018/2024 (50.3%)	RR 1.66 (1.55 to 1.78)	332 more per 1000 (from 277 more to 392 more)	⊕⊕⊕O MODERATE	IMPORTANT
KNOWLEDGE REGARDING PREGNANCY PREVENTION – FEMALES (FOLLOW-UP 3 YEARS; INTERVIEW[2])												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	1047/1448 (72.3%)	688/1492 (46.1%)	RR 1.58 (1.26 to 1.99)	267 more per 1000 (from 120 more to 457 more)	⊕⊕⊕O MODERATE	IMPORTANT
HIV INCIDENCE – MALES (FOLLOW-UP 3 YEARS; INTERVIEW)												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	3/2076 (0.1%)	2/2024 (0.1%)	RR 0 (0 to 0)[6]	1 fewer per 1000 (from 1 fewer to 1 fewer)	⊕⊕⊕O MODERATE	IMPORTANT
HIV INCIDENCE – FEMALES (FOLLOW-UP 3 YEARS; INTERVIEW)												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	16/2076 (0.8%)	24/2024 (1.2%)	RR 0.75 (0.34 to 1.66)	3 fewer per 1000 (from 8 fewer to 8 more)	⊕⊕⊕O MODERATE	IMPORTANT
REPORTED PREGNANCY DURING FOLLOW-UP (FOLLOW-UP 3 YEARS; INTERVIEW)												
1[3]	Randomized trials	No serious limitations	No serious inconsistency	Serious[4]	No serious imprecision	None	489/2076 (23.6%)	489/2024 (24.2%)	RR 1.03[7] (0.89 to 1.20)	7 more per 1000 (from 27 fewer to 48 more)	⊕⊕⊕O MODERATE	IMPORTANT

1. Intervention had four components: 1) community activities; 2) teacher-led, peer-assisted sexual health education in years 5–7 of primary school; 3) training and supervision of health workers to provide youth-friendly sexual health services; 4) peer condom social marketing.
2. Outcome considered was % with all three responses to questions correct.
3. Ross DA et al. (11).
4. The primary outcomes of the trial were the impact of the interventions on the biological outcomes of HIV incidence and herpes simplex 2 incidence as well as knowledge and reported attitudes to sexual behaviour, however coerced sex was not an included outcome. The question on sexual attitudes included in the outcomes did not explicitly address coerced sex. Consequently, the trial does not directly address impact of interventions on coerced sex.
5. 95% confidence interval as reported in the published paper, likely to be error in presentation.
6. Paper reports that no statistical comparison were made as the number of cases in each group was too small (<10) to justify comparison.
7. For this outcome, RR and absolute effect are calculated for standard activities vs. intervention.

Author(s): P. Whyte
Date: 2010-10-30
Question: Should home visit programme vs standard care be used in pregnant adolescents?[1]
Intervention: Standard prenatal and well-baby care at local health centres as well as home visits and educational materials. Subjects received on average 12 home visits. Home visitors were trained and monitored.
Settings: Chile
Bibliography: Aracena M et al. A cost-effectiveness evaluation of a home visit program for adolescent mothers. *Journal of Health Psychology*, 2009, 14:878-887.

TABLE 14: GRADE evidence profile – home visit intervention vs. standard care for pregnant adolescents

QUALITY ASSESSMENT							SUMMARY OF FINDINGS					IMPORTANCE
							NO. OF PARTICIPANTS		EFFECT		QUALITY	
NO. OF STUDIES	DESIGN	LIMITATIONS	INCONSISTENCY	INDIRECTNESS	IMPRECISION	OTHER CONSIDERATIONS	HOME VISIT INTERVENTION	STANDARD CARE	RELATIVE (95% CI)	ABSOLUTE		
PREGNANCY-INDUCED HYPERTENSION												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	3/45 (6.7%)	3/42 (7.1%)	RR 1.00 (0.21 to 4.7)[5]	0 fewer per 1000 (from 56 fewer to 264 more)	⊕⊕OO LOW	IMPORTANT
ANAEMIA												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	16/42 (38.1%)	21/45 (46.7%)	RR 0.76 (0.46 to 1.26)[5]	112 fewer per 1000 (from 252 fewer to 121 more)	⊕⊕OO LOW	IMPORTANT
UNDERWEIGHT (ADOLESCENTS)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	10/42 (23.8%)	14/45 (31.1%)	RR 0.71 (0.36 to 1.44)[5]	90 fewer per 1000 (from 199 fewer to 137 more)	⊕⊕OO LOW	IMPORTANT
OVERWEIGHT (ADOLESCENTS)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	9/42 (21.4%)	19/45 (42.2%)	RR 0.47 (0.24 to 0.93)[5]	224 fewer per 1000 (from 30 fewer to 321 fewer)	⊕⊕OO LOW	IMPORTANT
MENTAL HEALTH SCALE (GOLDBERG'S QUESTIONNAIRE) (BETTER INDICATED BY LOWER VALUES)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	45	45	-	MD 2.9 lower (5.6 to 0.3 lower)[5]	⊕⊕OO LOW	IMPORTANT
UNDERWEIGHT (INFANTS)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	4/45 (8.9%)	7/42 (16.7%)	RR 0.53 (0.17 to 1.69)[5]	78 fewer per 1000 (from 138 fewer to 115 more)	⊕⊕OO LOW	IMPORTANT

OVERWEIGHT (INFANTS)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	19/45 (42.2%)	16/42 (38.1%)	RR 1.11 (0.66 to 1.86)[5]	42 more per 1000 (from 130 fewer to 328 more)	⊕⊕OO LOW	IMPORTANT
SEVERE DIARRHOEA (INFANTS)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	5/45 (11.1%)	4/42 (9.5%)	RR 1.17 (0.34 to 4.05)[5]	16 more per 1000 (from 63 fewer to 290 more)	⊕⊕OO LOW	IMPORTANT
INFANT PSYCHOMOTOR DEVELOPMENT (DEVELOPMENT COEFFICIENT) (BETTER INDICATED BY HIGHER VALUES)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	45	45	-	MD 0.03 lower (0.43 lower to 0.37 higher)[5]	⊕⊕OO LOW	IMPORTANT
INFANT PSYCHOMOTOR DEVELOPMENT – ABNORMAL DEVELOPMENT CATEGORY (DEVELOPMENT COEFFICIENT)												
1[2]	Randomized trials	Serious[3]	No serious inconsistency	No serious indirectness	Serious[4]	None	1/41 (2.4%)	1/38 (2.6%)	RR 0.93 (0.06 to 14.3)[5]	2 fewer per 1000 (from 25 fewer to 350 more)	⊕⊕OO LOW	IMPORTANT

1 Standard prenatal and well-baby care at local health centres as well as home visits and educational materials. Subjects received on average 12 home visits. Home visitors were trained and monitored.
2 Aracena M et al. (22).
3 Randomization method not described; trial could not be blinded.
4 Based on single trial with number of events <300.
5 Post-hoc analysis was not provided in the published paper.

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IV. Annexes

IV: ANNEX 1 – Participant list

WHO Expert Panel Secretariat

Responsibilities: Organizing and directing the process of guidelines formulation, including the expert panel meeting

DEPARTMENT OF CHILD AND ADOLESCENT HEALTH AND DEVELOPMENT	
Elizabeth MASON Director	41 22 791 3281 masone@who.int
Venkatraman CHANDRA-MOULI Coordinator	41 22 79 14814 chandramouliv@who.int
Alma Virginia CAMACHO Medical Officer	41 22 791 2629 camachov@who.int
Jane FERGUSON Scientist	41 22 791 3369 fergusonj@who.int
DEPARTMENT OF RESEARCH POLICY AND COOPERATION	
Regina KULIER Scientist	41 22 791 2744 kulierr@who.int

Other WHO Participants in the Guidelines Development Group

WHO HEADQUARTERS	
Department of Making Pregnancy Safer	
Matthews MATHAI Medical Officer	+41-22-79-13210 mathaim@who.int
Razia PENDSE Technical Officer	+41-22-791-1269 Email: pendsera@who.int
Anayda PORTELA Technical Officer	+41-22-79-12914 portelaa@who.int
Department of Gender, Women and Health	
Adepeju Aderemi OLUKOYA Medical Officer	+41-22-791-3306 olukoyaa@who.int
Department of Reproductive Health and Research	
Ahmet Metin GULMEZOGLU Medical Officer	+41-22-791-3417 gulmezoglum@who.int
Claudia GARCIA-MORENO Medical Officer	+41-22-791-4354 garciamorenoc@who.int
Ronald JOHNSON Scientist	+41-22-791-2828 JohnsonB@who.int
Shyam THAPA Scientist (Preventing Unsafe Abortion)	+41-22-791-3339 thapas@who.int
Dr Mary Linn Gaffield Scientist	+41-22-791-1806 gaffieldm@who.int

IV: ANNEX 1 – Participant list

WHO REGIONAL OFFICES	
AFRO	
Nagbandja KAMPATIBE	Unable to attend
AMRO	
Amalia AYALA Office of PWR, El Salvador	73 Avenida Sur No. 135, Colonia Escalón Apartado Postal 1072, Sucursal Centro, San Salvador, El Salvador Tel.: +503-2-298-3491, Fax: +503-2-298-1168 aeayala@els.ops-oms.org http://www.ops.org.sv/
Pablo DURAN	Asesor, Salud Perinatal Centro Latinoamericano de Perinatología/ Salud de la Mujer y Reproductiva (CLAP/SMR) OPS/OMS Av. Italia s/n, Piso 16, Hospital de Clinicas Casilla de correo 627 - Montevideo - Uruguay Tel: +598-2-487-2929, Fax: +598-2-487-2593 duranpa@clap.ops-oms.org
SEARO	
Neena RAINA	Regional Adviser, Adolescent Health and Development New Delhi, India Tel: +91-11-23370804 rainan@searo.who.int

IV: ANNEX 1 — Participant list

Expert Panel Guidelines Development Committee (includes above WHO participants as well as those below):

Mengistu Asnake	Deputy Country Representative	Pathfinder International-Ethiopia PO Box 12655 Addis Ababa Ethiopia	Tel: +251-11-320-3501 Fax: +251-11-440-7679 MAsnake@pathfind.org
Sylvia Deganus	Head of Obstetrics and Gynecology	Tema General Hospital PO Box 14 General Hospital Rd, Tema Ghana	sdeganus@yahoo.com
Elizabeth Mapella	Coordinator, Adolescent Reproductive Health Services	Ministry of Health and Social Welfare Dar-Es-Salaam Tanzania	Tel: +255-22152976 Cell: +255-754614680 Fax: +255-22152977 emapella@yahoo.co.uk
Eliya Msiyaphazi Zulu	Director of Development Policy, Venture Strategies for Health and Development	African Institute for Development Policy (AFIDEP) PO Box 14688-00800, Westlands, Nairobi Kenya	Tel: +254-735-753-499; +254-722-523-198 Eliya.Zulu@afidep.org
Ximena Abarca	Vice Ministra de Salud / Vice Minister of Health Ecuador	Ministry of Health Av Republica del Salvador 950 y Suecia Quito-Ecuador	Tel: +593-238-14400 ext 6000 Cell: +593-096-688-138 ximena.abarca@msp.gov.ec xilup@yahoo.com.mx
Michelle Hindin	Senior Technical Advisor, Advance Family Planning Associate Professor Johns Hopkins Bloomberg School of Public Health	Dept. of Population, Family and Reproductive Health 615 N. Wolfe Street, E4546 Baltimore, MD 21205 USA	Tel: +1-410-502-6038 Fax: +1-410-955-2303 mhindin@jhsph.edu
Tania Lago	Assessoria em Saúde da Mulher Secretaria de Estado da Saúde de São Paulo	Assessoria em Saúde da Mulher Secretaria de Estado da Saúde de São Paulo Av. Dr. Eneas de Carvalho Aguiar, 188, 5o. andar Cerqueira César, São Paulo São Paulo, Brazil	Tel: +55-11-3066-8719 +55-11-3066-8257 tlago@saude.sp.gov.br tania_di@uol.com.br
Ximena Luengo	Assistant Prof. Faculty of Medicine University of Chile	Avda. Prof. Zañartu 1030- Independencia Casilla 70033 Santiago Chile	Tel : +56-2-978-6484 Cell: +56-9-9-234-5806 Fax: +56-2-735-6512 ximeluengo@vtr.net
Ruth Dixon-Mueller	Independent consultant	Apartado 110-4100 Grecia Costa Rica	Tel/Fax: +506-2494-6260 dixonmueller@yahoo.com

IV: ANNEX 1 — Participant list

James E. Rosen	Independent consultant	3808 N. 14th St. Arlington, Virginia USA 22201	Tel: +1-703-841-1979 Cell: +1-571-215-1061 jrosen38@comcast.net
Nancy E. Williamson	Independent consultant	103 Braswell Court Chapel Hill, NC 27516 USA	Tel: +1-919-929-7312 Nwilliamson@msn.com
Sherine Shawky Hassan Mohamed	Professor	Research Centers Building, Room 1006 New Cairo Campus American University in Cairo P.O. Box 74 New Cairo 11835 Egypt	Tel: +20-2-2615-1315 shshawky@aucegypt.edu
Dan Apter	Chief Physician and Director	Sexual Health Clinic Väestöliitto (Family Federation of Finland) Kalevankatu 16 PL 849, 00101 Helsinki Finland	Tel: +358-9-22805-226 Cell: +358-40-555-0842 Fax: +358-9-645-017 dan.apter@vaestoliitto.fi
Dr Suneeta Mittal (UNABLE TO ATTEND)	Head and Director in-Charge	Department of Obstetrics & Gynecology & Director-in Charge, WHO-CCR in Human Reproduction & Chief, ART Centre & IVF Facility All India Institute of Medical Sciences New Delhi-110029 India	Tel: +91-11-26593378, 26588449, 26593221 Cell: +91-9818542111 Fax: +91-11-26588449 suneeta_mittal@yahoo.com
Quamrun Nahar	Deputy Project Coordinator	Health and Demographic Surveillance Unit (HDSU) Public Health Sciences Division, ICDDR, B, Mohakhali Dhaka 1212 Bangladesh	Tel: +88-02-8860523-32, ext 2527 Cell: +88-01-730317652 Fax: +88-02-8811568 quamrun@icddrb.org
Sudha Sharma	Health Secretary	Ministry of Health and Population Ramshahpath Kathmandu Nepal	Tel: +977-1-4262468 Fax: +977-1-4262590 secretary.sharma@mohp.gov.np Sudha@healthnet.org.np
Juanita Basilio	Medical Officer	National Center for Disease Prevention and Control Department of Health San Lazaro Compound Sta. Cruz, Manila Philippines	Tel: +632-749-9006 nitz_basilio@yahoo.com
Natalie Gray	Senior Fellow Women's and Children's Health Specialist	Centre for International Health 85 Commercial Rd Melbourne Vic 3004 Australia	Tel: +61-3-8506-2378 Fax: +61-3-9282-2144 nataliegray@burnet.edu.au

IV: ANNEX 1 – Participant list

External Review Group

Responsibilities: Providing comments and suggestions on the content and phrasing of recommendations

Saramma MATHAI	Regional Team Coordinator and Maternal Health Advisor	United Nations Population Fund Asia Pacific Regional Office UN Building, Rajdamnern Nok Avenue, Bangkok 10200 Thailand	Tel: +662-6870113 Fax: +662-2802715 mathai@unfpa.org
Kechi OGBUAGU	Technical Advisor/ Coordinator	Global Programme to Enhance Reproductive Health Commodity Security United Nations Population Fund 605 Third Avenue, 4th Floor New York, NY 10158 USA	Tel: +1-212-297-5143 Fax: +1-212-297-4917
Sylvia WONG	Technical Specialist, Adolescents/Youth	United Nations Population Fund Adolescent Youth Cluster 220 East 42nd St New York, NY 10017 USA	Tel: +1-212-297-5220 Fax: +1-212-297-4915 wong@unfpa.org
Juliana YARTEY (unable to attend)		United Nations Children's Fund 3 United Nations Plaza New York 10017 USA	Tel: +1-212-326-7134 Fax : +1-212-824-6464 jyartey@unicef.org
Patty ALLEMAN	Technical Advisor	GH/PRH/PEC Asia, Europe and Eurasia, Latin America and the Caribbean United States Agency for International Development Bureau for Global Health 1300 Pennsylvania Ave NW Washington DC 20523 USA	Tel: +1-202-712-4763 palleman@usaid.gov
Marissa BILLOWITZ	Program Officer – Youth Programs	International Planned Parenthood Federation/ Western Hemisphere Region 120 Wall St, 9th Floor, New York, NY 10005 USA	Tel: +1-212-214-0285 Fax: +1-212-248-4221 MBillowitz@ippfwhr.org
Debra JONES	Director of Global Advocacy	Family Care International 588 Broadway, Suite 503 New York, NY 10012 USA	Tel: +1-212-941-5300, ext. 35 Fax: +1-212-941-5563 djones@fcimail.org
Roza OLYAI		National Chairperson Adolescent Health Committee FOGSI National Trainer Adolescent Health, FOGSI-IMA-IAP & WHO Convener Adolescent Friendly Health Centers India Olyai Hospital, Hospital Road Gwalior-474009, MP India	Tel: +91-751-2320616 Cell: +91-942-5112617 rozaolyai@gmail.com

IV: ANNEX 1 – Participant list

Consultants

Responsibilities: Collecting, synthesizing, grading and summarizing evidence for the systematic review

Wendy BALDWIN (unable to attend) Replacement: Althea ANDERSON	Program Analyst	Poverty, Gender and Youth Population Council One Dag Hammarskjold Plaza New York, NY 10017 USA	Tel: +1-510-290-9937 althea411@gmail.com
Akin BANKOLE	Director of International Research	Guttmacher Institute 125 Maiden Lane, 7th Floor New York, NY 10038 USA	Tel: +1-212-248-1111x 2210 abankole@guttmacher.org
Guillermo CARROLI		Centro Rosarino de Estudios Perinatales Pueyrredón 985 - 2000 Rosario Argentina	Tel: +54-341-4483887 Fax: +54-341-4483887 contable@crep.com.ar
Donna R. MCCARRAHER	Scientist I, Behavioral and Biomedical Research	FHI: The Science of Improving Lives 2224 E NC Hwy 54 | Durham, NC 27713 USA	Tel: +1-919-544-7040 ext. 11368 Fax: +1-919-544-7261 dmccarraher@fhi.org
Rupal SANGHVI	Independent consultant	New York	Tel: +1-917-482-4993 rupal.sanghvi@gmail.com
Susan LEE-RIFE (unable to attend) Replacement:: Ann WARNER	Gender and Policy Specialist	International Center for Research on Women 1120 20th St. NW; Suite 500N Washington DC 20036 USA	Tel: +1-202-742-1314 Cell: +1-202-629-6361 awarner@icrw.org
Patty WHYTE	Independent consultant	1/10 Joan Avenue, Dromana VIC Australia 3936	Tel: +61-408-264-468 +61-3-5981-0746 (H) pwhyte@hunterlink.net.au

IV: ANNEX 2 – Report of the expert panel

Expert Panel Meeting on Guidelines for Preventing [too] early Pregnancies and Poor Reproductive Outcomes Among Adolescents in Developing Countries

November 2–3, 2010

WHO Expert Panel Secretariat

The WHO has articulated the definition of health and the importance of legislative and regulatory frameworks to support that definition. Within the framework of WHO's definition of health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, reproductive health addresses the reproductive processes, functions and system at all stages of life. Implicit in this is the right to be informed of and to have access to safe, effective, affordable and acceptable methods of fertility regulation of their choice, the right of access to appropriate health care services that enable women to go safely through pregnancy and childbirth, and provide couples with the best chance of having a healthy infant. The WHO *Global Reproductive Health Strategy* emphasizes the importance of legislative and regulatory frameworks that support and facilitate universal and equitable access to sexual and reproductive health services. It notes that it may often be necessary to remove existing legal and policy barriers that impede the use of life- saving interventions and other necessary services. The political, legal and regulatory environments are key determinants of the availability, quality, and accessibility of health services. Further, the human rights principles of participation, non-discrimination and accountability are central to an equitable, democratic process that guides the elaboration of supportive laws and policies.

The state of adolescent reproductive health

There are continued challenges in achieving the Millennium Development Goals (MDGs). That is, adolescents face a disproportionate burden of disease. Although adolescents aged 10–19 years account for 11% of all births worldwide, they account for 23% of the overall burden of disease (disability- adjusted life years) due to pregnancy and childbirth.

In addition, adolescents face unique barriers to health services. Many countries have laws that prohibit people under 18 from accessing sexual and reproductive health services without parental/spousal consent, effectively denying access to many sexually active young people.

These challenges to adolescent health have far-reaching consequences for global health. Nearly 50% of the world's population is under 25 with 20% (more than 1.3 billion people) representing younger adolescents (aged 10 to 19). In a number of countries in sub-Saharan Africa, the population under age 15 is five-times that of those over 55. In many developing countries young people make up 25–30% of the population; in Japan and France it is 13% and 14%, in China, 16%[1]. About 85 per cent of the world's adolescent population lives in low and middle income countries[2].

Adolescent health outcomes are also characterized by disparities by economic status. Poorer adolescents are more likely to get pregnant, more likely to have health problems during pregnancy and delivery, and least likely to have skilled care at birth. Recent research shows that in many countries, inequality has become more accentuated in

[1] Robert Blum. Trends in Adolescent International Health. 2006. Johns Hopkins University.

[2] UNICEF, Adolescence: The big picture, updated 19 March 2009, accessed 10 June 2009 at http://www.unicef.org/adolescence/index_bigpicture.html

the last 15 years, and that the fertility rate has actually increased among the poorest adolescents in many countries[3], with adolescent girls from the poorest one fifth of the population four times more likely to become pregnant than those in the richest one fifth. Poorer young women are also less likely to have their births attended by a skilled health worker, with the richest young women are two to eight times more likely to have their births attended by a medical professional[4].

Adolescence represents a key stage in development and critical opportunity for ensuring successful transition to adulthood. Poor sexual and reproductive health outcomes can often be traced to adolescence, when most people become sexually active.[5] Educational achievement, skills developed and decision-making around sexual behaviour and childbearing therefore have profound effects, on the lives of adolescents as well as their families, communities and the generations that follow.

Systematic Review Process: Towards Guidelines for Preventing Too Early Pregnancy and Related Mortality and Morbidity

In 2009, the Child and Adolescent Health (CAH) Department of WHO initiated a systematic review on 'Preventing too-early pregnancies and poor reproductive outcomes among adolescents in developing countries'. The topics addressed in the systematic reviews include early marriage, coerced sex, unsafe abortions (and related deaths), prevention of early pregnancy among adolescents, access and use of contraceptives, and access to skilled care during pregnancy, childbirth and post-partum.

The review was conducted in response to requests from policy makers and reproductive health programme managers who work with adolescents in low- and middle-income countries. These key stakeholders are increasingly concerned about high rates of adolescent pregnancy and its related outcomes, and want to know the most effective means by which to provide adolescents with the services and information they need. The systematic review, therefore, forms the evidence-base for the development of the forthcoming guidelines.

CAH conducted the review in collaboration with the Departments of Reproductive Health and Research (RHR) and Making Pregnancy Safer (MPS). Key partners for developing the systematic reviews included technical partners such as AGI, ICRW, UNFPA, FHI, Population Council, and Centro Rosarino de Estudios Perinatales (CREP) as well as USAID, UNFPA and IPPF.

[3] ECLAC, Social Panorama of Latin America, 2005, chapter III.

[4] http://www.unfpa.org/swp/2003/english/ch1/page3.htm

[5] International Federation of Obstetricians and Gynecologists, Adolescent Sexual and Reproductive Health. Draft Final Report, March 2009.

IV: ANNEX 2 – Report of the expert panel

Key steps in the systematic review process:

KEY STEP		TIMELINE
1	**Proposal for WHO Guidelines Review Committee**	Approved April 2009
2	**Scoping:** • Review existing guidelines • Selection of critical outcomes and draft the key questions	January 2009-April 2009
3	**Formation of and consultation with Expert Panel**	May-August, 2009 (internet)
4	**Implementation of a step by step methodology following GRC guidelines:** • Score critical outcomes and refined key questions • Development of search strategies and implement them in electronic databases • Screening, abstraction and full text review for relevant systematic review and individual studies in addition to grey literature relevant to key questions, • Synthesize and grade the evidence • Development of recommendations using GRADE	May 2009-October 2010
5	**Global panel of expert meeting**	November 2010
6	**Final guidelines report**	December 2010
7	**Clearance by GRC**	First Quarter 2011
8	**Publication and dissemination**	2011

In November 2010, the Global Panel expert meeting was held and co-organized by the WHO Departments of Child and Adolescent Health and Development (CAH) and Making Pregnancy Safer (MPS), in collaboration with the Department of Reproductive Health and Research (RHR).

The participants included leading academics, researchers, policy makers, professional associations, programme managers to develop evidence-based recommendations to improve early pregnancy and outcomes related to its causes and/or consequences in developing countries. [see Annex-Participant List].

The six outcomes that comprise the scope of the review are as follows:

1. Reduce marriage before the age of 18 years
2. Reduce pregnancy before the age of 20 years
3. Increase use of contraception by adolescents at risk of unintended pregnancy
4. Reduce coerced sex among adolescents
5. Reduce unsafe abortion among adolescents
6. Increase access and use of antenatal, childbirth, postnatal care by adolescents

For the consultation, background documents, including key questions, methodology, individual scientific articles, systematic reviews, summary tables and GRADE tables were made available to participants. [See Annex- Key Questions, by Outcome]. The final

guidelines document will include the recommendations, grade profiles and summary tables of the evidence that could not be put into GRADE.

Purpose of the meeting

The purpose of the November 2010 meeting was to present the summaries of evidence distilled from a series of systematic reviews for six key outcomes related to morbidity and/or mortality associated with too early pregnancy, in order to (1) comment on the evidence used, (2) comment on the interpretation of evidence, and (3) agree on the final recommendations, taking into account risks and benefits values and preferences.

Expected outputs

They key expected outputs of the meeting were to (1) provide evidence-based recommendations for each outcome; (2) identify key research gaps relevant to each outcome, and (3) agree on key elements of a plan to disseminate the new guidance and to identify key partners for this purpose.

Health, social and rights basis of the meeting

The overall aim of the consultation was to make recommendations on the prevention of too-early pregnancy in recognition of the associated negative health and social consequences as well as international treaty documents that cite the right to 'free and full' consent to a marriage (Universal Declaration of Human Rights), the right of protection from child marriage (Convention on the Elimination of all Forms of Discrimination against Women) and stipulate that all necessary action, including legislation, be taken to specify a minimum age for marriage

Methodology and process for meeting

The meeting was opened by Dr. Elizabeth Mason, Director of CAH and Acting Director MPS.

All participants received a conflict of interest form to be completed prior to the meeting. Following an explanation of the declaration of interest process, each participant was asked to stand and make a declaration of interest (declaring a conflict of interest or no conflict of interest). The consultants (see Annex-Participant List-SR Consultants) that participated in the literature review declared their participation in the review of the evidence and therefore abstained from further commenting on the evidence for articulating the recommendation(s).

The summary of the evidence was presented for each of the six outcomes. This included a brief narrative presentation of the results of the systematic reviews, including GRADE table profiles and summaries of evidence. Additionally, all relevant documents related to the systematic reviews and individual articles were provided for the expert panel's reference during the meeting. The discussion, therefore, focused on the recommendations, with changes based on group comment recorded electronically in real time. In formulating recommendations and rating its strength, the panel was instructed to weigh four main factors: (1) quality of evidence (2) balance of benefits versus harms and burdens[6] (3) differences in values[7] (4) and resource implications.[8]

[6] The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation. The smaller the net benefit and the lower certainty for that benefit, the more likely is a conditional/weak recommendation

[7] The greater the variability or uncertainty in values and preferences, the more likely conditional or weak recommendation warranted.

[8] The higher the costs of an intervention – that is, the more resources consumed – the more likely is a conditional/weak recommendation warranted.

Decision making process used in the meeting

Group agreement was requisite for re-formulating the proposed recommendations. The definition of group agreement or consensus that was applied was: majority agree; those that disagree do no feel strongly; and all would have a chance to express their opinion. If consensus could not be reached, a vote could be taken.

Cross-cutting Themes in Panel Discussion of Recommendations:
Observations on the methodology

- **Limitations of study design** – many systematic reviews and/or articles were excluded either from screening and/or review based on the inclusion criteria of the methodology (i.e. the review had no language restrictions; the key words used include adolescents and the primary terms from the outcomes and key questions; and geographic settings by World Bank income grouping). Even fewer systematic reviews were GRADE eligible. Therefore the final number of studies or systematic reviews that informed the recommendations were often a small proportion of studies found through multiple search strategies. Given this disconnect between the level of existing research and the level of evidence needed to inform recommendations, there was a plea from the panel to address this in recommendations for future research.
- **Special challenges for evaluation.** The challenges implicit in evaluating multi-component interventions was raised across outcomes. The types of interventions that address the outcomes of interest are often multi-pronged and situated within comprehensive programming. Therefore, many of the evaluations of interventions did not explicitly assess one aspect or strategy of the interventions against the outcomes of interest. The panel suggested that the recommendations for future research address this through proposing methodologies and/or that future guidelines and recommendations with special challenges to evaluation be considered in the eligibility criteria.
- **Limitations of methodology to assess effectiveness of policy-related intervention.** Since the effectiveness of legal and/or policy interventions (formulation of laws/policies and/or enforcement) was considered as part of the systematic review, the panel suggested that future efforts identify an alternative methodology and/or data sources to perform such an assessment. Alternative data sources and methods that expand beyond the peer-review literature and grey literature of public health and social science research to include legal and law enforcement sectors were suggested. Additionally, it was suggested that the outcomes of policy/legal interventions, where they exist, be documented periodically to advance evidence-based understanding on this topic.
- **Challenges of multi-component interventions** often address multiple outcomes. However, attributing any one component of the intervention to changes in a discrete outcome presents an important challenge to the evaluation design.
- **Robustness of the study findings** may be questionable as several of the findings reported were secondary outcomes of the studies reviewed. All studies base their sample size estimates on the main study objective. For studies where the outcomes examined were not the primary study objectives, the reported estimates of effect are likely to be less precise.

Possibilities for future secondary analysis in order obtain further evidence

- **Identify possibilities of conducting an analysis of sub-population of adolescents.** Where intervention studies have included the outcomes of interest and included

women and men. In addition to disaggregating data by age, highlighting the possibility of further disaggregation by marital status was suggested, given its significance as important driver of vulnerability and/or protection in many socio-cultural contexts.

- **Education as a variable for further analysis needs to be further broken down.** The group identified the need to better understand the specific strategies and drivers of effectiveness in education interventions with respect to outcomes of interest (i.e. life skills education versus basic scholastic education, versus comprehensive sexuality education). The group discussed and suggested that, where possible, secondary analysis of education interventions considering the affect of distinct, targeted strategies versus education as a broad concept. Additionally, the group suggested that education quality be a factor that is considered in analysis related to outcomes, not coverage alone.

Overview of Recommendations, by intervention strategy and target audience

Based on the synthesis of the evidence, including (1) quality of evidence (2) balance of benefits versus harms and burdens[9] (3) differences in values[10] (4) and resource implications[11], the panel suggested recommendations for each outcome. The summary of the recommendations that emerged from the meeting discussion are included below. Note, these are the recommendations that have been circulated to the panel for final comment. The final recommendations will be included in the Guidelines document.

Draft recommendations:

OUTCOME 1
Reduce marriage before the age of 18 years

RECOMMENDATIONS FOR ACTION	
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Interventions to inform and empower girls should be intensified in relevant contexts, in combination with interventions to influence family and community norms to delay marriage. • Interventions should be undertaken with the aim of influencing family and community norms to support delayed age of marriage of girls under 18.
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Efforts to increase educational opportunities for girls, through formal and non-formal channels should be prioritized. • Efforts should be made with political leaders, planners and the community to formulate and enforce laws to prohibit marriage of girls before the age of 18 years.

[9] The larger the difference between the desirable and undesirable consequences, the more likely a strong recommendation. The smaller the net benefit and the lower certainty for that benefit, the more likely is a conditional/weak recommendation

[10] The greater the variability or uncertainty in values and preferences, the more likely conditional or weak recommendation warranted.

[11] The higher the costs of an intervention – that is, the more resources consumed – the more likely is a conditional/weak recommendation warranted.

RECOMMENDATIONS FOR FURTHER RESEARCH	
On **laws and policies**	• Further research should be undertaken to improve the understanding of interventions that result in the formulation of laws, how they have been enforced, including potential unintended harmful consequences of enforcement and how their enforcement has been monitored.
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken in order to assess the feasibility and strategies for scale-up for interventions that inform and empower girls, in combination with interventions to influence family and community norms to delay marriage
On **interventions to address wider societal determinant**s of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken in order to determine the feasibility and effectiveness of economic incentives to adolescents girls and/or families as a means of delaying age of marriage in specific contexts and evaluate the longer-term impact

OUTCOME 2
Reduce pregnancy before the age of 20 years

RECOMMENDATIONS FOR ACTION	
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Target school retention for girls in primary school, with a special emphasis on secondary school settings. • Combined interventions including curriculum-based sexuality education[12] together with contraceptive promotion should be offered to adolescents to reduce pregnancy rates. • Post-partum and post-abortion contraception promotion interventions, through multiple home visits and/or clinic visits, should be offered to adolescents to reduce second pregnancy.
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Efforts should continue to target key stakeholders to impact adolescent pregnancy prevention through strategies that address the proximal determinants of this outcome (such as information and skills building, individual behaviour change, sexuality education and other aspects of a supportive community and policy environment).

[12] *International Technical Guidance on Sexuality Education: An Evidence Informed Approach for Schools Teachers and Health Educators.* December 2009. UNESCO, UNAIDS, UNFPA, World Bank, WHO.

RECOMMENDATIONS FOR FURTHER RESEARCH	
On **laws and policies**	• Further research is needed to better understand the effect of education availability (formal and non-formal and exploring education as a proxy for sexuality education), on adolescent pregnancy prevention, considering potential mitigating factors such as socio-economic and/or marital status.
On interventions to **address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Further research is needed with respect to both the effect of targeted education retention interventions and policies (including support for adolescent mothers), with key related population groups, on reducing second pregnancy/delaying pregnancy in adolescents.
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Further research is required to determine the effectiveness of the types of interventions to reduce pregnancy among girls under the age of 20, taking in account socio-cultural context, by key relevant target population groups. • Further research is needed to better understand the relationship between economic status (SES), employment, school-status, and other intermediate-level outcomes and mediating factors with respect to adolescent birth rates.
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to identify, specify and evaluate the feasibility and effectiveness of interventions to improve availability of hormonal contraceptives **over the counter** to adolescents. • Further research should be pursued in order to address relative effectiveness of intervention in various settings (in school/out of school) and populations. • Further research should be undertaken to identify, specify and evaluate the feasibility and effectiveness interventions to involving men (adolescents and adults) in decisions related to contraceptive use by partners as well as themselves. • Further research should be undertaken to ascertain the feasibility and impact of reducing contraceptive costs specifically to adolescents.
On **interventions to address wider societal determinant**s of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to identify, specify and evaluate interventions to influence community attitudes to support adolescents' access to contraceptives.

OUTCOME 3
increase use of contraception by adolescents at risk of unintended pregnancy

RECOMMENDATIONS FOR ACTION	
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Interventions should be undertaken to influence community members to support access to contraceptives for adolescents. • Expand interventions to improve health service delivery to adolescents, including the training of health workers; improving aspects of facilities and commodity availability and actions in the community to ensure acceptability and improve demand, as a means to improve adolescents access to and use of contraceptive information and services, including emergency contraception. • Efforts to reduce the costs of contraceptives to adolescents should be undertaken. • Interventions, in particular, curriculum based comprehensive sexuality education should be expanded in order to provide accurate information and education about contraceptives to adolescents.
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Efforts should be made with political leaders, and planners to formulate laws and policies to increase access to contraceptives services and information, including emergency contraceptives to adolescents.
RECOMMENDATIONS FOR FURTHER RESEARCH	
On **laws and policies**	• Further research should be undertaken to improve the understanding of interventions that result in the formulation of laws and policies which increase access to contraceptives services and information, including emergency contraceptives to adolescents.
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to identify, specify and evaluate the feasibility and effectiveness of interventions to improve availability of hormonal contraceptives **over the counter** to adolescents. • Further research should be pursued in order to address relative effectiveness of intervention in various settings (in school/out of school) and populations. • Further research should be undertaken to identify, specify and evaluate the feasibility and effectiveness interventions to involving men (adolescents and adults) in decisions related to contraceptive use by partners as well as themselves. • Further research should be undertaken to ascertain the feasibility and impact of reducing contraceptive costs specifically to adolescents.
On **interventions to address wider societal determinant**s of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to identify, specify and evaluate interventions to influence community attitudes to support adolescents' access to contraceptives.

OUTCOME 4
Reduce coerced sex among adolescents

RECOMMENDATIONS FOR ACTION	
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Interventions to build the self esteem of adolescent girls; to build their life skills in areas such as communication and negotiation; to improve their links to social networks and their ability to obtain social support should be carried out to build girls' ability to resist coerced sex. These interventions should be combined with interventions to create supportive social norms. • Interventions to engage men and boys to critically assess gender norms (e.g. gender transformative approaches) that relate to sexual coercion and violence, combined with interventions to influence wider social norms, should be carried out to reduce the sexual coercion of adolescent girls.
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Efforts should be continued to formulate laws and policies that punish perpetrators of coerced sex, to enforce them in a way that empowers victims and their families, and to monitor their enforcement.
RECOMMENDATIONS FOR FURTHER RESEARCH	
On **laws and policies**	• Further research should be undertaken to assess how such laws and policies have been formulated, how they have been enforced, how their enforcement has been monitored, and what this has resulted in, using methods and materials appropriate to this subject.
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• None
On **interventions to address wider societal determinant**s of too-early pregnancy and negative reproductive health outcomes	• None

OUTCOME 5
Reduce unsafe abortion among adolescents

RECOMMENDATIONS FOR ACTION	
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Alongside efforts to formulate laws and policies that enable adolescents to obtain safe abortion services, efforts must be made to inform all the stakeholders in the community about the following issues: (a) what safe abortion services are available; (b) where and under what conditions they could be obtained legally. • Alongside efforts to formulate laws and policies that enable adolescents to obtain safe abortion services and efforts to inform all the stakeholders in the community about what safe abortion services are available, and where and under what conditions they could be obtained legally, efforts must be made to identify and overcome barriers to their provision (by health workers) and their utilization (by adolescents). • Efforts should be made to ensure access by adolescents to post abortion care as a life-saving medical intervention, whether or not the abortion or attempted abortion was legal or illegal. • Efforts should be made to ensure that adolescents who have obtained post abortion care services can obtain contraceptive information and services.
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Efforts should be continued to ensure that laws and policies enable adolescents to obtain safe abortion services.
RECOMMENDATIONS FOR FURTHER RESEARCH	
On **laws and policies**	• Further research should be undertaken to assess how laws and policies that enable adolescents to obtain safe abortion services have been formulated, how they have been put into effect, and what this has resulted in, using methods and materials appropriate to this subject.
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to investigate the feasibility and effectiveness of efforts to ensure access of adolescents to post abortion care.
On **interventions to address wider societal determinant**s of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to investigate the feasibility and effectiveness of interventions to identify and overcome barriers to the provision and utilization of abortion services.

OUTCOME 6
Increase use of skilled antenatal care, childbirth care and postnatal care among adolescents

RECOMMENDATIONS FOR ACTION	
On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Information about the importance of utilizing skilled ANC should be provided to all pregnant adolescents and key relevant populations. • Information about the importance of utilizing a skilled attendant at childbirth should be provided to all pregnant adolescents and key relevant populations. • Birth and emergency preparedness is a key component of WHO ANC Guidelines2,3 and should be consistently promoted in ANC strategies for pregnant adolescents (at the household, community, and service settings).
On **interventions to address wider societal determinants** of too-early pregnancy and negative reproductive health outcomes	• Expand the availability and access to basic emergency obstetric care (BEMOC) and comprehensive emergency obstetric care (CEMOC).
RECOMMENDATIONS FOR FURTHER RESEARCH	
On **laws and policies**	• Further research should be undertaken to identify specific intervention strategies to expand availability and access to BEMOC and CEMOC to adolescents.

On **interventions to address individual and community level determinants** of too-early pregnancy and negative reproductive health outcomes	• Further intervention research should be undertaken to determine the effect of various strategies to inform the different key populations about ANC for adolescents in order to improve its access and use. • Further research should be undertaken to determine the effect of various intervention strategies to inform the different key populations about skilled childbirth for adolescents in order to improve its access and use. • Further research should be undertaken to identify effective interventions related to the types of changes to health services needed to improve access and use of ANC to adolescents. • Further research should be undertaken to identify interventions that address specific aspects needed for birth and emergency preparedness for adolescents, focussing on intermediate outcomes (such as increased use of skilled care during pregnancy, childbirth and post natal) in addition to distal outcomes such as pregnancy-related morbidity and mortality. • Further research should be undertaken to identify effective interventions, including the types of changes to health services needed to improve access and use of skilled childbirth for adolescents. • Further research should be undertaken to identify intervention strategies to tailor antenatal, childbirth, and postnatal care services specifically to address adolescents taking into account varying contexts and characteristics of existing services and the heterogeneity of adolescents.
On **interventions to address wider societal determinant**s of too-early pregnancy and negative reproductive health outcomes	• Further research should be undertaken to identify effective strategies to **reduce barriers** in increasing access to and use of skilled antenatal, childbirth, and post natal care services among adolescents. Considering the heterogeneity of adolescents, strategies will likely need to vary, targeting specific barriers and addressing structural determinants of access.

Detailed remarks by outcome:

Presenter:
Ann Wagner, International Center for Research on Women (ICRW)

OUTCOME 1
Reduce marriage before the age of 18 years

41 articles were reviewed and 14 were identified as appropriate for full inclusion in the systematic review, with an additional 8 studies retained for information even though the study design did not include control groups. No studies were deemed eligible for the GRADE process. Information in the 14 studies with the most robust evaluations was used to inform the discussion and develop recommendations.

Interventions on laws and policies

The systematic review process did not identify any eligible studies (based on the inclusion criteria) that demonstrated interventions targeting political leaders/planners, including those at the community level, had either resulted in the formulation of laws and policies to make marriage for girls below age 18 illegal and/or were effective in enforcing laws prohibiting marriage for girls below age 18.

The panel observed that efforts to formulate laws and policies, enforce them and monitor their enforcement are highly unlikely to be addressed by intervention studies.

Some members of the panel cautioned that laws alone would not necessarily lead to the desired outcome, as enforcement is often the issue even where laws exist. Thus, the recommendation combined the formulation and enforcement elements. Additionally, the nature of enforcement in relation to successful outcomes needs to also be understood. For example, enforcement of laws could have unintended harmful consequences, e.g. the jailing of parents contravening laws, thereby endangering the livelihood and well-being of families.

Further, in this discussion on policy related interventions, the panel underscored the limitations of the methodology to identify effective interventions. There was a sense that considerable work has been done in this area, with success in formulating/changing laws. Therefore there was the suggestion to adopt more flexible methods for defining effective interventions. There was also the suggestion to document the process in countries that have passed recent laws to further understand actions taken to stimulate the formulation of laws related to early marriage.

Despite lack of eligible evidence on interventions that target political leaders/planners on the outcome of reducing marriage before age 18, given the rights that are at stake as well as the known multiple adverse outcomes of early marriage, **the panel concluded that (1) continued efforts were needed to promote the existence of laws prohibiting marriage as an important measure to prevent too-early pregnancy and that research could further these efforts; The panel also suggested that (2) further research should be undertaken to improve the understanding of interventions which result in the formulation of laws, how they have been enforced, including potential unintended harmful consequences of enforcement and how their enforcement has been monitored.**

Interventions that address community level determinants

There is some evidence that efforts to influence family and community norms concerning marriage are effective, although few programmes address family and community norms exclusively. Family and community norm change is almost always addressed in combination with more individual-level efforts; therefore, it is impossible to differentiate the effect of this strategy over others. Alim (2007) is the only study to

look at a programme to evaluate only family/community awareness efforts, but there was no control group in the study to determine its effectiveness. More specifically, the studies which were included in the review showed a positive direct and indirect effect on community and family members' attitudes related to early marriage. (Brady 2007, Erulkar & Muthengi 2009, Kanesathasan 2008). However, the methodological issues were: lack of control group, non-randomized sample selection, lack of significance tests, etc., and lack of specificity in interventions that make it difficult to draw conclusions (Alim 2007; UNICEF 2008).

Changes in social norms are essential in delaying the age at marriage and while this may threaten entrenched views and cause controversy, the panel maintained that benefits outweigh potential harms. The precise costs and sustainability prospects for these interventions have not been established and cannot be compared with other interventions (such as economic incentives).

The panel concluded that interventions should be undertaken with the aim of influencing family and community norms to support delayed age of marriage of girls under 18.

Interventions that Provide Economic Incentives for Families

There was some evidence that economic incentives for families are effective in delaying marriage of girls under 18 (Baird 2009; Duflo 2007; Arends-Kuenning & Amin 2000); however, all of the studies were subject to some limitations study design, concerns about balance of benefits and potential harm, and sustainability (Baird et al. 2009; Duflo,2007). The Baird (2009) study showed that providing cash incentives and support with school fees did decrease proportion of marriage among girls who were not in school at baseline, but the study did not differentiate by age among participants ranging from 15 to 22. It is unclear if it had a significant effect on girls under the age of 18. Duflo (2007) showed that girls who received free uniforms were 12% less likely to be married than girls in other schools; however, the finding was only statistically significant at the 90% level. The Arends-Kuenning & Amin (2000) study evaluated the impact of a scholarship programme, but there was no control group.

The discussion focused on the harms (safety and security challenges), resource intensiveness and challenges inherent in these types of interventions. That is, the group noted that based on the data, It is unclear whether girls who receive financial incentives directly are at increased risk of harm from others. The resource and sustainability implications are not yet clear, though some cost-effectiveness studies have begun to study conditional cash transfer programmes more generally.

Additionally, the panel noted the increasing trend in use of economic incentives to stimulate social change, including attitudes towards early marriage.

The panel concluded that further research should be undertaken in order to determine the feasibility and effectiveness of economic incentives to adolescents girls and/or families as a means of delaying age of marriage in specific contexts and evaluate the longer-term impact.

Interventions that influence individual-Level determinants

Inform and Empower Adolescents

There is reasonably strong evidence to suggest that efforts to inform and empower adolescents are effective in delaying marriage among girls under age 18. The main form

that these efforts take is in life skills (N=7), reproductive health information (N=5), and sports-based knowledge and information (N=2). One study showed that a 1-year course to inform and empower girls led to a increase in median age of marriage and a decrease in proportion of girls married in the intervention area (compared to no change in control area); however, the study was subject to selection bias, and moreover, these activities were provided in combination with other interventions and activities – including outreach to parents (Pande et al 2006). Another study showed that a programme to improve girls' knowledge of key health and rights issues, including early marriage, led to change in attitudes about ideal age of marriage and lower marriage rates among participants; however, this programme also included other components and was subject to selection bias of participants; therefore, the robustness of the evaluation is somewhat limited (Brady et al 2007). Finally, the Disha programme in India that provided youth-friendly reproductive health services to youth ages 14 to 24 increased knowledge on legal age of marriage and changed attitudes toward ideal age of marriage, but the programme included many other components related to skills and community support, and there is not evidence to show change in girls' marriage behaviour (Kanesathasan et al 2008).

In summary, programmes that include a component that work directly with girls to inform and empower them tend to show the greatest effect in changing attitudes and behaviour related to marriage; however, the quality of the evidence is low. The strength of these studies is also limited by selection bias of participants, and the fact that they are usually implemented and evaluated in combination with other components – as part of a multi-component intervention. (Amin 2005, Pande et al 2006, Brady et al 2007, Kanesathasan et al 2008 CREPHA 2002, Mathur 2004, NSCE 2003, Rashid 2003, Nawaz 2009, CEDPA 2001)

The panel noted the evidence of effectiveness of various interventions to influence girls' attitudes towards early marriage. Despite weak evaluation design and the inability to precisely determine relative effectiveness of specific interventions, the panel concluded that the potential benefit exceeds such technical concerns as well as any related to potential harm.

The panel highlighted that it may be challenging for girls to act on the new information and skills in the absence of a supportive environment. Challenging social norms in some contexts could lead to backlash against the girl. Therefore, it stressed the importance of adhering to the ecological model with interventions that combine targeting individual girls in addition to targeting their social environment (i.e. families and communities) in order to have the best chance for changing outcomes. Further, since information and empowerment approaches can take many forms, no general conclusions were possible to posit for resource implications.

The panel concluded that: (1) interventions to inform and empower girls should be intensified in relevant contexts, in combination with interventions. to influence family and community norms to delay marriage.; and (2) that further research should be undertaken in order to inform the feasibility and strategies for scale-up of these interventions.

Expanded availability of formal and non-formal education for girls

There is minimal evaluation data to suggest that programmatic efforts that expand availability of education for individual girls have delayed age of marriage (Brady et al. 2007, CREPHA 2002, Gandhi 2006). One study showed that girls and their families who received a cash incentive to return to school did reduce the proportion of marriage in this age group, an effect that was not realized for girls who were already in school at baseline (Baird et al 2009).

While the quality of evidence of interventions that expand the availability of education for girls is low, its importance and association with positive social, economic and health outcomes led the panel to its recommendations. Specifically, the panel noted the fundamental right of adolescents to education as well as the population-level data related to increasing years of education, higher age at marriage and better reproductive health behaviours and outcomes. Increasing girls' access to education has important economic and social benefits apart from increasing the age of marriage.

In addition to considering the evidence base and quality of evidence, the panel discussed possible harms and resource implications of making a recommendation for this type of intervention. In discussing of possible harms, like any gender-transformative strategy (challenging prevailing gender norms), there is the possibility of backlash or resistance by families and communities. Further the resource implications will vary dramatically, depending on the type of educational intervention (i.e., non-formal education or expansion of the formal school system).

The panel concluded that (1) efforts to increase educational opportunities for girls, through formal and non-formal channels should be prioritized; and that (2) further research should be undertaken in order to assess the impact of improved educational availability and enrolment on age of marriage.

Expanding Livelihoods Opportunities

While livelihoods were a component in 7 of 14 programmes, there was no programme that tested the effect of livelihood programmes alone. The panel noted that there was limited evidence on interventions to improve the livelihoods of adolescent girls to delay marriage. In addition, some panel members noted that there were considerable challenges in implementing the livelihoods component.

The panel noted possible harms associated with girls' participation in livelihood programmes, including safety and security challenges whereby they become targets of violence and/or are seen as threats to the cultural norms . Such programmes could also raise expectations of participants' and their families' of earning money, which may not always be fulfilled. Finally, the panel noted that it is possible that income-generating activities can introduce disincentives for girls to go to school. Further, the resource implications will depend greatly on the type and scope of the intervention (e.g. financial literacy, vocational training , savings and loan activities). However, the importance of protecting very young adolescent girls from labour, improving their capacity to earn, and the consequential individual, social and economic benefits, override potential harm.

The panel concluded that further research should be undertaken in order to ascertain the feasibility of interventions to improve the livelihoods of adolescent girls as well as their impact in delaying marriage.

OUTCOME 2
Reduce pregnancy before the age of 20 years

Presenter: Donna McCarraher, Family Health International-FHI

Panel Remarks:

Interventions that address community level determinants[13]

All of the intervention studies in this review targeted either girls or adolescent girls. Several interventions were multifaceted (Oringanje 2010) and some targeted additional audiences such as boys, adult males, parents and community members. None of the studies reviewed explicitly targeted policy makers and decision makers. Many interventions were described as community-based.

While multiple audiences were sometimes included in the studies found during the review, there was no way to attribute any effect on "reducing pregnancy among girls under 20" to efforts directed at a particular target group. Therefore, the panel could not conclude that efforts directed at specific population segments had an effect in and of themselves. However the panel acknowledged the importance of better understanding what types of targeted intervention strategies are effective and with which groups in order to prevent early pregnancy.

The panel concluded that (1) efforts should continue to target key stakeholders to support adolescent pregnancy prevention through strategies that address the proximal determinants of this outcome (such as information and skills building, individual behaviour change, sexuality education and other aspects of a supportive community and policy environment); and that (2) further research is required to determine the effectiveness of the types of interventions to reduce pregnancy among girls under the age of 20, taking in account socio-cultural context, by key relevant target population groups.

Interventions that address individual-level determinants

Improve the economic situation of girls

Population-based research reflects a strong association between socio-economic status (SES)and adolescent birth rates. Only one study linking economic situation of girls with early pregnancy prvention was identified for inclusion in the review. The study (Conditional Cash Transfer-CCT trial in Malawi, Baird et al., 2009) demonstrated a relationship between financial incentives (cash transfer), school retention and pregnancy rates. It showed that direct payments to the families of female secondary school students can reduce adolescent pregnancy rates. However, the paper reflecting this finding was part of larger, broader intervention. Therefore it is not clear whether CCT in and of itself, as one component of the intervention, could be linked to desired pregnancy prevention outcomes. The panel also highlighted the need for research demonstrating the evidence-based link between adolescent pregnancy and economic betterment, including employment.

In the context of discussing the study, the panel also noted that sometimes keeping girls in school is used in parallel or posited as a proxy for improving the economic situation of girls. However, it was noted that one's economic situation may or not be improved by staying in school.

[13] Population groups include: Community: leaders, members; Policymakers, decision makers; Families: parents and mothers-in-law; Adolescents: couples, boys, girls, males, females; General population

The panel concluded that further research is needed to better understand the relationship between economic status (SES), employment, school-status, and other intermediate-level outcomes and mediating factors with respect to adolescent birth rates.

Expanded availability of formal and non-formal education for girls and/or school retention
Overall, the importance of education in long-term outcomes was agreed upon. However, a better understanding of the specific strategies to do this is needed. Keeping girls in school is important in and of itself, based on the rights framework. Thus, the panel strongly endorsed the need for a recommendation while acknowledging the limited existing research linked to reducing adolescent pregnancy (Harden 2006).

The panel identified the need to better understand the specific strategies and drivers of effectiveness in education interventions with respect to outcomes of interest (i.e. life skills education versus basic scholastic education, versus comprehensive sexuality education). The group discussed and suggested that, where possible, secondary analysis of education interventions considering the affect of distinct, targeted strategies versus education as a broad concept. Additionally, the group suggested that education quality be a factor that is considered in analysis related to preventing early pregnancy, not coverage alone.

The panel also suggested that possibilities of conducting future secondary analysis of sub-population of adolescents be identified. Where intervention studies have included the outcomes of interest and included women and men. In addition to disaggregating data by age, highlighting the possibility of further disaggregation by marital status was suggested, given its significance as important driver of vulnerability and/or protection in many socio-cultural contexts. For example, in South Asia, associations with delayed pregnancy are stronger among married adolescents. However, there is a large information-gap for unmarried adolescents in these contexts. Another suggested area of research that was suggested was around school retention among already pregnant adolescents – after pregnancy and/or delivery, and on the special education and psycho-social intervention strategies, in low and middle income countries, for supporting school retention among adolescents.

The panel concluded that recommendations be combined for interventions related to increasing school exposure (through expanded availability of formal and non-formal education for girls as well as school retention interventions). Specifically, the panel concluded that stakeholders should (1) target school retention for girls in primary school, with a special emphasis on secondary school settings; that (2) further research is needed to better understand the effect of education availability (formal and non-formal and exploring education as a proxy for sexuality education), on adolescent pregnancy prevention, considering potential mitigating factors such as socio-economic and/or marital status; and that (3) further research is needed with respect to both the effect of targeted education retention interventions and policies (including support for adolescent mothers), with key related population groups, on reducing second pregnancy/delaying pregnancy in adolescents.

Sexuality education programmes for adolescent boys and girls
With respect to sexuality education and pregnancy prevention, there was one systematic review found. While the systematic review (Oringaje, 2009) included developing

countries, in addition to developed countries, there were few studies from developing countries and little evidence from those studies. Additionally, the exclusion of trials with high loss to follow-up further lowered the pooled measure of intervention effect.

In the discussion about sexuality education as it relates to reducing early pregnancy, the topics raised include ways to integrate key elements of sexuality education into skills-building curriculum (including sexual negotiation skills for girls, exploring the role mothers); ways strengthen current sexuality education to prevent early pregnancy (importance of contraceptive provision); and the need for further research.

In terms of addressing the need for further research on the affect of sexuality education on reducing early pregnancy, the panel noted the importance of context specific evaluations of curriculum-based sexuality education. Additionally, the group agreed that curriculum-based sexuality education should not refer exclusively to school-based settings, though schools are most commonly the setting in which such curriculum-based sexuality education is currently taking place.

The panel concluded that combined interventions including curriculum-based sexuality education[14] together with contraceptive promotion should be offered to adolescents to reduce pregnancy rates.

Secondary Outcome- Reducing Repeat Pregnancies

Postpartum and post-abortion contraception to reducing repeat pregnancy

The small evidence base suggests that programmes with multiple postpartum contacts can improve contraceptive use and reduce repeat pregnancy rates in adolescents. Additionally, the quality of the evidence is very low (GRADE Profile, Lopez et al., 2009), with unclear methods, small sample sizes, and short follow-up periods.

Related to discussing participation in an educational setting (whether formal or informal), there was a discussion about social exclusion as an important consideration in ability to access education during and post pregnancy and thereby relating to prevention second pregnancy. In developed as well as some middle-income countries, there is high correlation between adolescent pregnancy and social exclusion.

The panel concluded that post-partum and post-abortion contraception promotion interventions, through multiple home visits and/or clinic visits, should be offered to adolescents to reduce second pregnancy.

Social support programmes to reducing repeat pregnancy

The group discussed the importance of establishing and testing definitions of social support (as in working with communities and families) within different socio-cultural contexts. For this type of intervention, no action recommendation is being made not only because of the lack of evidence, but also because the definition of social support is unclear, while prior recommendations and related key questions refer to specific, existing services.

The panel, therefore, concluded that further research is required to define the interventions/actions related to social support, their feasibility and effectiveness in reducing repeat pregnancies

[14] International Technical Guidance on Sexuality Education: An Evidence Informed Approach for Schools Teachers and Health Educators. December 2009. UNESCO, UNAIDS, UNFPA, World Bank, WHO.

OUTCOME 3
Increase use of contraception by adolescents at risk of unintended pregnancy

Presenter: Donna McCarraher, Family Health International-FHI

Panel Remarks:

Interventions on laws and policies

None of the reviewed eligible studies found examined efforts directed at political leaders/planners, including those at the community level, to increase adolescents' access to contraceptive services and information. However, the panel acknowledged the utility of laws and policies, with adolescent-specific provisions, to improve access to contraceptive information and services. The panel also agreed that the evaluation of laws and policies (formulation and/or enforcement) requires a different methodology than the one applied in this review; and further suggested that findings on policy/legal interventions should be documented periodically to advance evidence-based understanding on this topic.

Specifically, in weighing the possible benefits versus harms, the panel concluded that benefits outweighed any possible harms; that is, laws and policies favourable of adolescents access to contraceptives ease service delivery. The loss of political capital in advocating for policy/legal action in a sensitive, perhaps controversial subject was mentioned as a possible harm.

The panel concluded that (1) efforts are made with political leaders, and planners to formulate laws and policies to increase access to contraceptives services and information, including emergency contraceptives to adolescents; and that (2) research be undertaken to improve the understanding of interventions which result in the formulation of such laws and policies.

Interventions that address community level determinants

No eligible studies were found in graded or ungraded reviews and in individual studies including actions in the communities, therefore it is difficult to determine the contribution of actions in communities; no independent effect has been found.

The panel noted the limited evidence specific addressing interventions to influence community attitudes towards contraceptive availability for adolescents. Community acceptance was noted as a key barrier and/or driver for improving access to contraction for adolescents. Additionally, resources invested in advocating attitudinal changes of community members are not without cost, but precise estimates of cost of interventions are not available

The panel concluded that (1) interventions should be undertaken to influence community members to support access to contraceptives for adolescents; and that (2) further research should be undertaken to identify, specify and evaluate interventions to influence community attitudes to support adolescents' access to contraceptives.

Improvements in health services increasing access (including emergency contraception)

The panel noted the limited eligible studies reflecting the contribution of improved health service delivery to increased contraceptive use.

Nevertheless, the panel noted the overall importance of adolescents' access to health services, including, but not limited to, contraceptive information (and addressing the barriers to contraceptive provision such as provider attitudes), for current and future fertility regulation and contraceptives.

The panel concluded that interventions to improve health service delivery to adolescents, including the training of health workers; improving aspects of facilities and commodity availability and actions in the community to ensure acceptability and improve demand, should be expanded as a means to improve adolescents access to and use of contraceptive information and services.

Interventions that make contraceptive methods, including emergency contraception, available over-the-counter

The panel noted the limited evidence available to address this question. However, it noted that, in many instances, over the counter provision of condoms was common and that this can improve access compared to static health service provision[15].

However, the panel did not make a recommendation for action, noting a variety of questions and concerns in the absence of data: the accuracy and thoroughness of information provided about hormonal contraceptives, including emergency contraceptives; the unknown adverse affects of not requiring a prescription; the potential to perpetuate stigma and create further barriers if pharmacists reflect negative attitudes.

Therefore, the panel noted the importance of future research, especially exploring drivers and factors related to acceptability of contraceptive provision through pharmacists or vendors, including how acceptability relates to the increased potential for income generation.

The panel concluded that further research should be undertaken to identify, specify and evaluate the feasibility and effectiveness interventions to improve availability of hormonal contraceptives over the counter to adolescents.

Access to accurate information and sexuality education

The systematic review (Oringanje) included a limited number of studies from developing countries, although of low quality. Studies from developed countries indicated curriculum based sexuality education increased contraceptive use among sexually active adolescents were downgraded.

In discussing harms or burdens, difference in values and resource implications, the panel agreed that are no ascertainable harms or burdens based on this type of interventions. Additionally, studies have shown that CBSE does not increase sexual initiation. The acceptability of sexuality education varies considerably and is influenced by socio-cultural contexts. While costing studies are under way, but there are no results as yet. Therefore, there are likely to be considerable costs in sustaining and ensuring wide coverage of good quality programmes

The panel concluded that (1) interventions, in particular, curriculum based comprehensive sexuality education should be expanded in order to provide accurate information and education about contraceptives to adolescents; and that (2) further research should be pursued in order to address relative effectiveness of intervention in various settings (in school/out of school) and populations.

Male involvement

The panel noted the limited number of eligible studies demonstrating improved condom use through targeted interventions to transform gender attitudes among adolescent boys.

[15] Oringanje 2009 systematic review including*Raine 2005 - RCT - USA - No increase in EC use (Direct access vs. advanced provision vs clinic control);* Lopez - EMC Raymond and Raines no effects on contraceptives from pharmacy based;

Therefore, the group agreed to include the Project H data that shows an increase in male condom use by men and boys as the basis for the action recommendation.

The panel discussed the strategic role of interventions to encourage male "autonomous" condom use as well as to influence the attitudes of men to support the use of contraceptives by their partners.

In discussing potential harms and burdens of male involvement strategies to improve contraceptive use, there was discussion around the definition of "male involvement" and the assumption that "male involvement" is inherently positive for adolescent girls. The panel noted that given the covert nature of contraceptive use among women in some countries, male involvement could potentially harm women's autonomous use of contraceptives. There was agreement that much of this depends on the socio-cultural context.

The panel concluded that further research should be undertaken to identify, specify and evaluate the feasibility and effectiveness interventions to involving men (adolescents and adults) in decisions related to contraceptive use by partners as well as themselves.

Reducing the financial cost of contraceptives

The panel noted the cost is frequently a barrier for adolescents given their limited financial resources and the limited evidence indicating the effectiveness of interventions to reduce costs. However, the sustainability of such interventions needs further exploration.

The health benefits of contraception to prevent unsafe and/or unwanted pregnancy in adolescents outweigh the burden associated administrative costs and real costs of subsidising contraceptives. Sustainability of these interventions is likely to be an issue. Improving access to contraceptives for adolescents continues to be a challenge in some socio-cultural contexts where social norms do not acknowledge adolescent sexuality as a part of health and wellbeing.

The panel concluded that (1) efforts to reduce the costs of contraceptives to adolescents should be undertaken; and that (2) further research should be undertaken to ascertain the feasibility and impact of reducing contraceptive costs specifically to adolescents.

OUTCOME 4
Reduce coerced sex among adolescents

Presenter: Althea Anderson, Population Council

Panel Remarks:

Interventions on laws and policies

The systematic review process did not identify any eligible studies that demonstrated effectiveness of interventions in contributing to this outcome. Note: only two cases were identified (LCWRI 2007; LCWRI 2008; Republic of South Africa 2007; Republic of South Africa 2010) in which developing countries have passed specific laws to protect women from sexual violence, which included sexually coercive offences, and that provide options for redress. At this time, the impact of these laws has not been formally evaluated. The panel made note of other countries that have recently adopted laws and policies that specifically punish the sexual coercion of adolescent girls. However, the panel observed that efforts to formulate laws and policies, enforce them and monitor their enforcement are highly unlikely to be addressed by intervention studies.

Despite the lack of evidence, the panel discussed a variety of topics related to legal interventions to reduce coerced sex: the importance of laws and policies (existence, monitoring and enforcement) to prevent coerced sex; the need to identify alternative methods to evaluate the impact of laws and policies on coerced sex and other sexual and reproductive health outcomes; the need to document legal/policy interventions periodically to advance evidence-based understanding on this topic.

The panel concluded that (1) efforts be continued to formulate laws and policies that punish perpetrators of coerced sex, to enforce them in a way that empowers victims and their families, and to monitor their enforcement; and that (2) Further research should be undertaken to assess how such laws and policies have been formulated, how they have been enforced, how their enforcement has been monitored, and what this has resulted in, using methods and materials appropriate to this subject.

Interventions that influence individual-Level determinants
Interventions that empower adolescent girls
The studies which were included in the review show that interventions to build the self esteem of adolescent girls; to build their life skills in areas such as communication and negotiation; to improve their links to social networks and their ability to obtain social support in combination with interventions to create supportive social norms have positive direct and indirect effects on attitudes and behaviours to resist sexual coercion (Askew et al. 2004; Kim et al. 2001; Nkwe 2009; Ross et al. 2007). However, the quality of the evidence is low. Despite this, the panel concluded that the potential benefits of skills building and empowerment far outweigh any possible risks. The interventions listed will require resources for the planning, implementation and monitoring.

The panel concluded that interventions to build the self-esteem of adolescent girls; to build their life skills in areas such as communication and negotiation; to improve their links to social networks and their ability to obtain social support, should be carried out to build girls' ability to be better linked to and better able to draw support from social networks in their communities. These interventions should be combined with interventions to create supportive social norms.

Interventions that target men
The studies which have been included in the review show that interventions aimed at challenging and transforming gender norms that relate to sexual coercion and violence have positive direct and indirect effects on adolescent boys' attitudes and behaviours related to sexual coercion (Askew; Kim; Nkwe; Ross). However, the quality of the evidence is low.

The panel discussed harms or burdens, difference in values and resource implications related to interventions that target men in order to reduce coerced sex among adolescents. The panel agreed that the potential benefits of male involve of this far outweigh any possible risks. That is, engaging men and boys to critically assess gender norms that relate to sexual coercion and violence, and to influence wider social norms can contribute to decreasing sexually coercive behaviour thereby contributing to the outcome of preventing too-early pregnancy. It was noted, however, that interventions to reduce sexual coercion may result in men and boys using alternative strategies to

reassume control in sexual encounters. Additionally, the interventions referred to would require resources for the planning, implementation and monitoring.

The panel concluded that interventions to engage men and boys to critically assess gender norms (e.g. gender transformative approaches) that relate to sexual coercion and violence, combined with interventions to empower adolescent girls and those that influence wider social norms, should be carried out to reduce the sexual coercion of adolescent girls.

OUTCOME 5
Reduce unsafe abortion amoung adolescents

Presenter: Akin Bankole, Alan Guttmacher Institute-AGI

Panel Remarks:

Interventions on laws and policies

The panel observed that efforts to formulate laws and policies, apply them and determine the effects of their application are unlikely to be addressed by intervention studies. The panel also observed that it is likely that the existence of laws and polices that enable adolescents to obtain safe abortion services could reduce unsafe abortion if their formulation is combined with efforts to put them into effect. It was agreed that the formulation of such laws and policies would contribute to meeting the needs and fulfilling the rights of adolescent girls.

Therefore, panel concluded that (1) Efforts be continued to ensure that laws and policies enable adolescents to obtain safe abortion services; and that (2) further research should be undertaken to assess how such laws and policies have been formulated, how they have been put into effect, and what this has resulted in, using methods and materials appropriate to this subject.

Interventions that address community level determinants

Awareness among target population groups16 about conditions under which abortions are legal

The systematic review process did not identify any eligible studies that linked targeted information interventions for key populations to the outcome. The panel recognized that it is likely that informing all the stakeholders in the community about what abortion services are available, and where and under what conditions they could be obtained legally could reduce unsafe abortion if there are complementary efforts to ensure their provision. The panel also concluded that such efforts will contribute to meeting the needs and fulfilling the rights of adolescent girls. The panel is unable to comment on the resource implication, since there were no interventions defined.

The panel concluded that alongside efforts to formulate laws and policies that enable adolescents to obtain safe abortion services, efforts must be made to inform all the stakeholders in the community about the following issues:

- **What safe abortion services are available**
- **Where and under what conditions they could be obtained legally.**

[16] Population groups include: Community: leaders, members; Policymakers, decision makers; Families: parents and mothers-in-law; Adolescents: couples, boys, girls, males, females; and the General population.

Interventions targeting barriers to access

While the systematic review process did not identify any eligible studies that linked interventions that target barriers to access and the outcome, the panel decided on making a recommendation for action, recognizing the following: where safe abortion services are available, identifying and overcoming barriers could improve access and use of safe abortion services thereby to reducing unsafe abortion; the needs and rights of adolescent girls; the principles of the overall WHO recommendations on safe abortion[17].

The panel concluded that (1) alongside efforts to formulate laws and policies that enable adolescents to obtain safe abortion services and efforts to inform all the stakeholders in the community about what safe abortion services are available, and where and under what conditions they could be obtained legally, efforts must be made to identify and overcome barriers to their provision (by health workers) and their utilization (by adolescents); that (2) Further research should be undertaken to investigate the feasibility and effectiveness of interventions to identify and overcome barriers to the provision and utilization of abortion services.

Secondary Outcomes

Increase availability of post-abortion services to reduce post-abortion mortality and morbidity

While the systematic review process did not identify any eligible studies that linked increased availability of post-abortion services to reduced post-abortion morbidity and mortality, the panel decided on making a recommendation for action recognizing the following: ensuring the access of adolescents to post abortion care services could serve as a life-saving measure; the needs and rights of adolescent girls.

The panel concluded that (1) efforts be should be made to ensure access by adolescents to post abortion care as a life-saving medical intervention, whether or not the abortion or attempted abortion was legal or illegal; and that (2) Further research should be undertaken to investigate the feasibility and effectiveness of efforts to ensure that access of adolescents to post abortion care.

Expand availability of post-abortion contraceptive services to reducing post-abortion mortality and morbidity

While the systematic review process did not identify any eligible studies that linked increased availability of post-abortion contraceptive services to reduced post-abortion morbidity and mortality, the panel decided on making a recommendation for action recognizing: the needs and rights of adolescent girls and the *WHO. Medical Eligibility Criteria for Contraceptive Use, 2008 update*. The criteria state that (1) women may start hormonal contraception at the time of surgical abortion, or as early as the time of administration of the first pill of a medical abortion regimen; and (2) following medical abortion, an intrauterine device may be inserted when it is reasonably certain that the woman is no longer pregnant.

The panel concluded that efforts should be made to ensure that adolescents who have obtained post abortion care services can obtain contraceptive information and services.

[17] Basis of the recommendation: Chapter 4 (Legal and policy considerations) in WHO. Safe abortion: technical and policy guidance for health systems, 2003 updated 2010.: " The legal grounds, and the scope of their interpretation, are only one dimension of the legal and policy environment that affects women's access to safe abortion. Laws, regulations, policies and practice may also limit women's access by:
[the rest is on pasteboard]

OUTCOME 6
Increased use of skilled antenatal care and childbirth care and postnatal care among adolescents

Presenter: Guillermo Carroli, Centro Rosarino de Estudios Perinatales (CREP)

Panel Remarks:

Interventions that address community level determinants

Targeting particular population segments[18]

While the systematic review process revealed limited existing research linking information provision through community mobilization and sensitization with use of ANC, childbirth care, and/or post-natal care the panel made a recommendation for action in recognition of: the right to information; the special adolescent need for information given the myriad barriers they face with respect to access to care (including ANC and childbirth care);

The panel discussed harms or burdens, difference in values and resource implications related to community-based interventions to increase ANC, childbirth care, and/or post-natal interventions. No harm was foreseen, although with increased demand for services, appropriate quality of care must be in place. In certain socio-cultural contexts, considerations for specific access to care barriers for sub-populations of adolescents (e.g. unmarried adolescents, street youth, and other marginalized groups) were mentioned, in addition to considerations of service availability. The panel agreed that targeted information interventions, including community mobilization efforts, reflect cost implications. However the specific costs were not possible to assess or further comment on.

Given the limited existing research, the panel also discussed recommendations for further research, including a focus on identifying how best to provide information to adolescents, in addition to key relevant populations.

The panel concluded that (1) information about the importance of utilizing skilled ANC should be provided to all pregnant adolescents and key relevant populations; (2) information about the importance of utilizing a skilled attendant at childbirth should be provided to all pregnant adolescents and key relevant populations; (3) intervention research should be undertaken to determine the effect of various strategies to inform the different key populations about ANC for adolescents in order to improve its access and use; and that (4) intervention research should be undertaken to determine the effect of various strategies to inform the different key populations about skilled childbirth for adolescents in order to improve its access and use.

Change in health services and increased access and use of skilled ANC

There were no eligible studies found during the systematic review process that linked 'change in health services' to increased use of skilled ANC.

The discussion focused on special barriers to ANC for adolescents, including youth friendly services and provider attitudes; mobility (married adolescents in some socio-cultural contexts often have restricted freedom to independently navigate their context); and young age (10–14). The panel agreed that these special barriers be considered, in addition to information as a barrier to ANC.

[18] Population groups include: Community: leaders, members; Policymakers, decision makers; Families: parents and mothers-in-law; Adolescents: couples, boys, girls, males, females; General population

The panel concluded that further intervention research should be undertaken to identify the types of changes to health services needed to improve access and use of ANC to adolescents.

Interventions that address individual-level determinants

Birth preparedness and pregnancy-related outcomes

Given the evidence on birth preparedness as an effective intervention in improving neo-natal and peri-natal outcomes, the panel was able to make a recommendation for action. Specifically, birth preparedness is an intervention of the WHO ANC package of care, based on the multi-centered RCT[19],[20] that demonstrates the effectiveness of the package of ANC in improving neo-natal and peri-natal outcomes. Additionally, some community-based studies, including birth and complication preparedness show improved access and use of skilled ANC and childbirth.

The panel discussed harms or burdens, difference in values and resource implications related to birth preparedness interventions. The panel noted that there were no harms or burdens or difference in values but that there may be costs related to interventions for birth and complication preparedness at the community-level.

The panel concluded that (1) birth and emergency preparedness is a key component of WHO ANC Guidelines[21],[22] and should be consistently promoted in ANC strategies for pregnant adolescents (at the household, community, and service settings); and that (2) Intervention research should be undertaken to identify specific aspects needed for birth and emergency preparedness for adolescents, focussing on intermediate outcomes (such as increased use of skilled care during pregnancy, childbirth and post natal) in addition to distal outcomes such as pregnancy-related morbidity and mortality.

Change in health services use of **skilled childbirth care**

Since there were no eligible studies found in the systematic review process that linked 'change in health services' to increased use of skilled childbirth care, the panel noted the need for further research.

The panel concluded that intervention research should be undertaken to identify the types of changes to health services needed to improve access and use of skilled childbirth for adolescents.

Target and reduce barriers and increased use of skilled antenatal, childbirth, and post natal care services

One study identified in the systematic review process, with an analysis disaggregated by age, demonstrated the increased use of skilled antenatal, childbirth, and post natal care services through reducing financial barriers (Lim, 2010). The study extracted data from household surveys and showed an increased odds ratio for financial schemes and an

[19] WHO Antenatal Care Randomized Trial: Manual for Implementation of the New Model. Ref. WHO/RHR/01.30-45 pages. http://www.who.int/reproductive-health/publications/RHR_01_30/

[20] Birth and emergency preparedness in antenatal care, Integrated Management of Pregnancy and Childbirth (IMPACT). http://www.who.int/making_pregnancy_safer/publications/Standards1.9N.pdf

[21] WHO Antenatal Care Randomized Trial: Manual for Implementation of the New Model. Ref. WHO/RHR/01.30-45 pages. http://www.who.int/reproductive-health/publications/RHR_01_30/

[22] Birth and emergency preparedness in antenatal care, Integrated Management of Pregnancy and Childbirth (IMPACT). http://www.who.int/making_pregnancy_safer/publications/Standards1.9N.pdf

increase in antenatal care, in facility births and skilled birth attendance and reduced odds for peri-natal and neonatal deaths in adults and adolescent mothers.

The panel highlighted priorities for future research, including: the importance of conducing further secondary analysis of existing data from conditional cash transfer schemes (or voucher schemes) (which have been carried out in Nepal, Cambodia, Bangladesh, Indonesia, Honduras, Mexico among other countries); and assessing how enrollment in an insurance scheme could improve access to antenatal, childbirth and/or post natal care services. The group also noted that research should not only focus on financial barriers, but also address the multitude of additional barriers adolescents face with respect to accessing antenatal, childbirth and post natal care. Therefore research should also consider the special barriers to health-seeking behavior, education, employment, health insurance, alternative models of care, provider attitudes, and quality of care standards specific to adolescents, among others. Additionally, substantial efforts should be directed at targeting most vulnerable (poorest of the poor, geographically/rural, isolated, younger ages, and other disenfranchised groups).

The panel concluded that intervention research should be undertaken to identify effective strategies to reduce barriers in increasing access to and use of skilled antenatal, childbirth, and post natal care services among adolescents. Considering the heterogeneity of adolescents, strategies will likely need to vary, targeting specific barriers and addressing structural determinants of access.

Tailoring antenatal, childbirth, and postnatal care services to improve maternal and infant outcomes

The systematic review identified one study (Aracena, 2009) that met the inclusion criteria, assessing home visits as a form of tailored adolescent intervention for last trimester and post natal care, in addition to antenatal and standard in-facility care and reflected increased use. Specifically, the study addressed access to standard ante-natal care, including scheduled home visits by community-based health educators supervised by trained personnel (nurses-midwives), including post natal scheduled home visits (up to 12 visits) by trained and supervised community based health educators. (Aracena 2009). The findings are consistent with reviews and studies including (Olds &Kitzman (1990 and 2004) Larson (1980), Korfmacher, Kitzman and Olds (1998), Cumsille and Ramirez (1999) Olds et al (2002, 2004). However, the quality of the evidence was GRADED Very Low.

Given the limited research findings in low and middle income countries, and the high resource implication of including a recommendation for expanded services, the panel decided to focus on the need for further research to identify effective interventions that influence maternal and peri-natal and child health outcomes. Specifically, given the various and complex access issues for adolescents, and their heterogeneous nature, within varying socio-cultural contexts, it was discussed that research could focus whether "tailoring" standard services is sufficient and/or whether additional support (home visits) be included as part of the recommended package for adolescents. Existing efforts in developing countries to tailor maternal and infant care for adolescents should also be evaluated to better inform programmatic and policy approaches.

The panel concluded that intervention research should be undertaken to identify strategies to tailor antenatal, childbirth, and postnatal care services specifically to

address adolescents taking into account varying contexts and characteristics of existing services and the heterogeneity of adolescents.

Expanding availability of basic emergency obstetric care and comprehensive emergency obstetric to improve maternal and infant outcomes

Basic emergency obstetric care and comprehensive emergency obstetric care are life-saving interventions. Therefore adolescents have the right to ensured access. Given the high proportion of adolescent maternal death attributable to abortion related complications in many developing countries, it is essential that basic emergency obstetric care and comprehensive emergency obstetric care address the special barriers for adolescents with respect to abortion related complications.

In addition to special barriers, the unique vulnerabilities of adolescents was also mentioned as an important consideration for intervention design. For example, monitoring of quality maternal health standards during pregnancy and childbirth and postnatal care, is important to ensure quality of care but also avoid abuse of procedures (e.g. C-sections).

The panel concluded that (1) availability and access to basic emergency obstetric care (BEMOC) and comprehensive emergency obstetric care (CEMOC) should be expanded; and that (2) intervention research should be undertaken to identify specific efforts to expand availability and access to BEMOC and CEMOC to adolescents.

Next Steps:

(1) CAH-WHO will prepare a draft of the recommendations that emerged from the meeting and circulate to the panel for final inputs before including in the Guidelines document.

(2) CAH-WHO will finalize Guidelines/Recommendations report and submit to the WHO Guidelines Review Committee (GRC).

(3) Based on the FCI-WHO presentation on the Guidelines dissemination plan, WHO work with FCI to finalize the publication and disseminate.

IV: ANNEX 3 – Key questions by outcome

OUTCOME 1
Reduce marriage before the age of 18 years

1.1. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies to make marriage for girls before age 18 illegal?

1.2. Is there evidence that efforts directed at political leaders/planners, including those at the community level, are effective in enforcing laws prohibiting marriage for girls before age 18?

1.3. Is there evidence that efforts to influence family and community norms concerning marriage are effective in delaying marriage among girls under age 18?

1.4. Is there evidence that economic incentives for families are effective in delaying marriage of girls under age 18?

1.5. Is there evidence that efforts to inform and empower adolescents are effective in delaying marriage among girls under age 18?

1.6. Is there evidence that efforts to expand the availability of education for girls are effective in delaying marriage among girls under age 18?

1.7. Is there evidence that expanding the availability of livelihood opportunities for girls is effective in delaying marriage among girls under age 18?

OUTCOME 2
Reduce pregnancy before the age of 20 years

2.1. Is there evidence that efforts directed at adolescents and other stakeholders are effective in reducing pregnancy among girls under age 20?

2.2. Is there evidence that efforts to improve the economic situation of girls are effective in reducing pregnancy among girls under age 20?

2.3. Is there evidence that efforts to expand the availability of formal and non-formal education for girls are effective in reducing pregnancy among girls under age 20?

2.4. Is there evidence that sexuality education programs for adolescent boys and girls are effective in reducing pregnancy among girls under age 20?

2.5. Is there evidence that efforts to provide postpartum and post-abortion contraception are effective in reducing second pregnancies among adolescents?

2.6. Is there evidence that social support programs are effective in reducing second pregnancies during adolescence?

OUTCOME 3
Increase use of contraception by adolescents at risk of unintended pregnancy

3.1. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that increase access to contraceptive services and information for adolescents?

3.2. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that increase access to emergency contraception for adolescents?

3.3. Is there evidence that efforts directed at community members and leaders are effective in increasing access to contraceptives for adolescents?

3.4. Is there evidence that efforts to improve health services are effective in increasing access to contraceptive information and services (including emergency contraception) for adolescents?

3.5. Is there evidence that efforts to make contraceptive methods, including emergency contraception, available over-the-counter are effective in increasing the access to contraceptives by adolescents?

3.6. Is there evidence that efforts to provide accurate information and education about contraceptives to adolescents are effective in increasing contraceptive use among adolescents?

3.7. Is there evidence that efforts to involve males in contraceptive decisions 'by the couple' are effective in increasing contraceptive use among adolescents?

3.8. Is there evidence that efforts to reduce the financial cost of contraceptives for adolescents are effective in increasing contraceptive use among adolescents?

OUTCOME 4
Reduce coerced sex among adolescents

4.1. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that punish perpetrators of coerced sex or support reporting of coerced sex involving adolescent girls?

4.2. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in enforcing laws regarding coerced sex involving adolescent girls?

4.3. Is there evidence that efforts directed at adolescent girls to resist coerced sex have an impact?

4.4. Is there evidence that efforts to reduce the use of coercion by males to obtain sex have had an impact?

OUTCOME 5
Reduce unsafe abortion among adolescents

5.1. Is there evidence that efforts directed at policy leaders/planners and community leaders are effective in improving access to safe abortion for adolescents according to the existing law?

5.2. Is there evidence that efforts to inform adolescents and other stakeholders about the conditions under which abortions are legal are effective in reducing unsafe abortions among adolescents?

5.3. Is there evidence that efforts to reduce barriers are effective in increasing access to and use of safe abortion services among adolescents according to existing laws?

5.4. Is there evidence that efforts to increase the availability of post-abortion services are effective in reducing post-abortion mortality and morbidity among adolescents?

5.5. Is there evidence that efforts to make available post-abortion contraceptive services are effective in reducing post-abortion mortality and morbidity among adolescents?

OUTCOME 6
Increase access to and use of skilled antenatal, childbirth and postnatal care among adolescents

OUTCOME 6a: Increase use of skilled antenatal care among adolescents

6a.1. Is there evidence that efforts to inform adolescents and other stakeholders about antenatal care are effective in increasing access to and use of skilled antenatal care among adolescents?

6a.2. Is there evidence that changes to health services have an impact on the access to and use of skilled antenatal care among adolescents?

6a.3. Is there evidence that efforts to increase birth preparedness are effective in improving pregnancy-related outcomes among adolescents?

OUTCOME 6b: Increase use of skilled childbirth care among adolescents

6b.1. Is there evidence that efforts to inform adolescents and other stakeholders about the importance of skilled childbirth care are effective in increasing access to and use of skilled childbirth care among adolescents?

6b.2. Is there evidence that changes to health services have an impact on increasing access to and use of skilled childbirth care among adolescents?

OUTCOME 6c: Increase use of skilled antenatal, childbirth and postnatal care among adolescents

6c.1. Is there evidence that efforts to reduce barriers are effective in increasing access to and use of skilled antenatal, childbirth and postnatal care services among adolescents?

6.c.2. Is there evidence that efforts to tailor antenatal, childbirth and postnatal care services specifically to adolescents are effective in improving maternal and infant outcomes among adolescents?

6c.3. Is there evidence that efforts to expand the availability of basic emergency obstetric care and comprehensive emergency obstetric care are effective in improving maternal and infant outcomes among adolescents?

IV: ANNEX 4 – Search results by outcome

OUTCOME 1
Reduce marriage before the age of 18 years

SCOPE: Key questions

1.1. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies to make marriage for girls before age 18 illegal?

1.2. Is there evidence that efforts directed at political leaders/planners, including those at the community level, are effective in enforcing laws prohibiting marriage for girls before age 18?

1.3. Is there evidence that efforts to influence family and community norms concerning marriage are effective in delaying marriage among girls under age 18?

1.4. Is there evidence that economic incentives for families are effective in delaying marriage of girls under age 18?

1.5. Is there evidence that efforts to inform and empower adolescents are effective in delaying marriage among girls under age 18?

1.6. Is there evidence that efforts to expand the availability of education for girls are effective in delaying marriage among girls under age 18?

1.7. Is there evidence that expanding the availability of livelihood opportunities for girls is effective in delaying marriage among girls under age 18?

Search strategy and review

In the review, analysis and selection of the programme and policy evaluation reports identified, interventions addressing early marriage were defined as those fulfilling at least one of the following criteria:

- Includes in the description a specific aim to address or prevent early marriage of girls;
- Includes as part of the programme intervention or policy strategy deliberated activities to address the established causes and consequences of early marriage; or
- Includes in their evaluation some attempt to measure change in ***early marriage-related behaviour*** (e.g. actual early marriage, practices concerning officiating at early marriages, acceptance of marriage offers for girls under age 18) OR ***attitudes concerning early marriage*** among relevant stakeholders (e.g. girls at risk of child marriage, parents, community leaders, religious leaders, policymakers, etc.) due to an intervention or other intentional activity.

WHO initially provided 6795 citations from its search of international databases, including 19 systematic reviews. Citations were initially screened and classified by title into one of two categories: *not relevant* or *possibly relevant*. Abstracts of the citations classified as possibly relevant were examined in a second round of screening and were further categorized into two categories: *not relevant* or *possibly relevant*. The third round of review consisted of examining full-text documents for their basic relevance; this process determined if the activities described in the document referenced an intervention that addressed child marriage in any way, and whether any evaluation of the intervention was attempted. The documents were again classified into *not relevant* or *possibly relevant*

categories. These documents were then reviewed in detail to determine if they were appropriate for inclusion in the systematic review.

The same process was conducted for the search results from WHO and regional databases, such as Regional Office for the Eastern Mediterranean (EMRO) and Latin American and Caribbean Health Sciences (LILACS). WHO initially provided 88 citations from these databases. A wide range of articles, reviews of the literature, and grey literature on early marriage, including an International Center for Research on Women (ICRW) report (*1*) and a 2007 ICRW scan of interventions on child marriage (*2*), to identify additional interventions were also examined. A general online search was then conducted for these referenced interventions to determine if they had been evaluated, and attempted to determine – through additional online search – whether they had indeed been evaluated. If it could not be determined whether the intervention had been evaluated or if a referenced evaluation could not be located, staff at the relevant organizations was contacted by email. A general online search using Google with different combinations of keywords related to each of the sub-questions listed above for Outcome 1 was also conducted. This search yielded documents on additional interventions and a few evaluations, which were then reviewed in a process identical to that outlined in Step 1 above. Several organizations were contacted for suggestions on other relevant interventions.

All documents identified in these steps were reviewed in detail to determine if they were appropriate for inclusion in the systematic review. In this final step, 41 articles were reviewed and 14 were identified as appropriate for full inclusion in the systematic review, with an additional eight evaluations retained for information even though the study design did not include control groups. Of citations obtained from the citations WHO provided and WHO databases, as well as through the steps that were undertaken, the 19 that were ranked as *not relevant* typically addressed one of the following without reference to a specific intervention:

- The *prevalence* and/or determinants of child marriage within a particular context.
- Adverse sexual and reproductive health behaviours and outcomes associated with child marriage (unrelated to an intervention).

During the study reviews, the relevant data was abstracted from the included articles into an Excel spreadsheet and submitted to WHO, along with electronic versions of the included articles. No studies were deemed eligible for the GRADE process used by WHO. Information in the 14 studies with the most robust evaluations was used to inform the discussion and develop recommendations.

Modalities

Several different modalities were used to implement the reviewed interventions, such as group formation among girls at risk of early marriage, peer education and counselling, awareness-raising among parents and/or at the community level, and/or some level of engagement with community leaders or other decision-makers or influential residents. One intervention (*3*) used was tested for efficacy of a participatory approach to develop and implement the interventions.

IV: ANNEX 4 – Search results by outcome

Geographic location

Eleven different countries are represented among the interventions included in this review, with India and Bangladesh being the most common (see Table A5–1). Because India and Bangladesh have such large populations, they are two countries with the greatest number of girls marrying before 18 years of age. Thus successful early marriage interventions in these countries have the potential to have a significant demographic impact.

Table A4-1: Summary of countries targeted by reviewed interventions

Country of intervention	Number of interventions reviewed	Country of intervention (no control)	Number of interventions reviewed
Bangladesh	2	Afghanistan	1
Egypt	2	Bangladesh	4
Ethiopia	1	India	1
India	4	Yemen	1
Indonesia	1		
Kenya	1		
Malawi	1		
Nepal	1		
Senegal	1		
Total	14		7

Study site selection

A number of evaluations provided little if any information on the selection of intervention sites (e.g. Better Life Options Program in India (*4*)). Few of the reviewed interventions used random selection to determine the study/intervention sites or the control sites. However, a few selected the overall geographic region purposively but then randomly selected villages/communities and/or participants from within that overall region (e.g. Malawi Conditional Cash Transfer Program (5)).

Many interventions, such as the Kishori Abhijan programme in Bangladesh (*6*), were located at sites where the implementing nongovernmental organization had a presence. Several of the reviewed interventions intentionally targeted areas where the infrastructure was *more* developed (e.g. Nepal Participatory Project (*3*)) while others, such as the Ishraq program in Egypt (*7*) targeted areas with poor infrastructure or other indicators of socioeconomic need.

Types of results measured in evaluations

The majority of interventions (13 of 14) measured changes in early marriage behaviour in the programme area compared to a control area; for example, a study compared the proportion of girls marrying during the intervention period in the intervention area and the control area (*4*). Few evaluations (6 of 14) measured changes in attitudes towards or knowledge about early marriage, even though those were common goals/objectives

of many of the reviewed interventions. A greater proportion of the evaluations without control groups addressed changes in attitudes or knowledge (4 of 7) than behaviour (1 of 7)[1].

Summary of limitations of studies

Among the 14 studies included in Table A4–1, the following limitations were identified:

- No randomization of treatment or control sites.
- The control group was not always comparable to the intervention group (e.g. *Ishraq* program (*7*). Given the many potential influences on girls' age at marriage, the inclusion of a comparable control group is essential to support claims of impact.
- Very few evaluations incorporated multivariate analyses or included statistical significance tests in bivariate analyses.

Summary of topics/ type of intervention

The two most common components of interventions among the 14 studies on programmes to prevent early marriage among the included interventions were life skills training (N=7) and livelihoods training (N=7). Most of the evaluated interventions included at least two different components, with most including three or more. The most commonly combined components were life skills and livelihoods training (N=5).

The two next most common components among the 14 evaluated interventions included activities to change norms among parents of at-risk girls or at the community level (N=6) and to educate adolescents about sexual and reproductive health or family life education (N=5). Other components included micro-credit, financial support for girls' education (in cash or kind), creating safe spaces for young women to gather and socialize, teacher training, offering sports and physical activity, creating more youth-friendly reproductive and sexual health services, and legal reform.

In addition to the 14 studies, which included control groups, eight studies with no control group were also examined. Among these eight studies, the most common components included training in sexual and reproductive health or family life education, livelihoods training, non-formal or general education, and activities to change community norms concerning early marriage. Many interventions addressed more than one relevant audience (e.g., girls, parents, community leaders, religious leaders). Only a single evaluation of a law change appeared in the results of the literature search or Internet search.

[1] Two of the evaluations that lacked control groups did not specify outcomes with enough detail to be included in this analysis/count.

IV: ANNEX 4 – Search results by outcome

OUTCOME 2
Reduce pregnancy before the age of 20 years

SCOPE: Key questions

2.1. Is there evidence that efforts directed at adolescents and other stakeholders[2] are effective in reducing pregnancy among girls under age 20?

2.2. Is there evidence that efforts to improve the economic situation of girls are effective in reducing pregnancy among girls under age 20?

2.3. Is there evidence that efforts to expand the availability of formal and non-formal education for girls are effective in reducing pregnancy among girls under age 20?

2.4. Is there evidence that sexuality education programmes for adolescent boys and girls are effective in reducing pregnancy among girls under age 20?

Secondary pregnancy prevention

2.5. Is there evidence that efforts to provide postpartum and post-abortion contraception are effective in reducing second pregnancies among adolescents?

2.6. Is there evidence that social support programmes are effective in reducing second pregnancies during adolescence?

Search strategy and review

The WHO literature searches found two systematic reviews (*8,9*) that assessed interventions to prevent pregnancy among adolescents in developing countries. Only the review could be entered into GRADE (*8*).

A Cochrane review included randomized trials only, most of which were conducted among poorer socioeconomic population segments in developed countries (*8*). This review showed that a variety of interventions were effective in reducing the unintended pregnancy rate among adolescents over medium- and long-term follow-up. The impact on secondary behavioural factors was less consistent. It further concluded that combination interventions (ones that incorporated educational and contraceptive aspects) were most effective in preventing unintended pregnancy, particularly when trials with high attrition were excluded. However, inference was limited by the lack of biological outcome data, variability in populations studied, and the paucity of comparisons of different interventions. The GRADE evidence profiles for different outcomes included in the review are shown in Tables 1 and 2 (see Section 3 for tables).

The WHO literature search found one systematic Cochrane review (*10*) on postpartum interventions to prevent repeat pregnancy among adolescents and women. This review included three randomized control trials examining postpartum interventions in developing countries, but only one included pregnancy as an outcome (*10*). As the Syrian study followed women at four months postpartum, it would be difficult to observe an effect in that short time frame. Considering trials in both developing and developed countries, three of four interventions with multiple contacts had a favourable impact on contraceptive use and repeat pregnancy. The authors concluded that the longer-term interventions are promising and not necessarily more

[2] Other stakeholders include community leaders and family members such as parents, guardians and partners.

expensive than usual care. But the evidence base on postpartum interventions is indubitably scanty. The GRADE evidence profile is found in Table 3.

The WHO literature search found five possibly relevant systematic reviews (*11–15*) that focused on high-income countries (the United States of America and the United Kingdom). These reviews are summarized in Table 4.

Three of these reviews contained meta-analyses that concluded that interventions are effective in reducing pregnancy (*13,15*) and repeat pregnancy (*11*). But the interventions evaluated in these reviews were diverse. Harden and colleagues examined early childhood and youth development programmes (*13*). Franklin et al reported on sex education programmes (including abstinence-centred and more comprehensive sex education with information on contraception) delivered in both schools and communities (*15*). The majority of the interventions in the review by Corcoran et al. were hospital-based; 25% involved home visits and 38% were comprehensive and included case management, referral and individual counselling (*11*). All three meta-analyses evaluated the quality of the studies included, but their evaluation criteria differed. The three meta-analyses share constraints common to most such efforts: failure to include relevant research, incomplete presentation of results and inability to secure data from original authors (*11,13,15*).

The two other publications were systematic reviews. DiCenso et al. reported no effect of primary prevention strategies in reducing pregnancy (*12*). It included studies of school-based sex education (some peer-led and others linked with health facilities), abstinence programmes (school- and community-based), and multifaceted (sex education coupled with service opportunities) interventions. However, they rated 7 of the 11 reviewed studies as poor quality. One study reported reduced pregnancy rates in the multifaceted intervention arm (education plus service opportunities) (*16*). The review by Moos et al. included three studies that focused on adolescents (*14*). Only one of those ascertained pregnancies, but the effect of clinic-based counselling was unknown because pregnancy data were not presented by group.

Additional publications and unpublished reports that were identified described interventions in less-developed countries to prevent adolescent pregnancies, but were not included in the systematic reviews. The reports that could be entered in GRADE appear in Tables 5a to 5e. Reports that could not be included in any systematic reviews nor could be GRADE-d are listed in Table 6, and more detailed assessments of their features, outcomes and quality appear in Table 7.

Lessons learned and resulting recommendations can and should incorporate data from rigorous randomized control trials and from well-conducted observational studies. Quality research upon which to make concrete recommendations should feature suitable control groups and ascertain biological outcomes. Information was compiled from Cochrane systematic reviews, systematic reviews that could not be GRADE-d, as well as stronger observational studies that were not included in reviews. Greater importance was placed: on randomized control trials than observational study results; on findings from developing country settings; and on pregnancy outcome data rather than contraceptive uptake or intentions. The synthesis indicated that multifaceted interventions (combination of contraceptive and educational interventions) lower the rate of adolescent unintended pregnancy.

IV: ANNEX 4 – Search results by outcome

OUTCOME 3

Increasing the use of contraception by adolescents at risk of unintended pregnancy

SCOPE: Key questions

3.1. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that increase access to contraceptive services and information for adolescents?

3.2. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that increase access to emergency contraception for adolescents?

3.3. Is there evidence that efforts directed at community members and leaders are effective in increasing access to contraceptives for adolescents?

3.4. Is there evidence that efforts to improve health services are effective in increasing access to contraceptive information and services (including emergency contraception) for adolescents?

3.5. Is there evidence that efforts to make contraceptive methods, including emergency contraception, available over-the-counter are effective in increasing the access to contraceptives by adolescents?

3.6. Is there evidence that efforts to provide accurate information and education about contraceptives to adolescents are effective in increasing contraceptive use among adolescents?

3.7. Is there evidence that efforts to involve males in contraceptive decisions 'by the couple' are effective in increasing contraceptive use among adolescents?

3.8. Is there evidence that efforts to reduce the financial cost of contraceptives for adolescents are effective in increasing contraceptive use among adolescents?

Search strategy and review

Summary of limitations of studies

Many studies measured condom use, though condoms are not the most effective pregnancy prevention methods (but necessary for HIV/STI prevention). A range of definitions and/or indicators for condom use was applied in the studies (at last sex, always, etc). It is important to note that the validity of self-reported condom use is questionable. Many studies were HIV focused, and therefore the relevance for inclusion was questionable, given the focus of the key questions on prevention of early pregnancies and poor reproductive health outcomes. Additionally, the precision of parameter estimates were questionable given that condom use is the secondary outcome and not a primary outcome.

IV: ANNEX 4 – Search results by outcome

OUTCOME 4
Reduce coerced sex among adolescents

SCOPE: Key questions

4.1. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in the formulation of laws and policies that punish perpetrators of coerced sex or support reporting of coerced sex involving adolescent girls?

4.2. Is there evidence that efforts directed at political leaders/planners, including those at the community level, have resulted in enforcing laws regarding coerced sex involving adolescent girls?

4.3. Is there evidence that efforts directed at adolescent girls to resist coerced sex have an impact?

4.4. Is there evidence that efforts to reduce the use of coercion by males to obtain sex have had an impact?

Search strategy and review

In the review, analysis and selection of programmatic interventions and policies related to sexual coercion the following were the eligibility criteria:

- programmes or policies with a primary or secondary aim of addressing sexual coercion of adolescent girls;
- inclusion as part of programme intervention or policy strategy, of activities to address the causes and consequences of sexual coercion using public debate, critical reflection or explicit discussion of how gender norms may impact sexual behaviour (programme interventions or policy strategies could take the form of group educational activities, mass media campaigns, policy messages or institutional practices designed for adolescent girls and boys); and
- an evaluative measure of attitude changes among adolescent girls and boys on the acceptability of sexual coercion, behavioural changes among adolescent girls as they relate to sexual coercion, or behavioural changes among adolescent boys engaging in sexually coercive practices.

Literature search sources

Multiple sources that were referenced in the literature search included:

- A review of sex without consent: young people in developing countries (*17*)
- WHO EndNote web and regional databases
- Formal literature search of electronic databases
- Adolescent sexual and reproductive health field and policy experts.

The following electronic bibliographic databases were searched: Cochrane Library, PubMed, EMBASE, Popline, Lilacs, EMRO, and African Index Medicus (AIM). Searches were performed using keyword, MESH, and subject heading mapping. Pubmed was searched using all terms including but not restricted to adolescence or childhood or teenaged and combining them with all words relating to coerced sex or rape. Truncation was used where appropriate. This search was then combined with a search listing of all low- and middle-income countries (using subject headings as well as free text). The PubMed terms and strategy were translated into appropriate strategies for the other

databases. All years and languages were included. Case reports, comments, editorials, conferences, legal cases, or legislation, newspaper articles and patient education handouts were excluded. References were downloaded into EndNote, and then uploaded into EndNote web.

Search results

Number of references found in review articles			
Database	Cochrane	PubMed	EMBASE
Number	5	5	0
Duplicates	-	-	-

Number of non-review references found							
Database	Cochrane	PubMed	EMBASE	Popline	Lilacs	EMRO	AIM
Number	0	1095	437	371	98	3	1
Duplicates	-	-	171	74	-	-	-

Irrelevant studies and reports

Citations ranked as not relevant were typically descriptive in nature and addressed one of the following topical areas:

- the prevalence of sexual violence within a particular geographic location;
- adolescents' awareness of sexual coercion;
- adverse sexual and reproductive health behaviours and outcomes associated with sexual violence/coercion (unrelated to an intervention);
- improving delivery of quality health services for survivors of sexual coercion;
- reviews of interventions addressing child sexual abuse or rape.

Excluded studies and reports

In the final phase of analysis, studies and reports considered possibly relevant were excluded for the following reasons:

- lack of a direct/indirect measure of adolescent sexual coercion;
- not an intervention or not evaluated;
- did not include target population;
- measured perceived social norms vs personal attitudes.

Analysis strategy

Key findings from original research were evaluated for attitudinal and behavioural outcomes on reducing adolescent sexual coercion. The results of the literature search were used to develop a summary of findings including study design, study quality, consistency of effects across studies, and directness of study measures to reducing adolescent sexual coercion.

IV: ANNEX 4 – Search results by outcome

Summary of evidence

The literature searches conducted found no systematic reviews that directly assessed attempts to impact the occurrence of coerced sex among adolescents. There was only one published article found which directly addressed the four questions listed above, specifically questions 4.3 and 4.4. Most literature focused on a review of the occurrence of coerced sex and consequences.

Four articles and two policies were identified which related to the questions above in that they provided an assessment of programmes directed at sexual behaviour and attitudes among adolescents. A study, which implemented interventions in Kenyan communities, included the occurrence of coerced sex as an outcome (*18*). Post-hoc analyses that compared sexual coercion outcomes between intervention and control sites indicate a positive impact of the intervention on girls reporting sexual coercion as well as boys' sexually coercive behaviours between the first intervention arm (site A) and the control site (site C). However these results should be interpreted with caution. A comparison between the second intervention arm (site B) and the control site (site C) showed an opposite effect for some outcomes. Additionally, the reported observations for each outcome were relatively small. The three remaining studies (Soul City Botswana, *19,20*) did not directly assess the impact of interventions used on coerced sex. However, the interventions in the referred studies address changing adolescent girls' and boys' attitudes related to sexual coercion which may have an indirect effect on girls' ability to resist unwanted sexual encounters as well as in preventing sexually coercive behaviours among boys. Therefore, these studies are indirectly applicable to the outcome of reducing sexual coercion of adolescent girls.

IV: ANNEX 4 – Search results by outcome

OUTCOME 5

Reduce unsafe abortions among adolescents

SCOPE: Key questions

5.1. Is there evidence that efforts directed at policy leaders/planners and community leaders are effective in improving access to safe abortion for adolescents according to the existing law?

5.2. Is there evidence that efforts to inform adolescents and other stakeholders about the conditions under which abortions are legal are effective in reducing unsafe abortions among adolescents?

5.3. Is there evidence that efforts to reduce barriers are effective in increasing access to and use of safe abortion services among adolescents according to existing laws?

5.4. Is there evidence that efforts to increase the availability of post-abortion services are effective in reducing post-abortion mortality and morbidity among adolescents?

5.5. Is there evidence that efforts to make available post-abortion contraceptive services are effective in reducing post-abortion mortality and morbidity among adolescents?

Search strategy and review

The following electronic bibliographic databases were searched: Cochrane Library, PubMed, EMBASE, Popline, LILACS, EMRO, and AIM. Searches were performed using keyword, MESH and subject heading mapping. PubMed was searched using all terms including but not restricted to adolescence or childhood or teenaged and combining them with all words relating to unsafe abortion. Truncation was used where appropriate. This search was then combined with a search listing all low- and middle-income countries (using subject headings as well as free text). The PubMed terms and strategy were translated into appropriate strategies for the other databases. Case reports, comments, editorials, conferences, legal cases or legislation, newspaper articles and patient education handouts were excluded. Additionally, all years and languages were included.

Search results

Number of references found in review articles			
Database	Cochrane	PubMed	EMBASE
Number	6	1	0
Duplicates	-	-	-

Number of non-review references found							
Database	Cochrane	PubMed	EMBASE	Popline	Lilacs	EMRO	AIM
Number	0	439	73	25	366	52	7
Duplicates	-	-	31	6	-	-	-

References were downloaded into EndNote, and then uploaded into EndNote web.

The literature searches conducted found no systematic reviews that directly assessed attempts to reduce unsafe abortion among adolescents. Four potentially relevant studies are summarized in Table A5–2 below. Given the lack of comparative data none of the studies could be entered into GRADE.

Summary of evidence

Of the four studies found, only one from the Dominican Republic, had limited relevance to unsafe abortion as it focused on delivery of information to post-abortion adolescents regarding contraception (*21*). However there was no assessment of post-abortion morbidity and mortality and therefore no indication of the impact of the intervention on these outcomes. The study also did not provide any comparisons between pre and post-intervention in the intervention group or any statistical comparisons between the intervention and control groups.

Examination of the three remaining studies revealed that none of the studies were relevant to the questions listed above. Consequently, there is essentially no data relevant to efforts to reduce unsafe abortion among adolescents.

Table A5–2: Summary of available studies for unsafe abortion

Study/ Location	Design/objective	Patient population/N	Intervention	Results	Quality
Bruno 1998/ Brazil (*22*)	• observational cohort study • determine whether pregnancy outcome (birth or abortion) affects aspects of adolescents' lives at 45 days and 1 year post-partum or post-abortion [a] • whether intention to become pregnant has any effect on infant development at 1 year [a]	• adolescents aged ǂ18 years • prenatal patients n=367[b] • post-abortion patients n=196 (n=115 induced and n=81 spontaneous)	• ·none	• although the study purported to compare prenatal and post-abortion adolescents in terms of psychosocial well-being, schooling, employment, relationships with family and partner, perception of impact of pregnancy, only proportions were reported for some outcomes and no actual comparisons were provided. • 46% of prenatal adolescents and 13% of post-abortion adolescents responded 'yes' when asked if they wanted this pregnancy; when asked of they would have liked to delay pregnancy 61% and 91% said 'yes', respectively. • at 45 days post-partum or post-abortion self-esteem had increased significantly[c] among patients with induced abortion and those who gave birth. Girls with spontaneous abortion did not experience a change in self-esteem. • school enrolment declined for both post-partum and post-abortion adolescents, from 50% at baseline to 30% at 45 days. • post-abortion adolescents were significantly less likely[c] to report a positive impact compared with adolescents whose pregnancies were planned.	• low – observational study with no statistical comparisons reported; claims such as 'significantly lower self esteem' were not supported by numerical values or any indication of statistical tests.
	Relevance: none. The study does not use an intervention and does not provide evidence regarding impact of efforts to improve access to safe abortion, or efforts to reduce barriers to safe abortion, or impact of post-abortion services on mortality and morbidity.				

Study/ Location	Design/objective	Patient population/N	Intervention	Results	Quality
CESDEM 2007/ Dominican Republic (*21*)	• observational cohort study • determine % PAC patients discharged with contraceptive method • assess % of PAC patients who report receiving PAC counseling messages related to immediate risk of pregnancy, method availability and post-abortion complications • determine if there are differences between PAC patients ǂ19 years and older patients aged 20–35 years concerning two objectives above • evaluate impact of intervention on providers' attitudes, counselling knowledge and practice	• patients treated with MVA or D+C • adolescent patients ǂ19 years (n=140) • older patients 20–35 years (n=134) • providers (n=88) were hospital staff, no other information provided	• provider training • patients received PAC services (however no pre-intervention assessment included)	• 55% of adolescent patients reporting receiving PAC counselling methods related to immediate risk of pregnancy, 42% reported receiving messages about method availability and 49% reported receiving messages about post-abortion complications. Proportions were similar for older women however no comparisons were made between the groups. • 40% (95% CI: 32%-48%) of adolescents who wanted to delay pregnancy left hospital with a contraceptive method compared to 45% (95% CI: 36%-54%) of older women. • provider knowledge and attitudes changed between baseline and follow-up however no statistical comparisons were provided.	• low – observational study which did not provide a pre-intervention assessment for adolescent patients, therefore no difference between pre- and post-assessment can be determined. • no statistical comparisons between adolescents and older women (control group) or between baseline and follow-up assessments for providers were provided, thus differences in proportions cannot be quantified.
	Relevance: limited. This study focuses on delivery of information regarding post-abortion contraception, however there is no assessment of post-abortion morbidity and mortality and therefore no indication of the impact of the intervention on these outcomes.				

Study/ Location	Design/objective	Patient population/N	Intervention	Results	Quality
Lugones-Botell, et al, 2007/Cuba (23)	• observational cohort study • Not clearly stated whether education activities had the purpose of increasing contraceptive use among adolescents who consulted for contraception (group A) and amenorrhea (group B); and to measure the impact of medical treatment among adolescents who consulted for vaginal infections.	• 240 adolescents patients aged 11-19 years old who visited the gynaecology department for three main reasons: • **Group A**: requesting contraception (n=80, half in study group and half in control group)[d] • **Group B**: consulting for amenorrhea (n=80, half in study group and half in control group)[d] • **Group C:** consulting for vaginal infections (n=80, half in study group and half in control group)[d]	• education on aspects related to each of the three main reasons of medical consultation. However, report doesn't explain type of education activities and follow-up with each group.	**Group A:** • adolescents in the study group were more likely to select injectables (50%), followed by double protection (30%) and the pill (28%) while in the control group, participants were more likely to select the IUD (40%) and the double protection method (5%). • 7.5% from the study group abandoned the method compared with 37.5% of the control group. The study doesn't say which method and after how many weeks/months of use. **Group B:** • The proportion of adolescents who requested an MR was similar in both groups (92.5% study group vs. 90% in control group) but the proportion who actually had the procedure was higher (85%) in the study group compared with the control group (62.5%). • Post-abortion contraceptive use was higher in the study group (88.2%) compared with 76% in the control group **Group C:** • ·88% who had leucorrhea from the study group were cured compared with 74% in the control group; who had cervicitis 57%-33% in study and control groups respectively were cured.	• low – observational study. The non-parametric statistic of X^2 is reported as been applied; However, just one statistical test appears under the table of the group who requested contraceptives, without an explanation as to whether the test is referring to differences in method selected or to drop-outs or both. Moreover, the paper claims that patients in study group maintained contraceptive use longer and few abandoned but there is no explanation for how long patients were followed-up.[e]
	Relevance: none. The study is not clearly described: therefore, it seems that an educational intervention was used to increase contraceptive use among adolescents who requested contraceptive advice and among those who consulted for amenorrhea and who had an MR procedure. The study is not relevant to the questions for Outcome 5: that is, there is no evidence to improve access to safe abortion or efforts to reduce barriers to safe abortion or impact of post-abortion services on mortality and morbidity.				

Study/ Location	Design/objective	Patient population/N	Intervention	Results	Quality
Vazquez, et al 2006/ Argentina (24)	• observational cohort study • analyze type of complications and consequences of induced abortion among adolescents who used misoprostol without medical indication, and who consulted at a hospital for different reasons • explore how adolescents get to know about misoprostol and how they obtain the medication.	• 59 adolescents aged 13-21 years old who consulted at the hospital after using misoprostol and hospitalized patients who had curettage after using misoprostol. • 18 in-depth interviews with adolescents and one with a mother of a 13-years old adolescent.	• None	• 92% used misoprostol for the first time and the remaining % had used it before. • 61% used it orally and vaginally (the remaining % is not described-no tables are included in paper) • 91.5% experienced metrorrhagia (scarce 30.5%; mild 27.1%, heavy 33.4%) • time passed between first dose and appearance of bleeding fluctuated 1-47 hours • 42.4% experience severe pain • 39% had complete abortion; 40.1% required curettage and 20.3% continue with pregnancy. • 2 cases had complications (one doubtful case of infection and one case required blood transfusion.	• low - observational study reporting descriptive statistics only and based mainly on qualitative data obtained in in-depth interviews.
	Relevance: none. The study does not use an intervention and does not provide evidence regarding impact of efforts to improve access to safe abortion, or efforts to reduce barriers to safe abortion, or impact of post-abortion services on mortality and morbidity.				

CESDEM=Conecta Project and Centro de Estudios Sociales y Demograficos; PAC=post-abortion care; MVA=manual vacuum aspiration; D+C=dilatation and curettage

[a] The paper does not provide results for 1 year

[b] The paper states that those indicating they wanted the pregnancy at time it occurred and would not have preferred waiting were classified as having 'planned' births, and those who indicated they would have preferred waiting until later or didn't know were classified as having 'unplanned' births. The paper does not provide the n's for these two groups and the results provided (46% responded 'yes' when asked if they wanted this pregnancy while 61% said 'yes' when asked if they would have liked to delay pregnancy) total more than 100%.

[c] The paper does not provide any numerical values or statistical tests to support this claim

[d] The report doesn't describe how the selection of sample was made i.e. whether patients were selected from last year patients or from all four years between 2003 and 2006.

[e] The paper does not provide a description for how long groups were observed/followed-up and the results provided to assure contraceptive was used longer in study group than in the control group

IV: ANNEX 4 – Search results by outcome

OUTCOME 6
Increasing access to and use of skilled antenatal, childbirth and postnatal care among adolescents

SCOPE: Key questions

6a.1. Is there evidence that efforts to inform adolescents and other stakeholders about antenatal care are effective in increasing access to and use of skilled antenatal care among adolescents?

6a.2. Is there evidence that changes to health services have an impact on the access to and use of skilled antenatal care among adolescents?

6a.3. Is there evidence that efforts to increase birth preparedness are effective in improving pregnancy-related outcomes among adolescents?

OUTCOME 6b: Increase use of childbirth care by skilled attendants among adolescents

6b.1. Is there evidence that efforts to inform adolescents and other stakeholders about the importance of skilled childbirth care are effective in increasing access to and use of skilled childbirth care among adolescents?

6b.2. Is there evidence that changes to health services have an impact on increasing access to and use of skilled childbirth care among adolescents?

OUTCOME 6c: Increase use of skilled antenatal, childbirth and postnatal care among adolescents

6c.1. Is there evidence that efforts to reduce barriers are effective in increasing access to and use of skilled antenatal, childbirth and postnatal care services among adolescents?

6.c.2. Is there evidence that efforts to tailor antenatal, childbirth and postnatal care services specifically to adolescents are effective in improving maternal and infant outcomes among adolescents?

6c.3. Is there evidence that efforts to expand the availability of basic emergency obstetric care and comprehensive emergency obstetric care are effective in improving maternal and infant outcomes among adolescents?

Search strategy and review

The following electronic bibliographic databases were searched: Cochrane Library, PubMed, EMBASE, Popline, LILACS, EMRO and AIM. Searches were performed using keyword, MESH and subject heading mapping.

PubMed was searched using all terms including but not restricted to adolescence or childhood or teenaged and combining them with all words relating to antenatal, delivery and postnatal care. Truncation was used where appropriate. This search was then combined with a search listing all low- and middle-income countries (using subject headings as well as free text).

The PubMed terms and strategy were translated into appropriate strategies for other databases. Case reports, comments, editorials, conferences, legal cases or legislation, newspaper articles and patient education handouts were excluded. All years and languages were included.

IV: ANNEX 4 – Search results by outcome

Number of references found in review articles			
Database	Cochrane	PubMed	EMBASE
Number	103	60	?
Duplicates	-	2	-

Number of non-review references found							
Database	Cochrane	PubMed	EMBASE	Popline	Lilacs	EMRO	AIM
Number	0	7379	2296	2675	1186	89	4
Duplicates	-	-	546	326	-	-	-

References were downloaded into EndNote, and then uploaded into EndNote web.

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IV: ANNEX 5 – Search terms for each outcome

OUTCOME 1

Search 1: Reduction of marriage before the age of 18 years

A.
Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl[all fields] or girls[all fields]

AND

Marriage[mesh] or spouses[mesh] or conjugal relationship or marriage* or marital or nuptial or spouse or spouses or wedlock or wedding or weddings or "consensual union" or cohabitation or cohabitated

AND

B.
Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or "French Guiana" or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or "Costa Rica" or "El Salvador" or Guatemala or Honduras or Nicaragua or Panama or "West Indies" or Antigua or Bahamas or Barbados or Cuba or Dominica or "Dominican Republic" or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or "Saint Lucia" or "Saint Vincent and the Grenadines" or Trinidad or Tobago or "Virgin Islands" or Kazakhstan or Kyrgyzstan or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or "East Timor" or Indonesia or Laos or Malaysia or "Mekong Valley" or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or "Sri Lanka" or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or "Saudi Arabia" or Syria or Turkey or "United Arab Emirates" or Yemen or Fiji or "New Caledonia" or "Papua New Guinea" or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or "Czech Republic" or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or "Central African Republic" or Chad or Congo or "Democratic Republic of the Congo" or "Equatorial Guinea" or Gabon or Burundi or Djibouti or Eritrea or Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or "South Africa" or Swaziland or Zambia or Zimbabwe or Benin or "Burkina Faso" or "Cote d'Ivoire" or Gambia or Ghana or Guinea or "Guinea-Bissau" or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or "Sierra Leone" or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or "Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe, Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa

South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH]

NOT

C
case reports[pt] or comment[pt] or editorial[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

OUTCOME 2
Search 2: Reduce pregnancy before the age of 20 years

A.
pregnancy in adolescence[mesh]

OR

Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl[all fields] or girls[all fields]

AND

Pregnancy[mesh] or "pregnant women" or parturition[mesh] or mothers[mesh] or "maternal health services"[mesh] or pregnancy or pregnant or parturition or mother* or gestation or gestational or childbirth or childbirths or maternal or maternity

AND

B.
Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or "French Guiana" or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or "Costa Rica" or "El Salvador" or Guatemala or Honduras or Nicaragua or Panama or "West Indies" or Antigua or Bahamas or Barbados or Cuba or Dominica or "Dominican Republic" or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or "Saint Lucia" or "Saint Vincent and the Grenadines" or Trinidad or Tobago or "Virgin Islands" or Kazakhstan or Kyrgyzstan or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or "East Timor" or Indonesia or Laos or Malaysia or "Mekong Valley" or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or "Sri Lanka" or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or "Saudi Arabia" or Syria or Turkey or "United Arab Emirates" or Yemen or Fiji or "New Caledonia" or "Papua New Guinea" or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or "Czech Republic" or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or "Central African Republic" or Chad or Congo or "Democratic Republic of the Congo" or "Equatorial Guinea" or Gabon or Burundi or Djibouti or Eritrea or

Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or "South Africa" or Swaziland or Zambia or Zimbabwe or Benin or "Burkina Faso" or "Cote d'Ivoire" or Gambia or Ghana or Guinea or "Guinea-Bissau" or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or "Sierra Leone" or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or "Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe, Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH]

NOT

C.
case reports[pt] or comment[pt] or editorial[pt] or conference[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

OUTCOME 3

Search 3: Increase use of contraception by adolescents at risk of unintended pregnancy

A.
Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl[all fields] or girls[all fields]

AND

"contraceptive agents"[mesh] or "family planning services"[MeSH] or "reproductive health services"[mesh] or condoms[mesh] or "**Intrauterine Devices**"[mesh] or "contraceptives, oral"[MeSH] or "contraception, postcoital"[MeSH] or contraception or contraceptive* or prophylactic* or condom or condoms or "birth control pills" or "birth control pill" or iud or "intrauterine device" or "intrauterine devices" or abstinence or pregnancy prevention or birth prevention or conception prevention or diaphragm or "family planning" or "reproductive health services" or "fertility control" or "ru486" or "plan B" or Levonorgestrel

AND

B.
Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or "French Guiana" or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or "Costa Rica" or "El Salvador" or Guatemala or Honduras or Nicaragua or Panama or "West Indies" or Antigua or Bahamas or Barbados or Cuba or Dominica or "Dominican Republic" or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or "Saint Lucia" or "Saint Vincent and the Grenadines" or Trinidad or Tobago or "Virgin Islands" or Kazakhstan or Kyrgyzstan

or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or "East Timor" or Indonesia or Laos or Malaysia or "Mekong Valley" or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or "Sri Lanka" or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or "Saudi Arabia" or Syria or Turkey or "United Arab Emirates" or Yemen or Fiji or "New Caledonia" or "Papua New Guinea" or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or "Czech Republic" or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or "Central African Republic" or Chad or Congo or "Democratic Republic of the Congo" or "Equatorial Guinea" or Gabon or Burundi or Djibouti or Eritrea or Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or "South Africa" or Swaziland or Zambia or Zimbabwe or Benin or "Burkina Faso" or "Cote d'Ivoire" or Gambia or Ghana or Guinea or "Guinea-Bissau" or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or "Sierra Leone" or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or "Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe, Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH]

NOT

C.
case reports[pt] or comment[pt] or editorial[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

OUTCOME 3
Search 4: Reduce coerced sex among adolescents

A.
Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl[all fields] or girls[all fields]

AND

Rape[mesh] or "sex offenses"[mesh] or "coerced sex" or rape or "sex abuse" or "sexual abuse" or "sex offense" or "sex offenses" or "sexual violation" or "sexual assault" or "sexual molestation" or compelled sexual act

AND

B.
Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or "French Guiana" or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or "Costa Rica" or "El Salvador" or Guatemala or Honduras or Nicaragua or Panama or "West Indies" or Antigua or Bahamas or Barbados or Cuba or Dominica or "Dominican Republic" or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or "Saint Lucia" or "Saint Vincent and the Grenadines" or Trinidad or Tobago or "Virgin Islands" or Kazakhstan or Kyrgyzstan or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or "East Timor" or Indonesia or Laos or Malaysia or "Mekong Valley" or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or "Sri Lanka" or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or "Saudi Arabia" or Syria or Turkey or "United Arab Emirates" or Yemen or Fiji or "New Caledonia" or "Papua New Guinea" or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or "Czech Republic" or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or "Central African Republic" or Chad or Congo or "Democratic Republic of the Congo" or "Equatorial Guinea" or Gabon or Burundi or Djibouti or Eritrea or Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or "South Africa" or Swaziland or Zambia or Zimbabwe or Benin or "Burkina Faso" or "Cote d'Ivoire" or Gambia or Ghana or Guinea or "Guinea-Bissau" or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or "Sierra Leone" or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or "Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe, Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH]

NOT

C.
case reports[pt] or comment[pt] or editorial[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

IV: ANNEX 5 – Search terms for each outcome

OUTCOME 5
Search 5: Reduce unsafe abortion in adolescents

A.
Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl[all fields] or girls[all fields]

AND

"abortion, criminal"[mesh] or "Unsafe abortion" or "unsafe abortions" or "criminal abortion" or "criminal abortions" or "illegal abortion" or "illegal abortions" or (unsafe and terminations) or "unsafe termination" or (unsafe and TOP) or (unsafe and tops) or "unsafe induced abortions" or "septic abortion" or "septic abortions" or (abortion and unsafe)

AND

B.
Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or "French Guiana" or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or "Costa Rica" or "El Salvador" or Guatemala or Honduras or Nicaragua or Panama or "West Indies" or Antigua or Bahamas or Barbados or Cuba or Dominica or "Dominican Republic" or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or "Saint Lucia" or "Saint Vincent and the Grenadines" or Trinidad or Tobago or "Virgin Islands" or Kazakhstan or Kyrgyzstan or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or "East Timor" or Indonesia or Laos or Malaysia or "Mekong Valley" or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or "Sri Lanka" or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or "Saudi Arabia" or Syria or Turkey or "United Arab Emirates" or Yemen or Fiji or "New Caledonia" or "Papua New Guinea" or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or "Czech Republic" or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or "Central African Republic" or Chad or Congo or "Democratic Republic of the Congo" or "Equatorial Guinea" or Gabon or Burundi or Djibouti or Eritrea or Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or "South Africa" or Swaziland or Zambia or Zimbabwe or Benin or "Burkina Faso" or "Cote d'Ivoire" or Gambia or Ghana or Guinea or "Guinea-Bissau" or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or "Sierra Leone" or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or "Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe,

Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH]

NOT

C.
case reports[pt] or comment[pt] or editorial[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

OUTCOME 6

Search 6: Increase utilization of antenatal, delivery and postnatal care by adolescents

Search Strategy:
(January 2010)

A.
Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl[all fields] or girls[all fields]

AND

"prenatal care"[mesh] or "maternal health services"[mesh] or "perinatal care"[mesh] or antenatal care or prenatal care or care in pregnancy or maternal health services or "perinatal care" or "peri-natal care" or ANC

OR

Midwifery[mesh] or delivery care or intrapartum care or parturition care or perinatal care or skilled birth attendant or midwife or (doctor and (delivery or deliveries or parturition or birth* or childbirth*)) or ((nurse not breastfeeding[mesh]) and (delivery or deliveries or parturition or birth* or childbirth*)) or (health practitioner[tiab] and (delivery or deliveries or parturition or birth* or childbirth*)) or (medical professional and (delivery or deliveries or parturition or birth* or childbirth*)) or institutional delivery or (health facility and (delivery or deliveries or parturition or birth* or childbirth*))

OR

"Postnatal care"[mesh] or ("postpartum period"[mesh] and care) postnatal care or post delivery care or puerperium care or postpartum care or postpartum service* or postpartum program*

AND

B.
Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or "French Guiana" or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or "Costa Rica" or "El Salvador" or Guatemala or Honduras or Nicaragua or Panama or "West Indies" or Antigua or Bahamas or Barbados or Cuba or Dominica or "Dominican Republic" or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or "Saint Lucia" or "Saint Vincent and the Grenadines" or Trinidad or Tobago or "Virgin Islands" or Kazakhstan or Kyrgyzstan or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or

"East Timor" or Indonesia or Laos or Malaysia or "Mekong Valley" or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or "Sri Lanka" or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or "Saudi Arabia" or Syria or Turkey or "United Arab Emirates" or Yemen or Fiji or "New Caledonia" or "Papua New Guinea" or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or "Czech Republic" or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or "Central African Republic" or Chad or Congo or "Democratic Republic of the Congo" or "Equatorial Guinea" or Gabon or Burundi or Djibouti or Eritrea or Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or "South Africa" or Swaziland or Zambia or Zimbabwe or Benin or "Burkina Faso" or "Cote d'Ivoire" or Gambia or Ghana or Guinea or "Guinea-Bissau" or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or "Sierra Leone" or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or "Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe, Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH]

NOT

D.
case reports[pt] or comment[pt] or editorial[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

case reports[pt] or comment[pt] or editorial[pt] or conference[pt] or legal cases[pt] or legislation[pt] or newspaper article[pt] or patient education handout[pt] or retracted publication[pt]

IV: ANNEX 5 – Search terms for each outcome

In August the search strategy was narrowed down. Below the new search that was run in major databases.

Search 6: Increase utilization of antenatal, delivery and postnatal care by adolescents

Searched in PubMed by
Tomas ALLEN, Librarian
Email allent@who.int

(Step 1 AND (Step 2 OR Step 3 OR Step 4) AND Step 5 AND Step 6) NOT Step 7
Limits: Year range 2007–2010
Searched in PubMed on November 6th 2010
Total number of citations located 3627

Step 1
(Adolescent[mesh] or Minors[mesh] or teen[all fields] or teens[all fields] or teenager[all fields] or teenagers[all fields] or teenaged[all fields] or juvenile* or preteen* or pre-teen* or minor or minors or adolescent or youth[text] or youths[text] or girl*

AND

Step 2
"prenatal care"[mesh] or "maternal health services"[mesh] or "perinatal care"[mesh] or antenatal care or prenatal care or care in pregnancy or maternal health services or "perinatal care" or "peri-natal care" or ANC

OR

Step 3
Midwifery[mesh] or delivery care or intrapartum care or parturition care or perinatal care or skilled birth attendant or midwife or (doctor and (delivery or deliveries or parturition or birth* or childbirth*)) or ((nurse not breastfeeding[mesh]) and (delivery or deliveries or parturition or birth* or childbirth*)) or (health practitioner[tiab] and (delivery or deliveries or parturition or birth* or childbirth*)) or (medical professional and (delivery or deliveries or parturition or birth* or childbirth*)) or institutional delivery or (health facility and (delivery or deliveries or parturition or birth* or childbirth*))

Or

Step 4
"Postnatal care"[mesh] or ("postpartum period"[mesh] and care) postnatal care or post delivery care or puerperium care or postpartum care or postpartum service* or postpartum program*

AND

B.

Step 5
"Health Promotion"[Mesh] OR (promotion* AND Health) OR "Wellness Program*" OR (Health AND Campaign*) OR "Health Education"[Mesh] OR "Community Health Services"[Mesh] OR "Community Mental Health Services"[Mesh] OR "Primary Health Care"[Mesh] OR "education"[Subheading] OR "Patient Education as Topic"[Mesh] OR "Patient Education Handout"[Publication Type] OR "Minority

Health"[Mesh] OR "social participation" OR "community mobilization" OR "community mobilisation" OR empowerment OR "Consumer Advocacy"[Mesh] OR "Patient Advocacy"[Mesh] OR "Communication"[Mesh] OR "Mass Media"[Mesh] OR "Human Rights"[Mesh] OR "Patient Rights"[Mesh] OR "Women's Rights"[Mesh] OR "Reproductive Rights"[Mesh] OR "Culture"[Mesh] OR "Motivation"[Mesh] OR "Health Services Accessibility"[Mesh] OR accessibility OR access OR "patient education" [mh] OR " patient centred care " [mh] OR "information booklet" [tw] OR pamphlet* [tw] OR leaflet* [tw] OR poster* [tw] OR "Community Health Nursing"[Mesh] OR "health visitor*" OR "visiting nurse*" OR (community AND nurse*) OR "community leader*" OR "home visit*" OR "Health Services, Indigenous"[Mesh] OR indigenous OR "Counseling"[Mesh] OR counselling OR counseling OR "disease prevention" [TIAB] OR "Community Health Planning"[Mesh] OR "population based" OR "Mass Screening"[Mesh] OR "Health Policy"[Mesh]

AND

C.

Step 6

Argentina or Bolivia or Brazil or Chile or Colombia or Ecuador or French Guiana or Guyana or Paraguay or Peru or Suriname or Uruguay or Venezuela or Mexico or Belize or Costa Rica or El Salvador or Guatemala or Honduras or Nicaragua or Panama or West Indies or Antigua or Bahamas or Barbados or Cuba or Dominica or Dominican Republic or Grenada or Guadeloupe or Haiti or Jamaica or Martinique or Antilles or "Saint Kitts and Nevis" or Saint Lucia or "Saint Vincent and the Grenadines" or Trinidad or Tobago or Virgin Islands or Kazakhstan or Kyrgyzstan or Tajikistan or Turkmenistan or Uzbekistan or Borneo or Brunei or Cambodia or East Timor or Indonesia or Laos or Malaysia or Mekong Valley or Myanmar or Burma or Philippines or Singapore or Thailand or Vietnam or Bangladesh or Bhutan or India or Nepal or Pakistan or Sri Lanka or China or Korea or Macao or Mongolia or Taiwan or Afghanistan or Bahrain or Iran or Iraq or Israel or Jordan or Kuwait or Lebanon or Oman or Qatar or Saudi Arabia or Syria or Turkey or United Arab Emirates or Yemen or Fiji or New Caledonia or Papua New Guinea or Vanuatu or Micronesia or Melanesia or Guam or Palau or Polynesia or Samoa or Tonga or Armenia or Azerbaijan or (Georgia NOT Georgia[MeSH]) or Albania or Estonia or Latvia or Lithuania or Bosnia or Herzegovina or Bulgaria or Belarus or Croatia or Czech Republic or Hungary or Macedonia or Moldova or Montenegro or Poland or Romania or Russia or Bashkiria or Dagestan or Slovakia or Slovenia or Ukraine or Cameroon or Central African Republic or Chad or Congo or "Democratic Republic of the Congo" or Equatorial Guinea or Gabon or Burundi or Djibouti or Eritrea or Ethiopia or Kenya or Rwanda or Somalia or Sudan or Tanzania or Uganda or Angola or Botswana or Lesotho or Malawi or Mozambique or Namibia or South Africa or Swaziland or Zambia or Zimbabwe or Benin or Burkina Faso or Cote d'Ivoire or Gambia or Ghana or Guinea or Guinea-Bissau or Liberia or Mali or Mauritania or Niger or Nigeria or Senegal or Sierra Leone or Togo or Algeria or Egypt or Libya or Morocco or Tunisia or Comoros or Madagascar or Mauritius or Reunion or Seychelles or "developing country" or "third-world country" or "third world country" or "less developed" or "sub-Saharan" or

"Caribbean Region"[Mesh] OR "Pacific Islands"[Mesh] OR "Mexico"[Mesh] OR "Latin America"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Central America"[Mesh] OR "Asia"[Mesh] OR "Africa"[Mesh] OR "Europe, Eastern"[Mesh] OR "South America"[Mesh] OR "Africa, Northern" [Mesh] or "Africa South of the Sahara" [Mesh] or "Asia, Central"[Mesh] or "Asia, Southeastern" [Mesh] or "Asia, Western" [Mesh] or "Far East" [Mesh] or "Developing Countries"[MeSH] or rural communit*[tiab] or rural area*[tiab] or rural region*[tiab] or rural province*[tiab] or rural district*[tiab] or remote communit*[tiab] or remote area*[tiab] or remote region*[tiab] or remote province*[tiab] or remote district*[tiab] or nonmetropolitan communit*[tiab] or nonmetropolitan area*[tiab] or nonmetropolitan region*[tiab] or nonmetropolitan province*[tiab] or nonmetropolitan district*[tiab] or non metropolitan communit*[tiab] or non metropolitan area*[tiab] or non metropolitan region*[tiab] or non metropolitan province*[tiab] or non metropolitan district*[tiab] or underserved communit*[tiab] or underserved countries[tiab] or underserved area*[tiab] or underserved region*[tiab] or underserved province*[tiab] or underserved district*[tiab] or under served communit*[tiab] or under served area*[tiab] or under served region*[tiab] or under served province*[tiab] or under served district*[tiab] or deprived[tiab] and communit*[tiab] or (deprived[tiab] and area*[tiab]) or (deprived[tiab] and region*[tiab]) or (deprived[tiab] and province*[tiab]) or (deprived[tiab] and district*[tiab]) or shortage communit*[tiab] or shortage area*[tiab] or shortage region*[tiab] or shortage province*[tiab] or shortage district*[tiab] or developing communit*[tiab] or developing country[tiab] or developing countries[tiab] or developing district*[tiab] or developing state*[tiab] or developing province*[tiab] or developing jurisdiction*[tiab] or developing nation*[tiab] or developing region*[tiab] or developing area*[tiab] or developing territory*[tiab] or less* developed communit*[tiab] or less* developed country[tiab] or less* developed countries[tiab] or less* developed district*[tiab] or less* developed state*[tiab] or less* developed province*[tiab] or less* developed jurisdiction*[tiab] or less* developed nation*[tiab] or less* developed region*[tiab] or less* developed area*[tiab] or less* developed territory*[tiab] or third world[tiab] or under developed communit*[tiab] or under developed country[tiab] or under developed countries[tiab] or under developed district*[tiab] or under developed state*[tiab] or under developed province*[tiab] or under developed jurisdiction*[tiab] or under developed nation*[tiab] or under developed region*[tiab] or under developed area*[tiab] or under developed territory*[tiab] or poor* communit*[tiab] or poor* country[tiab] or poor* countries[tiab] or poor* district*[tiab] or poor* state*[tiab] or poor* province*[tiab] or poor* jurisdiction*[tiab] or poor* nation*[tiab] or poor* region*[tiab] or poor* area*[tiab] or poor* territory*[tiab] or middle income communit*[tiab] or middle income country[tiab] or middle income countries[tiab] or middle income district*[tiab] or middle income state*[tiab] or middle income province*[tiab] or middle income jurisdiction*[tiab] or middle income nation*[tiab] or middle income region*[tiab] or middle income area*[tiab] or middle income territory*[tiab] or low income communit*[tiab] or low income country[tiab] or low income countries[tiab] or low income district*[tiab] or low income state*[tiab] or low income province*[tiab] or low income jurisdiction*[tiab] or low income nation*[tiab] or low income region*[tiab] or low income area*[tiab] or low income territory*[tiab] underserved communit*[tiab] or underserved countries[tiab] or underserved district*[tiab] or underserved state*[tiab] or underserved province*[tiab] or underserved jurisdiction*[tiab] or underserved

nation*[tiab] or underserved region*[tiab] or underserved area*[tiab] or underserved territory*[tiab] or under served communit*[tiab] or under served district*[tiab] or under served state*[tiab] or under served province*[tiab] or under served jurisdiction*[tiab] or under served nation*[tiab] or under served region*[tiab] or under served area*[tiab] or under served territory*[tiab] or shortage communit*[tiab] or shortage district*[tiab] or shortage state*[tiab] or shortage province*[tiab] or shortage jurisdiction*[tiab] or shortage nation*[tiab] or shortage region*[tiab] or shortage area*[tiab] or shortage territory*[tiab] or lmic[tiab] or lmics[tiab]

NOT

D

Step 7
"case reports"[pt] or "comment"[pt] or "editorial"[pt] or "conference"[pt] or "legal cases"[pt] or "legislation"[pt] or "newspaper article"[pt] or "patient education handout"[pt] or "retracted publication"[pt]

(Step 1 AND (Step 2 OR Step 3 OR Step 4) AND Step 5 AND Step 6) NOT Step 7

STEP 1. STUDY-BY-STUDY REVIEW

A. Characteristics of the intervention:

- Step A1. Ensure that the study provides sufficient basic details to allow the reader to know what the intervention consisted of.
  - If the study does not provide sufficient summary information about the intervention, exclude.
- Step A2. Ensure that the intervention was implemented in a low-income, lower-middle-income or upper-middle-income country, according to World Bank categorizations.
  - If the study is from a high-income country, exclude.
- Step A3. Ensure that the intervention focuses on adolescents aged 10–19. If the intervention includes other age groups, ensure that at least 80% of participants are aged 10–19.
  - (i) If the intervention does not include solely 10–19 year olds, or (ii) if 80% or greater of the intervention population is not 10–19 years of age, exclude.

B. Characteristics of the study:

The basic, suggested steps based on Armstrong et al.[3] are listed below.

- Step B1. Ensure that the study used one of the following designs:
  - Randomized controlled trial
  - Controlled before and after studies (with comparison group)
  - Interrupted time-series (where interruption is intervention)
  - Comparisons with historical controls or national trends
  - Qualitative studies
    - If the study does not use one of these designs, which enable the reader to evaluate the impact of the intervention or make inferences based on statistical tests, exclude.
    - The Armstrong et al. review includes detailed quality assessment criteria in section 4.
- Step B2. Ensure that the study has a minimum sample size of at least 80.
  - If the study has less than 80 subjects and does not match the inclusion criteria, exclude.
- Step B3. Ensure that the study measures the impact of intervention on one or more of the outcomes that relate to the key question(s) (reduction of possibility of marriage before 18 years of age, increase in contraceptive use by adolescents). This was very important, because intermediate outcomes (attitudes, knowledge etc.) or distal outcomes (behaviours etc.) have also been included.
  - If the study measures the impact on an outcome being analysed by another consultant, please inform the secretariat.

[3] Armstrong R, Waters E, Doyle J (editors). Chapter 21: Reviews in health promotion and public health. In Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 (updated 2011)*. The Cochrane Collaboration, 2011 (Available from www.cochrane-handbook.org).

STEP 2. STUDY-BY-STUDY SUMMARY

A. Characteristics of the intervention:

- Step A1. Make note of the following information REGARDING THE INTERVENTION for each study:
  - Location
  - Name of intervention or program
  - Target population (age, sex)
  - Primary intervention objectives
  - Length of intervention
  - Basic description of intervention (3–4 bullet points)

B. Characteristics of the study:

- Step B1. Make note of the following information regarding the evaluation for each study:
  - Study design
  - Sample size
  - Study population (age, sex)
  - Outcomes measured
  - Primary results
  - Factors affecting strength of evidence

STEP 3. GRADING THE QUALITY OF BODY OF EVIDENCE FOR EACH OUTCOME

Please refer in detail to *WHO Handbook for Guideline Development.*[4].

[4] *WHO Handbook for Guideline Development*. Geneva, World Health Organization, 2010. Available from http://www.who.int/hiv/topics/mtct/grc_handbook_mar2010_1.pdf (accessed 3 April 2011).

ADOLESCENT PREGNANCY contributes to maternal, perinatal and infant mortality, and to a vicious cycle of poverty and ill-health. Reducing adolescent pregnancy is vital for achieving the Millennium Development Goals that relate to childhood and maternal mortality, and to the overall goal of poverty reduction. National reproductive health policies of a growing number of countries have identified tackling adolescent pregnancy as a priority. However, the approaches adopted are – in many cases – not as comprehensive as they should be and often not based on sound evidence.

WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries provides a robust evidence base to help develop or reshape national policies and strategies. The guidelines help to ensure that available resources are spent on optimal approaches to prevent early pregnancies among adolescents, and on reducing morbidity and mortality associated with pregnancy and childbirth.

World Health Organization
Department of Maternal, Newborn, Child and Adolescent Health (MCA)
20 Avenue Appia, 1211 Geneva 27, Switzerland
Tel +4122 791 3281
Fax +4122 791 4853
E-mail: mncah@who.int
Web site: http://www.who.int/maternal_child_adolescent/en/

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