

SLS(A2) Maternal and Child health

Objectives

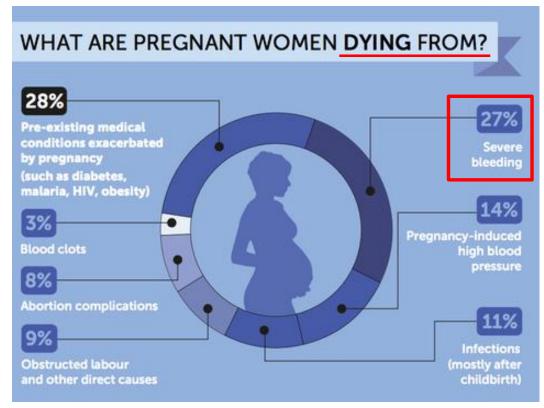
1-Health behaviors and health systems indicators that affect the health, wellness, and quality of life of women, children, and families.
2-Factors can affect pregnancy and childbirth, including: Preconception health status, Age, Access to appropriate preconception and interconception health care, Poverty
3-Health risks may include: Hypertension and heart disease, Diabetes, Depression, Genetic conditions, Sexually transmitted diseases (STDs), Tobacco use and alcohol Abuse, Inadequate nutrition, Unhealthy weight
4-Social and Physical Determinants of Maternal Health
5-Social and Physical Determinants of Infant and Child Health
6-How to improve the health and well-being of women, infants, children, and families.

Khwlaa Alshakrah, Hanan Aldossari, Aisha Alraddadi, Nawal Asiry, Reem Almassoud, Awatif Alenazi

1-Health behaviors and health systems indicators that affect the health, wellness, and quality of life of women, children, and families.

Maternal health:

Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period.



Indicators of maternal health

 Maternal mortality ratio(MM Ratio) : The maternal mortality ratio is obtained by dividing the number of maternal deaths in a population during some time interval by the number of live births occurring in the same period

Maternal mortality ratio: the number of maternal deaths per *live births*

Numerator: Maternal deaths

Denominator: Live births



Aaterr

Death

Population Research Institute: pop.org

Maternal mortality rate:

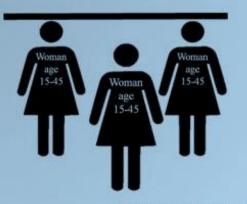
is found by dividing the average annual number of maternal deaths in a population by the average number of women of reproductive age (typically those aged 15 to 49 years) who are alive during the observation period.

Maternal mortality rate: the number of maternal deaths in a given period per population of *women who are of reproductive age*

Numerator: Maternal deaths

Denominator:

Women of reproductive age



[atern:

Death

• Life time risk of maternal mortality :

Number of maternal deaths over the reproductive life span) / (women entering the reproductive period)

• Proportion maternal death :

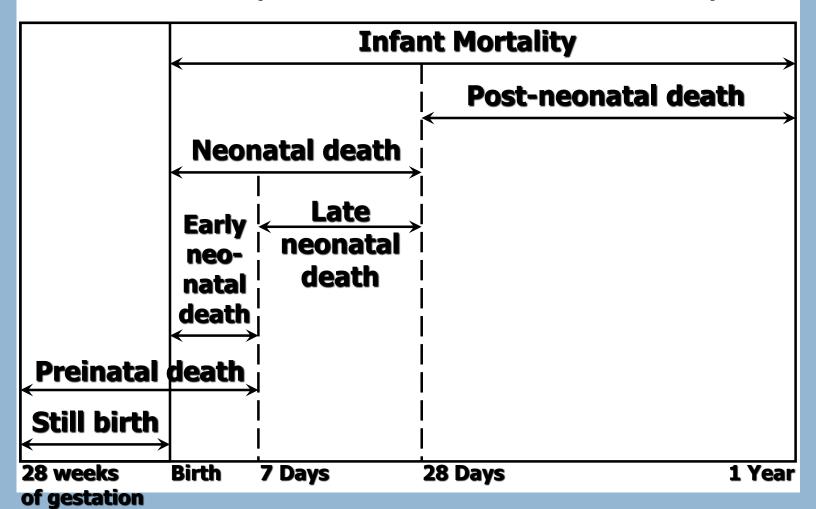
proportion of all female deaths due to maternal causes = (N of maternal deaths in a period/Number of all female deaths in same period) * 100 Lifetime risk of maternal death: The cumulative probability over your whole life of becoming pregnant *and* of dying from the pregnancy.

Summation over all ages of Agespecific chance of : Agespecific chance of : Agespecific chance of : Agespecific chance of :

Indicators of Child Health

 \star

Mortality in and around infancy



Mortality in infancy and childhood

• Prenatal mortality rate

is the sum of the number of resident fetal deaths of 28 or more weeks gestation plus the number of resident newborns dying under 7 days of age in a specified geographic area divided by the sum of the number of resident live births plus the number of resident fetal deaths of 28 or more weeks gestation for the same geographic area (for a specified time period, usually a calendar year) and multiplied by 1,000.

Neonatal mortality rate

The number of children under 28 days of age who die, divided by the number of live births in that year.

•Infant mortality rate

Probability of dying between birth and exactly one year of age expressed per 1,000 live births.

Under 5 mortality rate

Probability of dying between birth and exactly five years of age expressed per 1,000 live births

2- Factors can affect pregnancy and childbirth

Factors can affect pregnancy and childbirth including:

- Preconception
- health status
- Age
- Access to appropriate preconception
- interconception health care
- Poverty

1-Preconception health status tobacco use A)Maternal behaviors like → alcohol use failure to consume adequate folic acid unintended pregnancy lead to \rightarrow poor pregnancy **B)Other conditions like** \rightarrow • experiencing physical abuse outcomes experiencing high levels of stress C)Certain maternal health conditions like: Diabetes • Hypertension poor infant outcomes and have a long-term lead to \rightarrow obesity negative impact on a woman's health.

2-Age

- The chances of surviving the first year of life were better for infants born to mothers aged 20-34 years than for those born to mothers of other ages, and better for infants of low birth order than for infants of high birth order.
- The most favorable survival rates were among first births to mothers aged 20-24 and among first and second births to mothers aged 25-29.

3-preconception and interconception health care Preconception health care :

is the medical care a woman or man receives from the doctor or other health professionals that aimed to increase the chance of having a healthy baby.

Inter-conceptional health care:

is provided to women of reproductive age between pregnancies. Essentially, it may be describes as pre-conception care delivered after pregnancy. This care addresses specific risk factors that may have contributed to previous poor pregnancy outcome. Additionally, it ensures that conditions and behaviors which may pose maternal and infant risks are identified and managed.

So→ Preconception health refers to helping a woman become as healthy as possible before she becomes pregnant, while interconception health involves helping a woman understand the importance of being healthy between pregnancies and the need to wait at least 18 months before becoming pregnant again to help optimize birth outcomes.

4-antenatal care

- WHO has issued a new series of recommendations to improve quality of antenatal care in order to reduce the risk of stillbirths and pregnancy complications and give women a positive pregnancy experience.
- Antenatal care is a critical opportunity for health providers to deliver care, support and information to pregnant women. This includes promoting a healthy lifestyle, including good nutrition; detecting and preventing diseases; providing family planning counselling and supporting women who may be experiencing intimate partner violence.





TABLE III.2.1 Focused antenatal care (ANC): The four-visit ANC model outlined in WHO clinical guidelines

Goals				
	First visit	Second visit	Third visit	Fourth visit
	8-12 weeks	24-26 weeks	32 weeks	36-38 weeks
	Confirm pregnancy	Assess maternal	Assess maternal and	Assess maternal and
	and EDD, classify	and fetal well-being.	fetal well-being.	fetal well-being.
	women for basic ANC	Exclude PIH and	Exclude PIH, anaemia,	Exclude PIH, anaemia,
	(four visits) or more	anaemia.	multiple pregnancies.	multiple pregnancy,
	specialized care.	Give preventive	Give preventive	malpresentation.
	Screen, treat and give	measures.	measures.	Give preventive
	preventive measures.	Review and modify	Review and modify	measures. Review and
	Develop a birth	birth and emergency	birth and emergency	modify birth and
	and emergency plan.	plan. Advise and	plan. Advise and	emergency plan.
	Advise and counsel.	counsel.	counsel.	Advise and counsel.

Activities

Rapid assessment and management for emergency signs, give appropriate treatment, and refer to hospital if needed

Rapid assessment and	management for emergene	signs, give appropriate the	activent, and refer to nos	pital il liecded
History (ask, check records)	Assess significant symptoms. Take psychosocial, medical and obstetric history. Confirm pregnancy and calculate EDD. Classify all women (in some cases after test results)	Assess significant symptoms. Check record for previous complications and treatments during the pregnancy. Re-classification if needed	Assess significant symptoms. Check record for previous complications and treatments during the pregnancy. Re-classification if needed	Assess significant symptoms. Check record for previous complications and treatments during the pregnancy. Re-classification if needed
Examination (look, listen, feel)	Complete general, and obstetrical examination, BP	Anaemia, BP, fetal growth, and movements	Anaemia, BP, fetal growth, multiple pregnancy	Anaemia, BP, fetal growth and movements, multiple pregnancy, malpresentation
Screening and tests	Haemoglobin Syphilis HIV Proteinuria Blood/Rh group* Bacteriuria*	Bacteriuria*	Bacteriuria*	Bacteriuria*
Treatments	Syphilis ARV if eligible Treat bacteriuria if indicated*	Antihelminthic**, ARV if eligible Treat bacteriuria if indicated*	ARV if eligible Treat bacteriuria if indicated*	ARV if eligible If breech, ECV or referral for ECV Treat bacteriuria if indicated*
Preventive measures	Tetanus toxoid Iron and folate+	Tetanus toxoid, Iron and folate IPTp ARV	Iron and folate IPTp ARV	Iron and folate ARV
Health education, advice, and counselling	Self-care, alcohol and tobacco use, nutrition, safe sex, rest, sleeping under ITN, birth and emergency plan	Birth and emergency plan, reinforcement of previous advice	Birth and emergency plan, infant feeding, postpartum/postnatal care, pregnancy spacing, reinforcement	Birth and emergency plan, infant feeding, postpartum/postnatal care, pregnancy spacing, reinforcement

5-Access to appropriate preconception and interconception health care

- Talking to a health-care provider before becoming pregnant and obtaining appropriate counseling and screening can assist in identifying harmful behaviors and uncontrolled medical conditions that can be managed before pregnancy
- Because a woman might have a subsequent pregnancy, services in the postpartum period (e.g., a postpartum check-up, screening for postpartum depression, counseling about birth control, and accessing services such as the Special Supplemental Nutrition Program for Women, Infants, and Children [WIC]) all are opportunities to help women maintain or regain good health
- For preconception and postpartum interventions to succeed, women should have access to preventive and curative medical services before and after pregnancy.

6-Poverty

The findings in analysis of NMIHS indicate that, for infants born to women living in poverty in the United States in 1988, overall excess mortality risk was approximately 60% compared with infants born to women living above the poverty level.

3-Health risks

include:

HTN,CVD, DM, Depression, Genetic conditions, STDs, Tobacco use and Alcohol Abuse, Inadequate nutrition, Unhealthy weight.

1- Hypertension

The risks of uncontrolled hypertension include premature death, heart attack, renal insufficiency, and stroke.

The USPSTF recommends screening for elevated blood pressure (greater than 140/90 mm Hg) in all adults 18 years and older.²⁷

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure recommends screening every other year in adults with normal blood pressure (less than 120/80 mm Hg) and yearly in those with prehypertension (systolic of 120 to 139 mm Hg; diastolic of 81 to 90 mm Hg).²⁸

2-Cardiovascular disease (CVD)

has been the primary cause of death in women for almost a century, and more women than men have died of CVD every year since 1984.

- Age.
- Family history.
- Hypertension.
- Lipids and lipoproteins.
- Diabetes mellitus.
- Lifestyle factors.

USPSTF= US Preventive Services Task Force

RISK FACTOR MANAGEMENT

Ideal blood pressure is defined as less than 120/80 mm Hg.



If weight loss, dietary modification, and exercise are insufficient to control blood pressure, **pharmacologic therapy** should be considered when

- blood pressure is 140/90 mm Hg or greater, or
- 130/80 mm Hg or greater in women with diabetes or chronic kidney disease.

3-Diabetes

The USPSTF recommends screening for type 2 diabetes in asymptomatic adults with sustained blood pressure greater than 135/80 mm Hg (treated or untreated), but found insufficient evidence to support routine screening for asymptomatic adults with a blood pressure below this level.

4-Genetic Conditions

Taking an accurate three-generation family history is important when a genetic syndrome is suspected or identified.

Genetic counselors can be invaluable in this regard.

It is critical to consider all health-related issues, even if they do not appear to be directly connected to the primary condition.

For example,

genetic syndromes may be suggested by a preponderance of early cancer diagnoses. early or unusual onset of a relatively common condition such as cardiac disease or a history of unusual reactions to a certain medication.

5- STIs

According to the **USPSTF**, **HIGH-RISK WOMEN** should be screened at least annually for chlamydia, gonorrhea, and syphilis, and all sexually active women 24 years and younger should be screened annually for chlamydia.

6-Depression

- Mental health: Evidence suggests that women are more prone than men to experience anxiety, depression, and somatic complaints – physical symptoms that cannot be explained medically.
- Depression is the most common mental health problem for women and suicide a leading cause of death for women under 60.

Helping sensitise women to mental health issues, and giving them the confidence to seek assistance, is vital.

Screening For Depression

 A recent study showed the reliability of screening for depression by asking patients one simple question:

"Have you been feeling sad or depressed lately?"

- Once depressive symptoms have been detected, physicians need to determine whether comorbid conditions or medications may be contributing to or aggravating depression.
- The type of TREATMENT depends on the nature and severity of the depressive symptoms. Options include psychotherapy and pharmacologic therapy. Patients with severe refractory depression may require electroconvulsive therapy.

Overweight And Obesity

Elevated body mass index (BMI) is a marker of unhealthy weight, and all adults should be screened for elevated BMI.

A BMI between 25 and 29.9 kg per m2 is defined as overweight, and a BMI of 30 kg per m2 or greater indicates obesity.

The **USPSTF** recommends that physicians refer patients who are obese to intensive, multicomponent **Behavioral Interventions.**

Components of such interventions include setting weight-loss goals, improving diet or nutrition, participating in physical activity sessions, addressing barriers to change, actively self-monitoring, and strategizing

HOW TO MAINTAIN LIFESTYLE CHANGES.

TOBACCO USE

- Five A's Counseling Strategy
- Medications:

Pharmacologic therapies to assist tobacco cessation substitute the source of nicotine or mimic its function.

Alcohol Abuse

When alcohol abuse is detected, pharmacologic or psychologic treatment can be attempted.

In older adults, pharmacologic treatment is recommended only for acute detoxification. Intermediate-acting benzodiazepines, such as lorazepam (Ativan), may be used as initial treatment because they do not accumulate active metabolites.

Long-acting agents, such as chlordiazepoxide (Librium), may be necessary to prevent withdrawal symptoms.

In nondependent drinkers, five to 15 minutes of outpatient counseling may be effective in reducing drinking by 32 to 38 percent.

Health

- A state of complete physical, mental, and social well-being and not just the absence of sickness or frailty
- Health and wellness are multidimensional
 - The dimensions of health and wellness include the emotional (mental), intellectual, physical, social, and spiritual.

Why Are the Social and Physical Determinants of Maternal Health Important?

- 1. To know these factors help in **Improving the well-being** of mothers, infants, and children and that is an important public health goal because Their well-being determines the health of the **next generation** and can help to predict the future of public health challenges for families, communities, and the health care system.
- 2. educating patients in a culturally sensitive manner about steps they can take to prevent disease conditions that are prevalent in their racial and ethnic groups

Social and Physical Determinants of Maternal Health Range Of Biological, Social, Environmental, And Physical Factors Have Been Linked To Maternal, Infant, And Child Health Outcomes.

<u>1-Social</u> Determinants of Maternal Health These include:

- Race and ethnicity
- Age
- socioeconomic factors, such as:
 - income level
 - educational attainment
 - medical insurance coverage
- access to medical care
- pre-pregnancy health
- general health status.

1- Race and ethnicity

Race and ethnicity represent social rather than biological constructs that can provide useful information about how environmental, cultural, behavioral, and medical factors can affect patient health.

2-Age

Advanced age is a risk factor for female infertility, pregnancy loss, fetal anomalies, stillbirth, and obstetric complications.

Reasons people delay pregnancy and parenthood include:

- Women are reaching higher educational levels
- Cultural and value shifts have led towards more women not feeling "ready" to have a child yet
- Lack of childcare, low benefit levels, and workplace policies that signal to women that they cannot be both a wage earner and a mother
- Economic or housing uncertainty, unemployment, temporary work, or unstable labor markets

2-Physical Determinants of Maternal Health

Common barriers to a healthy pregnancy and birth include lack of access to appropriate health care before and during pregnancy. In addition, environmental factors can shape a woman's overall health status before, during, and after pregnancy by:

- Affecting her health directly.
- Affecting her ability to engage in healthy behaviors.

5-Social and Physical Determinants of <u>Child</u> Health

Determinants of Infant and Child Health

- 1. Biological
- 2. Socio-economic
- 3. Cultural

A)Biological

- **1. Birth Weight:** low birth weight (< 2.5 kg) & high birth weight (> 4 kg)
- 2. Age of The Mother : <19 years) or >over 30 years
- 3. Repeated pregnancies : risk of miscarriage
- 4. Birth Spacing: < 1 year = 2-4 times risk of mortality
- 5. Multiple Births: more risk due to low birth weight
- 6. Family Size: 3 or more children, more frequent/prolonged illness
- 7. Birth Order: Mortality risk increased after the third birth.

B)Socio-economic Factors

- Low income countries
- Rural areas
- Low education
- Nutrition
- Breast & formula milk use
- Health care quality
- Violence (wife beating, infanticide, child abuse)

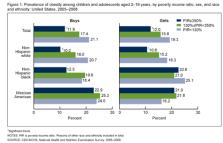
Environmental conditions

C)Cultural Factors

- Religion
- Customs
- Early marriages
- Sex of child
- Quality of mothering
- Traditions affecting
 - cleanliness,
 - •eating,
 - •clothing,
 - •child care

Obesity and Socioeconomic Status in Children and Adolescents: United States, 2005-2008

Effect of income



Among both boys and girls obesity prevalence decreases as income increases, but this relation is not consistent across race and ethnicity groups.

Effect of environment

WHO/D. Rodriguez

Fact 1: More than 1 in 4 child deaths could be prevented by cleaning up the environment

Every year, environmental risks such as indoor and outdoor air pollution, second-hand smoke, and unsafe water and sanitation take the lives of 1.7 million children under 5 years – 26% of child deaths.

6-How to improve the health and well-being of women, infants, children, and families.

Why women, infants and adolecents suffer?

women have lower social status than men, producing unequal power relations. Women have different needs throughout their lifespan than men \rightarrow not implemented in some global agenda. They live in poor countries where they miss out health care services.

A) Maternal health

1-Preconception health

<u>Definition</u>: refers to the health of women during their reproductive years.

<u>Aim:</u> It focuses on taking steps now to protect the health of a baby they might have sometime in the future, and staying healthy throughout life.

Why important? :

- 1. Good preconception health is important for every woman—not just those planning pregnancy.
- 2. It means taking control and choosing healthy habits.
- 3. It means living well, being healthy, and feeling good about your life.

2. Postpartum health

Postpartum period you have to assess:

- 1. vaginal bleeding
- 2. uterine contraction
- 3. temperature
- 4. heart rate
- 5. Breastfeeding
- 6. Iron and folic acid => 3 months after delivery

3. Postpartum Depression

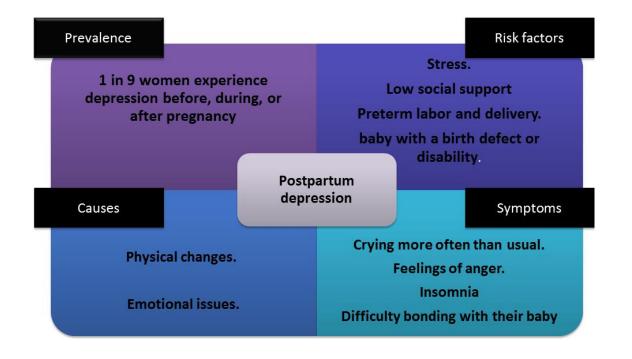
<u> Aim:</u>

 \checkmark We monitor prevalence and treatment of depression among women of postpartum depression.

counseling or other treatments.

Talking to your health care provider is a good first step if you think you may suffer from depression.

✓ After **10–14 days all women should be** asked about emotional wellbeing, their family and social support.



B) Infants health

The US infant death rate has declined 13% since 2005, but is still twice as high for black infants than for white infants.

The five leading causes of infant death:

- 1. birth defects.
- 2. preterm birth or low birth weight.
- 3. maternal complications of pregnancy.
- 4. sudden infant death syndrome (SIDS).
- 5. unintentional injuries.

Improving infants health after delivery

- 1. Promote early and exclusive breastfeeding.
- 2. A full clinical examination should be done 1 hour after birth. This includes giving vitamin K prophylaxis and hepatitis B vaccination (within 24 hours).

1-Preterm Birth

Definition: before 37 weeks of pregnancy),

nearly 1 in 10 infants (about 380,000) were born prematurely in 2014.

<u>Prevalence</u>: Infant death rates related to preterm birth are three times higher for black infants than for white infants.

Why it is dangerous?

- 1. The earlier an infant is born, the more likely he or she is to require intensive and prolonged hospitalization and have higher medical costs.
- 2. Premature infants are also more likely to have lifelong health problems, such as cerebral palsy, developmental delays, chronic lung disease, and vision and feeding problems.

How to prevent it?

babies should be identified as soon as possible and should be provided special care.

2. Assisted Reproductive Technology (ART) Challenges

Why it might put the infant at a risk?

✓ women who conceive through ART are at higher risk of preterm birth and low birth weight infants.

✓ because they have a greater chance of becoming pregnant with two or more infants at a time.
✓ Carrying and delivering two or more infants at a time is associated with a higher risk of complications for both women and infants.

3. Sudden Unexpected Infant Death (SUID) and SIDS

Why it happens:

- most deaths occurred while the infant was sleeping in an unsafe environment, examples (accidental suffocation from soft bedding or from another person rolling on top of or against the infant while sleeping)
- 2. Often, no one witnesses these deaths, and no tests exist to tell SIDS from suffocation.
- 3. Most SUID cases are reported as unknown causes, or accidental suffocation and strangulation in bed.

Leading causes of death in post-neonatal children: risk factors and response

Cause of death	Risk factors	Prevention	Treatment
Pneumonia, or other acute respiratory infections	Low birth weight Malnutrition Non-breastfed children Overcrowded conditions	Vaccination Adequate nutrition Exclusive breastfeeding Reduction of household air pollution	Appropriate care by a trained health provider Antibiotics Oxygen for severe illness
Childhood diarrhoea	Non-breastfed children Unsafe drinking water and food Poor hygiene practices Malnutrition	Exclusive breastfeeding Safe water and food Adequate sanitation and hygiene Adequate nutrition Vaccination	Low-osmolarity oral rehydration salts (ORS) Zinc supplements

Vaccine	Before pregnancy	During pregnancy	After pregnancy	Type of Vaccine
Hepatitis A	Yes, if indicated	Yes, if indicated	Yes, if in dicated	Inactivated
Hepatitis B	Yes, if indicated	Vos if indicated	Yes, if in dicated	Inactivated
Human Papillomavirus (HPV)	Yes, if indicated, through 26 years of age	No, under study	Yes, if indicated, through 26 years of age	Inactivated
Influenza IIV	Yes	Yes	Yes	Inactivated
Influenza LAIV	Yes, if less than 50 years of age and healthy; avoid conception for 4 weeks	No	Yes, if less than 50 years of age and healthy; avoid conception for 4 weeks	Live
MMR	Yes, if indicated, avoid conception for 4 weeks	No	Yes, if indicated, give immediately postpartum if susceptible to rubella	Live
Meningococcal: • polysaccharide • conjugate	If indicated	If in dicated	If indicated	In activated In activated
Pneumococcal Polysaccharide	If indicated	If in dicated	If indicated	Inactivated
Tdap	Yes, if indicated	Yes, vaccinate during each pregnancy ideally between 27 and 36 weeks of gestation	Yes, immediately postpartum, if not received previously	Toxoid/ inactivated
Tetanus/DiphtheriaTd	Yes, if indicated	Yes, if indicated, Tdap preferred	Yes, if in dicated	Toxoid
Varicella	Yes, if indicated, avoid conception for 4 weeks	No	Yes, if indicated, give immediately postpartum if susceptible	Live



.....

وزارة الصحة السلكة المرية السودية

....

Basic V	حدول التطعيمات الأساسية Vaccination Schedule			
Visit	Vaccine	اللقاح	الزبارة	
At Birth BCG HepB		الدرت الإلتهاب الكسياي (ب)	الـولادة	
	IPV	الإشهاب الديستاني (ب) شيالل الأطفال المعطال		
2 months	(DRP , HepB , Hib)	(الثلاثي البكتيري ؛ الإلتهـاب الكبـدي (ب) ؛ المسـتدمية النزليـة)	شهرين	
4 months	OPV	شبالل الأطفياك القمنوي		
4 months	(DRP , HepB , Hib)	(الثلاثي البكتـيري ؛ الإلتهـاب الكبـدي (ب) ؛ المسـتدمية النزليـة)	4 أشـهر	
6 months	OPV	شــلل الأطفـال الفمـوي	6 شـهور	
o monens	(DRP , HepB , Hib)	(الثلاثي البكتـيري ؛ الإلتهـاب الكبـدي (ب) ؛ المســتدمية النزليـة)	1948-W 10	
9 months	Measles (mono)	الحصبة المفارد		
	OPV	شبلل الأطفيال الفمنوي		
12 months	MMR	الثلاثي القيروسيي	12 شىھر	
	Varicella	الجديري المنائبي		
1	OPV	شــلل الأطفـال الفمـوي	· · · · · · · · · · · · · · · · · · ·	
18 months	(DTP , Hib)	(الثلاثي البكتـيري ؛ المســتدمية النزليــة)	18 شىھر	
	Hepatitis (A)	الإلتهاب الكيـدي (أ)		
24 months	Hepatitis (A)	الإلتهاب الكبـدي (أ)	24 شىھر	
	OPV	شــلل الأطفـال، الفمـوي		
	DTP	الثلاثي البكتبيري	4 - 6 سنوات	
4-6 years	MMR	الثلاثي الفيروسيي		
	Varicella	الجديري المنائني		

· . . .



Pregnancy/Birth remarks/Apgar: Risk factors/Family history:

©2014 Drs. L Rourke, D Leduc and J Rourke www.rourkebabyrecord.ca

Well Child Record



Birth Day (d/m/yr): ____ NAME: M [] F [] G.A.: wks Birth Length: cm Birth Head Circ: cm Birth Wt.: g Discharge Wt.: DATE OF VISIT within 1 week DD/MM/YYYY DD/MM/YYYY 2 weeks 1 month DD/MM/YYYY Weight (regains BW Head Circ. Weight GROWTH use WHO growth charts. Length Weight Head Circ. Length Length Head Circ Correct age until 24-36 months if 1-3 weeks) cm kg cm cm cm cm kg cm < 37 weeks gestation kg % % % % PARENT/CAREGIVER CONCERNS For each O item discussed, indicate "✓" for no concerns, or "X" if concerns NUTRITION O Breastfeeding (exclusive) • Breastfeeding (exclusive) • Breastfeeding (exclusive) O Formula Feeding (iron-fortified)/ O Formula Feeding (iron-fortified)/ • Formula Feeding (iron-fortified)/ preparation preparation preparation ~150 mL (5 oz)/kg/day \sim 150 mL (5 oz)/kg/day ~ 450 - 750 mL (15 - 25 oz)/day - Give formula prep handout - Give formula prep handout - Give formula prep handout O Vitamin D 800 IU/Day (2 drops Baby • Vitamin D 800 IU/Day (2 drops Baby • Vitamin D 800 IU/Day (2 drops Baby Ddrops TM) Ddrops TM) Ddrops TM) O Stool pattern and urine output O Stool pattern and urine output • Stool pattern and urine output DEVELOPMENT • Sucks well on breast/bottle • Focuses gaze (Inquiry and observation of • No parent/caregiver concerns • Startles to loud noise milestones) O Exposure to trauma - Since the last time • Calms when comforted you were here has anything really scary or • Sucks well on nipple Tasks are set after the upsetting happened? • No parent/caregiver concerns time of normal milestone • Exposure to trauma - Since the last time acquisition. you were here has anything really scary upsetting happened? NB–Correct for age if < 37 weeks gestation PHYSICAL EXAMINATION • Skin (jaundice, dry) • Skin (jaundice, dry) • Skin (jaundice) • Birth marks An appropriate age-specific O Birth marks • Fontanelles physical examination is **O** Fontanelles • Fontanelles • Eyes (red reflex) recommended at each visit. • Eves (red reflex) • Eves (red reflex) • Corneal light reflex O Ears / Hearing inquiry/screening Evidence-based screening O Ears / Hearing inquiry/screening • Hearing inquiry/screening for specific conditions is **O** Tongue mobility **O** Tongue mobility • Tongue mobility highlighted. O Heart/Lung Sounds O Heart/Lung Sounds • Heart/Lung Sounds • Umbilicus • Umbilicus • Hips **O** Hips **O** Hips • Muscle tone O Muscle tone O Muscle tone **O** Testicles **O** Testicles O Male urinary stream/foreskin care • Male urinary stream/foreskin care **O** Patency of anus • Fall prevention EDUCATION AND ADVICE • Safe sleep (position, room sharing, avoid bed sharing, crib safety) • Firearm safety Car seat • Carbon monoxide/Smoke detectors • Hot water <49°C • Choking/safe toys • Pacifier use Injury Prevention Behaviour and family issues Crying • Healthy sleep habits • Night waking Soothability/responsiveness • Alcohol/Drug use in home • Parenting/bonding • Parental fatigue/postpartum depression • Family conflict/stress • Siblings Cold exposure • Second hand smoke Environmental Health • Sun exposure Insect Repellent Other Issues • No OTC cough/cold medicine Home remedies Concern around food security • Temperature control and overdressing Fever advice/thermometers PROBLEMS AND PLANS **IMMUNIZATION** O Check if Immunizations up-to-date O Check if Immunizations up-to-date O Check if Immunizations up-to-date Follow Nunavut Immunization Guide Signature GN 3508/0316-N551/0316 Adapted, modified, reproduced and used by the Government of Nunavut from the Rourke Baby Record (C Leslie Rourke, James Rourke and Denis Leduc, 2014) with the permission of the authors. Disclaimer: Given changing recommendations, the Rourke Baby

CN 3508/0316-N551/0316 Adapted, modified, reproduced and used by the Government of Nunavut from the Rourke Baby Record (C Leslie Rourke, James Rourke and Denis Leduc, 2014) with the permission of the authors. Disclaimer: Given changing recommendations, the Rourke Bae Record is meant to be used as a guide only. For fair use authorization, see www.rourkebabyrecord.ca. Since items unique to Nunavut have been added without levels of evidence, all fonts reflecting strength of recommendation are ommitted.



©2014 Drs. L Rourke, D Leduc and J Rourke www.rourkebabyrecord.ca

Well Child Record



GUIDE II: 2–6 mo

Pregnancy/Birth remarks/Apgar:	Risk factors/Fam	ily history:	NAME.			Pirth	Day (d/m/ur)	GUIL	DE II: 2–6 r	
								′t.:g Disc		
			G.A.: WK	s Birth Length: _	cm	BITUI Head CIIC:	Chi Birth W	t.: g Disc	charge wt.:	g
DATE OF VISIT	2 months	DD/MM/YYY	Y	4 months	DD/MM/	YYYY	6 months	DD/MM/YYY	YY	
GROWTH use <u>WHO growth charts</u> . Correct age until 24–36 months if < 37 weeks gestation	Length cm %	Weight kg %	Head Circ. cm %	Length cm %	Weight	Head Circ.	Length m cr %	Weight n kg % %		cm %
PARENT/CAREGIVER CONCERNS					1					
NUTRITION	For each O item discussed O Breastfeeding (exclusive) O Formula Feeding (iron-fortified)/preparation ~ 600–900 mL (20–30 oz) /day - Review formula prep handout O Vitamin D 800 IU/Day (2 drops Baby Ddrops TM)			I, indicate "V" for no concerns, or "X" if concerns O Breastfeeding (exclusive) O Formula Feeding (iron-fortified)/preparation ~ 750–1080 mL (25–36 oz) /day - Review formula prep handout O Vitamin D 800 IU/Day (2 drops Baby Ddrops TM) O Discuss future introduction of solids		 Formula Fe 750–108 Vitamin D 8 Iron contair meat, coun eggs) No honey Choking/sa No juices/p 	eggs)		als,	
DEVELOPMENT - (Inquiry and observation of milestones) - Tasks are set <u>after</u> the time of normal milestone acquisition. <u>- Absence of any item</u> <u>suggests consideration</u> for further assessment of development. - NB–Correct for age if < 37 weeks gestation	 Lifts head up Can be comforrocking Sequences 2 comparison Smiles respon No parent/care Exposure to training 	y, gurgling sounds while lying on tur rted & calmed by or more sucks bef sively egiver concerns auma - Since the e has anything rea	nmy touching/ ore swallowing/ last time	 O Follows a moving toy or person with eyes O Responds to people with excitement (leg movement/panting/vocalizing) O Holds head steady when supported at the chest or waist in a sitting position O Holds an object briefly when placed in hand O Laughs/smiles responsively O No parent/caregiver concerns O Exposure to trauma - Since the last time you were here has anything really scary or O Turns head toward sounds O Makes sounds while you talk to Vocalizes pleasure and displeated in band O Reaches/grasps objects O No parent/caregiver concerns O Exposure to trauma - Since the last time you were here has anything really scary or 				sure) e last time you	g	
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for specific conditions is highlighted.	 Fontanelles Eyes (red refle Corneal light i Hearing inquii Heart sounds Hips Muscle tone 	réflex ry/screening		O Anterior fontanelle O Anterior fontanelle O Eyes (red reflex) Eyes (red reflex) O Corneal light reflex O Corneal light reflex/Cover-uncove O Hearing inquiry/screening O Hearing inquiry/screening O Heart sounds O Heart sounds O Hips O Hips O Muscle tone O Muscle tone					гу	
EDUCATION AND ADVICE Injury Prevention	 Safe sleep (position, room sharing, avoid bed sharing, crib safety) Carbon monoxide/Smoke detectors Falls (stairs, change table, unstable furniture/TV, no walkers) Childproofing, including: Electric plugs/cords and poisons For water <49°C/bath safety Choking/safe toys Facifier use 									
Behaviour and family issues	 Crying Parenting/bondi 	• Healthy slee ing • Parental fat	p habits • Nig gue/postpartum	, 0	Soothability/re amily conflict/s	•	Alcohol/Drug use care/return to worl	in home • Sib • Exposure to tra	0	
Environmental Health	Second hand s	• moke	Sun exposure/su	nscreens • (cold exposure	Insect Rep	ellent			
Other Issues	Teething/CleanHome remedie	ing teeth/Fluoride s E		OTC cough/cold		ver advice/thermon • Tummy time who		erature control and • Concern around t		
PROBLEMS AND PLANS		L		, sing and spe		. anny thic will				
IMMUNIZATION Follow Nunavut Immunization Guide	O Check if Imr	nunizations up	-to-date	O Check if Im	munizations	s up-to-date		mmunizations up bin as per Iron Do ocol		
Signature										

GN 3508/0316-N551/0316 Adapted, modified, reproduced and used by the Government of Nunavut from the Rourke Baby Record (C Leslie Rourke, James Rourke and Denis Leduc, 2014) with the permission of the authors. Disclaimer: Given changing recommendations, the Rourke Baby Record is meant to be used as a guide only. For fair use authorization, see www.rourkebabyrecord.ca. Since items unique to Nunavut have been added without levels of evidence, all fonts reflecting strength of recommendation are ommitted.





©2014 Drs. L Rourke, D Leduc and J Rourke www.rourkebabyrecord.ca

Well Child Record



GUIDE III: 9–15 mos

Pregnancy/Birth remarks/Apgar:	Risk factors/Family history:	NAME			Bisth Day	(1)	GUIDE III: 9–15 mos
							M [] F []
		G.A.: wks	Birth Length:	cm Birth	h Head Circ:	_ cm Birth Wt.: _	g Discharge Wt.:g
DATE OF VISIT	9 months (optional) DD/MM/	YYYY	12–13 month	s DD/MM/YYY	Y	15 months	DD/MM/YYYY
GROWTH use <u>WHO growth charts.</u> Correct age until 24–36 months if < 37 weeks gestation	Length Weight cm kg%%		Length cm %	Weight kg	Head Circ. cm %	Length cm %	Weight Head Circ. kg mm % %
PARENT/CAREGIVER CONCERNS		1			1		·
		ch O item discussed,			concerns		
NUTRITION	 Breastfeeding Formula Feeding – iron-fortified/preparation 720–960 mLs (24–32 oz) /day Vitamin D 800 IU/Day (2 drops Baby Ddrops TM) If bottles in bed, water only Cereal, meat/alternatives, fruits, vegetables Cow's milk products (e.g., yogurt, cheese, homogenized milk) Choking/safe foods No juices/pop/drink crystals 		 O Breastfeeding O Homo milk (3.25% MF) ~ 500-750 mLs (16-24 oz)/day O Vitamin D 800 IU/Day (2 drops Baby Ddrops TM) O Choking/safe foods O No juices/pop/drink crystals O Promote open cup instead of bottle O If bottles in bed, water only O Foods from all 4 food groups 		 Greastfeeding Homo milk (3.25% MF) ~ 500–750 mLs (16–24 oz) /day Vitamin D 800 IU/Day (2 drops Baby Ddrops TM) Choking/safe foods No juices/pop/drink crystals Promote open cup instead of bottle Foods from all 4 food groups 		
DEVELOPMENT (Inquiry and observation of milestones) Tasks are set <u>after</u> the time of normal milestone acquisition. Absence of any item suggests consideration for further assessment of development. NB–Correct for age if < 37 weeks gestation	 duhduh) Responds differently to differe Makes sounds/gestures to get Sits without support Stands with support when help position Opposes thumb and fingers w objects Plays social games with you (e touching, peek-a-boo) Cries or shouts for attention No parent/caregiver concerns 	Looks for an object seen hidden Babbles a series of different sounds (e.g., baba, luhduh) Responds differently to different people Makes sounds/gestures to get attention or help Sits without support Stands with support when helped into standing position Dpposes thumb and fingers when grasps objects Plays social games with you (e.g., nose ouching, peek-a-boo) Cries or shouts for attention No parent/caregiver concerns Exposure to trauma - Since the last time			e.g., Where is vel combination ave to be clear) from parent/ erence an object last time lly scary or	be clear) Picks up and o Walks sidewa Shows fear of Crawls up a fe Tries to squat No parent/ca Exposure to t	ys holding onto furniture strange people/places ew stairs/steps to pick up toys from the floor regiver concerns rauma - Since the last time e has anything really scary or
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for specific conditions is highlighted.	 upsetting happened? Anterior fontanelle Eyes (red reflex) Corneal light reflex/Cover-uncoinquiry Hearing inquiry/screening Heart sounds Hips 		 Anterior fontanelle Eyes (red reflex) Corneal light reflex/Cover-uncover test & inquiry Hearing inquiry/screening Teeth Heart sounds Hips 			 Anterior fonta Eyes (red refleted) Corneal light inquiry Hearing inquition Teeth Heart sounds Hips 	ex) reflex/Cover-uncover test &
EDUCATION AND ADVICE Injury Prevention	Car seats Chokin Childproofing, including: Electr	Choking/safe toys • Carbon monoxide/Smoke detectors • Hot water <49°C/bath safety					5
Behaviour and Family Issues		o habits • Night waking • Soothability/responsiveness • Alcohol/Drug use and home • Siblings al fatigue/depression • Family conflict/stress • Child care/return to work ring/sedentary behaviour • Exposure to trauma					
Environmental Health	• Second hand smoke • Sun ex	posure/sunscreens	Inscreens • Cold exposure • Insect Repellent				
Other Issues	 Teething/Toothbrushing/Fluorid Fever advice/thermometers 	Teething/Toothbrushing/Fluoride Concern around food security No OTC cough/cold medicine Home remedies Encourage reading, singing and speaking Footwear					
PROBLEMS AND PLANS					<u> </u>		
INVESTIGATIONS/IMMUNIZATION Follow Nunavut Immunization Guide	 Check if Immunizations up-to- Hemoglobin as per Iron Defici Protocol 			unizations up-to-d as per Iron Deficien			unizations up-to-date ss per Iron Deficiency, Anemia
Signature	1		1			1	

GN 3508/0316-N551/0316 Adapted, modified, reproduced and used by the Government of Nunavut from the Rourke Baby Record (C Leslie Rourke, James Rourke and Denis Leduc, 2014) with the permission of the authors. Disclaimer: Given changing recommendations, the Rourke Baby Record is meant to be used as a guide only. For fair use authorization, see www.rourkebabyrecord.ca. Since items unique to Nunavut have been added without levels of evidence, all fonts reflecting strength of recommendation are ommitted.





Risk factors/Family history:

©2014 Drs. L Rourke, D Leduc and J Rourke www.rourkebabyrecord.ca



Well Child Record

GUIDE IV: 18 mo-5 yr

	NAME:	Birth Da	ay (d/m/yr): M [] F [
DATE OF VISIT	18 months DD/MM/YYYY	2–3 years DD/MM/YYYY	4–5 years DD/MM/YYYY		
GROWTH use <u>WHO growth charts.</u> Correct age until 24–36 months if < 37 weeks gestation	Length Weight Head Circ. cm kg c % % kg	Height Weight	Height Weight BMI kg kg kg % % %		
PARENT/CAREGIVER CONCERNS					
	For each O item discuss	ed, indicate "✓" for no concerns, or "X" if concerns			
NUTRITION	 ○ Breastfeeding ○ Homo milk (3.25% MF) ~ 500-750 mLs (16-24 oz) /day ○ Vitamin D 800 IU/Day (2 drops Baby Ddrops ™) ○ No juices/pop/drink crystals ○ No bottles 	 Gerastfeeding Skim, 1% or 2% milk ~ 500 mLs (16 oz) /day Vitamin D 400 IU/Day (daily multivitamin) Limit juice to 1/2 cup per day Nunavut's Food Guide 	 Skim, 1% or 2% milk ~ 500 mLs (16 oz) /day Vitamin D 400 IU/Day (daily multivitamin) Limit juice to 1/2 cup per day Nunavut's Food Guide 		
DEVELOPMENT (Inquiry and observation of milestones) Tasks are set <u>after</u> the time of normal milestone acquisition. Absence of any item suggests consideration for further assessment of development. NB–Correct for age if < 37 weeks gestation	Social/Emotional O Child's behaviour is usually manageable Interested in other children Usually easy to soothe Comes for comfort when distressed Communication Skills Points to several different body parts Tries to get your attention to show you something O Torns/responds when name is called Points to what he/she wants Looks for toy when asked or pointed in direction Imitates speech sounds and gestures Says 20 or more words (words do not have to be clear) Produces 4 consonants, (e.g., B D G H N W) Motor Skills Walks alone Feeds self with spoon with little spilling Adaptive Skills Removes hat/socks without help No parent/caregiver concerns Exposure to trauma - Since the last time you	 2 years Combines 2 or more words Understands 1 and 2 step directions Walks backward 2 steps without support Tries to run Puts objects into small container Uses toys for pretend play (e.g., give doll a drink) Continues to develop new skills No parent/caregiver concerns 3 years Understands 2 and 3 step directions (e.g., "Pick up your hat and shoes and put them in the closet.") Uses sentences with 5 or more words Walks up stairs using handrail Twists lids off jars or turns knobs Shares some of the time Plays make-believe games with actions and words (e.g., pretending to cook a meal, fix a car) Turns pages one at a time Listens to music or stories for 5–10 minutes No parent/caregiver concerns 	 4 years Understands 3-part directions Asks and answers lots of questions (e.g., "What are you doing?") Walks up/down stairs alternating feet Undoes buttons and zippers Tries to comfort someone who is upset No parent/caregiver concerns 5 years Counts out loud or on fingers to answer "How many are there? Speaks clearly in adult-like sentences most of the time Throws and catches a ball Hops on 1 foot several times Dresses and undresses with little help Cooperates with adult requests most of the time Retells the sequence of a story Separates easily from parent/caregiver No parent/caregiver concerns 		
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for	 were here has anything really scary or upsetting happened? O Anterior fontanelle closed O Eyes (red reflex) O Corneal light reflex/Cover-uncover test & inquiry O Hearing inquiry O Teeth 	 Exposure to tradina - since the last time you were here has anything really scary or upsetting happened? Eyes (red reflex)/Visual acuity Corneal light reflex/Cover-uncover test & inquiry Hearing inquiry Teeth 	 O Exposure to trauma - Since the last time you were here has anything really scary or upsetting happened? O Eyes (red reflex)/Visual acuity O Corneal light reflex/Cover-uncover test & inquiry O Hearing inquiry O Teeth O Blood pressure 		
specific conditions is highlighted. EDUCATION AND ADVICE Injury Prevention	Car/vehicle safety Bath safety Choking/safe toys Falls (stairs, change table, unstable furniture/TV) Wean from pacifier	•Car/vehicle safety •Bike helmets •Firearm safety •Carbon monoxide/smoke detectors •Matches/Ligf •Falls (stairs, unstable furniture/TV, trampolines)	iters • Water safety		
Behaviour	 Discipline/Parenting skills programs Healthy sleep habits 	Discipline/parenting skills programs Siblings Parental fatigue/depression Family conflict/stress			
Family	Parental fatigue/stress/depression Family healthy: active living/sedentary behaviour Encourage reading, singing and speaking Socializing/peer play opportunities	 Family healthy active living/sedentary behaviour 	care /preschool needs/school readiness eading, singing and speaking		
Environmental Health	Second-hand smoke Sun exposure/sunscreens Insect Repellent	Second-hand smoke Sun exposure/sunscreens Insect Repellent			
Other	Toothbrushing/Fluoride Toilet learning Concern around food security	Toothbrushing/Fluoride • No pacifiers • Con- • Toilet learning • No OTC cough/cold medic	cern around food security ine		
PROBLEMS AND PLANS					
INVESTIGATIONS/IMMUNIZATION Follow Nunavut Immunization Guide	 Check if Immunizations up-to-date Hemoglobin as per Iron Deficiency, Anemia Protocol 	 O Check if Immunizations up-to-date O Hemoglobin as per Iron Deficiency, Anemia Protocol 	O Check if Immunizations up-to-date		

GN 3508/0316-N551/0316 Adapted, modified, reproduced and used by the Government of Nunavut from the Rourke Baby Record (C Leslie Rourke, James Rourke and Denis Leduc, 2014) with the permission of the authors. Disclaimer: Given changing recommendations, the Rourke Baby Record is meant to be used as a guide only. For fair use authorization, see www.rourkebabyrecord.ca. Since items unique to Nunavut have been added without levels of evidence, all fonts reflecting strength of recommendation are ommitted.

MCQs

MCQ:1

is obtained by dividing the number of maternal deaths in a population during some time interval by the number of live births occurring in the same period referred to :

- A. Neonatal mortality rate
- B. Proportion maternal death
- C. Maternal mortality ratio
- D. Maternal mortality rate

MCQ:2

Which one of the following is considers a factor

affecting pregnancy and childbirth?

- A. Age
- B. preconception health care
- C. poverty
- D. all of the above.

MCQ:3

Which one of the following is considered the primary cause of death in women?

- A. Depression
- B. CVD
- C. DM
- D. GENETIC CONDITIONS

MCQ:4 All Of The Following Are Considered A Socioeconomic Factors, Except

- A. Income Level
- B. Educational Attainment
- C. Medical Insurance Coverage
- D. Pre-pregnancy Health

MCQ:5

Which of the following can predict a good health outcome for infants ?

- A. Younger age of the mother <19 years
- B. Birth Wight = 3.2 kg
- C. Birth Spacing> 6 months
- D. Low maternal education

MCQ:6

When to screen women for postpartum depression

- A. 2 hours after delivery
- B. 1 week after delivery
- C. 10 days after delivery
- D. 1 month after delivery



References 1-Health behaviors and health systems indicators

1-Health behaviors and health systems indicators
Lale Say etal. Global causes of maternal death: a WHO systematic analysis. The Lancet Global Health . Volume 2, Issue 6, Pages e323-e333 (June 2014) . DOI:
10.1016/S2214-109X(14)70227-X
Levels & Trends in Child Mortality Report 2015 Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. United Nations Available at:
http://www.childmortality.org/
http://www.who.int/bulletin/volumes/87/4/07-048280/en/
https://www.unicef.org/infobycountry/stats_popup1.html
https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm
https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm
http://www.medicinenet.com/script/main/art.asp?articlekey=4521
2-Factors can affect pregnancy and childbirth
https://www.cdc.gov/mmwR/preview/mmwrhtml/ss5610a1.htm
https://www.cdc.gov/nchs/data/series/sr_20/sr20_014.pdf
https://www.cdc.gov/mmwr/preview/mmwrhtml/00039818.htm
http://www.who.int/mediacentre/news/releases/2016/antenatal-care-guidelines/en/
http://www.dhs.state.il.us/page.aspx?item=51247
http://www.marchofdimes.org/mission/preconception-and-interconception-health-education.aspx
http://www.who.int/mediacentre/news/releases/2016/antenatal-care-guidelines/en/
3-Health risks
http://www.aafp.org/afp/2012/1101/p826.html
http://www.who.int/life-course/news/commentaries/2015-intl-womens-day/en/
http://www.aafp.org/afp/1999/0401/p1835.html
http://www.aafp.org/afp/2012/0315/p591.html
http://www.aafp.org/afp/1999/0401/p1835.html
4-Social and Physical Determinants of Maternal Health
http://ibis.dhss.alaska.gov/topic/healthoutcomes/MCH.html
https://www.cdc.gov/chronicdisease/resources/publications/aag/maternal.htm
https://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health#seven
http://www.mhhe.com/hper/physed/clw/01corb.pdf
http://121.52.153.178:8080/xmlui/bitstream/handle/123456789/6342/upload-Final%20Theis_Shandana%20Dar-july%201-13.pdf?sequence=3&isAllowed=y
https://www.ncbi.nlm.nih.gov/pubmed/25934599
https://evidencebasedbirth.com/advanced-maternal-age/
https://www.cdc.gov/ncbddd/sicklecell/traits.html
http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Racial-and-Ethnic-Disparities-in-
Obstetrics-and-Gynecology
5-Social and Physical Determinants of Infant and Child Health
https://www.cdc.gov/nchs/products/databriefs/db51.htm
 <u>http://www.patheos.com/blogs/progressivesecularhumanist/2016/04/victim-of-faith-healing-wants-parents-prosecuted/</u>
6-How to improve the health and well-being of women, infants, children, and families.
1. Sankaran G. From Alma-Ata to millennium development goals: Status of women's health in the 21st century. In: Murthy P, Smith CL, editors. Women's global
health and human rights. Jones and Bartlett Publishers; Burlington, MA: 2010. pp. 519–532.
2. http://www.who.int/reproductivehealth/topics/maternal_perinatal/BMJ-UNSG-Global-Strategy/en/
3. https://www.cdc.gov/reproductivehealth/womensrh/
4. <u>https://www.cdc.gov/chronicdisease/resources/publications/aag/infant-health.htm</u>
5. <u>http://www.kidfb.com/vaccine-safety-before-during-and-after-pregnancy-t5.html</u>
6 http://www.hupa.com.ca/arabic/bealthandwellness/bealthinformation/articles/pages/vaccination_in_children.aspx

6. http://www.bupa.com.sa/arabic/healthandwellness/healthinformation/articles/pages/vaccination-in-children.aspx