World Health Organization
Regional Office for South-East Asia

Preconception care

Regional expert group consultation

6–8 August 2013, New Delhi, India

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Report of a regional expert group consultation

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Acronyms

ANM	Auxilliary Nurse Midwife
AIIMS	All India Institute of Medical Sciences, New Delhi, India
AWW	Anganwadi Worker
CDC	Centers for Disease Control and Prevention, Atlanta, USA
CSR	Corporate Social Responsibility
HPV	human papilloma virus
IPPF	International Planned Parenthood Federation
IVF	In vitro fertilization
MDG	Millennium Development Goals
mHealth	mobile technology for health
MNCH	maternal, newborn and child health
MMR	maternal mortality ratio
MoD	March of Dimes Foundation
NGO	Nongovernmental organization
NTD	neural tube defect
PCHHC	National Initiative on Pre-conception Health and Health Care
PHFI	Public Health Foundation of India
PHM	public health mid-wife
PMNCH	Partnership for Maternal, Newborn and Child Health
PMTCT	prevention of mother-to-child transmission (of HIV)
RMNCAH	reproductive, maternal, newborn, child and adolescent health
RMNCH	reproductive, maternal, neonatal and child health
STI	sexually-transmitted infection
TB	tuberculosis
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USA	United States of America
USAID	United States Agency for International Development
WHO	World Health Organization

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1 Introduction

Sexual and reproductive health is fundamental for individuals, couples and families, as well as for the social and economic development of communities and nations. Everyone has the right to enjoy reproductive health, which is the basis for having healthy children, a healthy reproductive life and happy families. Women living in low- and middle-income countries suffer excessively from unintended pregnancies; maternal death and disability; sexually transmitted infections (STIs), including HIV; gender-based violence; and other problems related to their reproductive system and their partners' sexual behaviour. Young people often face barriers in trying to get the information and care they need, which places adolescent reproductive health as another issue that needs attention. According to the World Health Organization (WHO) publication, "A framework for implementing the reproductive health strategy in the South-East Asia Region" *(1)*, the critical importance of reproductive health to development has been acknowledged at the highest level, with the commitment to achieve universal access to reproductive health by 2015. This is the culmination of more than a decade of advocacy since the consensus and Programme of Action of the International Conference on Population and Development held in Cairo in 1994 *(2)*.

There is widespread agreement that, to reduce maternal and childhood mortality, a continuum of care needs to be provided through pregnancy, childbirth, the postnatal period, infancy and childhood, adolescence and adulthood. An effective continuum of care must address the health needs of the adolescent or woman before, during and after her pregnancy, as well as the care of the newborn and child throughout the life-cycle, wherever care is provided. Based on these agreements, a package of health interventions for family planning, safe abortion care, and maternal, newborn and child health (MNCH) was developed by WHO, with inputs from the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), the World Bank and the Partnership for Maternal, Newborn and Child Health (PMNCH) *(3)*.

However, there has been increasing recognition that a gap exists in this continuum of care. A growing body of evidence is showing that preconception care could reduce this gap in the continnum of care, by increasing the health and well-being of women and couples, and improving the subsequent pregnancy and child-health outcomes. However, until now, preconception care and counselling have largely been provided through two avenues. In high-income countries, couples planning a pregnancy meet with a health-care professional to identify biomedical risks, whereas in low- and middle-income countries, community groups educate women about pregnancy and birth preparedness. Importantly, interventions in both settings have the potential

to improve maternal behaviours, such as by increasing the use of folic acid and safe delivery kits; and to reduce rates of adverse pregnancy outcomes, for example, neonatal mortality.

After the global consensus meeting on preconception care in Geneva in 2012 *(4)*, a regional meeting for the WHO South-East Asia Region was organized in August 2013; this was a logical step in the direction of percolating the global concept of preconception care to the regional level and developing a consensus on positioning preconception care as part of an overall strategy for reproductive, maternal, neonatal, child and adolescent health (RMNCAH). However, the approach in each country of the South-East Asia Region will depend on its sociodemographic and epidemiological situation.

Effective preconception care programmes can only be accomplished by developing a strategy that reflects global, regional, national and local dimensions, including ethical, legal and social issues. Such programmes must be evidence-based, to advocate for resources and assure sustainability, and flexible enough to be adaptable to accommodate local priorities in the countries.

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2 Meeting objectives and participants

Objectives

The main objectives of the regional expert group meeting were to:

- review the evolving global and regional thinking on preconception care;
- present available evidence for interventions in preconception care;
- develop consensus on the need and content of services for preconception care, through "healthy transitions for adolescents" and "pre-pregnancy care"
- identify modalities for delivering the interventions within the existing reproductive, maternal, newborn, child and adolescent health (RMNCAH) and related programmes; and
- outline research priorities in "healthy transitions for adolescents" and "pre-pregnancy care" for the Region.

Meeting participants

The meeting brought together numerous stakeholders: experts from the groups who have led reviews and research on preconception care – The Centers for Disease Control and Prevention (CDC), United States of America (USA), the March of Dimes Foundation (MoD), United Nations agencies (UNICEF and UNFPA, and WHO); programme managers from ministries of health of selected Member States; partners such as the Bill and Melinda Gates Foundation, FHI 360, the International Association of Adolescent Health, the International Paediatric Association, the International Planned Parenthood Federation (IPPF), JHPIEGO, PATH, NGOs, and the United States Agency for International Development (USAID); experts from institutions of excellence, WHO collaborating centres and academic institutes in the Region.

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3 Proceedings

Inaugural session

Dr Vinod K Paul, Head of the Department of Paediatrics, All India Institute of Medical Sciences (AIIMS), New Delhi, India, welcomed the participants on behalf of the organizers. He emphasized the importance of preconception care, especially in countries of the WHO South-East Asia Region, where maternal and child death due to preventable causes still remains high. He also stated that RMNCAH programmes being well-established in the Member States of the Region, this is the best time to initiate preconception care and look beyond the achievement of Millennium Development Goals (MDG). He emphasized that pre-conception care must not be limited to a vertical programme targeted only to those who are planning a pregnancy.

Dr Neena Raina, Regional Adviser, Child and Adolescent Health, WHO Regional Office for South-East Asia, New Delhi, India, welcomed the experts attending the meeting and expressed confidence that the deliberations would achieve the objective of developing a consensus and way forward for preconception care. The aim should be for all women in their reproductive years, and their partners, to receive preconception care at any contact with a health-care provider, regardless of pregnancy status or desire, and to involve communities and policy-makers so that demand for and provision of preconception care is universal. She thanked the Department of Paediatrics, AIIMS for organizing the meeting.

Dr Venkatraman Chandra-Mouli, Scientist, Reproductive Health and Research, WHO headquarters, Geneva, Switzerland, stated that all mothers and children deserve to grow to their full potential, which can be assisted by good programmes. Though pregnancy is a natural process, it is not always risk-free. Even high-income countries like Canada and Denmark realize that there are risk factors to address, for which they have designed specific programmes. He stressed that a strong programme is the key and it should include different country-specific initiatives. He informed participants that the discourse on preconception has expanded since the global consensus meeting in Geneva *(4)*, and is expected to progress further as a result of region-specific meetings like the present one in the South-East Asia Region.

Dr Debashish Dutta, UNICEF East Asia and Pacific Region, Bangkok, Thailand, indicated that preconception care is rather a new concept to deal with well-known problems. Over the the past few years, there has been an increasing recognition that pregnancies are happening during adolescence. Some adolescents have greater access to education and information and a growing ability to make well-informed choices about their lives. On the other

hand, social and economic deprivation for many other adolescents means malnourishment, lack of education, unemployment and inability to develop and live to their full potential. He emphasized the necessity to clearly define preconception care. He further stated that the range of issues covered under preconception care would require strong convergence with other sectors.

Dr Andres de Francisco, Deputy Executive Director, PMNCH, Geneva, Switzerland, welcomed the particpants and stated that the global meeting has set a platform to develop consensus on a package of promotive, preventive and curative health interventions to be delivered in the context of pre-conception care. As a next step, a common understanding has to evolve on mechanisms of delivering the package through existing public health programmes in low- and middle-income countries, to prevent maternal and childhood mortality and morbidity. He further stated that it is important to work further on advocacy at policy level and also to work at regional and country levels.

Dr Coleen A Boyle, Director, National Center on Birth Defects and Developmental Disabilities at Centers for Disease Control and Prevention, Atlanta, USA, stated that the World Health Assembly has identified birth defects as a global problem and that their prevention and control is critical to achievement of MDG 4. She said that CDC shares this priority. The meeting presents an important landmark to prevent and control birth defects and overall positive reproductive health and wellbeing and through the initiative of preconception care in the Member States of the WHO South-East Asia Region. She further stated that most women do not realize that they are pregnant until some weeks have passed, and by the time they do, the fetus has already started developing. She detailed several prevention and control efforts for birth defects, including the necessity for surveillance. She emphasized that surveillance and research have shown the role of folic acid fortification and supplementation in preventing folic acid-preventable neural tube defects (NTDs), and that well-implemented preconception care could be the desired initiative to prevent folic acid-preventable NTDs and other birth defects.

Dr Christopher Howson, Vice President for Global Programmes, March of Dimes Foundation, New York, USA, stated that pre-conception care is the weak link in the continnum of care. Every pregnant women and child who does not survive represents a failure of the health and social system. The goal-based perspective of the MDGs has helped, by placing all countries on one platform with sets of goals and targets. He further stated that it is now required to build further on the existing system and experience to reach out to broader goals.

Dr Arvind Mathur, Medical Officer, Making Pregnancy Safer, WHO Regional Office for South-East Asia, New Delhi, India, introduced participants and reviewed the objectives of the meeting. He stated that the purpose of the meeting was to develop shared understanding of the place of preconception care as part of an overall strategy to prevent maternal and childhood mortality and morbidity, and to develop different approaches to implementation of preconception care in Member States of the South-East Asia Region.

Dr Rajesh Mehta, Medical Officer, Child and Adolescent Health, WHO Regional Office for South-East Asia, New Delhi, India, briefed the particpants about the agenda and process to be followed during the expert group meeting. He welcomed active deliberations by the experts from various constituencies, to evolve the packages for "healthy transitions for adolescents" and "pre-pregnancy care" for improving the health and well being of adolescent boys and girls, women, adults and children.

Preconception care: Global perspective

Chairs: Dr K Srinath Reddy and Dr Andres de Francisco

Preconception care: rationale and definition

Dr Valentina Baltag, WHO Headquarters, Geneva, Switzerland

There is a growing recognition that adolescent pregnancies and poorly spaced pregnancies contribute to maternal, perinatal and infant mortality, and the vicious cycle of ill-health and poverty. The "Global Strategy for Women's and Children's Health," launched by the United Nations Secretary-General in September 2010 *(5)*, stresses the importance of addressing the health and welfare of adolescent girls, especially towards achieving MDG 5 – reduction in maternal mortality.

The WHO Department of Maternal, Child and Adolescent Health (MCA) with its 4S Framework *(6)*, has used two programmatic "entry points" to strengthen the health sector response to adolescent health and development: HIV prevention, care and support; and preventing early pregnancy and related morbidity and mortality.

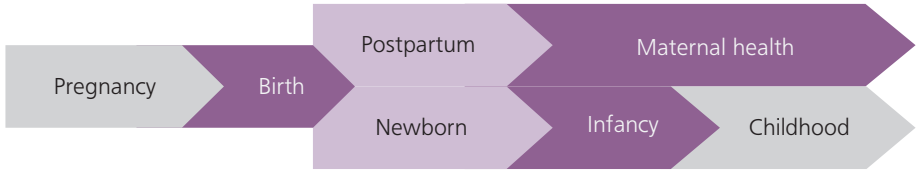
Despite the interventions in place, progress in maternal and child health outcomes over the last 20 years has been slow.

- Globally four out of 10 women report that their pregnancies are unplanned.
- Perinatal deaths are 50% higher among babies born to adolescent mothers.

- Up to 10% of pregnancies among women with untreated gonococcal infections result in perinatal death.
- Women with epilepsy are at increased risk of having babies with congenital anomalies.
- Maternal undernutrition and iron-deficiency anemia account for at least 20% of maternal mortality. In India, about half of girls aged 15–19 years are underweight and anaemic.

It was mentioned that most of the risk factors like tobacco use and substance misuse are initiated in the age group of 11–15 years. The median age for the onset of mental disorders like anxiety and impulse control disorders is also in this age range, and 75% of mental disorders are already present before 24 years of age. The ongoing interventions in most countries of the South-East Asia Region are made available during pregnancy, childbirth, postnatal period (for newborns and mother) and during infancy and child health across the life-course continuum as shown in Figure 1.

Figure 1: Life-course continuum: Priority interventions for mothers, newborns and children



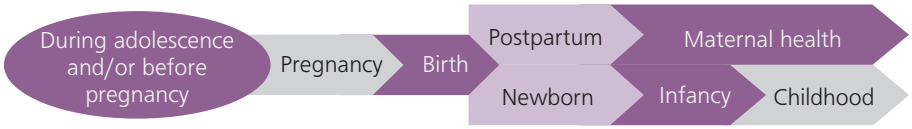
The adverse effects of childbearing in adolescents (especially with risk factors) also extend to the health of their infants. Perinatal deaths are found to be 50% higher among babies born to mothers under 20 years of age than among those born to mothers aged 20–29 years. Babies of adolescent mothers are also more likely to be of low birth weight, with the risk of associated long-term effects. The current scenario of adolescent health and current interventions for this group provides a growing body of evidence recommending preconception care to maximize the gains in maternal and child health in these settings.

Preconception care was defined as the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs. Preconception care provides a full range of effective interventions, focused primarily on the health of women of reproductive age, and their partners, prior to or between pregnancies, that promote the opportunity

for safe motherhood and the birth of a healthy infant with the expectation of healthy longevity.

Preconception care brings attention to the missing component in the existing health system for addressing the needs of adolescents, young women and their partners before pregnancy is planned or occurs (see Figure 2). Thus, it offers a process of delivering direct or indirect health-care interventions with the potential to identify and modify the biomedical, behavioural and social risk factors that determine reproductive health outcomes. It aims at improving the overall health status of adolescents, women and children, as well as ensuring healthy adulthood by targeting risk behaviours for noncommunicable diseases.

Figure 2. Pre-conception care completes the coverage across the life course



Overall, preconception care has a positive impact on a range of outcomes, including:

- reduction in mortality and improvement in health outcomes for the mother, offering long-term benefits for the woman;
- improved health outcome for the neonate/child, which will lead to health benefits in later life as an adolescent and adult;
- reduction in the incidence of too-early and too-frequent pregnancies and abortions; and
- improvement in the nutritional status of mothers and women.

Additional benefits

In addition, the following benefits are also expected:

- social and economic benefits for families and communities;
- participation by men in women's health and improvement in their own health, irrespective of immediate plans to become parent(s); and
- controlling exposure to environmental risk factors in early life and their long-term effect (for example, eliminating smoking before or during pregnancy could avoid 5–7% of preterm-related deaths and 23–24% of cases of sudden infant death syndrome).

Participants were informed that WHO headquarters would support regions and countries in implementing step-by-step processes to improve the availability of and access to preconception care, in order to:

- create regional/national platforms and partnerships to advance preconception care;
- expose professionals in individual countries to international experience, research, evidence and good practices;
- provide a methodology to analyse and understand the strengths and weaknesses of the preconception care system and opportunities for improvement;
- explore various delivery strategies for preconception care and their comparative advantages in terms of coverage, feasibility, acceptability and cost;
- adapt the package of preconception care interventions to regional and country priorities and health-systems contexts;
- explore and document innovative ways to deliver preconception care outside the traditional maternal and child health programmes, while recognizing the importance of integrated delivery mechanisms;
- develop a roadmap to make changes over time; and
- monitor, evaluate and document progress.

It was also mentioned that the WHO Regional Office for South-East Asia is the first region to conduct a consultative meeting on preconception care as per the plan made at the global meeting in Geneva in 2012 *(4)*.

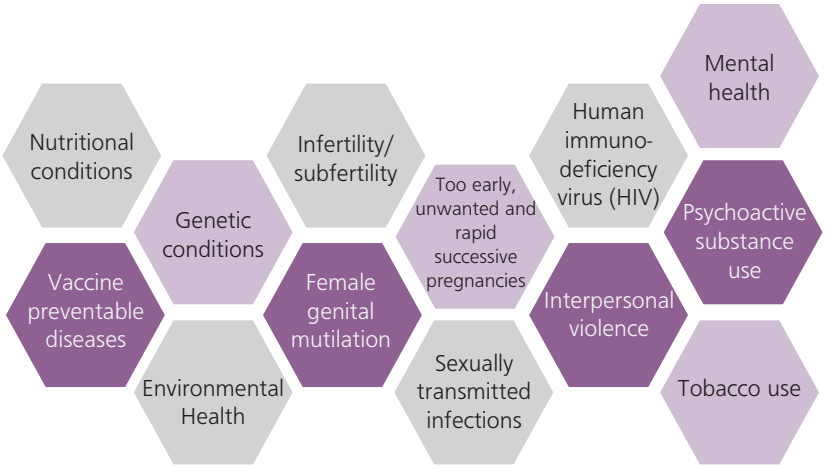
Evidence for preconception care

Dr Venkatraman Chandra-Mouli and Dr Charlotte Christiansen, WHO Headquarters, Geneva, Switzerland

Participants were informed that exhaustive reviews of the evidence of preconception care interventions in contributing to a range of health and development outcomes have been carried out by CDC, USA; Erasmus University, the Netherlands; Aga Khan University, Pakistan; and the Health Council of the Netherlands.

Information drawn from these reviews has been supplemented with up-to-date WHO technical guidelines and discussion with relevant WHO departments. In the global meeting held in WHO in 2012 *(4)*, there were extensive deliberations on an array of issues that directly or indirectly affect maternal and child health.

Figure 3: Major risk factors affecting maternal and child health outcomes



The WHO global meeting also provided perspectives on alternative definitions of pre-conception care and discussed sensitive issues, possible target groups, delivery mechanisms and any region-specific considerations. The deliberations covered the rationale and evidence for the selected health issues, the possible interventions, and their delivery mechanisms at the global level.

The process followed in the global meeting was explained by citing the example of the nutrition issues that focus on the three areas described in Table 1.

There is a growing experience in implementing preconception care initiatives in both middle- and high-income countries. Countries with particular experience are Italy, the Netherlands, the Philippines, Sri Lanka and USA. However, the evidence on how to deliver preconception care has been weak.

Table 1: Nutrition issues for preconception care

Health problems/problem behaviours/risk factors that could be addressed through promotional, preventive and curative health interventions in pre-pregnancy/inter-pregnancy	Evidence-based preventive and curative health interventions that could be delivered in pre-pregnancy/inter-pregnancy	Existing delivery mechanisms that could be used to deliver interventions at scale in low- and middle-income countries
Consequences of folic acid deficiency	Iron and folic acid supplementation	Food fortification (e.g. promotion of national policies, use of in-home micronutrient powders containing folic acid); folic acid supplementation (higher dose for women with previously affected pregnancies); public-awareness campaigns (with physicians recommending use); primary care
Consequences of anaemia and iron deficiency	Iron and folic acid supplementations; screening for anaemia	Food fortification (e.g. promotion of national policies, use of in-home micronutrient powders containing iron); primary care
Underweight	Micronutrient education (counselling about risks to own health and future pregnancies); nutritional monitoring; provision of energy- and nutrient-dense supplementary foods; interventions to improve food security	Community-based education; primary care; community-based food supplementation; dietary diversity programmes

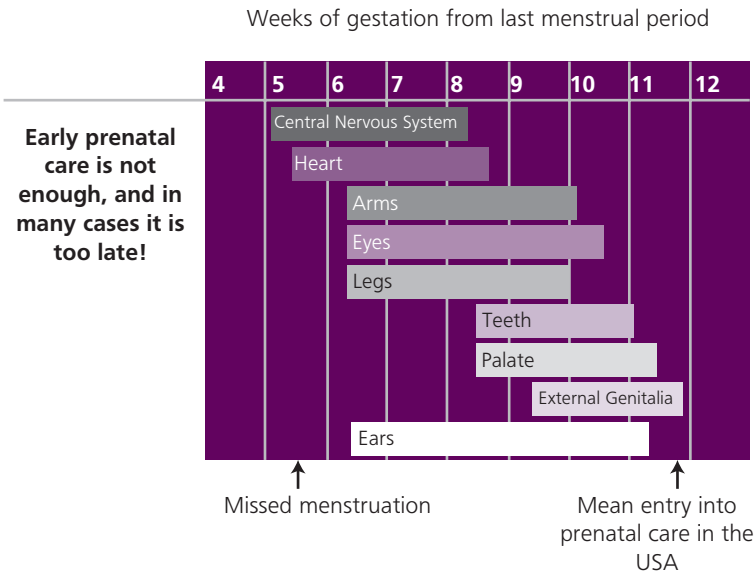
Preconception care: experience from developed countries

Dr Coleen A. Boyle, Centers for Disaease Control and Prevention, Atlanta, USA

The importance of pre-conception care; evidence-based interventions; the National Initiative on Preconception Health and Health Care (PCHHC) in the USA; CDC's role in advancing and supporting the PCHHC programme and activities in the USA; partnerships/collaborations; and monitoring and evaluation were highlighted.

For many women, "early prenatal care is too late". By the time a pregnant woman makes it to her first early prenatal visit, most fetal organs have already been formed, and many interventions to prevent birth defects and other adverse maternal and infant outcomes may be too late to have any desired effect (see Figure 4).

Figure 4. Critical periods of development



An issue of CDC's "Morbidity and Mortality Weekly Report" in 2006 (7) presents 10 recommendations for implementation of preconception care; these cover: individual responsibility across the lifespan; consumer awareness; preventive visits; interventions for identified risks; interconception care; pre-pregnancy check-ups; health coverage for low-income women; public health programmes and strategies; research; and monitoring.

The presenter further shared evidence, reviews and 14 recommendations for preconception care in clinical settings, published in the "American Journal of Obstretrics and Gynecology 2008" (8). The systematic review of the evidence to support the implementation of preconception care in clinical settings was conducted by more than 60 experts in maternal and child health. She also briefed the participants on PCHHC, which was first established as a public–private partnership to promote the goals and recommendations of the "Mortality and Morbidity Weekly Report" published in 2006. CDC developed five workgroups,

namely consumer, clinical, public health, policy and finance, surveillance, and research, with ongoing activities including development of:

- an evidence-based clinical toolkit for preconception care;
- a national social marketing campaign;
- a resource centre for preconception information;
- materials to describe coverage available to women under health reform; and
- metrics/benchmarks for use in monitoring and tracking the initiative's activities.

In 2013, CDC released an action plan after this initiative, to describe a two-year plan of activities to promote PCHHC in the USA. The evaluation of the plan is under way and will use specific measures developed by CDC and each workgroup. CDC's current programmes and activities that support and advance preconception care are aimed at:

- **increasing awareness of preconception care**: CDC launched a campaign on 14 February 2013 "Show Your Love", to improve the health of women and babies by promoting preconception health and health care. This campaign was developed by the PCHHC Consumer Workgroup and CDC, to increase the number of women who plan their pregnancies and engage in healthy behaviours before becoming pregnant, and to encourage the choice of healthy behaviours for those women who do not want to start a family in the near future or at all;
- **identifying and reducing risks for adverse pregnancy outcomes**: CDC has initiated research to learn the causes of and risk factors for birth defects and developmental disabilities, using large epidemiological studies and modelling the potential public health impact of maternal conditions and exposures, with the help of the Center for Birth Defect Research and Prevention. CDC's efforts to prioritize known risk factors by reviewing the evidence and conditions that are modifiable during the preconception period, in order to avoid adverse pregnancy outcomes were also mentioned. The priorities are based on:
  - the severity of outcome and health-care burden to the individual, the family, and society;
  - the attributable risk;
  - the prevalence of individual risk factors;
  - the preventable fraction of outcome, based on intervention to change the risk factor;

- the amount of time it takes to change risk by changing the risk factor; and
- the availability of interventions to address the risk factor;

- **improving the quality of preconception care and reducing disparities in access**: as medication use during pregnancy is fairly common, CDC has developed an initiative "Treating for Two", with its partners, which is a kit for safer medication use during pregnancy to improve the quality of data on medication use, translate this information into safe and effective health care for pregnant women, and make it easily accessible to health-care providers.

The priority risk factors/maternal conditions are recommended for screening in the USA based on the strongest supporting evidence were highlighted. These include: weight status, tobacco use, alcohol use, diabetes mellitus, folic acid supplementation, and use of prescription medications. It was emphasized that the priorities may vary in different countries, depending on local epidemiology.

Regarding the challenges of preconception care in the USA, approximately 50% of pregnancies are unplanned and education on preconception care among providers and consumers is inadequate. There is a misperception that healthy behaviour is relevant only after conception, and preconception care is still not considered as a part of overall health promotion or an integral part of any health encounter. Furthermore, discussion on male inclusion in preconception care still needs to take place. There are very few proven delivery models/ programmes for preconception care and the US health system still lacks clinical tools on preconception care.

To address these issues, CDC has partnered with the US Office of the Assistant Secretary of Health, to further reduce teenage pregnancy and address social disparities in teenage pregnancy and birth rates. CDC works with state and local public health agencies, to monitor preconception health and health care in the USA.

The programme goals in targeted communities are to:

- reduce the rates of pregnancies and births among youth;
- increase youth access to evidence-based prevention programmes;
- increase linkages between teenage pregnancy-prevention programmes and community-based clinical services; and
- educate stakeholders about relevant evidence-based strategies to reduce teenage pregnancy, and provide data on needs and resources.

Finally, a few programmes and their components were listed:

- *Healthy Start Interconception Care Learning Community:* the components include family planning, healthy weight, interconception screening, maternal depression, primary care linkages;
- *Collaborative Improvement and Innovation Network (COIN)*: this network considers public-private partnership to reduce infant mortality and improve birth outcomes;
- *Secretary's Advisory Committee on Infant Mortality (SACIM):* this committee considers public-private partnership to advise the Secretary on the Department of Health and Human Services' programmes that are directed at reducing infant mortality and improving the health status of pregnant women and infants.

She informed participants that states in the USA have identified 45 specific indicators in 11 domains as core state indicators and CDC supports data systems that can be used for monitoring, such as the Pregnancy Risk Assessment Monitoring System (PRAMS).

Preconception care: experience from developing countries

Dr Christopher Howson, March of Dimes Foundation, New York, USA

Though there has been growing global interest in preconception care in the past three years, the interventions are being conducted only in middle- and high-income countries with preconception care components. However, most of the interventions are not methodologically robust and lack quality or convincing outcome data, with the notable exception of folic acid fortification/ supplementation. In low-income countries, there is no preconception care component in existing programmes. Preconception care has not been widely implemented because its aims and objectives are not widely understood and accepted. The potential benefit of preconception care thus remains largely unrealized. It needs collaborative, multi-country studies, systematic reviews, and economic data on benefits and the impact of preconception care.

The lack of interest among policy-makers may partly be due to:

- too much focus on MDGs and saving lives; there is no mention of preconception care as a component to adress maternal and child health;
- the time lag between the delivery of preconception care interventions and the visible positive outcome is quite long, and there is difficulty in assessing the success of interventions; and
- the paucity of data on the effectiveness and economic value of preconception care interventions.

It was informed that the situation is now changing, owing to the availability of systematic reviews, and the global consensus on preconception care in the report from the WHO meeting *(4)*. The global action report "Born too soon" *(9)* (see Box 1) emphasizes priority interventions and packages before pregnancy to reduce rates of preterm birth. The report identifies the following activities for implementation of preconception care.

- Professional education/capacity-building of health functionaries should be undertaken.
- Consumer education and public awareness, must begin during adolescence to truly improve the health of women and neonates in schools, workplaces and health clinics.
- Other innovative, culturally relevant approaches like media campaigns, social media and mobile technology for health (mHealth) could also be utilized to increase the outreach.
- Health systems must be strengthened to make high-quality preconception health-care services accessible and affordable for all;
- A broad variety of partners, including men, health-care providers, youth leaders and community volunteers, and delivery sites such as schools, primary health-care facilities and community centres should be involved.

Box 1. "Born too soon": priority interventions and packages before pregnancy to reduce rates of preterm birth

Preconception care services for the prevention of preterm birth for all women

- preventing pregnancy in adolescence;
- preventing unintended pregnancies and promote birth spacing and planned pregnancies;
- optimizing pre-pregnancy weight;
- promoting healthy nutrition, including supplementation/fortification of essential foods with micronutrients; and
- promoting vaccination of children and adolescents (e.g. rubella, human papilloma virus [HPV]).

Preconception care services for women with special risk factors that increase the risk for preterm birth:

- screening for, diagnosing and managing mental health disorders and preventing intimate partner violence;
- preventing and treating STIs, including HIV/AIDS; and
- screening for, diagnosing and managing chronic diseases, including diabetes and hypertension.

Regional networks (like the Regional Network on Newborn Health supported by the WHO Regional Office for South-East Asia) could help create, implement and evaluate healthy transitions for adolescents, pre-pregnancy care, and health education programmes for girls, and young women, boys and young men, in ways that are collaborative, complementary, methodologically rigorous and accountable.

A school-based model and mHealth were highlighted as two approaches to deliver healthy transitions for adolescents/preconception care for education of girls and young women. The school-based intervention has a limitation that it cannot reach out to the girls who are not enrolled in schools, which is common in several low-income countries. Other limitations include a lack of human resources, a relatively high cost for travel and training, and interruptions in class schedules. In addition, it is noted that contact with students is limited (1–2 sessions a year) and there is also limited opportunity for continuous longer-term engagement. The question and answer sessions with students in schools are usually brief and dominated by the most vocal participants.

mHealth interventions can overcome some of the above-mentioned limitations. It is estimated that globally there are 6 billion cell phone subscribers – which means about 86% of the world's population has direct access to mobile phones, and mobile technology for health (mHealth) can reach millions of people at low cost, using basic phones; it can also break down the vertical nature of health programmes, by covering clients of all age groups (e.g. adolescents, preconception, maternal health service clients) and several interventions concurrently (e.g. smoking, HIV, contraception).

Some other benefits of mHealth, include the following.

- It is able to reach boys and young men as easily as girls and young women.
- It encourages and enables the growth of peer networks.
- It encourages involvement of local health professionals, nongovernmental organizations (NGOs) and universities, to promote local ownership of the programme.
- It reassures ministries of health to support scale-up.
- It makes the programme content and design available for download, adaptation and application in other countries.

The mHealth programme in Lebanon for the age group of 18–25 years, aims to evaluate the impact of a mobile-technology-based preconception health education programme to improve the health knowledge and behaviour of

young women. The study is partnered with the American University of Beirut, Lebanese ministries of education and health, and Text to Change (Uganda). The intervention will use text messages containing evidence-based preconception education, using a two-way web-based platform. Phase 1 will compare the effectiveness of an mHealth preconception education programme with a classroom-based approach and will be evaluated by pre–post knowledge, behaviour surveys and focus group discussions.

Phase 2 will then offer mHealth preconception education to all students on the two campuses included in phase 1. The content and methods developed will serve as a model for replication in other countries of the Region.

It was also suggested that March of Dimes Foundation, the WHO Regional Office for South-East Asia and other partners can take the following steps together in a preconception care initiative:

- agree to provide health education to girls and young women (and boys and young men) in targeted measurable ways;
- partner in refining a needs assessment tool;
- incorporate novel methods for reaching and engaging target populations;
- incorporate economic analyses;
- partner with civil society, academic institutions, media and government in supporting this effort;
- publish findings on an ongoing basis in peer-reviewed literature.

Preconception care: Regional perspective

Chairs: Dr Vinod Paul and Dr Coleen Boyle

"Healthy transitions for adolescents" package: rationale and objectives for preconception care for young people aged 10–19 years

Dr Neena Raina, WHO Regional Office for South-East Asia, New Delhi, India

A situation analysis of adolescents in the WHO South-East Asia Region was presented. The presenter stated that adolescence is the period of transition from childhood to adulthood, during which young people go through many physical, intellectual and social changes. It is a period of capacity development and one of increased vulnerability and risk, especially for girls. Many of the problems adolescents experience are related to their relative lack of power.

The main health issues affecting adolescents include sexual and reproductive health; nutritional problems; substance use, including tobacco and alcohol; injuries; accidents and violence; mental health problems; and acute and chronic diseases (e.g. asthma, diabetes, tuberculosis). Adolescent pregnancy is likely to have higher chances of complications, high maternal mortality and morbidity, and high neonatal and infant mortality as compared to pregnancy in older women. Contraceptive use among married adolescent women (15–19 years) ranges from 5.8% to 75%, being high in Sri Lanka and Thailand and low in India, Nepal and Timor-Leste for both 15–19-year-old and 20–24-year-old women. Unmet needs for family planning, especially for spacing, are high among adolescents. Selected studies from India, Nepal and Thailand reveal that a large percentage of young women go in for abortion, which is often carried out in unsafe conditions. More than 1.6 million young people in the Region are living with HIV/AIDS, and there is an increasing prevalence of HIV among injecting drug users and sex workers in countries like India, Indonesia, Myanmar, Nepal and Thailand. STIs are also increasing among young people.

Health, education, media and other sectors were identified as the major stakeholders to contribute to adolescent health and development. The health sector is mainly responsible for the provision of health and counselling services. In contrast, the education sector should be responsible for building life skills, and the media should contribute to acquisition of appropriate knowledge. The responsibility of providing a safe and supportive environment is shared by families, schools and society at large.

The WHO 4S Framework for adolescent health *(6)*, comprises:

- **s**trategic information, which requires improvement of the collection, analysis, interpretation and dissemination of the data required for advocacy, policies and programmes;
- **s**upportive evidence-informed policies, which requires synthesis, dissemination and contribution to the evidence base for policies (and programmes) that have an impact the health and development of adolescents;
- **s**ervices for adolescents, which comprises increasing young people's access to, and use of, appropriate health services and commodities that respond to a number of priority health conditions; and
- **s**trengthening collaboration with other sectors, i.e. mobilizing and supporting other sectors to maximize their contributions to adolescent health delivery – both what they can do to strengthen the health sector response and what the health sector can do to support their actions.

It was highlighted that WHO provides assistance to countries to make progress in all four of these strategic areas and there are still several challenges. Inadequate information on adolescents prevents their identification as a priority group within public health programmes. There is a lack of convergence within the ministries of health, low resource allocation, limited capacities at country level, hindrances in scaling up, and lack of mechanisms for collaboration with other sectors. However, there are numerous opportunities as well. Specific interventions that are effective and can be delivered to adolescents are already recognized, and will require a multisectoral approach (see Box 2).

Box 2. Adolescent health interventions and delivery mechanisms

Evidence-based preventive and curative health interventions for adolescents:

- provision of age-appropriate sexual health education
- promotion of safer sex
- provision of HIV counselling and testing
- provision of treatment for HIV, if needed
- enrolment of adolescents and women for antenatal care and prevention of mother-to-child transmission (PMTCT) of HIV
- provision of contraceptive services, including condoms
- provision of iron and folic acid
- immunization
- prevention of substance use

Existing delivery mechanisms that could be used to deliver interventions at scale:

- school health programmes
- nutrition programmes
- youth programmes
- adolescent-friendly health service
- HIV testing and counselling
- HIV clinics
- PMTCT programmes
- noncommunicable disease service
- mental health service

Concern was expressed that when health information and services of good quality are not made available and accessible to adolescents, it results in countless missed opportunities for the prevention of health problems and the early detection and effective treatment of health problems. It was emphasized that adolescent girls should be the focus for prevention of birth defects. Some modifiable risk factors like nutrition pattern, insufficient folic acid/vitamins, smoking, alcohol use/abuse, use of illicit drugs, obesity, diabetes, infectious diseases, selected medications, working activity, psychosocial stressors and environment can increase the risk of several congenital conditions, which requires linking of neonatal health to prevention of birth defects. The first step in this direction will be screening the mother for risk factors and addressing these by giving protection (folic acid, vitamin B_{12}, rubella seronegativity), early detection and appropriate management of chronic conditions (diabetes, hypothyroidism, obesity etc.), and avoiding teratogens (alcohol use, medication use, smoking).

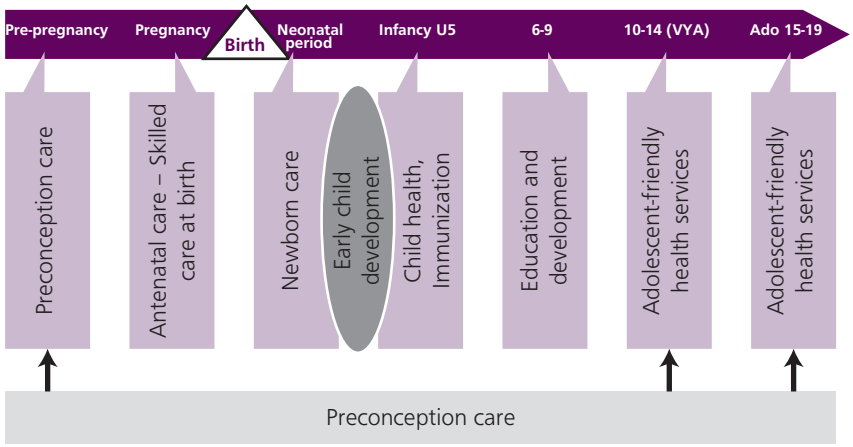
Participants were also briefed on progress made by the Regional Office for South-East Asia in the area of prevention of birth defects. The initiative began with an expert group meeting on prevention of birth defects in November 2011, followed by a regional programme managers' meeting on birth defects March 2012, followed by a series of dissemination meetings, namely a birth defects surveillance meeting in April 2012, a regional situation analysis on birth defects, a regional strategy for prevention of birth defects, a regional network meeting on strengthening neonatal health and birth defects in April 2013, and the most recent regional workshop on birth defect surveillance, 15–18 July 2013.

Strengthening of preconception care in the RMNCAH continuum (see Figure 5), would lead to better maternal and child health outcomes. A good preconception care programme can detect pregnancy-related risk factors (birth defects) at an early stage, which can be treated with effective medications or behaviour change. There are currently crucial gaps in the continnum of care in health programmes where the critical age group (5–14 years) does not come under child health, maternal health or adolescent health programmes. Also, women before and between pregnancies do not benefit from the ongoing maternal and child health programme.

In the health and development continnum, addition of pre-conception care and healthy transtions would ensure health throughout the life-course from adolescence to adulthood (prevention of noncommunicable disease; reduction

in problems related to tobacco use and harmful use of alcohol, and their cost; STI/HIV prevention), in addition to overall positive reproductive health outcomes (reduction in the prevalence of prematurity, low birth weight, birth defects and reduction in maternal, fetal, neonatal and child mortality).

Figure 5.: Continuum of care – life-course



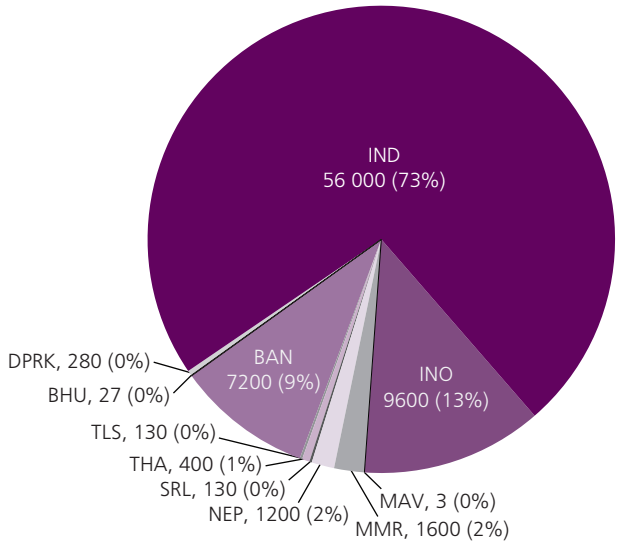
Preconception care in the WHO South-East Asia Region: pre- and inter-pregnancy care

Dr Arvind Mathur, WHO Regional Office for South-East Asia, New Delhi, India

Worldwide, the maternal mortality ratio (MMR) declined from 400 per 100 000 births in 1990 to 260 per 100 000 births in 2008, a 34% decline over this period, with an annual change of 2–3%. This decline reflects a decrease in maternal deaths from 546 000 in 1990 to 348 000 in 2008. Across all WHO regions, MMR has declined since 1990, but by less than the 75% reduction called for by MDG 5. The greatest decline in MMR of 59% occurred in the WHO South-East Asia and African regions. In the WHO African Region, it declined from 850 per 100 000 births in 1990 to 620 per 100 000 births in 2008, a 27% decline in MMR with an annual change of 1.7%.

See Figure 6 for the country-wise maternal mortality rates in countries of the South-East Asia Region.

Figure 6: Maternal mortality in countries of the WHO South-East Asia Region *(10)* (Annual number of maternal deaths and proportion of the deaths in the Region-2010)

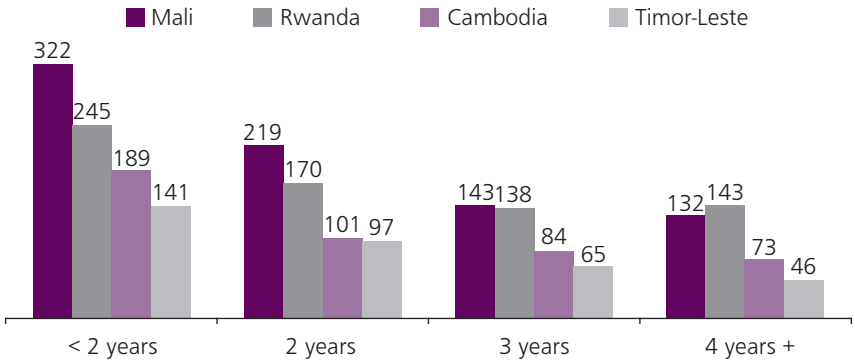


BAN: Bangladesh; BHU: Bhutan; DPRK: Democratic People's Republic of Korea; IND: India; INO: Indonesia; MAV: Maldives; MMR: Myanmar; NEP: Nepal; SRL: Sri Lanka; TLS: Timor-Leste; THA: Thailand.

It was further stated that reducing unwanted pregnancies leads to reduction in overall births, including those among adolescent women, and therefore, this reduces maternal deaths and unsafe abortions. The impact of birth spacing on maternal health is also important. Women with short inter-pregnancy intervals have a significantly higher risk of pre-eclampsia, high blood pressure and premature rupture of membranes; also, a preceding inter-pregnancy interval of less than six months' duration is associated with a somewhat elevated risk of maternal mortality compared to intervals of 27–50 months; this can be seen in Figure 7, which shows that the mortality rate for children aged under five years is higher for birth intervals of less than two years.

In relation to recommendations for birth spacing, it was stated that after a live birth, the recommended interval before attempting the next pregnancy is at least 24 months, in order to reduce the risk of adverse maternal, perinatal and infant outcomes, whereas for spacing after a miscarriage or induced abortion, the recommended minimum interval to the next pregnancy is at least six months, in order to reduce the risks of adverse maternal and perinatal outcomes. It is also recommended that adolescents use an effective family planning method of their choice continuously until they are 18 years old, before trying to become pregnant.

Figure 7: Mortality rates for children aged under five years, for different birth intervals



It was mentioned that the effect of longer birth intervals is to reduce the risk of child death, fetal death, fetuses that are small for gestational age, low birth weight and preterm birth and subsequent stunting and underweight in childhood. Not only does appropriate birth spacing affect the child's health positively, but it also affects the mother's health by lowering the risks of maternal death, puerperal endometritis, premature rupture of membranes, third-trimester bleeding and anaemia (which is prevalent in almost 48% of pregnant women and 36% of non-pregnant women in countries of the WHO South-East Asia Region). He further stated that it is very important to train both health providers and the community regarding preconception care, as in most countries the first antenatal check-up happens in the third month of pregnancy, by which time the neural tube has already closed (by day 28 of gestation) – before many women realize they are pregnant.

Preconception counselling for all women of reproductive age can improve the chances of a successful pregnancy, especially counselling on how:

- folate intake and folic acid supplementation reduce NTDs (neural tube defects)
- alcohol ingestion during pregnancy can cause fetal alcohol syndrome;
- exposure to environmental contaminants affects reproductive health.

The term "preconception" suggests that it mainly concerns women. Its benefits and target groups need to be clearly defined, as it is very important that policy-makers understand the term in the right context. Although different periodic surveys have been undertaken for planning and monitoring of the

national reproductive, maternal, neonatal and child health (RMNCH) programmes in different countries of the South-East Asia Region, the information gaps continue within these surveys. These include lack of age- and sex-disaggregated data; non-inclusion of unmarried men and women in samples at national, state and district levels; lack of data on 10–14 year olds and on special groups of adolescents and youth; and no information on miscarriages or still births. In India, there is a very high burden of low-birth-weight babies, owing to maternal undernutrition, early marriage and lack of child spacing. He also emphasized the importance of partnerships with the community to ensure good utilization of services.

Preconception care interventions: existing situations in countries of the WHO South-East Asia Region

Dr Sanjay Chauhan, National Institute of Research in Reproductive Health, Indian Council of Medical Research, Mumbai, India

It was stated that many of the pre-conception care interventions are currently available to adolescents and women, as well as to couples. However, they are not systematically delivered as a defined service package for preconception care in the WHO South-East Asia Region. The highlights of the existing interventions were described as below.

Family planning programmes

All the countries of the South-East Asia Region are implementing family planning programmes. However, each country shows variation in the methods that are available and accepted in its programmes. In most countries of the Region, family planning programmes cover both married couples and adolescents, except in Bangladesh and Maldives, where access to reproductive health services, including contraceptives for unmarried adolescent youth, is not promoted.

The participants were informed that abortion is legal in all countries of the Region, though each of these countries allows abortion on different grounds. Some countries allow abortion in cases of rape, incest or fetal impairment or on other grounds. Some restrict abortion by requiring parental or spousal authorization. Countries that allow abortion on socioeconomic grounds, or without restriction as to reason, have gestational age limits (generally the first trimester); abortions may be permissible after the specified gestational age, but only on prescribed grounds.

Infertility/subfertility

It was stated that there is a significant burden of infertility in the South-East Asia Region, although the data on primary and secondary infertility are not available for all countries of the Region. Currently, no country has a programme/ interventions for the management and prevention of infertility. Almost all components of prevention treatment come under the private sector. Major emphasis is given to assisted reproduction methods such as in vitro fertilization (IVF) and the prevention of infertility is next to non-existent in all the health programmes of countries of the Region.

Work in the area of infertility has been initiated by the WHO Regional Office for South-East Asia, with four WHO collaborating centres in India, where research has been conducted to assess the capacity of the public health system. Following this, guidelines have been developed on prevention and management of infertility, focusing on the level of primary health care.

Immunization

As per the WHO Regional Office for South-East Asia initiative to intensify immunization efforts *(11)*, pentavalent vaccine (DTP [diphtheria, tetanus, pertussis] + hepatitis +Hib [*Haemophilus influenzae type B*]) has been introduced in Bangladesh, Bhutan, Nepal, Sri Lanka and in eight states in India in the last two years. The vaccines relevant for pre-conception programmes include the following.

- Rubella vaccination has been introduced in Bangladesh, Bhutan, India (some states), Maldives, Nepal, Sri Lanka and Thailand in their national Expanded Programme on Immunization (EPI).
- HPV vaccination is included in two countries, namely Bhutan and Nepal. In Bhutan, it is included in the national immunization programme. In Nepal, an HPV vaccination programme is implemented by the Australian Cervical Cancer Foundation with support from government and nongovernment organizations, though at present it is not part of the national immunization programme. Other countries of the Region have not included HPV as part of their immunization programme, owing to the high cost of the vaccination. However, pilot studies to include HPV vaccine are ongoing in these countries.

Nutrition

Most countries of the South-East Asia Region have functional large-scale nutrition programmes that focus on maternal and child undernutrition.

- Iron and folic acid supplementation is available in all countries except the Democratic People's Republic of Korea. A weekly iron/folic acid supplementation with deworming has been initiated for adolescents aged 10–19 years in India.
- Nutrition education and counselling for under- and overnutrition is part of programmes in all countries.

Maternal health

Almost all the countries of the Region are implementing the standard components in their maternal and child health programme: antenatal care that includes screening for anaemia and STI/HIV; PMTCT; skilled care at birth; and postpartum care. The scale of implementation of these interventions varies among and within countries.

Genetic services

Genetic services and counselling are available in many institutions in major cities in most countries of the Region. Screening for genetic conditions is available in selected institutions in some cities of the countries. Pre-marital and pre-conception counselling is offered in a limited manner.

HIV/reproductive tract infection/sexually transmitted infection

All countries except Timor-Leste have a programme on HIV/reproductive tract infection (RTI)/STI, where the initiative is limited to awareness generation because of the low prevalence. Screening and management could be offered in the pre-pregnancy period.

Noncommunicable disease

All countries except the Democratic People's Republic of Korea and Timor-Leste have initiated national programmes for prevention and management of noncommunicable diseases. Prevention programmes could be effectively offered during adolescence, by promoting health behaviours and lifestyles through a preconception care package.

Mental health

India, Maldives and Nepal have national mental health programmes. Bhutan, Indonesia and Thailand have community-based mental health programmes. Bangladesh, Sri Lanka and Timor-Leste each have a mental health policy and strategy. Mental health promotion could be an essential element in

preconception care packages that could be delivered in an age-appropriate manner to adolescents and women.

Tobacco control

The tobacco burden in the South-East Asia Region is one of the highest among WHO regions. The widespread use of many forms of tobacco, including smokeless tobacco, complicates efforts to implement effective tobacco-control initiatives. Nevertheless each country in the Region has taken important steps to combat the tobacco epidemic. Ten out of 11 countries of the Region have ratified the *WHO Framework Convention on Tobacco Control*. Although Indonesia is not yet a party to the Convention, it has recently undertaken initiatives at the subnational level. Services for prevention of tobacco use should be offered to adolescents before they initiate tobacco use. Cessation programmes are essential for the periconceptional period and pregnancy.

Alcohol and drug abuse

Many countries in the Region have legislation against the use of alcohol among young people and against illegal drugs. Prevention and management programmes for alcohol and substance use could be started during adolescence before their initiation, and screening and management is essential before conception.

Although RMNCAH programmes in countries of the Region are addressing several components of preconception care, it is observed that ongoing programmes are vertical in nature, with focus on antenatal care, safe delivery and postnatal care. Nevertheless, the existing public health programmes do offer opportunities to build / strengthen delivery of interventions as pre-conception care package, several of which could be made available right from adolescent age.

Adolescent health programmes in the WHO South-East Asia Region: broadening the service package towards "healthy transitions for adolescents"

Dr Rajesh Mehta, WHO Regional Office for South-East Asia, New Delhi, India

The regional situation of adolescent health and progress of adolescent health programmes in countries of the Region was discussed. The regional strategy for adolescent health was released in 2011. Member countries have designated national programme managers and allocated budgets, and developed national strategies for adoelscent health. The WHO training package has been adapted by countries for training health-care providers for delivery of adolescent-friendly health services.

The scale of implementation of adolescent-friendly health services is variable in the Region (see Table 3), as reported by Member States.

Table 3: The scale of implementation of adolescent-friendly health services

Country	Geographic coverage of implementation of adolescent-friendly health services	Number of public health services implementing adolescent-friendly health services	Outreach services through public health system	Other sites for adolescent-friendly health services
Bangladesh	40/60 districts	100%	No	NGO
India	All 35 states	No data	Yes	NGO and private clinics
Indonesia	196/477 districts	25%	No	NGO
Maldives	2/20 atolls	2 hospitals	No	Youth health café NGO
Myanmar	18/75 townships	100%	No	National organization
Nepal	10/75 districts	20%	No	National organization
Sri Lanka	2008	No data	Yes	NGO
Timor-Leste	2010	Data not available	No	Marie Stopes Clinic (Dili)

NGO: nongovernmental organization.

The current service package in most Member States comprises antenatal care, childbirth care, abortion services, HIV counselling and testing, STI treatment, PMTCT, contraceptive services (where legal), emergency contraception, control of anaemia, and counselling for psychosocial issues. There have been increasing examples of collaboration between health and other sectors.

It was stated that adolescent programmes in countries of the Region focus on sexual and reproductive health, including prevention of too early pregnancy and contraception. They offer an opportunity to add other components of preconception care under the "healthy transitions for adolescents" package (see Figure 8), to address nutrition, substance use, tobacco and alcohol use, injury and violence, vaccine-preventable diseases, genetic conditions, mental health, physical activities, and noncommunicable diseases, to promote overall health among adolescents.

Figure 8: "Healthy transitions for adolescents"

"Healthy transitions for adolescents"
Ensuring health across life-course

- Healthy adolescence
- Healthy adulthood
  - Noncommunicable diseases prevention
  - Reduction in problems related to tobacco use and harmful use of alcohol
  - STIs and HIV prevention
- Healthy reproductive health outcomes
  - Reduction in prevalence of prematurity, low birth weight, birth defects
  - Reduction in maternal, fetal, neonatal and child mortality

Integrated approaches and interlinkage between programmes will play a very significant part in the implementation of pre-conception care programmes. There will be also a need to generate a demand for these services. It is important to strengthen research to understand the determinants (risk and protective factors) of health-related behaviours of adolescents, gatekeepers and service providers, and determine appropriate delivery mechanisms for the identified services. Sound adolescent programmes would foster global commitments and partnerships for MDG 4 and 5 beyond 2015 and this would also enhance the commitment of national governments to adolescent health programmes and earmarking of domestic resources.

Preconception care case-studies from the WHO South-East Asia Region

Chairs: Dr Christopher Howson and Dr Quamrun Nahar

Sri Lanka

Dr Nethanjalie Mapitigama, Family Health Bureau, Ministry of Health, Colombo, Sri Lanka

With a well-established and well-staffed health system, Sri Lanka has been ahead of many countries in the South-East Asia Region with respect to maternal and child health indicators. However, it was observed that the rate of progress for these indicators remained stagnant in the last few decades, where 72–75% of maternal deaths were still preventable. In November 2011, the Ministry of Health launched a new package focusing on newly married couples. The main objectives of this initiative were:

- to improve reproductive health outcomes by improving the health of newly-married couples;
- to extend the maternal health continuum further before pregnancy occurs, as some curable and correctable medical conditions were not detected until the woman became pregnant;
- to scale up evidence-based interventions and strategies to further reduce maternal and neonatal mortality and morbidity and ensure quality survival for mothers and their babies; and
- to fine tune the existing programme.

Delivery channel

This package would be delivered by the medical officer of the health team.The services provided under the package are risk screening, physical assessment, vaccinations, raising awareness, counselling and provision of other services. The tools used in the package are:

- **invitation card**: congratulating the couple, to wish them a happy married life and fixing an appointment with a trained health worker to discuss reproductive health;
- **screening tool**: to screen both partners for risk factors, including selected past and present medical conditions and use of medications, family history, sexual and reproductive health, family nutrition and lifestyle, environmental conditions, psychosocial concerns (depression/violence) and rubella vaccination and folic acid supplementation (see Figure 9);
- **guide book for health workers**: includes guidelines to screen for risk factors by using the screening tool and clinical examination by trained health workers (PHM – public health midwife), basic investigations, measurement of body mass index, and referral for further diagnosis/ treatment/for specialized care and follow up.
- **book for the new couples**: during the home visit, the PHM hands over a book to raise awareness among couples on topics including sexuality and sexual relationship, sexually transmitted diseases and responsible sexual behaviour, a planned family, good nutrition, good health habits/ healthy behaviour/healthy lifestyle, good marital relationship and well-being of the family, benefits of nonviolence, health before conception, male participation and parenthood, and tobacco and alcohol.

Figure 9: The screening tool

Screening tool

Screen both husband and wife for risk factors:

- Selected past and present medical conditions, medications and family history
- Sexual and reproductive health
- Family nutrition, lifestyle
- Environmental conditions
- Psychosocial concerns (depression/violence)
- Rubella vaccine/folic acid
- Physical assessment, height, weight
- Clinical examination
- Basic investigations
- Referral for further diagnosis/treatment/for specialized care

The programme is to be implemented initially in 14 districts out of 25 districts in Sri Lanka and will be expanded to all districts by end of next year. The expected outcomes of the package are:

- increased reproductive health awareness of the couple and thereby increased knowledge, changed attitudes, and reduction of unhealthy behaviour, in order to improve the health and well-being of the family;
- improved health status of women/men before the woman becomes pregnant;
- addressing risk conditions/issues of women/men before they attain parenthood; and
- reduction in the probable adverse pregnancy-related outcomes and thereby a reduction in maternal and childhood mortality and morbidity.

Area of improvement

Though this package provides a broad range of preventive services (covering preconception care components), it is restricted to married couples and does not include adolescents. Sri Lanka has a high prevalence of thalassaemia and yet the screening tool in this package does not include thalassaemia screening.

India

Two studies related to preconception care were presented: one in a school setting and one for prevention of birth defects in a community setting.

School-based preconception care interventions: Public Health Foundation of India

Dr Monika Arora, Public Health Foundation of India, New Delhi, India

Project MYTRI (2004–2006) was a multi-component intervention to prevent tobacco use among 14 000 students in 32 schools, both government and private, in Chennai and Delhi. This project was a joint collaboration between HRIDAY, an NGO working in tobacco control in India, and the University of Texas, USA.

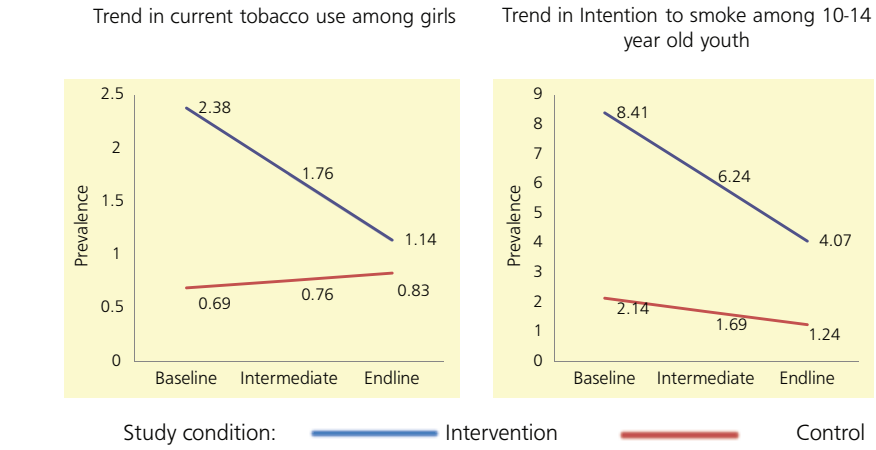
The project covered adolescents in grades 6 and 8, aged 10–16 years; with a two-year intervention. The programme components consisted of:

- **classroom curriculum**: to increase knowledge about the health and social consequences of tobacco use and increase skill to identify and resist influences to use tobacco;
- **school posters and parents' post card**: to provide opportunities to learn about school and community policies on tobacco; and
- **peer-led health activism**: to create tobacco-free norms in school, the home and surrounding neighbourhoods, and to increase exposure to non-tobacco-using role models.

At the end of the two-year programme: (Figure 10)

- overall, current tobacco use increased by 68% in the control group and decreased by 17% in the intervention group over the study duration;
- intention to smoke increased by 5% in the control group, whereas intention to smoke decreased in intervention schools by 11%;
- intention to chew tobacco decreased by 12% in the control group; there was a 28% decrease in the intervention group.

Figure 10: Survey outcomes: Tobacco use (Unpublished data)



Cost effectiveness of project MYTRI

- Programmes such as MYTRI are less expensive to implement in India compared with similar programmes in high-income countries.
- The cost per quality-adjusted life-year added, due to averted smoking, was US$ 2057.
- Project MYTRI was estimated to be over 24 times more cost-effective than dialysis in the USA, which costs USD 50 000 for a life-year.

Knowledge to policy

- Evaluation of project MYTRI showed an increased sensitization and acceptance by schools of the need for lifestyle-related health intervention for adolescents, and inculcating healthy lifestyle practices among Indian youth.
- The project provided robust research evidence and has been used effectively by HRIDAY, to advocate with policy-makers for scaling up the Government of India's tobacco-control efforts. As a result, school health programmes form a key component of the National Tobacco Control Programme.

Using key informants to identify birth defects and childhood disability

Dr GVS Murthy, Indian Institute of Public Health, Hyderabad, India

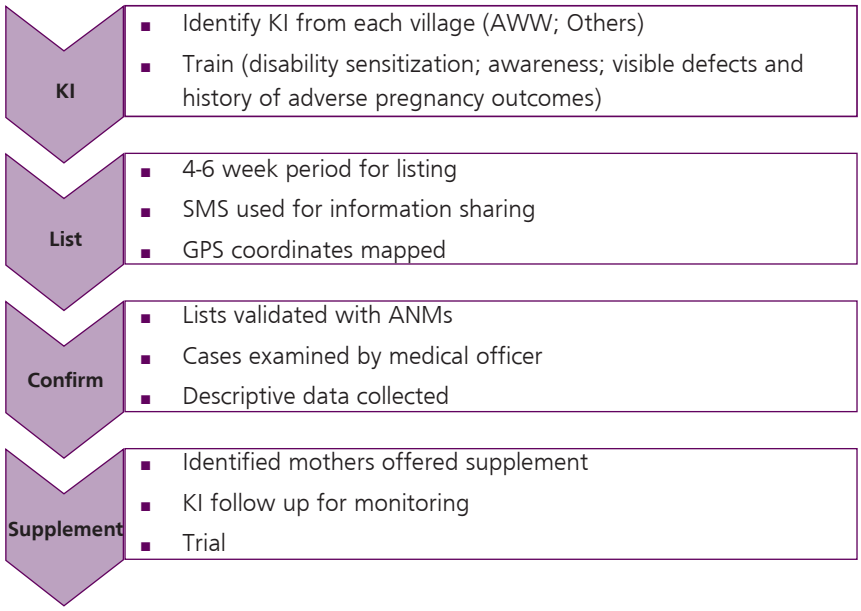
The main objective of the project are:

- to summarize existing research evidence on the public health impact of folic acid deficiency;
- to assess the use of 500 key informants for identification of visible NTDs and oro-facial clefts;
- to conduct epidemiological characterization and identify risk factors for NTDs and oro-facial clefts in India;
- assess the benefit of pre- and early pregnancy folate supplementation among mothers with prior adverse pregnancy outcomes.

The components of the programme will include systematic review, key informant interviews, case-control study and folic acid supplementation in the pre-pregnancy period.

The project area is a rural settlement (Mehboob Nagar) in Andhra Pradesh and urban slum and resettlement colonies in New Delhi, consisting of 50 000 population in each location.

Figure 11. The programme to use key informants to identify birth defects and childhood disability



ANM: Auxilliary nurse midwife ; AWW: Anganwadi workers; KI: key informant;

The programme will use the following strategies for implementation (see Figure 11):

- the key informants will be identified from each village (anganwadi workers; others) and will be trained (for disability sensitization; awareness; visible defects and history of adverse pregnancy outcomes);
- there will be a 4–6-week period for listing and SMS will be used for information sharing; GPS coordinates will be mapped;
- the lists will be validated with ANMs (auxilliary nurse midwives), after which the cases will be examined by the medical officer and descriptive data will be collected;
- after the data collection, the mothers identified will be offered supplements and key informants will conduct the timely follow-ups.

Discussions

The session ended with a strong sense that preconception care would be a useful adjunct to providing the continuum of care across the RMNCAH life course and it would be important to include adolescents and young adults. There was an agreement that this is just as relevant for low- and middle-income countries as it is for high-income countries. The participants largely agreed to the range of issues that it could address to ensure overall health of men and women through their life. However, it was strongly felt that it was important to use an appropriate term for programmes to ensure acceptability at community level and policy- and decision-making levels. It was clear from the presentations that the programme must include both adolescents and young adults. The service package and delivery channels of such a programme must be designed to suit the needs of the target groups.

Delivery of preconception care interventions in the WHO South-East Asia Region: opportunities and challenges

Chairs: Dr Christopher Howson and Dr Quamrun Nahar

Interventions in the various programmes of WHO Regional Office for South-East Asia that could contribute to preconception care:

Panel discussion moderated by Dr Rajesh Mehta

Dr Rajesh Mehta moderated discussions with the panel of regional advisers from various technical units of the WHO Regional Office for South-East Asia regarding their existing work that may be relevant for and contribute to preconception care packages. The technical units for nutrition, immunization,

noncommunicable diseases, gender and women's health, and injuries prevention shared their areas of work and how collaboration could help achieve the gains from preconception care packages in the short term (health during adolescence and pregnancy outcomes) and long term (healthy adulthood). The panel discussion highlighted that several key behaviours that predispose to health risks in the immediate future as well as later in life are initiated during adolescence. Health promotion and anticipatory guidance to adopt healthy behaviours should be made available to all adolescent girls and boys as well as young women and their partners.

Benefits and risks of preconception care

The benefits and risks of preconception care were listed after considering both short- and long-term risks and benefits. In addition, "the terms to be used to describe preconception care and reasons thereof were also discussed".

Alternate term to be used for preconception care (Summary of Group work)

It was agreed that the definition needs to be consistent, simple, clear and understandable for the public, policy-makers and other stakeholders. The proposed package has the potential to address several issues. Participants suggested that preconception care programme should cover a wide age group, from 10 to 35 years with different packages of services depending upon the age, level of health-care delivery. Preconception care should not be limited to reproductive health and women and should ensure male involvement as well as involvement of the families.

There was intensive debate on the nomenclature. It was also suggested that there may be a need to field-test the term to see how the community perceives it, and to make it very catchy so that it resonates with lay people and donor organizations/policy-makers. This may require further discussions to identify the diversities of the potential beneficiaries.

Participants felt that "preconception care" should be seen to address both unmarried and married individuals, and should begin early to target adolescent boys and girls. It was felt that although the term "preconception care" is meaningfully used by the scientific community, it may be more difficult for lay people to understand. They may understand the term "pre-pregnancy care" more easily, and it would be easier to translate in local languages in the Region in comparison to preconception care. However, it was recognized that the term "pre-pregnancy care" places the entire onus on women, which is quite misleading and actually not intended.

The participants felt that a term is needed that covers not only healthy motherhood and childhood but also preparing for a healthy life and in doing so must accommodate adolescent boys and girls. However, both terms "preconception care" and "pre-pregnancy care" point to a period just before pregnancy. Another term that was considered was "pre-parenting care", which includes both men and women. However, it was argued that the term assumes all couples/women wants to become parents, which is not always the case and even "pre-parenting care" does not focus on the lifespan as a whole. In addition, all these terms exclude the inter-pregnancy period.

The participants felt that "healthy transitions" is dynamic term that implies movement forward, with a life-cycle approach embedded in the name (e.g. transitioning from adolescence to adulthood and beyond). It also links to addressing risk behaviours responsible for chronic disease and impairment. Therefore, participants were in favour of using "healthy transitions" as an appropriate term for the package of services to be delivered to adolescents, young people and couples, with a short-term aim to improve pregnancy outcomes and a long-term aim of improving health during adulthood.

After discussions, the participants agreed to consider the concept of preconception care in two parts. One would be "healthy transitions for adolescents" to ensure healthy adolescence (immediate) and healthy adulthood (long term) and the second would be "pre-pregnancy care", which would cover young adults and include the inter-pregnancy period to largely address reproductive health outcomes. The interventions for the two tracks would be packaged and delivered differently for appropriate targeting of intended beneficiaries. At the same time the content and mechanisms of delivery of preconception care will need to be tailored to the realities of different countries of the WHO South-East Asia Region. It was also agreed that there is a need for a conceptual framework in which to embed such packages.

Effective approaches must be based on detailed research, thorough analysis and good-quality data. There is a need to evaluate existing programmes and policies in order to learn from experience and to identify the strengths and weaknesses of existing approaches. This will be a good foundation for designing suitable preconception care programmes in each Member State.

Benefits of pre-conception care (Summary of Group work)

From the perspective of health outcomes, pre-conception care would have both short-term and long-term benefits. Short-term benefits would be reducing

pregnancies that are too early, or that are too close together, and unplanned pregnancies, thereby improving maternal and child health outcomes and reducing mortality. It could also contribute to improving the health and well-being of women including appropriate nutrition, addressing infertility and subfertility, prevention and management of intimate partner violence.

Preconception care, when combined with lifestyle interventions would ensure better acceptability of sexual and reproductive health issues within an expanded package. Preconception care intervention would also reach out to men, by creating awareness of the importance of men's health and their behaviours for maternal and child health outcomes.

Preconception care beginning with adolescent boys and girls could contribute to long-term benefits by promoting healthy behaviours and life styles, mental health, prevention of substance use, screening for genetic disorders and environmental exposure etc., thereby laying a foundation for healthier adulthood. A broad approach could thus contribute to social and economic development of families and communities.

In this way, preconception care could make useful contributions to MDGs 1, 3, 4, 5 and 6.

From the community perspective, preconception care will lead to greater participation of families, contributing to increase in demand for services, and facilitate families and individuals to take charge of their health and their life. It will also bring benefits to providers and to families, building greater confidence in the health system. Preconception care increases the scope of intersectoral linkages of programmes, building a stronger force to deal with health and social issues affecting men's and women's health.

From the programme prespective, preconception care provides a window to include interventions that were traditionally not a part of MNCH programmes, such as for the age groups of 5–9 years and 10–14 years, that is, children and adolescents, who get very low or no focus. It increases the potential for exploring counselling on unmet issues such as contraception and STIs among unmarried boys and girls.

All participants agreed on the benefits mentioned in the global consensus on preconception care *(4)*, and recommended that the benefits could be identified in context of several entities including:

- individual girls, boys, women and men;
- couples;
- families;
- communities;
- country/region;
- health-care providers;
- policy-makers and politicians;

A broad approach envisaged for preconception care would need multisectoral convergence.

The participants emphasized that arguments of financial–economic benefits of preconception care must be developed for effective advocacy at policy level. Many times an argument on the cost of doing nothing is found effective to convince decision-makers.

Risks of implementing preconception care programmes (Summary of Group work)

The major challenge of preconception care could be that the interventions are not confined only to the health sector and would require intensive coordination with several stakeholders in different sectors and a high commitment to deliver the package. Preconception care may also suffer from administrative challenges in having the health sector accountable for determinants that operate beyond their domain. Engagement of the private sector may result in conflict of interest, particularly with industries like tobacco and alcohol. Corporate social responsibility (CSR) initiatives from such industrial houses would require strict regulation.

A strong focus on preconception care could run the risk of defining girls as being in perpetual preconception state, even before their menarche, and viewing a woman as somebody who delivers and raises children for the entire duration of her fertile period. This could lead to women being barred from participating in some situations or taking up work in some areas, on the grounds that it would increase the risk of adverse maternal and child health outcomes. Further, in relation to predisposing factors such as tobacco and alcohol, it could lead to moral policing, particularly for girls, stigmatizing them for their conduct, such as for smoking or drinking alcohol.

Further, an emphasis on preconception care could reinforce the notion that the focus of all efforts to improve the health of girls and women should be at

improving maternal and child health outcomes, rather than at improving the health of girls and women as individuals in their own right. In addition, blanket approaches to preconception care could be seen to imply that all girls and women will inevitably become mothers. There is also a risk that women and couples will be stigmatized and blamed, or will blame themselves, for adverse reproductive outcomes (e.g. those who have genetic conditions, those who are overweight, those who smoke). To minimize these risks, preconception programmes should be implemented cautiously, and supported by well-researched communication activities and campaigns.

Packages of preconception care

It was unanimously agreed to divide preconception care into two packages, namely "healthy transitions for adolescents" targeting older children and adolescents and "pre-pregnancy programme" consisting mainly of maternal and reproductive health package for partners/couples.

The proposed "healthy transitions for adolescents" package would cover:

- personal hygiene;
- mental health including screening for depression;
- vaccine-preventable diseases;
- prevention of noncommunicable diseases;
- tobacco, drugs and alcohol exposure (effect on fertility, the fetus and the neonate);
- substance and medication abuse;
- healthy diet and physical activity;
- screening for eye problems and other diseases, diabetes, body mass index;
- nutritional conditions (deworming, emerging deficiencies, e.g. vitamin D deficiency);
- iron and folic acid supplementation;
- too-early, unwanted and repeated adolescent pregnancies;
- contraception information services (including emergency contraception);
- genetic conditions (sickle cell anaemia and thalassaemia);
- information on infertility;
- STI/HIV;
- reproductive knowledge and managing menstruation and masturbation;

- sex/gender and violence;
- interpersonal violence (both sexes, bullying, teasing, domestic violence);
- injury prevention;
- sexual abuse and harassment, violence;
- environmental health (e.g. indoor pollution – cooking practices, evidence base at country level, lead/arsenic/endocrine disruption)

The "pre-pregnancy programme package for partners/couples", will be same as the basic and expanded packages, as mentioned in the global consensus report *(4)* covering the maternal and reproductive health issues through a variety of delivery channels that will be specific to each Member State.

Basic package

- Family planning (more than just contraception)
- Vaccine-preventable diseases
- Nutrition and micronutrients (including food and micronutrient supplementation, food fortification, nutrition education)
- Tobacco cessation (including exposure to second-hand smoke)
- Reducing harmful environmental exposures (e.g. indoor air pollution)
- Improving sexual health and behaviour (screening, counselling, treatment)

Expanded package (basic package plus the following issues)

- Mental health problems
- Intimate partner and sexual violence
- Genetic conditions
- Prevention of noncommunicable disease
- Environmental health
- Substance and drug use
- Injury prevention
- Non-population-specific genetic diseases (e.g. Down syndrome)

The country-specific package should include region/country-specific genetic diseases. It was suggested that it may be useful to propose a basic or minimum package for all countries to use, along with an extended package for countries that have the means to implement it.

These interventions would need to be delivered using a mix of methods:

- health education and promotion;
- vaccination;
- nutritional supplementation and food fortification;
- provision of contraceptive information and services;
- screening, counselling and management (medical and social).

The preconception interventions delivered in a particular setting will depend on the local epidemiology, the interventions already being delivered, and the mechanisms and resources in place to deliver additional interventions. As a way forward, it was agreed that the countries of the Region should design a holistic package of preconception care interventions that will meet the following criteria:

- interventions will be age-specific and appropriate for developmental stage of individuals;
- appropriate interventions would be delivered as a package, not as single interventions;
- interventions would be delivered through appropriate channels e.g. facility (health, school), outreach, community-oriented or family-oriented channels;
- the interventions that can be delivered in countries with constraints of human and financial resources;
- the interventions are expanded incrementally so as not to suddenly overwhelm the existing capacity.

Delivery mechanisms for preconception care

Chairs: Dr Nethanjalie Mapitigama and Dr Swati Bhave

The health problems/health risk behaviours/risk factors (see Annex 1) contribute to maternal or childhood morbidity or mortality and are of promotive, preventive and curative character. The interventions can be delivered through:

- health facilities at various levels;
- community-based and family-based outreach;
- multisectoral approaches – school/college, social media, peers, etc.;
- school-based services; and
- electronic and mobile technology (mHealth).

Participants observed that in most countries of the Region, ongoing programmes are vertical in nature and address limited components; for example, the maternal and child health programmes focus on antenatal care, safe delivery and postnatal care. With increasing prevalence of HIV and substance use and other lifestyle diseases (diabetes, hypertension, obesity, cardiovascular disease, etc.), preconception care programmes could be a crucial step for integration.

Efforts must also be made to work with other sectors such as schools and workplaces, and with civil society groups such as faith-based organizations.

Participants discussed possible delivery mechanisms to address different risk factors in addition to the delivery mechanisms presented in the global report *(4)*. The delivery mechanisms presented in the tables in Annex 3 include specific ones proposed by the participants in the context of the South-East Asia Region.

Conclusion

The health, economic and social benefits of preconception care need to be communicated effectively to decision-makers at the international level, whose support is crucial for global and regional action and research, as well as to decision-makers at the country level, whose support is critical to incorporating preconception care into existing programmes. Beyond that, the community must be educated about preconception care, and informed about ways to avail these services.

Participants suggested that, for advocacy, an appealing document that clearly defines and explains preconception care, and its crucial role, should be developed. Concurrently, key stakeholders must be reached for support. Preconception care must be promoted actively among the stakeholders including communities using a variety of methods, including the mass media and social media. Countries of the Region must also come forward and initiate cost-effective pilot projects according to country needs to build local evidence that would collectively build a case for implementing preconception care programme in the Region.

Actions are needed on at least three fronts. First, policy-makers and funding agencies must be convinced that there is a need to include preconception care – "healthy transitions for adolescents" and "pre-pregnancy" packages in the existing national effort to prevent maternal and childhood mortality and morbidity; that such packages can be delivered successfully; that its delivery will lead to improved functioning of related social sector programmes; and that, as a whole, it will bring tangible health outcomes and other benefits.

Second, decisions will need to be made with programme managers on which preconception interventions need to be delivered, the population groups to be targeted, and the mechanisms through which the interventions can be delivered given the available human and financial resources.

Third, the social and cultural sensitivities need to be considered carefully, in deciding how best to communicate about delivering preconception care in a way that empowers women and couples and adolescents, rather than subjecting them to blame (including self-blame) and stigma.

It was concluded that, in delivering preconception care, efforts must be made to ensure that:

- both existing and innovative mechanisms are used;
- preconception care is integrated into ongoing programmes;
- preconception care is presented as part of the care across life-course continuum rather than on its own;
- preconception activities that are under way in several countries within existing RMNCAH programmes are identified and strengthened to evolve a consistent package;
- information and activities related to preconception care are included in community-level activities in order to reach out, build positive attitudes and made into personal responsibility of each individual;
- every opportunity of a woman contacting a health facility is used to provide preconception messages and interventions;
- work is carried out both within and outside the health sector, using a variety of settings, including the mass media and popular technologies such as electronic and mobile phone technology.

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4 Conclusions and recommendations

Setting a regional agenda for preconception care

Chairs: Dr Bunyarit Sukrat and Dr Debasish Dutta

Identified research areas

One of the major objectives of the consultation was to identify research priorities on preconception care for "healthy transition for adolescents" and "pre-pregnancy care".

Desk review of the available documents has raised a number of themes and approaches for identifying needs and/or evaluating interventions intended to create – among other benefits – conditions that support later, safer, more informed, voluntary and protected sexual initiation among young adolescents, and the reduction of STIs, including HIV, and unsafe pregnancy.

Research area: Target population

1. Collecting primary data at ground and province/state levels from health facilities, through routine management information systems, as well as from research and academic institutions in the public and private sectors. The data that are periodically collected through national surveys should be analysed on the basis of age, sex and location/demographic disaggregation. Additionally, the age group of 10–14 years should be considered for inclusion for data collection in the national surveys from the next rounds. Such strategic information would be extremely useful to not only understand the current status of adolescents but also to guide strategic planning for adolescents/ young people to address their needs more effectively.
2. Engaging in research that will pay special attention to marginalized or disadvantaged populations of young adolescents, such as the collection of basic data on the needs and concerns of isolated young married girls in rural areas, where high proportions of female adolescents are not currently attending or have never attended school; boys and girls living on the city streets; female domestic workers; young adolescents living in AIDS-affected families or in slum areas; disabled young people; refugees; and other vulnerable groups

Research area: Community (stakeholders/gatekeepers)

1. Undertaking community-based knowledge, attitude and practice studies to understand the target population.

2. Engaging in research to identify the social determinants of young adolescents' sexual and reproductive health. This research approach would consider questions such as the following:
    - What characteristics of the institutional and social environment predispose 10–14 year-old girls and boys to health-compromising behaviour in different settings?
    - Why, in the face of group vulnerability, do some young people make good choices and others poor ones?
    - What protective factors are most effective in buffering young adolescents' vulnerabilities, and how can these be strengthened? Analysis by single years, sex, and socioeconomic and cultural characteristics is an essential part of this approach.
3. Examining cost effectiveness/affordability in access to preconception care.

Research area: Policy

1. Engaging in research on the effectiveness of existing health, education and social-sector policies and programmes at the national or subnational or local levels in countries of the South-East Asia Region, and identifying those that are successful in reaching young adolescents with the information, services and social and legal supports that they need.
2. Identifying gaps at policy and implementation levels.

Research area: Health-system

1. Developing an understanding of the capacity of the health facility at primary, secondary and tertiary levels, with respect to delivering preconception care;
2. Setting standards for preconception care and develop guidelines for each level of health care;
3. Conducting human-resource analysis and develop cadre-wise clear job descriptions to avoid overlapping of responsibilities;
4. Examining the cost effectiveness of adding recommended mechanisms of preconception care, which include risk assessment (screening), health promotion (education and counselling), and intervention or referral in existing programmes;

5. Assessing the benefits of delivering comprehensive preconception care and the effectiveness or added value of "packaging" or "bundling" these interventions;
6. Examining current health-care coverage and financing for women of childbearing age;
7. Conducting capacity-building at different levels;
8. Examining the health-seeking behaviour of target groups;
9. Conducting impact assessment of communication activities;
10. Analysising current management information systems, and issues covered; and
11. Developing clinically relevant decision tools, using quality-improvement techniques, and monitoring performance.

Research area: Education-sector and social-sector

1. Reviewing current capacity to reach out to adolescents.
2. Reviewing other initiatives – as points of intervention for research on the most effective way to reach different subgroups of young male and female adolescents.
3. Reviewing available resources to implement preconception care in school health.
4. Carrying out capacity-building.
5. Identifying the link for converging programmes and initiatives under preconception care.
6. Reviewing available resources in other related programmes (national tobacco control programme, noncommunicable diseases, national diabetes control programme, HIV/AIDS, TB control programme, etc.).

These studies may require desk review, pilot studies and exploratory studies. The process needs to be carried forward to suit individual countries according to their context. The situation and the environment in Member States is different, and it also differs in different population groups within countries The profile of intervention packages chosen would depend on the epidemiological situation/ disease burden and disease profile, as well as the national policy.

Conclusions

1. The expert group identified some limitations of the term "preconception care" for the South-East Asia Region and discussed the use of an alternative term. "Healthy transitions for healthier families" was considered, since it addresses the needs of a broader group of people, is less politically charged, is not limited to improvement of reproductive health only, and enlists the participation of males. It promises to help in attaining a healthy adult life and beyond.
2. The preconception care programme would aim to address maternal mortality, neonatal mortality, pregnancy wastage, birth defects, preterm births and intrauterine growth retardation, as well as to keep adolescent boys and girls healthy, and ensure that they grow into healthy adults.
3. Accordingly, two packages "healthy transitions for adolescents" and "pre-pregnancy care" have been agreed upon under preconception care.
4. The situation and the environment in Member States is different. The profile of intervention packages chosen would depend on the epidemiological situation/disease burden and disease profile, as well as the national policy. For the baseline, there is a need to more accurately document pregnancy wastage, birth defects, preterm births and intrauterine growth retardation in the Region.
5. Countries need to prioritize the evidence-based interventions identified globally, based on local needs and feasibility. Such intervention packages need to be implemented through integration within the health system and convergence beyond.
6. In some countries, several interventions with potential to contribute to preconception care may be in place. These need to be rigorously documented and published taking into account the cost-effectiveness including the implications of not doing anything specific. Work already done or in progress should be documented as country case studies to know where interventions are working and to identify the gaps.
7. Well-designed demonstration/pilot projects should be implemented to make a strong case for healthy transitions and healthier families. These pilots can answer key questions related to policy, strategy, intervention packages, delivery channels and evaluation.
8. The delivery channels for implementation of the intervention packages within the health system and in other sectors and specific roles of stakeholders were identified. This process needs to be carried forward to suit the countries

according to their context. The target population in the Member countries is enormous. Innovative ways are needed to reach the largest proportion through m-health and similar delivery mechanisms.

9. The inputs from adolescents, young people, families and programme managers from the Member countries were considered crucial for designing the preconception care programmes.
10. Influencing the national policy is critical as also the deployment of essential resources. A strong case has to be made based on the documentation of success and gaps.

Recommendations

- consolidate the experience in the Member States and undertake a situation analysis, elaborate on successes and lessons learnt, and publish and disseminate the experiences to expand the efforts;
- document pregnancy wastage, birth defects, preterm births and intrauterine growth retardation and maternal risk factors;
- expand and elaborate the intervention packages, delivery channels, stakeholders, and implementation mechanisms in preconception care in the country situation;
- optimize established programmes, such as maternal, reproductive, child health and adolescent health programmes, and existing "entry points", such as birth defects surveillance, prevention of adolescent pregnancy, and prevention of noncommunicable diseases.
- develop and sustain partnerships within the health sector and other key stakeholders (multisectoral), including adolescents and young people to provide support to preconception care programmes.
- support demonstration/pilots that are rigorously implemented with cost-effectiveness built into them, in order to make a stronger case for healthy transitions for healthier families.
- organize meetings of health programme managers, officials from health and non-health sectors, including partners to advocate and promote national policies, plans, and strategies for implementing preconception care programmes.

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Annex 1

Health problems, risky behaviours and risk factors that can be addressed through preconception and related interventions

The analytical framework for the matrices was developed during the Global Consensus Meeting on Preconception Care in Geneva, by a working group consisting of Zulfikar Bhutto (Aga Khan University), F Donnay and K Teela (Bill and Melinda Gates Foundation), Christopher Howson and M-E Reeve (March of Dimes Foundation), Y Poortman and A Christianson (Preparing for Life Initiative) and E Mason, Charlotte Christiansen and Venkatraman Chandra-Mouli (WHO Department of Maternal, Newborn, Child and Adolescent Health).

These matrices were used as reference in the regional expert group concultation, as the problems, risk behaviours and issues that affect adolescent, maternal and child health are same around the world, but the magnitudes of morbidity and mortality due to these risk factors are different in different regions.

However, the delivery mechanisms have been developed in the context of the WHO South East Asia Region (presented in Annex 2)

Table 1: Health problems, problem behaviours and risk factors related to tobacco use that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Smoking in the preconception period	Infertility, conception delay	
Smoking in the preconception period and in pregnancy	Spontaneous abortion, ectopic pregnancy, placenta praevia, placental abruption, premature rupture of membranes	Preterm birth, low birth weight, birth defects (including oral cleft, limb-reduction defects, clubfoot, defects of eyes and gastrointestinal system, especially gastroschisis and abdominal hernias), sudden infant death syndrome
Use of smokeless tobacco in the preconception period and in pregnancy		Stillbirth, preterm birth, low birth weight
Exposure to second-hand smoke during the preconception period and pregnancy		Lower birth weight, birth defects

Table 2: Health problems, problem behaviours and risk factors related to psychoactive substance use that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Alcohol use before conception	Unwanted pregnancy; risk of sexually transmitted infections (STIs)/ HIV; alcohol-related health conditions (e.g. liver disease, injuries, depression); increased risk of interpersonal, social, legal and financial problems (e.g. violence, domestic abuse)	Fetal alcohol spectrum disorders, ranging from severe neurodevelopmental disorder to behavioural problems and mild intellectual disability; miscarriage; prematurity
Drug use before conception	Unwanted pregnancy; increased risk of STIs/ HIV; drug-related health conditions (e.g. hepatitis C, depression); increased risk of interpersonal, social, legal and financial problems (e.g. violence, domestic abuse)	HIV transmission from mother to child; impaired preparedness in mother for pregnancy, delivery and childcare; child neglect

Table 3: Health problems, problem behaviours and risk factors related to a genetic condition that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Single-gene disorders, e.g. sickle-cell disease, thalassaemia, glucose-6-phosphate dehydrogenase deficiency, bleeding disorders (particularly haemophilia), cystic fibrosis, Tay–Sachs disease, inborn errors of metabolism, X-linked mental retardation, genetic blindness or deafness	Depending on the disorder, these may contribute to some of the following: recurrent miscarriage, pregnancy complications (e.g. pre-eclampsia, maternal death), intellectual or physical disability	Depending on the disorder, these may contribute to some of the following: intrauterine death, hydrops fetalis (in alpha- thalassaemia and other red-cell disorders), fetal growth retardation, preterm birth, complications of delivery (e.g. early death, respiratory distress, haemorrhage, anoxia), neonatal complications/ manifestations (e.g. anaemia, haemolysis, convulsions, respiratory distress, cardiac failure)
Chromosome disorders, e.g. Down syndrome, disorders due to translocations	Recurrent miscarriage, preterm labour, premature rupture of membranes	Intrauterine death, fetal growth retardation, preterm birth, complications of delivery, neonatal complications/ manifestations

Table 4: Health problems, problem behaviours and risk factors related to mental health that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Perinatal depression, including antenatal and postpartum depression	Complications during pregnancy	Preterm birth; underweight and stunting; reduced breastfeeding; increased episodes of diarrhoea; lower compliance with immunization schedules; delayed psychosocial development
Bipolar disorder	Complications during pregnancy; postpartum bipolar event; high risk of alcohol or substance use during pregnancy and postpartum period	
Psychosis	Postpartum psychosis	
Epilepsy	Perinatal complications	Neurodevelopmental impairments
Use of psychotropic drugs (e.g. for epilepsy or mood disorders)		Birth defects

Table 5: Health problems, problem behaviours and risk factors realted to nutrition that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Folic acid and multivitamin insufficiency		Neural tube defects, other birth defects, multiple congenital anomalies
Iron-deficiency anaemia	Maternal morbidities and mortality	Child mortality, low birth weight, preterm birth, low child cognition (intelligence quotient)
Maternal underweight, often combined with low stature	Complications during pregnancy and delivery, nutrient deficiencies (potentially resulting in obstetric complications)	Preterm birth, low birth weight, stillbirth, type 2 diabetes and cardiovascular disease in later life
Maternal overweight and obesity	Pre-existing type 2 diabetes, hypertensive disease of pregnancy, gestational diabetes, hypertensive and thromboembolic disorders, postpartum haemorrhage and anaemia, caesarean delivery, induction of labour, instrumental delivery, shoulder dystocia	Birth defects, neural tube defects, preterm delivery, stillbirth, macrosomia
Untreated diabetes mellitus (type 2 and gestational)	Type 2 diabetes, spontaneous abortion, worsening of existing microvascular complications, urinary tract and other infections, preterm labour, obstetric trauma, caesarean section, hypertension, pre-eclampsia, gestational diabetes mellitus, obstetric trauma, caesarean section	Birth defects, stillbirth, macrosomia with shoulder dystocia/nerve palsy if delivered vaginally, hypoglycaemia after birth, type 2 diabetes in later life
Iodine		Abortion, stillbirth, mental retardation, cretinism, increased neonatal/ infant mortality, goitre, hypothyroidism
Calcium	Maternal eclampsia, pre-eclampsia	

Table 6: Evidence-based interventions to address infertility/subfertility-related health problems, problem behaviours and risk factors, and mechanisms of delivering them

Health problems/risky behaviours/risk factors in pre-pregnancy inter-pregnancy	Evidence-based preventive and curative health interventions that could be delivered in pre-pregnancy/ inter-pregnancy	Existing delivery mechanisms that could be used to deliver interventions at scale in countries of the WHO South-East Asia Region
Consequences of misunderstanding of contraceptives by the woman, her family and the community (thus resulting in decreased uptake of contraceptive use)	Anticipatory guidance from health-care providers to create awareness and understanding of fertility and infertility (e.g. temporary state of subfertility/infertility during contraceptive use and following discontinuation of long-acting contraceptives)	All levels of health facility (general or specific clinics, e.g. family planning clinics); community settings, women's forum, self-help groups, social workers, mass media
Consequences of misunderstanding biological causes of infertility/ subfertility (e.g. mental health disorders, depression, broader chronic diseases)	Anticipatory guidance from health-care providers to improve understanding of preventable and unpreventable causes of infertility/subfertility; guidance on actions that individuals and couples could take to check for additional causes of infertility/subfertility (improving nutrition, improving mental health, immunization, avoiding alcohol abuse); expanding beyond misunderstanding that prevention will solve most underlying diseases/ disabilities and infertility; counselling for individuals/ couples diagnosed with unpreventable causes of infertility/subfertility	All levels of health facility (general or specific clinics, e.g. family planning clinics); community settings, women's forum, self-help groups, social workers, mass media, counselling on menstrual cycle and fertility cycle, counselling to reduce stress and anxiety, suggestion for adoption, information, education and communication about risk factors (both female and male) and referral services Strengthening of programmes on reproductive tract infection (RTI), sexually transmitted infection (STI), tuberculosis, tobacco control and maternal health; duration of investigations increased to two years Evidence shows that there is a 15–20% chance of conception in the second year; this increases to 85% at the end of two years (Social factors – early marriage and societal pressure. This is for the younger age group, below 35 years)

Health problems/risky behaviours/risk factors in pre-pregnancy inter-pregnancy	Evidence-based preventive and curative health interventions that could be delivered in pre-pregnancy/ inter-pregnancy	Existing delivery mechanisms that could be used to deliver interventions at scale in countries of the WHO South-East Asia Region
Consequences of unprotected sexual intercourse to achieve pregnancy, especially in populations at high risk of HIV/sexually transmitted infection (STI)	Screening and diagnosis of couples following 6–12 months and following 12 months of attempting pregnancy, using an algorithm involving minimal intervention at the primary level; screening, diagnosis and management at the tertiary level; diagnosis and management of underlying causes of infertility/ subfertility, including past reproductive tract infection/ STI; need for specific guidance directed towards populations at high risk	All levels of health facility (general or specific clinics, e.g. family planning clinics); community settings, including target group and gatekeepers, women's forum, self-help groups, social workers, mass media, CSR public–private partnership, professional associations and bodies
Consequences of misunderstanding social causes of infertility/ subfertility	Defusing stigmatization of infertility and assumption of fate by introducing evidence- based educational tools to understand the causes of and care solutions for infertility; expanding beyond misunderstanding that prevention will solve most underlying diseases/ disabilities and infertility; introducing tools for national-level discussions to address ethics and legal/social implications of introducing infertility diagnosis/care; advocacy targeting communities, civil society, governments, policy-makers and funding agencies	Community settings, including target group and gatekeepers; mass media, women's forum, self-help groups, social workers, mass media

Table 7: Health problems, problem behaviours and risk factors related to too-early, unintended and rapidly successive pregnancy that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Too-early pregnancy	Complications in pregnancy, death	Perinatal death, low birth weight, preterm birth
Unintended pregnancy	Morbidity related to complications of unsafe abortion (may lead to death), psychosocial consequences	Less attention to care of self and unborn child during pregnancy, with adverse effects on infant and child health
Short birth intervals (<24 months)	Complications during pregnancy (e.g. preterm labour), increased likelihood of depression	Prematurity, fetal death, low birth weight, small size for gestational age (associated with birth intervals of <6–18 months), increased risk of neonatal and postneonatal (one month to one year) death

Table 8: Health problems, problem behaviours and risk factors related to vaccine-preventable disease that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Rubella	Spontaneous or therapeutic abortion	Stillbirth, congenital rubella syndrome
Tetanus	Maternal infection, death	Neonatal infection, death
Hepatitis B	Chronic liver disease, premature death	Neonatal hepatitis B infection

Table 9: Health problems, problem behaviours and risk factors related to HIV that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
HIV infection in adolescents, women and their sexual partners/ spouses	Untreated HIV infection can contribute to increased maternal mortality and morbidity (related to childbirth) and progresses to HIV-related premature illnesses and death	Untreated HIV infection progresses to HIV-related illnesses and death in the mother, which leads to orphanhood (major risk factor for poor child health and social outcome); untreated HIV infection in the mother leads to a high risk (up to 35%) of transmission of HIV from the mother to the neonate, resulting in chronic and fatal illness in the child

Table 10: Health problems, problem behaviours and risk factors related to sexually transmitted infection that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Gonorrhoea	Preterm delivery, chronic pelvic pain, pelvic inflammatory disease (not specific to pregnancy and childbearing), infertility, ectopic pregnancy, spontaneous abortion, postpartum endometritis, prelabour rupture of membranes (specific to pregnancy and childbearing)	Preterm delivery, neonatal conjunctivitis, low birth weight
Chlamydia	Pelvic inflammatory disease, chronic pelvic pain (not specific to pregnancy and childbearing), infertility, ectopic pregnancy	Preterm delivery, low birth weight, neonatal conjunctivitis, pneumonia, otitis
Syphilis	Neurological, cardiovascular and other systemic complications resulting from tertiary syphilis (not specific to pregnancy and childbearing), spontaneous abortion, fetal loss, postpartum endometritis, prelabour rupture of membranes (specific to pregnancy and childbearing)	Preterm delivery, congenital infection abnormalities, stillbirth, low birth weight, enhanced mother-to-child transmission of HIV in mothers living with both HIV and syphilis
Genital herpes	Aseptic meningitis, transverse myelitis (not specific to pregnancy and childbearing), dissemination of infection (especially third trimester), spontaneous abortion (specific to pregnancy and childbearing)	Preterm delivery, neonatal herpes, encephalitis, dissemination of infection, skin/eye/mouth infection, enhanced mother-to-child transmission of HIV
Hepatitis B	Chronic hepatitis, cirrhosis, liver cancer (not specific to pregnancy and childbearing)	Perinatal hepatitis B
Trichomonas	Chronic inflammation of mucosa, leading to enhanced risk of HIV transmission to women	Preterm delivery, low birth weight

Table 11: Health problems, problem behaviours and risk factors related to interpersonal violence that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Consequences of intimate partner violence and sexual violence	Unintended pregnancy, gynaecological problems, abortion, sexually transmitted infections/HIV, depression, post-traumatic stress disorder, emotional distress, suicide attempts, sleep difficulties, eating disorders	Increased childhood mortality; behavioural and emotional disturbances (may be associated with perpetration or experience of violence later in life); morbidity (e.g. diarrhoeal disease, malnutrition)
Consequences of intimate partner violence and sexual violence during pregnancy	Miscarriage	Low birth weight, stillbirth, preterm delivery

Table 12: Health problems, problem behaviours and risk factors related to environmental factors that contribute to maternal and childhood mortality and morbidity

Health problems/risky behaviours/risk factors	Contribution to maternal mortality and morbidity	Contribution to childhood mortality and morbidity
Ionizing radiation	First-trimester miscarriage	Fetal growth restriction, impaired brain function, microcephaly, childhood cancers
Pesticides	Early spontaneous abortion	Childhood cancers
Lead or mercury pollution	Miscarriage, early spontaneous abortion, stillbirth, anaemia	Central nervous system damage, fetal growth restriction, preterm births
Indoor air pollution	Stillbirth, chronic obstructive pulmonary disease, lung cancer (from coal use)	Pneumonia, fetal growth restriction

Annex 2

Defining packages of pre-conception care

Table 1: Tobacco use: prevention and control

Intervention area	Target group	Health-sector policy	Hospitals and health facilities	Outreach	Community and families	Other sectors as partners
Preventing initiation of tobacco use (including passive smoking) through communication	Children, adolescents and young people	Ban on advertising, high taxation, age below which it is not allowed		Health-education messages during outreach	Community-based organizations	Media, schools, workplace and law enforcement
Screening for tobacco use			Yes	Yes		Schools and workplace
Cessation intervention	Addicts		Yes (de-addiction centres)			

Table 2: Alcohol use: prevention and control

Intervention area	Target group	Health-sector policy	Hospitals and health facilities	Outreach	Community and families	Other sectors as partners
Preventing initiation of alcohol use through communication	Children, adolescents and young people	Ban on advertising, high taxation, age below which it is not allowed, statutory warning		Health-education messages during outreach	Community-based organizations	Media, schools, workplace and law enforcement
Screening for alcohol use			Yes	Yes		Schools and workplace
Cessation intervention			Yes (de-addiction centres)			Community-based organizations, e.g. Alcoholics Anonymous

Table 3: Drug use: prevention and control

Intervention area	Target group	Health-sector policy	Hospitals and health facilities	Outreach	Community and families	Other sectors as partners
Preventing initiation of drug use (including injecting drug use, and abuse of drugs like sleeping pills etc.) through communication	Children, adolescents and young people	Over-the-counter sale of some drugs that are abused; link to HIV programmes (especially for injecting drug users)		Health-education messages during outreach		Media, schools, workplace, law enforcement (narcotic bureau)
Screening for drug use		Integrated counselling and testing centres, reproductive tract infection/ sexually transmitted infection centres	Yes	Yes		Schools and workplace
Cessation intervention			Yes (de-addiction centres for rehabilitation and counselling, including occupational rehabilitation)			Community-based organizations, e.g. Narcotics Anonymous

Table 4: Genetic disorders: prevention and control

Intervention area	Target group	Health-sector policy	Hospitals and health facilities	Outreach	Community and families	Other sectors as partners
Promotion – consanguinity, age at pregnancy	Community and family	Laws for preventing consanguinity		Awareness raising	Raise awareness on consanguinity and promote timely childbearing	Media, schools, workplace, law enforcement
Prevention – folic acid	Adolescents, newly-wed couples, and inter-pregnancy	Policy guideline for folic acid distribution	Yes, especially adolescent clinics, family planning clinics	Distribution		Schools and workplace
Screening – for high risk and presence of genetic disorders	Adolescents, newly-wed couples, and inter-pregnancy	Mandatory screening	History-taking (family history, past history), laboratory tests for prevalent disorders, e.g. thalassaemia and prenatal testing for specific disorders	Identificatibased on history of high risk and referral		Raise awareness by media and through education sector and workplace
Management	Those diagnosed with genetic disorders	Management guidelines	Specific management and counselling	Care and support, community rehabilitation	Care and support	

Table 5: Mental health promotion and management of illnesses

Intervention area	Target group	Policy and law	Hospitals and health facilities	Outreach	Community and families	Other sectors as partners
Promotion of mental health	Adolescents, young people and families	Promotion of mental health a a right; reduce pressures relating to education and work			Promotional efforts on locally prevalent practices, such as yoga meditation	Counselling in schools, workplaces, promotion by media to advocate
Screening for diagnosis of mental health problems and referral	Same as above	Policy guidelines on mental health	Use screening tools for early diagnosis of depression, stress and anger, suicidal tendency, psychiatric disorders	Application of simple screening tools	Promote self-assessment by use of simple criteria	Media, schools and workplaces, to enhance awareness of common symptoms
Prevention	Target group affected by mental health problems	Standard guidelines, service-delivery system to support mental health	Psychiatric treatment and counselling	Community-based rehabilitation and support	Family-based support and care	Prevent stigmatization of those affected
Management	High-risk individuals or those who are diagnosed with mental health disorder	Management guidelines	Provision of services in tertiary care hospitals	Community-based care and support	Community-based care and support	

Annex 3

Defining delivery channels for the identified packages of pre-conception care

Table 1: Nutrition

Preventive and curative interventions	Delivery channel
Information; education on health and nutrition (counselling about risks to own health and future pregnancies); nutrition counselling (lower/higher caloric intake, increase physical activity); iron and folic acid supplementation (e.g. food fortification, administration of tablets, use of micronutrient powders containing folic acid); information; education continued breastfeeding); community-based prevention programmes (e.g. increasing opportunities for physical exercise and eating healthy foods	School health/community, peer groups, youth and women's forum, self-help groups, social workers, mass media, all levels of health facility
Salt iodization; nutritional monitoring; provision of energy- and nutrient-dense supplementary foods; continued breastfeeding; community-based prevention	
National-level screening among populations at high risk; blood glucose monitoring (screening for pre-existing type 2 diabetes and every 1–3 years after gestational diabetes)	
Treatment of anaemia; management of diabetes (glycaemic control before, during and after pregnancy)	Primary, secondary and tertiary health facilities

It is important to use extensive information, education and communication interventions to create awareness on junk food, balanced diet using naturally sources of food, the importance of calcium and and vitamin B_{12}, and promoting kitchen gardens. There was a special mention of serving palatable supplementary food, preferably as per local taste, to ensure sustainability of supplementation programmes. A ban on junk food in school canteens was also suggested.

Table 2: Infertility

Preventive and curative interventions	Delivery channel
Anticipatory guidance from health-care providers to create awareness and understanding of fertility and infertility (e.g. temporary state of subfertility/infertility during contraceptive use and following discontinuation of long-acting contraceptives) and preventable and unpreventable causes of infertility/subfertility	Community, peer groups, women's forum, self-help groups, social workers, mass media, all levels of health facility
Counselling on menstrual cycle and fertility cycle; information, education and counselling on risk factors (both female and male) and referral services	
Advocacy targeting communities, civil society, governments, policy-makers and funding agencies	
Guidance on actions that individuals and couples could take to address preventable causes of infertility/subfertility (improving nutrition, improving mental health, immunization, avoiding alcohol abuse); expand beyond misunderstanding that prevention will solve most underlying diseases/disabilities and infertility; counselling for individuals/couples diagnosed with unpreventable causes of infertility/subfertility	Community-level workers and volunteers, school-based counselling, mass media, primary and secondary health facilities
Screening and diagnosis of couples following 6–12 months and following 12 months of attempting pregnancy, using an algorithm involving minimal intervention at the primary level; and screening diagnosis and management at the tertiary level; diagnosis and management of underlying causes of infertility/subfertility, including past reproductive tract infection/sexually transmitted infection; need for specific guidance directed towards populations at high risk	
Management of infertility/subfertility	Primary, secondary and tertiary level of health facility

It was suggested to initiate investigations only after two years, as evidence shows that 15–20% of couples have a chance of conception in the second year and 85% at the end of two years, for the younger age group below 35 years. Counselling must be part of the health facility visit, to reduce stress and anxiety of the couple/partners.

Table 3: Unwanted/too-early/too-frequent pregnancy

Preventive and curative interventions	Delivery channel
Keeping girls in school; influencing cultural norms that support early marriage, through community mobilization, visible, high-level support for pregnancy-prevention programmes; educating girls and boys about sexuality; building community support for preventing early pregnancy Educating adolescents about sexuality, sexual and reproductive health and contraceptive use; building community support for contraceptive provision to adolescents; enabling adolescents to obtain contraceptive services Empowering girls to resist coerced sexual intercourse; changing social norms that condone coerced sexual intercourse; engaging men and boys to critically assess norms and practices regarding gender-based violence and coerced sexual intercourse; educating women and couples about dangers to the baby and mother of short birth intervals; provision of contraception	School health/community, peer groups, youth and women's forum, self-help groups, social workers, mass media, all levels of health facility
Safe abortion services	All levels of health facility

Intensive information, education and communication campaigns on the use of contraceptives and emergency contraceptives, particularly in the case of coerced sexual intercourse and sexual assault, and about the dangers of unsafe abortion were suggested. The importance of raising awareness and counselling on the benefits of health timing and spacing of pregnancy for the mother, neonate, child and the family as a whole was also emphasized.

Table 4: Immunization

Preventive and curative interventions	Delivery channel
Rubella-containing vaccine (monovalent rubella [R] or measles–rubella [MR] or measles–mumps–rubella [MMR]) for women who have not been vaccinated previously	National immunization programme
Tetanus- and diphtheria-containing (Td) vaccine for women who were not fully immunized in childhood or previous pregnancies	National immunization programme
Hepatitis B vaccination	National immunization programme

Table 5: HIV/AIDS

Preventive and curative interventions	Delivery channel
Access to condoms (emphasis on dual protection)	Facility setting, social marketing, demand creation
Information and education (age-specific services)	School setting, social media, health facility
Voluntary counselling and testing centres	Health facility
Screening and treatment for sexually transmitted infection and any other risks	Links with other health-care services in public and private settings
Emergency contraception (post-exposure prophylaxis)	Social marketing, health facility
Injecting drug users, men who have sex with men, sex workers, unmarried adolescents	Strengthening targeted intervention
Preventing unwanted pregnancy in HIV-positive women	Strengthening programmes for the prevention of parent-to-child transmission of HIV

Table 6: Reproductive tract infection/sexually transmitted infection

Preventive and curative interventions	Delivery channel
Education for promotion of safer sex Increase awareness – multiple opportunities	School programme, youth club, health facility, social campaign Education materials for literate people, street plays
Infection-prevention measures	Health facility
Education and testing during antenatal care, obstetrics and gynaecology services, family planning services, management	Health facility
Screening and management	Health facility
Sex workers, men who have sex with men	Targeted programmes

Table 7: Prevention of violence

Preventive and curative interventions	Delivery channel
Awareness and education Empowerment (life-skills education) Peer group support	School programme (including in the curriculum), youth club in community, social media, public campaign, health facility
Provision of health care Reframe sex-selective abortion as gender-based violence Making post-exposure prophylaxis (emergency contraception) available to victims of sexual violence	Multiple sectors like education, legal, health, police; requires policy, guidelines and interlinkages One-stop crisis centre

Table 8: Environmental health

Preventive and curative interventions	Delivery channel
Awareness Public education Policy and guidelines Collecting evidence Micro-financing and subsidy	Multisectoral approach like agriculture, legal, trade, health, corporate social responsibility Community outreach School curriculum

Annex 4

Agenda

Preconception care: global perspective

- Preconception care: rationale and definition
- Evidence for preconception care
- Preconception care: experience from developed countries

Preconception care: regional perspective

- "Healthy transitions for adolescents" package: rationale and objectives for preconception care for young people aged 10–19 years
- Preconception care in the WHO South-East Asia Region: pre- and inter-pregnancy care
- Preconception care interventions: existing situations in countries of the WHO South-East Asia Region
- Adolescent health programme in the WHO South-East Asia Region: broadening the service package towards "healthy transitions for adolescents"
- Preconception care case-studies from the WHO South-East Asia Region

Delivery of preconception care interventions in the WHO South-East Asia Region: opportunities and challenges

- Interventions for primary care in the WHO South-East Asia Region
- Benefits and risks of preconception care
- Defining packages of preconception care in the WHO South-East Asia Region

Delivery of preconception care interventions in the WHO South-East Asia Region: opportunities and challenges

- Identifying delivery mechanisms for preconception care in the WHO South-East Asia Region

Setting a regional agenda for preconception care

- Regional agenda for action
- Regional agenda for research
- Consensus statement

Annex 5

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6–8 August 2013, New Delhi, India

Preconception care is a set of interventions that are to be provided before pregnancy, to promote the health and well-being of women and couples, as well as to improve the pregnancy and child-health outcomes. Adolescence is a natural extension of the pre-pregnancy phase of the life-course continuum. During adolescence, in addition to initiation of sexual behaviour, it is recognized that several health-risk behaviours related to noncommunicable diseases, substance use, injuries, etc. are also initiated and may have lifelong implications. This phase of human life offers an excellent opportunity to promote adoption of healthy behaviours, to ensure health during adolescence, adulthood and later life. Evidence-based interventions can be provided as a package in primary health-care settings during the periods of adolescence (for healthy transition to adulthood), pre-pregnancy and inter-pregnancy care, and could be offered to adolescents in an age-appropriate manner.

A regional expert consultation was organized to review the evolving global and regional vision for preconception care, and to discuss the content of services for preconception care, to be delivered through "healthy transitions for adolescents" and "pre-pregnancy" care packages. This report presents the proceedings and recommendations from the Regional expert consultation, as well as the background knowledge on preconception care.

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