



ጤና ሚኒስቴር - ኢትዮጵያ  
MINISTRY OF HEALTH - ETHIOPIA

# National Preconception Care GUIDELINE

“Ensuring a risk-free conception experience”

June, 2024



# Table of Contents

Contents	Page
LIST OF TABLES AND FIGURES.....	III
LIST OF ACRONYM AND ABBREVIATIONS.....	IV
FORWARD.....	VI
ACKNOWLEDGMENT.....	VII
INTRODUCTION.....	1
THE RATIONALE FOR THE GUIDELINE.....	2
GENERAL OBJECTIVE.....	3
SPECIFIC OBJECTIVES.....	3
SCOPE OF THE GUIDELINE.....	3
TARGET AUDIENCES.....	3
GUIDING PRINCIPLES IN PRECONCEPTION CARE.....	3
COMPONENTS OF PRECONCEPTION CARE.....	4
1. NUTRITION.....	5
2. IRON-FOLIC ACID SUPPLEMENTATION.....	11
3. CHRONIC DISORDERS AND ILLNESSES.....	12
4. REPRODUCTIVE ORGAN ANOMALIES AND CERVICAL CANCER.....	21
5. PREVENTION OF SUBSTANCE USE.....	22
6. SEXUAL HEALTH AND VIOLENCE.....	23
7. FEMALE GENITAL MUTILATION (FGM).....	24
8. INFECTIOUS DISEASE.....	25




9. VACCINE PREVENTABLE DISEASES.....	27
10. GENETIC DISORDERS.....	28
11. MEDICINES WITH ADVERSE EFFECT ON PREGNANCY OUTCOME.....	29
12. FAMILY PLANNING AND CONTRACEPTION.....	31
13. MENTAL HEALTH:.....	32
14. DENTAL HEALTH:.....	32
15. EXPOSURE TO ENVIRONMENTAL RISKS OR OCCUPATIONAL EXPOSURES.....	33
IMPLEMENTATION MODALITIES.....	38
ROLES AND RESPONSIBILITIES AT DIFFERENT LEVELS.....	45
IMPLEMENTATION TOOLS.....	50
MONITORING AND EVALUATION FRAMEWORK.....	54
MEASURING OF PCC UPTAKE AT ANTENATAL CARE ATTENDANCE.....	56
REFERENCES.....	58
ANNEXES: 1.....	61
ANNEX 2: PRECONCEPTION ASSESSMENT TOOL.....	66

# LIST OF TABLES AND FIGURES

Table 1: Nutritional status classification of WRA during preconception based on BMI.....	9
Table 2: Modified World Health Organization classification of Maternal Cardiovascular Risk.....	14
Table 3: Td schedule for women reproductive age group during preconception.....	26
Table 4: Summary of core components of preconception care (PCC) interventions.....	34
Table 5: Delivery modality level of preconception care interventions.....	43
Table 6: PCC monitoring and evaluation logic frame.....	54
Table 7: List of indicators for preconception care service delivery.....	55
Table 8: NB: Please verify the time claimed she received the care in accord with Her LMNP or GA.....	56
Table 9: Job aid for (PCC) interventions (provider).....	61
Figure 1: Types of food diet groups.....	7
Figure 2: Preconception care implementation modality into Ethiopian primary health care.....	41
Figure 3: Preconception care service delivery viewed through the lens of the WHO framework for strengthening health systems.....	50

# LIST OF ACRONYM AND ABBREVIATIONS

AKI	Acute Kidney Injury
APH	Antepartum Hemorrhage
ARM	Annual Review Meeting
CE	Confidential Enquiry
CEMD	Confidentiality Enquiry into Maternal Death
CENNM	Confidential Enquiry into Neonatal near miss
CEO	Chief Executive Officer
CEPD	Confidential Enquiry into Perinatal Death
NCPAP	Nasal Continuous Positive Airway Pressure
CPR	Cardiopulmonary Resuscitation
DHIS2	District Health Information Software 2.
IVC	Intra Vascular Coagulation
EAA	Ethiopian Anesthesia Association
EDHS	Ethiopian Demographic and Health Survey
EMwA	Ethiopian Midwifery Association
EPHI	Ethiopian Public Health Institution
ESOG	Ethiopian Society of Obstetrics and Gynecology
FMOH	Federal Ministry of Health
GTD	Gestational Trophoblastic Diseases
HELLPC	Hemolysis, Elevated Liver enzymes, and Low Platelet Count
ISCD	International Statistical Classification of Diseases
ISCD-MM	International Statistical Classification of Diseases in to Maternal Mortality



ID code	Identification Code
LMIC	Low and Middle Income Countries
MPDSR	Maternal and Perinatal Death Surveillance and Response
MMR	Maternal Mortality Rate
MoH	Ministry of Health
MNMCR	The Maternal Near-Miss Case Review
NYHA	New York Heart Association
EPAESO	Ethiopian Professional Association of Emergency Surgical officer
PHEM	Public Health Emergency Management
QoC	Quality of Care
SDG	Sustainable Development Goals
TWGs	Technical Working Groups
UNFPA	United Nations Population Fund
WHO	World Health Organization
UNICEF	United Nations Children's Fund



**FOREWORD** There is a growing recognition that the embryonic development and placentation phase is critical for the outcome of pregnancy. Despite this, in Ethiopia, there is an abundant prevalence of congenital anomalies. Adverse pregnancy outcomes including low-birthweight, still birth etc.

This national guideline document has been created to meet the requirements of global and national evidences such as WHO, HSTPII and the national 2021-2025 RH strategic plan. Preconception care aims to identify and modify biomedical, behavioral, and social risks to improve pregnancy outcome during preconception and between pregnancy (inter-conception) periods.

The guideline is intended to give standardized comprehensive and equitable preconception care to minimize preventable maternal and perinatal deaths. The PCC guideline will also enable to implement PCC packages and ascertain maternal, perinatal, and adolescent health and well-being by ensuring positive pregnancy outcome. The PCC guideline is designed to be used at all structures and mainly implemented in an integrated way and strengthen tertiary and referral hospitals to provide in standalone PCC clinic

The ministry of health MCAYH LEO as chief leader will advocate, coordinate and cascade the implementation of the guideline in each level. The objectives of the guideline can only be successful through the dedication of health workers, the continued political commitment, collaboration and rigorous effort of all stakeholders. Therefore, I request all stakeholders including development/implementing partners, professional Associations, regional health bureaus, and agencies to put their efforts in the implementation of preconception care in the health care system across Ethiopia. Finally, I assure the ministry is always put efforts to support the implementation of this guideline

A handwritten signature in blue ink, which appears to read "Dereje Duguma". The signature is written in a cursive style and is positioned above the printed name of the signatory.

*H.E. Dr. Dereje Duguma (MD, MPH)*

*State Minister of Health*

*The Federal Democratic Republic of Ethiopia*





**ACKNOWLEDGMENT** The Ministry of Health, MCAHS LEO would like to acknowledge all experts who exert their professional expertise tirelessly throughout the guideline development process. We would like to recognize the regional health bureau, Donors, partners, professional associations, universities, hospitals, and different Lead Executive offices in the Ministry of Health for their unreserved technical support. Special appreciation goes to WHO, UNFPA, TPHC, FGAE, MSIE, Nutrition International, and JSI/ Quality Health Access for their financial support.

**MESERET ZELELEM ( DR)**

*Ministry of Health*

**SR. ZEMZEM MOHAMMED**

*Ministry of Health*

**NETSANET BELETE(PHD)**

*Ministry of health*

**ASCHALE WORKU**

*Ministry of Health*

**TAKELE YESHIWAS**

*Ministry of Health /JSI/IPHCSD*

**LIKELESH LEMA**

*Ministry of Health*

**SHELEME HUMNESSA**

*Ministry of Health*

**ETENESH G/YOHANNES**

*Ministry of Health/EH*

**BETELHEM TAYE**

*Ministry of Health/UNFPA*

**MULAT ADEFERIS (OBGY)**

*Ministry of Health/WHO*

**MEKDES AKALEWOLD**

*Ministry of Health*

**ANDARGACHEW KASSA(PhD)**

*Hawassa University*

HON. Dr. Meseret Zelalem (MD, Pediatrician)

Maternal, Child and Adolescent Health LEO

Federal Ministry of Health

**MULAT ADEFERIS(GYN/OBS)**

*Ethiopian Midwives Association*

**MULUETA BEFKENA**

*ESOG*

**ADANE BEKELE**

*EESA*

**SISAY T/MARIAM (OGY)**

*Tirunesh Beijing Hospital*

**HINSERMU BAYU**

*EMeA*

**ZERIHUN BOGALE (MD+)**

*Ministry of Health*

**KUMSA MESGENU**

*Oromia Health Bureau*

**TILAHUN TESHAY**

*Central Ethiopia HB*

**ANIEL NADEW**

*AA City Administration HB*

**GEBREMEDHIN GEBREEGZIABHER**

*Mekele University*

**ESUBALEW BIHONEGN**

*Amhara RHB*

**Aregash Molla**

*Ministry of Health*

**PROF. DILAYEHU BEKELE (OBGY)**

*St.Paul MMCH*

**NEGA SEMAW(OBGY)**

*MSIE*

**SINTAYEHU TSEGIE**

*Ministry of Health*

**MEKONNEN TESHAYE**

*St. HMMC*

**YIRGALEM MENGISTU**

*Ministry of Health*

**Dr.Wondemu Gudu**

*(obgy,+)/ESOG*


# INTRODUCTION

Preconception care (PCC) is defined as a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to improve pregnancy outcomes during preconception and between pregnancy (inter-conception) periods through risk assessment, health education and promotion, and management. It is an evidence-based intervention that aims to optimize the preconception health status of people of reproductive age contemplating pregnancy.

Worldwide, around 295,000 maternal deaths occur due to pregnancy or childbirth complications each year. The burden of adverse pregnancy outcomes (APOs) that mainly contribute to maternal and neonatal mortality and morbidity in Sub-Saharan Africa (SSA) was 29.7%. Based on a systematic review in SSA, that included a significant number of studies from Ethiopia, it was reported that the burden of preconceptional risks were : Underweight ranging from 0.64 to 36.2%; overweight 8.3% to 76.7; anemia from 36.7% to 58.1%; unintended pregnancy from 4.2% to 94.3%; alcohol intake from 5.3% to 68.7% ; smoking from 1.1% to 20.3%: chat chewing from 9.9% to 27.6% ; chronic medical conditions from 2% to 16.6%; APOs from 11% to 51.9% ; HIV from 0.4% to 25.8%; STIs from 1.3% to 29.2%; malaria from 1.9% to 47%; psychosocial distress from 13.9% to 60% ; and intimate partner violence from 6.7% to 43.7%. Women with those risks are at a heightened risk of adverse birth outcomes like miscarriage, preterm birth, low birth weight, birth defects, and antepartum hemorrhage.

Since most APOs happen before the early periods of conception and the median antenatal attendance for Ethiopian women is around 16 weeks of gestation, investing solely in antenatal care is not adequate for improving pregnancy and birth outcomes. Therefore, incorporating preconception care into the continuum of maternal care is one of the strategies to prevent adverse pregnancy outcomes. There is a growing experience in implementing preconception care initiatives both in high-income countries, such as Italy, the Netherlands, and the United States, as well as in low- and middle-income countries, such as Bangladesh, the Philippines, Kenya, and Sri Lanka.

A systematic review and meta-analysis study in Ethiopia showed that the overall burden of adverse fetal outcomes was 26.88%. The incidence rate of neural tube defects was 107.5 per 10,000 live births. Additionally, health care providers' level of knowledge and skills about PCC was unacceptably low in public health facilities. Various studies conducted in Ethiopia have demonstrated that there is no or poor implementation of PCC in Ethiopia. The first policy brief presented to the MoE in 2019, based on extensive studies conducted by Hawassa University, offered six recommendation points. These include the need to develop a clear preconception health and care policy and guidelines (PCHC); increasing the public's awareness; integrating PCC into the pre- and in-service training curricula for all health care providers; folic acid supplementation to all RH aged women contemplating pregnancy; and folic acid fortification of selected food items.



By 2030, there is a global agreement to reduce maternal mortality to less than 70 per 100,000 LB, newborn mortality to 12 per 1,000 LB, and under-five mortality of at least 25 per 1,000 LB. Ethiopia has also pledged to reduce maternal mortality from 401 to 279 per 100,000 LB, the stillbirth rate from 15 to 14 per 1,000 births, neonatal mortality from 33 to 21 per 1,000 LB, and under-five mortality from 59 to 43 per 1000 (digit missed) LB by 2025 (HSTPII). PCC plays an important role in achieving these goals, as evidence shows that preconception care intervention prevents negative mother and child health outcomes.

Taking into account global and national evidence as well as recommendations from international organizations like the WHO, MOH has set PCC goals for its national reproductive health (RH) strategy. One of these goals includes increasing the number of women who receive PCC during their ANC attendance by 25%. Another strategic goal is the development of a national PCC guideline that is available to all healthcare providers across the country. This national guideline has been carefully designed to meet the requirements of the national RH strategic objective. All regional health bureaus, universities, partnering organizations, and other stakeholders are highly expected to use this guideline document to effectively prevent APOs in Ethiopia. Thus, the aim is to make PCC accessible to all segments of the population, including disabled women, adolescents, and both males and females who are sexually active.

## **The Rationale for the Guideline**

The rationale for preconception care originates from the growing recognition that the embryonic development and placentation phases are critical for the outcome of pregnancy. However, the country faces a high number of maternal and prenatal deaths, and having a good utilization of PCC decreased maternal and child mortality by 57% and maternal and child morbidity by 73%. In Ethiopia, there is an abundant prevalence of congenital anomalies like the neural tube defect, which could be prevented with folic acid supplementation in preconception care. The guideline is needed to provide standardized, comprehensive, and equitable preconception care to minimize preventable maternal and perinatal deaths. The PCC guideline will also enable the implementation of PCC packages and ascertain maternal, perinatal, and adolescent health and well-being.

## General Objective :

The objective of this guideline is to implement PCC at all levels to improve pregnancy outcomes in the country.

## Specific Objectives:

- ✓ To implement preconception care intervention packages
- ✓ To ensure early screening or assessment, counseling, and management of preconception risks for pregnancy outcomes
- ✓ To ensure that a woman has a pregnancy with an optimal state of health, which results in a positive pregnancy outcome

## Scope of the Guideline

This guideline will be implemented at all health care and health system levels, including the community structure, to provide PCC services to women or couples planning to have a baby. The PCC service consists of assessment or screening, counseling or education, and management, which may include linkage or referral.

## Target Audiences

The primary target audiences of this guideline are health care providers at all levels (including health extension workers (HEWs), midlevel professionals, general practitioners, specialists and sub specialists) working in different departments, mentors and supervisors both at public and private health facilities, as well as couples and women. It also serves to guide and serve as reference for policymakers, managers, partners, professional associations/societies, researchers, university/college instructors in the health-related fields and others.

## Guiding Principles in Preconception Care:

- Incorporating in the National health systems
- Integrating in all Health care delivery points
- Holistic care
- Equity

- Quality of care
- Evidence based practice
- Couple engagement
- Woman centered
- Multi-disciplinary
- Confidentiality
- Community engagement
- Evidence based decision making:

## Components of Preconception Care

**Assessment:** All reproductive age group couples/ woman should be asked for their reproductive life plan; pregnancy plan. Those who planned conception within the coming three months needs to be assessed for preconception care using assessment tool (annex 1)

**Interventions:** Preconception care intervention includes: counselling, treatment and linkage or referral.

## Preconception Care Interventions

### 1. NUTRITION

Women of reproductive age face a double burden of under nutrition and obesity. An underweight or overweight woman, a short woman, or women with micronutrient deficiencies during pregnancy contribute to increase complications for mother and fetus. In Ethiopia, 22% of women of reproductive age are thin, 8% are overweight or obese and 24% are anemic. Additionally, 29% pregnant and lactating women were also anemic. Only 47% of women received adequate dietary diversity and only 11% pregnant women took Iron Folic Acid (IFA) supplements for the recommended 90 plus days. Moreover, adherence to iron-folic acid supplementation among pregnant women in Ethiopia is only 41.4%. A systematic review over 10 years reported that the prevalence of folate deficiency among women of reproductive age group in Ethiopia is as high as 46%. Similarly, 29%, 15% and 11.3% of Ethiopian adolescents are thin, stunted, obese or overweight respectively. In resource limited countries like Ethiopia, women in the reproductive age (WRA) consume a monotonous diet of predominantly starchy staples which often contain few or no animal source foods with limited seasonal fruits and vegetables. Diversifying diet is essential to ensure micronutrient adequacy among women.

A woman who enters pregnancy with good nutritional status will have a lower risk of poor maternal and fetal outcomes, decreased lifelong risk for chronic diseases for both the mother and child. Women of reproductive age (15-49 years) do have increased requirements for certain micronutrients such as folic acid, iron, iodine, calcium and zinc which can be found either by consuming diversified and fortified food or by supplement which are essential for positive pregnancy and health outcomes. Additionally, adolescents (10-19 years) are the second-fastest growth stage in life after infancy and this creates an increased nutritional demand which makes them vulnerable for malnutrition. Therefore, ensuring dietary adequacy and healthy weight is essential during a woman's reproductive years and preconception period.

All women who have a potential to be pregnant should be screened for anemia with hemoglobin, optimal healthy weight with BMI, assess for dietary practice, iron- folic acid intake, micronutrient intake, deworming status, and assess all women of childbearing age for uptake folic acid 0.4/0.5 mg daily, at least for three months before conception.

## Nutritional Preconception Interventions

- Nutritional Counseling
- Iron-folic acid supplementation
- Micronutrient Supplementation(Iodine fortified salt)
- Deworming
- Prevention of anemia
- Promoting healthy weight during preconception

### 1.1 Nutritional Counseling

Provide nutrition counseling for women during preconception period to engage their couples to consume adequate and diversified foods. It is recommended to choose at least five out of 10 different food groups at each meal and six different food groups throughout the day as shown below:

- Counsel to consume 80–120 grams of legumes every day, such as beans, lentils, chickpeas, or peas.
- Counsel to consume 100–200 grams of various fruits and vegetables each day, such as tomatoes, kale, carrots, and papayas.
- Counsel to add 10–20 grams of nuts and oilseeds, such as groundnuts, sunflower, or sesame seeds, to your diet to diversify it.
- Counsel to consume every day, include animal-sourced items in your meals, such as eggs, meat (60 grams), and dairy products (300–400 grams).
- Counsel take up to 15–20 grams of fat and oils per day.
- Advice to drink 8–10 large glasses of clean water every day
- Advice to limit the intake of sugar, sweets, and soft drinks to below 30 grams per day.
- Advice to limit your salt intake to below 5 grams per day.
- Counsel to get some exercise every day for at least 30 minutes.
- Avoid from consumption of unhealthy foods such as consumption of saturated fats, sugar containing beverages, processed meats, and high sodium.





















- Advice intake of calcium rich foods such as dairy products (yoghurt, milk, and cheese), eggs, fish, beans, soybeans, beef and cereals like whole millet and rice.
- Advice to take zinc rich foods such as meat, fish, legumes, seeds, nuts, dairy, eggs, whole grains, and some vegetables.
- Counseling on intake of iodine through use of iodized salt for all WRA
- Promote regular consumption of fiber rich foods which are essential for bowel movement (whole grains, fruits, vegetables).
- Counsel on avoiding caffeine consumption (inhibitors of iron/zinc/calcium absorption) within one hour before or after eating, and promote increased intake of absorption enhancers, vitamin C-rich foods such as oranges, tangerines, mangoes etc.
- Counsel and educate on limiting consumption of processed, junk foods and other sugar containing drinks to prevent overweight and chronic diseases.



Figure 1: Types of food diet groups



## Estimation of serving size using household utensils

Food Groups	Measuring utensils with estimated gram amount			
Legumes	1 medium ladle (100g-125g)	1 adult handful beans (30g-45g)	1 glass homemade fruit juice	1 medium sized TSP cooked vegetable (25-35g)
Legumes				
Cereals	1 medium-sized teff injera (only) = 310 g 	1 medium-sized homemade bread = 100 g 	1 medium-sized commercial bread = 110 g 	
Fruits & Vegetables	1 medium-sized banana = 150 g 	1 medium-sized orange = 200 g 		
Sugar & Honey, Salt	1 teaspoon of sugar = 4 g 	1 teaspoon of honey = 5 g 	 1 pinch of salt = 2 g	
Meat, Eggs & Milk		1 medium-sized boiled egg = 50 g 	2 medium-sized scrambled eggs = 50 g 	1 glass of milk = 200 g 
Nuts & Oilseeds		1 Tablespoon of oil = 10 g 	1 Tablespoon of sprouts (moong) = 10 g 	1 medium sized fried fish = 300 g 

## 1.2 Iodine Supplementation

Iodine deficiency disorders (IDD) can result in adverse maternal and fetal outcomes. Neurodevelopmental deficits in fetal brain are the most significant irreversible effect of IDD during early pregnancy. Iodine deficiency affects not only the individual, but its Trans generational (Cyclical). People with hypothyroidism are less efficient, less productive, and more prone to illness.

Iodine deficiency is one of the public health problems in Ethiopia. Studies showed that about 72.6% of schoolchildren and 80% of pregnant women had insufficient iodine intake.

Ideally, women should consume 150 g of iodine daily for a long period of time before conception in order to ensure adequate intra-thyroidal iodine stores and adequate iodine supplies during pregnancy. Assess the woman's intake of iodine in their dietary practices.

### Preconception interventions:

- Counsel the woman to take iodized salts
- Advice to take iodine supplement 150microgrm daily

## 1.3. Deworming

- Advice to deworm annually or bi-annually with albendazole (400 mg) or mebendazole (500 mg), to control and/or prevent anemia in women reproductive age group.
- Advice to keep proper hygiene and sanitation practices

## 1.4. Prevention of Anemia

Anemia during pregnancy increases the risk of maternal mortality, perinatal mortality, low birth weight (LBW), preterm birth, and lower Apgar score babies. All women during the preconception period should be screened for anemia by checking their hemoglobin levels. The cutoff point for anemia in women of reproductive age group is a hemoglobin level of 12 g/dL.

### Preconception interventions:

- Counsel for the intake of foods rich in iron, such as meat, fish, and poultry.

- All preconception women diagnosed with anemia as per the national protocol receive increased daily elemental iron to 120 mg until their Hb concentration becomes normal (Hb12 g/L or higher).
- Link or refer if the anemia is not manageable.

## 1.5. Promoting Healthy Weight during Preconception

Pre-pregnancy BMI strongly influences gestational weight gain (GWG) and potentially fetal and maternal outcomes. For women with a low pre-pregnancy BMI (<18.5kg/m<sup>2</sup>) has been linked to low birth weight (LBW), preterm birth, and small for gestational age (SGA) infants. Infants with low birth weight are known to have an increased risk of infant morbidity and mortality (Lancet. 2021). Assess nutritional status using BMI to all women reproductive age group who have a potential to be pregnant. A Non pregnant women’s nutritional status is classified based on their BMI as presented in the table below.

**Table1. Nutritional status classification of WRA during preconception based on BMI**

Nutritional status/Classification	BMI (Kg/m <sup>2</sup> )
Underweight	< 18.5
Normal weight	18.5-24.9
Overweight	25-29.9
Obese	≥30

### Preconception interventions:

- All women with a BMI of 25 kg/m<sup>2</sup> and above should be counseled about the risks to their own health, the additional risks associated with exceeding the overweight category, and the risks to future pregnancies, including infertility.
- All women with a BMI of 25 kg/m<sup>2</sup> above should be offered specific strategies to improve the balance and quality of the diet, to decrease caloric intake, and to increase physical activity

## 2. IRON-FOLIC ACID SUPPLEMENTATION

Folic acid should be provided as a supplement in addition to adequate intake of foods rich in folic acid such as dark green vegetables, beans, peanuts, sunflower seeds, fresh fruits, whole grain, liver and sea foods (fish) to women prior to conception to prevent neural tube defects in newborns.

Preconception interventions:

- ✓ Provide daily oral iron-folic acid tablet (elemental iron 30 - 60mg) and folic acid (400µg/0.4mg) which is equivalent to 1 tablet supplementation daily at least for three months before conception
- ✓ Counsel women who have a history of APOs like (neural tube defect, DM, abortion) to take (5mg folic acid daily) at least for three month before conception
- ✓ Provide counseling on the protective effect of folic acid supplementation and adherence during preconception

## 3. CHRONIC DISORDERS AND ILLNESSES

In 2016, Noncommunicable Chronic diseases (NCDs) were responsible for 71% (41 million) of the 57 million deaths which occurred globally. The NCDs responsible for these deaths included cardiovascular diseases (17.9 million deaths, accounting for 44% of all NCD deaths and 31% of all global deaths); cancers (9 million deaths, 9% of all NCD deaths and 16% of all global deaths); chronic respiratory diseases (3.8 million deaths, 9% of all NCD deaths and 7% of all global deaths); and diabetes (1.6 million deaths, 4% of all NCD deaths and 3% of all global deaths)

About 27% of pregnancies are affected by a chronic illness. The most common conditions are asthma, hypertension, and diabetes. Women of reproductive age with uncontrolled chronic illnesses have the probability of increasing the risk of adverse pregnancy outcomes.

### 3.1. Diabetes Mellitus

Diabetes mellitus is a chronic metabolic disorder characterized by either absolute or relative insulin deficiency, resulting in increased glucose concentrations. The commonly used classifications of diabetes mellitus of importance here are: Pregestational (type 1, formerly referred to as insulin-dependent diabetes or juvenile onset diabetes, and type 2 or Maturity onset) which occurs antecedent to pregnancy and gestational diabetes mellitus (GDM).Pregestational diabetes is associated with significantly increased risk of adverse maternal and fetal outcomes, including congenital malformations, early pregnancy loss, preterm birth, preeclampsia, macrosomia, and perinatal mortality.

**Assessing or Screening:** In the preconceptional period, all women should be screened for diabetes as per the national guideline. Testing to detect Type 1 and Type 2 diabetes in asymptomatic women should be considered in adults who are overweight or obese (BMI >25 kg/m<sup>2</sup>) and who have one or more additional risk factors for diabetes, including a history of gestational diabetes mellitus.

#### **Preconception Care of Women with Pre-gestational Diabetes Includes:**

- Counseling on lifestyle modification including dietary practices and exercise in high-risk groups.
- Screening and early detection for those who had previous history of stillbirth, gross malformation, overweight, Obesity
- Screen for DM for those who experienced previous history of GDM or had family history of DM.

## Preconception Interventions:

- Provide counseling and information about risks of miscarriage, congenital malformation, preeclampsia and perinatal mortality
- Evaluate for chronic complications such as hypertension, retinal examination, renal function test, 24-hour urine protein excretion, HbA1C and electrocardiography.
- Thyroid function tests for women with Type I diabetes
- Provide high-dose supplementation (5mg folic acid daily) for DM women or risk of DM
- HbA1C should be measured monthly until satisfactory control is achieved (5-7%).
- Adherence to medical management should be emphasized and followed.
- Preconceptional Target blood sugar levels:
  - \* Fasting capillary blood glucose: 80 -110 mg/dL. OR
  - \* 2 hr capillary postprandial blood glucose: < 150 mg/dL.
- Folic acid supplementation, 5 mg daily at least three months before conception and continue until 12 weeks of gestation
- Review all current medications (e.g. ACE inhibitors, diuretics,  $\beta$ -Blockers, statins), and change to a form of therapy that has less fetal risk.
- Encourage regular exercise and weight control.
- Dietary advice: a diet with complex carbohydrates, soluble fiber, and reduced levels of saturated fats. And also advice to avoid simple sugars.
- Use effective contraception until target blood glucose control is achieved before conception.
- Pregnancy is not recommended in the presence of ischemic heart disease, active proliferative retinopathy (untreated), severe renal insufficiency (creatinine clearance 2.0 mg/dL or heavy proteinuria (>2g/24hr.)), and if HgbA1c >10%.

## 3.2. Thyroid Diseases

Overt thyroid disease is present in 1% of women of childbearing age while subclinical thyroid disease is present in 2-3% in women of childbearing age. Universal thyroid laboratory tests are not recommended for all women seeking fertility. In Ethiopia, the prevalence of autoimmune thyroid disease is reported to be 1.2% and approximately 3% of women develop Graves' disease (hyperthyroidism) during their lifetime.

Maternal hypothyroidism has a negative impact on the course of pregnancy, and on the neurological development in the fetus therefore appropriate management in the preconception period may improve the outcome of pregnancy. Overt maternal hypothyroidism is associated with irreversible damage to the fetal intellectual development. Therefore, maternal hypothyroidism should be managed prior to conception.

Maternal hyperthyroidism has been linked to an increased rate of preeclampsia, preterm birth, low birth weight, and increased risk of pregnancy losses.

Assessing sign and symptoms of thyroid disease like goiter, and all women with symptoms of hypothyroidism, those who have a family or past history of thyroid disease should be screened for thyroid disease.

### Preconception interventions:

In preparation for pregnancy, women with thyroid disease on medication should not abruptly cease their thyroid medications, and should consult their obstetrician or endocrinologist.

- Women should be counseled during preconception about the maternal and neonatal complications of thyroid disorders and the need for treatment both during preconception and in pregnancy.
- Women on the anti-thyroid medication of methimazole should be converted to propylthiouracil in preparation for pregnancy and in the first trimester. For overt hypothyroidism, levothyroxine dose should be titrated to achieve a TSH level of 2.5 u/ml or below prior to pregnancy. The following subset of women may benefit from screening with TSH:
  1. Women with a history of thyroid dysfunction in the past, including thyroid surgery
  2. Women with goiter
  3. Clinical signs of hyper/hypothyroidism
  4. Type I Diabetes Mellitus (Higher rate of autoimmune diseases)
  5. Other autoimmune disorders
  6. History of recurrent pregnancy losses
  7. Women who have had prior neck or head irradiation

### 3.3 Cardiac Diseases

Cardiac diseases in pregnancy are associated with maternal mortality and fetal loss. A recent systematic review reported the pooled prevalence of cardiovascular disease in Ethiopia to be 5% (range from 1 to 20%).

In the preconceptional phase, every woman should receive at least a basic clinical cardiac assessment and, if necessary, refer to a specialist.

#### Preconception interventions:

- Comprehensive evaluation: a detailed history including personal and family history of cardiac illnesses (information on prior valve replacement, interventions and assessment of functional status and a complete physical examination, electrocardiogram, and echocardiogram)
- Counseling on the specific risks of pregnancy
- Revise medication use and doses; discontinue drugs which have teratogenic potential (e.g. angiotensin-converting-enzyme inhibitors and angiotensin II receptor blockers)
- Referral or linkage for surgical correction of some valvular lesions before pregnancy (valvulotomy for MS, correction of congenital heart diseases)
- Let the client know the risk of pregnancy when mitral stenosis valve diameter of < 1cm
- Counsel/provide on vaccines (influenza) and monthly benzathine penicillin for women with rheumatic valvular heart disease

**Table 2: Modified World Health Organization Classification of Maternal Cardiovascular Risk**

WHO Pregnancy risk Classification (Risk of pregnancy by medical condition)	Cardiovascular conditions by WHO Risk class
<p><b>WHO Risk Class I</b></p> <p>No detectable increased risk of maternal mortality and no or mild increase in morbidity.</p>	<ul style="list-style-type: none"> <li>• Uncomplicated. Small or mild               <ul style="list-style-type: none"> <li>○ <i>Pulmonary stenosis</i></li> <li>○ <i>Patent ductus arteriosus</i></li> <li>○ <i>Mitral valve prolapse</i></li> </ul> </li> <li>• Successfully repaired simple lesions (atrial or ventricular septal defect. Patent ductus arteriosus. Anomalous pulmonary venous drainage.)</li> <li>• Atrial or ventricular ectopic beats, isolated.</li> </ul>



<p><b>WHO Risk Class II</b> (if other wise well and uncomplicated) small increased risk of maternal mortality or moderate increase in morbidity.</p>	<ul style="list-style-type: none"> <li>• Unoperated atrial or ventricular septal defect</li> <li>• Repaired tetralogy of Fallot</li> <li>• Most arrhythmias</li> </ul>
<p><b>WHO Risk Class II or III</b> (Depending on individual) Risk as indicated in class II (above) or class III (below)</p>	<ul style="list-style-type: none"> <li>• Mild left ventricular impairment</li> <li>• Hypertrophic cardiomyopathy</li> <li>• Native or tissue valvular heart disease not considered WHO I or IV</li> <li>• Marfan syndrome with out aortic dilatation</li> <li>• Aorta &lt;45 mm in aortic disease associated with bicuspid aortic valve</li> <li>• Repaired Coarctation</li> </ul>
<p><b>WHO Risk class III</b> significantly increased risk of maternal mortality or severe morbidity. Expert counseling required. If pregnancy is decided upon. Intensive specialist cardiac and obstetric monitoring needed throughout pregnancy. Child birth and the puerperium.</p>	<ul style="list-style-type: none"> <li>• Mechanical valve</li> <li>• Systemic right ventricle</li> <li>• Fontan circulation</li> <li>• Cyanotic heart disease (unrepaired)</li> <li>• Other complex congenital heart disease</li> <li>• Aortic dilatation 40-45 mm in marfan syndrome</li> <li>• Aortic dilatation 45-50 mm in aortic disease associated with bicuspid aortic valve</li> </ul>
<p><b>WHO Risk Class IV</b> (pregnancy contraindicated) extremely high risk of maternal mortality or severe morbidity; pregnancy contraindicated. If pregnancy occurs termination should be discussed. If pregnancy continues, care as for class III.</p>	<ul style="list-style-type: none"> <li>• Pulmonary arterial hypertension of any cause</li> <li>• Severe systemic ventricular dysfunction (LVEF &lt;30%, NYHA III-IV)*</li> <li>• Previous peripartum cardiomyopathy with any residual impairment of left ventricular function</li> <li>• Severe symptomatic mitral dilated &gt;45 mm</li> <li>• Aortic dilation &gt;50mm in aortic disease associated with bicuspid aortic valve</li> <li>• Native severe coarctation</li> </ul>

\*LVEF = left ventricular ejection fraction; NYHA = New York Heart Association

## 3.4 Hypertension

A Meta-analysis of several studies showed the mean prevalence of hypertension in Ethiopia to be 19.6 %. The study also showed that the prevalence of hypertension in males and females was 20.6 % and 19.2 % respectively. Blood pressure (BP) control before pregnancy improves the effect of chronic hypertension on pregnancy outcomes. Evidence showed that women with chronic hypertension are at a higher risk of developing complications. Specific antihypertensive drugs used by hypertensive women should be titrated, discontinued or changed to other drugs, in order to optimize BP control prior to pregnancy. The woman should have at least one health facility visit and have her BP Checked.

Pregnancies complicated by chronic HTN may be associated with worsening hypertension, preeclampsia and eclampsia, hemorrhagic stroke, cardiac decompensation, and renal deterioration. HTN during pregnancy also poses substantial fetal risks that include preterm birth, intrauterine growth restriction, placental abruption, and intrauterine fetal death. Superimposed preeclampsia in women with hypertension is associated with significant adverse pregnancy outcomes.

All women in the preconceptional period should be screened for hypertension by measuring BP especially those with previous hypertensive disorders in pregnancy, history of chronic hypertension, renal disease, autoimmune disorders or thrombophilias.

### Preconception interventions:

- Counseling about the risk of superimposed preeclampsia and its associated complications
- Assessment for long term complications of hypertension
- Counsel on family planning to delay pregnancy until optimized
- Discontinue angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) and replace with other medications.
- Whenever possible, pre-pregnancy BP should be normalized with lifestyle changes before pregnancy. These comprise dietary changes (low-salt intake, increased intake of fresh fruits and vegetables), healthy weight modification to avoid obesity, and adherence to anti-hypertensive medications, which should improve health and pregnancy outcomes.

## 3.5. Asthma

Asthma is a fairly common health problem in Ethiopia, affecting 1.5-3% of the population. Asthma during pregnancy requires special attention and comprehensive treatment. The effects of pregnancy on asthma are variable. In general, about one third of patients worsen, one third improves, and the remaining one third is unchanged. Suboptimal control of asthma during pregnancy may be associated with increased maternal or fetal risk.

Women with poorly controlled asthma before pregnancy are more likely to experience worsening symptoms during pregnancy. Poorly controlled asthma poses risks to the fetus, such as hypoxia, intrauterine growth restriction, preterm birth, low birth weight, and fetal and neonatal death. Environmental factors such as allergens (animal dander, house-dust mites, cockroaches, pollens, and indoor molds), tobacco smoke, and indoor/outdoor smoke, perfumes, cleaning agents) could exacerbate asthma attacks and should be discussed during preconception to limit exposures.

Use of oral corticosteroids is associated with reduced birth weight, increased risk of oral cleft, and higher rates of preeclampsia. Inhaled corticosteroids are recommended for preventive treatment and may avoid the need for oral treatment. When oral corticosteroids are indicated for treatment of severe asthma, the risk of uncontrolled severe asthma to the mother and fetus is greater than the risk of oral corticosteroids.

Assess all women for family history and past history of asthma. Besides identify exacerbate and relief factors of asthma.

### Preconception interventions:

- Counsel patients on environmental factors such as allergens that can exacerbate asthma attacks and should be discussed during preconception to avoid exposures.
- Demonstrate on proper use of inhalers - including cleaning the inhalers
- Advise to have the inhalers and medicines to workplace/while travelling, to get an immediate relief during emergency attack.
- Advise to seek health care if they face breathing difficulty, wheezing or cough
- Counsel a women to control asthma with suitable pharmacotherapy prior to conception
- Provide information about the increased risk of Asthma and some of its medications to herself and her fetus (such as preterm birth, low birth weight, small for gestational age and congenital malformations).

- Women with asthma who are planning to become pregnant or who could become pregnant should be treated with pharmacologic step therapy for their chronic asthma as per the national guideline.

### 3.6. Chronic Renal Diseases

The diagnosis of renal disease before pregnancy is approximately 0.03% in a population-based study of pregnant women with kidney disease. The potential impact of chronic renal disease is dependent on the degree of serum creatinine elevation, defined as mild (0.9-1.4 mg/dL), moderate (1.4-2.5 mg/dL), or severe ( $\geq 2.5$  mg/dL), and the level of hypertension.

Pregnant women with mild renal disease and normal blood pressure have greater than 90% chance of a successful outcome and are unlikely to be affected by the progression of renal disease. On the other hand, women with moderate or severe renal disease before pregnancy are at risk for developing worsening renal function during pregnancy.

Maternal morbidity associated with moderate to severe chronic renal disease commonly includes the development of preeclampsia, anemia and chronic hypertension. Moreover, proteinuria is associated with poor pregnancy outcomes and long-term progression of renal disease. Adverse pregnancy outcomes associated with maternal renal disease include preterm delivery, fetal growth restriction, and increased fetal loss and stillbirth. Angiotensin-converting enzyme inhibitors and/or angiotensin II receptor blockers, which are commonly used among renal patients, are known teratogens.

Assess any sign and symptom of renal disease including past history of renal disease.

#### Preconception interventions:

- Counseling women on the risks of pregnancy to the likelihood of progression of renal disease, the risks of renal disease and medications on pregnancy outcomes, and the need for blood pressure control prior to and throughout the pregnancy.
- Counseling clients with severe chronic renal disease to delay pregnancy until controlled
- Provide counseling on family planning to achieve optimal timing of pregnancy.

## 3.7. EPILEPSY

Women with epilepsy are at increased risk for a range of perinatal complications compared with the general population, including preeclampsia, premature delivery, hemorrhage, fetal growth restriction, stillbirth, and a dramatically increased risk of maternal mortality. The risk of congenital malformations in children of mothers with epilepsy depends on the type of administered drug, the number of drugs, and the dosage.

Assess all women for any history of loss of consciousness, convulsions, abnormal body movement and any past history of seizures.

### Preconception interventions:

- Counsel the women and her family with comprehensive information on the course of epilepsy during pregnancy.
- Administer a prophylactic dose of 5mg of folic acid per day 3 months before pregnancy and during the first trimester.
- The use of a single antiepileptic drug is preferred
- Woman should be on anticonvulsant regimen for at least 6 months and in stable conditions (after dose modification or withdrawal) prior to conception

## 4. REPRODUCTIVE ORGAN ANOMALIES AND CERVICAL CANCER

Anatomical anomalies including fusion anomalies of the uterus, imperforate hymen, vaginal septum anomalies and pelvic tumors that develop from genital tract like, cervical cancer and uterine tumors often can compromise pregnancy outcomes both for the fetus and mother.

Assess all women for history of reproductive organ anomalies, cervical screening, and HPV immunization status.

### Preconception interventions

- All women should be screened for structural pelvic anatomical defects during preconception visit
- Provide Cervical cancer screening, counseling, treatment, and referral linkage
- When diagnosed with problems clients should be counseled regarding its impacts on fertility and consequences on maternal and fetal (mother and baby) health outcome.
- Additionally, women with acquired pelvic structural problems (pelvic bone fracture, obstetric fistula and disability) with known risk factor should be told about predisposing risk factor.
- Facilitate linkage or referral to appropriate centers for further evaluation and management

## 5. PREVENTION OF SUBSTANCE USE

Substance use is a critical public health concern that is linked with several harmful maternal and fetal consequences. Substance use including smoking, passive smoking, drinking alcohol, Khat, and using certain recreational drugs can cause several problems during pregnancy both for the woman and her baby, such as premature birth, birth defects, and infant death. Women or adolescents who are vulnerable may as a result experience adverse consequences such as impaired growth of fetal brains, reduced attention and executive functioning skills, poorer academic achievement as well as more behavioral problems.

Assess all women about the exposure of tobacco smoking/passive smoking, alcohol, Khat, prescription drugs for non-medical reasons, illegal recreational drugs and substance abuse.

### Preconception interventions:

- Provide assessment for exposure to alcohol, all forms of cigarette smoking including passive smoking, Khat chewing and other substance use by guaranteeing privacy and confidentiality
- Counseling on avoidance of alcohol use, all forms of cigarette smoking, inhalants, chat chewing and other substance use
- Counseling to reduce coffee intake to less than or equal to three cups/ day
- Create access to psychosocial support to stop the use of substances before, during and after pregnancy
- Facilitate access to appropriate counseling and referral to rehabilitation centers for woman affected by substance abuse

## 6. SEXUAL HEALTH AND VIOLENCE

### 6. 1. Gender based Violence (GBV)

GBV is a common practice and there is a strong correlation between GBV and unplanned pregnancy. Reproductive control, coercion and sexual assault by an abusive partner may result in both unintended pregnancies and forced terminations of pregnancy. Women and girls who are subjected to acts of violence may be victims of such assault even during pregnancy, which in turn may have deleterious effects on pregnancy outcome. Screen for present or past physical, sexual and emotional violence. Assess for physical findings suggestive of prior trauma scar.

#### Preconception interventions:

- Counsel for STI screening including HIV AIDS.
- Provide post exposure prophylaxis for HIV AIDs
- Provide emergency contraceptives
- Identify survivors, Counsel, and provide clinical care and ensuresafety
- link the survivors for psychosocial support
- Create awareness on gender-based violence and link survivors to social support groups if available in the local area.
- Counseling and provision of referral for sexual incompetency/dysfunction



## 7. FEMALE GENITAL MUTILATION (FGM)

FGM is a widespread practice in certain cultures that causes 100 million women to suffer disastrous health consequences, especially during pregnancy and childbirth. Although usually carried out between infancy and early adolescence, FGM is sometimes performed late in adolescence or adulthood and many women are re-infibulated after delivery. FGM leads to obstructed labor and childbirth, and has serious health consequences, including psychological trauma, infertility, sexual disharmony, divorce, and others.

Assess the women for a history of female genital mutilation.

### Preconception interventions:

- Counsel and educate the family and the women about FGM and its consequence
- Inform women and couples about complications of FGM and about access to treatment including deinfibulation and mass excision
- Encourage them to obtain early and regular antenatal care, and caution them against re-infibulation after delivery

## 8. INFECTIOUS DISEASE

**8.1. STI and HIV:** Neisseria Gonorrhoea and Chlamydia Trachomatis are frequently cited as STI components. The APOs are significantly linked to infectious outcomes from these bacteria, including embryonic death and significant physical and developmental impairments, including mental retardation and blindness. In addition, early detection of HIV infection is essential for preventing mother-to-child transmission and starting antiretroviral therapy quickly

Assess STIs by asking women about a history of abnormal vaginal discharge, a burning sensation during sex or urination, vulvar itching, an ulcer on the genital area, or swelling at the inguinal area. Universal preconception screening should be offered for HIV, Syphilis and Hepatitis B.


### Preconception interventions:

- Counsel to avoid risky behaviors
- Counsel on correct and consistent use of condom
- Counsel/follow on adherence of ART drugs
- Link to STI/ART clinic for further treatment

**8.2. Hepatitis B virus (HBV):** The pooled prevalence of hepatitis B infection among pregnant women in Ethiopia is 6.4%. This signifies that it is one of the major infectious diseases that need intervention during the preconception period. On top of other protective measures (blood safety, avoiding risky sexual practice and contact with active carriers) hepatitis B vaccine is the backbone of hepatitis B prevention.

### Preconception interventions:

- Ensure that women are screened for Hepatitis B surface antigen before conception
- Counsel on the importance of hepatitis B vaccination to reduce the risk of maternal to child transmission.
- In women of reproductive age who have negative HBsAg tests, three doses of HBV vaccine are administered at 0, 2, and 6 months.
- If she is found to be positive, link her to higher facilities where treatment is available.



**8.3. Malaria:** Sub-Saharan Africa including Ethiopia has the largest burden of malarial disease, with over 90% of the world's malaria-related deaths occurring in this region. It has the potential to cause adverse birth outcomes, including intrauterine fetal growth restriction, anemia, spontaneous abortions, preterm labor, and low birth weight.

#### Preconception interventions:

- Counsel women to use insecticide-treated nets (ITNs).
- Screen and treat using RDTs for women at high risk of malaria.
- Provide antimalarial prophylaxis for women who live in a high-risk malaria area or have past history of traveling to a high-risk malaria area.

**8.4 Tuberculosis (TB):** Untreated tuberculosis (TB) disease represents a greater hazard to a pregnant woman and her fetus than does its treatment. TB adversely affects pregnancy outcomes, such as preterm delivery, low birth weight, fetal distress, birth asphyxia, and perinatal death.

#### Preconception interventions:

- Advise women to avoid anti-tuberculosis drugs that are contraindicated during pregnancy such as streptomycin, kanamycin, amikacin, capreomycin, and fluoroquinolones.
- Advise to keep rooms well ventilated since TB droplets can remain suspended in the air for several hours in a room.
- Counsel them to have natural light in their living house: UV light kills off TB bacteria.
- Advise them to cover the mouth and nose when coughing or sneezing to reduce the spread of TB bacteria.

## 9. VACCINE PREVENTABLE DISEASES

According to WHO recommendation, it is essential to assess the immunization status of women of reproductive age regarding tetanus, diphtheria, hepatitis B vaccine, and HPV vaccine during preconception care.

As stated in national ANC guideline and obstetric protocol, all women giving birth and their newborn babies should be protected against tetanus with the aim of preventing maternal and neonatal tetanus (MNT). Currently, bivalent vaccine combining tetanus toxoid and diphtheria toxoid is included into routine immunization program of pregnant woman in Ethiopia. Thus, TD status should be assessed prior to conception. TD is recommended every 10 years for all adults who completed immunization against tetanus and diphtheria previously. Adults who have not been previously vaccinated against tetanus and diphtheria should receive a series of three vaccines.

### Preconception interventions:

- Provide Tetanus toxoid immunization for all women of childbearing age and pregnant women who has never been exposed to Td \*

Table 3: Td schedule for women reproductive age group during preconception

Dose of Td	When to give	Expected duration of protection
<b>Schedule 1</b>	For those not vaccinated before	
1	At 1st contact or as early as possible in pregnancy or before pregnancy	<b>None</b>
2	At least 4 weeks after Td1	<b>1-3 years</b>
3	At least 6 months after Td2 or during subsequent pregnancies	<b>At least 10 years</b>
<b>Schedule 2</b>	for those who completed schedule 1 or childhood vaccination	
	At least one year after Td3 or completed childhood vaccinated	<b>At least 10 years</b>

- Strengthening joint decision making of mothers and husbands to enhance health-seeking behavior to receive protective doses of Td vaccine
- Counseling on importance of vaccination against tetanus and diphtheria
- Ensuring all women is vaccinated against Tetanus and Diphtheria during their childbearing age and possibly longer.

## 10. GENETIC DISORDERS

Representative epidemiologic data on the magnitude of genetic disorders in Ethiopia are lacking. This makes planning and implementing pragmatic preconception genetic counseling & testing challenging (particularly for population specific genetic disorders like Thalassemia, cystic fibrosis). For population specific (sickle cell disease) and non-specific genetic diseases (e.g. Down syndrome), obtaining an accurate 3-generation genetic and family history of both parents-to-be is the initial step in genetic counseling & testing.

Parental age at conception should be taken into consideration. The prevalence of chromosomal abnormalities increases with maternal age. There is also some evidence that paternal age over 40 may decrease sperm quality and slightly increase the risk of autosomal dominant conditions. HCPs should integrate discussion about the consequences of delaying child bearing as it relates to the risk of age-related congenital and chromosomal abnormalities during preconception counseling of couples.

Assess the women for Genetic risks (women have positive genetic risk if at least one of the following four questions is answered in the affirmative ) Do you, your partner, previous children or other relatives have a birth defect, genetic condition, developmental delay or learning disability? Have you had two or more miscarriages? Have you or your partner had a previous pregnancy end because of a birth defect, genetic disease, or death before or after birth? And will you be 35 years old or older when you plan to give birth?

### Preconception interventions:

- Women with recurrent early pregnancy losses, previous babies with chromosomal abnormalities (trisomy 16, 18, 21), birth defects (e.g. congenital heart diseases) and developmental delay (mental retardation), old paternal age should be thoroughly advised on the necessity of genetic counseling and testing (preferably referral to centers with a maternal fetal medicine unit or provide remote consultation with expertise)
- Screening in the pre-pregnancy period offers the additional advantages of identifying, before pregnancy, couples at risk of having children with genetic diseases and offering appropriate testing to optimize patient education, counseling, and options for achieving pregnancy.
- For women with an increased risk of NTD, a male partner with a personal history of NTD, or a previous pregnancy of either partner with women with an NTD, Pre-conception Folic Acid (5mg) Starting 3 months prior to pregnancy and through the first trimester is recommended. Then a multivitamin containing 0.4 mg/day folic acid for the remainder of pregnancy and continued for 4–6 weeks postpartum or as long as breast feeding continues should be prescribed.

# 11. MEDICINES WITH ADVERSE EFFECT ON PREGNANCY OUTCOME

Teratogenic drug is an agent that can disturb the development of the embryo or fetus by halting the pregnancy or producing congenital malformations (birth defects). Different medications have different effects on the fetus at different times during pregnancy. Exposures to some medications in the first trimester can cause miscarriages (as the time of organogenesis is the first 6-8wks of pregnancy). This emphasizes the need for thorough counseling to women who are on teratogenic medications to avoid unintended pregnancy. Potentially teratogenic medication should be adjusted in collaboration with the prescribing health care provider before the patient discontinues contraception.

Assess women for a history of medication from the street, herbal or natural medications, recreational drugs/ illicit substance, and weight-loss medications

## Preconception interventions:

*Advise women about the possible effects of teratogenic drugs on the fetus.*

- **Isotretinoin:**

- If used in pregnancy to treat acne, it can result in miscarriage and birth defects. Pregnancy prevention should be practiced in women of reproductive age taking these drugs.

- **Anti-Epileptic Drugs:**

- Valproic acid is the most teratogenic drug
- It is recommended that a woman using antiepileptic medications, whether for seizure disorders or other conditions, should defer conception until her seizures are well-controlled on the minimum dose of medication, preferably monotherapy.
- Advice should also be given regarding 5mg folic acid supplementation before pregnancy and during conception.

- **Oral Anticoagulants:**

- Warafin crosses the placenta and causes bleeding in the foetus resulting in spontaneous abortion, stillbirth, neonatal death, and preterm birth. It can also cause birth defects like mental retardation, blindness in the 2<sup>nd</sup> and 3<sup>rd</sup> trimester.
- Early exposure during pregnancy could be avoided preconceptionally by switching drugs. Women should use a less teratogenic anticoagulant such heparin prior to conception whenever possible, keeping in mind the risk/benefit ratio for patients with certain conditions like mechanical heart valves.

- **ACE inhibitors:** for hypertension: oligohydramnios and renal failure. Switch to other antihypertensives
- **Tetracycline: for treatment of Acne:** Yellow staining of teeth and diminished growth of long bones.
- **High doses of steroids** (e.g for auto immune disorders like SLE) and other Androgenic agents (Ethinisterone, Norethisterone(for menstrual disorders/AUB, PCOS):
  - Associated with ambiguous external genitalia, masculinization of female fetus especially in the 1st trimester.
- **Antifungals (Fluconazole):**
  - *Congenital abnormalities with inadvertent use in the first trimester at high doses e.g. malformed bones, face, head, heart*
- **Antidepressant (Lithium):**
  - Various malformations including cardiac abnormalities.
- **Chemotherapeutic agents:**
  - All chemotherapeutic agents: growth retardation, cleft palate, CNS anomalies etc.
- **Folic acid antagonists (Methotrexate):**
  - Chemotherapeutic agent used for treatment of some gynecologic tumors (Gestational trophoblastic neoplasia). It can cause multiple malformations.
  - Use contraceptives during treatment and for at least 3 months after treatment

*Some key considerations regarding preconception medication use among reproductive age women:*

- The lowest effective doses of the safest medications should be used whenever it is medically reasonable. Switching medication may be appropriate during the preconception period if suitable alternatives exist with less risk to the pregnant woman or fetus.
- General statements may be made about the teratogenic potential of prescription drugs, however, maternal condition and treatment needs should be considered, weighing the benefit to the mother with the risk to the fetus.
- Health care providers should be aware of the five risk categories (A, B, C, D, X) of commonly used drugs in reproductive age women for proper periconceptional counseling & management.
- Keeping up-to-date with the safety profile of common medications on the developing fetus is important.

## 12. FAMILY PLANNING

FP is an important and fundamental component of preconception care, which reduces adolescent pregnancy rates, and promotes spacing between pregnancies. Reproductive planning has the potential to considerably reduce maternal, newborn, infant and child deaths. Globally it decreases 71% of unwanted pregnancies, thereby eliminating 22 million unplanned births, 25 million induced abortions and 7 million miscarriages. It also reduces sexual transmission of HIV through correct and consistent condom use. Family planning also important to delay the pregnancy until optimized.

Assess whether the woman has a Reproductive Life Plan by asking: Are you hoping to have any (more) children, in the future? If so, have you thought about how many you would like and how soon you would like to have them? And what would you like to do to avoid a pregnancy until you want to conceive?

### Preconception interventions:

- Assess risk of recurrence in subsequent pregnancies including general health, known medical conditions and medications
- Counsel and provide information on family planning and contraception for those who desire pregnancy but needed to delay pregnancy for medical reason
- Return of fertility following discontinuation of contraceptive methods should be informed to the couples wishing to postpone conception
- Counsel women about birth spacing and girls to delay teenage pregnancy.
- Link or refer the clients to family planning unit for family planning service utilization



## 13. MENTAL HEALTH:

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. Premature birth, low birth weight, reduced rates of breastfeeding start, as well as negative cognitive, emotional, and developmental outcomes in newborns and early children, are all significantly associated with maternal depression and anxiety. All women should be assessed for depression. This includes inquiring into history of mental illness, mood disorders, suicidal ideation, homicidal ideation, postpartum depression and behavioral changes.

### Preconception interventions:

- Assess safety of drug profile (see medications) and recommend discussion with mental health provider for anticipatory guidance for conception, pregnancy and postpartum periods.
- Underscore the risks of stopping any medication without medical supervision, even if she thinks she has become pregnant.
- Counsel the woman about potential for exacerbations or recurrences in and following pregnancy and about strategies to identify and manage such occurrences.
- Refer to specific guidance for known mental health disorder

## 14. DENTAL HEALTH

Oral health may be considered an important part of prenatal care, given that poor oral health during pregnancy can lead to poor health outcomes for the mother and baby. Managing teeth or mouth infections during PC care are pivotal to decreasing APOs like premature births and lower birth weight. Gum disease can increase the risk of clogged arteries, heart disease, and stroke. It may also worsen preexisting conditions such as diabetes, respiratory diseases, and osteoporosis.

Assess the redness, swelling, tenderness, bleeding gums, painfulness loose teeth.

### Preconception intervention:

- Manage if there is pre-dental or dental abnormality
- Advice on oral health

## 15. EXPOSURE TO ENVIRONMENTAL RISKS OR OCCUPATIONAL EXPOSURES

Exposure of women during the preconception period to phthalates, lead, ionized radiation, pesticides, mercury, and pollution with biomass fuel can lead to adverse pregnancy outcomes like miscarriage, stillbirth, and anemia

Assess to exposure for any contact with pets, use of a coal stove for heating, the condition ventilation during heating/cooking, exposure for X-ray/radiation therapy, exposure to heavy metals (mercury, lead, arsenic, aluminum) And organic solvents (chemicals used in industries or installations like benzene, methanol)

### **Preconception interventions:**

- Advise to reduce environmental or occupational exposures

### **Basic and Case-Specific PCC Screening**

The following tests should be done for all women:

- Test for Hemoglobin (Hb), or hematocrit (Hct), blood group, Rh factor, HIV, Hepatitis B Virus and syphilis test.

**Table 4: Summary of Core Components of Preconception Care (PCC) Interventions**

S.N	PCC Interventions	Assessment/Screening	Interventions	Linkage / Referral
1	Family planning	<p>Assess RLP using</p> <p>Do you like or plan to become pregnant in the near future?</p> <p>Assesse history of APOs (unintended pregnancy, abortion..) infertility</p> <p>Assess infertility status</p>	<p>Counsel to use modern contraception</p> <p>Advice to have RLP</p>	Referral or linkage
2	Nutrition	<p><b>Nutrition assessment:</b></p> <p>Assess dietary practice, diversity, healthy food choice</p> <p>Anthropometry</p> <p>Biochemical tests</p> <p><b>Eligibility for supplementation and treatment:</b></p> <p>Assess for anemia, and iodine</p>	<p>Counsel on optimizing healthy weight(exercise 30 minutes per day)</p> <p>Counsel for adherence</p> <p>Advice on optimal a healthy diet at least six different food groups throughout the day to diversify your diet</p> <p>Counsel woman to take iodized salts</p>	Referral or linkage
3	Folic acid supplementation	<p>Assess for eligibility of routine folic acid supplementation or a higher dose.</p>	<p>Provide Iron-folic acid supplementation every day at least for three months</p> <p>Advice intake of foods rich in folic acid such as dark green vegetables, beans, peanuts, sunflower seeds, fresh fruits, whole grain, liver and sea foods (fish)</p>	

4	Chronic disease	<p><b>Diabetic Mellitus:</b></p> <p>Screen for DM using blood sugar and 3Ps</p> <p>Assess past history and family history</p> <p>Measure BMI</p>	<p>Counsel on lifestyle modifications</p> <p>Counsel to use contraceptive until Fasting capillary blood glucose is 80 -110 mg/dL</p> <p>Advice to take with Folic acid supplement 5 mg daily at least for 3 months before conception</p>	Referral or linkage
		<p><b>Cardiac Diseases:</b></p> <p>Assess history of: Cough, shortness of breath, Orthopnea, chest pain, palpitation or easy fatiguability</p> <p>Assess past history of cardiac problem</p> <p>Assess vital sign</p>	<p>Counsel on risk of Complications</p> <p>Revise medication use and doses;</p> <p>Counsel on the initiation of FP, If cardiac function is not optimized</p>	Referral or linkage
		<p><b>Chronic Kidney disease:</b></p> <p>Assess for history of chronic renal disease</p>	<p>Counsel on the need for blood pressure control</p> <p>Counseling clients with severe chronic renal disease to avoid pregnancy before treatment.</p>	Referral or linkage
		<p><b>Hypertension:</b></p> <p>Screen for HTN using BP</p> <p>Assess blurred vision and headache</p> <p>Assess past history and family history</p> <p>Measure BMI</p>	<p>Advise her on : health life style based on individualized risks and healthy weight modification to avoid obesity</p> <p>Counsel on the initiation of FP, if BP not optimized</p>	Referral or linkage
		<p><b>Epilepsy :</b></p> <p>Assess history of loss of consciousness, abnormal body movement and any past history of seizures</p>	<p>Advise to uptake 5mg of folic acid per day at least 3 months before conception.</p> <p>Avoid teratogenic antiepileptic drugs, e.g valproic acid</p>	Referral or linkage
5	Substance use	<p>Assess past or current use of substance (cigarette, chat, alcohol or recreational drugs and medication from street)</p>	<p>Counseling on avoidance of alcohol use/abuse and other substance use</p> <p>Advice the use of less than 3 cups of coffee</p>	Link or refer

6	Physical activity	Assess the life style (physical activity) Assess past history and family history Measure BMI	At least 150 minutes of moderate-intensity aerobic activity every week, plus muscle-strengthening activities at least 2 days a week	
7	Reproductive organ anomalies and cervical cancer	Assess history of reproductive organ anomalies, cervical screening and immunization status for HPV	Counsel to screen for cervical cancer	Refer or link
8	Sexual health, and Violence	<b>Gender based violence (GBV):</b>  Screen for current, recent or past physical, sexual and emotional violence  Look for physical findings suggestive for prior trauma scar	Counseling and provision of referral for sexual dysfunction	Refer or link
		<b>Female genital mutilation (FGM)</b>  Assess to the women about history of female genital mutilation	Counsel and educate the family and the women about FGM and its consequence	
9	Infectious disease	Assess for past and current history of STIs  Screen for SYPHILIS TEST  Screen for HIV  Assess for malaria ant TB  Screen for Hepatitis B	Counsel to screen for Hepatitis B  Counsel risk behavior	link to facilities
10	Vaccine Preventable Diseases	Screen for Hepatitis B surface antigen  Assess Td vaccine status	If HBsAg test is negative, provide three doses of HBV vaccine  If HBsAg test is positive, link her to facilities where treatment is available.  Counseling on importance of vaccination against tetanus and diphtheria	
11	Genetic risks	Assess for the Genetic risks	Advice to uptake Folic Acid (5mg) at least for 3 months before conception	Link or refer
12	Medicines with adverse effect on pregnancy outcome	Assess history of medication use as over the counter, herbal or natural medications, recreational drugs/ illicit substance, and weight- loss medications	Advise women about the possible effects of teratogenic drugs on the fetus.	

13	Mental health	Assess for depression, anxiety and stress	Counsel woman about potential for exacerbations or recurrences of the problem	Link or refer
14	Exposure for environmental or occupational hazards	Assess exposure for any contact with pets, X-ray/radiation therapy, and exposure to heavy metals	Advice to reduce environmental or occupational exposures	
15	Dental health	Assess redness or swelling, tenderness or bleeding gums, painfulness while chewing and loose teeth	Advice on oral health	

# IMPLEMENTATION MODALITIES

Considering technical and administrative capacity of the existing health system, integration of preconception care into health care delivery points is strongly recommended by the ministry (MOH) especially for primary health care units. Health care facilities, public health programs and existing community level structures are among the preconception service integration and delivery points. However, general and tertiary hospitals can take into account establishment of standalone preconception care clinics for optimal preconception care implementation. In addition to this, both private and NGO healthcare facilities have to stick to this national PCC guideline for optimal preconception care implementation. In primary healthcare system PCC is provided under the ANC unit which is also a referral unit within the facilities for PCC.

To ensure sustainability, PCC intervention packages should be integrated into the existing health programs and other delivery platform at the local and national levels. Existing health programs should follow the model of “every woman every time”, that is using every opportunity to ensure that women are aware that their health, behaviors and exposures before pregnancy are important contributors to the outcome of their pregnancy.


Efficient integration helps in overcoming barriers to service delivery and improving accessibility to PCC. Integration can take place in each level of health sector, education sector or community platforms. Health institutions (e.g. tertiary centers) can establish a separate Preconception Care Unit staffed with health care providers with specific PCC skills based on the client need.

## 1. Health care Facility Integration Points:

The following clinical care delivery units/departments/clinics/centers are the potential areas of preconception care integration

**Adolescent and Youth Clinics:** As part of the routine AYH service, adolescent and youth should be counseled on family planning, risk of teenage pregnancy and child marriage. Adolescent and youth sexual and reproductive health services should also include screening and management of sexually transmitted infections (STIs), HIV/AIDS and PCC services.

**Postnatal care Service Unit:** The postnatal period is the ideal time to deliver PCC interventions. An efficient strategy would be to expand post-natal care to include preconception care as well to optimize chances of a healthy, pregnancy and delivery. Upon each postnatal visit proper PCC can be done to handle a pregnancy and subsequent birth. Those who have encountered prenatal loss, LBW, preterm labor and other postpartum complications need special consideration on PCC interventions.



**Family Planning Service Unit:** Benefits of family planning include the opportunity to delay pregnancies, allowing provision of health promotion and preventive care for women prior to pregnancy, and ensure that pregnancies are spaced appropriately. Before making the decision to discontinue contraception, the health provider should evaluate and address preconception risks of the couple. In facilities with no standalone PCC units, clients who purposely come for PCC to switch FP method could be served in the family planning units for the first visit then linked to ANC units for continuum of care.

**Comprehensive Abortion Care Unit:** Preconception care should be provided during comprehensive abortion care, as part of post abortion service, and explore the reason for the abortion as part of PCC service including counseling & referral.

**ART clinic and PMTCT (MSG) unit:** For all reproductive age women living with HIV preconception care needs to be given and should be informed the burden of pregnancy on HIV and vice versa and minimizing risks of horizontal and vertical HIV transmission. The PCC services should be provided with solid counseling to ensure that the viral loads are controlled or suppressed; drug side effects are assessed and managed; nutrition status assessed; partner support, economically capable and psychosocial readiness is maintained.

**Chronic Illness Follow up Clinics:** Reproductive age women visiting chronic medical illness clinics such as DM, mental health, epilepsy, cardiac problems, hormonal disorders, hypertension, hyper /hypothyroidism etc should be assessed for recent plan of pregnancy and provided with PCC service.

**Under 5 (IMNCI) Clinics:** under5 clinics are one of the key windows of opportunities to screen for pregnancy intention among mothers; and PCC services need to be assessed for demands and integrated in addition to screening and management of the newborn/baby's problems.

**Mental Health Clinic:** Preconception care in mental health units includes identifying those at risk; counseling about the potential risks of untreated illness, drug side effects and its associated negative health outcomes; informing about the risks and benefits of various treatment options and modifying treatment regimens as needed.

**Rehabilitation Centers:** Rehabilitation centers for substance abuse, smoking cessation clinics, and other outlets may be utilized to provide a combined preconception package.

**Other Health Service Delivery Points:** Implementation of PCC should consider various sites and points of entry for provision of PCC services such as outpatient (e.g, cervical cancer screening and management units, etc) inpatient units.



## 2. Public Health Programs/Initiatives:

Even though public health programs and initiatives are variable by their nature, it is always advisable to integrate preconception care into existing initiatives and programs. The public health initiatives listed below are not all-inclusive and always efforts have to be made to incorporate new programs and initiatives.

**Nutrition Program:** Women need access to preventive and clinical care during their reproductive years for their own wellbeing and for children they may have. This includes attention to dietary adequacy, healthy weight, and any medical nutrition therapy and preventive nutrition needs. The PCC services of nutrition program include healthy diet promotion, nutrient supplementation and food fortification (e.g with the addition of folic acid, iodine), counseling on balanced diet, when implemented on a national level, with effective policies to govern safe practices, will be able to target a large segment of the population.

**Expanded Program on Immunization (EPI):** Immunization programs are an opportunity to provide preconception care for women of reproductive age groups. Hence, health care providers shall provide preconception care during immunization programs.

## 3. Existing Community Structures:

Community-based programs that provide pre-conception services directly address the specific needs of the particular community. Key issues of the community such as a high rate of teenage pregnancies or low family planning services uptake can be targeted, and interventions can then be tailored and implemented accordingly. To implement PCC at a community level, cultural and social diversities must be taken into account

The goal of utilization of community structure is to raise the community's knowledge on the benefit of PCC programs and to offer the services. This is accomplished by informing the general public through:

- Existing community-based platforms (WDA, VHL, PWC, patient associations, school health program etc) and social gatherings to promote PCC.
- Mass media campaigns/ Social marketing, mass mobile text messages, and (TV, radio, digital technologies, and print media),
- Workplace programs or referrals: educational workshops, sessions on sexual and reproductive health/STI's, smoking cessation, and other relevant health-related topics.
- Support groups for high-risk couples and women, including those who have experienced a previous poor outcome.

- Brief document prepared to raise awareness and educate the public using IEC/ BCC materials such as leaflet, brochures, bill board, video etc.
- Use of PCC champions in the community.

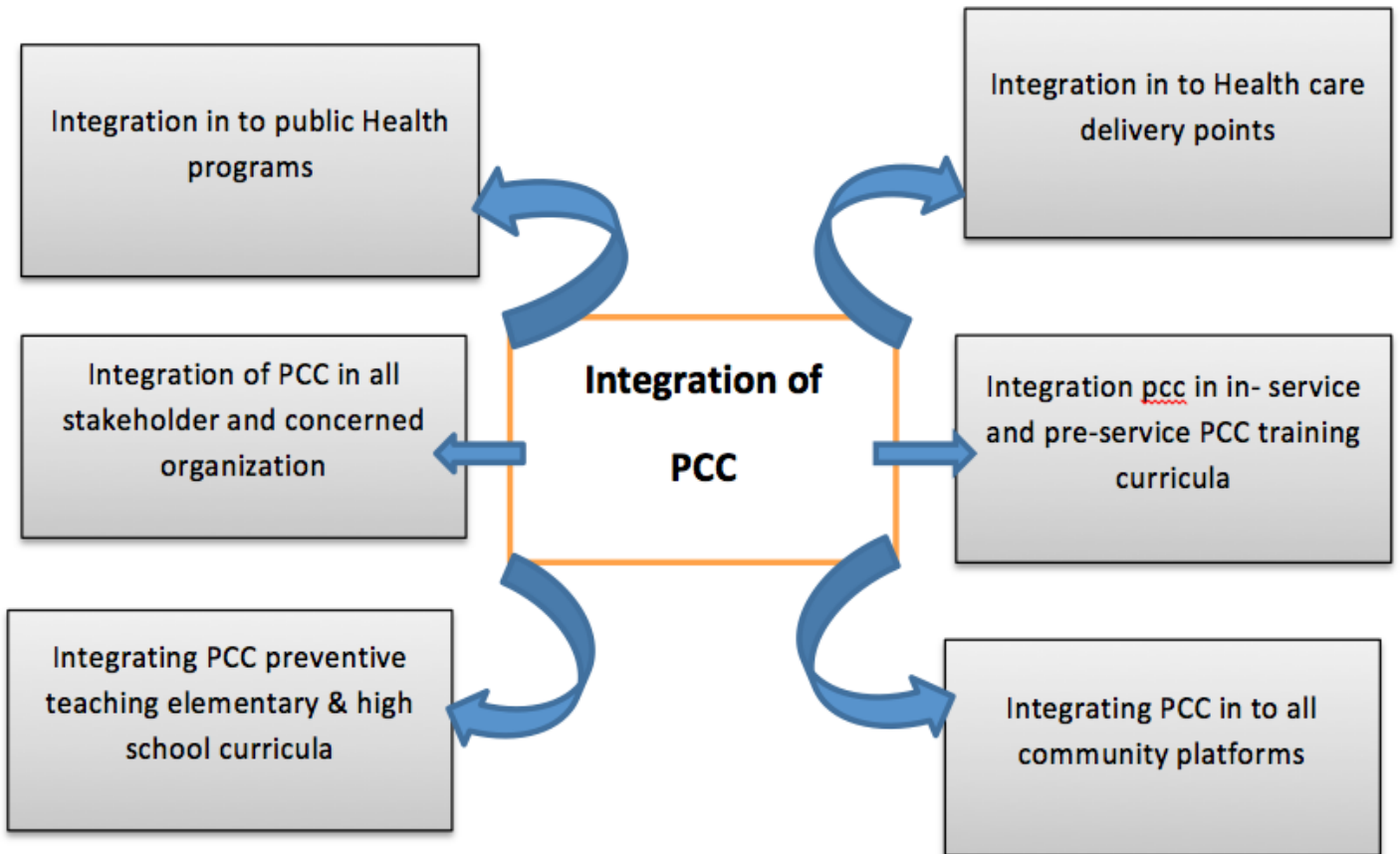


Figure 2: preconception care implementation modality into Ethiopian primary health care

## Integration of PCC within the Education System

Integration of preconception care within existing in-service training and pre-service educational programs is more efficient and sustainable over the long term period.

Most of the curriculums in Ethiopia are becoming nationally harmonized and, bringing broad impact; therefore, preconception care should be incorporated into relevant training curriculums to produce health care providers equipped with the necessary competencies and the non- health care program students with adequate knowledge of preconception care.

Integration can be facilitated through:

- Development and incorporation of standardized curricula and tools for training public health and clinical care providers on PCC
- Incorporating reproductive and sexual health program as a vital component of secondary and preparatory school levels of education.
- Incorporating PCC related issues in the existing training packages.

### **Integration of PCC at the Community Level**

Community-based programs that provide pre-conception services directly address the specific needs of the particular community. Key issues of the community such as a high rate of teenage pregnancies or low family planning services uptake can be targeted, and interventions can then be tailored and implemented accordingly. To implement PCC at a community level, cultural and social diversities must be taken into account.

Health Extension Workers/HEWs/ can play key role in integrating PCC program with community health care delivery package. Moreover, girls in marginalized areas can be provided with preconception counseling in community settings.

**Table 5: delivery modality level of preconception care interventions**

Interventions	Level of integration			
		Health System		
	Community	Primary	Secondary	Tertiary
Family planning and contraceptive				
Birth spacing	✓	✓	✓	✓
Reproductive planning after abortion	✓	✓	✓	✓
Infertility and sub infertility		✓	✓	✓
Nutritional status				
Maternal pre-pregnancy weight	✓	✓	✓	✓
Diet, exercise and weight loss	✓	✓	✓	✓
Folic acid supplementation	✓	✓	✓	✓
Multivitamins supplementation	✓	✓	✓	✓
Iodine and deworming	✓	✓	✓	✓
Chronic disease				
Diabetes	✓	✓	✓	✓
Hypertension	✓	✓	✓	✓
Cardiac Diseases	✓	✓	✓	✓
Chronic Kidney disease		✓	✓	✓
Epilepsy		✓	✓	✓
Substance use				
Alcohol		✓	✓	✓
Smoking	✓	✓	✓	✓
Drug		✓	✓	✓
Medication		✓	✓	✓
Physical activity	✓	✓	✓	✓
Reproductive organ anomalies and cervical cancer				
Sexual Health and Violence consumption (Smoking cessation)	✓	✓	✓	✓
Gender based violence	✓	✓	✓	✓
Femal genital mutilation( FGM)		✓	✓	✓
Infectious disease	✓	✓	✓	✓
STI/HIV	✓	✓	✓	✓
Malaria and TB	✓	✓	✓	✓
Hepatitis B		✓	✓	✓

Vaccine Preventable Diseases	✓	✓	✓	✓
Genetic risks		✓	✓	✓
Medicines with adverse effect on pregnancy outcome	✓	✓	✓	✓
Mental health	✓	✓	✓	✓
Exposure to environmental or occupational exposures	✓	✓	✓	✓
Dental health		✓	✓	✓

# ROLES AND RESPONSIBILITIES AT DIFFERENT LEVELS

## Roles of the Ministry of Health

- Prepare and disseminate PCC guidelines.
- Update the guideline as needed
- Develop PCC service recording and reporting formats and indicators that to be tracked through DHIS2 data reporting system
- Assign responsible focal person to coordinate PCC program
- Posting the training and other PCC materials on the Ministry of Health and partner Organizations' websites
- Ensure coordination among responsible stakeholders.
- Best practice documentation and sharing and fostering learning experiences
- Support regional health bureaus
- Starting PCC implementation with learning approach through piloting and insuring a stepwise step scale up
- Lead and coordinate national PCC advocacy at all level
- Develop training materials and job aids.
- Provide Master TOT and TOT either integrated with other RMNCHN programs or standalone training sessions.
- Mobilize and allocate resources for the implementation of PCC interventions.
- Monitor and evaluate the implementation status of PCC interventions.
- Conduct research and surveys
- Conduct annual review meeting
- Integrating in the national annual plan
- Mobilize resource for supply procurement for PCC intervention, Training and guideline development and distribution to all health facilities
- Incorporate PCC with in the pre- service educational system curricular and co-curricular activities

- Development and incorporation of standardized PCC in service training module and tools.
- Give guidance and support research in the area of PCC and indicating PCC related problems demanding research
- Include PCC in to the IRT training Package for HEW
- Support and working in collaboration with the Nutrition CEO on fortification of foods with folic acid and multivitamin supplements containing folic acid.
- Collect parallel report quarterly

### **Role of Regional Health Bureaus and Zonal Health Departments,**

- Regional level PCC advocacy
- Select appropriate pilot site, implement, learn and documents the PCC intervention and use scale up
- Integrating in the regional annual plan
- Conduct bi-annual review of PCC intervention
- Take the lead role in integrating PCC intervention in different service delivery point at regional level
- Collect parallel report at a monthly base
- Provide basic training for health care providers
- Distributeand disseminate guide lines and etc.
- Assign responsible focal person to coordinate PCC program
- Coordinate and monitor the role of stakeholders to implement the PCC guideline
- Cascade and disseminate the PCC guideline and training for health care professionals.
- Ensure integration among other programs to support health facilities in the implementation of the PCC guideline.
- Identify limitationsand provide tailored responses.
- Monitor the implementation status of the PCC guideline through regular supportive supervision.
- Strengthen referral linkage between health facilities.
- Allocate budget for implementation of the guideline (Regional level)

## Woreda Health Offices

- Coordinate and monitor multi-sectorial response to implement the PCC guideline
- Incorporate PCC in Woreda base plan
- Assign responsible focal person to coordinate PCC program
- Cascade dissemination of guideline and provide orientation for health care professionals.
- Ensure coordination among responsible programs to support health facilities in the implementation of the guideline.
- Identify limitations and provide tailored responses.
- Monitor the implementation status of the PCC implementation guideline through regular supportive supervision and Review meetings quarterly
- Ensuring the implementation of PCC intervention in the Woreda by HEW.
- Strengthen referral linkage between health facilities.

## Roles of Health Facilities

- Ensure standalone PCC service delivery unit at General and Tertiary Hospitals,
- Integrate PCC service with ANC service unit in the primary hospitals and health centers
- Assign a responsible focal person to coordinate PCC services.
- Provide structured on job training on PCC to RMNCAYH and other service delivery point focal
- Ensure PCC services are provided in RMNCAYH and other service like diabetics, and etc...
- Ensure availability of PCC guidelines, job aids, and IEC materials.
- Ensure availability of adequate supplies and materials required to implement PCC
- Strengthen intra and/ inter facilities referral linkage
- Conduct regular clinical audit and ensure CQI (continuous quality improvement)
- Monitor the PCC service delivery progress regularly.
- Provide structured on job training on PCC to their respective catchment area HEWs.
- Reporting and documentation of PCC program.
- Conduct monthly performance monitoring team (PMT) meeting
- Conduct catchment based review meeting quarterly



- Integrate PCC in to the catchment based clinical mentorship of RMNCAYH program
- Ensure recording, reporting and documentation.

### **Roles of Partners**

- Support in printing and distribution of the national PCC guideline and job aids for regions and downwards
- Provide financial, technical and materials support at all levels.
- Renovate infrastructures to facilitate service delivery.
- Advocate for and conduct sensitization workshops on PCC
- Work closely with MOH, Regional Health bureau, Zonal Health Department and Woreda, etc. for the implementation of PCC

### **Professional Associations**

- Availing the national PCC guideline, training materials and other PCC materials on their websites
- Provide financial, technical and materials support at all levels.
- Leverage resources for PCC activities
- Advocate for and conduct sensitization workshops on PCC
- Develop and cascade CPD (continuous professional development) courses
- Work closely with MoH, Regional Health Bureau, Zonal Health Department, etc

### **Roles of Health Care Providers**

- Provide PCC service as per the national guideline and update themselves regularly (CPD, SOJT) on the PCC guideline and related protocols.
- Provide PCC counseling service for target client's/patients
- Ensure timely documentation and reporting of PCC service indicators.
- Ensure all pharmacies well oriented and adhered to the PCC guide lines.



## Roles of Health Extension Workers

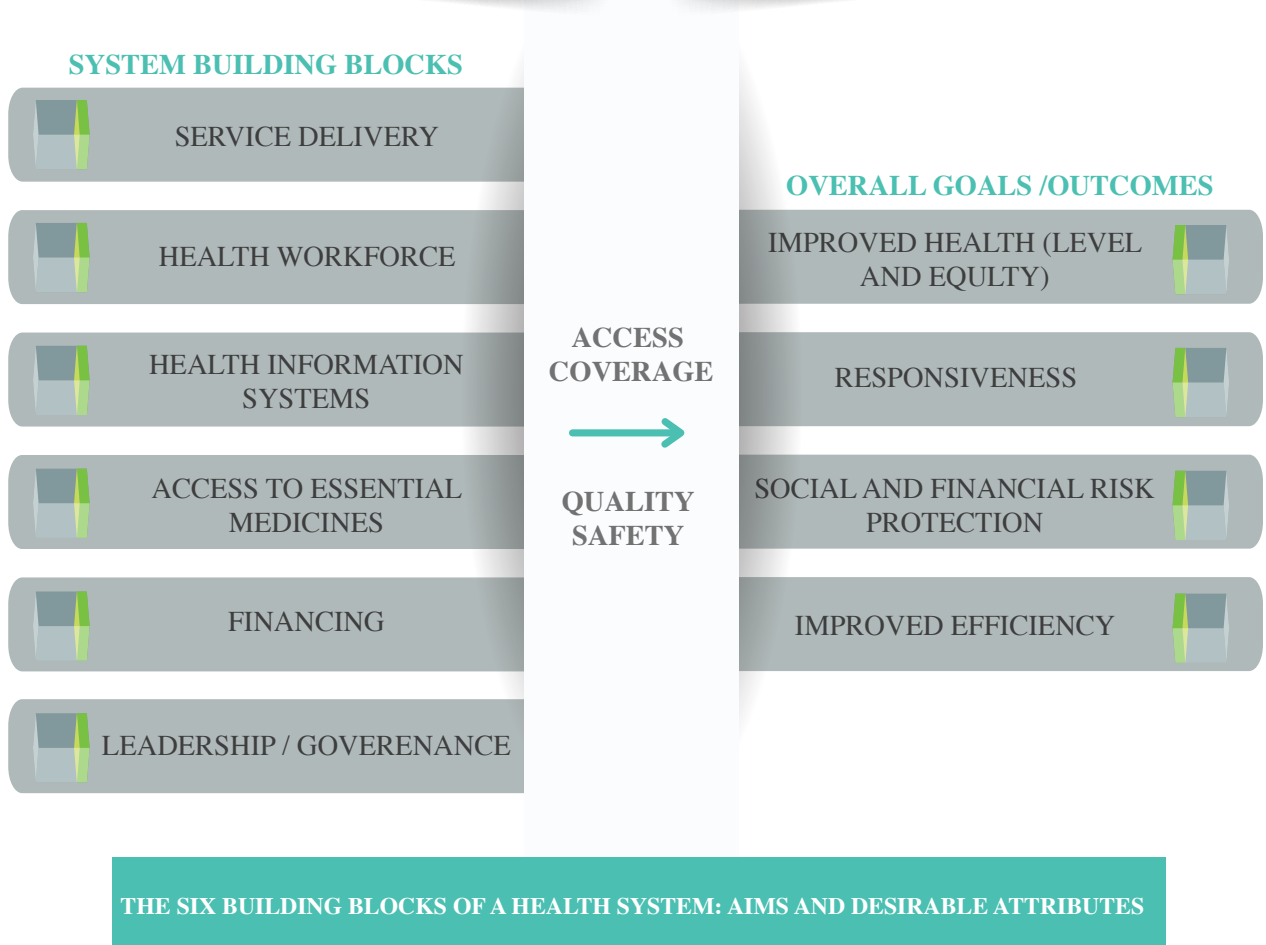
- Provide PCC counseling for women who plan to be pregnant within six month
- Strengthen referral linkage with their catchment Comprehensive Health Post (CHP) and Health Center (HC).
- Integrate PCC components within the existing platforms(pregnant women conference, home visits, HEW packages)
- Ensure recording, reporting and documentation.
- Create PCC awareness in outreach services including schools, and community gathering places.
- Orient and engage Village Health Leader (VHL) along with other community structures for demand generation
- Use IEC/BCC materials for awareness creation
- Advocate for utilization of essential health services including PCC

# IMPLEMENTATION TOOLS

## Health System Strengthening for Preconception Care

A health system consists of all the organizations, institutions, resources and people whose primary purpose is to improve health. The health system delivers preventive, promotive, curative and rehabilitative interventions by both State and non-State actors. The actions of the health system should be responsive and financially fair, while treating people respectfully. A health system needs staff, funds, information, supplies, transport, communications and overall guidance and direction to function. Strengthening health systems thus means addressing key constraints in each of these areas. This section discusses the domains of health system strengthening that are being considered for preconception care provision. As shown in figure 1 below, the World Health Organization’s health system framework was followed.

**Figure 1. The WHO Health systems framework**



**Figure 3: Preconception care service delivery viewed through the lens of the WHO framework for strengthening health systems**

## Service Delivery

Good service delivery is a vital element of any health system which is a fundamental input to population health status, along with other factors, including social determinants of health. A good health service delivery includes characteristics such as: comprehensiveness, accessibility, coverage, continuity, quality, person-centeredness, coordination, accountability and efficiency. As preconception care runs along the reproductive life course, it requires a holistic approach to ensure that it is consistent and effective, with additional support for groups that need it most.

Women, man, and couple should be encouraged to have a reproductive life plan. In this regard, preconception care should be integrated in service delivery sites in each level of the health system. The target population for preconception health care is women, from menarche to menopause, who are capable of having children, man and couples, *even if they do not intend to conceive* and the general public. Health care providers are expected to provide risk assessment, educational and health promotion counseling to all women of childbearing age to reduce reproductive risks and improve pregnancy outcomes. Clear communication agreed referral pathways, and a commitment to work collaboratively towards individual-centered approach will all help embed preconception care, whatever shape the local system takes.

## Health Workforce

The health workforce could include all people engaged in actions whose primary intent is to enhance health. A well-performing workforce consists of human resources management, skills and policies.

The health work force working in each unit of the service delivery sites need to be oriented about preconception care delivery, how to provide risk assessment, educational and health promotion counseling as well as linking the women for further preconception care. Preconception care success requires changes in public attitudes and the health work force including health extension workers. The health workforce is expected to increase public awareness on preconception health behaviors and its services by using information and tools appropriate across different age groups ensuring literacy, including health literacy and cultural/linguistic contexts to improve the knowledge, attitude and practice of the community.

In addition the health work force need to be equipped in a way that for women with identified risks, additional counseling, testing, and brief interventions could be considered and linked to the right contact point timely. The provision of testing and treatment services for identified risks should be in line with other national guidelines such as ANC guideline, obstetric protocol for hospitals and health centers.

## Health Information System

Sound and reliable information is the foundation of decision-making across all health system building blocks. It is essential for health system policy development and implementation; governance and regulation; health research, human resources development, health education and training, as well as service delivery and financing. A well performing system ensures the production, analysis, dissemination and use of timely and reliable information. In this regard, health information system on the delivery of preconception care need to be integrated with the existing system, reported and reviewed accordingly.

## Access to Essential Medicines

According to the WHO framework for health systems, a well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use. Procurement and supply programs need to ensure equitable access, assured quality and cost-effective use of essential medicines. The delivery of preconception care service extends to providing interventions to the identified risk factors. This intervention will demand uninterrupted supply of essential medicine and supplies.


## Health Care Financing

Health financing refers to mobilization, accumulation and allocation of money to cover the health needs of the people, individually and collectively in the health system. Its purpose is to make funding available, as well as to set the right financial incentives to providers, to ensure that all individuals have access to effective public health and personal health care. A good healthcare financing system raises adequate funds for health, protects people from financial catastrophe, allocates resources, and purchases good and services in ways that improve quality, equity, and efficiency.

Though preconception care is going to be integrated with the existing service delivery points, mobilizations of resources for local capacity building and for additional services need to be considered at various level of the health system.

## Leadership and Governance

Leadership and governance in building a health system involve ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system design and accountability. The need for greater accountability arises both from increased funding and a growing demand to demonstrate results.



Accordingly, preconception care is included in policy documents like HSTP II, RH strategies, ANC guideline and obstetric management protocol. Since integration is the main principle for PCC, close follow up and engagement of the leadership and governance at all levels need to be ensured during the implementation. In addition, coordination and collaboration with stakeholder's need to be strengthen at all levels of the health system.

# MONITORING AND EVALUATION FRAMEWORK

Monitoring and evaluations are interactive and mutually supportive processes. Monitoring and evaluation of activities provide government officials, development managers, and civil society with better means for learning from past experience, improving service delivery, planning and allocating resources, as well as demonstrating results as part of accountability to key stakeholders.

The successful implementation of the national preconception care guideline requires robust monitoring and evaluation system. Continuous monitoring of progresses, evaluations of outcome and impacts will provide the required evidences for decisions that foster effective, efficient and synergistic implementation of the program. Though the multifaceted nature of preconception health care delivery may pose challenges in monitoring the performance of this health care, a set of high-priority indicators and operational targets must be there to objectively measure and be used for monitoring and evaluation purposes. Accordingly, key indicators for preconception care were developed and will be monitored and evaluated.

Table 6: PCC monitoring and evaluation logic frame

S.no	Input	Data source
1	PCC guideline, Job Aid, Drug supply (Iron folate, deworming, nutrition supplies, ) recording and reporting tools, standalone PCC service unit	
<b>Process</b>		
2	provision of training, facility renovation, development and distribution of materials (guidelines, job aids, recording and reporting tools), advocacy, social/community mobilization, activity	
<b>Output</b>		
3	trained health workforce, number of distributed guidelines and tools, number of facility that prepared standalone units, facilities that started provide PCC service, number of women received PCC service, number pregnant women who received iron and folic acid before their current pregnancy	
<b>Outcome</b>		
4	Decline the number of congenital anomalies (anencephaly, spinal bifida), Improved positive pregnancy experience, decreased LBW, preterm labor, miscarriag ...)	
<b>Impact</b>		
5	Improved maternal health (decrease maternal morbidity and mortality) Decreased neonatal morbidity and mortality	

Table 7: List of indicators for preconception care service delivery

S.no	Indicator	Data source
1	Proportion of health facilities started providing preconception care	HMIS/Supervision
2	Proportion of pregnant women who had planned pregnancy	Admin report
3	Proportion of pregnant women who received iron and folic acid before their current pregnancy	EDHS/ Supervision
4	Proportion of pregnant woman who received preconception care	EDHS/Admin report
5	Proportion of pregnant woman who received couple counseling on preconception care	EDHS/Admin report



# MEASURING OF PCC UPTAKE AT ANTENATAL CARE ATTENDANCE

All women attending ANC should be asked for their PCC uptake status using the MoE PCC uptake assessment checklist displayed on the next page.

How to determine the PCC uptake status of woman at her ANC attendance is determined using the following parameters

## Determine Status of Client's PCC Uptake

**No PCC uptake:** If the women didn't take any of the listed 15 PCC components

**Partial PCC uptake:** If the woman took at least one of the listed 15 PCC components

**Optimal PCC uptake:** If the woman took Folic acid supplement plus at least one of the listed 15 PCC components

**Verifying the Evidence:** Ask the woman attending the antenatal care if she ever received one of the following preconception care components before conceiving this pregnancy: NB: Please verify the time she claimed to receive the care in accord with Her LMP or GA.

Table 8: MoH PCC uptake at ANC visit Checklist:

### Check list to determine Preconception care uptake status of woman in Ethiopia by Health Care professionals

Instruction : Ask the woman attending the antenatal care if she ever received one of the following preconception care components before conceiving this pregnancy.

Table 8: NB: Please verify the time claimed she received the care in accord with Her LMNP or GA

S,N		Yes	No	Remark
1	Family planning	<input type="checkbox"/>	<input type="checkbox"/>	
2	Nutritional status screening: Maintaining BMI within Normal range	<input type="checkbox"/>	<input type="checkbox"/>	
3	Preconception folic acid supplementation:	<input type="checkbox"/>	<input type="checkbox"/>	

4	Screening and Management of Chronic diseases: DM, HPN, Kidney Sx, CVD, Epilepsy	<input type="checkbox"/>	<input type="checkbox"/>	
5	Psychoactive Substance Use: Alcohol, Cigarette, Elicit drugs, Coffee e.g.	<input type="checkbox"/>	<input type="checkbox"/>	
6	Advise on Physical Activity/Exercise	<input type="checkbox"/>	<input type="checkbox"/>	
7	Reproductive organ anomalies and cervical cancer	<input type="checkbox"/>	<input type="checkbox"/>	
8	Sexual Health, HTP and Violence: GBV, FGM	<input type="checkbox"/>	<input type="checkbox"/>	
9	Screening for STIs & other Infectious Diseases: syphilis test, HIV, TB, Hep.B, Malaria	<input type="checkbox"/>	<input type="checkbox"/>	
10	Vaccine Preventable Diseases: Hep. B and Td	<input type="checkbox"/>	<input type="checkbox"/>	
11	Screening for genetic risks	<input type="checkbox"/>	<input type="checkbox"/>	
12	Screening for prescribed and over the counter medication use	<input type="checkbox"/>	<input type="checkbox"/>	
13	Screening for Mental health & Management: Depression, Schizophrenia etc	<input type="checkbox"/>	<input type="checkbox"/>	
14	Screening Exposure to environmental or occupational preconception risk factors	<input type="checkbox"/>	<input type="checkbox"/>	
15	Dental/oral health	<input type="checkbox"/>	<input type="checkbox"/>	

Determine status of client's PCC uptake: (Please encircle the number 1 or 2 or 3 based on the definition)

No PCC uptake: If the women didn't take none of the listed 15 PCC components

Partial PCC uptake: If the woman took at least one of the listed 15 PCC components

Optimal PCC uptake: : If the woman took Folic acid supplement plus at least one of the listed 15 PCC components

## REFERENCES

- Dereje H, et.al.. Correlates of Unintended Pregnancy in Ethiopia: results from a national survey. PLOS ONE. PMC3857314 DOI: 10.1371/journal.pone.0082987].
- ACOG (2016). Committee Opinion on Preconception Care: No 313. 2005
- ACOG (2020).Pre-Pregnancy Counseling. <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2019/01/prepregnancy-counseling>
- Biratu, A. K. (2017). Addressing the High Adverse Pregnancy Outcomes through the Incorporation of Preconception care (PCC) in the Health System of Ethiopia. Doctoral dissertation, UNISA. 2017.
- Brownridge ,A., Taillieu, L., Tyler, A., Tiwari, A., Chan, K. L., & Santos, S. C. (2011). Pregnancy and Intimate Partner Violence: Risk factors, severity, and health effects, *Violence against Women*, 17(7), 858–881.
- Campbell, J. C, Garcia-Moreno, C., & Sharps, P. (2004).Abuse during Pregnancy in Industrialized and Developing countries. *Violence against Women*, 10, 770–789.
- CDC. General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2011; 60 (No. 2): 26.
- Charles, P, & Perreira, K. M. (2007). Intimate Partner Violence during Pregnancy and 1-year post-partum. *Journal of Family Violence*, 22(7), 609–619.
- Dewhurst’s textbook of Obstetrics and Gynecology 8th edition, Gabbe: Obstetrics : Normal and problem pregnancies, 5<sup>th</sup> edition
- Gee, R. E., Mitra, N., Wan, F., Chavkin, D. E., & Long, J. A. (2009). Power over Parity: Intimate partner violence and issues of fertility control. *American Journal of Obstetrics and Gynecology*, 201(2), 148.e1–7.
- Gemechu DS, Worku Y, Edae ZA, et al. Epidemiological analysis of Rubella-confirmed cases from Measles suspected cases in Ethiopia: Threat for Congenital Rubella Syndrome [published online ahead of print, 2022 Feb 28]. *Epidemiol Infect.* 2022;150:1-18. doi:10.1017/S0950268822000279
- GLOBOCAN 2018. Cervical Cancer Estimated Incidence, Mortality and Prevalence Ethiopia in 2018.
- James L, et.al. (2013),Risk factors for Domestic Violence during Pregnancy: A meta-analytic review. *Violence Victims*, 28(3), 359–380.

Kassa A. (2019). Policy brief: Time to incorporating and Integrating the missing element of the maternal and child health care continuum, Preconception care (PCC), as an integral element of the Ethiopia health system. MoH 23/Jan/19, Ethiopia. <https://www.researchgate.net/profile/Andargachew-Biratu/research>

Kebede, K.M., Abateneh, D.D. & Belay, A.S. Hepatitis B Virus Infection among Pregnant Women in Ethiopia: a systematic review and Meta-analysis of prevalence studies. BMC Infect Dis 18, 322 (2018). <https://doi.org/10.1186/s12879-018-3234-2>

Gebremedhin G. Gebretsadik, Afework Mulugeta, Andargachew Kassa et al. (2023). Burden of Preconceptional rRisks among Women of Reproductive age in Sub-Saharan Africa: A systematic Review.

Biratu AK, et al. (2018). Knowledge of Preconception care among healthcare providers working in public health institutions: Published online 2018 Oct 1. doi: [10.1371/journal.pone.0204415](https://doi.org/10.1371/journal.pone.0204415)

Kolawole, OM et al. (2014) Seroprevalence of rubella IgG antibody in pregnant women in Osogbo, Nigeria. International Journal of Preventive Medicine 5, 287. [Google ScholarPub Med](https://pubmed.ncbi.nlm.nih.gov/26111111/)

Macklon, Nicholas, Greer, Ian and Steegers, Eric (eds.) (2008) *Textbook of Periconceptional Medicine*, London, GB. Informa Healthcare

Miller, E., et al. (2010). Pregnancy Coercion, Intimate Partner Violence and Unintended Pregnancy. Contraception, 81(4), 316–322.

Ministry of Health (2021). Reproductive Health Strategy 2021-2025. Addis Ababa. Ethiopia

Ministry of health 2013-2017, [National strategic plan for non communicable diseases 2020/21-2024/25](#), Addis Ababa. Ethiopia

Seitz, J., et al. (2019) Molecular Principles of Intrauterine Growth Restriction in Plasmodium Falciparum Infection. Frontiers in Endocrinology, 2019. 10: p. 98.

Mitiku, K et al. (2011). The Epidemiology of Rubella disease in Ethiopia: data from the measles case-based surveillance system. The Journal of Infectious Diseases 204(Suppl. 1), S239–S242. [CrossRefGoogle ScholarPubMed](https://pubmed.ncbi.nlm.nih.gov/21411111/)

Moore, A. et al, (2010). Male Reproductive Control of Women who have experienced intimate partner violence in the United States. Social Science & Medicine, 70(11), 1737–1744.

Quinonez, S.C, et al (2019). Introducing Medical Genetics services in Ethiopia using the MiGene Family History App. *Genet Med* 21, 451–458 (2019). <https://doi.org/10.1038/s41436-018-0069-6>

Nigatu, B., et al (2019). Prevalence of Gestational Diabetes Mellitus among Pregnant Women attending Antenatal Care Clinic of St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia. *Clin Diabetes Endocrinol* 8, 2 (2022). <https://doi.org/10.1186/s40842-022-00139-w>.

Wolka E, et.al.(2021). Magnitude of Pre-Existing Diabetes Mellitus among Pregnant Women in Southern Ethiopia: A Cross-Sectional Study. *Risk ManagHealthc Policy*. 2021;14:1025-1031 <https://doi.org/10.2147/RMHP.S292000> and

BajroneE,et.al,(2019). “Birth Outcomes among Diabetic Mothers Who Delivered in TikurAnbessa Specialized Hospital, Addis Ababa, Ethiopia”, *Advances in Medicine*, vol. 2019, Article ID 6942617, 6 pages, 2019. <https://doi.org/10.1155/2019/6942617>.

Sugishita, Y et al. (2014) Epidemiological Characteristics of Rubella and Congenital Rubella Syndrome in the 2012–2013 epidemics in Tokyo, Japan. *Japanese Journal of Infectious Diseases* 65, 159–165.[Google Scholar](#)

Trends and Burden of Neural Tube defects among cohorts of pregnant women in Ethiopia: Published online 2022 Feb 18. doi: [10.1371/journal.pone.0264005](https://doi.org/10.1371/journal.pone.0264005)

Fauveau V et al (1993). Maternal Tetanus: magnitude, epidemiology and potential control measures. *International Journal of Gynecology and Obstetrics*, 1993, 40:3–12.

Wokoma, T. et.al. (2014), A Comparative Study of the Prevalence of Domestic Violence in Women Requesting Termination of Pregnancy and those attending the Antenatal Clinic. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121(5), 627–633.

World Health Organization (2010). *Monitoring the Building blocks of Health Systems :a handbook of indicators and their measurement strategies*

Regitz-Zagrosek V, BlomstromLundqvist C, Borghi C, et al. ESC Guidelines on the Management of Cardiovascular Diseases during Pregnancy: The task force on the management of cardiovascular diseases during pregnancy of the European Society of Cardiology (ESC). *European Heart Journal*. 2011;32(24):3147-3197.

Hibberd et al: Tetanus- Diphtheria Toxoid Vaccination in Adults: Up-To-Date, 2022

# ANNEXES

## Annex-1:

**Table 9: Job aid for (PCC) interventions (provider)**

S.N	PCC interventions	Assessment/screening	Interventions
1	Family planning and contraceptive	<ul style="list-style-type: none"> <li>Assess Reproductive life plan (Are you planning to be pregnant , with in three months' time)?</li> <li>Assesse history of APOs (unintended pregnancy, abortion..)</li> <li>Screen infertility</li> <li>Assess medications, health conditions, and activities that may affect fertility</li> <li>Screen disability ( hearing, , early and late child bearing age other people with special need)</li> </ul>	<ul style="list-style-type: none"> <li>Provide preconception information and services package based on individual assessment and health risk</li> <li>Discuss on recommended birth interval at least 24 months between birth</li> <li>Counsel and manage the desire pregnancy for people with infertility, disability , early and late child bring age other people with special need</li> <li>Counsel to use modern contraception</li> <li>Referral or linkage</li> </ul>
2	Nutrition	<p><b>Nutrition assessment:</b></p> <ul style="list-style-type: none"> <li>Assess dietary practice, diversity, healthy food choice</li> <li>Anthropometry</li> <li>Biochemical tests</li> </ul> <p><b>Eligibility for supplementation and treatment:</b></p> <ul style="list-style-type: none"> <li>Assess for anemia, and iodine</li> </ul>	<ul style="list-style-type: none"> <li>Counsel on optimizing healthy weight</li> <li>Exercise at least 3 times per week</li> <li>Counsel for adherence for interventions</li> <li>Advice on optimal a healthy diet at least six different food groups throughout the day to diversify your diet( list it down..)</li> <li>Counsel to the woman to take iodized salts properly</li> <li>Provide Iron-folic acid supplementation every day at least for three months</li> </ul>
3	Folic acid supplementation	<ul style="list-style-type: none"> <li>Assess for eligibility of high dose of FA supplementation(ask for previous history of APOs) E.g. DM, Hx of NTD, Epilepsy, previous badpregnancy outcome)</li> </ul>	<ul style="list-style-type: none"> <li>Provide -folic acid supplementation every day at least for three months</li> <li>Advice to intake of foods rich in folic acid such as dark green vegetables, beans, peanuts, sunflower seeds, fresh fruits, whole grain, liver and sea foods (fish)</li> </ul>

4	Chronic medical condition	<b>Diabetic Mellitus:</b> <ul style="list-style-type: none"> <li>• previous history of unexplained stillbirth</li> <li>• Previous history of gross congenital malformation</li> <li>• BMI &gt; 25kg/cm<sup>2</sup></li> <li>• previous history of GDM</li> <li>• family history of DM</li> </ul>	<ul style="list-style-type: none"> <li>• Counsel on lifestyle modifications</li> <li>• Check Blood pressure</li> <li>• Supplement with Folic acid 5 mg daily</li> <li>• Review all current medications</li> <li>• Use effective contraception until target blood glucose control</li> </ul>
		<ul style="list-style-type: none"> <li>• Previous big baby</li> <li>• If positive for one screening criteria</li> <li>• Diagnose by <ul style="list-style-type: none"> <li>* FBS &gt;126mg/dl OR</li> <li>* RBS &gt;200mg/dl with polyuria, polydipsia or polyphagia OR</li> <li>* HgbA1C &gt; 6.5%-</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Counsel to use contraceptive until Fasting capillary blood glucose is 80 -110 mg/dL</li> <li>• Counsel, link or refer to specialist care</li> </ul>
		<b>Cardiac Diseases:</b> <ul style="list-style-type: none"> <li>• Assess history of: Cough, shortness of breath, Orthopnea, chest pain, palpitation or easy fatigability</li> <li>• Assess past history of cardiac problem</li> </ul>	<ul style="list-style-type: none"> <li>• Counsel, link or refer to specialist care</li> </ul>
		<b>Asthma :</b> <ul style="list-style-type: none"> <li>• Assess the client previous history of asthma or respiratory disease</li> </ul>	<ul style="list-style-type: none"> <li>• Advise to prevent the risk of asthma recurrence</li> <li>• Counsel on risk minimization</li> <li>• Provide preconception information and services package based on individual assessment and health risk</li> <li>• Counsel risk of asthma and pregnancy, link or refer to specialist</li> </ul>
		<b>Chronic Kidney disease:</b> <ul style="list-style-type: none"> <li>• Assess for history of chronic renal disease</li> </ul>	<ul style="list-style-type: none"> <li>• Counseling clients with severe chronic renal disease to avoid pregnancy before treatment.</li> </ul>
		<b>Hypertension:</b> <ul style="list-style-type: none"> <li>• Screen for Thyroid diseases</li> <li>• Hx: Previous hx of thyroid diseases, PE: Anterior neck swelling,</li> </ul>	
		<b>Hypertension:</b> <ul style="list-style-type: none"> <li>• Screen for HTN using BP</li> <li>• Assess past history and family history</li> </ul>	<ul style="list-style-type: none"> <li>• Advise her on : health life style based on individualized risks and healthy weight modification to avoid obesity</li> <li>• Counsel on the initiation of FP,</li> <li>• Counsel, link or refer to specialist care</li> </ul>

		<p><b>Epilepsy :</b></p> <ul style="list-style-type: none"> <li>• Ask history of abnormal body movement and/or loss of consciousness.</li> <li>• In a known epileptic woman, check the type of medication she is taking</li> </ul>	<ul style="list-style-type: none"> <li>• Counsel on the course of epilepsy during pregnancy.</li> <li>• Provide 5mg of folic acid per day</li> <li>• Preferably choose less teratogenic antiepileptic drugs,</li> <li>• Use of a single antiepileptic drug is preferred</li> <li>• Counsel on drug adherence</li> <li>• Use effective and proper contraception until seizure is well controlled.</li> </ul>
5	Substance use	<ul style="list-style-type: none"> <li>• Assess past or current use of use of psychoactive substance <ul style="list-style-type: none"> <li>» Cigarette, khat, coffee and alcohol</li> <li>» Illicit drugs : chocain, metch, heroin, marijuana</li> <li>» Other psych-active prescription medical stimulants</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Counseling on avoidance of alcohol use- no safe level</li> <li>• Delay conception till cessation of substances confirmed Advice the use of less than or equal 3 cups of coffee</li> <li>• Counsel partner on the danger of active and passive smoking</li> <li>• Refer/Link to proper mental health service as needed</li> </ul>
6	Reproductive organ anomalies	<ul style="list-style-type: none"> <li>• Any known diagnosed reproductive tract abnormality</li> <li>• Pelvic bone fracture</li> <li>• Obstetric fistula</li> <li>• Other reproductive tract symptoms (pain, pressure, and abnormal uterine bleeding, infertility, Recurrent Pregnancy Loss ( RPL)</li> </ul>	<ul style="list-style-type: none"> <li>- U/S examination, abdominal pelvic examination , including speculum</li> <li>- counsel regarding the impacts of identified problems on: <ul style="list-style-type: none"> <li>- fertility and consequences on feto-maternal health outcome.</li> </ul> </li> <li>- Refer/Link to specialized care as needed</li> </ul>
7	Cervical cancer	<ul style="list-style-type: none"> <li>• Post coitus contact bleeding, discharge</li> </ul>	<ul style="list-style-type: none"> <li>• Screen as per the guideline</li> <li>• Manage accordingly ( including referral/ linkage for higher service</li> </ul>
8	Sexual Health and Violence	<p><b>Gender based violence (GBV):</b></p> <ul style="list-style-type: none"> <li>• Assess for for current, or past physical, sexual and emotional violence <ul style="list-style-type: none"> <li>o Assess for current intimate partner violence ( e.g. battering, beating, slapping, pushing, insulting, threatening or followed ...)</li> </ul> </li> <li>• Look for physical findings suggestive for prior trauma or scar</li> <li>• Female genital mutilation (FGM): <ul style="list-style-type: none"> <li>o Assess to the women about history of female genital mutilation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Counsel couples regarding the consequence of vilence on pregnancy outcomes</li> <li>• Provide psychosocial support</li> <li>• Counseling and provision of referral for sexual dysfunction</li> <li>• Counsel and educate the family and the women about FGM and its consequence</li> <li>• Link/ refer for further care and service as needed</li> </ul>



9	Infectious disease	<ul style="list-style-type: none"> <li>• Assess the client previous history of STI and possible risk of /STI infection</li> <li>• Screen for triplels ( SYPHILIS, Hepatitis B and HIV)</li> <li>• Assess for malaria and TB</li> </ul>	<ul style="list-style-type: none"> <li>• Advise to prevent the risk of HIV/STI infection during preconception</li> <li>• Counsel on the risk of MTCT</li> <li>• Manage HIV/ STI according to the clinical protocol</li> <li>• Counsel to adhere on HIV/ STI treatment</li> <li>• Counsel to screen for Hepatitis B</li> <li>• Counsel risk behavior</li> <li>• Counsel malaria prevention and treatment</li> <li>• Referral or linkage as needed</li> </ul>
10	Vaccine Preventable Diseases	<ul style="list-style-type: none"> <li>• Screen for Hepatitis B surface antigen</li> <li>• Assess the dose of Td vaccine status</li> </ul>	<ul style="list-style-type: none"> <li>• If HBsAg test is negative, provide three doses of HBV vaccine</li> <li>• If HBsAg test is positive, link her to facilities where treatment is available, and counsel for family screening and mode of transmission</li> <li>• Counseling on importance of vaccination against tetanus and diphtheria</li> <li>• Referral or linkage</li> </ul>
11	Genetic risks	<ul style="list-style-type: none"> <li>• Maternal Age &gt; 35 yrs</li> <li>• Paternal Age &gt; 45 years</li> <li>• History of: <ul style="list-style-type: none"> <li>- Early RPL,</li> <li>- previous babies with:</li> <li>- Chromosomal abnormalities,</li> <li>-Birth defects (e.g CHD) and</li> <li>-Developmental delay (mental retardation)</li> </ul> </li> <li>• A male partner with: <ul style="list-style-type: none"> <li>- a personal history of NTD, or a previous pregnancy with NTD</li> </ul> </li> <li>• Gross parental General physical abnormality</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss the consequences late age child bearing <ul style="list-style-type: none"> <li>- as it relates to the risk of age related congenital &amp; chromosomal abnormalities</li> </ul> </li> <li>• Couples with identified risk should be thoroughly advised on the necessity of genetic counseling and testing</li> <li>• Advice to uptake Folic Acid (5mg) at least for 3 months before conception</li> <li>• Referral or linkage for further advanced care</li> </ul>
12	Medicines with adverse effect on pregnancy outcome	<ul style="list-style-type: none"> <li>• Asses current history medications use and over the counter medicines <ul style="list-style-type: none"> <li>- Isotretinoin</li> <li>- Anti-epileptic drugs</li> <li>- Oral anticoagulants</li> <li>- ACE inhibitors</li> <li>- Tetracycline</li> <li>- High dose of steroids</li> <li>- Antifungals (Fluconazole)</li> <li>- Antidepressant (Lithium)</li> <li>- Chemotherapeutic agents</li> </ul> </li> <li>• Folic acid antagonists (Methotrexate)</li> </ul>	<ul style="list-style-type: none"> <li>• Counsel on the use of the lowest effective doses of the safest medications (whenever it is medically reasonable)</li> <li>• Discuss the teratogenic potential of prescription drugs based on the five risk categories (A, B, C, D, X)</li> <li>• Switch medication during the preconception period if suitable alternatives exist with less risk to the pregnant woman or fetus.</li> <li>• Referral or linkage</li> </ul>

13	Mental health	<ul style="list-style-type: none"> <li>• Assess the client previous history of mental health</li> <li>• Assess for stress due to major life events ( death in family),               <ul style="list-style-type: none"> <li>o Substance and excess use of alcohol and family history</li> <li>o Succidal attempted,</li> </ul> </li> <li>• Social dysfunction</li> </ul>	<ul style="list-style-type: none"> <li>• Advise to prevent the risk of mental health</li> <li>• Provide psychosocial support</li> <li>• Referral or linkage</li> </ul>
14	Oral health	<ul style="list-style-type: none"> <li>• Assess for dental hygiene practice, dental carries</li> <li>• Assess for swelling, readiness tenderness, bleeding of gums, painful chewing , loose tooth</li> </ul>	<ul style="list-style-type: none"> <li>• Advice on dental and mouth care</li> <li>• Manage any dental abnormality</li> <li>• Link or refer for further management</li> </ul>
15	Environmental exposure or Occupational hazards	<ul style="list-style-type: none"> <li>• Assess exposure for any contact with coal stove for cooking , exposed to organic solvents (chemicals used in industries or installations like benzene, methanol) , pesticides , X-ray/radiation therapy, and exposure to heavy metals</li> </ul>	<ul style="list-style-type: none"> <li>• Advice to reduce/avoid environmental exposures or occupational hazards</li> </ul>

## Annex 2: PRECONCEPTION ASSESSMENT TOOL

1. Are you planning on becoming pregnant in the next three months? YES  NO
2. If No inform about PCC and link to family planning unit
3. If yes, please complete the remainder of this form

1	IDENTIFICATION	
	Name:	Occupation:
	Age in year: Maternal:	Paternal:
	Address:	MRN:
	Contact/phone #:	
	Partner with her :	Yes <input type="checkbox"/> NO <input type="checkbox"/>
2	HISTORY	
2.1.	OBSTETRIC/GYNECOLOGIC HISTORY	
	Last Normal menstrual period: DD/MM/YY	
	Para:	
	Abortion:	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Still birth:	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Hx. of big baby:	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Birth defect	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Male partner NTD history	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Previous Hx of GDM	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Hx of infertility treatment	Yes <input type="checkbox"/> No <input type="checkbox"/>
	History of STIs :	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Hx of FGM	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Intimate partner violence	Yes <input type="checkbox"/> No <input type="checkbox"/>

2.2.	CHRONIC MEDICAL HX		
	Self or family Hx of Diabetes Mellitus:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Cardiac Diseases:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Asthma :	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Chronic Kidney disease:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Hypertension:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Epilepsy :	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Hx of mental health	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Thyroid disease	yes <input type="checkbox"/>	No <input type="checkbox"/>
	Hx of recurrent Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Hx of cough for 2 weeks	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Are you currently taking any medicine If yes list the drugs	Yes <input type="checkbox"/>	No <input type="checkbox"/>

3		IMMUNIZATION	
	HBV vaccine	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Td	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4		NUTRITIONAL ASSESSMENT	
	Do you eat three meals per day?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Which food group usually included in your daily diet		
	Whole grain cereals, Roots, crops, tubers	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Legumes /nuts	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Fruits	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Vegetables	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Animal source foods	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Fats and oils	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-	Do you eat raw or under cooked food	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-	Do you drink 3 or more cup of coffee per day ?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Do you exercise regularly? Three times a week?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Social , behavioral & Environmental risk		
	Use of alcohol:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Use of coffee > 3 cups per day	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Khat chewing :	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Active or passive Cigarette smoking :	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Use of other Psycho active substances	Yes <input type="checkbox"/>	No <input type="checkbox"/>

5		SOCIAL DISTRESS AND ENVIRONMENTAL EXPOSURE				
Social isolation Yes <input type="checkbox"/> No <input type="checkbox"/> Loss of loved one Yes <input type="checkbox"/> No <input type="checkbox"/> work place stressor Yes <input type="checkbox"/> No <input type="checkbox"/> Do you have Exposure to Radiation: Yes <input type="checkbox"/> No <input type="checkbox"/> Pesticides: Yes <input type="checkbox"/> No <input type="checkbox"/> Solvents: Yes <input type="checkbox"/> No <input type="checkbox"/> Smoke: Yes <input type="checkbox"/> No <input type="checkbox"/> Metals ( mercury, lead) : Yes <input type="checkbox"/> No <input type="checkbox"/>						
6		PHYSICAL EXAMINATION				
	BP		PR	Wt.	Ht.	BMI
	HEENT: Conjunctiva Pink <input type="checkbox"/> pale <input type="checkbox"/> .....					
	Dental caries Yes <input type="checkbox"/> No <input type="checkbox"/>					
	LGS- thyroid gland: Enlarged <input type="checkbox"/> Normal <input type="checkbox"/> .....					
	Respiratory:					
	CVS: Gallop, murmur.....					
	Abdomen: Scar, mass, sign of fluid collection .....					
	GUS: FGM, speculum examination, discharge .....					
	Integumentary & MSS: edema, deformity, rash .....					
	CNS:					
7		LAB TESTS				
		- Hgb		- Blood group and RH		
		- RBS		- HIV		
		- HBSAg		- VDRL		
8		Final risk assessment result:				
9		Intervention provided :				

.... Mean you are expected to screen or do according to the standard\* Use the job aid for your reference



