

MATERNAL AND CHILD HEALTH

TEACHER'S GUIDE SENIOR 4

ASSOCIATE NURSING PROGRAM

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FOREWORD

Dear Teacher,

The Rwanda Basic Education Board is pleased to present this Teacher's Guide for the Associate Nursing Program. This guide is designed to support competence-based teaching and ensure consistency in delivering the Maternal and Child Health subject. The Rwandan educational philosophy aims to help student-associate nurses achieve their full potential, preparing them to address community health needs and pursue career opportunities.

To enhance education quality, the government of Rwanda emphasizes the alignment of teaching materials with the syllabus. Effective teaching relies on the relevance of content, pedagogical approaches, assessment strategies, and instructional materials. The guide focuses on activities that promote learning, allowing students to develop ideas and make discoveries.

In a competence-based curriculum, learning involves actively building knowledge and skills through activities, scenarios, and real-life applications. Your role as a teacher includes:

- Planning lessons and preparing teaching materials.
- Organizing group discussions and collaborative learning.
- Engaging students through active learning methods such as inquiry, research, and group work.
- Supporting and facilitating the learning process by valuing student contributions and guiding them towards integrating their findings.

This guide is divided into three parts:

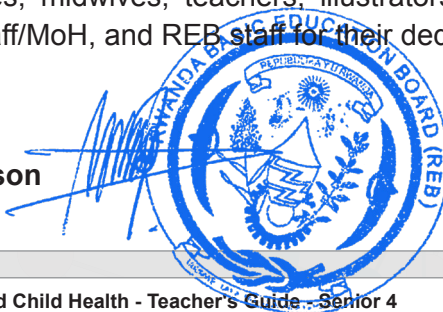
1. Explains the book's structure and provides methodological guidance.
2. Offers sample lesson plans for reference.
3. Provides detailed teaching guidance for each concept in the student book.

Although the guide includes answers to student book activities, please review each question and activity before assessing student responses.

I extend my gratitude to everyone involved in developing this guide, including the Ministry of Health, University of Rwanda, and other institutions. Special thanks go to faculty members, nurses, midwives, teachers, illustrators, designers, Health Workforce development staff/MoH, and REB staff for their dedicated work.

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PART I. GENERAL INTRODUCTION

1.0 About the teacher's guide

This book is a teacher's guide for Maternal and Child Health subject, for senior four in Associate Nursing program. It is designed to accompany student book and intends to help teachers in the implementation of competence based curriculum specifically Maternal and Child Health syllabus.

As the name says, it is a guide that teachers can refer to when preparing their lessons. Teachers may prefer to adopt the guidance provided but they are also expected to be more creative and consider their specific classes' contexts and prepare accordingly.

1.1 The structure of the guide

This section presents the overall structure, the unit and sub-heading structure to help teachers to understand the different sections of this guide and what they will find in each section.

Overall structure

The whole guide has three main parts as follows:

- **Part I: General Introduction.**

This part provides general guidance on how to develop the generic competences, how to integrate cross cutting issues, how to cater for students with special educational needs, active methods and techniques of Maternal and Child Health and guidance on assessment.

- **Part II: Sample lesson plan**

This part provides a sample lesson plan, developed and designed to help the teacher develop their own lesson plans.

- **Part III: Unit development**

This is the core part of the guide. Each unit is developed following the structure below. The guide ends with references.

Each unit is made of the following sections:

- **Unit title:** from the syllabus
- **Key unit competence:** from the syllabus
- **Prerequisites (knowledge, skills, attitudes and values)**

This section indicates knowledge, skills and attitudes required for the success of the unit.

The competence-based approach calls for connections between units/topics within a subject and interconnections between different subjects. The teacher will find an indication of those prerequisites and guidance on how to establish connections.

- **Cross-cutting issues to be addressed**

This section suggests cross cutting issues that can be addressed depending on the unit content. It provides guidance on how to come up with the integration of the issue. Note that the issue indicated is a suggestion; teacher are free to take another cross-cutting issue taking into consideration the learning environment.

- **Guidance on the introductory activity**

Each unit starts with an introductory activity in the teacher's book. This section of the teacher's guide provides guidance on how to conduct this activity and related answers. Note that students may not be able to find the right solution but they are invited to predict possible solutions or answers. Solutions are provided by students gradually through discovery activities organized at the beginning of lessons or during the lesson.

- **List of lessons/sub-heading**

This section presents in a table suggestion on the list of lessons, lesson objectives copied or adapted from the syllabus and duration for each lesson. Each lesson / subheading is then developed.

- **End of each unit**

At the end of each unit the teacher provides the following sections:

- Summary of the unit which provides the key points of content developed in the teacher's book.
- Additional information which provides additional content compared to the student book for the teacher to have a deeper understanding of the topic.
- End unit assessment which provides answers to questions of the end unit assessment in the teacher's book and suggests additional questions and related answers to assess the key unit competence.
- Additional activities :(remedial, consolidation and extended activities). The purpose of these activities is to accommodate each student (slow, average and gifted) based on the end of unit assessment results.

Structure of each sub heading

Each lesson/sub-heading is made of the following sections:

Lesson /Sub heading title 1:

- **Prerequisites/Revision/Introduction:**

This section gives a clear instruction to teacher on how to start the lesson.

- **Teaching resources**

This section suggests the teaching aids or other resources needed in line with the activities to achieve the learning objectives. Teachers are encouraged to replace the suggested teaching aids by the available ones in their respective schools and based on learning environment.

- **Learning activities**

This section provides a short description of the methodology and any important aspect to consider. It provides also answers to learning activities with cross reference to student's book.

- **Exercises/application activities**

This provides questions and answers for exercises/ application activities.

1.2 Methodological guidance

1.2.1 Developing competences

Since 2015 Rwanda shifted from a knowledge based to a competence based curriculum for pre-primary, primary and general secondary education. For TTCs, it is in 2019 that the competence based curriculum was embraced. This called for changing the way of learning by shifting from teacher centered to a learner centered approach. Teachers are not only responsible for knowledge transfer but also for fostering teacher's learning achievement, and creating safe and supportive learning environment. It implies also that a student has to demonstrate what he/she is able to do using the knowledge, skills, values and attitude acquired in a new or different or given situation.

The competence-based curriculum employs an approach of teaching and learning based on discrete skills rather than dwelling on only knowledge or the cognitive domain of learning. It focuses on what learner can do rather than what learners know. Students develop basic competences through specific subject unit competences with specific learning objectives broken down into knowledge, skills and attitudes. These competences are developed through learning activities disseminated in learner-centered rather than the traditional didactic approach. The students are evaluated against set standards to achieve before moving on.

In addition to specific subject competences, students also develop generic competences which are transferable throughout a range of learning areas and situations in life. Below are examples of how generic competences can be developed in Maternal Child Health:

Generic competence	Examples of activities that develop generic competences
Critical thinking	<ul style="list-style-type: none"> • Describe the relationship and interdependence of sciences • Observe, record, interpret data recorded during experiments • Identify and use the applications of Maternal and Child Health concepts to solve problems of life and society
Research and Problem solving	<ul style="list-style-type: none"> • Research using internet or books from the library • Design a project for making bioplastics • Design a questionnaire for data collection during field visit
Innovation and creativity	<ul style="list-style-type: none"> • Create an experiment procedure to prove a point • Develop a graph to illustrate information • Design a data collection survey/questionnaire • Conduct experiments with objectives, methodology, observations, results, conclusions • Identify local problems and ways to resolve them
Cooperation, Personal and Interpersonal management and life skills	<ul style="list-style-type: none"> • Work in Pairs • Small group work • Large group work
Communication	<ul style="list-style-type: none"> • Organise and present in writing and verbally a complete and clear report of an experiment • Observe, record, interpret the results of a measurement accurately. • Select and use appropriate formats and presentations, such as tables, graphs and diagrams.
Lifelong learning	<ul style="list-style-type: none"> • Exploit all opportunities available to improve on knowledge and skills. Reading scientific journals to keep updated.

1.2.2. Addressing cross cutting issues

Among the changes in the competence based curriculum is the integration of cross cutting issues as an integral part of the teaching learning process-as they relate to and must be considered within all subjects to be appropriately addressed.

The eight cross cutting issues identified in the national curriculum framework are: genocide studies, environment and sustainability, gender, Comprehensive Sexuality Education (CSE), Peace and Values Education, Financial Education, standardization Culture and Inclusive Education.

Some cross cutting issues may seem specific to particular learning areas or subjects but the teacher needs to address all of them whenever an opportunity arises. In addition, student should always be given an opportunity during the learning process to address these cross cutting issues both within and out of the classroom so as to progressively develop related attitudes and values.

Below are examples on how crosscutting issues can be addressed in Maternal Child Health:

Cross-cutting issues	Examples on how to integrate the cross-cutting issues
Inclusive education	Involve all students in all activities without any bias.Eg: Allow a student with physical disability (using wheelchair) to take notes or lead the team during an experiment.
Gender	Involve both girls and boys in all activities: No activity is reserved only to girls or boys. Teacher should ensure equal participation of both girls and boys during experiments as well as during cleaning and tidying up related activities after experiments.
Peace and Values Education	During group activities, debates and presentations, the teacher will encourage students to help each other and to respect opinions of colleagues.
Standardization culture	Some lessons involve carrying out experiments. Instruction should be clear for students to always check if they are not using expired chemicals or defective apparatus. In addition, when performing experiments students have to record data accurately. For tasks involving calculations, they have to always present accurate results.

Environment and sustainability	In order to avoid the environment pollution, before, during or after experiments students avoid throwing away chemicals anywhere; special places or appropriate containers should be used. Students also have to be aware of the impacts of the use of hydrocarbons as fuels, halogenoalkanes, and plastics on the environment.
Financial Education	When performing experiments, students are encouraged to avoid wasting chemicals by using the quantities that are just required. They are required to also avoid spoiling equipment and other materials...

1.2.3 Attention to special educational needs specific to each subject

In the classroom, students learn in different way depending to their learning pace, needs or any other special problem they might have. However, the teacher has the responsibility to know how to adopt his/her methodologies and approaches in order to meet the learning needs of each student in the classroom. Also teacher must understand that students with special needs need to be taught differently or need some accommodations to enhance the learning environment. This will be done depending on the subject and the nature of the lesson.

In order to create a well-rounded learning atmosphere, teacher needs to:

- Remember that students learn in different ways so they have to offer a variety of activities (e.g. role-play, music and singing, word games and quizzes, and outdoor activities).
- Maintain an organized classroom and limits distraction. This will help students with special needs to stay on track during lesson and follow instruction easily.
- Vary the pace of teaching to meet the needs of each student-teacher. Some students process information and learn more slowly than others.
- Break down instructions into smaller, manageable tasks. Students with special needs often have difficulty understanding long-winded or several instructions at once. It is better to use simple, concrete sentences in order to facilitate them understand what you are asking.
- Use clear consistent language to explain the meaning (and demonstrate or show pictures) if you introduce new words or concepts.
- Make full use of facial expressions, gestures and body language.
- Pair a student who has a disability with a friend. Let them do things together and learn from each other. Make sure the friend is not over protective and does not do everything for the student-teacher. Both students will benefit from this strategy

- Use multi-sensory strategies. As all students learn in different ways, it is important to make every lesson as multi-sensory as possible. Students with learning disabilities might have difficulty in one area, while they might excel in another. For example, use both visual and auditory cues.

Below are general strategies related to each main category of disabilities and how to deal with every situation that may arise in the classroom. However, the list is not exhaustive because each student is unique with different needs and that should be handled differently.

Strategy to help students with developmental impairment:

- Use simple words and sentences when giving instructions.
- Use real objects that the student can feel and handle, rather than just working abstractly with pen and paper.
- Break a task down into small steps or learning objectives. The student should start with an activity that s/he can do already before moving on to something that is more difficult.
- Gradually give the student less help.
- Let the student work in the same group with those without disability.
- Strategy to help students with visual impairment:
 - Help students to use their other senses (hearing, touch, smell and taste) to play and carry out activities that will promote their learning and development.
 - Use simple, clear and consistent language.
 - Use tactile objects to help explain a concept.
 - If the students have some sight, ask them what they can see. Get information from parents/caregivers on how the student manages their remaining sight at home.
 - Make sure the student has a group of friends who are helpful and who allow the students to be as independent as possible.
 - Plan activities so that students work in pairs or groups whenever possible.

Strategy to help students with hearing impairment:

- Strategies to help students with hearing disabilities or communication difficulties
- Always get the students attention before you begin to speak.
- Encourage the student to look at your face.
- Use gestures, body language and facial expressions.
- Use pictures and objects as much as possible.

- Ask the parents/caregivers to show you the signs they use at home for communication use the same signs yourself and encourage other students to also use them.
- Keep background noise to a minimum.

Strategies to help children with physical disabilities or mobility difficulties:

- Adapt activities so that student who use wheelchairs or other mobility aids, or other students who have difficulty moving, can participate.
- Ask parents/caregivers to assist with adapting furniture e.g. The height of a table may need to be changed to make it easier for a student to reach it or fit their legs or wheelchair under.
- Encourage peer support friends can help friends.
- Get advice from parents or a health professional about assistive devices.

1.2.4 Guidance on assessment

Each unit in the teacher's guide provides additional activities to help students achieve the key unit competence. Results from assessment inform the teacher which student needs remedial, consolidation or extension activities. These activities are designed to cater for the needs of all categories of learners; slow, average and gifted learners respectively.

Assessment is an integral part of teaching and learning process. The main purpose of assessment is for improvement. Assessment for learning/ **Continuous/ formative assessment** intends to improve student-teachers' learning and teacher's teaching whereas assessment of learning/summative assessment intends to improve the entire school's performance and education system in general.

Continuous/ formative assessment

It is an ongoing process that arises out of interaction during teaching and learning process. It includes lesson evaluation and end of sub unit assessment. This formative assessment plays a big role in teaching and learning process. The teacher should encourage individual, peer and group evaluation of the work done in the classroom and uses appropriate competence-based assessment approaches and methods.

In Year two textbook, formative assessment principle is applied through application activities that are planned in each lesson to ensure that lesson objectives are achieved before moving on. At the end of each unit, the end unit assessment is formative when it is done to give information on the progress of students and from there decide what adjustments need to be done. Assessment standards are taken into consideration when setting tasks.

Summative assessment

The assessment done at the end of the term, end of year, is considered as summative. The teacher, school and parents are informed on the achievement of educational objectives and think of improvement strategies. There is also end of level/ cycle assessment in form of national examinations.

1.2.5. Student teachers' learning styles and strategies to conduct teaching and learning process

There are different teaching styles and techniques that should be catered for. The selection of teaching method should be done with the greatest care and some of the factors to be considered are: the uniqueness of subjects, the type of lessons, the particular learning objectives to be achieved, the allocated time to achieve the objective, instructional available materials, the physical/sitting arrangement of the classroom, individual student teachers' needs, abilities and learning styles.

There are mainly four different learning styles as explained below:

a) Active and reflective learners

Active learners tend to retain and understand information best by doing something active with it, discussing or applying it or explaining it to others. Reflective learners prefer to think about it quietly first.

b) Sensing and intuitive learners

Sensing learners tend to like learning facts while intuitive learners often prefer discovering possibilities and relationships. Sensors often like solving problems by well-established methods and dislike complications and surprises; intuitive learners like innovation and dislike repetition.

c) Visual and verbal learners

Visual learners remember best what they see (pictures, diagrams, flow charts, time lines, films, demonstrations, etc.); verbal learners get more out of words (written and spoken explanations).

d) Sequential and global learners

Sequential learners tend to gain understanding in linear steps, with each step following logically from the previous one. Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it."

1.2.6. Teaching methods and techniques that promote the active learning

The different student learning styles mentioned above can be catered for, if the teacher uses active learning whereby students are really engaged in the learning process.

What is Active learning?

Active learning is a pedagogical approach that engages students in doing things and thinking about the things they are doing. In active learning, learners are encouraged to bring their own experience and knowledge into the learning process.

The role of the teacher in active learning

- The teacher engages students through active learning methods such as inquiry methods, group discussions, research, investigative activities and group and individual work activities.
- He/she encourages individual, peer and group evaluation of the work done in the classroom and uses appropriate competence-based assessment approaches and methods.
- He provides supervised opportunities for students to develop different competences by giving tasks which enhance critical thinking, problem solving, research, creativity and innovation, communication and cooperation.
- Teacher supports and facilitates the learning process by valuing student-teachers' contributions in the class activities.

The role of learners in active learning

Learners are key in the active learning process. They are not empty vessels to fill but people with ideas, capacity and skills to build on for effective learning. A learner engaged in active learning:

- Communicates and shares relevant information with other learners through presentations, discussions, group work and other learner-centred activities (role play, case studies, project work, research and investigation)
- Actively participates and takes responsibility for their own learning
- Develops knowledge and skills in active ways
- Carries out research/investigation by consulting print/online documents and resourceful people, and presents their findings
- Ensures the effective contribution of each group member in assigned tasks through clear explanation and arguments, critical thinking, responsibility and confidence in public speaking
- Draws conclusions based on the findings from the learning activities.

Some active techniques that can be used in Maternal Child Health

The teaching methods strongly emphasised in the competence Based Curriculum (CBC) are active methods. Below are some active techniques that apply in sciences:

A. Practical work/ experiments:

Many of the activities suggested in Maternal and Child Health curriculum as well as in the teacher's book are practical works or experiments.

Practical work is vital in learning Maternal Child Health; this method gives the student the opportunity to implement a series of activities and leads to the development of both cognitive and hands-on skills. The experiments and questions given should target the development of the following skills in student-teachers: observation, recording and report writing, manipulation, measuring, planning and designing.

A practical lesson/Experiment is done in three main stages:

- **Preparation of procedure:** Checking materials to ensure they are available and at good state; try the procedure before the lesson; think of safety rules and give instructions to lab technician if you have any.
- **Performance of procedure:** Sitting or standing arrangement of student-teachers; introduction of the procedure: aims and objectives; setting up the apparatus; performing the procedure; write and record the data.
- **Discussion:** Observations and interpreting data; make generalisations and assignment: writing out the procedure report and further practice and research.

In some cases, demonstration by the teacher is recommended when for example the experiment requires the use of sophisticated materials or very expensive materials or when safety is a major factor like dangerous experiments and it needs specific skills to be learnt first.

In case your school does not have enough laboratory materials and chemicals, experiments can be done in groups but make sure every student participates. You can also make arrangements with the neighbouring science school and take your students there for a number of experiments.

B. Research work

Each student or group of students is given a research topic. They have to gather information from internet, available books in the library or ask experienced people and then the results are presented in verbal or written form and discussed in class.

C. Project work

Maternal and Child Health teachers are encouraged to sample and prepare project works and engage their students in, as many as possible.

Students in groups or individually, are engaged in a self-directed work for an extended period of time to investigate and respond to a complex question, problem, or challenge. The work can be presented to classmates or other people beyond the school. Projects are based on real-world problems that capture learners' interest. This technique develops higher order thinking as the students acquire and apply new knowledge in a problem-solving context.

D. Field trip/industrial attachment

One of the main aims of teaching Maternal and Child Health in Rwanda is to apply its knowledge for development. To achieve this aim we need to show to students the relationship between classroom science lessons and clinical practice. This helps them see the link between theory and practice.

To be successful, the field visit/clinical placement should be well prepared and well exploited after the visit:

Before the visit, the teacher and student:

- Agree on aims and objectives
- Gather relevant information prior to visit
- Brainstorm on key questions and share responsibilities
- Discuss materials needed and other logistical and administrative issues
- Discuss and agree on accepted behaviours during the visit
- Visit the area before the trip if possible to familiarise yourself with the place

After the visit

When students come back from trip, the teacher should plan for follow-up. The follow-up should allow students to share experiences and relate them to the prior science knowledge. This can be done in several ways; either: Students write a report individually or in groups and give to the teacher for marking. The teacher then arranges for discussion to explain possible misconceptions and fill gaps. Or students write reports in groups and display them on the class notice board for everyone to read.

Main steps for a lesson in active learning approach

All the principles and characteristics of the active learning process highlighted above are reflected in steps of a lesson as displayed below. Generally, the lesson is divided into three main parts whereby each one is divided into smaller steps to make sure that students are involved in the learning process. Below are those main parts and their small steps:

1) Introduction

Introduction is a part where the teacher makes connection between the current and previous lesson through appropriate technique. The teacher opens short discussions to encourage students to think about the previous learning experience and connect it with the current instructional objective. The teacher reviews the prior knowledge, skills and attitudes which have a link with the new concepts to create good foundation and logical sequencings.

2) Development of the new lesson

The development of a lesson that introduces a new concept will go through the following small steps: discovery activities, presentation of student-teachers' findings, exploitation, synthesis/summary and exercises/application activities, explained below:

- **Discovery activity**

Step 1

- The teacher discusses convincingly with students to take responsibility of their learning
- He/she distributes the task/activity and gives instructions related to the tasks (working in groups, pairs, or individual to instigate collaborative learning, to discover knowledge to be learned)

Step 2

- The teacher let the students work collaboratively on the task.
- During this period the teacher refrains to intervene directly on the knowledge
- He/she then monitors how the students are progressing towards the knowledge to be learned and boost those who are still behind (but without communicating to them the knowledge).
- **Presentation of student-teachers' productions**
- In this episode, the teacher invites representatives of groups to present the student-teachers' productions/findings.
- After three/four or an acceptable number of presentations, the teacher decides to engage the class into exploitation of the student-teachers' productions.
- **Exploitation of student-teachers's productions**
- The teacher asks the students to evaluate the productions: which ones are correct, incomplete or false
- Then the teacher judges the logic of the student-teachers' products, corrects those which are false, completes those which are incomplete, and confirms those which are correct.

- **Institutionalization (summary/conclusion/ and examples)**
- The teacher summarises the learned knowledge and gives examples which illustrate the learned content.
- **Exercises/Application activities**
- Exercises of applying processes and products/objects related to learned unit/ sub-unit
- Exercises in real life contexts
- Teacher guides students to make the connection of what they learnt to real life situations. At this level, the role of teacher is to monitor the fixation of process and product/object being learned.

3) Assessment

In this step the teacher asks some questions to assess achievement of instructional objective. During assessment activity, students work individually on the task/activity. The teacher avoids intervening directly. In fact, results from this assessment inform the teacher on next steps for the whole class and individuals. In some cases, the teacher can end with a homework assignment.

PART II: SAMPLE LESSON PLAN

Subject: Fetal circulation

School Name:

Teacher's name:

Term	Date	Subject	Class	Unit No	Lesson No	Duration	Class size
1	Not determined	Maternal and Child Health	S4	1	7 of 10	40min	Not determined
Type of Special Educational Needs to be catered for this lesson and number of learners in each category				2 students with physical disability.			
Unit title		Normal pregnancy					
Key Unit Competence		Identify the characteristics of a normal pregnancy					
Title of the lesson		Fetal circulation					
Instructional Objective		Name the structural characteristics of the fetal blood circulation List the functional characteristics of the fetal blood circulation Discuss the properties of the hemato-placental barrier Determine temporary structures that are formed during intra-uterine life					
Plan for this Class (location: in / outside)		Inside the class					
Learning Materials (for all learners)		Video, text books about fetal circulation, flip charts, markers and internet resources					

References	<p>Annama, J. (2012). <i>A Comprehensive Textbook Of Midwifery & Gynecological Nursing</i></p> <p>Hadlow, N. (2017). Biochemical Changes in Pregnancy-What Should A Clinician Know ?, 4(1), 8–11. https://doi.org/10.19080/JGWH.2017.04.555626</p> <p>Hanson, J., Global, A., & Cdc, R. (2020). National Antenatal care guidelines. In Ministry of Health Rwanda. Retrieved from https://icapdatadissemination.wikischolars.columbia.edu/file/view/TRAC+report_Rwanda+National+ART+Evaluation_Final_18Jan08.doc/355073978/TRAC+report_Rwanda+National+ART+Evaluation_Final_18Jan08.doc</p> <p>Hoover, C. (2013). Best Practices in Midwifery: Using the Evidence To Implement Change. In <i>Journal of Midwifery & Women’s Health</i> (Vol. 58). https://doi.org/10.1111/jmwh.12023_2</p> <p>Lewis, L. (2015). <i>Fundamentals of Midwifery</i>.</p> <p>Marshall, J., & Raynor, M. (2014). <i>Myles textbook for Midwives: sixteenth edition</i> (Vol. 148).</p> <p>Macdonald, S., & Magill-Cuerden, J. (2010). <i>Mayer’s Midwifery Fourteenth Edition</i>. Bailliere Tindall Elsevier.</p> <p>Marshall, H. K., John, H. K., & Phyllis, H. K. (2012). <i>THE DOULA BOOK : How a trained Labor Companion can help you have a Shorter , Easier, and Healthier Birth</i> (Third Edit). MERLOYD LAWRENCE BOOK DA CAPO PRESS.</p> <p>Marshall, J., & Raynor, M. (2014). <i>Myles TEXT BOOK FOR MIDWIVES</i> (sixteen ed). Elsevier.</p> <p>Perry, L., & Alden, C. (2016). <i>Maternal & Women’s Health Care</i>. (E. F. Olshansky, Ed.) (11th Editi). St. Louis, Missouri: Elsevier.</p> <p>Regan, J., VanPutte, C., & Russo, A. (2016). <i>SEELEY’S ESSENTIALS OF ANATOMY & PHYSIOLOGY</i> (Ninth edit). MC Graw Hill Education.</p> <p>US Department of Health and Human services, 2017, accessed on 15 September 2021 from https://www.nichd.nih.gov/health/topics/pregnancy/conditioninfo</p> <p>Walsh, D., & Downe, S. (2010). Essential Midwifery Practice: Intrapartum Care. In <i>Essential Midwifery Practice: Intrapartum Care</i>. https://doi.org/10.1002/9781444317701</p> <p>Ward, S.L. & Hisley, S.M. (2009). <i>Maternal- child nursing care: optimazing outcomes for mothers, children and families</i> (). F.A Davis company. Philadelphia</p>
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This part is a summary of the teaching and learning process.

Timing for each step	Description of teaching and learning activity		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	
	Learners observe the video and chart, then describe how fetal circulation is done		
Introduction 5 min	<p>Through questioning techniques, asks whether students have learnt in class or read about fetal circulation.</p> <p>Let learners think individually, share their points of view one by one and therefore involve other students.</p>	<p>Students link individually about the blood circulation in humans and then suggest differences in fetuses, thereafter share their ideas in the class.</p> <p>Volunteers describe the role of fetal circulation in fetuses.</p>	<p>Critical thinking as Learners think about the mechanism of fetal circulation.</p> <p>Communication skill as volunteers describe the process of fetal circulation and convince the remaining of the class.</p>

<p>Development of the lesson 20 minutes Discovering Activity</p>	<p>Follow the volunteers about their answers provided. Through questioning technique, help students to identify the process of fetal circulation.</p>	<p>Follow the direction of the volunteer who orients the class to give explanations about the process of fetal circulation. Exchange and supplement ideas to brainstorm the process of fetal circulation</p>	<p>Environment and sustainability This will be addressed by the visit as well as questions that will be asked to students and by students Cooperation and interpersonal management</p>
<p>Exploitation</p>	<p>Through problem solving approach, asks learners to explain how the blood circulates in fetuses.</p>	<p>By using critical thinking and logical reasoning, the students have to know the use of calendar by showing indications, contraindications, etc.</p>	<p>Critical thinking is developed as learners relate the observed video and explanations they will provide.</p>
<p>Synthesis</p>	<p>Try to summarize the content about the session given.</p>	<p>Chose one student and tell her/ him to summarize what she has learned in the session taught.</p>	<p>Critical thinking and analysis is developed by learner.</p>

<p>Conclusion and Assessment 10 min</p>	<p>Ask at least three students to summarize what they have learnt from this lesson</p> <p>And ask some questions related to the session like:</p> <p>What are the structural characteristics of the fetal blood circulation?</p> <p>What are the functional characteristics of the fetal blood circulation?</p> <p>Discuss the properties of the hemato-placental barrier</p> <p>Determine temporary structures that are formed during intra-uterine life</p>	<p>Learners stand up in the classroom to read questions and answer the questions.</p>	<p>Environment and sustainability awareness as they learn the fetal blood status and movement before and after birth.</p>
<p>Teacher self-evaluation /5 min</p>	<p>The lesson was conducted very nicely since every learner was involved and is capable to achieve the key competence of the lesson.</p>		

PART III: UNIT DEVELOPMENT

1.1 Key Unit competence

Identify the characteristics of a normal pregnancy.

1.2 Prerequisite (knowledge, skills, attitudes and values)

The student should have studied Maternal Child Health for previous levels of education and started fundamentals of Nursing. At the end of this unit, the student should be able to:

Knowledge

- Define common concepts used in normal obstetrics
- Identify the characteristics of a normal pregnancy
- Identify the characteristics of a normal fetal skull.

Skills

- Perform obstetric pelvic landmarks and fetal sutures
- Differentiate normal and abnormal fetal skull.

Attitudes and values

- Recognize common concepts used in normal obstetrics
- Appreciate the pregnancy to be normal
- Respect clients' rights, and privacy.

1.3 Cross-cutting issues to be addressed**a) Environment and sustainability**

As a facilitator, emphasize to the learners that environment must be sustainably protected for different reasons such:

Environment is where the human beings live. It contains all resources needed by human beings to survive and live.

b) Comprehensive sexuality education

As a teacher, explain to student teacher that a population grows as a result of sexual reproduction among humans. Clarify that human population is exponentially growing and that they must take measure to control such growth.

Highlight these measures to student teachers:

To be aware that, in future, you will be totally **responsible** of paying your own needs without pleading them from any one. This responsibility must motivate learners to write their own life **vision** (goals) for their sustainable development. Then, write their own **actions** plan leading to the achievement of that vision. One of actions that must appear on that plan is legal and religious marriage which will occur at the time they have planned.

1.4 Guidance on the introductory activity:

- When conducting the introductory activity of this unit, the teacher will request the students to read carefully the scenario as projected on the screen.
- The scenario is for a pregnant married mother who is in the first trimester of pregnancy and whom the pregnancy test was not taken yet but who has signs and symptoms of the pregnancy.
- After the students read the scenario, the teacher will ask them how they understood the case, the meaning of its words and reflection on the case.
- Materials needed: projectors, screen, computer, student books for this unit and teacher's guide book.

Answers to the introductory activity of unit 1 in the student book

The scenario is for a pregnant married mother who is in the first trimester of pregnancy and whom the pregnancy test was not taken yet but who has signs and symptoms of the pregnancy. Although she has vaginal bleeding in early stage of pregnancy, it is a sign of the normal pregnancy, a phase of implantation. The healthcare provider will assist the mother in this situation by confirming the pregnancy through testing, reassuring about signs and symptoms of pregnancy she is presenting and proposing possible care that may relieve the symptoms.

1.5 List of lessons/sub-heading

#	Lesson title	Learning objectives	Number of periods
1	Key concepts used in pregnancy	Define common concepts used in pregnancy	2 periods
2	Gametogenesis	Determine origin and migration of the germ cells Differentiate three phases of spermatogenesis Differentiate meiosis and mitosis as part of cell division and reproduction	2 periods
3	Fertilization	Discuss how fertilization occurs Discuss the role of cleavage in humans	2 periods
4	Implantation	Describe the histological structures of the endometrium Explain the various stages of implantation Know the fundamental mechanisms of the implantation at the molecular level List the various possibilities for hindering an implantation and thus a pregnancy	2 periods

5	Embryological and fetal developmental stage	<p>Explain how the embryo forms from the zygote</p> <p>Determine the stages of neurulation</p> <p>Explain the differentiation of the embryonic germ layers, emanating from the trilaminar embryo</p> <p>Discuss the formation and differentiations of nerve tissue</p> <p>Determine critical periods in human development, from 1st week to 38th week of pregnancy.</p> <p>Name the fetal membranes and cavities together with their components and functions</p> <p>Discuss the ectopic pregnancy in connection with the fetal membranes</p>	2 periods
6	The development of placenta and its functions	<p>Describe the macroscopic morphology of the placenta</p> <p>Distinguish between the maternal and fetal parts of the placenta</p> <p>Explain the development of the placental structures during pregnancy and their influence on the physiologic functions of the placenta</p> <p>List the endocrine functions of the placenta</p>	2 periods

7	Fetal circulation	Name the structural and functional characteristics of the fetal blood circulation and the properties of the hemato-placental barrier	1 period
8	Characteristics of a normal pregnancy	Identify the characteristics of a normal pregnancy	1 period
9	The pelvis	Perform obstetric pelvic landmarks	2 periods
10	The fetal skull	identify foetal sutures Differentiate normal and abnormal fetal skull	2 periods
11	The end unit assessment		2 periods

Lesson 1: Key concepts used in pregnancy

This is the first lesson of unit 1 and is a single lesson. It has only two periods (80 minutes). The first lesson also covers the introduction of the whole unit, a unit that will orient students on Maternal and Child health subject. To understand the pregnancy, students need to know women in childbearing age.

a) Learning objectives:

Define common concepts used in pregnancy

b) Teaching resources:

The computer/Laptop and projector will be used to project the key terms. As alternative, the teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject. The teacher's guide is essential to show the methodology and resources to use when administering this unit.

c) Prerequisites/Revision/Introduction:

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3

d) Learning activity 1.1

Based on the passage, explain the following terms: Pregnancy, Fertilization, Uterus, Placenta, Embryo and Fetus.

Guidance:

Ask learners to brainstorm definitions of the key concepts one by one.

Supervise the work how it is conducted and give the learners' opportunity to work in their respective groups.

Give the learners flipcharts and markers and make sure that both boys and girls manipulate equally.

Ask learners to present what they have done

Help learners to summarize what they have learnt.

Answers for the Learning activity 1.1**Pregnancy**

Pregnancy is the term used to describe the period in which a fetus develops inside a woman's womb or uterus.

Pregnancy usually lasts about 40 weeks, or just over 9 months, as measured from the last menstrual period to delivery. Health care providers refer to three segments of pregnancy, called trimesters.

The pregnancy is divided into three trimesters as shown below and major events that occur at each trimester.

First trimester: week 1 to week 12

The events that lead to pregnancy begin with conception, in which a sperm penetrates an egg. The fertilized egg (called a zygote) then travels through the woman's fallopian tube to the uterus, where it implants itself in the uterine wall. The zygote is made up of a cluster of cells that later form the fetus and the placenta. The placenta connects the mother to the fetus and provides nutrients and oxygen to the fetus

Second trimester: week 13 to week 28

- Between 18 and 20 weeks, the typical timing for ultrasound to look for birth defects, you can often find out the sex of your baby.
- At 20 weeks, a woman may begin to feel movement.
- At 24 weeks, footprints and fingerprints have formed and the fetus sleeps and wakes regularly.
- the survival rate for babies born at 28 weeks is 92%, although those born at this time will likely still experience serious health complications, including respiratory and neurologic problems.

Third trimester: week 29 to week 40

- At 32 weeks, the bones are soft and yet almost fully formed, and the eyes can open and close.
- Newborn born before 37 weeks are considered preterm. These children are at increased risk for problems such as developmental delays, vision and hearing problems, and cerebral palsy. Newborn born between 34 and 36 weeks of pregnancy are considered to be “late preterm.”
- Newborn born in the 37th and 38th weeks of pregnancy (previously considered term) are now considered “early term.” These newborns face more health risks than newborns who are born at 39 weeks or later, which is now considered full term.
- Newborns born at 39 or 40 weeks of pregnancy are considered full term. Full-term newborns have better health outcomes than do newborns born earlier or, in some cases, later than this period. Therefore, if there is no medical reason to deliver earlier, it is best to deliver at or after 39 weeks to give the newborn’s lungs, brain, and liver time to fully develop.
- Newborns born at 41 weeks through 41 weeks and 6 days are considered late term.
- Newborns who are born at 42 weeks and beyond are considered post term

Fertilization

The process of combining the male gamete, or sperm, with the female gamete, or ovum. The product of fertilization is a cell called a zygote.

Uterus

The uterus is a hollow, pear shaped muscular organ located in the true pelvis between the bladder and the rectum. The position of the uterus within the true pelvis is one of anteversion and anteflexion.

Placenta

The placenta is a large organ that develops during pregnancy. It is attached to the wall of the uterus, usually at the top or side. The umbilical cord connects the placenta to your baby.

Blood from the mother passes through the placenta, filtering oxygen, glucose and other nutrients to your baby via the umbilical cord. The placenta also filters out substances that could be harmful to your baby and removes carbon dioxide and waste products from your baby’s blood.

The placenta produces a number of hormones that are needed during pregnancy, such as lactogen, estrogen and progesterone. It keeps the mother’s blood separate from the baby’s blood to protect the baby against infections. Towards the end of the pregnancy, the placenta passes on antibodies to protect the baby after birth.

Embryo

A human embryo is a discrete entity that has arisen from either: the first mitotic division when fertilization of human oocyte by a human sperm is complete or any other process that initiates organized development of a biological entity with a human nuclear genome or altered human nuclear genome that has the potential to develop up to, or beyond, the stage at which the primitive streak appears, and has not yet reached 8 weeks of development since the first mitotic division.

Fetus

An unborn baby that develops and grows inside the uterus(womb), The fetal period begins from 8 weeks after fertilization of an egg by a sperm and ends at the time of birth.

Answers for the self-assessment 1.1

NO	EMBRYO	FETUS
1.	An embryo is defined as the early stage of development. This stage takes place from two to eight weeks after conception.	On the other hand, a fetus is defined as a later stage of development of an unborn child that takes place after the ninth week of conception.
2.	An embryo is developed after conception.	The fetus is developed from the embryo.
3.	The age of an embryo is 10 weeks to 13 weeks.	The development of the fetus begins from the ninth week and continues till the birth of the child.
4.	The presence of an embryo cannot be felt without an ultrasound.	The presence of the fetus is felt after 21 weeks.
5.	Stages like the germinal stage, fertilization,blastulation, implantation, gastrulation, etc., are involved in forming an embryo.	There are no stages for a fetus because it is developed from the embryo.
6.	An embryo is formed through the process of cell division.	A fetus is formed through the growth and development of an embryo.
7.	The human embryonic period involves the formation of the structure of the body.	The fetal period is all about the development of those parts, organs, tissues, etc.
8.	An embryo is unicellular.	A fetus is multi-cellular.

9.	An embryo is present in the uterus. It is implanted in the endometrium.	The fetus is present in the uterus.
10.	The size of an embryo is approximately 4 mm.	The size of a fetus ranges from 3 inches to 8 inches (3-5 months).

Characteristics of Embryo & Fetus

1. After the intercourse, the sperm travels through the cervix in the fallopian tubes. The sperm and the egg combine in the fallopian tube. This is how conception occurs. This combination of egg and sperm is called a zygote.
2. The zygote travels in the fallopian tube. In this time, it divides itself to form cells. It is called the blastocyst.
3. The blastocyst sticks to the uterine wall. In the fifth week, blood cells, nerve cells, kidney cells, etc., develop. The external features of the child begin to form.
4. Around the seventh week, the legs, eyes, and ears begin to develop.
5. The heart of the baby continues to develop, and the blood starts pumping through the main vessels.
6. During the ninth week, the hair follicles, arms, toes, and elbows start developing.
7. In the 21st week, the baby begins to hear. The child becomes active and floats around. These are the child's first movements.
8. During the 25th week, the bone marrow develops and starts making blood cells. The footprints and fingerprints are formed. All the body parts are fully developed.
9. In the 35th week, the weight of the baby is about 2.5 Kgs. The definite sleeping patterns develop in the child. In this week, the bones and muscles are completely developed.
10. Finally, in the 40th week, fingernails are extended to the tips. Breast buds are formed. The baby is fully developed in this last week.
 - b. The development of the placenta begins during implantation of the blastocyst. The 32-64 cell blastocyst contains two distinct differentiated embryonic cell types: the outer trophoblast cells and the inner cell mass. The trophoblast cells form the placenta. The inner cell mass forms the foetus and foetal membranes.

Lesson 2: Gametogenesis

a) Learning objectives:

- Determine origin and migration of the germ cells
- Differentiate three phases of spermatogenesis
- Differentiate meiosis and mitosis as part of cell division and reproduction

b) Teaching resources

The computer/Laptop and projector will be used to project some learning materials and pictures of gametogenesis. As alternative, the teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject. The teacher's guide is essential to show the methodology and resources to use when administering this unit.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3 and key concepts used in pregnancy.

d) Learning activity 1.2

- With student's knowledge and understanding of S3 biology, determine what you think are the possible causes of the delay in conception?
- What advice can you give to the couple based on your knowledge and understanding of S3?

Guidance

- Ask learners to do individually activity 1.2 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for the Learning activity 1.2

Possible causes of the delay in conception:

FEMALE: The main causes of delay to conceive may include failure to ovulate, hormone imbalance, obesity, polycystic ovarian syndrome (PCOS), blocked tubes, endometriosis and low ovarian reserve. Ovarian reserve depletion is particularly common after reaching the age of 35

Lifestyle factors play an important role with obesity, smoking affecting a woman's fertility. Genetic factors also have a significant role, and examples include Turner Syndrome where a woman is missing an X chromosome and translocations where genetic material is exchanged between chromosomes.

MALE: Male infertility may be due to inadequate numbers of sperm being produced by the testicles, obstruction of the vas deferens preventing sperm from entering the ejaculate or poorly functioning sperm reducing the ability to fertilize an egg (oocyte). Lifestyle factors causing oxidative stress such as obesity and cigarette smoking, genetic disorders such as Klinefelter syndrome, and failure of the testicle to produce sperm due to testicular damage. Drugs and some medications can adversely impact upon sperm health too.

Advice:

Water

When trying to conceive it is very important to drink lots of water (about 8-10 cups a day). This helps the kidneys to flush out waste products from the body and increases fertile quality cervical fluid.

Avoid alcohol

- It is a good idea to avoid or strictly limit alcohol intake as this reduces fertility. Department of Health advice is to avoid alcohol completely if trying to conceive or during pregnancy.
- Caffeine
Caffeine is thought to restrict the growth of a developing baby by constricting blood vessels and reducing blood flow to the uterus. Current advice is to limit caffeine intake to below 300mg per day, equivalent to 4 cups of instant coffee, 3 cups of fresh coffee or 6 cups of tea.

Smoking

Women have a 40% lower chance of getting pregnant if they smoke, according to a report published by the British Medical Association (BMA). Smoking decreases sperm count and increases sperm abnormalities in men. Ask your GP or Practice Nurse for help in quitting.

Exercise

Women who exercise regularly are less likely to experience the uncomfortable side effects of pregnancy (back pain, piles, swollen ankles, etc), to have excessive weight gain and more likely to feel good about their changing body. A fit, healthy body is also more likely to cope better with child birth. Find a balance though because excessive amounts of exercise can lead to fertility problems such as irregular periods and anovulatory cycles (cycles where ovulation does not occur).

Stress less

There are so many people who worry excessively about becoming pregnant and once they release that stress, their body reacts to the new peace by creating a new life. So try not to worry and enjoy the fun of trying to conceive.

Supplement

Taking a supplement specially formulated for before conception will provide you with 400mcg folic acid and other nutrients such as l-arginine vitamin D and vitamin B12 which help support the nutritional requirements of women trying to conceive.

Sex

Have sex often, at least 3 times a week, the more often you try, the more chances you get at becoming pregnant..

STDs

Make sure that you have been properly screened for STDs. Pelvic inflammatory disease is common amongst women with the number-one cause being an untreated sexually transmitted disease.

Answers for the self-assessment 1.2

The process of gametogenesis:

Gametogenesis occurs **when a haploid cell (n) is formed from a diploid cell (2n) through meiosis**. We call gametogenesis in the male spermatogenesis and it produces spermatozoa. In the female, we call it oogenesis. It results in the formation of ova. There are three stages which are: **Multiplicative phase, growth phase and maturation phase. Reproduction is important for the continuation of life**, and reproduction is not possible without gametes which are formed by the process of Gametogenesis. Gametogenesis helps in the production of haploid cells called gametes from undifferentiated diploid germ cells in the gonads.

Difference between spermatogenesis and oogenesis:

Spermatogenesis	Oogenesis
1.It occurs inside the testes	1.It occurs inside the ovary
2.All the stages are completed	2.Majority occurs inside the ovary but last stages occur in the oviduct
3.Spermatogonia develop from the germinal epithelium lining in the seminiferous tubules	3.Oogonia develop from the germinal epithelium overlying the ovary
4. All spermatogonia give rise to spermatocytes	4.Only few oogonia give rise to oocytes.
5.Primary spermatocytes divides by meiosis I to give rise to two secondary	5. Primary oocyte undergoes meiosis I to give rise to one secondary oocyte and a polar body.
6.Secondary spermatocyte divides by meiosis II to give rise to two spermatid	6. Secondary oocyte divides by meiosis II to form the ovum and the second polar body.
7.Each spermatid differentiates into spermatozoan or sperm	7. No differentiation is required after meiosis II.
8.The sperm formed are motile	8. The ovum or egg is non-motile.

The effect of environmental factors during gametogenesis:

The difference is that mitosis consists of one stage whereas meiosis consists of two stages. Mitosis produces diploid cells (46 chromosomes) whereas meiosis produces haploid cells (23 chromosomes). **Mitosis produces two identical daughter cells whereas meiosis produces four genetically different daughter cells.** Meiosis is responsible for reproducing germ cells and Mitosis is responsible for reproducing somatic cells.

Lesson 3: Fertilization

a) Learning objectives:

- Discuss how fertilization occurs
- Discuss the role of cleavage in humans

b) Teaching resources

Text books, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy and gametogenesis.

d) Learning activity 1.3

- Using the chart, describe the stages of fertilization.
- From your knowledge, what factors affect fertilization?

Guidance

- Ask learners to do individually activity 1.3 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for the Learning activity 1.3

Stages of fertilization

The stages of fertilization can be divided into four processes:

1. sperm preparation,
2. sperm-egg recognition and binding,
3. sperm-egg fusion and
4. fusion of sperm and egg pronuclei and activation of the zygote

Human fertilization, known also as conception, is the fusion of genetic materials from the haploid sperm cell and the secondary oocyte (now haploid), to form the zygote. The process takes approximately 12-24 hours and normally occurs in the ampulla of the uterine tubes. Following ovulation, the oocyte passes into the uterine tube. Sperm swim from the vagina and through the cervical canal using their whip like tails. Once inside the uterine tubes, the sperm undergo a process known as **capacitation. This process takes up to 7 hours**, the sperm undergo changes to the plasma membranes, resulting in the removal of the glycoprotein coat and increased flagellation. The zona pellucida of the oocyte produces chemicals that attract capacitated sperm only leading to an acrosome reaction which disperses the corona radiata.

Upon penetration the oocyte releases cortical granules known as cortical reaction. The pronucleus now has 23 chromosomes referred to as haploid. The male and female pronuclei fuse to form a new nucleus that is a combination of the genetic material from both sperm and oocyte, referred to as diploid cell. The male and the female gametes each contribute half the complement of chromosomes to make a total of 46 new cell called a zygote.

Capacitation (process where sperm undergoes changes to the plasma membrane, resulting in the removal of the glycoprotein coat and increased flagellation), in the female's reproductive tract over several hours, which increases its motility and destabilizes its membrane.

Factors that affect fertilization

- Age
- Previous pregnancy
- Duration of subfertility
- Timing and Frequency of Sexual Intercourse
- Lifestyle Factors (weight, smoking, caffeine, alcohol, Over-the-counter and recreational drugs, Medical Conditions)

Answers for the self-assessment 1.3

Place where fertilization takes place

- Fertilization normally take place at the ampulla of the fallopian tube.

The sequences of development of an embryo from the fertilized egg

- Fertilization → Zygote → Cleavage → Morula → Blastula → Gastrula

Note: All cleavage divisions are mitotic and resultant daughter cells are blastomeres.

Lesson 4: Implantation

a) Learning objectives:

- Describe the histological structures of the endometrium
- Explain the various stages of implantation
- Know the fundamental mechanisms of the implantation at the molecular level
- List the various possibilities for hindering an implantation and thus a pregnancy

b) Teaching resources

Student's book, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis and fertilization.

d) Learning activity 1.4

- What is implantation?

Guidance

- Ask learners to do individually activity 1.4 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for the Learning activity 1.4

Implantation is a **process in which a developing embryo, moving as a blastocyst through a uterus, contacts the uterine wall and remains attached to it until birth**. The lining of the uterus (endometrium) prepares for the developing blastocyst to attach to it via many internal changes.

Answers for the self-assessment 1.4

An embryo that has been successfully implanted

Once the embryo reaches the blastocyst stage, **approximately five to six days** after fertilization, it hatches out of its zona pellucida and begins the process of implantation in the uterus. Signs may include **light bleeding, cramping, nausea, bloating, sore breasts, headaches, mood swings**, and possibly a change in basal body temperature

Difference between implantation bleeding and normal menstrual period

Implantation bleeding is a light bleed that can happen between six and 12 days after conception. When it implants into the womb lining, the embryo can rupture small blood vessels. This is not dangerous, and heals spontaneously, but can cause a light bleed. This is the implantation of the embryo, the moment when pregnancy truly starts.

- **Color:** The blood from implantation bleeding is brown, pinkish or black; normal menstrual blood is generally bright red, particularly for the first two or three days.
- **Flow:** Implantation bleeding is very light and may consist only of irregular spotting. Menstruation usually has fairly consistent bleeding, with the flow quite heavy for the first couple of days.
- **Duration:** Implantation bleeding rarely lasts for more than one or two days, while menstrual bleeding normally lasts between three and seven days.
- **Cramping:** Implantation bleeding may be accompanied by very mild cramping or none at all. A normal period usually has more severe cramping, which can start a couple of days before the bleeding and continue for two or three days.
- **Timing:** Implantation bleeding is most likely to occur about two days before your next period was due. This is why it is so easy to mistake for a period.

Lesson 5: Embryological and fetal developmental stage

a) Learning objectives:

- Explain how the embryo forms from the zygote
- Determine the stages of neurulation
- Explain the differentiation of the embryonic germ layers, emanating from the trilaminar embryo
- Discuss the formation and differentiations of nerve tissue
- Determine critical periods in human development, from 1st week to 38th week of pregnancy.
- Name the fetal membranes and cavities together with their components and functions
- Discuss the ectopic pregnancy in connection with the fetal membranes

b) Teaching resources

Student's book, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis, fertilization and implantation.

d) Learning activity 1.5

Guidance

- Ask learners to do individually activity 1.1 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for Learning activity 1.5

The embryological stage.

The human body, like that of most animals, develops from a single cell produced by the union of a male and a female gamete (or sex cell). This union marks the beginning of the prenatal period, which in humans encompasses three distinct stages:

Pre-embryonic stage: the first two weeks of development, which is a period of cell division and initial differentiation (cell maturation) Pre-embryonic cleavages make use of the abundant cytoplasm of the conceptus as the cells rapidly divide without changing the total volume. As the **blastocyst** forms, the trophoblast excretes enzymes that begin to degrade the zona pellucida.

Embryonic period: or period of **organogenesis** which lasts from the third to the eighth week of development

Approximately four weeks after conception, the neural tube forms. This tube will later develop into the central nervous system including the spinal cord and brain. The neural tube begins to form along with an area known as the neural plate. The earliest signs of development of the neural tube are the emergence of two ridges that form along each side of the neural plate.

Fetal period: which is characterized by the maturation of tissues and organs and rapid growth of the body.

The functions of the amniotic fluid.

Amniotic fluid is a clear, slightly yellowish liquid that surrounds the unborn baby (fetus) during pregnancy. It is contained in the amniotic sac and has the following functions:

- The developing baby to move in the womb, which allows for proper bone growth
- The lungs to develop properly
- Prevents pressure on the umbilical cord
- Keep a constant temperature around the baby, protecting from heat loss
- Protect the baby from outside injury by cushioning sudden blows or movements

Answers for the self-assessment 1.5

The amnion is the inner membrane derived from the inner cell mass and consist of a single layer of epithelium with a connective tissue base.

Characteristics: it is tough, smooth, and translucent membrane continuous with the outer surface of the umbilical cord which moves over the chorion aided by mucous. The amnion contains amniotic fluid.

Chorion: This is outer membrane that is continuous with the edge of the placenta, it is composed of mesenchyme, cytotrophoblast and vessels from the decidua basalis.

Characteristics: it is rough, thick, fibrous, opaque membrane which lines the decidua Vera during pregnancy and loosely attached to the decidua. it produces enzymes that can reduce progesterone levels and produces prostaglandins, oxytocin and platelet activating factors which stimulate uterine activity. This membrane is friable and can rupture easily, so it can be retained in the uterus following child birth.

The umbilical cord has two arteries and one vein.

Lesson 6: The development of placenta and its function

a) Learning objectives:

- Describe the macroscopic morphology of the placenta
- Distinguish between the maternal and fetal parts of the placenta
- Explain the development of the placental structures during pregnancy and their influence on the physiologic functions of the placenta
- List the endocrine functions of the placenta

b) Teaching resources

Text books, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis, fertilization, implantation, embryological and fetal developmental stage.

d) Learning activity 1.6

Guidance

- Ask learners to do individually activity 1.6 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for Learning activity 1.6

- A. Cavity of uterus
- B. Chorion
- C. Amnion
- D. Amniotic cavity
- E. Foetus
- F. Umbilical cord
- G. Allantois
- H. Yolk sac
- I. Chorionic villi (Placenta)

Answers for self-assessment 1.6

1. b
2. a
3. c

4. **Nutritive function:** The placenta plays a key role in the nutrition of the fetus. It mediates the active transport of nutrients and metabolic wastes across the barrier separating maternal and fetal compartments, as well as modifying the composition of some nutrients through its own metabolic activity. The function of the placenta is essential to the growth of a healthy fetus; it is becoming apparent that the activities of the placenta are in turn modulated by signals originating from the fetus.

The fetus is dependent upon the placenta for transport to it of all nutrients for energy and growth. The primary nutrients crossing the placenta are **glucose, lactic acid, free amino acids, free fatty acids, and ketone bodies**. Under normal circumstances, it appears that glucose is the primary energy source.

Protective function: The placenta can help to **protect the fetus against certain xenobiotic molecules, infections and maternal diseases**. In addition, it releases hormones into both the maternal and fetal circulations to affect pregnancy, metabolism, fetal growth, parturition and other functions.

The placenta provides a limited barrier to infections. Few bacteria can penetrate with the exception of the treponema of syphilis and tubercule bacillus. Immunoglobulins will be passed from mother to fetus transplacental in late pregnancy.

- The ductus venosus, which connects the umbilical vein to the inferior vena cava.
- The foramen ovale, which is an opening between the right and left atria.
- The ductus arteriosus, which leads from the bifurcation of the pulmonary artery to the descending aorta.
- The hypogastric arteries, which branch off from the internal iliac arteries and become the umbilical arteries when they enter the umbilical

Lesson 7: Fetal circulation

a) Learning objectives:

Name the structural and functional characteristics of the fetal blood circulation and the properties of the hemato-placental barrier

b) Teaching resources

Text books, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis, fertilization, implantation, embryological and fetal developmental stage and the development of placenta and its function.

d) Learning activity 1.7

Guidance

Ask learners to do individually activity 1.7 in their student books

- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for learning activity 1.7

During pregnancy, the fetal circulatory system works differently than after birth:

- The fetus is connected by the umbilical cord to the placenta. This is the organ that develops and implants in the mother's uterus during pregnancy.
- Through the blood vessels in the umbilical cord, the fetus gets all needed nutrition and oxygen. The fetus gets life support from the mother through the placenta.
- Waste products and carbon dioxide from the fetus are sent back through the umbilical cord and placenta to the mother's circulation to be removed.

Answers for self-assessment 1.7

1. The ductus venosus is a shunt that allows oxygenated blood in the umbilical vein to bypass the liver and is essential for normal fetal circulation. Blood becomes oxygenated in the placenta and travels to the right atrium via umbilical veins through the ductus venosus, then to the inferior vena cava.
2. The ductus arteriosus is a normal blood vessel that connects two major arteries: the aorta and the pulmonary artery, that carry blood away from the heart. The lungs are not used while a fetus is in the womb because the baby gets oxygen directly from the mother's placenta.
 - The ductus venosus, which connects the umbilical vein to the inferior vena cava.

- The foramen ovale, which is an opening between the right and left atria.
- The ductus arteriosus, which leads from the bifurcation of the pulmonary artery to the descending aorta.
- The hypogastric arteries, which branch off from the internal iliac arteries and become the umbilical arteries when they enter the umbilical cord. The fetal circulation takes the following course:

Lesson 8: Characteristics of a normal pregnancy

a) Learning objectives:

Identify the characteristics of a normal pregnancy

b) Teaching resources

Text books, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis, fertilization, implantation, embryological and fetal developmental stage, the development of placenta and its function and fetal circulation.

d) Learning activity 1.8

Guidance:

- Ask learners to do individually activity 1.8 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for learning activity 1.8

Missed period. If you're in your childbearing years and a week or more has passed without the start of an expected menstrual cycle, you might be pregnant. However, this symptom can be misleading if you have an irregular menstrual cycle.

Tender, swollen breasts. Early in pregnancy hormonal changes might make your breasts sensitive and sore. The discomfort will likely decrease after a few weeks as your body adjusts to hormonal changes.

Nausea with or without vomiting. Morning sickness, which can strike at any time of the day or night, often begins one month after you become pregnant. However, some women feel nausea earlier and some never experience it. While the cause of nausea during pregnancy isn't clear, pregnancy hormones likely play a role.

Increased urination. You might find yourself urinating more often than usual. The amount of blood in your body increases during pregnancy, causing your kidneys to process extra fluid that ends up in your bladder.

Fatigue. Fatigue also ranks high among early symptoms of pregnancy. During early pregnancy, levels of the hormone progesterone soar — which might make you feel sleepy.

Other pregnancy signs and symptoms:

Other less obvious signs and symptoms of pregnancy that you might experience during the first trimester include:

Moodiness. The flood of hormones in your body in early pregnancy can make you unusually emotional and weepy. Mood swings also are common.

Bloating. Hormonal changes during early pregnancy can cause you to feel bloated, similar to how you might feel at the start of a menstrual period.

Light spotting. Sometimes a small amount of light spotting is one of the first signs of pregnancy.

Known as implantation bleeding, it happens when the fertilized egg attaches to the lining of the uterus — about 10 to 14 days after conception. Implantation bleeding occurs around the time of a menstrual period. However, not all women have it.

Cramping. Some women experience mild uterine cramping early in pregnancy.

Constipation. Hormonal changes cause your digestive system to slow down, which can lead to constipation.

Food aversions. When you're pregnant, you might become more sensitive to certain odors and your sense of taste might change. Like most other symptoms of pregnancy, these food preferences can be chalked up to hormonal changes.

Nasal congestion. Increasing hormone levels and blood production can cause the mucous membranes in your nose to swell, dry out and bleed easily. This might cause you to have a stuffy or runny nose.

Answers for self-assessment 1.8

Pregnancy is always associated with changes in psychological functioning of pregnant women. It is usually associated with ambivalence, frequent mood changes, varying from anxiety, fatigue, exhaustion, sleepiness, depressive reactions to excitement.

Lesson 9: The pelvis

a) Learning objectives

Perform obstetric pelvic landmarks

b) Teaching resources

Text books, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis, fertilization, implantation, embryological and fetal developmental stage, the development of placenta and its function, fetal circulation and characteristics of a normal pregnancy.

d) Learning activities 1.9

Guidance:

- Ask learners to do individually activity 1.9 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for learning activity 1.9

1. The pelvis is a group of bones located in the lower part of the body, between the lower back and thighs

2. During pregnancy, a woman's body weight increases by 15 to 25 percent; this signifies a greater burden on the tendons, ligaments, and joints. Furthermore, relaxin and estrogen loosen the ligaments and thus create an additional predisposition for injury the enlarged uterus and the increase in breast volume shift the body's center of gravity to the front. The pelvis is tilted simultaneously, and lumbar lordosis increases.

Answers for self-assessment 1.9

1. The narrowest diameter for the fetus to pass through is the pelvic outlet, which is only 11 cm wide in the average female pelvis.

2.

A is true. The female bony pelvis is broader and flatter than the male pelvis.

B is false. The pelvic inlet is wider (not narrower) than the pelvic outlet.

C is false. The iliac crest is the protuberance at the front of each hip bone; it is not important in measuring the progress of the fetus down the birth canal.

D is false. The sutures in the fetal skull 'give' a little under the pressure in the birth canal, allowing the skull bones to move to a small extent. This makes it easier for the baby's head to pass through the mother's bony pelvis.

E is true. A newborn baby's pulse can be seen beating in the anterior fontanel.

3. Match the terms with the appropriate explanation

Ilium → (Hip bone in the pelvis)

Frontal bones → (Paired bones forming the front of the skull)

Sagittal suture → (Joint between the parietal bones in the fetal

Lesson 10: The fetal skull

a) Learning objectives:

- Perform foetal sutures
- Differentiate normal and abnormal fetal skull

b) Teaching resources

Text books, flip charts and markers.

c) Prerequisites/Revision/Introduction

The prerequisites of this lesson are all topics learned in biology for year 2 and year 3, key concepts used in pregnancy, gametogenesis, fertilization, implantation,

embryological and fetal developmental stage, the development of placenta and its function, fetal circulation, characteristics of a normal pregnancy and the pelvis.

d) Learning activities 1.10

Guidance:

- Ask learners to do individually activity 1.10 in their student books
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the exact answer but by providing more orientation if needed
- Invites any three students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on chalk board / Manila paper the student's ideas.
- Give positive feedback to the correct answer and correct those ones which are incorrect
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion

Answers for learning activity 1.10

1. The fetal skull bones are as follows: **The frontal bone, which forms the forehead.** In the fetus, the frontal bone is in two halves, which fuse (join) into a single bone after the age of eight years. The two parietal bones, which lie on either side of the skull and occupy most of the skull. Sutures allow the bones to move during the birth process. They act like an expansion joint. This allows the bone to enlarge evenly as the brain grows and the skull expands. The result is a **symmetrically shaped head.**

Two key functions of the fetal skull are the **protection of the brain**, which is subjected to pressure as it descends through the birth canal during labour, and an ability to change shape, adapting to the process of labour in response to uterine contractions and the size and shape of the pelvis. The vertex is the area midway between the anterior fontanel, the two parietal bones and the posterior fontanel.

The brow is the area of skull which extends from the anterior fontanel to the upper border of the eye. The frontal bone, which forms the forehead.

The two parietal bones, which lie on either side of the skull and occupy most of the skull.

The occipital bone, which forms the back of the skull and part of its base.

The two temporal bones, one on each side of the head, closest to the ear.

2. Fontanelles are essential for the proper development of the baby's brain as they are held together by **the flexible sutures** which protect the brain from the head impacts. Also, the skull bones or cranium grows along with the brain. The brain is protected by the bones of the skull and **by a covering of three thin membranes called meninges**. The brain is also cushioned and protected by cerebrospinal fluid. This watery fluid is produced by special cells in the four hollow spaces in the brain, called ventricles. ... These bones protect the spinal cord.

Answers for self-assessment 1.10

1. The sutures and fontanelles permit a degree of overlapping of the fetal skull bones during labour, through a process known as moulding.
2. Six longitudinal diameters are:
 - The sub-occipito bregmatic (SOB) diameter (9.5 cm) measured from below the occipital protuberance to the centre of the anterior fontanelle or bregma.
 - The sub-occipitofrontal (SOF) diameter (10 cm) measured from below the occipital protuberance to the centre of the frontal suture.
 - The occipitofrontal (OF) diameter (11.5 cm) measured from the occipital protuberance to the glabella.
 - The mentovertical (MV) diameter (13.5 cm) measured from the point of the chin to the highest point on the vertex.
 - The sub-mentovertical (SMV) diameter (11.5 cm) measured from the point where the chin joins the neck to the highest point on the vertex.
 - The sub-mentobregmatic (SMB) diameter (9.5 cm) measured from the point where the chin joins the neck to the centre of the bregma (anterior fontanelle).
3.
 - Vertex presentation
 - Brow presentation
 - Face presentation

1.6 Summary of the Unit

Pregnancy is the period in which an egg cell is fertilized by a sperm to form a new cell, called the zygote, that eventually develops into a new human organism, to be born. The term pregnancy is used to describe the period in which a fetus develops inside a woman's uterus. It lasts about 40 weeks since the last menstrual period to delivery or 38 weeks from the time of conception, or just over 9 months, on average. Health care providers refer to three segments of pregnancy, known as trimesters.

Pregnancy can be single or multiple. The latter refers to conceiving two or more fetuses at the same time or conceiving one zygote which divides into two or more separate zygotes at a very early stage of development and forms two fetuses.

As the pregnancy progresses, different signs and symptoms are prevalent. During this period, eating a balanced diet is needed by the body of the pregnant woman. Folic acid in the form of a prenatal vitamin is essential to reduce the risk of the baby developing spina bifida, and a supplement containing vitamins and minerals will help ensure the mother gets proper amounts of these during her pregnancy. When there is presence of any unusual sign or symptom, it may be a complication on the pregnancy and healthcare services must be given.

1.7 Additional information for teachers

Pregnancy is the period in which a fetus develops inside a woman's uterus. The pregnant woman needs to take care of herself for her safety and safety of the unborn child. Students need to know the following information that will help them to educate pregnant mothers. A pregnant woman is advised to:

- Visit health facility as soon as she thinks she may be pregnant
- Have checkups regularly
- Exercise regularly
- Write a birth plan
- Avoid heavy activities
- Track her weight gain (normal weight gain is 12.5kg throughout pregnancy)
- Wear comfortable shoes
- Eat folate-rich foods (lentils, asparagus, oranges, fortified cereals)
- Eat calcium-rich foods (dairy, canned fish, soy)
- Eat more fish
- Eat foods with fibers
- Eat five or six well-balanced meals each day but don't overeat. You only need 300-500 additional calories per day. Keep a food diary.
- Limit caffeine
- Drink plenty of fluids (six 8-ounce glasses of water per day)
- Don't drink alcohol
- Know the normal symptoms that occur during pregnancy
- Don't smoke; avoid secondhand smoke
- Get enough sleep
- Don't take over-the-counter medications or herbal remedies without medical consultation

- Plan ahead the health facility of your choice where to deliver a baby
- Practice relaxation techniques daily (yoga, stretching, deep breathing, massage)
- Stretch before bed to avoid leg cramps

1.8 Answers to End unit assessment 1

1. The process of combining the male gamete, or sperm, with the female gamete, or ovum. The product of fertilization is a cell called a zygote.
2. The process of fertilization takes 12 to 24 hours at the ampulla of the uterine tube.
3. The main function of the uterus is to nourish the developing fetus prior to birth. It prepares for pregnancy each month and following pregnancy expels the product of conception.
4. Based on germ cell development and morphological characteristics as seen with the electron microscope, spermatogenesis in the testicular lobules can be classified into five stages: **(1) spermatogonial, (2) primary spermatocyte, (3) secondary spermatocyte, (4) spermatid, and (5) spermatozoon.**
5. Sperm capacitation is the set of natural physical changes that a spermatozoon undergoes in order to be able to fertilize the ovum. This occurs in vivo following ejaculation when the spermatozoa come into contact with the different fluids in the female genital tract.

The most significant changes include the following:

- Changes to the spermatozoon's pattern of movements. It ceases to move in straight lines and starts to fluctuate as a result of powerful movement of the head to the right and to the left.
 - Changes to the composition of its membrane so that it is able to fuse with the ovum and carry out an acrosome reaction.
6. Spermatogenesis and oogenesis are the processes of formation of male and female gametes. Spermatogenesis leads to the formation of sperms, **whereas oogenesis helps in the formation of ova.** The fertilization of sperm and ova leads to the formation of a zygote which further develops into an embryo

7. Trophoblast

Trophoblasts are cells that form the outer layer of a blastocyst **that helps a developing embryo attach to the wall of the uterus, protects the embryo,** and forms a part of the placenta. present four days post-fertilization in humans.

- **Embryoblast**

Any of the germinal disk cells of the inner cell mass in the blastocyst that form the embryo.

- **Blastocyst**

The blastocyst is a **structure formed in the early development of mammals**. It possesses an inner cell mass (ICM) which subsequently forms the embryo. The outer layer of the blastocyst consists of cells collectively called the trophoblast. ... The trophoblast gives rise to the placenta

- **Zygote**

Zygote, **fertilized egg cell that results from the union of a female gamete** (egg, or ovum) with a male gamete (sperm). In the embryonic development of humans and other animals, the zygote stage is brief and is followed by cleavage, when the single cell becomes subdivided into smaller cells.

8. Autoimmune issues such as thyroid problems, Addison's Disease or pernicious anemia, which target the endocrine system, affect the quality of the egg, the sperm and the hormonal environment in which the fertilization process is taking place, resulting in problems with fertilization, and implantation.

Also inclusive are altered oviductal fluid components, defective sperm capacitation and acrosomal reaction, fallopian tubal blockage, ripened egg may not be released through ovulation.

Altered uterine secretions, altered adhesion molecule profile, defective endometrium reception.

Other general factors include:

- Age. Female age is the most important factor affecting fertility. ...
- Previous Pregnancy. ...
- Duration of subfertility. ...
- Timing and Frequency of Sexual Intercourse. ...
- Lifestyle Factors.
- Weight. ...
- Smoking. ...
- Caffeine.

9. The act of setting in firmly. In embryology, implantation refers specifically to the attachment of the fertilized egg to the uterine lining, which occurs approximately 6 or 7 days after conception (fertilization)

Conditions favoring implantation: Successful implantation requires a competent blastocyst and a receptive endometrium during a specific window of time during the menstrual cycle to initiate the bilateral communication required for the establishment of a successful pregnancy.

10. Amniotic fluid is responsible for: Protecting the fetus: The fluid cushions the baby from outside pressures, acting as a shock absorber. Temperature control: The fluid insulates the baby, keeping it warm and maintaining a regular temperature. Infection control: The amniotic fluid contains antibodies.

11.

- Very rapid cell division
- More body systems laid down in primitive form and continue to develop
- Spinal nerves begin to develop
- Blood is pumped around the vessels
- Lower respiratory system begins to develop
- Kidneys begin to develop
- Skeletal ossification begins developing
- Head and facial features develop
- Early movements
- Embryo visible on ultrasound from 6 weeks

12. The placenta is a temporary fetal organ that begins developing from the blastocyst shortly after implantation. It plays critical roles in facilitating nutrient, gas and waste exchange between the physically separate maternal and fetal circulations, and is an important endocrine organ producing hormones that regulate both maternal and fetal physiology during pregnancy. The placenta connects to the baby via the umbilical cord, and on the opposite aspect to the maternal uterus in a species dependent manner.

13.

- **Gas exchange**

The fetal lungs do not take part in gas exchange while in utero, so the placenta is wholly responsible for the transfer of oxygen and carbon dioxide to and from the developing fetus.

- **Oxygen**

Oxygen is a small molecule which readily crosses the placenta by passive diffusion. Oxygen transfer mainly depends on the oxygen partial pressure gradient between maternal blood in the intervillous space and fetal blood in the umbilical arteries.

- **Endocrine function**

The placenta is an endocrine organ which produces a number of important peptide and steroid hormones.

- **Human chorionic gonadotropin**

Human chorionic gonadotropin (HCG) is a glycoprotein hormone produced in early pregnancy by the syncytiotrophoblast. Production peaks at \approx 8 weeks of gestation. HCG stimulates the corpus luteum to secrete progesterone which is required to maintain the viability of the pregnancy. Detection of HCG in the urine forms the basis of commercial pregnancy testing kits.

- **Human placental lactogen**

Human placental lactogen (HPL) is also produced by the syncytiotrophoblast. It reduces maternal insulin sensitivity, leading to an increase in maternal blood glucose levels. It stimulates the production of fetal pulmonary surfactant and the synthesis of adrenocorticotrophic hormones and helps to promote maternal breast development for milk production.⁶ HPL converts the mother from being a principal carbohydrate user to a fatty acid user, thereby sparing glucose for the fetus.

- **Human growth hormone variant**

Human growth hormone variant is produced by the syncytiotrophoblast and affects the growth of the placenta itself. It also stimulates maternal gluconeogenesis and lipolysis, optimizing the availability of nutrients for the developing fetus.

- **Oestrogens and progesterone**

Until the end of the eighth week of gestation, the corpus luteum secretes progesterone. The placenta gradually takes over this role and production of progesterone increases until just before labour. Progesterone is important in preventing uterine contractions and the onset of labour. Oestrogens stimulate uterine growth and development of the mammary glands.

- **Immunological function**

Although most proteins are too large to cross the placental barrier, maternal IgG antibodies may cross from mother to fetus by pinocytosis to provide passive immunity in the first few months of life. The syncytiotrophoblast possesses receptors for the Fc fragments of IgG; the bound IgG is then endocytosed into a vesicle before being released by exocytosis into the fetal blood. This transfer starts in early gestation and increases exponentially in the third trimester. Antibodies which cause maternal autoimmune disorders (e.g. myasthenia gravis) can also cross the placenta and affect the fetus

14.

- The female pelvis is larger and broader than the male pelvis, which is taller (owing to a higher iliac crest), narrower, and more compact.
- The distance between the ischium bones is small in males. This causes the sides of the male pelvis to converge from the inlet to the outlet, whereas the sides of the female pelvis are wider apart. This results in the female inlet

being large and oval in shape, while the male inlet is more heart shaped.

- The angle between the inferior pubic rami is acute (70 degrees) in men, but obtuse (90–100 degrees) in women. Accordingly, the angle is called the subpubic angle in men and pubic arch in women.
- The greater sciatic notch is wider in females.
- The ischial spines and tuberosities are heavier and project farther into the pelvic cavity in males.
- The male sacrum is long, narrow, straighter, and has a pronounced sacral promontory. The female sacrum is shorter, wider, more curved posteriorly, and has a less pronounced promontory.
- The acetabula are wider apart and face more medially in females than in males. This change in the angle of the femoral head gives the female gait its characteristic swinging of hips.

15.

- a. Sacral promontory
 - b. Sacral ala or wing
 - c. Sacroiliac joint
 - d. Iliopectineal line, which is the edge formed at the inward aspect of the ilium
 - e. Iliopectineal eminence, which is a roughened area formed where the superior ramus of the pubic bone meets the ilium
 - f. Superior ramus of the pubic bone
 - g. Upper inner border of the body of the pubic bone
 - h. Upper inner border of the symphysis pubis
16. Its primary role is to support the weight of the upper body when sitting and to transfer this weight to the lower limbs when standing. During childbirth, as the human neonate must pass through the birth canal, which lies within the pelvic girdle as the baby exits the body
17. The gynecoid pelvis is most favorable pelvis type for a vaginal birth. This is because the wide, open shape give the baby plenty of room during delivery. Android. The narrower shape of the android pelvis can make labor difficult because the baby might move more slowly through the birth canal
18. The head is the largest part of the baby's body, so it makes way for the rest of the body to follow.
19. We have 2 frontal bones separated by the frontal suture, 2 parietal bones separated by the sagittal suture, the occipital bone separated by the lambdoidal suture from the parietal bones, while the coronal suture separates the frontal from the parietal bones.

During child birth, the sutures in the fetal skull 'give' a little under the pressure in the birth canal, allowing the skull bones to move to a small extent reducing the diameter, this makes it easier for the baby's head to pass through the mother's bony pelvis.

20. There are several temporary structures in addition to the placenta and the umbilical cord that enable the fetal circulation to occur. These include:
- The ductus venosus, which connects the umbilical vein to the inferior vena cava.
 - The foramen ovale, which is an opening between the right and left atria.
 - The ductus arteriosus, which leads from the bifurcation of the pulmonary artery to the descending aorta.

The hypogastric arteries, which branch off from the internal iliac arteries and become the umbilical arteries when they enter the umbilical cord

21. Physical changes

- Aches and pain (possibly in your lower abdomen and in your joints)
- Morning sickness which may be nausea or actual vomiting, and does not just happen in the morning
- Food cravings and aversions
- Heartburn and indigestion
- Constipation
- A need to urinate more often
- Skin change and itching and possibly skin tags.
- Larger and tender breasts.

Physiological changes in the uterus during pregnancy

- With pregnancy progression, the uterus leaves the pelvic and ascends to the abdominal cavity
- The abdominal content displaced in response to the increased size of the uterus which is five times more than normal
- This increases in the size of uterus associated with an increase of blood supply to the uterus and uterine muscle activity,
- Uterus increases in size till the 38 weeks after that the funds level starts to descend preparing for delivery.
- Its weight increases from 50mg to 1000mg after that it doesn't get heavier anymore and only stretches to accommodate the fetus size, and associated with an increase in the thickness and length of the fundus.

22.

Features	Gaynacoid	Android	Antropaid	Platypelloid
Brim	Round	Heart shaped	Long oval	Kidney shaped
Fore- pelvis	Genrous	Narrow	narrowed	Wide
Side walls	Straight	convergent	divergent	Divergent
iscial spines	Blunt	Prominent	blunt	Blunt
sciatic notch	Rounded	Narrow	wide	Wide
sub- pubic angle	90°	< 90°	>90°	>90°
Incidence	50%	20%	25%	5%

23. The gynecoid pelvis is thought to be the most favorable pelvis type for a vaginal birth. This is because **the wide, open shape give the baby plenty of room during delivery.**

24. Two innominate bones: One sacrum, One coccyx

25.

- **Locomotion**, as body weight is transmitted to the lower limbs through the pelvic girdle,
- **Childbirth**, as the human neonate must pass through the birth canal, which lies within the pelvic girdle as the baby exits the body, and
- **Support** of abdominal organs

26.

- Sacral promontory
- Sacral ala or wing
- Sacroiliac joint
- Iliopectineal line, which is the edge formed at the inward aspect of the ilium
- Iliopectineal eminence, which is a roughened area formed where the superior ramus of the pubic bone meets the ilium.
- Superior ramus of the pubic bone
- Upper inner border of the body of the pubic bone
- Upper inner border of the symphysis pubis

Relevance: Certain landmarks in the anatomy of the pelvis are commonly used to estimate the descent of the baby during labour and delivery. The two most important

landmarks are the ischial spines and the sacral promontory, which can be felt with the fingers during a vaginal examination.

27.

- **The frontal bone**, which forms the forehead. In the fetus, the frontal bone is in two halves, which fuse (join) into a single bone after the age of eight years.
- **The two parietal bones**, which lie on either side of the skull and occupy most of the skull.
- **The occipital bone**, which forms the back of the skull and part of its base. It joins with the cervical vertebrae (neck bones in the spinal column, or backbone).
- **The two temporal bones**, one on each side of the head, closest to the ear.

SUTURES:

- The lambdoid suture forms the junction between the occipital and the frontal bone.
- The sagittal suture joins the two parietal bones together.
- The coronal suture joins the frontal bone to the two parietal bones.
- The frontal suture joins the two frontal bones together.

1.9 Additional activities

1.9.1 Remedial activities

- 1) Which among the following is referred to as the overlapping of the bones of the fetal head that allows the pelvis to accommodate the fetal head in labor.
 - A. Moulding
 - B. Engagement
 - C. Cephalohematoma
 - D. Caput succedaneum

ANSWER: A

- 2) The bones of the vault that has no significance in normal child birth is
 - A. Frontal bone
 - B. Parietal bones
 - C. Temporal bones
 - D. Occipital bones

ANSWER: C

3) Explain the two stages of development of the amniotic fluid

ANSWER:

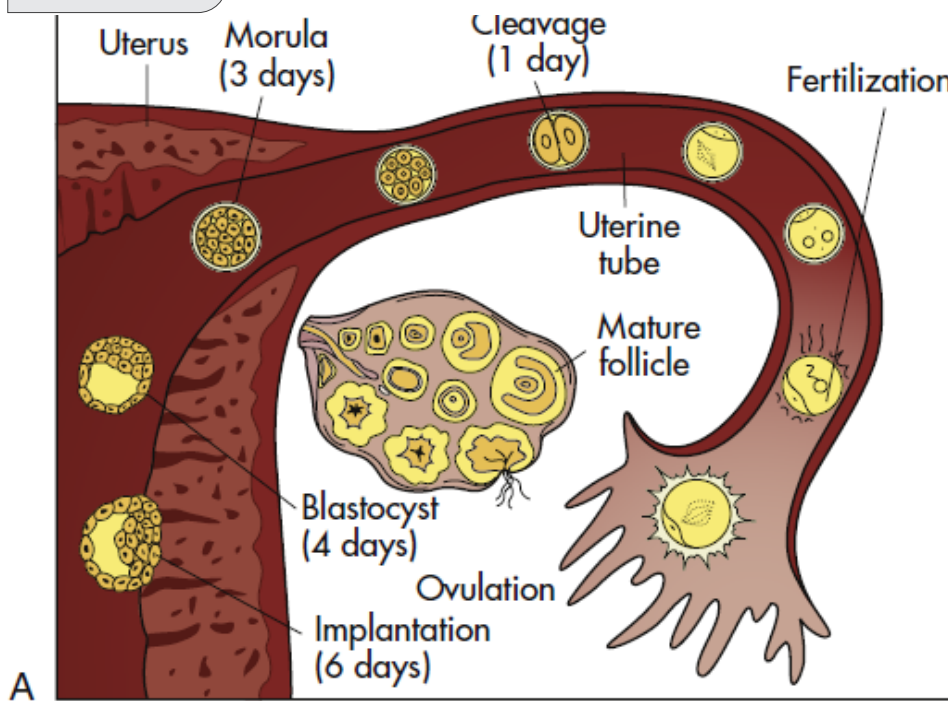
Early gestation: In the period from fertilization to eight weeks, the amniotic fluid is composed mainly of water from the mother. At 10 weeks, the fetus produces urine, which enters the amniotic sac.

Late gestation: In the second and third trimesters, the amniotic sac expands and amniotic fluid is mainly composed of fetal urine. Alongside this, lung secretions from the fetus, as well as gastrointestinal secretion and excretions from the umbilical cord and placental surface, also contribute to the content of amniotic fluid.

1.9.2 Consolidation activities

1. Draw a well labelled diagram of the uterus attached to the fallopian tubes showing stages of fertilization until implantation.

ANSWER:



2. Discuss the differences in fetal and adult circulation

ANSWER:

Criteria	Adult Circulation	Fetal Circulation
----------	-------------------	-------------------

Artery	Carries oxygenated blood away from the heart	Carries Non-oxygenated blood away from the fetal heart
Veins	Carries non-oxygenated blood towards the heart	Carries oxygenated blood back to the heart
Exchange of Gases	Takes places in the lungs	Takes place in the placenta
Pressure	Increase pressure on the left side of the heart	Increase pressure on the right side of the heart

3. Fill in the blank:

The _____ carries oxygenated blood from the placenta to the fetus.

ANSWER: Umbilical vein

4. **TRUE OR FALSE:** The umbilical cord is made up of two umbilical veins and one umbilical artery.

ANSWER: False

5. **True or false:** The embryonic stage is the most critical time in the development of the organ systems and the main external features.

ANSWER: TRUE

6. Describe the three primitive layers which appear in the early stages of development of an embryo from day 15 after fertilization

ANSWER:

ECTODERM: this is the start of tissue that covers most surfaces of the body. the epidermis layer of the skin, hair and nails and the nervous system

MESODERM: The mesoderm forms the muscle, skeleton, dermis of the skin, connective tissue, the urogenital glands, blood vessels, blood and lymph cells.

ENDODERM: They form the epithelial lining of the digestive, respiratory, urinary systems and glandular cells of organs such as the liver and pancreas.

7. The branch of biology which deals with the study of prenatal development of gametes and fertilization of an embryo is called

A. Fertilization

B. Embryology

C. Reproduction

D. Anatomy

ANSWER: B

8. A membrane bound structure at the tip of the head of the sperm which helps in the digesting the outer surface of the ovum is called
- A. Sperm reaction
 - B. Acrosome reaction
 - C. End stage reaction
 - D. Beginning stage reaction

ANSWER: B

9. Describe the maternal surface of the placenta

ANSWER:

This side is dark red in color due to maternal blood and partial separation of the basal decidua. The surface is arranged in up to 40 cotyledons (lobes), which are separated by sulci (furrows), into which the decidua dips down to form septa (walls). The cotyledons are made up of lobules, each of which contains a single villus with its branches.

10. Explain the process by which substances transfers to and from the fetus in utero

ANSWER:

- Simple diffusion of gases and lipid soluble substances.
- Water pores transfer water-soluble substances as a result of osmotic and potentially hydrostatic forces.
- Facilitated diffusion of glucose using carrier proteins.
- Active transport against concentration gradients of ions, calcium (Ca) and phosphorus (P).
- Endocytosis (pinocytosis) of macromolecules

1.9.3 Extended activities

Filling the missing spaces

1. Embryological development is complex and occurs from ----- to -----weeks of pregnancy and includes the development of the ----- in the first 2 to 3weeks following fertilization.

ANSWER: 2-8 weeks, Zygote

2. Fetal development occurs from -----weeks and last until birth

ANSWER: 8 weeks

True false question

3. The heart and vascular system commences development in the 3rd week and by the 4th week a primitive heart is visible and beginning to function, beating at 22 days

ANSWER: True

Multiple choice questions

4. All of the following are normal changes during pregnancy except:

- A. Increased secretion of insulin
- B. Decreased ligamentous stability
- C. Decreased resting heart rate
- D. Increased thyroid activity

ANSWER: C

5. All the following changes occurs in the respiratory system except:

- A. Increased respiratory rate
- B. Increased O₂ consumption and increased work of breathing.
- C. Relatively unchanged or slightly decreased total lung capacity.
- D. State of hyperventilation throughout pregnancy.

ANSWER: D

6. One of the following statements is incorrect about the functions of the umbilical cord during intrauterine life.

- A. Transportation of oxygen and nutrients to the developing fetus and removal of waste products
- B. Expulsion of fragments and deciduous products and oxygenation
- C. Transportation and increasing the amount of amniotic fluids intrauterine
- D. Transportation oxygen and prevention of adhesions to the wall of the uterus

ANSWER: C

Short answer questions

7. Describe the term fetal Attitude and how it can affect the progress of labor.

ANSWER:

Attitude is used to describe the degree of flexion or extension of the fetal head to the neck. The attitude of the fetal head determines which diameter will present in labor and therefore affects the outcome of labor.

8. State the three main stages of development of the zygote

ANSWER:

- **Pre-embryonic period:** 0-2 weeks and includes the implantation of the zygote into the endometrium
- **Embryonic period:** 2-8 weeks, the zygote undergoes mitotic cellular replication and division referred to as cleavage resulting in formation of smaller cells known as blastomeres.
- **Fetal period:** 8weeks until birth. During this period all organs and systems are fully formed

9. Give the reasons why the android pelvis is not suitable for vaginal child birth

ANSWER:

It has a **heart-shaped brim** and is **quite narrow** in front. The pelvic cavity and outlet is often narrow, straight and long. The ischial spines are prominent.it has a long sacrum and narrower pubic arch, the narrower shape of the android pelvis can make labor difficult because the baby might move more slowly through the birth canal.

10. What do you understand by the term true pelvis?

ANSWER:

This is the bony canal through which the fetus must pass during a normal vaginal child birth it has three parts: brim, cavity and outlet.

2.1 Key Unit competence:

Demonstrate the ability to manage a pregnant woman during antenatal period

2.2. Prerequisite (knowledge, skills, attitudes and values)

The student should have learnt Biology. At the end of this unit, the student should be able to:

Knowledge

- Define the concept of antenatal care
- Explain the principles of focused antenatal care (FANC) approach
- Describe the physiological changes of pregnancy
- Discuss disease preventive measures during pregnancy
- Interpret laboratory investigation findings for a pregnant woman
- Explain danger signs of pregnancy.
- Describe the balanced nutrition during pregnancy

Skills

- Apply principles of Focused Antenatal Care (FANC)
- Perform an assessment on a simulated pregnant woman
- Explain the gestational age for a pregnant woman
- Explain disease prevention during pregnancy
- Carry out the basic laboratory tests for a pregnant woman
- Identify danger signs in pregnancy.
- Identify complications of pregnancy
- Categorize the management of complications in pregnancy

Attitudes and values

- Acknowledge the principles of FANC
- Use appropriate language while providing FANC
- Respect client' rights and privacy
- Demonstrate professionalism during the provision of FANC.
- Appreciate disease preventive measures during pregnancy

2.3 Cross-cutting issues to be addressed

a) Environment and sustainability

As a facilitator, emphasise to the learners that environment must be sustainably protected for different reasons such:

Environment is where the human beings live. It contains all resources needed by human beings to survive and live.

b) Comprehensive sexuality education

As a tutor, explain to student teacher that a population grows as a result of sexual reproduction among humans. Clarify that human population is exponentially growing and that they must take measure to control such growth.

Highlight these measures to student:

To be aware that, in future, you will be totally responsible of paying your own needs without pleading them from any one. This **responsibility** must motivate learners to write their own life **vision** (goals) for their sustainable development. Then, write their own actions **plan** leading to the achievement of that vision. One of actions that must appear on that plan is legal and religious marriage which will occur at the time they have planned.

2.4 Guidance on the introductory activity:

- In introductory activity , the teacher will request the students to read carefully the scenario
- The scenario talk about a pregnant woman who have signs of pregnancy: have missed her menstrual period since 7 months, has increased appetite for cassava and rice only. She did not attend earlier because of the fear of witchcraft to take her pregnancy away. She has been using traditional medicines given by her mother in law from the beginning of the pregnancy. She is experiencing itching in vagina, chills, headache, inability to carry out daily living activities and she does not know her HIV status.
- After the students read the scenario, the teacher will ask them to reflect on the case and interpret the case, and give advices to the woman?
- Materials needed: computer, screen, projector, student's book and teacher's guide book.

Answers to the introductory activity of unit 2 in the student book:

This is a mother in third trimester of pregnancy

Reported late in the hospital for follow-up

Possibly may have anemia, or malaria because she presents with some signs.

May be HIV positive because her HIV status is unknown

She may have other diseases that she does not know like high blood pressure.

What advice can you offer to women in this case?

Importance of early visiting of the hospital as soon as she misses her period

Screening test such as HIV, Rubella, syphilis, rhesus incompatibility test to be conducted earlier in the pregnancy

Checking her blood pressure

Treatment for malaria during pregnancy to prevent complications like preterm delivery and still birth and small for gestational age

Advice on proper and balanced nutrition during pregnancy and exercise

Advice to discontinue herbal drugs and self-medication during pregnancy because of their bad effects

Need for her come to the hospital for proper follow-up and to give birth at the health facility

Advice to respect the number of the antenatal care contact and to complete the vaccination calendar

2.5 List of lessons/sub-heading (including assessment)

#	Lesson title	Learning objectives	Number of periods
1	Key Concepts used in antenatal care	Define the concept of antenatal care	1
2	Principles, objectives and components of Focused Antenatal Care	Explain the principles of focused antenatal care (FANC) approach	2
3	The diagnosis of pregnancy	Describe the physiological changes of pregnancy	2
4	Comprehensive assessment of a pregnant woman	Perform an assessment on a simulated pregnant woman	2

5	Physical examination	Perform a physical examination of a pregnant woman	2
6	Leopold's manoeuver	To determine the fetal presentation and presentation	2
7	Calculation of gestational age based on the last menstruation period	Explain the gestational age for a pregnant woman	2
8	Changes in the female reproductive system during pregnancy	Describe changes occurring in the female reproductive system during pregnancy	2
9	Physiological changes in pregnancy on endocrine system	Describe changes occurring to endocrine system during pregnancy	2
10	Changes in the cardiovascular and respiratory systems	Describe changes occurring to cardiovascular and respiratory system during pregnancy	2
11	Changes in the urinary and Gastro-intestinal system	Describe changes occurring to urinary and gastro-intestinal system during pregnancy	2
12	The basic laboratory and other investigations during antenatal care	<ul style="list-style-type: none"> • Carry out the basic laboratory tests for a pregnant woman. • Interpret laboratory investigation findings for a pregnant woman. 	2
13	Laboratory investigations of common medical conditions during pregnancy	Describe some investigations of common medical conditions during pregnancy	1

14	Danger signs of pregnancy and management of complication	Identify complications of pregnancy Identify danger signs in pregnancy	2
15	Management of minor pregnancy complications	Describe management of minor pregnancy complications	2
16	Preventive measures during pregnancy	<ul style="list-style-type: none"> To different preventive measures identify during pregnancy To understand anti tetanus vaccination during antenatal care 	1
17	Anemia in pregnancy	<ul style="list-style-type: none"> Describe types of anemia Identify risks factors of anemia in pregnancy Describe management of anemia in pregnancy 	2
18	Nutrition during pregnancy	Describe the balanced nutrition during pregnancy	2
19	Skillslab	Perform an assessment on a simulated pregnant woman	2
20	Self-assessment		1

Lesson 1: Key Concepts used in antenatal care

This is the first lesson of the second unit on antenatal care. In this lesson you will be dealing with the meaning of key terms used in antenatal care. The first thing to do before starting teaching is to remind students What they have learnt in first unit on normal pregnancy.

This lesson has only one period (40 Minutes).

a) Learning objectives:

Define common concepts used in antenatal care.

b) Teaching resources:

The computer/Laptop and projector will be used to project the key terms. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject. The teacher's guide is essential to show the methodology and resources to use when administering this unit.

c) Prerequisites/Revision/introduction.

Introduce unit by helping student to review what was seen in unit 1 on normal pregnancy.

d) Learning activity 1.1

Using the school book of Maternal and Child Health, read the information related to the antenatal care and take short notes on the difference between:

- Antenatal care and focused antenatal care,
- Health promotion, health education, health screening and disease screening

Guidance

- Ask learners to brainstorm differences of those concepts and note down in their note book.
- Provide necessary materials to students.
- Give few time and help those who are having problems.
- Ask learners to present what they have found.
- Help learners to summarize what they have learnt

Answers for the Learning activity 2.1

1. Basic differences between Antenatal care and focused antenatal care.

Characteristics	Antenatal care	Focused antenatal care
Number of visits	4 regardless of risk status	8 for all women.
Approach	Vertical: only pregnancy issues are addressed by health providers	Integrated with PMTCT of HIV, counselling on danger symptoms, risk of substance use, HIV testing, malaria prevention, nutrition, vaccination, etc.

Assumption	More frequent visits for all and categorising into high/low risk helps to detect problems. Assumes that the more the number of visits, the better the outcomes	Assumes all pregnancies are potentially 'at risk'. Targeted and individualised visits help to detect problems
Use of risk indicators	Relies on routine risk indicators, such as maternal height <150 cm, weight <50 kg, leg oedema, malpresentations before 36 weeks, etc.	Does not rely on routine risk indicators. Assumes that risks to the mother and fetus will be identified in due course
Prepares the family	To be solely dependent on health service providers	Shared responsibility for complication readiness and birth preparedness
Communication	One-way communication (health education) with pregnant women only	Two-way communication (counselling) with pregnant women and their husbands
Cost and time	Incurs much cost and time to the pregnant women and health service providers, because this approach is not selective	Less costly and more time efficient. Since majority of pregnancies progress smoothly, very few need frequent visits and referral
Implication	Opens room for ignorance by the health service provider and by the family in those not labelled 'at risk', and makes the family unaware and reluctant when complications occur	Alerts health service providers and family in all pregnancies for potential complications which may occur at any time

2.

- **Health promotion** is concerned with promoting a healthy lifestyle and preventing illness and it includes social, psychological, political, and educational factors.
- **Health education** is concerned with informing people about health issues

Answers for the self-assessment 2.1

1. What is History taking and state the purpose for taking history.

Answers

History taking is the process of collecting information to assess the past and present obstetrical, medical and surgical problems in order to detect risk factors for the patient and her fetus. The purpose of taking a history is **to assess the past and present obstetrical, medical and surgical problems in order to detect risk factors for the patient and her fetus.**

Lesson 2: Principles, objectives and components of Focused Antenatal Care.

a) Learning objectives:

- Explain the principles of focused antenatal care (FANC) approach
- Apply principles of Focused Antenatal Care (FANC)
- Acknowledge the principles of FANC
- Use appropriate language while providing FANC
- Demonstrate professionalism during the provision of FANC.

b) Teaching resources

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject. Material that are used in FANC must be prepared to show them to learners.

c) Prerequisites/Revision/Introduction

Introduce lesson by helping students to remember what they have learnt in previous lesson.

d) Learning activity 2.2

From the picture you showed to students,

Students have to describe the person A and B, and what and what they are doing

Students should also identify the importance of communication

Guidance:

- Ask students to observe the picture on screen
- Ask them to note the description of person A and B in picture
- Assist students who are weak but don't give them answers
- Invite 4 students to present what they have noted.
- Note on board /flip chart students answers
- Provide positive feedback to corrects answers and correct the incorrect answers

Answer to the learning activity 2.2

1. The person A is a client and B is a nurse/midwife/ health professional
2. Importance:
 - To build the foundation for a trusting relationship in which the woman and the nurse are partners in care
 - To assess health by taking a detailed history and offering appropriate screening tests
 - To ascertain baseline recordings of blood pressure, urinalysis, blood values, uterine growth and fetal development to be used as a standard for comparison as the pregnancy progresses
 - To identify risk factors by taking accurate details of past and present obstetric, medical, family and personal history.
 - To provide an opportunity for the woman and her family to express and discuss any concerns about the pregnancy
 - Make appropriate referral where additional healthcare or support needs have been identified.

Answer to self-assessment 2.2

1. 10 principles of focused antenatal care
 - Developing a trusting relationship with the woman
 - Providing a holistic approach to the woman's care that meets her individual needs
 - Making a comprehensive assessment of the woman's health and social status
 - Promoting an awareness of the public health issues for the woman and her family
 - Exchange the information with the woman and her family
 - Enabling them to make informed choices about pregnancy and birth
 - Be an advocate for the woman and her family during her pregnancy
 - Supporting her to choose care appropriate for her own needs and those of her family
 - Identifying potential risk factors and taking appropriate measures to minimize them
 - Timely share information with relevant agencies and professionals

2.

- a. Blood pressure measurement,
- b. Collection of a blood sample,
- c. Collection of a urine sample,
- d. Tetanus vaccination,
- e. Provision of insecticide treated net for malaria prevention,
- f. Deworming treatment,
- g. Iron-folic acid supplements

Lesson 3: The diagnosis of pregnancy

a) Learning objectives :

Describe the physiological changes of pregnancy

b) Teaching resources

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites/ Revision/ Introduction

Introduce by make a revision of Unit 1 on normal pregnancy, and help them to remember signs of pregnancy.

d) Answer to learning activity 2.3

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer to learning activity 2.3

She may be pregnant and showing signs of early pregnancy.

Suggest actions that can be taken.

She should be advised to go for laboratory examination to confirm if it's pregnancy or other medical conditions like malaria.

If positive for pregnancy: advice on early FANC, vaccination, Nutrition, avoid food that trigger you to vomit, rest, exercise, explanation on danger signs of pregnancy. Take a daily prenatal vitamin, stay hydrated, don't drink alcohol, don't smoke and respect the antenatal care appointment.

Answer to self-assessment 2.3

Answers

POSITIVE SIGNS OF PREGNANCY:

1. Positive signs of pregnancy are those signs that are definitely confirmed as a pregnancy. They include fetal heart sounds, ultrasound scanning of the fetus, palpation of the entire fetus, palpation of fetal movements, and actual delivery of an infant.
2. Chloasma of pregnancy :

This is also called the “**Mask of Pregnancy.**” It is a bronze type of facial coloration seen more on dark-haired women. It is seen after the sixteenth week of pregnancy.

Lesson 4: Comprehensive assessment of a pregnant woman

a) Learning objectives:

Perform an assessment of a pregnant woman

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites/Revision/Introduction

Start lesson by asking question related to changes occurring to pregnant woman.

d) Learning activities:

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrect answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answers

1. Pre-Pregnancy and prenatal care can help prevent complications and inform women about important steps they can take to protect their infant and ensure a healthy pregnancy. With regular prenatal care women can: Reduce the risk of pregnancy complications
2. Eating a nutritious diet during pregnancy is linked to good brain development and a healthy birth weight, and can reduce the risk of many birth defects. A balanced diet will also reduce the risks of anemia, as well as other unpleasant pregnancy symptoms such as fatigue and morning sickness.

Answer to self-assessment 2.4

Answer

- Ensure privacy (respectful maternity care at all times)
- Ensure quiet and calm atmosphere
- Make the woman comfortable and relaxed
- Maintain confidentiality
- Establish rapport
- Record all information on the patient's file

Lesson 5: Physical examination

a) Learning objectives:

Perform a physical examination of a pregnant woman

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites /Revision/Introduction

Introduce this lesson by asking students to brainstorm on: human anatomy, different human body systems.

d) Learning activities' answers

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.

- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer

The video shows the nurse or doctor who is performing an examination on a pregnant woman. He starts from the head and then to the legs. He also checked the vital signs, height, weight, and made the patient comfortable.

e) Self-assessment 2.5 answers

Elements of physical exam should include **general appearance, blood pressure, weight (including pattern of weight gain), uterine size measurement, heart rate of mother and fetus**, fetal presentation, and station presenting part abdominally.

Lesson 6: Leopold's manoeuvres

a) Learning objective:

To determine the fetal presentation and position.

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites:

Students have already learnt pregnancy presentation and position of fetal in uterus of her mother. You are requested to help them to describe what they are seeing on the chart.

d) Answer to learning activity 2.6:

The picture in the chart shows the hand of a nurse performing abdominal examination to know how the baby is in the uterus. And it shows four steps in the process.

Step 1: the nurse is palpating the buttock

Step 2: the nurse touching the sides

Step 3: the nurse touching the head

Step 4: the nurse touching below the head

e) Answer to self-assessment 2.6:

ANTENATAL CONSULTATION AND LEOPOLD MANOEUVER (below attached is checklist)

PROCEDURE: ANTENATAL CONSULTATION
COMPETENCES
<ul style="list-style-type: none">• To determine the maternal and fetal well being• To confirm pregnancy• To determine gestational age• To determine presentation, lie, position and engagement of the presenting part• To screen the couple• To provide counseling to the couple
INDICATION
All pregnant women
CONTRAINDICATION
Non-pregnant women
PREPARATION
Midwife
Respect professional dressing (clean and fitting uniform, closed shoes with short heel, hair tied back, head cap, cut nails with no paints, no makeup and jewels).
Environment (ensure privacy, ventilation and well lightened)
Hand washing
Client
Self-introduction to the client/couple/family
Request for informed consent
Explain the procedure to the client and tell her that it is an examination which is not painful.

Ask the client to empty her bladder and explain why

Equipment

- Tray
- Vital signs materials
- Weighing and height scale
- Table of examination
- Tape measure
- Pinard fetoscope
- Pregnancy wheel
- Preventive medication
- IEC materials
- ANC and Client records
- Screening materials (HIV, Syphilis, Albuminuria, Urinalysis, Full blood counts (FBC))
- Gloves (examination gloves and sterile gloves)
- Trash can
- Dust bin

IMPLEMENTATION

Wash and dry hands

Put on examination gloves.

Systematic assessment from head to toe for pregnant woman (inspection, palpation, auscultation and percussion)

Explain to the woman/client/ couple/ family each step of procedure and provide feedback

Ask the woman to lie on her back, feet posed on the bed and knees bending

(LEOPOLD MANEUVER)

Assess fundal /uterine height: Use two hands to palpate the top of the uterus, and then the measurement is taken from the upper border of the symphysis pubis to the highest point of the fundus of the uterus by using a tape measure.

First Maneuver: Feel the consistency and the mobility of the fetal part lying in the fundus of the uterus. The fetal head is firm, hard and round, it moves independently from the fetal body. The breech/buttock is softer and moves at the same time as the whole fetal body. If fundus is empty suspect transverse lie (presentation transverse)

Second Maneuver: Determine the lie (presentation): the position of the fetal back and other small parts of the fetal body). By moving the hands to half way down the uterus, palpate the abdomen, apply gentle pressure. One hand palpates, the other hand supports the abdomen. The fetal back, which is on the side of the abdomen, is a continuous smooth resistant mass during palpation. The other side of the abdomen, where limbs are felt as small parts, is embossed or irregular.

Third Maneuver: Place one hand just above the symphysis. Determine which part of the fetus occupies the lower uterine pole: if the palpated part is the head or the buttock of the fetus or other, and check/verify if the presentation is engaged

Change position by turning your back towards the client.

Fourth Maneuver: Two hands are placed to the lower uterine pole and slide them on the sides of the uterus towards the pubis. Identify a cephalic, a breech or another presentation. Determine the degree of the engagement of the presentation

Auscultation of the FHR (see checklist FHR)

This is a separate procedure but it should be done after this procedure

COMPLETION

Thank the client for her collaboration and request the client if she has any concern

Assist the client to maintain a comfortable position.

Clean and dispose used materials and clean the work area.

Wash hand

Provide preventive medications if indicated

Document the results of the examination and give appointment.

Practice in simulation lab using the checklist, on listening to the fetal heart beat using the pinard' fetoscope

Answer

PROCEDURE: AUSCULTATION OF THE FETAL HEART RATE (FHR) USING PINARD'S FETOSCOPE OR SONICAID (DOPPLER) (clean procedure)

COMPETENCES

- To listen and count fetal heart rate
- To differentiate Fetal heart rate rhythm from maternal pulse

INDICATION

- All pregnant women

PREPARATION

Midwife

Respect professional dressing (clean and fitting uniform, closed shoes with short heel, hair tied back, head cap, cut nails with no paints, no makeup and jewels).

Environment (ensure privacy, ventilation and well lightened)

Infection control (hand washing, waste management)

Client

Self-introduction to the woman/ couple/ Family

Request for informed consent

Explain the procedure to the client and tell her that it is an examination which is not painful.

Ask the woman to empty her bladder and explain why

Equipment

- Table of examination
- Tray
- Pinard fetoscope or sonicaid fetal heart sound device,
- Client records
- Examination gloves
- Dustbin

IMPLEMENTATION

Wash and dry hands

Put on examination gloves.

Explain to the woman/client/ couple/ family each step of procedure and provide feedback

Ask the woman to lie on her back, feet posed on the bed and knees bending

Obstetrical examination(Leopold maneuver)

Assess fundal /uterine height: Use two hands to palpate the top of the uterus, and then the measurement is taken from the upper border of the symphysis pubis to the highest point of the fundus of the uterus by using a tape measure.

Determine the lie (presentation): the position of the fetal back and other small parts of the fetal body).
Assess maternal pulse and compare to the fetal heart beat(rhythm)
Auscultation of the Fetal heart beat for full one minute (rhythm, variation and rate)
COMPLETION
Thank the client for her collaboration and request her if she has any concern
Assist the client to maintain a comfortable position.
Clean and dispose used materials and clean the work area.
Wash hands
Document the results of the examination and give appointment.

Lesson 7: Calculation of gestational age based on the last menstruation period

a) Learning objective:

- Explain the gestational age for a pregnant woman
- Calculate the gestational age of a pregnant woman

b) Resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites:

Students have learnt the unit of normal pregnancy and know the duration of pregnancy, students have also knowledge gained from biology on menstrual period. Help students to recall their knowledge and brainstorm on how to know the gestational age.

d) Learning activity

Guidance

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrect answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer to learning activity 2.7

When the woman can deliver, is calculated by asking her first day of her last menstrual period and this can be used to calculate her expected date of delivery.

Self-assessment answer

The students should be put in groups and the teacher allow 5 minutes for this exercise.

1. Calculate the EDD of a pregnant woman whose last menstrual period (LMP) was on 14th December 2020.

Answer

14/12/2020

+7/9/

Ans=21/9/2021

Example 2

Naegele's rule involves a simple calculation: **Add seven days to the first day of your LMP and then subtract three months.** For example, if your LMP was November 1, 2017: Add seven days (November 8, 2017). Subtract three months (August 8, 2017).

Lesson 8: Changes in the female reproductive system during pregnancy

a) Learning objective:

Describe changes occurring to the female reproductive system during pregnancy

b) Prerequisites:

Students have learnt biology, help them to remind what they have learnt in reproductive system of woman.

c) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

d) Learning activity 2.8

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.

- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer

When a woman becomes pregnant, her menstruation will stop which is a sign of physiological changes in the endocrine system.

e) Self- assessment answer 2.8

In early pregnancy, the breasts may feel full or tingle, and they increase in size as pregnancy progresses. The areola around the nipples (the circle of pigmented skin) darkens and the diameter increases. The Montgomery's glands (the tiny bumps in the areola) enlarge and tend to protrude (stick out more). The surface blood vessels of the breast may become visible due to increased circulation, and this may give a bluish tint to the breasts.

Lesson 9: Physiological changes in pregnancy on endocrine system

a) Learning objective: Describe physiological changes occurring on endocrine system in pregnancy.

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites: Students should have seen in biology, endocrine system, and you will help students to recall what they know on endocrine system.

d) Learning activity answer

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer

Estrogens

A woman will produce more estrogens during one pregnancy than throughout her entire life when not pregnant. During pregnancy, estrogen promotes maternal blood flow within the uterus and the placenta.

Progesterone

A pregnant woman's progesterone levels are also very high. Among other effects, high levels of progesterone cause some internal structures to increase in size, including the uterus, enabling it to accommodate a full-term baby. Levels of progesterone and estrogens rise continually throughout pregnancy, suppressing the hypothalamic axis and subsequently the menstrual cycle. Estrogen is mainly produced by the placenta and is associated with fetal well-being.

HCG

Women also experience increased human chorionic gonadotropin (β -hCG); which is produced by the placenta. This maintains progesterone production by the corpus luteum. The increased progesterone production, first by corpus luteum and later by the placenta, mainly functions to relax smooth muscle.

e) Self-assessment activity 2.9 answer

Estrogen. This group of hormones is responsible for developing the female sexual characteristics. Normally formed in the ovaries, estrogen is also produced by the placenta during pregnancy to help maintain a healthy pregnancy.

Progesterone. This hormone is produced by the ovaries and by the placenta during pregnancy. Progesterone stimulates the thickening of the uterine lining in anticipation of implantation of a fertilized egg.

Lesson 10: Changes in the cardiovascular and respiratory systems during pregnancy

a) Learning objective:

Describe changes occurring to cardiovascular and respiratory systems during pregnancy

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites: Knowledge of cardio vascular and respiratory systems gained from Biology course. The teacher will ask students what they remember on those systems.

d) Learning activity answer 2.10

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrect answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answers

The task of the heart is **to pump enough blood to deliver a continuous supply of oxygen and other nutrients to the brain** and other vital organs.

e) Self-assessment activity answer 2.10

Pregnancy stresses the woman's heart and circulatory system. During pregnancy, the blood volume increases by 30 to 50 percent to nourish the growing baby, the heart pumps more blood each minute and the heart rate increases. Labor and delivery add to the heart's workload too.

Lesson 11: Changes in the urinary and Gastro-intestinal system during pregnancy

a) Learning objective:

Describe changes that may occur to urinary and gastro-intestinal system during pregnancy.

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites:

Knowledge of urinary and gastro-intestinal systems gained from Biology course. The teacher will ask students what they remember on those systems.

d) Learning activity answer 2.11

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.

- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrect answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answers

The woman should be advised not to drink too much water just before going to bed. Avoid beverages and foods containing caffeine, which can increase the need to pee more often.

In addition to rising hormones, **the body's fluid levels start to increase during pregnancy.** This means the kidneys have to work extra hard to flush the extra fluid. The amount of urine released will increase as well.

Describe the reason why you think she is having this problem:

The smooth muscle of the renal pelvis and ureter become relaxed and dilated, **kidneys increase in length and ureters become longer,** more curved and with an increase in residual urine volume. Bladder smooth muscle also relaxes, increasing capacity and risk of urinary tract infection. She may also be having this problem because her uterus is growing bigger and pressing on her bladder.

e) Self-assessment answer 2.11

What contributes to weight gain during pregnancy?

Uterus, breast, fat, extracellular fluid, fetus, placenta, Amniotic fluid and the total weight gain in pregnancy is 12 kg

Discuss Heart burns and how it can be managed.

Heartburn is common during pregnancy. Pregnancy hormones can make the valve at the entrance to the stomach relax so that it doesn't close as it should lead to reflux of stomach content usually occurring in the 2nd and 3rd trimester of pregnancy.

Management

- Skip foods and drinks that can make it worse, such as citrus; spicy, fatty (especially fried or greasy) foods; caffeine; and carbonated drinks.
- Eat several small meals throughout the day.
- Take your time when eating.
- Drink liquids between — not during — meals.

Lesson 12: Investigations to confirm pregnancy in antenatal care

a) Learning objective:

- To identify basic laboratory investigations to do for a pregnant woman
- To identify other investigation to be done to confirm pregnancy

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites/ Revision/Introduction

Start this lesson by revision and ask students: "What are laboratory exams do you know?"

d) Learning activity answer 2.12

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.
- Which test can you request to a couple who visited the hospital and complained that the wife has not seen her monthly period?

Answer: urine pregnancy test to check the level of HCG.

e) Self-assessment answer 2.12

Quantitative HCG blood test: This test measures the specific level of HCG in the blood. Quantitative HCG blood tests are very accurate because they measure the exact amount of HCG in the blood. They can detect smaller amounts of the hormone than a qualitative HCG blood test or a urine test.

Lesson 13: Common laboratory investigations to rule out medical conditions during antenatal care

a) Learning objectives

- Carry out the basic laboratory tests for a pregnant woman.
- Interpret laboratory investigation findings for a pregnant woman.

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites/ Revision/ introduction

Introduce this lesson by making review of laboratory exams, ask students how exam is done to diagnose malaria, anemia.

d) Learning activity answer 2.13

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer:

Women who are HIV positive can be given treatment to reduce the risk of HIV being transmitted to their unborn child. (Risk reduced from 32% to less than 1%). Interventions to reduce mother-to-child transmission of HIV infection include **antiretroviral therapy, elective caesarean section** delivery and the **avoidance of breastfeeding**.

e) Self- assessment answer 2.13

Lab investigations that can be done may include test for hemoglobin level, blood group and type, checking for malaria and if she has any infections in the pregnancy.

Lesson 14: Dangers signs of pregnancy.

a) Learning objectives:

- Identify danger signs that may occur during pregnancy

b) Teaching resources :

- The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites /revision/introduction

- Ask the student to think and recall what they have learnt in Unit 1 of normal pregnancy on changes that occur in pregnancy, and then brainstorm on signs of pregnancy.

d) Learning activity answer 2.14**Guidance:**

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer:

- severe vaginal bleeding
- convulsions
- severe headache which is not relieved with analgesic
- severe abdominal pain
- extreme fatigue
- fast or difficulty in breathing
- reduced fetal movement

What will the knowledge of the danger signs of pregnancy help the Nurse to achieve in the care pathway for the woman?

e) Self- assessment answer 2.14

Knowledge of these danger signs will help women and the nurse to make the right decisions and take appropriate healthcare seeking actions

Lesson 15: Management of minor pregnancy complications**a) Learning objectives :**

Discuss the management of minor complications during pregnancy.

b) Teaching resources

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites /revision/introduction

Ask student to identify minor complications /signs that can occur during pregnancy.

d) Learning activity answer 2.15

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrect answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer:

Heartburns, constipation, backpains, mild headaches, frequency of urination, feeling hot, dyspnea, and insomnia

e) Self-assessment answer 2.15

Answer:

pica, chloasma, and oedema.

What advice should you give her to manage her symptoms?

Answer:

MANAGEMENT

Pica: Clay soil is not food, and it may give her parasites that can make her sick. You should advise her not to eat clay, but encourage her to eat iron-rich foods (like chicken, fish, pumpkin, beans, peas, meat — especially liver, kidney, and other organ meats — and whole grain products) and calcium-rich foods (like yellow vegetables, milk, curd, yogurt, cheese, and green leafy vegetables).

Chloasma: Reassure her that the brown patches are normal and they will fade after the baby is born. She can minimise them by wearing a hat when she is in bright sunlight.

Oedema: Advise her to put her feet up for a few minutes at least two or three times a day. This will help the fluid in her lower legs to be absorbed back into her circulation. Encourage her to eat fewer packaged foods that are very salty and to drink more water or fruit juices.

Lesson 16: Preventive measures during pregnancy

a) Learning objective:

- To identify different preventive measures during pregnancy.
- To understand anti tetanus vaccine during antenatal care.

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites:

Introduce this lesson by help students to remember what they know about preventive measures during pregnancy.

d) Learning activity 2.16

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer:

Preventive measures during pregnancy should include, iron&folic acid, anti-tetanus vaccine,, intestinal deworming and malaria prevention.

e) Answer on self-assessment 2.16

1. Health care providers must ensure that all pregnant women get all recommended preventive measures in line with the 8-contact schedule including treatment of asymptomatic bacteria, prevention of Tetanus, Nutritional anaemia, HIV, Intestinal worms and malaria in pregnancy.
2. It is important to vaccinate all pregnant women against tetanus because it protect mother and fetus from materanl and neonatal tetanus infection.

Lesson 17: Anemia in pregnancy

a) Learning objective:

- To describe causes of anemia in pregnancy
- To identify symptoms of anemia in pregnancy
- To describe management of anemia in pregnancy

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites:

Introduce this lesson by help students to remember what they know about anemia.

d) Learning activity 2.17

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrects answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer:

Anemia in pregnancy

e) Answer on self-assessment 2.17

How does iron deficiency anemia affect the fetus during pregnancy?

Severe anemia during pregnancy increases your risk of premature birth, having a low-birth-weight baby and postpartum depression. Some studies also show an increased risk of infant death immediately before or after birth

Lesson 18: Nutrition during pregnancy

a) Learning objective:

Identify nutritional need for pregnancy.

b) Teaching resources:

The computer/Laptop and projector will be used to project some learning materials and pictures. The teacher may also use markers to write on the white board/wall flipchart, while student hold students' books for this subject.

c) Prerequisites/ Revision/Introduction

Introduce this lesson by asking student to describe what a balanced diet is.

d) Learning activity 2.18

Guidance:

- Ask students to write answers to the given activity in their books.
- Provide all necessary materials to students.
- Give time to students to write down their answers in notebook.
- Invite any 5 students to present their answers
- Provide positive feedback to the correct answers and correct the incorrect answers.
- Provide conclusion on activity, and still engage students in making that conclusion and in learning.

Answer:

A balanced diet consisting of a variety of different types of food and providing adequate amounts of the nutrients necessary for good health.

It provides the energy and nutrients required to survive and stay healthy.

e) Self-assessment answer 2.17

Nutrients are chemical substances that are required for the proper functioning of cells, tissues and different organs in all living organism. Our body requires an adequate amount of nutrients which are mainly required for various functions of the body, including growth, repair, and protection against disease-causing microbes. Since our body cannot synthesize these nutrients on its own, these need to be supplied through external sources as food.

The nutrients that are essential for the body in lesser amounts are known as micro-nutrients, whereas the nutrients that are required by the body in greater amounts are known as **macro-nutrients**. **Micro-nutrients** also called trace elements are required in very minute quantities, prevents diseases. and **macro-nutrients** also called major elements are required in larger quantities, provides energy.

2.6 Summary of the unit:

Antenatal care (ANC) is an umbrella term used to describe the medical procedures and care that are carried out during pregnancy. It is the care a woman receives throughout her pregnancy and is important in helping to ensure a healthy pregnancy state and safe childbirth.

During the prenatal period, health care providers play important role in educating women about healthy pregnancy behaviors, danger signs of complications, breastfeeding and family planning; identify and treat pregnancy-related conditions; refer mothers to specialized care when necessary; encourage the use of a skilled birth attendant; and minimize the risk of mother-to-child transmission of HIV. In addition, the ANC provides an opportunity to screen for and treat other chronic conditions and non-communicable diseases.

2.7 Additional information for teachers

Important facts on pregnancy

- » A normal pregnancy comprises of 40 weeks divided into three trimesters.
- » A pregnancy test measures HCG hormone (human chorionic gonadotropin) in the urine or blood.
- » Early pregnancy symptoms include amenorrhea (absence of menstrual periods), nausea, mood swings, tiredness, breast changes, etc.
- » Late pregnancy symptoms include heartburn, difficulty sleeping, swelling of the ankles or fingers, hemorrhoids and mild contractions.
- » The baby becomes full term by the end of 37 weeks, and its organs are prepared to function individually.
- » As the delivery date nears, the baby may attain a head-down position for the birthing process. Most common is the head down position, exceptions include breech.

2.8. End unit assessment

1. What is focused FANC?

Answer:

FANC is **personalized** care provided to a pregnant woman which emphasis on the woman's overall health status, her preparation for childbirth, and readiness for complications.

2. Differentiate between the terms: Health promotion and health education

Answer:

Health promotion refers to any activity that aims to achieve better health in a community or a country.

Health education

It is the effective transmission of accurate, useful, health-related information to community members; it enables individuals and groups to develop their knowledge of health issues, and increase their self-reliance and competence to solve their own health problems through their own initiatives. A major determinant of good or ill health is the knowledge people have about health issues, their beliefs, attitudes and behaviour, and their desire to bring about positive behaviour change in their lives.

3. State ten Principles of FANC

Answer:

- Developing a trusting relationship with the woman
- Providing a holistic approach to the woman's care that meets her individual needs
- Making a comprehensive assessment of the woman's health and social status
- Promoting an awareness of the public health issues for the woman and her family
- Exchange the information with the woman and her family
- Enabling them to make informed choices about pregnancy and birth
- Be an advocate for the woman and her family during her pregnancy
- Supporting her to choose care appropriate for her own needs and those of her family
- Identifying potential risk factors and taking appropriate measures to minimize them
- Timely share information with relevant agencies and professionals

4. Explain the points to consider while taking history from a pregnant woman.

Answer:

- Ensure privacy (respectful maternity care)
- Ensure quiet and calm atmosphere
- Make the woman comfortable and relaxed
- Maintain confidentiality

- Establish rapport
 - Record all information on the patient's file
 - Highlight abnormal findings
5. What are the factors that may require additional antenatal support or referral?

Answer:

- Age less than 18 years or over 40 years
 - Grande multiparity
 - Vaginal bleeding at any time during pregnancy
 - Unknown expected date of birth
 - Late booking
6. Describe the specific aims of abdominal examination

Answer:

- Observe the signs of pregnancy
- Assess fetal size and growth
- Auscultate the fetal heart when indicated
- Locate fetal parts
- Detect any deviation from normal.

7. What is engagement?

Answer:

Engagement is said to have occurred when the widest presenting transverse diameter of the fetal head has passed through the brim of the pelvis

8. State the factors that can lead to Non-engagement of the head

Answer:

- Full bladder
 - Wrongly calculated gestational age
 - Polyhydramnios
 - Placenta praevia or other space-occupying lesion
 - Multiple pregnancy
 - Pelvic abnormalities
 - Fetal abnormality
9. Define presentation and give different types of presentation

Answer:

Presentation refers to the part of the fetus that lies at the pelvic brim or in the lower pole of the uterus

10. What are the indications for fetal wellbeing

Answer:

Increasing uterine size compatible with the gestational age of the fetus;

Fetal movements that follow a regular pattern from the time when they are first felt;

Fetal heart rate that is regular and variable with a rate between 110 and 160 beats/minute.

11. Explain the Naegele' rule in calculation of expected date of delivery

Answer:

The EDD is calculated by adding 9 calendar months if the last month of menstruation is \leq to 3 or moins 3 if month \geq to 4 and adding 7 days to the date of the 1st day of the woman's last menstrual period (LMP).

12. Mention two physiological changes that takes place on the breast.

Answer:

The breasts may **feel full or tingle**, and they **increase in size** as pregnancy progresses. The areola around the nipples (the circle of pigmented skin) darkens and the diameter increases. The Montgomery's glands (the tiny bumps in the **areola**) enlarge and tend to protrude (stick out more). The surface blood vessels of the breast may become visible due to increased circulation, and this may give a bluish tint to the breasts.

By the 16th week (during the second trimester), the breasts begin produce **colostrum**

13. Mention six Danger signs of pregnancy

Answer:

- severe vaginal bleeding
- convulsions
- severe headache which is not relieved with analgesic
- severe abdominal pain

- extreme fatigue
- fast or difficulty in breathing
- reduced fetal movement
- fever
- swelling of the fingers, face, and legs
- blurred vision

2.9 Additional activities

2.9.1 Remedial activities:

Multiple choice questions

1. With regards to urine testing as a routine part of antenatal care, which of the following statements are correct?
 - A. A single episode of glycosuria warrants a glucose tolerance test
 - B. Glycosuria and proteinuria can both be associated with urinary tract infections
 - C. The sensitivity of the reagents strips is sufficient for them to be used in screening for asymptomatic bacteriuria
 - D. ALL pregnant women should be tested to identify if they are at risk of developing complications within the time of the pregnancy.

Answer:D

2. During the last few weeks of pregnancy a number of physical and psychological changes may occur EXCEPT?
 - A. Mood swings are common and a surge of energy may be experienced by the mother
 - B. 2-3 weeks before the onset of labor the lower uterine segment expands and allows the fetal head to engage.
 - C. Walking becomes less difficult for some women because the symphysis pubis is more mobile and relaxed.
 - D. The woman may experience relief which is historically known as lightening

Answer:C

3. Which of the following is NOT a benefit of folic acid supplementation before and during pregnancy?
- A. It prevents the formation of large but ineffective red blood cells
 - B. It prevents neural tube defects
 - C. It decreases the baby's risk for cleft lip and palate
 - D. It ensures proper functioning of the thyroid glands

Answer:D

4. A healthy 34-year-old G1P0 patient comes for antenatal care at your health facility for a routine ANC visit at 12 weeks gestational age. She tells you that she has stopped taking her prenatal vitamins with iron supplements because they make her feel sick and she has trouble remembering to take a tablet every day. A review of her prenatal labs results reveals that her hematocrit is 39% and hemoglobin 11g/dl.

Which of the following statements is the best way to counsel this patient?

- A. Tell the patient that she does not need to take her iron supplements because her prenatal labs indicate that she is not anemic and therefore she will not absorb the iron supplied in prenatal vitamins
- B. Tell the patient that if she consumes a diet rich in iron, she does not need to take any iron supplements
- C. Tell the patient that if she fails to take her iron supplements, her fetus will be anemic
- D. Tell the patient that she needs to take the iron supplements even though she is not anemic in order to meet the demands of pregnancy

Answer:B

2.9.2 Consolidation activities

1. A Primigravida client 10 weeks pregnant, who works in an industry where they produce refined foods was brought in this morning by her husband and complaining that since she missed her menstruation she has this unusual persistent cravings and compulsive consumption of substances such as clay, starch and soap.

All of the following are theorized to explain this condition EXCEPT:

- A. Nutritional deficiency of zinc and iron

- B. Nutritional deficiency of proteins and carbohydrates
- C. Sensory enjoyment of the taste, texture and smell of substance
- D. It is a behavioral response to stress and a manifestation of oral fixation

Answer: B

2. One of the following signs are CORRECT regarding the probable signs of pregnancy.
- A. Changes in the skin pigmentation and presence of human chorionic gonadotrophin (HCG)
 - B. Quickening and bladder irritability
 - C. Fetal parts palpable and transabdominal ultrasound
 - D. Early breast changes and morning sickness

ANSWER: A

3. Among the four maneuvers justify the maneuver which can be employed to identify mobility and degree of engagement of the fetal head.
- A. The first maneuver
 - B. The second maneuver
 - C. The third maneuver
 - D. The fourth maneuver

Answer: C

4. What are the key activities in the initial antenatal booking visit
- Height and weight measurement; History taking
 - Physical examination
 - Laboratory examination
 - Management of complaints
 - Immunization and Health Education
 - Registration of the mother
5. what are the negative effects of smoking in pregnancy

Answer:

Babies born to women who smoke are frequently smaller, have respiratory tract problems at birth and in their first year, have higher rates of prematurity, still birth and low birth weight. There is also increased risk of asthma and otitis media in these babies for women who are more addicted

2.9.3 Extended activities

1. During pregnancy women may experience some unpleasant physiological changes. Midwives should at this time be more supportive and caring since these changes are expressions of the normal physiology of pregnancy.

The MOST important issues for midwives to build into their practices are all of the following EXCEPT:

- A. Ensure that their assessment of women's symptoms is accurate, differentiating clearly between physiological and pathological symptoms
- B. Develop a sympathetic approach to women experiencing these discomfort
- C. They should offer appropriate advice to help women better tolerate the symptoms of pregnancy
- D. Diagnosis of pregnancy should be focused on the ability of woman to inform the midwife what she is actually feeling and a dismissive approach to irrelevant complaints in the pregnancy.

Answer: B

2. Pregnancy is a time when pregnant women and their partners are especially open to reflecting on their lifestyles and healthcare options.

Among the listed option appraise the measurable outcomes of effective antenatal education.

- A. Education help pregnant couples to be in possession of a range of evidence-based information which they can assess within the context of their personal circumstances
- B. Couples should not nurture a critical mass of healthcare consumers information to avoid over information
- C. The political leaders must be careful with pregnant couples because they may indicate objectives that are not achievable and realistic.
- D. Education distends people's knowledge of themselves so couples may not make decision based on influence of others

ANSWER: A

3. Define the term Anemia? Explain how iron deficiency anemia during pregnancy can affect the unborn baby?

Answer:

Anemia results from a lack of red blood cells or dysfunctional red blood cells in the body. This leads to reduced oxygen flow to the body's organs.

Severe anemia during pregnancy increases your risk of premature birth, having a low birth weight baby and postpartum depression. There is also an increased risk of infant death immediately before or after birth.

4. Discuss the key messages that should be offered to a pregnant woman in antenatal care

Answer:

- All pregnant women should be counseled on healthy eating for a positive pregnancy at each ANC visit. These messages should be reinforced by the CHWs during home visits;
 - Pregnant women should receive 3 meals and at least one additional snack using diverse food types to improve the quality and micronutrient intake;
 - Pregnant women should avoid coffee, energy drinks, Coca-Cola, alcohol, fatty foods, raw or undercooked meats in pregnancy;
 - Pregnant women who are obviously malnourished need special attention, counselling and advice from a trained nutritionist or a trained health care provider;
 - Adolescent girls who are pregnant have their own need for growth and additional needs for fetus growth. Adolescent girls who become pregnant needs very special care with at least 3 meals and 2 snacks daily, using a variety of foods including animal source foods in every meal.
5. Explain micronutrients and macronutrients?

Answer:

Macronutrients are the nutrients the body needs in larger amounts, namely carbohydrates, protein, and fat. These provide body with energy, or calories. While Micronutrients are the nutrients the body needs in smaller amounts, which are commonly referred to as vitamins and minerals.

3.1 Key unit competence

Monitor adequately a woman in labour

3.2 Prerequisite

Health assessment (History taking, Vital signs taking, Physical examination);
Communication skills; human anatomy, characteristics of a normal pregnancy;
Management of a pregnant woman during antenatal period.

3.3 Cross-cutting issues**a) Gender**

With a good understanding of the principles of Gender Equality, it is intended that future generations will ensure that the potential of the whole population is realized. Involve both girls and boys in all activities: No activity is reserved only to girls or boys. Teachers should ensure equal participation of both girls and boys during learning activities

b) Peace and Values

Peace and values are crucial to the success of the nation. It is important for learners to have the knowledge, skills and abilities to better avoid, address and manage conflicts and prevent violence. During group activities, debates and presentations, the teacher will encourage learners to help each other and to respect opinions of colleagues.

c) Inclusive education

The issue of inclusive education will be addressed through activities that will be conducted. As a facilitator, involve every individual regardless of gender or ability including those with learning difficulties and disabilities and ensure they participate in different given activities. Learners with different learning styles and other difficulties can achieve their potential when the teacher has a positive attitude, by adapting the learning resources, differentiation of teaching and learning methods and working together.

d) Environment and sustainability

Because Environment and Sustainability is a very important cross-cutting issue, learners have to be helped to know maximum skills and attitudes on the environmental sustainability and to be responsible in caring for student's environment.

Learners also need knowledge, skills and attitudes that will enable them in their everyday life to avoid the environment pollution before, during or after labor monitoring like avoid throwing away hazards anywhere; special places or appropriate containers should be used.

3.4 Guidance on the introductory activity

This introductory activity helps you to engage learners in the introduction of the unit 3 “labor monitoring” and invite the learners to follow the next lessons after considering their ideas and inform what they will learn in the unit.

- Ask students to observe the pictures A and B.
- Allow students to have pair discussion about the given questions
- Help students with different problems.
- Ask and allow students to present their findings while others are following.
- Consider their ideas and then give the expected answers:
 1. A woman in labor who is cared by both her partner and the nurse
 2. The woman is having pain as evidenced by her facial and gestural expression
 3. A woman in labor is assessed for:
 - General appearance and physical examination by a head to toes or system by system examination
 - Vital signs (Blood Pressure, pulse, temperature and respiratory rate...)
 - Obstetrical examination that includes Leopold maneuvers, fetal heart beats, contractions and gynecologic exam (vaginal examination: state of the cervix, membranes, state of pelvic floor, diagnosis of the position and evaluation of the descent of the fetal presenting part)
 4. According to the picture the confidentiality is ensured, and family centered care is respected as patients’ rights

3.5 List of lessons

No	Lesson title	Learning objectives	Number of periods
1	Concepts of normal labour	Define the concept of normal labor	2
2	Signs preceding, types and onset of labour	Explain signs preceding labor Characterize the types of labor Describe the onset of labor	2
3	Factors affecting labour and Mechanism of labour)	Describe the factors affecting labor Explain the mechanism of labor	2
4	General history taking, vital signs and physical examination	Perform general history taking of a woman in labour Monitor vital signs of a woman in labour Perform physical examination of a woman in labour	2
5	Obstetrical history taking of woman in labour	Perform history taking to a woman in labour Respect clients' rights, and privacy	2
6	Obstetrical examination of a woman on labour	Determine steps to follow in obstetrical assessment of a woman in labour Respect clients' rights, and privacy	2
7	Use of partograph	Determine the components of partograph Categorize maternal and fetal indicators of partograph Monitor progress of labour using partograph	2

8	Skills lab (Return demonstration)	Perform the Assessment of a woman in labour Monitor a mother in normal labour Use of partograph Respect clients' rights, and privacy Utilize appropriate language while monitoring a woman in labour Demonstrate professionalism while monitoring a woman in labour.	4
9	Assessment	Explain the components of adequate monitoring of a woman in labor	2

Lesson 1: Concepts of normal labour

a) Learning objectives

Define the different concepts of normal labor

b) Teaching resources

Student's book, teacher's guide, Library, computer lab, screen, projector, flip charts, whiteboard or blackboard, markers.

c) Prerequisites/Revision/Introduction

This is the first lesson of the 3rd unit: Labor monitoring. In this lesson you will be dealing with the meaning of concepts of normal labor. The first thing to do before starting teaching is to remind students that they have learnt about the process and characteristics of normal pregnancy and management of pregnant woman in antenatal period (unit 1 and 2, S4), and invite them to the lesson 1.

d) Learning activities 3.1

Guidance

- Ask learners to do individually activity 3.1 in their student book
- Provide the necessary materials to the learners or allow them to go to computer lab and library
- Move around in silence to monitor if they are having some problems.
- Assist those who are weak but without giving them the knowledge.
- Invite any of the students to present their findings to the rest of students
- Ask other students to carefully follow the presentations

- Note on chalk board or flip charts or whiteboard the student's ideas.
- Harmonize and conclude on the learned knowledge by immediate positive feedback.

Answer to the learning activity 3.1

1. **Labor** refers to the process of moving the fetus, placenta, and membranes out of the uterus and through the birth canal
2. **Uterine contractions** are forceful and very painful motion of the uterus resulting in tightening and shortening of the uterine muscles.
3. **Cervical effacement** refers to the softening, thinning, and shortening of the cervical canal.
4. **Cervical dilatation** referring to the increase in diameter of the cervical opening.
5. **Engagement** is the term used to indicate that the largest transverse diameter of the presenting part (usually the biparietal diameter) has passed through the maternal pelvic brim or inlet into the true pelvis and usually corresponds to station 0.
6. **Descent** refers to the progress of the presenting part through the pelvis.

Answer to the learning activity 3.1

Ask the students to answer in pairs the self-assessment activity 3.1:

1. The term **labor** refers to the process of moving the fetus, placenta, and membranes out of the uterus and through the birth canal. The labor process occurs with the presence of **uterine contractions** which are forceful and very painful motion of the uterus resulting in tightening and shortening of the uterine muscles.
2. **Cervical dilatation** differs from **cervical effacement** by their meaning where cervical dilatation is the increase in diameter of the cervical opening while cervical effacement is the softening, thinning, and shortening of the cervical canal. Also, these two processes occur simultaneously among multigravida woman while in primigravida the cervical effacement occurs before the cervical dilatation.

Lesson 2: Signs preceding, types, and onset of labour

a) Learning objectives

- Explain signs preceding labor
- Characterize the types of labor
- Describe the onset of labor

b) Teaching resources

Student's book, teacher's guide, Library, computer lab, screen, projector, flip charts or whiteboard or blackboard, markers.

c) Prerequisites/Revision/Introduction

This is the second lesson of the 3rd unit Labor monitoring. In this lesson you will be dealing with signs preceding labour, types of labour and onset of labour. The first thing to do before starting teaching is to remind students that they have learnt about different concepts of normal labor and ask them to discuss the meaning of labor so that they can prepare themselves for this lesson.

d) Learning activity 3.2

Guidance

- Ask students to work in pair and do activity 3.2 in student's book.
- Provide the necessary materials to the learners or allow them go to the computer lab or library.
- Move around in silence to monitor if they are having some problems, sharing ideas in pairs.
- Assist those who are weak but without giving them the knowledge.
- Invite any of the pairs to present their findings to the rest of students
- Ask other students to carefully follow the presentations
- Note on chalk board or flip charts or whiteboard the student's ideas.
- Harmonize and conclude on the learned knowledge by immediate positive feedback.

Answer to the learning activity 3.2

1. The common signs that may indicate that a woman will be soon in labour are:
 - Lightening
 - Energy spurt
 - Presence of Braxton -Hicks' contractions
2. The types of labour are true and false labour

- The onset of labour is determined by a complex interaction of maternal and fetal hormones, and it is not yet well understood.

Answers to self-assessment 3.2

Let students do in pairs self-assessment activity 3.2..

- Signs of impending labor
 - Lightening which may bring: Leg cramps or pains; Increased pelvic pressure; Increased urinary frequency; Increased venous stasis, causing edema in the lower extremities; Increased vaginal secretions, due to congestion in the vaginal mucosa
 - Energy spurt
 - Presence of Braxton hicks' contractions
- The true and false labour are distinguished as follow

Distinguishing True from False Labour	
True Labor	False Labour
Contractions are at regular intervals	Contractions are irregular
Contractions increase in frequency, duration, and intensity.	Usually there is no increase in frequency, duration, or intensity of contractions.
Pain usually begins in lower back, radiating to the abdomen.	Pains usually occur in the abdominal region
Dilation and effacement of the cervix are progressive	There is no change in cervix
Activity such as walking usually increases labor pains	Walking may lessen the pain

- The onset of labour is determined by a complex interaction of maternal and fetal hormones, and it is not yet well understood.
- The woman is instructed to go to health facility when she is presenting regular contractions, cervical changes and had blood-tinged cervical mucus or bloody show.

Lesson 3: Mechanism and factors affecting labour

a) Learning objectives

- Describe the factors affecting labor
- Explain the mechanism of labor

b) Teaching resources

Student's book, teacher's guide, Library, computer lab, screen, projector, flip charts or whiteboard or blackboard, markers.

c) Prerequisites/Revision/Introduction

This is the 3rd lesson of the 3rd unit Labor monitoring. In this lesson you will be dealing with factors affecting labour and mechanism of labour. Remind learners that already know what is labour, signs and types of labor. Ask them to discuss about the previous lessons so that they can be prepared for this lesson.

d) Learning activities 3.3

Guidance

- Ask learners to work in pair and do activity 3.3 in their student book
- Provide the necessary materials to the learners or allow them to go to computer lab and library
- Move around in to monitor if they are having some problems
- Help those who are weak but without giving them the answer
- Randomly ask any 3 pairs to present their findings to the rest of students.
- Ask other students to carefully follow the presentations
- Harmonize and conclude on the learned knowledge by immediate positive feedback

Answer of the learning activity 3.3

1. The Factors affecting the labour process are: Passageway (Birth canal); Passenger (fetus and placenta); Power (Uterine contractions); Position; Partner
2. The 7 cardinal movements of labour are: engagement; descent; flexion;

Answers to self-assessment 3.3

Facilitate students to work in pairs for the self-assessment activity 3.3

1. Definition of the **fetal presentation**: The fetus in the uterus may adopt different presentations. The fetal presentation may be cephalic, Breech, or shoulder.

2. Definition of the 5 Ps affecting labour

Maternal

Passageway

- The passageway, or birth canal, is composed of the mother's rigid bony pelvis and the soft tissues of the cervix, the pelvic floor, the vagina, and the introitus (the external opening to the vagina). Even though the soft tissues, particularly the muscular layers of the pelvic floor, contribute to vaginal birth of the fetus, the maternal pelvis plays a far greater role in the labor process because the fetus must successfully accommodate itself to this relatively rigid passageway.

Power:

- Involuntary and voluntary powers combine to expel the fetus and the placenta from the uterus. Involuntary uterine contractions, called the **primary powers**, signal the beginning of labor. Once the cervix has dilated, voluntary bearing-down efforts by the woman, called the **secondary powers**, augment the force of the involuntary contractions.

Partner:

- Based on childbearing women's rights, every pregnant woman has the right to be with her partner or a person of choice during any procedure.

Position of a laboring woman:

- Position of the Laboring Woman Position affects the woman's anatomic and physiologic adaptations to labor. Frequent changes in position relieve fatigue, increase comfort, and improve circulation. Therefore, a laboring woman should be encouraged to find positions that are most comfortable to her. Positioning for labor may be determined by the woman's preference, but choices are limited by her condition or that of the fetus, the environment, and the health care provider's confidence in assisting in a specific position.

Fetal

Passenger

During labour and birth process the fetus moves through the birth canal. These fetal movements are affected by the following factors: The fetal **presentation, lie, attitude**, position and size.

3. Difference between the first powers and secondary powers.

Primary powers	Secondary powers
<p>The primary powers are responsible for the effacement and dilation of the cervix and descent of the fetus. Effacement of the cervix means the shortening and thinning of the cervix during the first stage of labor. The cervix, normally 2 to 3 cm long and about 1 cm thick, is obliterated, or “taken up,” by a shortening of the uterine muscle bundles during the thinning of the lower uterine segment that occurs in advancing labor</p>	<p>Secondary Powers As soon as the presenting part reaches the pelvic floor, the contractions change in character and become expulsive. The laboring woman experiences an involuntary urge to push. The secondary powers have no effect on cervical dilation, but they are of considerable importance in the expulsion of the infant from the uterus and vagina after the cervix is fully dilated.</p>

4. Explanation of the mechanism of labour

During labour process, the fetus adopts positional changes in the presenting part required to navigate the pelvic canal. These positional changes constitute **the mechanism of labour**

The cardinal movements of labour are **engagement, descent, flexion, internal rotation, extension, external rotation, and expulsion**

Engagement

The term engagement designate engagement the mechanism by which the biparietal diameter—the greatest transverse diameter in an occiput presentation—passes through the pelvic inlet is designated engagement

Descent

Refers to the progress of the presenting part through the pelvis. Descent depends on at least four forces:

(1) pressure exerted by the amniotic fluid, (2) direct pressure exerted by the contracting fundus on the fetus, (3) force of the contraction of the maternal diaphragm and abdominal muscles in the second stage of labor, and (4) extension and straightening of the fetal body. The effects of these forces are modified by the size and shape of the maternal pelvic planes and the size of the fetal head and its capacity to mold.

Flexion

As soon as the descending head meets resistance from the cervix, pelvic wall, or pelvic floor, it normally flexes so that the chin is brought into closer contact with the fetal chest (see Fig. 16-12, B). Flexion permits the smaller suboccipitobregmatic diameter (9.5 cm) rather than the larger diameters to present to the outlet.

Internal rotation

The maternal pelvic inlet is widest in the transverse diameter; therefore, the fetal head passes the inlet into the true pelvis in the occipitotransverse position. The outlet is widest in the anteroposterior diameter; for the fetus to exit, the head must rotate. Internal rotation begins at the level of the ischial spines but is not completed until the presenting part reaches the lower pelvis. As the occiput rotates anteriorly, the face rotates posteriorly. With each contraction the fetal head is guided by the bony pelvis and the muscles of the pelvic floor.

Extension

After internal rotation, the sharply flexed head reaches the vulva and undergoes extension. When the fetal head reaches the perineum for birth, it is deflected anteriorly by the perineum. The occiput passes under the lower border of the symphysis pubis first, and then the head emerges by extension

When the head presses upon the pelvic floor, however, two forces come into play. The first force, exerted by the uterus, acts more posteriorly, and the second, supplied by the resistant pelvic floor and the symphysis, acts more anteriorly. The resultant vector is in the direction of the vulvar opening, thereby causing head extension. This brings the base, first the occiput into direct contact with the inferior margin of the symphysis pubis, then the face, and finally the chin.

External rotation

After the head is born it rotates briefly to the position it occupied when it was engaged in the inlet. This movement is referred to as restitution. The 45-degree turn realigns the infant's head with the back and shoulders. Restitution of the head to the oblique position is followed by completion of external rotation to the transverse position. This movement corresponds to rotation of the fetal body and serves to bring its bisacromial diameter into relation with the anteroposterior diameter of the pelvic outlet. Thus, one shoulder is anterior behind the symphysis and the other is posterior. This external rotation occurs as the shoulders engage and descend in maneuvers similar to those of the head. As noted, the anterior shoulder descends first. When it reaches the outlet, it rotates to the midline and is delivered from under the pubic arch. The posterior shoulder is guided over the perineum until it is free of the vaginal introitus.

Expulsion

After birth of the shoulders, the head and shoulders are lifted toward the mother's pubic bone and the trunk of the baby is born by flexing it laterally in the direction of the symphysis pubis. After delivery of the shoulders, the rest of the body quickly passes. When the baby has completely emerged, birth is complete, and the second stage of labor ends.

Lesson 4: General history taking, vital signs and physical examination

a) Learning objectives

- Perform general history taking of a woman in labour
- Monitor vital signs of a woman in labour
- Perform physical examination of a woman in labour

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, skills lab and skills lab equipment's and materials.

c) Prerequisites/Revision/Introduction

This is the 4th lesson of the 3rd unit Labor monitoring. In this lesson you will be dealing with assessment of woman in labor especially on general history taking, vital signs and physical examination. Learners are reminded about the covered content in this unit from previous lessons and invite them to this lesson.

d) Learning activities 3.4

Guidance

- Ask learners to work in pairs and do activity 3.4 in their student books
- Provide the necessary materials to the learners
- Move around in to monitor if they are having some problems
- Randomly ask any students to present their findings to the rest of students.
- Ask other students to carefully follow the sharing findings
- Harmonize and conclude on the learned knowledge by immediate positive feedback
- Bring students to skill lab and help them to practice history taking and physical examination

Answer of the learning activity 3.4

1. General pregnant woman's histories taken and physical examination: General Medical History; Surgical history and Physical assessment which include the examination from head to toe

Answers to self-assessment 3.4

Make group of 4 students and ask them to answer the questions of application activity 3.4

1. The vital signs and parameters taken during the pregnant woman's assessment?
 - **The vital signs:** temperature, blood pressure, heart rate and respiratory rate
 - **Parameters:** Height, weight, BMI.
2. The components of the general history taking are
 - **General Medical History:** Any serious medical diseases likely to affect pregnancy and labour such as heart diseases, diabetes mellitus, renal diseases, tuberculosis and sickle cell disease. Note any allergies to drugs, Syphilis testing, VCT, HIV diagnosis or currently on any medication taken regularly.
 - **Surgical history:** Any previous hospitalizations for injuries to the pelvis and spine, major or minor surgeries on the abdomen and blood transfusion.
 - **Physical assessment:** includes the examination from head to toe.

Lesson 5: Obstetrical history taking of woman in labour

a) Learning objectives

- Determine the components of obstetrical history taking
- Perform obstetrical history taking to a woman in labor
- Respect clients' rights, and privacy.

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, skills lab, skills lab equipment's and materials.

c) Prerequisites/Revision/Introduction

This is the 5th lesson of the 3rd unit Labor monitoring. In this lesson you will be dealing with assessment of woman in labor especially on obstetrical history taking. Learners are reminded about the covered content in this unit from previous lessons and invite them to this lesson.

d) Learning activities 3.5

Guidance

- Ask learners to work in pair and do activity 3.5 in their student books
- Provide the necessary materials to the learners
- Move around in to monitor if they are having some problems
- Randomly ask any students to present their findings to the rest of students.
- Ask other students to carefully follow the sharing findings
- Harmonize and conclude on the learned knowledge by immediate positive feedback
- Bring students to skill lab and help them to practice obstetrical history taking

Answer to the learning activity 3.5

1. The components of obstetrical history taking of a woman in labour are: history of the present pregnancy, past obstetric history and gynecological history

Answer to self-assessment 3.5

Make group of 4 students and ask them to answer the questions of self-assessment activity 3.4

1. EDD: 22/10/2021
2. **Elements** to ask to know the present pregnancy to this woman:

History of the present pregnancy: It includes the date of the first day of the last normal menstrual period (LMP), the Parity and Gravidity. From this, calculate and record the expected date of delivery (EDD). Ask the woman about the history of this labour: approximate time contractions began, and membranes ruptured (**when, what color and odor?**).

3. The obstetrical history to ask her:

Past obstetric history: You should ask the mother about the outcomes or complications of each of the previous pregnancies. Inquire whether she delivered at home or at a hospital. Ask for the birth weights of the children, whether they were breastfed and whether they are alive or not.

4. The gynecological history to ask her:

Gynecological history: This will include the menstrual history, any past operations for gynecological complaints and sexually transmitted infections

Lesson 6: Obstetrical examination of a woman on labour

a) Learning objectives

- Determine the components of obstetrical examination
- Perform digital vaginal examination to a woman in labor
- Respect clients' rights, and privacy

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, skills lab, skills lab equipment's and materials.

c) Prerequisites/Revision/Introduction

This is the 6th lesson of the 3rd unit Labor monitoring. In this lesson you will be dealing with assessment of woman in labor especially on obstetrical examination. Learners are reminded about the covered content in this unit from previous lessons and invite them to this lesson.

d) Learning activity 3.6

Guidance

- Ask learners to work in pair and do activity 3.6 in their student books
- Provide the necessary materials to the learners
- Move around in to monitor if they are having some problems
- Randomly ask any students to present their findings to the rest of students.
- Ask other students to carefully follow the sharing findings
- Harmonize and conclude on the learned knowledge by immediate positive feedback
- Bring students to skill lab and help them to practice obstetrical examination

Answer of the learning activity 3.6

The components of obstetrical examination of a woman on labour are: Abdominal palpation and Digital vaginal examination (DVE)

Answers to self-assessment 3.6

Make group of 4 students and ask them to answer the questions of **self-assessment 3.6**

1. The steps of obstetrical examination are explained as follow

Abdominal palpation: Check the woman's abdomen for caesarean scar; a horizontal ridge across lower abdomen (if present, ask the woman to empty her bladder and observe her again). This examination includes **Leopold maneuvers** (palpation to determine position, lie, engagement and descent of the presenting part); **uterine contraction palpation** (palpate uterine contraction at the fundus, record duration in seconds, **frequency** which is the number of uterine contractions in 10 minutes, and the intensity of contractions). It also includes **listening to fetal heart rate for one whole minute** (20-30 minutes baseline, External fetal monitoring is required) and

Digital vaginal examination (DVE): To determine the cervical position, length, thickness, dilation and effacement. Assessment of the state of membranes (intact, ruptured, color and consistency, amount and note the time of rupture); we also assess the pelvic floor; the diagnosis of the position and evaluation of the descent of the fetal presenting part. Assess the descent in terms of fifths of fetal head palpable above the symphysis pubis. A head that is entirely above the symphysis pubis is five fifths (5/5) palpable; a head that is entirely below the symphysis pubis is zero fifths (0/5) palpable. The vaginal examination equipment and steps to follow are described below:

Steps:

- a. **Wash and dry your hands.** Explain the procedure and purpose of the examination to the patient. RATIONALE: Hand washing helps to prevent the spread of microorganisms. Explanations help to decrease anxiety and promote patient understanding and cooperation.
- b. **Assess for latex allergies.** RATIONALE: To prevent injury from latex exposure; if patient has a latex allergy, use non latex gloves.
- c. **Ensure privacy.** RATIONALE: Privacy promotes comfort and self-esteem.
- d. **Assemble necessary equipment** including clean gloves (if the membranes are intact) or sterile examination gloves (if the membranes are ruptured), sterile lubricant, and antiseptic solution (if required).
- e. **Position the patient** in a supine position with a small pillow or towel under her hip to prevent supine hypotension. Instruct the patient to relax and position herself with her thighs flexed and abducted. RATIONALE: Relaxation decreases muscle tension and enhances patient comfort. Proper positioning facilitates the examination by providing access to the perineum.
- f. **Don sterile gloves** (clean gloves may be used if the membranes are intact).
- g. Inspect the perineum for any redness, irritation, or vesicles.
- h. Using the nondominant hand, spread the labia majora and continue assessment of the genitalia. Note the presence of any discharge including

blood or amniotic fluid. RATIONALE: Positioning the hand in this manner facilitates good visualization of the perineum. The presence of lesions may be indicative of an infection and possibly preclude a vaginal birth. The presence of amniotic fluid implies that the membranes have ruptured.

- i. Gently insert the lubricated gloved index and third fingers into the vagina in the direction of the posterior wall until they touch the cervix. The uterus may be stabilized by placing the nondominant hand on the woman's abdomen. RATIONALE: This position facilitates the examination by allowing the fingertips to point toward the umbilicus and find the cervix.
 - j. Assess the cervix for effacement and the amount of dilation.
 - k. Assess for intact membranes; if fluid is expressed, test for amniotic fluid.
 - l. Palpate the presenting part. RATIONALE: It is necessary to determine the presenting part in order to assess fetal position and evaluate fetal descent.
 - m. Assess fetal descent and station by identifying the position of the posterior fontanel.
 - n. Withdraw the fingers. Assist the patient in wiping her perineum from front to back to remove lubricant or secretions. Help her to resume a comfortable position. RATIONALE: Wiping from front to back prevents the transfer of rectal contamination toward the vagina.
 - o. Inform the patient of the findings from the examination.
 - p. Wash hands. Document the procedure on the patient's chart and on the fetal monitor strip (if a fetal monitor is being used). Include the assessment findings and the patient's tolerance of the procedure. RATIONALE: Documentation provides a record for communication and evaluation of patient care.
2. The required laboratory are: tests for blood type and Rh factor; Complete blood count (CBC); Hemoglobin (Hb); Hematocrit (HCT); blood glucose/ Glycemia; Blood tests for syphilis, hepatitis B, and HIV; The urine specimen is tested for the presence of protein, glucose, and ketones.

Lesson 7: Use of partograph

a) Learning objectives

- Determine the components of partograph
- Categorize maternal and fetal indicators of partograph
- Monitor progress of labour using partograph

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, partograph, skills lab, skills lab equipment's and materials.

c) Prerequisites/Revision/Introduction

This is the 7th lesson of the 3rd unit Labor monitoring. In this lesson you will be dealing with how partograph is used. Learners are reminded about the covered content in this unit from previous lessons and invite them to this lesson.

d) Learning activities 3.7

Guidance

- Ask learners to work in pair and do activity 3.7 in their student books
- Provide the necessary materials to the learners
- Move around in to monitor if they are having some problems
- Randomly ask any students to present their findings to the rest of students.
- Ask other students to carefully follow the sharing findings
- Harmonize and conclude on the learned knowledge by immediate positive feedback
- Help student to practice partograph plotting

Answer to learning activity 3.7

1. The name of this tool is Partograph
2. This partograph is used for maternal and fetal monitoring during labour
3. The elements that are on this tool are: General information (name, age, date of admission, name of the health setting); obstetrical history (Gravida, parity, status of membranes, if membrane ruptured, date and time of ruptured membrane); Fetal heart rate; membrane status ; fetal head moulding stages; cervical dilatation; Fetal descent; uterine contractions; Oxytocin; other drugs; Vital signs (Blood pressure, Pulse and body temperature) ; Urinalysis

Answer to self-assessment 3.7

1. this Facilitate the learners to form groups of 4 students and ask them to answer the questions of self-assessment activity 3.7

Guidance to Skills lab

- This is time reserved to make more practice in skills lab to help learners master different skills related to this unit labor monitoring.
- It is planned and has 4 periods
- Facilitate learners to make group of 5 students.
- Make 5 stations and facilitate the rotation of groups
- Pass in different groups to help and facilitate the learning

3.6 Summary of the unit

Labor is the process of moving the fetus, placenta, and membranes out of the uterus and through the birth canal. It is a special time, both emotionally and physically for each woman. The pregnant woman undergoes the various physiological changes and adaptations during pregnancy that prepares her for childbirth and later along motherhood. Before the onset of labor, a number of physiological changes occur that signal the readiness for labor and birth. As the pregnancy approaches term, the presenting part of the fetus settle downward into the pelvis cavity of causing the uterus to move downward and this process is called **Lightening** and most women become more aware of irregular contractions called **Braxton-Hicks's contractions** which do not lead to dilation or effacement of the cervix, and thus are often termed **false labor**. As time passes, the **true labor** starts as the uterine **contractions** increases the intensity, regularity and pain with cervical changes (effacement, dilatation) and blood show expulsion in preparation for passage of the fetus.

The woman in labor has to be assessed and well monitored for early detection of abnormal progress of a labor and problems may be prevented. Collecting a complete health and childbirth history and performing a physical examination of the patient and her fetus provide an essential foundation for the care and support to be given during labor and birth. The childbirth attendant document woman's name and age; gravidity and parity; gestational age and estimated date of delivery; labor status: pattern of contractions, cervical dilatation and effacement, fetal presentation and station; status of membranes; fetal heart rate and response to contractions; woman's vital signs; identified risk to maternal or fetal well-being; women's coping ability in response to labor. As the labor progress, the partograph is used to have a good overview of labor progression and therefore decide appropriate action.

3.7 Additional Information

Indications for vaginal examination

1. To confirm the onset of labour and establish a baseline for further progress.
2. To aid in assessing labour progress through determining the dilatation and condition of the cervix. (It is good practice to precede this with an abdominal examination to determine the fetal lie, presentation and position, the engagement or otherwise of the presentation and to auscultate the fetal heart.)
3. To diagnose the presentation when this is in doubt.
4. To rupture the membranes when necessary.

Questions to ask the patient who calls the birth unit

A pregnant woman calls the birth unit to determine if she should come in for an evaluation or remain at home.

The nurse conducts the telephone assessment by asking the following questions:

- “What is your due date?”
- “Are your membranes ruptured?” or “Did your water break?” and “Are you having any bleeding or vaginal discharge?”
- “Describe your contractions: When did they start? How frequent? How long? How strong?”
- “Is the fetus active?”
- “What helps with the discomfort?”
- “Who is with you?”

Providing Patient Guidelines for Reporting to the Birthing Center

Questions to Ask the Patient	Guidelines for Admission
Describe your contractions: frequency, duration, and intensity?	Primigravida: Contractions are regular; occur about every 5 minutes for at least 1 hour. Multipara: Contractions are regular, occur about every 10 minutes for at least 1 hour
Have your membranes ruptured?	Any gush of fluid needs to be evaluated, even if there are no contractions.

Is there any vaginal bleeding?	The mucus plug or “bloody show” is usually pink or dark red. Any bright red bleeding requires immediate evaluation.
Has there been a decrease in the movement of the baby?	Any decrease in fetal movement signals the need to report to the birthing center.
Has there been any change in your health?	Any cause for worry or anxiety in the pregnant woman needs to be explored by the nurse and may lead to admission.

3.8 Answer to the end unit assessment

1.
 - a. The term **labor** refers to the process of moving the fetus, placenta, and membranes out of the uterus and through the birth canal
 - b. **Uterine contractions** refers to which are forceful and very painful motion of the uterus resulting in tightening and shortening of the uterine muscles.
 - c. **Stations:** the report of the evaluation of the fetal descent and its relationship to the level of ischial spines.
2. The steps would be followed to perform Digital Vaginal examination to Mutesi
 - **Wash and dry your hands.** Explain the procedure and purpose of the examination to the patient. RATIONALE: Hand washing helps to prevent the spread of microorganisms. Explanations help to decrease anxiety and promote patient understanding and cooperation.
 - **Assess for latex allergies.** RATIONALE: To prevent injury from latex exposure; if patient has a latex allergy, use non latex gloves.
 - **Ensure privacy.** RATIONALE: Privacy promotes comfort and self-esteem.
 - **Assemble necessary equipment** including clean gloves (if the membranes are intact) or sterile examination gloves (if the membranes are ruptured), sterile lubricant, and antiseptic solution (if required).
 - **Position the patient** in a supine position with a small pillow or towel under her hip to prevent supine hypotension. Instruct the patient to relax and position herself with her thighs flexed and abducted. RATIONALE: Relaxation decreases muscle tension and enhances patient comfort. Proper positioning facilitates the examination by providing access to the perineum.
 - **Don sterile gloves** (clean gloves may be used if the membranes are intact).
 - Inspect the perineum for any redness, irritation, or vesicles.

- Using the nondominant hand spread the labia majora and continue assessment of the genitalia. Note the presence of any discharge including blood or amniotic fluid. RATIONALE: Positioning the hand in this manner facilitates good visualization of the perineum. The presence of lesions may be indicative of an infection and possibly preclude a vaginal birth. The presence of amniotic fluid implies that the membranes have ruptured.
 - Gently insert the lubricated gloved index and third fingers into the vagina in the direction of the posterior wall until they touch the cervix. The uterus may be stabilized by placing the nondominant hand on the woman's abdomen. RATIONALE: This position facilitates the examination by allowing the fingertips to point toward the umbilicus and finds the cervix.
 - Assess the cervix for effacement and the amount of dilation.
 - Assess for intact membranes; if fluid is expressed, test for amniotic fluid.
 - Palpate the presenting part. RATIONALE: It is necessary to determine the presenting part in order to assess fetal position and evaluate fetal descent.
 - Assess fetal descent and station by identifying the position of the posterior fontanel.
 - Withdraw the fingers. Assist the patient in wiping her perineum from front to back to remove lubricant or secretions. Help her to resume a comfortable position. RATIONALE: Wiping from front to back prevents the transfer of rectal contamination toward the vagina.
 - Inform the patient of the findings from the examination.
 - Wash hands. Document the procedure on the patient's chart and on the fetal monitor strip (if a fetal monitor is being used). Include the assessment findings and the patient's tolerance of the procedure. RATIONALE: Documentation provides a record for communication and evaluation of patient care.
3. The essential element to focus in assessment:
- Observation: Observe the woman's reaction during assessment
 - Palpation: abdominal palpation
 - Fetal heart rate
 - Digital vaginal examination

3.9 Additional activities

3.9.1 Remedial Activities:

- 1) Rubina, age 26 years, was admitted at 11:00 am on 12 December 2020 with the complaint of labour pains since 4:00 am. Her membranes ruptured at 9:00 am. She has three children of the ages of 8, 7 and 2 years. She gave birth to a stillborn child four years ago.

Plot the following findings on the partograph:

At 11:00 am:

- The cervix is dilated 4 cm.
- She had 3 contractions in 10 minutes, each lasting less than 20 seconds.
- The FHR is 140 per minute.
- The membranes have ruptured, and the amniotic fluid is clear.
- Her BP is 100/70 mmHg.
- Her temperature is 37°C.
- Her pulse is 80 per minute.

At 11:30 am: FHR 130, contractions 3/10 each 35 seconds, pulse 88/minute, amniotic fluid clear

At 12:00 am: FHR 136, contractions 3/10 each 40 seconds, pulse 90/minute, amniotic fluid clear

At 12:30 pm: FHR 140, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear

At 1:00 pm: FHR 130, contractions 3/10 each 40 seconds, pulse 90/minute, amniotic fluid clear

At 1:30 pm: FHR 120, contractions 3/10 each 45 seconds, pulse 96/minute, amniotic fluid clear

At 2:00 pm: FHR 118, contractions 3/10 each 45 seconds, pulse 96/minute, amniotic fluid clear.

3.9.2 Consolidation activities:

Raisa, 26 years of age, third gravida, was admitted at 5:00 am on 11 June 2021 with the complaint of labour pains since 2:00 am. Her membranes had ruptured at 4:00 am. She has two children of the ages of 5 and 2 years. On admission, her cervix was 2 cm dilated. Plot the following findings on the partograph:

- At 09:00 am:
 - The cervix is dilated 5 cm.
 - She had 3 contractions in 10 minutes, each lasting 20–40 seconds.
 - The FHR is 120 beats per minute.
 - The membranes have ruptured, and the amniotic fluid is clear.
 - Her BP is 120/70 mmHg.
 - Her temperature is 36.8°C.
 - Her pulse is 80 per minute.
- At 9:30 am: FHR 120, contractions 3/10 each 30 seconds, pulse 80/minute, amniotic fluid clear
- At 10:00 am: FHR 136, contractions, 3/10 each 35 seconds, pulse 80/minute, amniotic fluid clear
- At 10:30 am: FHR 140, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear
- At 11:00 am: FHR 130, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear
- At 11:30 am: FHR 136, contractions 4/10 each 45 seconds, pulse 84/minute, amniotic fluid clear
- At 12:00 noon: FHR 140, contractions 4/10 each 45 seconds, pulse 88/minute, amniotic fluid clear
- At 12:30 pm: FHR 130, contractions 4/10 each 50 seconds, pulse 88/minute, amniotic fluid clear
- At 1:00 pm: FHR 140, contractions 4/10 each 55 seconds, pulse 90/minute, temperature 37°C, BP 100/70 mmHg, amniotic fluid clear.
- At 1:00 pm: • Cervix fully dilated • Amniotic fluid clear • BP 100/70 mmHg

4.1 Key unit competence:

Manage a woman in the first stage of labour

4.2 Prerequisite

The learner learnt physiology of normal pregnancy (pelvis, fetal head diameters, Presentations) and characteristics of a normal pregnancy in the first unit; assessment of a pregnant woman in the second unit; labour monitoring; assessment and vital signs taking in fundamentals of nursing. Remind in brief what they learnt about stages of labour but not in details before introduction of the management of the first stage of labour. During teaching, emphasizes on the importance of management of the first stage of labor.

4.3 Cross-cutting issues to be addressed**a) Gender education**

Emphasize to learners that anybody irrespective of their gender can present and report during group activities. Give role models who are successful in real life without considering their gender, make sure that during skills demonstrations both boys and girls share and participates equally in all activities.

b) Peace and Values Education

The role of a teacher is to create and promote peace in a learning environment. Guide learners to ensure that all the health care providers and clients have to work in harmony. This cross cutting issue can be integrated at any time in classroom, outside classroom, in school environment and anywhere in life. Teacher should not be a source of conflicts. Learners need to appreciate peace and values and advocate for positive behavior among them.

c) Inclusive education

The issue of inclusive education will be addressed through activities that will be conducted. As a facilitator, involve every individual regardless of gender or ability including those with learning difficulties and disabilities and ensure they participate in different given activities. Learners with different learning styles and other difficulties can achieve their potential when the teacher has a positive attitude, by adapting the learning resources, differentiation of teaching and learning methods and working together.

4.4 Guidance on the introductory activity

This introductory activity helps you to engage learners in the introduction of management of first stage of labor and invite the students to follow the next lessons.

Guidance:

- Ask students to read the introductory activity and answer the asked questions
- Engage students in working collectively the activity (by forming 5 groups made of 6 persons per group including boys and girls equally).
- Move around in silence to monitor if they are having some problems.
- Assist those who are weak but without giving them the knowledge.
- Ask any of the students to present their findings while others are following.
- Note on chalk board or flip charts or whiteboard the student's ideas.
- Harmonize and conclude on the learnt knowledge by immediate positive feedback

The expected answers

- a) Referring to figure A and B above identify what it indicates in terms of Maternal and fetal monitoring during labour.
- Figure A shows a healthcare provider rubbing the back of the laboring woman
 - Figure B demonstrating the healthcare provider auscultating FHR
- b) What do you think would be done to support a woman on labour?
- back rubbing
 - ambulation
 - cold or hot sponging
 - eat and drink
 - maternal and fetal monitoring
 - psychological support

4.5 List of lessons

#	Lesson title	Learning objectives	Number of periods
1	Stages of labor	Define stages of labour	2
2	Care during the latent phase of labour	Provide care to a woman in the first phase of labour.	2

3	Care during the active and transition phase of labor	Provide care to a woman in the second and third phase of labour	2
4	Labour support during the first stage of labour	Provide labour support during the first stage of labour	2
5	Danger signs	Explain danger signs of labour	2
6	Skills lab	Provide care to a woman in the first stage of labour. Appreciate appropriate language while providing care to a woman in the first stage of labour. Respect clients' rights, and privacy. Demonstrate professionalism when managing the first stage of labour.	4
6	Theoretical assessment	Define stages of labour Provide care to a woman in the first stage of labour. Explain danger signs during the first stage of labour	2
7	Practical assessment	Manage a woman in the first stage of labour	4

Lesson 1: Stages of labor

a) Learning objectives

Define the stages of labor.

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers.

c) Prerequisites/Revision/Introduction:

This is the first lesson of the fourth unit: Management of first stage of labor. In this lesson you will be dealing with the stages of labor. The first thing to do before starting teaching is to remind students that they have learnt about signs of labour, assessment of a woman in labour, labour monitoring (unit 3, S4), and let them discuss so that they prepare themselves for this lesson.

d) Learning activities

Guidance

- Ask students to do in groups activity 4.1 in their student books
- Provide the necessary guidance.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the knowledge.
- Invites any four students from each group to present their findings to the rest of the students.
- Ask other students to follow carefully the presentations.
- Note on chalk board / white board the student's ideas.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers to learning activity 4.1

1. She is in the active phase of labour.
2. Madam Kawera is in the first stage of labour

Answers to self-assessment 4.1

1. The following are the definitions of characteristics of the first stage and second stage of labor including cervical dilatation and uterine contractions:
The first stage of labor is characterized by the changes in dilatation from 0 to 10cm (full dilatation). This phase begins with the onset of regular uterine contractions which are initially felt as painful menstrual cramping that increases gradually as the labor progresses to become stronger, more frequent and last longer (more than 45 seconds) with the interval of 2-3 minutes. **The second stage of labor** is defined as the stage from full cervical dilatation until the delivery of the baby.

The uterine contractions in this stage have increased in intensity and more frequent often lasting 60 seconds. The woman exerts great pressure on bowel due to the descent of the presenting part and the delivery of the baby occurs at this stage.

2. The three phases of the first stage of labor are: **latent phase** which begins with the onset of uterine contractions that have the interval of 5 minutes and may last between 30-45 seconds each. The cervical dilatation is from 0-3 cm. The second phase is the **active phase** which is characterized by frequent uterine contractions that last longer with an interval of 3-5 minutes and the dilatation is from 4 to 7 cm. There is also the transition phase which is the intense phase of labor from 8-10 cm of dilatation characterized by strong uterine contractions that occur every 2-3 minutes, in this phase the laboring woman feels urge to bear down and spontaneous rupture of membranes may occur if not ruptured before.

Lesson 2: Care during the first stage of labor

a) Learning objectives

Provide care to a woman in the first stage of labor.

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, skills lab, skills lab equipment's and materials.

c) Prerequisites/Revision/Introduction:

This is the second lesson of the fourth unit: Management of first stage of labor. In this lesson you will be dealing with **care during the first stage of labor**. The first thing to do before starting teaching is to remind students that they have learnt about signs of labour, assessment of a woman in labour, labour monitoring (unit 3, S4), and let them discuss about different stages of labor so that they can prepare themselves for this lesson.

d) Learning activities 4.2

Guidance

- Ask students to do individually activity 4.2 in their student books
- Provide the necessary guidance.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the knowledge.
- Invites any three students from each group to present their findings to the rest of the students.

- Ask other students to follow carefully the presentations.
- Note on chalk board / white board the student's ideas.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers to learning activity 4.2

The care during the first stage of labor include the admission, history taking, physical examination and obstetrical examination that will include Leopold's maneuvers, assessment of fetal heart rate, uterine contractions monitoring and vaginal examination to assess the dilatation, effacement and position of the cervix; descent and position of the presenting part; the state of the membranes (color and odor). Apart from the assessment that is done the woman need to be supported to cope with the unusual situation that she is passing through. She is allowed to have a companion of choice during labour, position changes, encourage the laboring woman to eat and drink, encourage her to eliminate and respect the woman's culture.

Answers to self-assessment 4.2

1. The correct answer is d (when there are signs that the woman is in established labour with more regular and painful uterine contractions).
2. What must be monitored during the first stage of labour is the condition of the mother, the condition of the fetus and the progress of labour.

Lesson 3: Labour support

a) Learning objectives

Provide labour support to a woman in the first stage of labour.

b) Teaching resources

Student's book, teacher's guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, skills lab, skills lab equipment's and materials.

c) Prerequisites/Revision/Introduction:

This is the third lesson of the fourth unit: Management of first stage of labor. In this lesson you will be dealing with labour support. The first thing to do before starting teaching is to remind students that they have learnt about signs of labour, assessment of a woman in labour, labour monitoring (unit 3, S4), and let them discuss briefly about care during the first stage of labour so that they can prepare themselves for this lesson.

d) Learning activity

Guidance

- Ask learners to do in groups the activity 4.3 in their student books
- Provide the necessary guidance.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the knowledge.
- Invites any students from each group to present their findings to the rest of the students.
- Ask other students to follow carefully the presentations.
- Note on chalk board / white board the student's ideas.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers to learning activity 4.3

1. The picture A shows a woman being supported by her husband for labour support on back pain, the picture B shows a woman being supported having a cold shower to alleviate the pain.

Continuous labor support can be provided by health professional or by lay people and include **presence, promotion of comfort, anticipatory guidance, caring of birth partner, and ensuring culture centered care.**

Answers for self-assessment 4.3

The components of continuous labor support are explained as follow:

Presence: Offering one's presence in labor can be defined simply as "physically being with the woman." Women find that having a skilled birth attendant present can be reassuring because they recognize that assistance is available when needed. Women want a healthcare professional or a person of choice to be available, to be emotionally involved, to help create a special moment, to hear and respond to their concerns, to share the responsibilities for keeping them safe, and to act as a go-between for their family and the medical institution.

Promotion of comfort: Women comfort is always needed and include different measures which are **positions changes and personal comfort measures.**

Position Changes: In labor, frequent position changes are beneficial in helping to promote the descent of the fetus. The woman's person of choice may assist the laboring woman to various positions and activities such as walking, standing, sitting, squatting, leaning over a piece of furniture, or assuming a hands and knees position. Maternal preferences can guide the healthcare professional or her person of choice in assessing which positions or activities the woman finds most comfortable. Changes in the woman's status may necessitate a need of bed rest and the nurse should encourage the laboring woman to rest on her left side to facilitate optimal uteroplacental blood flow.

In addition, position changes should be encouraged even if the woman must remain in bed. It is important to avoid the supine position since the pressure of the uterus on the maternal spine can cause compression of the inferior vena cava and lead to decreased blood pressure and diminished uteroplacental blood flow.

Personal comfort measures: Based on laboring woman's preferences and needs, the nurse can provide personal comfort measures (good environment, personal hygiene, elimination, and supportive relaxation techniques) and encourage family members and support persons to help woman to meet them.

Environment: The healthcare provider will need to assess the woman's environmental preferences such as sun streaming, lights dimmed, intolerance to hot and remember to turn off the fan or assess the room temperature during childbirth to ensure that the infant does not get unnecessarily chilled.

Personal hygiene: The nurse can help promote the patient's sense of cleanliness and well-being by changing pads, linens, or gown especially if the woman is leaking amniotic fluid or bloody show. Many women who remain ambulatory are able to perform their own personal care. However, if the laboring woman is confined to bed or exhausted from the exertion of labor, full assistance should be provided. Frequent mouth care should be encouraged since dry mouth is common during labor. Providing drinks, ice chips, popsicles, or hard candy may help to alleviate the symptoms.

Elimination: A full bladder can inhibit the descent of the fetus and contribute to increased pain with contractions. Encouraging and assisting the woman to the toilet (or bedpan) to void at least every 2 hours is recommended. If the woman is unable to void and has a distended bladder a urinary catheter may be required.

Supportive relaxation techniques: During labor, the healthcare providers may encourage, assist, or teach the woman about different interventions to help decrease pain and relieve anxiety. Relaxation techniques may include visualization, focal points, imagery, hydrotherapy, and breathing techniques. In addition, patients may bring items from home to enhance relaxation such as music, a picture, or a stuffed animal.

Anticipatory guidance: Regardless of whether or not they have attended prenatal classes, most women and their families have many questions. Women and families usually want to know what to expect. While the nurse cannot predict exactly what will happen, helpful information can be provided in general terms.

For example, a woman in early active labor may comment: “These contractions are getting stronger, how strong will they get?” The nurse can empower the woman by identifying the progress she has made to that point. Explaining how the contractions have gradually become stronger and emphasizing how successful the patient has been in adjusting to the changes provides factual feedback and positive reinforcement of the progress made.

Keeping the woman and her family informed about the process of labor and birth is a constant and ever-changing task. For example, during the transition phase the nurse may be teaching the woman breathing techniques to avoid pushing with a partially dilated cervix and then with full cervical dilation, the nurse teaches her how to push and may need to assist the woman into an effective pushing position.

Caring for the birth partner: Most of the nurse’s attention focuses on the woman in labor. Efforts also should be made to help the support person feel welcome and included whenever possible according to the woman’s wishes. Orientation to the birth unit is helpful in identifying where to locate items such as towels and washcloths, kitchen supplies and the restroom. Assessment of the degree of involvement the support person would like to assume is also important.

Ensuring culture-centered care: It is important for nurses to remain open minded and aware that there are a myriad of values, attitudes, beliefs, and practices regarding childbearing that vary among cultures just as there may be wide variations within cultures. Body language and communication approaches provide examples of how differences in cultural practices can be applied when caring for a woman and her family during the childbirth experience.

Lesson 4: Danger signs

a) Learning objectives

Explain danger signs of labour

b) Teaching resources

Student’s book, teacher’s guide, computer, screen, projector, flip charts or whiteboard or blackboard, markers, skills lab, skills lab equipment’s and materials.

c) Prerequisites/Revision/Introduction:

This is the fourth lesson of the fourth unit: Management of first stage of labor.

In this lesson you will be dealing with **the danger signs**. The first thing to do before starting teaching is to remind students that they have learnt about signs of labour, assessment of a woman in labour, labour monitoring (unit 3, S4), and let them discuss briefly about care during the first stage of labour so that they can prepare themselves for this lesson.

d) Learning activity 4.4

Guidance

- Ask learners to do in groups **activity 4.4** in their student books
- Provide the necessary guidance.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the knowledge.
- Invites any three students from each group to present their findings to the rest of the students.
- Ask other students to follow carefully the presentations.
- Note on chalk board / white board the student's ideas.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers to learning activity 4.4

They are many danger signs that can occur during pregnancy/labour. The pregnant woman has to be aware of those danger signs such as lack of fetal movements, vaginal bleeding, and rupture of membranes before the onset of labor, maternal fever and anything that compromise the maternal or fetal wellbeing.

Answers to self-assessment 4.4

Maternal and fetal danger signs that may occur during the first stage of labour are the following:

- Severe vaginal bleeding
- Headache, blurred vision and convulsion
- High fever
- Labour lasting for more than 24hours (first stage of labour)
- Brown or green amniotic fluid
- Lack of fetal movements

Guidance to Skills lab

Objectives

- Provide care to a woman in the first stage of labour.
- Appreciate appropriate language while providing care to a woman in the first stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the first stage of labour.

The learners will be taken to the skills lab for self practices in order to master different procedures. Prior the beginning, prepare different stations and divide learners in 6 groups each group made of 5 learns in order to facilitate everyone to practice, then they will rotate into different groups. You will be passing into groups to see their progress in learning.

4.6. Summary of the unit

Labour is traditionally divided into three stages:

- The first stage of labour (the cervical opening stage)
- The second stage of labour (the pushing stage, ending in the birth of the baby)
- The third stage of labour (the birth of the placenta)

The first stage of labour is characterized by progressive opening of the cervix, which dilates enough to let the baby out of the uterus. The first stage of labor is divided into 3 phases which are **latent phase**, the period between the start of regular rhythmic contractions up to cervical dilatation of 3 cm. During this phase, contractions may or may not be very painful, and the cervix dilates very slowly. The latent phase ends when the rate at which the cervix is dilating more quickly this signals the start of the **active phase** which is said to be when the cervix is greater than 4 cm dilated to 7 cm. The contractions become regular, frequent and usually painful. The rate of cervical dilation becomes faster and it may increase in diameter by as much as 1.2 to 1.5 cm per hour, but the minimum dilation rate should be at least 1 cm per hour. Then the **transition phase** from 8cm of cervical dilatation to full dilation (10cm). This is wide enough for the baby to pass through. At this diameter, you would not feel the cervix over the fetal head when you make a vaginal examination with your gloved fingers.

The second stage begins when the cervix is fully dilated (10 cm) and is completed when the baby is completely born. After the cervix is fully dilated, the mother typically has the urge to push; her efforts in 'bearing down' with the contractions of the uterus move the baby out through the cervix and down the vagina. The average duration

of second stage is 1 hour and usually not longer than 2 hours.

The third stage of labour is the delivery of the placenta and membranes after the baby has been born. The duration is usually a maximum of 30 minutes.

During labour a pregnant woman receives the care that is centered to her. When the laboring woman is admitted, the health care provider will monitor the condition of the mother, the condition of the fetus and the progress of labour. The timing of monitoring will differ from stage to stage and phase to phase. In the latent phase of labor, monitor fetal heart rate, uterine contractions every 30 to 60 minutes and other vital signs are monitored every 4 hours; in the active phase monitor every 4 hours blood pressure, cervical dilation and effacement, temperature is for every 2 hours, fetal heart rate, maternal pulse, uterine contractions are monitored every 30 minutes. In the transition phase the fetal heart rate and uterine contractions are monitored every 15 minutes or at the end of each uterine contraction. During the course of labour, the health care provider need also to assess the laboring woman for any danger sign such as bleeding, changes in the amniotic color and odor, maternal fever and convulsions and any other sign that hinder the normal progress of labor, then intervene on time for the better outcome of the labour. Apart from the measurements that are monitored, the health care provider need also to take into consideration the psychology of the laboring woman and help her to cope with the labor pain.

4.7 Answer to End unit assessment

1. The clinical signs that characterize the first stage of labor described in the scenario are: lower abdominal pain, bloody show, increasing uterine contractions, cervical dilation at 6cm, and rupture of membranes.
2. Before talking about the comparison of elements of the first and second phase of the first stage of labor, remind them that the first phase is also called latent phase and the second phase is active phase of labor.

ELEMENTS	LATENT PHASE	ACTIVE PHASE
Uterine contraction	Mostly they are mild and 5 to 20 minutes apart.	The uterine contractions become stronger and are 3 to 5 minutes apart.
Cervical dilatation and effacement	The cervix effaces and dilates up to 3 cm. For nulliparous the cervical effacement is completed in this phase	The cervix dilates from 4 to 7 cm. For multiparous the effacement may continue with the dilatation of the cervix.

Duration of each phase	It varies between 10 to 14 hours.	The length varies, in nulliparous the progress is an average speed of 1cm/hour and 1.5 cm/hour in multiparous of cervical dilatation.
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- The text words which express labor support and monitoring are the following: rubbing the back and encouraging the labouring woman, offering drinks to her, wiping her face with a cold towel.
- The danger signs that occurred in Olga's labour are reddish bloody amniotic fluid, decreased fetal heart rate to 101beats/min.

4.8 Additional activities

4.8.1 Remedial Activities

Question 1: Kariza 30 years old G5 pregnant woman and 40 weeks gestation enters in maternity, and an associate nurse admits her **at 5:00**. Her general condition was good unless a slight swelling on the 2 legs. Vital signs were normal with a Blood pressure (BP): 110/70 mmhg; Pulse: 87beats/min and a respiratory rate of 16 movements/ min. She complains of lower abdominal pain and backache on a term pregnancy. The midwife confirms the onset of labor with a cervical dilation of 4cm with 2 contractions in 10 min lasting 30 seconds ,membranes were intact; decent of the fetal head at 3/5; FHR were 136b/ min and recorded all finding on a partograph. The associate nurse sends out all relatives including patient's husband in order to promote quiet resting and to ensure patient privacy.

In addition to that her mother in law refuses to offer any neither drink nor food to ensure a clean delivery. It was **at 9:00** when the associate nurse came back for the routine fourthly hour examination and found that the patient was fallen down the floor through amniotic fluid. She shouts out for help and restarts the exam. Kariza was anxious and was crying. Vitals were changed a bit with a BP of 130/70mmhg; pulse of 100beats/min; Respiratory rate of 20 movements/ min, Temperature was 380C. On abdominal examination FHR were 198 beats / min, contractions have been reduced to 1 contraction of during 10 minutes lasting 25 seconds each one. Vaginal exam reveals a cephalic presentation, at 3/5 decent; membranes were ruptured with foul smelling amniotic fluid and meconium stained. Cervical dilation was only 5cm and surprisingly the midwife tell to the associate nurse that she feels a loop of umbilical cord near the fetal head which stops to beat 5 minutes later.

- Using this scenario and acquired knowledge; list the elements to be monitored including timing during a normal labor and how often to do so.

Answer: The elements to be monitored during labor are vital signs which include blood pressure for every 4 hours, temperature every 2 hours, heart rate every 30

minutes. Other elements include uterine contractions and fetal heart rate that are monitored every 30 minutes; through vaginal examination that is done every 4 hours, the elements which are monitored are cervical dilatation, fetal descent and the state of the amniotic fluids (color and odor).

2. Among the monitored and recorded elements on the partograph identify deviations from normal.

Answer: The elements that are plotted on the partograph and deviated from normal are temperature, pulse, fetal heart rate, uterine contractions, amniotic fluids and cervical dilatation.

3. When monitoring a woman in labor highlight sentences showing that the woman was not adequately supported as a woman in labor.

Answer: The sentences that show that the woman was not well monitored are the following: contractions have been reduced to 1 contraction during 10 minutes lasting 25 seconds each one; membranes were ruptured with foul smelling amniotic fluid and meconium stained; Cervical dilation was only 5cm; her mother in law refuses to offer any neither drink nor food to ensure a clean delivery.

4. Serious incidents have occurred due to poor monitoring and support. What are they?

Answer: The incidents that occurred due to poor monitoring were the cord prolapse, loss of fetal heart rate.

Question 2 : Choose all that apply

Progress in labour is measured by:

- a. The frequency of uterine contractions.
- b. The force of uterine contractions.
- c. Descent of the presenting part.
- d. Dilation of the cervix.
- e. The length of time since rupture of the membranes.

Answer: C and D (Progress is measured by the dilatation of the cervix and the descent of the presenting part. It may be satisfactory in the absence of strong frequent contractions or may appear unsatisfactory even when the contractions are strong.)

4.8.2 Consolidation activities:

Kakuze 28 years old primigravida at term is admitted to the labor ward complaining of regular uterine contractions that are 5 minutes apart that are increasing in intensity; low back pain and bloody show seen in her underwear.

At the examination the health care provider finds that the maternal and fetal observations are normal; the cervical dilatation is 2 cm. After 10 hours, Kakuze complained of strong uterine contractions every 3 minutes and the assessment revealed a cervical dilatation of 7 cm. After 2 hours, Kakuze reports that membranes ruptured; uterine contractions are becoming stronger; she feels urge to bear down during a contraction and at vaginal examination the cervix is dilated at 10 cm. The health care provider continues to monitor Kakuze and prepare for the management of the second stage of labor. After 30 minutes Kakuze shouted that the baby is coming, and she delivered a healthy baby boy; the health care provider told his colleague to continue the delivery of the placenta while he is taking care of Kakuze's baby.

Read the above scenario and answer the following questions:

1. Based on the changes that occurred during Kakuze's labor, classify different stages of labor.

Answer: Different stages of labor are the following:

The first stage of labor which start with regular uterine contractions and a cervical dilation from 0 to 10 cm; **the second stage of labor** which starts from full dilation with strong uterine contractions up to the delivery of the baby and the **third stage of labor** which is the delivery of the placenta and fetal membranes.

2. Differentiate the 3 stages of labor by their characteristics.

Answer: The difference between first stage, second and third stage of labor

	First stage	Second stage	Third stage
Definition	Commences with the onset of regular contractions and ends with full dilation (10 cm) of the cervix.	Begins with full dilation of the cervix (10 cm) and ends with the expulsion (birth) of the fetus.	Begins after the delivery of the fetus and ends with the expulsion of the placenta.

Contractions	The interval starts from 5–10 minutes, may be irregular in frequency, in the latent phase of labor and 2-3 minutes apart during the transition phase when the woman is about to deliver. Their intensity is from mild to strong by palpation.	Contractions continue at a similar rate as during the transition phase; 2–3 minutes apart lasting 60 seconds and strong by palpation.	Uterine contractions continue, although less frequently than in the second stage.
Dilatation	0 to 10 cm	Full dilated	The cervix remains open
Physical discomfort	Contractions often begin as painful menstrual-like cramps or low back ache. There is increasing discomfort as contractions become stronger and more regular with little time for relaxation in between. As the fetal head descends there may be an increase in rectal pressure and the urge to push.	May have an urge to push that increases as the fetal head descends. Many women prefer to push so that they can use the contractions and work with them.	The contractions decrease, the woman may experience cramps.

Maternal behaviors	<p>Pain often well controlled at the beginning; she may be excited, talkative, confident, anxious, and as the labor progresses, the woman may feel difficult to cope and may</p> <p>experience various emotions: irritable, agitated, hopeless (“can’t do it”); tired (sleeps between contractions).</p>	Intense concentration with pushing efforts.	<p>In this phase, the woman feels relaxed, exited and concentrates on caring her baby. She may starts breastfeed her baby.</p>
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4.8.3 Extended activities:

Question 1: Kaneza 29 years G2P1 at term pregnancy is admitted in labour with vertex presentation. At the assessment the maternal and fetal observations were normal, uterine contractions were 3 in 10 minutes and each last 40 seconds; the cervix dilated at 5 cm, the fetal descent at 3/5 and she told you that her water broke the day before admission. 30 minutes after the admission, Kaneza told you that she saw a heavy vaginal bleeding when she was moving in the labour room. At your assessment you find that her blood pressure is 128/68mmhg, pulse 100beats/min and her temperature is 38oc. After 2 hours, the fetal heart rate was 170 beats/min, 3 uterine contractions in 10 minutes each lasting 45 seconds, the cervical dilatation remains at 5 cm and the fetal descent is 3/5, the amniotic fluid is greenish in colour.

Read the above scenario and identify what you think is abnormal in Kaneza’s labour?

Answer:

The abnormal signs in Kaneza’s labour are membranes have ruptured before the onset of labor; a heavy vaginal bleeding; increased temperature at 38oc; amniotic fluid that is greenish in colour, the fetal heart rate of 170 beats/min and the labour that is not progressing.

5.1. Key Unit Competence

Manage women in the second and third stages of labour

5.2. Prerequisite

This unit requires that students get equipped with a range of knowledge, skills, and attitudes essential for them to support the woman during the second and third stages of labour. The teacher should make sure that at the end of the unit, students have practical competences to assist the woman during the normal vaginal birth, provide care during the third stage of labour, examine the placenta after delivery, provide care to a mother with a prolonged third stage of labour, manage the retained placenta, and provide care to a woman having postpartum hemorrhage.

For this unit to be taught successfully, students must have prior knowledge of the biology, Human Anatomy and Physiology, Pharmacology, and Fundamentals of Nursing. Students must also have studied the woman's reproductive system. As for attitudes and skills, students must have studied about counselling and communication techniques applied to nursing care provision during labour and birth, and must have studied nursing ethics and professional code conduct.

5.3. Cross-cutting issues to be addressed

When engaging with students into activities set for this unit, the teacher needs to ensure that principles of diversity, inclusion, and gender are acknowledged. By inclusion, the teacher has to make sure the needs of people with disabilities are respected and that students with special learning needs are grouped with others and are assigned roles basing on their abilities. The teacher has to make sure that students special needs have all necessary teaching-learning materials required for them to get knowledge, skills, and attitudes needed for providing support to women during the second and third stages of labour. In addition to this, the teacher needs to cultivate positive attitudes about birth care practices pertaining to the Rwandan context and culture. The teacher has to ensure that students are competent and fluent in languages spoken in Rwanda.

5.4. Guidance on the Introductory Activity 5

Using picture of a woman who had just given birth illustrated in the Student Textbook, the teacher tests the students' knowledge regarding the second and third stages of labour.

The teacher groups students each one having five to six students pairs and requests them to open the Student' Textbook, page ... to.... to attempt answering the questions. The teacher moves around the class to support groups who may need guidance on the questions. After students' discussion, the teacher calls each group to present their findings. After presentation, the teacher summarises shared ideas and encourage students to ask questions regarding the points they have discussed. The ideas shared in the class will serve as the introduction of the lesson about the management of the second and third stages of labour.

Tentative answers for the Introductory Activity 5

1. The teacher should expect that students mention the three stages of labour, duration of each stage, and the nursing care provided during each stage of labour.
2. The teacher would expect students to describe what happens in each stage of labour such pushing, birth of the baby, cord clamping, and delivery of the placenta.
3. The teacher would expect students to mention some common medications used during the second and third stages of labour including uterotonic drugs and the conditions they can manage such as infections control and prevention of PPH.

5.6 List of lessons

No	Lesson title	Learning objectives	Number of periods
1	Introduction to the second stage of labour	<p>Provide care to a woman in the second stage of labour</p> <p>Differentiate the second and the third stages of labour</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour</p>	1
2	Mechanism of labour during the second stage	<p>Differentiate the second and the third stages of labour.</p> <p>Describe the cardinal movements occurring during the second stage of labour.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p>	2

3	Factors affecting the second stage of labour	<p>Provide care to a woman in the second stage of labour.</p> <p>Describe the biological factors affecting the second stage of labour.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p> <p>Respect clients' rights, and privacy.</p> <p>Demonstrate professionalism when managing the second stage of labour.</p>	1
4	Nursing management of the woman during the second stage of labour	<p>Provide care to a woman in the second stage of labour.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p> <p>Respect clients' rights, and privacy.</p> <p>Demonstrate professionalism when managing the second stage of labour.</p>	2

5	Assessing foetal wellbeing in the second stage of labour	<p>Provide care to a woman in the second stage of labour.</p> <p>To assess the wellbeing of the foetus in the second stage of labour.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p> <p>Respect clients' rights, and privacy.</p> <p>Demonstrate professionalism when managing the second stage of labour.</p>	2
6	Recognising foetal compromise during the second stage of labour	<p>Provide care to a woman in the second stage of labour.</p> <p>Assess the wellbeing of the foetus in the second stage of labour.</p> <p>Recognise foetal compromise during the second stage of labour.</p> <p>Provide interventions in case of foetal compromise.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p> <p>Respect clients' rights, and privacy.</p> <p>Demonstrate professionalism when managing the second stage of labour.</p>	1

7	Duration of the second stage of labour	<p>Provide care to a woman in the second stage of labour.</p> <p>To assess the wellbeing of the foetus in the second stage of labour.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p> <p>Respect clients' rights, and privacy.</p> <p>Demonstrate professionalism when managing the second stage of labour.</p>	1
8	Reducing risks during the second stage of labour	<p>Provide care to a woman in the second stage of labour.</p> <p>Recognise the risks that may affect the lives of the woman and that of the baby during the second stage of labour.</p> <p>Provide appropriate interventions to mitigate the risks during the second stage of labour.</p> <p>Appreciate appropriate language while providing care to a mother in second stage of labour.</p> <p>Respect clients' rights, and privacy.</p> <p>Demonstrate professionalism when managing the second stage of labour.</p>	1
9	Introduction to third stage of labour	<p>Provide care to a mother in the third stage of labour</p> <p>To define key concepts of third stage of labour.</p> <p>List the observations needed during the third stage of labour</p>	2

10	Administration of the uterotonic drugs	<p>Provide care to a mother in the third stage of labour</p> <p>Understand the use of uterotonic drugs to manage the third stage of labour</p> <p>Appreciate appropriate language while providing care to a mother in third stage of labour</p> <p>Respect clients' rights and privacy</p> <p>Demonstrate professionalism when managing third stage of labour.</p>	2
11	Cord clamping and cutting	<p>Provide care to a mother in the third stage of labour</p> <p>Know the steps involved in cord clamping.</p> <p>Perform cord clamping appropriately</p> <p>Appreciate appropriate language while providing care to a mother in third stage of labour</p> <p>Respect clients' rights and privacy</p> <p>Demonstrate professionalism when managing third stage of labour.</p>	1
12	Controlled cord traction	<p>Provide care to a mother in the third stage of labour</p> <p>Know the steps involved in controlled cord traction.</p> <p>Perform controlled cord traction appropriately.</p> <p>Appreciate appropriate language while providing care to a mother in third stage of labour</p> <p>Respect clients' rights and privacy</p> <p>Demonstrate professionalism when managing third stage of labour.</p>	2

13	Placenta delivery	<p>Provide care to a mother in the third stage of labour</p> <p>Know the steps involved in delivering the placenta.</p> <p>Perform placenta delivery appropriately.</p> <p>Examine a placenta after delivery.</p> <p>Appreciate appropriate language while providing care to a mother in third stage of labour</p> <p>Respect clients' rights and privacy</p> <p>Demonstrate professionalism when managing third stage of labour.</p>	2
14	Uterine massage	<p>Provide care to a mother in the third stage of labour</p> <p>Know the steps involved in delivering the placenta.</p> <p>Perform placenta delivery appropriately.</p> <p>Examine a placenta after delivery.</p> <p>Appreciate appropriate language while providing care to a mother in third stage of labour</p> <p>Respect clients' rights and privacy</p> <p>Demonstrate professionalism when managing third stage of labour.</p>	2
16	Skillslab	<p>Provide care to a woman in the second stage of labour</p> <p>Demonstrate professionalism when managing third stage of labour.</p> <p>Provide care to a mother in the third stage of labour</p> <p>Know the steps involved in delivering the placenta.</p> <p>Perform placenta delivery appropriately.</p> <p>Examine a placenta after delivery.</p>	2
19	End unit assessment	To check if all objectives were achieved	2

Lesson 1: Introduction to the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour
- Differentiate the second and the third stages of labour
- Appreciate appropriate language while providing care to a mother in second stage of labour
- Respect clients' rights, and privacy
- Demonstrate professionalism when managing labour.

b) Teaching resources

Student Textbooks, videos illustrating the second stage of labour, pictures of foetal presentation, uterotonic and other medication used during the second stage of labour, computer, internet, flip charts, and markers, projectors.

c) Prerequisites, revision, and introduction

Basing on the introductory activity, the teacher asks students to brainstorm about the physiological changes occurring during labour and further guides them in thinking about the nursing care given to the woman during the second stage of labour. For this lesson to be facilitated effectively, students must have studied the management of the first stage of labour. Students should also have prior knowledge of anatomy and physiology of the reproductive system, fundamentals of nursing, and pharmacology.

d) Learning activity 5.1.1

The teacher uses interactive teaching approach to ask students to group themselves in pairs. The teacher shows a video about how to manage the Second Stage effectively. After students watch the video, the teacher provides Student Textbooks to each pair of students to facilitate them do Activity 5.1.1 The teacher checks with each pair to assist groups that may be having any challenges answering questions asked in the textbook. In addition to the video watched, the teacher encourages students to also refer to the images in the book to guide them in completing their learning activity. After students' discussion, the teacher gives students the opportunity to report their answers. The teacher notes down the answers of each group presentation on the flipchart. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to learning activity 5.1.1

1. Second stage of labor, referred to as the pushing stage, starts when the expectant woman's cervix is fully dilated and ends with the birth of the baby.
2. The physiologic changes:
 - The contractile power of the uterus is intensified because the foetus is closely applied to the uterus, as some of the fluid has escaped. The upper uterine segment becomes short and thick because of the retraction of uterine muscle fibres.
 - The abdominal muscles and diaphragm contracts, known as 'bearing down' or 'pushing'. Initially it is reflex, but can be aided by voluntary effort. With the distension of the pelvic floor by the presenting part, the expulsive action becomes involuntary.
 - The displacement of the pelvic floor. The bladder is drawn up into the abdomen, the vagina is dilated by the advancing head, the posterior segment of the pelvic floor is pushed downwards in front of the presenting part and the reaction is compressed by the advancing head.
 - Pouting and gaping of the anus, thinning out of the perineum and lengthening of the posterior wall of the birth canal.
 - The expulsion of the foetus. As the woman collects her efforts to birth, the baby's head becomes visible at the opening of her birth canal and this biological movement is called crowning

c) Self-assessment 5.1.1

Ask students to answer this activity individually in the classroom.

Answers to self-assessment 5.1.1

1. The following terms are defined as follows

Crowning

Is when the baby's head becomes visible at the opening of her birth canal and distends the vulva.

Bearing down

Is when the woman exerts downward pressure by contracting abdominal muscles when the fetus reaches the pelvic floor

Fetal axis pressure

Is a force transmitted through the long axis of the foetus, directing it through the birth canal and leads to expulsive action of the abdominal muscles and diaphragm.

2. The physiological changes happening during the second stage of labour are: the contractile power of the uterus is intensified because the foetus is closely applied to the uterus. The upper uterine segment becomes short and thick, the abdominal muscles and diaphragm contracts, known as 'bearing down' or 'pushing'. With the distension of the pelvic floor by the presenting part, the expulsive action becomes involuntary. Another physiological change that occurs during the second stage of labour is the displacement of the pelvic floor. Further changes that take place is pouting and gaping of the anus, thinning out of the perineum and lengthening of the posterior wall of the birth canal. During the normal spontaneous vaginal birth, the next physiological change that occurs is the expulsion of the foetus. The head is born by extension, after which the shoulders and body are born, with the remaining amniotic fluid.

Lesson 2: Mechanism of labour during the second stage

a) Learning objectives

- Differentiate the second and the third stages of labour.
- Describe the cardinal movements occurring during the second stage of labour.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, videos illustrating the mechanism of labour, computer, internet, flip charts, and markers, projectors

c) Prerequisites, revision, and introduction

This lesson continues from the previous lesson. The teacher asks students to describe the mechanisms of labour occurring during the second stage of labour based on the physiological changes described in the introduction of the second stage of labour. For this lesson to be facilitated effectively, students must have studied about labour monitoring. Students should also have prior knowledge of anatomy and physiology of the reproductive system, and fundamentals of nursing.

d) Learning activity 5.1.2

The teacher uses interactive teaching approach to introduce this activity. The teacher shows a video about mechanisms of normal labour. After students watch this video, the teacher asks students to answer questions of Activity 5.1.1 found in the Student Textbooks as a class. To encourage participation of everyone, the teacher asks each individual student and further stimulate passive students to answer to the

questions. The teacher notes down the answers of each group presentation on the flipchart. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to learning activity 5.1.2

1. **The movements are:** engagement, descent, flexion, internal rotation, extension, external rotation, and expulsion. (Elaborated answers to be found on the Student Textbook)

e) Self-assessment 5.1.2

This activity will be done in the classroom as a quiz.

Answers to self-assessment 5.1.2

1. Define the following terms:

a. Engagement

Engagement occurs when the largest transverse diameter of the head of the foetus had passed through the pelvic inlet.

b. External rotation

Is almost immediately after the head of the foetus is born, where the head rotates a final time (from the anteroposterior position it assumed to enter the outlet back to the diagonal or transverse position of the early part of labor).

c. Descent

Descent is the downward movement of the biparietal diameter of the foetal head within the pelvic inlet and full descent occurs when the foetal head protrudes beyond the dilated cervix and touches the posterior vaginal floor

1. The nurse should:
 - Assess the woman after an hour if there are no signs of foetal distress and the maternal observations are normal.
 - If the head has not engaged after waiting 1 hour, the skilled birth attendants must carefully examine the patient for cephalopelvic disproportion which may be present as a result of a big foetus or an abnormal presentation of the foetal head. In this case, the skilled birth attendant refers the mother to Caesarean section.

Lesson 3: Factors affecting the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour.
- Describe the biological factors affecting the second stage of labour.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, maternal and neonatal care books, mannequins, flip charts, and markers, projectors

c) Prerequisites, revision, and introduction

The teacher using mannequin of the anatomy of the woman's labour asks students to observe and discuss about the biological factors that can influence the second stage of labour. For this lesson to be facilitated effectively, students must have studied about the mechanisms of labour. Students must have prior knowledge of anatomy and physiology of the reproductive system, labour monitoring, and fundamentals of nursing.

d) Learning activity 5.1.3

The teacher uses interactive teaching approach to assign students to groups of five students each. The teacher asks students each group to use five minutes to collect what they have read about the factors influencing the mechanisms of labour during the second stage of labour. The teacher asks each group to present what they have read answering questions of Activity 5.1.2 found in the Student Textbooks. The teacher notes down the answers of each group presentation on the flipchart. Based on students' findings, the teacher compiles the content of the lesson, and further summarises the lesson.

Answers to learning activity 5.1.3

1. A successful second stage of labour depends on four integrated factors; namely the passage, passenger, power and position. (Additional information are found in the Student Textbook)

e) Self-assessment 5.1.3

Ask students to answer this activity individually in the classroom.

Answers to self-assessment 5.1.3

a. Passage

The passageway refers to the route a foetus must travel from the uterus through the cervix and vagina to the external perineum. The foetus must manoeuvre in each of the pelvic components (the inlet, pelvic cavity and outlet) to be born vaginally.

b. Passenger

Is defined as the foetus and the foetal membranes. For birth to occur normally, the passenger should be of appropriate size (not big for the woman's pelvis) and in an advantageous position and presentation.

c. The powers of labour.

Refers to the quality of contractions including frequency, strength, and duration.

Lesson 4: Nursing management of the woman during the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, videos, computer, internet, flip charts, images, mannequins, and markers, projectors

c) Prerequisites, revision, and introduction

The teacher asks students to brainstorm the nursing care provided to the woman during the second stage of labour. For this lesson to be facilitated effectively, students must have studied the physiological changes and cardinal movements occurring during the second stage of labour. Students must have prior knowledge of anatomy and physiology of the female reproductive system, and fundamentals of nursing.

d) Learning activity 5.1.4

The teacher uses interactive teaching approach to group students in pairs. The teacher asks each pair of students to use two minutes to organise what they have watched in the video about nursing management of the second stage of labour answering Activity 5.1.3 found in the Student Textbook. The teacher facilitates

students' presentation. The teacher records on the flipcharts students' answers. Using the students' presentation, the teacher refines the content of the lesson, and concludes the lesson.

Answers to learning activity 5.1.4

1. Because during the second stage of labour, a labouring woman needs optimum care in order to prevent any complications that may affect her and that of the baby and promoting the health of women in labour is one of the measures to reduce maternal mortality.
2. During the second stage of labour, the skilled birth attendant has to observe maternal and foetal condition in order to ensure the safety of the second stage of labour. Factors to observe include uterine conditions, the descent, foetal condition, and maternal condition.

e) Self-assessment 5.1.4

The activity will be done as an individual homework that will be marked.

Answers to self-assessment 5.1.4

1. The precautions are:
 - The woman should be helped to avoid 'active pushing' before the vertex is visible at the vulva.
 - To minimise maternal and foetal trauma and ensure a safe delivery for the baby
 - Principle of asepsis must be maintained.
 - The skilled birth attendant must help the mother to prevent the tears in the vaginal opening
2. The skilled birth attendant has to know the probable signs of labour
 - **Expulsive uterine contractions:** The woman has a strong inclination to bear down.

Trickling of blood: It is due to mild laceration of the cervix that takes place when it is stretched and laceration of the vaginal mucous when the head descends down. Rupture of the membranes may take place.

- **Pouting and gaping of the anus:** This occurs when the head has reached the pelvic floor. When the anus gapes and faeces are expelled, the cervix is usually dilated.

- **Tenseness between anus and coccyx:** This can be assessed by applying pressure with the middle finger between the anus and the coccyx. This tenseness is because of the pressure exerted by the descending head on the rectum and pelvic floor.
- Congestion and gaping of the vulva.
- A caput may appear.

Lesson 5 : Assessing foetal wellbeing in the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour.
- To assess the wellbeing of the foetus in the second stage of labour.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, CTG machine, computer, mannequins, internet, flip charts, images, mannequins, and markers, projectors

c) Prerequisites, revision, and introduction

The teacher asks students to brainstorm about the nursing care provided to the woman during the second stage of labour to ensure the wellbeing of the foetus. For this lesson to be facilitated effectively, students must have studied the physiological changes occurring during the second stage of labour. Students must have prior knowledge of biology, physiology, anatomy of pregnancy and birth, and fundamentals of nursing.

d) Learning activity 5.1.5

- The teacher asks students to observe an image of CTG and its interpretation to the students.
- Asks students to interpret the CTG results shown to them and what nursing care applied to manage each result.
- Write down students' answers.
- Encourage students to ask questions and/or seek clarifications.
- Summarise the lesson.

Answers to learning activity 5.1.5

1. This machine is used to monitor foetal heart rate during labour
2. It is important to assess the foetal wellbeing during the second stage of labour because: A foetus is at a high risk of being exposed to maximum hypoxic stress during second stage of labour, due to a combination of maternal expulsive efforts and their impact on the uteroplacental circulation, as well as repetitive and sustained compression of the umbilical cord and the foetal head. Since this can lead to physiologic stress for the foetus and hypoxic ischemic encephalopathy and foetal death, frequent monitoring of foetal status is performed to detect early the onset of foetal hypoxic stress.

e) Self-Assessment 5.1.5

This activity will be done in the classroom to guide students' revision.

Answers to self-assessment 5.1.5

1. Foetal heart rate can range between 120 and 160 times a minute during labour.
2. The following are the causes of foetal heart beat to dropdown:
 - Cord is very short or is being pinched;
 - The baby is not healthy.
 - There is not enough amniotic fluid.
 - Placenta does not work well, usually because the mother has high blood pressure or the baby is late.
 - Placenta is separating from the womb (placenta abruptio)
 - Contractions are too strong (Hypersynestia).
 - Other causes of bradycardia include viral infections (e.g., cytomegalovirus), maternal hypoglycaemia, and maternal hypothermia.
3. Some of the conditions that cause foetal tachycardia.

The following are the causes of foetal heart beat speed up:

- The mother is dehydrated
- The mother or baby has an infection
- The mother is bleeding
- The mother has been in labour for long (prolonged labour)
- The mother's womb is tearing (Ruptured uterus)

4. The range of a slowing foetal heart rate. Baby's heartbeat is slower than 100 beats a minute or slower than 120 beats a minute for several minutes.
5. The range of a speedy foetal heart beat. FHR greater than 160 beats/minute for 10 minutes or longer or faster than 180 beats a minute

Lesson 6: Recognising foetal compromise during the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour.
- Assess the wellbeing of the foetus in the second stage of labour.
- Recognise foetal compromise during the second stage of labour.
- Provide interventions in case of foetal compromise.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, CTG machine, computer, mannequins, internet, flip charts, images, manila papers, mannequins, and markers, projectors

c) Prerequisites, revision, and introduction

The teacher asks students to brainstorm about some conditions that may lead to foetal distress during the second stage of labour. Students must have prior knowledge of circulatory and respiratory systems, labour monitoring, and fundamentals of nursing.

d) Learning activity 5.1.6

- The teacher groups students in pairs and asks students to observe two images of the CTG results;
- Asks students to answer questions of Activity 5.1.5.
- Invites each group to present their findings
- Compile students' answers on the flipcharts.
- Encourage students to ask questions and/or seek clarifications from the presenting groups.
- Summarise the lesson.

Answers to learning activity 5.1.6

1. The difference between the two results of the foetal heart displayed

The paper A is showing slow foetal heart rate “Bradycardia” but the paper B is showing the high foetal heart rate “Tachycardia”. (Further information about bradycardia and tachycardia are found in the Student Book)

2. Both of them require medical attention because the foetal is stressed. There is need to assess the foetus to determine the cause of diagnosed condition and intervene accordingly.

e) Self-assessment 5.1.6

Ask students to work individually to answer questions of self-assessment 5.1.6 in the classroom.

Answers to self-assessment 5.1.6

1. The maternal related possible causes of foetal compromise during the second stage of labour:

Maternal possible causes of foetal compromise are placental insufficiency, uterine hyper stimulation, maternal hypotension, placental abruption, uterine rupture, mother health condition such as diabetes, kidney disease or cholestasis,

2. The foetal heart rate is recognised as abnormal:

When foetal heartbeat is slower than 100 beats a minute or slower than 120 beats a minute for several minutes and when foetal heart beat is greater than 160 beats a minute for 10 minutes or faster than 180 beats a minute

3. The major interventions performed if foetal distress is diagnosed:

The first step to manage foetal compromise is to give the mother oxygen and fluids.

In addition to this, the mother can be assisted to move position, such as turning onto one side. If the woman had been given drugs to speed up labour, these may be stopped

If it is a natural labour, the woman can be given medication to slow down the contractions.

In foetal distress needs to be born quickly.

Lesson 7: Duration of the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour.
- To assess the wellbeing of the foetus in the second stage of labour.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, computer, mannequins, internet, flip charts, images, manila papers, and markers, projectors

c) Prerequisites, revision, and introduction

The teacher asks students to discuss about phases of second of labour and how long each one lasts. Students must have studied mechanisms of labour, labour monitoring, and fundamentals of nursing.

d) Learning Activity 5.1.7

- The teacher guide students in forming groups of six students each.
- Provide students with Student Textbooks
- Ask students to answer questions of the Learning Activity 5.1.6
- Move around groups to support students who may have any questions.
- Invite students to present their answers
- Encourage students to ask questions or seek clarifications as groups present
- Compile students' presentations and summarise the lesson

Answers to learning activity 5.1.7

1. The median duration of second-stage labor is **50 to 60** minutes in nulliparous women and **20 to 30** minutes in multiparous women. Latent ("laboring down") phase, the average duration is **10-30** minutes. Active pushing (descent) phase, the average duration **varies. The upper limits** for the duration of normal second-stage labor are **2 hours** for nulliparous women and **1 hour for** multiparous women.
2. The duration of the second stage is variable and the length of this stage may be influenced by several factors such as parity, maternal size and foetal weight; position, and descent; the type and amount of pain relief administered, the frequency, intensity, and duration of contractions, maternal efforts in pushing, and the support the woman receives during labour.

e) Self-assessment 5.1.7

Questions for this activity will guide students during their self-directed learning.

Answers to self-assessment 5.1.7

1. For Nulliparous women, the median duration is 50 to 60 minutes

For multiparous women, the medium duration is 10 to 30 minutes

2. The phases of second stage of labour

The second stage of labour is subdivide into two phases: the latent or labouring down phase (period of rest and relative calm) and the active pushing or descent phase (woman has strong urges to bear down).

3. The criteria used to characterize those phases

These phases are characterized by maternal verbal and nonverbal behaviours, uterine activity, the urge to bear down, amount and color of show, and foetal descent

4. In latent phase, bearing down is Slight to absent, except at peak of strongest contractions while in active phase, there is increased urge to bear down; becomes stronger as fetus descends to vaginal introitus and reaches perineum

5. The factors influencing the length of the second stage of labour?

The factors that influence the variation of second stage of labor duration include parity, maternal size and foetal weight; position, and descent; the type and amount of pain relief administered, the frequency, intensity, and duration of contractions, maternal efforts in pushing, and the support the woman receives during labour.

Lesson 8: Reducing risks during the second stage of labour

a) Learning objectives

- Provide care to a woman in the second stage of labour.
- Recognise the risks that may affect the lives of the woman and that of the baby during the second stage of labour.
- Provide appropriate interventions to mitigate the risks during the second stage of labour.
- Appreciate appropriate language while providing care to a mother in second stage of labour.
- Respect clients' rights, and privacy.
- Demonstrate professionalism when managing the second stage of labour.

b) Teaching resources

Student Textbooks, maternal and neonatal care books, computer, blackboard, pieces of chalk, mannequins, internet, flip charts, images, manila papers, and markers, projectors

c) Prerequisites, revision, and introduction

The teacher introduces the lesson by asking students to discuss about complications that happen during the second stage of labour and how can a skilled birth attendant manage each complication. Students must have studied labour monitoring, fundamentals of nursing, and pharmacology.

d) Learning activity 5.1.8

The teacher asks students to sit in pairs. He requests them to keep away their students' textbooks. The teacher writes questions to discuss in groups on the blackboard and ask students discuss about the questions given to them. The teacher moves around the class to support students who may have challenges. The teacher facilitates students' presentation. The teacher encourages students from other groups that are not presenting to ask questions. After the presentation, the teacher summarises students' discussion and further clarify on some issues from the students' presentation.

Answers to learning activity 5.1.8

1. The risks likely occur during the second stage of labour:

Complications that may occur during the second stage of labour include but are not limited to abnormal foetal heart rate patterns, infection particularly following membrane rupture, stillbirth, neonatal asphyxia, meconium aspiration syndrome, fatigue, and neonatal birth injury example branchial plexus paralysis.

2. The main cause of risks during second stage of labour

The main cause of risks is the prolonged labour

e) Self-assessment 5.1.8

This activity will be given as a homework to be marked.

Answers to self-assessment 5.1.8

1. The precautions undertaken to prevent the risks occurring in the second stage of labour
 - Skilled birth attendants must not leave the labouring woman alone after the late first stage has commenced.

- Because of the increase in foetal lactate levels after the onset of active maternal pushing, continued active maternal pushing for more than 60 minutes should be avoided, unless a spontaneous vaginal birth is imminent and the foetal heart rate monitoring does not show any evidence of ongoing foetal compromise.
- Encourage active pushing once the urge to bear down is present,
- They should assist the woman to adopt any position of their preference for pushing, except lying supine which risks aortocaval compression and reduced uteroplacental perfusion.
- The skilled birth attendants should listen to the foetal heart rate frequently (at least 1 minute every 5 minutes) in between contractions to detect bradycardia.
- The caring team also has to check the maternal pulse and blood pressure, especially where there is a pre-existing problem of hypertension, severe anaemia, intrapartum haemorrhage or cardiac disease.
- To minimise prolonged second stage of labour, the frequency, strength and duration of uterine contractions are observed, as well as the relaxation of the uterus between contractions.
- The amniotic fluid is observed for meconium staining. The birth attendant must not allow the mother's bladder to become distended.
- The woman's bladder must always be assessed for fullness and she should be encouraged to void if fullness of bladder is found.

Lesson 9: Introduction to Third stage of labour

a) Learning Objectives

- Provide care to a mother in the third stage of labour
- To define key concepts of third stage of labour.
- List the observations needed during the third stage of labour.

b) Teaching resources

Student textbook, internet, flipchart, videos and pictures

c) Prerequisite/revision/introduction

The teacher asks students to think about and attempt explaining what third stage of labour means to them and how third stage of labour can be achieved in order to test students' knowledge of these prerequisites. Students should have prior knowledge of management of first and second stage of labour, female reproductive system.

d) Learning activity 5.2.1

The teacher uses interactive teaching approach asks the students to make groups. The teacher provides student Books to help students do activity.....The teacher

checks with each group to stimulate students who may be passive to answer questions. After discussion, the teacher gives students the opportunity to present their answers. The teacher takes notes of each group presentation. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to learning activity 5.2.1

1. The third stage of labour is the period extending from the second stage of labour (the completed birth of the new-born) until the completed delivery of the placenta.
2. During the third stage of labour, the placenta separates from the wall of uterus, after separation, the placenta moves down the birth canal and through the dilated cervix and the placenta is completely expelled from the birth canal.

e) Self-Assessment 5.2.1

Questions for this activity will be answered in the classroom and students will form groups to answer them.

Answers to self-assessment 5.2.1

1. Three processes characterising the third stage of labour are:
 - a. **Separation of the placenta:** The placenta separates from the wall of uterus. As it detaches, blood from the tiny vessels in the placental bed begins to clot between the placenta and the muscular wall of the uterus.
 - b. **Descent of the placenta:** After separation, the placenta moves down the birth canal and through the dilated cervix.
 - c. **Expulsion of the placenta:** The placenta is completely expelled from the birth canal.
2. It is important to manage the third stage of labour effectively because most of the conditions that lead to maternal morbidity and even deaths occur during the third stage of labour if the woman does not receive optimal care. Some of the major contributors of maternal deaths, postpartum haemorrhage and sepsis can be associated with limited proper management of the third stage of labour. When the placenta remains inside the uterus for longer than 30 minutes after the birth of the baby due to inadequate uterine contractions, and the rapid retraction of the cervix which traps the placenta into the uterus, and full bladder obstructing placental delivery can all contribute to excessive bleeding after birth.

3. Three things that can happen if the third stage of labour is not appropriately managed include:
 - Postpartum haemorrhage
 - Sepsis
 - Death

Homework

The teacher requests students to read about the use of utero tonic drugs to prepare for the next lesson.

Lesson 10: Administration of the uterotonic drugs

a) Learning objective

- Provide care to a mother in the third stage of labour
- Understand the use of uterotonic drugs to manage the third stage of labour
- Appreciate appropriate language while providing care to a mother in third stage of labour
- Respect clients' rights and privacy
- Demonstrate professionalism when managing third stage of labour.

b) Teaching resources

Text books, flip chart, internet source, videos, uterotonic drugs, and pictures.

c) Prerequisite, revision, and introduction

The teacher will ask students to think about and try to explain how, when to use uterotonic drugs in management of third stage of labour, this can be achieved when students have prior knowledge in pharmacology, and fundamentals of nursing and practical skills on administration of drugs.

d) Learning activity 5.2.2

The teacher will use interactive teaching approach by asking students to pair themselves. The teacher will give students the student book to guide them to do the activity. The teacher will move around the class to encourage the students to answer the questions. After the group work, the teacher gives chance to students to present their work. The teacher takes notes of each group presentation. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to Learning activity 5.2.2

1. Uterotonic drugs are medications given to the woman in order to stimulate the uterus to contract or to increase the frequency and intensity of the uterine contractions

2. Oxytocin, Ergometrine, misoprostol, carbetocin, prostaglands, and ergot alkaloids.

e) Self-Assessment 5.2.2

This activity will be given as quiz in the classroom.

1. Oxytocin
2. Advantages of using uterotonic in third stage of labour are:
 - Uterotonic drugs increase the uterine tonicity and contractions
 - They lessen blood loss during third stage of labour
 - They are used in prevention and treatment of postpartum haemorrhage

Lesson 11: Cord clamping and cutting

a) Learning objective.

- Provide care to a mother in the third stage of labour
- Know the steps involved in cord clamping.
- Perform cord clamping appropriately
- Appreciate appropriate language while providing care to a mother in third stage of labour
- Respect clients' rights and privacy
- Demonstrate professionalism when managing third stage of labour.

b) Teaching resources

Text Book, videos, maternal health books, mannequins, flip charts, and pictures

c) Prerequisite/revision/introduction

The teacher will bring the video of cord clamping and cutting and shows it to students to help them understand how cord clamping and cutting is done. After showing them the video will ask students individual questions and later will conclude the lesson. The students should have prior knowledge on first and second stage of labour.

d) Learning activity 5.2.3

The teacher will use interactive teaching approach by showing students the videos in the class. The teacher will show students the video to guide them to do the activity. The teacher will move around the class to encourage the students to answer the questions. After showing them the video to do work, the teacher gives chance to students to present their work. The teacher takes notes of each group presentation. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to the Learning activity 5.2.3

1. The evidence further shows that delayed cord clamping can have immediate and long term benefits for babies. In preterm infants, delayed umbilical cord clamping is associated with significant neonatal benefits, including improved transitional circulation, better establishment of red blood cell volume, decreased need for blood transfusion, and lower incidence of necrotizing enterocolitis and intraventricular haemorrhage. Furthermore, delayed cord clamping further promotes cerebral oxygenation. For term infants, delayed cord clamping can provide adequate blood volume and birth iron stores to the baby. It further increases haemoglobin amounts in the term infants. For the mothers, delayed clamping can decrease the incidence of retained placenta.
2. Early clamping which is usually carried out in the first 60 seconds, and late cord clamping carried out more than one minute after the birth of the baby or when the cord pulsation as stopped.

e) Self-Assessment 5.2.3

This is an activity that will be done in pairs.

Answers to self-assessment 5.2.3

1. Delayed cord clamping: Is the late cord clamping carried out more than one minute after the birth of the baby or when the cord pulsation has stopped. Delayed cord clamping can have immediate and long term benefits for babies. In preterm infants, delayed umbilical cord clamping is associated with significant neonatal benefits, including improved transitional circulation, better establishment of red blood cell volume, decreased need for blood transfusion, and lower incidence of necrotizing enterocolitis and intraventricular haemorrhage. Furthermore, delayed cord clamping further promotes cerebral oxygenation. For term infants, delayed cord clamping can provide adequate blood volume and birth iron stores to the baby. It further increases haemoglobin amounts in the term infants. For the mothers, delayed clamping can decrease the incidence of retained placenta.
2. A nurse should prepare the materials and check if the cord is wrapped around the newborn's neck.

Lesson 12: Controlled cord traction

a) Learning objectives

- Provide care to a mother in the third stage of labour
- Know the steps involved in controlled cord traction.
- Perform controlled cord traction appropriately.
- Appreciate appropriate language while providing care to a mother in third stage of labour
- Respect clients' rights and privacy
- Demonstrate professionalism when managing third stage of labour.

b) Teaching resources.

Students Textbooks, videos, and pictures.

c) Prerequisite/revision/introduction

The teacher will bring the video in class and show it to students to help the students to understand how controlled cord traction is being done in management of third stage of labour. After watching the video, the teacher will ask individual questions to students and later will summarise the lesson. The students will have prior knowledge in management of first and second stage of labour.

d) Learning activity 5.2.4

The teacher will use interactive teaching approach by showing students the videos in the class. The teacher will show students the video to guide them to do the activity. The teacher will move around the class to encourage the students to answer the questions. After showing them the video to do the work, the teacher gives opportunity to students to present their work. The teacher takes notes of each group presentation. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to Learning activity 5.2.4

1. Controlled cord traction (CCT) can be defined as traction applied to the umbilical cord once the woman's uterus has contracted after the birth of her baby, and her placenta is felt to have separated from the uterine wall.
2. Controlled cord traction is used to stabilise and deliver the placenta.
3. Steps involved in CCT are:
 - Clamp the cord close to the perineum and hold in with one hand.
 - Place the other above the woman's pubic bone and stabilise the uterus by applying counter-pressure during controlled cord-traction

- wait for the strong uterine contraction (2-3 minutes) and continue with counter-pressure to the uterus.
- If the placenta does not descend during 30-40 second of controlled cord traction do not continue to pull on the cord.
- Gently hold the cord and wait until the uterus is well contracted again; with the next contraction, repeat controlled cord traction with counter-pressure
- As the placenta delivers, hold the placenta in two hands and gently turn it until the membranes are twisted.
- Slowly pull to the placenta delivery
- Examine carefully the placenta to rule out any missing portion of it.

e) **Self-assessment 5.2.4**

This activity will be done in pairs and the students of one pair may exchange their answers with another group in order to understand very well about the controlled cord traction, its indication, and contraindications.

Answers to self-assessment 5.2.4

1. Never apply cord traction (pull) without applying counter traction (push) above the pubic bone on a well-contracted uterus.
2. Examine carefully the placenta to rule out any missing portion of it, if you suspect retained portions on maternal surface or tone membranes take appropriate action
3. The nurse should at all costs avoid controlled cord traction if there are no uterotonic drugs available.

Lesson 13: Placenta delivery

a) Learning objectives

- Provide care to a mother in the third stage of labour
- Know the steps involved in delivering the placenta.
- Perform placenta delivery appropriately.
- Examine a placenta after delivery.
- Appreciate appropriate language while providing care to a mother in third stage of labour
- Respect clients' rights and privacy
- Demonstrate professionalism when managing third stage of labour.

b) Teaching resources

Videos, flip chart, mannequins, pictures, black board, chalks, markers, white board and dusters

c) Prerequisites, revision, and introduction

The teacher will use a mannequin to demonstrate how placenta is delivered. After watching the teacher's demonstration, the teacher proceeds by asking students to summarise what they have observed. The students will have prior knowledge in management of first and second stage of labour, fundamentals of nursing, and pharmacology.

d) Learning activity 5.2.5

The teacher will use interactive teaching approach by asking students to report what they have read in the homework given to them in the previous lesson. Students are guided to form groups of five students each. The teacher will move around the class to assist groups that may be having questions. After showing them the video to do the work, the teacher gives opportunity to students to present their work. The teacher takes notes of each group presentation. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to learning activity 5.2.5

1. The placenta normally separates with the third or fourth strong uterine contraction after the birth of the baby. The nurse has to ensure the uterotonic was given.
2. Signs that the nurse should check to make sure if the placenta has separated from the uterine wall are the following:
 - A small gush of blood comes from the vagina. A gush is a handful of blood that comes out all at one time.
 - The cord looks longer because when the placenta comes off the wall of the uterus, it drops down closer to the vaginal opening which makes the cord seem a little longer because more of it appears outside the woman's body.
 - Check if the uterus has risen. This should be checked because when the placenta separates from the uterine wall, the top of the uterus moves a little below the mother's navel.

e) Self-assessment 5.2.5

This activity will be done in groups of five students each. The teacher guides students to present their answers while wrapping up the lesson.

1. Attempt delivery of the placenta only when it is fully separated from the uterus to avoid uterine inversion or pulling off a section of placenta from the wall of the uterus leaving the remainder attached, thus creating an open bleeding area in the uterine wall. The nurse has to check for separation of the placenta from the uterine wall by doing the following:
 - Ensure a uterotonic drug was given
 - Placing the hand over the uterus through the abdominal wall (inside a folded sterile towel).
 - Apply controlled cord traction to deliver the placenta
 - Massage the uterus
 - Examination of the placenta
2. Precautions that a nurse has to take when delivering the placenta, avoid pulling the umbilical cord, gently guide the placenta out by performing controlled cord traction. If any part of the placenta is missing, immediately report this finding to the attending physician for intervention. Retained placental fragments can contribute to postpartum haemorrhage or sepsis.

Lesson 14: Uterine massage

a) Learning objectives

- Provide care to a mother in the third stage of labor
- Know the steps involved in delivering the placenta.
- Perform placenta delivery appropriately.
- Examine a placenta after delivery.
- Appreciate appropriate language while providing care to a mother in third stage of labor
- Respect clients' rights and privacy
- Demonstrate professionalism when managing third stage of labor.

b) Teaching resources

Videos, pictures, flipcharts, markers, blackboard, videos, case studies, and mannequins.

c) Prerequisites, revision, and introduction

The teacher starts the lesson by asking students to mention steps involved in delivering the placenta. The teacher proceeds with introducing uterine massage by showing students a video of uterine massage. Students brainstorm on steps involved in offering uterine massage and why it is needed. For this lesson to run smoothly, students will need to have prior knowledge in placenta delivery, fundamentals of nursing, and massage.

d) Learning activity 5.2.6

The teacher will use interactive teaching approach by showing students the videos in the class. The teacher will show students the video to guide them to do the activity. The teacher will move around the class to encourage the students to answer the questions. After showing them the video to do the work, the teacher gives opportunity to students to present their work. The teacher takes notes of each group presentation. Based on students' findings, the teacher compiles the content of the lesson and concludes it.

Answers to the learning activity 5.2.6

The uterine massage is advantageous because it helps in preventing massive blood loss after childbirth which can lead to both maternal morbidity and mortality rate.

Uterine massage is one of the interventions to manage the third stage of labour especially after the placenta had been delivered.

e) Self-Assessment 5.2.6

Ask students to work individually or in pair to answer the questions of self-assessment 5.2.6

Answers to self-assessment 5.2.6

1. Uterine massage should be done immediately after the third stage of labour in spontaneous vaginal delivery (only if the uterus is soft or boggy), after ruling out other risk of post-partum haemorrhage such as retained membranes, retained placental parts, vaginal lacerations, cervical and clitoral tears, and full bladder. Massaging uterus normally lasts between 10 and 60 minutes.
2. The uterine massage is advantageous because it helps in preventing massive blood loss after childbirth which can lead to both maternal morbidity and mortality rate.
3. Steps of uterine massage:
 - Palpate the uterus immediately after delivery of the placenta to feel if it is hard or soft. Perform uterine massage only if the uterus feel soft (Uterine massage is always painful and should not be performed routinely)
 - Before performing uterine massage, advise the woman to empty her bladder.
 - Ask the woman to lie down flat.
 - Ask the woman to relax her body as much as possible.
 - The nurse places a hand on the woman's lower abdomen and stimulates the uterus by massaging.

- Take one hand and cup it slightly. Slowly move it in a circular motion over the woman's lower abdomen. Keep doing these movements until you feel her uterus contract.
4. The nurse guides the woman to practice deep breathing and muscle relaxation immediately prior and during the massage. The woman relaxes her muscle and take slow, calm breaths to help with the potential discomfort.

5.6 Summary of the unit

The management of the second and third stages of labor focuses on ensuring the safety of both the mother and the newborn.

I. Second Stage of Labor (Full Dilation to Birth of the Baby)

The care provider should aim to assist the mother in delivering the baby safely.

1. Monitoring:
 - a. Continuous monitoring of fetal heart rate to assess fetal well-being.
 - b. Observing maternal vital signs and uterine contractions.
2. Positioning: Encourage the mother to find a comfortable birthing position, such as squatting, semi-recumbent, or hands-and-knees.
3. Support: Provide emotional and physical support to the mother, including coaching in pushing efforts.
4. Pushing: Guide the mother to push with each contraction once full dilation is achieved. Delayed pushing or allowing passive descent (laboring down) may be appropriate in certain cases.
5. Perineal Support: Provide perineal support to reduce the risk of tearing. Episiotomy is only performed if absolutely indicated.
6. Delivery: Assist with the controlled delivery of the baby's head and shoulders. Gentle traction may be applied if needed.

II. Third Stage of Labor (From Birth of the Baby to Delivery of the Placenta)

The care provider should aim to deliver the placenta and minimize the risk of postpartum hemorrhage (PPH).

1. Active Management:

- Administer a uterotonic drug (e.g., oxytocin) immediately after the birth to promote uterine contractions and reduce bleeding risk.
- Controlled cord traction is used to facilitate the delivery of the placenta while supporting the uterus.
- Uterine massage may be performed after placental delivery to ensure that the uterus remains contracted.

2. Expectant Management (if chosen but not recommended):

- The placenta is allowed to deliver spontaneously without intervention. Monitoring for signs of placental separation (e.g., lengthening of the umbilical cord, gush of blood) is essential.

3. Cord Clamping:

- Delayed cord clamping (waiting 1-3 minutes after birth) is generally recommended for its benefits to the newborn unless immediate resuscitation is needed.

4. Inspection: After delivery, inspect the placenta and membranes to ensure complete expulsion, reducing the risk of retained products of conception.

5. Monitoring: Continue to monitor maternal vital signs and bleeding for signs of postpartum hemorrhage.

5.7 Additional Information

- The position should the patient be delivered
1. The patient is usually delivered on her back (i.e. the dorsal position) because it is easier for the person managing the delivery. However, this position has the disadvantage that it may cause postural hypotension which may result in foetal distress. This problem can be avoided if a firm pillow is placed under one of the patient's hips so that she is turned 15° onto her side and does not lie flat on her back.
 2. The lateral position (i.e. on her side) prevents the problem of postural hypotension. In addition, the person conducting the delivery has a good view of the vulva and perineum, the pelvic muscles are relaxed, and the delivery can be better controlled. The lateral position is particularly useful when the patient will not give her full co-operation.
 3. The upright position (i.e. vertical or squatting position) is frequently used. The patient sits on her heels and supports herself on outstretched arms. This position has the following advantages:
 - The maternal effort becomes more effective.
 - The duration of the second stage is shortened.
 - Fewer patients need an assisted delivery.
 4. The semi-Fowler's position, where the patient's back is lifted to 45° from the horizontal, may be used instead of the upright position. This partial-sitting position is comfortable both for the patient and the person conducting the delivery.

The position used during the second stage of labour depends on the patient's choice and the circumstances under which the delivery is conducted. The position chosen should allow for the best maternal effort at bearing down.

B. Elements of monitoring during the second stage of labour?

If the head is still not engaged and it is decided to wait for engagement, the same observations usually made during the first stage of labour should be continued.

If the head is engaged and the patient is asked to bear down, the following observations must be done:

1. Listen to the fetal heart between contractions to determine the baseline fetal heart rate.
 2. Listen to the fetal heart immediately after every second contraction. If the fetal heart rate remains the same as that of the baseline rate, you are reassured that the fetus is in good condition. However, if the fetal heart is slower at the end of the contraction, and the slow heart rate takes 30 seconds or more to return to the baseline rate (i.e. a late deceleration), the fetus must be delivered as rapidly as possible because fetal distress has developed.
 3. Observe the frequency and duration of the uterine contractions.
 4. Look for any vaginal bleeding.
 5. Record the progress of labour.
3. The steps of conducting the normal delivery

The midwife or nurse managing the second stage of labour must always be prepared for possible complications. Equipment which may be required must be at hand and in good working order. Drugs which may be needed must be easily available.

1. **Emptying the bladder:** Any factor, such as a full bladder, that prevents descent of the fetal head or decreases the strength of uterine contractions should be corrected. Therefore, it is very important for the patient to empty her bladder before starting to bear down. If the patient is unable to pass urine, the bladder must be emptied with an "in and out" catheter done as a sterile procedure.
2. **Supporting the perineum:** A swab should be placed over the patient's anus to prevent the vulva, and later the fetal head, being soiled with stool (i.e. faeces). It is important to support the perineum in order to:
 - Increase flexion of the fetal head so that the smallest possible diameter passes through the vagina. This can be done by pressing immediately above the anus.
 - Relieve the pressure on the perineum. Remember that the perineum must be in view all the time.

3. **Crowning of the head:** When the head is crowning, the vaginal outlet is stretched and an episiotomy may be indicated. The midwife or doctor should place one hand on the vertex to prevent sudden delivery of the head. The other hand, supporting the perineum, is now moved upwards to help extend the head. It is important that the fetal head is only controlled and not held back.
4. **Feeling for the cord around the neck:** Check that the umbilical cord is not wrapped tightly around the infant's neck. A loose cord can be slipped over the head, but a tight cord should be clamped and cut.
5. **Delivering of the shoulders and body:** With gentle continuous posterior traction on the head and lateral flexion, the anterior shoulder is delivered from under the symphysis pubis. The posterior shoulder is then lifted over the perineum. The rest of the infant's body is now delivered, following the curve of the birth canal and not by simply pulling it straight out of the vagina.

5.8 Answer to the end unit assessment

1. The second stage of labour starts when the patient's cervix is full dilated (10 cm) and ends when the infant is completely delivered.
2. One of the following may occur:
 - Uterine contractions increase in both frequency and duration, i.e they are more frequent and last longer .
 - The patient becomes restless
 - Nausea and vomiting often occur
 - The patient has uncontrollable urge to bear down (push)
 - The perineum bulges during a contraction as it is stretched by the fetal head
3. What elements of monitoring during the second stage of labour?
 - If the head is still not engaged and it is decided to wait for engagement, the same observations usually made during the first stage of labour should be continued.
 - If the head is engaged and the patient is asked to bear down, the following observations must be done:
 - Listen to the fetal heart between contractions to determine the baseline fetal heart rate.
 - Listen to the fetal heart immediately after every second contraction. If the fetal heart rate remains the same as that of the baseline rate, you are reassured that the fetus is in good condition. However, if the fetal heart is slower at the end of the contraction, and the slow heart rate takes 30 seconds or more to return to the baseline rate (i.e. a late deceleration), the fetus must be delivered as rapidly as possible because fetal distress has developed.

- Observe the frequency and duration of the uterine contractions.
- Look for any vaginal bleeding.
- Record the progress of labour.

4. Explain the following the following terms:

a. Engagement

Engagement occurs when the largest transverse diameter of the head of the foetus had passed through the pelvic inlet.

b. Descent

Descent is the downward movement of the biparietal diameter of the foetal head within the pelvic inlet and full descent occurs when the foetal head protrudes beyond the dilated cervix and touches the posterior vaginal floor

c. Flexion

As descent is completed and the foetal head touches the pelvic floor, the head bends forward onto the chest, causing the smallest anteroposterior diameter (the suboccipitobregmatic diameter) to present to the birth canal. Flexion is also aided by abdominal muscle contraction during pushing.

d. Internal rotation

During descent, the biparietal diameter of the fetal skull was aligned to fit through the anteroposterior diameter of the mother's pelvis. The head flexes at the end of descent, the occiput rotates thus the head is brought into the best relationship to the outlet of the pelvis, or the anteroposterior diameter is now in the anteroposterior plane of the pelvis. This movement brings the shoulders, coming next, into the optimal position to enter the inlet, or puts the widest diameter of the shoulders (a transverse one) in line with the wide transverse diameter of the inlet.

e. Extension

When the occiput of the fetal head is born, the back of the neck stops beneath the pubic arch and acts as a pivot for the rest of the head. The head extends and the foremost parts of the head, the face and chin is born.

f. External rotation

Is almost immediately after the head of the foetus is born, where the head rotates a final time (from the anteroposterior position it assumed to enter the outlet back to the diagonal or transverse position of the early part of labor).

g. Expulsion.

Once the shoulders are born, the rest of the baby is born easily and smoothly because of its smaller size. This movement, called expulsion, is the end of the pelvic division of labor.

5. In orderly sequence the three processes characterising the third stage of labour are explained as:
 - **Separation of the placenta:** The placenta separates from the wall of uterus. As it detaches, blood from the tiny vessels in the placental bed begins to clot between the placenta and the muscular wall of the uterus.
 - **Descent of the placenta:** After separation, the placenta moves down the birth canal and through the dilated cervix.
 - **Expulsion of the placenta:** The placenta is completely expelled from the birth canal.
6. The active management of the third stage of labour is more effective than the physiological management of the third stage of labour

Because it is effective in reducing the risks of the complications of the poor management of the third stage of labour

7. The uterotonic drug of choice used in active management of third stage of labour is oxytocin
8. The advantages of using uterotonic in third stage of labour:
 - Uterotonic drugs increase the uterine tonicity and contractions
 - They prevent excessive blood loss during third stage of labour
 - They are used in prevention and treatment of postpartum hemorrhage.
 - All uterotonic can be used in third stage of labour.

Uterotonic drugs include oxytocin, ergometrine, misoprostol, carbetocin, prostaglandins, and ergot alkaloids, but the three frequently used uterotonic drugs are oxytocin, prostaglandins, and ergot alkaloids.

9. In third stage, Ergometrine is contra-indicated to women with pre-eclampsia, eclampsia, heart disease, and in case the woman has had retained placenta.
10. The importance of delayed cord clamping in third stage of labour:
 - In preterm infants, delayed umbilical cord clamping is associated with significant neonatal benefits, including improved transitional circulation, better establishment of red blood cell volume, decreased need for blood transfusion, and lower incidence of necrotizing enterocolitis and intraventricular haemorrhage, promotes cerebral oxygenation.
 - For term infants, delayed cord clamping can provide adequate blood volume and birth iron stores to the baby, increases haemoglobin amounts in the term infants.
 - For the mothers, delayed clamping can decrease the incidence of retained placenta.

11. Step involved in cord clamping. Two approaches: early clamping which is usually carried out in the first 60 seconds and late cord clamping carried out more than one minute after the birth of the baby or when the cord pulsation as stopped.
12. While doing controlled cord-traction: Never apply cord traction (pull) without applying counter traction (push) above the pubic bone on a well-contracted uterus.
13. Important technique after delivering the placenta during controlled –cord traction: Examine carefully the placenta to rule out any missing portion of it, if you suspect retained portions on maternal surface or tone membranes take appropriate action
14. In what situations controlled cord traction is contraindicated
 - Avoid controlled cord traction if there are no uterotonic drugs available.
 - Controlled cord traction is also contraindicated prior to signs of separation of the placenta as this can cause partial placental separation, a ruptured cord, excessive bleeding, and/or uterine inversion
15. The nurse should do before starting the delivery of the placenta the following:
 - Is essential to understand the biological events that lead to the delivery of the placenta. The placenta normally separates with the third or fourth strong uterine contraction after the birth of the baby.
 - After the birth, the nurse must watch the mother for any signs of infection, pre-eclampsia, and heavy bleeding.
 - The nurse has to also check the mother’s blood pressure and pulse within the 30 minutes after birth.
16. The signs of placenta separation during third stage of labour:
 - A small gush of blood comes from the vagina. A gush is a handful of blood that comes out all at one time.
 - The cord looks longer because when the placenta comes off the wall of the uterus, it drops down closer to the vaginal opening which makes the cord seem a little longer because more of it appears outside the woman’s body.
 - Check if the uterus has risen. This should be checked because when the placenta separates from the uterine wall, the top of the uterus moves a little below the mother’s navel.
17. The steps involved in the delivery of the placenta:
 - Attempt delivery of the placenta only when it is fully separated from the uterus

- **Use maternal efforts to deliver the placenta**, assisted by the following simultaneous manoeuvres from you as needed, when you believe separation has occurred:
- Maintain your abdominal hand over the uterus, using your flattened fingers just above the pubic bone to aid the placenta as it exits the cervical os into the vagina.
- Place your fingers around the ring forceps at the point where the cord is attached, and apply steady cord traction with a downward motion, then upward along the curve of Carus as the placenta traverses the vagina to the introitus.
- When the placenta is visible at the introitus, lift it partially through with the hand holding the ring forceps.
- Remove your other hand from the abdomen and let the placenta fall into your hands. At this point drop the cord and the ring forceps.
- Continue to rotate the placenta to make a thick cord of the trailing membranes, if necessary.
- If this is not sufficient, grasp the membranes with the ring forceps to encompass them laterally.
- Rotate the ring forceps to make a thicker cord of membranes and then gently tease the membranes through the introitus by a slight up and down movement.

18. The precautions a nurse take when delivering the placenta:

- When the woman is bleeding a lot and cannot push the placenta out herself, gently guide the placenta out by the cord.
- But, if the woman is not bleeding and there is no any danger for both the woman and the baby, do not pull on the cord. Since the placenta is still attached to the uterus, the cord may break or you may pull the woman's uterus out which may result in death.
- Only guide the placenta out by the cord if you are sure that the placenta has separated.
- If any part of the placenta is missing, immediately report this finding to the attending physician for intervention. Retained placental fragments can contribute to postpartum haemorrhage or sepsis.

19. When should we do uterine massage and for how long.

- Uterine massage is one of the interventions to manage the third stage of labour especially after the birth of the baby and after the placenta had been delivered.
- Massaging uterus normally lasts between 10 and 60 minutes.

20. The advantages of uterine massage:

It helps in preventing massive blood loss after childbirth which can lead to both maternal morbidity and mortality rate.

21. The precautions a nurse take prior and during uterine massage:

- Before performing uterine massage, advise the woman to empty her bladder. A full bladder may push the uterus off to the side, which makes the massage process both uncomfortable and ineffective.
- Ask the woman to relax her body as much as possible. The nurse guides the woman to practice deep breathing and muscle relaxation immediately prior and during the massage.

Multiple choice questions

1. What is the drug of choice in active management of third stage management?
 - a) Intravenous Ergometrine
 - b) Intramuscular ergometrine
 - c) Intramuscular oxytocin (Pitocin)**
 - d) Misoprostol
2. Ergometrine is contra indicated to women with the following conditions in active management of third stage:
 - a) Women with oligo hydroamnios
 - b) Women with hypertension**
 - c) Women with fever during labour
 - d) Women with puerperal infection
3. The following are the causes of prolonged third stage of third stage except
 - a) Failure of the uterus to contract well
 - b) Abnormal placenta insertion. e.g. placenta accreta
 - c) Cord prolapse.**
 - d) Failure of the placenta to separate normally.
4. Which ONE of the following options outlines the causes of postpartum hamorrhage in third stage of labour?
 - a) Uterine atony, uterine inversion and Full bladder**
 - b) Not well repaired episiotomy, clitoral tears, recto prolapse
 - c) Vaginal tears, perennial tears and contracted uterus

d) None of the above.

5. Normal third stage will involve the following stages except

a) placenta separation,

b) placenta descent

c) placenta expulsion

d) placenta insertion

6. Answer the following questions with true or false

a) In active management of third stage of labour oxytocin should be given immediately after childbirth without palpating to find out if there is another baby. **False**

b) Full bladder causes postpartum haemorrhage. **True**

5.9. Additional activities

5.9.1 Remedial Activities

1. The laboring patient has transitioned to stage 2 of labor. What changes in the perineum indicate the birth of the baby is imminent?

a) Increase in meconium-stained fluid and retracting perineum

b) Retracting perineum and anus with an increase of bloody show

c) Rapid and intense contractions

d) Bulging perineum and rectum with an increase in bloody show

2. During stage 3 of labor, you note a gush of blood and that the uterus changes shape from an oval shape to globular shape. This indicates?

a) Postpartum hemorrhage

b) Imminent delivery of the baby

c) Signs of placental separation

d) Answers B and C

3. The third stage of labour starts when:

a) The cervix is fully dilated

b) The anterior shoulder of the infant is delivered

c) The infant is born

d) The placenta is delivered

4. Which statement about the third stage of labour is correct?
- a) This stage of labour is potentially dangerous for the patient.
 - b) Complications are uncommon during the third stage.
 - c) After normal first and second stages of labour, complications are rare in the third stage.
 - d) Postpartum haemorrhage during the third stage of labour is an uncommon cause of maternal death in developing countries.
5. The active management of the third stage of labour includes:
- a) Giving an oxytocic drug, after a second twin has been excluded, and then waiting for the uterus to contract
 - b) Waiting for signs of placental separation and then pulling on the umbilical cord while pushing the uterus upwards
 - c) Pulling on the umbilical cord while pushing the uterus upwards immediately after the infant has been delivered
 - d) Giving oxytocin after the signs of placental separation have appeared and then pulling on the umbilical cord while pushing the uterus upwards
6. Which of the following signs do not confirm the diagnosis that the placenta has separated?
- a) Lengthening of the umbilical cord
 - b) The fundus of the uterus moves from below to above the umbilicus
 - c) A sudden gush of blood runs out of the vagina
 - d) Suprapubic pressure does not result in shortening of the umbilical cord when the uterus is pushed upwards
7. When does the second stage of labour begin and end?
- a) From the time the patient has an urge to bear down until the infant is completely delivered
 - b) From the time the cervix is fully dilated until the infant is completely delivered
 - c) From the beginning of the active phase of the first stage of labour until the cervix is fully dilated
 - d) From the beginning of the active phase of the first stage of labour until the infant is completely delivered.
8. What would suggest that the patient's cervix has reached full dilatation?
- a) Uterine contractions become stronger with an increase in duration and frequency.

b) The patient becomes restless.

c) Nausea and vomiting occur.

d) All of the above.

9. When is the fetal head engaged?

a) When the widest transverse diameter of the fetal head (i.e. the biparietal diameter) has passed through the entrance of the birth canal

b) When the greatest diameter of the fetal head (i.e. the suboccipito-bregmatic diameter) has passed through the entrance of the birth canal

c) When the occiput has passed through the entrance of the birth canal

d) When the vertex has passed through the entrance of the birth canal

10. The perineum should be supported during the second stage of labour in order to:

a) Prevent the patient from passing faeces

b) Prevent the fetal head from being delivered too fast

c) Help the internal rotation of the fetal head

d) Increase flexion of the fetal head so that only the smallest diameter of the head has to pass through the vagina

Answers

1. d 5.a 9. a

2. c 6. d 10. d

3. c 7. b

4. a 8. d

12. Case study

A primigravida patient has still not delivered after her cervix has been fully dilated for 45 minutes. The fetal head is not palpable abdominally and bulges the perineum when the patient bears down with contractions. A prolonged second stage is diagnosed and the doctor is called to assess the patient.

Q1: Define the second stage of labor.

ANSWER:

Second stage of labor, referred to as the pushing stage, starts when the expectant woman's cervix is fully dilated and ends with the birth of the baby. The woman is actively involved in giving birth with the support of skilled birth attendants.

Q2: Explain the Probable signs of the second stage of labor

ANSWER:

Expulsive uterine contractions: The woman has a strong inclination to bear down.

Trickling of blood: It is due to mild laceration of the cervix that takes place when it is stretched and laceration of the vaginal mucous when the head descends down.

Rupture of the membranes may take place.

Pouting and gaping of the anus: This occurs when the head has reached the pelvic floor. When the anus gapes and feces are expelled, the cervix is usually dilated.

Tenseness between anus and coccyx: This can be assessed by applying pressure with the middle finger between the anus and the coccyx. Congestion and gaping of the vulva. A caput may appear.

Q3: Do you agree with the diagnosis of prolonged second stage?

ANSWER:

This will depend on when the patient started to bear down and whether her attempts at bearing down were effective.

Q4: How would you have managed this patient if the prolonged labour was due to poor co-operation and ineffective attempts at bearing down by the patient?

ANSWER:

Good communication between the staff and the patient during the second stage of labor should have established a trusting relationship. The patient should have been told exactly what she should do during the second stage. She should also have been supported, encouraged and praised.

6.1 Key unit competence:

Provide immediate care to the newborn.

6.2 Prerequisite (knowledge, skills, attitudes and values)

The student should have studied antenatal care, management of the third stage of labor and normal labor in the maternal and child health syllabus.

For the knowledge and understanding; the students should know the definition of the term immediate care of a newborn, describe elements of assessment for a newborn and be able to explain different positions for a breastfed newborn.

For the skills; the students have to perform the rapid initial assessment of a new born during immediate care of a new born and should provide the care to the new born.

For the attitudes and values; the students should recognize the rapid initial assessment of a new born during immediate new born and master the provision of quality service to the new born in the immediate care of a new born.

6.3 Cross-cutting issues to be addressed**a) Inclusive education**

This unit includes the collection of the materials used for care of the new born and requires the observation of images illustrating an associate nurse who is providing a care to the new born as the immediate care of the new born. This may be a challenge to students with special educational needs especially children with visual impairment.

However, the teacher can make some arrangements like:

Grouping the students; Students with special educational needs are in the group with others and assigned roles basing on individual student's abilities.

Provision of materials for the care of the new born before the practice may help the students to be familiar with them. They can be drowned on the whiteboard or printed images depending on available resources. If you have children with low vision remember to print well visible images.

Every important point is written and spoken. The written points help students with visual impairment and speaking aloud helps students with hearing impairment. Remember to repeat the main points of the lessons.

b) Gender education

Instruct the students that during the presentation of the assigned tasks, boys and girls should share and participate equally. At the time of practice of assessing and providing the care of the new born, all students have to practice irrespective of gender.

c) Environment and sustainability

Learners get basic knowledge from the procedure of assessing and providing the care to the new born through the practice in the skills lab; learners understand and interpret principles of assessing the new born. They also get skills and attitudes that will enable them in their everyday life to address at time to the identified health problems to the new born in the immediate care of the new born.

The students are encouraged to clean, prepare and arrange the skills lab before the practice of assessing and providing the care to the new born. After the procedure, the skills lab has also to be rearranged and the displaced materials should be repositioned to their previous positions.

6.4 Guidance on the introductory activity

This introductory activity helps the teacher to engage learners in the introduction of the immediate care of the new born and invite the learners to follow the next lessons.

Teacher's activity:

- Ask students to visualize the images and discuss the given questions.
- Engage students in working collectively the activity.
- Help students with different problems.
- Ask any five students to present their findings while others are following.

The expected answers:

1. It is good to help baby after birth for better adoption to extra uterine life.
2. It is necessary as it is needed to assess baby's vital signs.
3. The health care provider is administering VIT K, in order to prevent haemorrhagic diseases in new born.
4. Eye care is necessary for prevention of eye infections in new born babies
5. Putting the baby on chest helps prevent baby,s hypothermia ,initiate breast feeding and promote bonding.

6.5 List of lessons/sub-heading

Lesson title		Learning objectives (from the syllabus including knowledge, skills and attitudes)	Number of periods
1	Concept of immediate care and components of essential newborn care.	<ul style="list-style-type: none"> Define the term immediate care of a newborn. Enumerate components of essential newborn care. 	1
2	APGAR score assessment	<ul style="list-style-type: none"> Define the term Apgar score. Describe elements of APGAR score To determine the need for resuscitation. 	2
3	Requirements, aims and importance of the assessment of the newborn immediately after birth.	<ul style="list-style-type: none"> To determine the requirements for newborn assessment. To show the importance of newborn assessment. Discuss the elements of newborn assessment. 	1
4	Anthropometric measurements	<ul style="list-style-type: none"> To enumerate the measurements to be taken for newborn. To differentiate normal ranges of measurements from abnormal and need for referral /attention. 	2
5	Vital signs measurements of the newborn	To enumerate vital signs to be taken and show their normal ranges.	1
6	Head and neck assessment	<ul style="list-style-type: none"> To identify the abnormal findings from head and neck. Describe elements of assessment for a newborn's head and neck. 	1
7	Chest and lungs assessment	To apply the effective assessment of chest and lungs.	1
8	Abdomen, back and genitalia assessment	To determine what to assess on abdomen, back, and genitals for both boys and girls.	1
9	Assessment of the limbs of the new born	To explain the importance of assessing newborn's limbs.	1
10	Assessment of the skin	To explain the importance of assessing newborn's skin.	1

11	Reflexes assessment	<ul style="list-style-type: none"> To explain the reflexes to be assessed in newborns after birth. To explain the importance of reflexes in newborns. 	2
12	Helping the Baby Breathe (HBB)	<ul style="list-style-type: none"> Define HBB. Explain Golden minute in HBB. Perform the procedure of Help babies breathe. 	2
13	Breastfeeding to the newborn	<ul style="list-style-type: none"> To define term breast-feeding and exclusive breast feeding. To educate the mother to initiate breast feeding and to show how to proper position baby for good latchment. Recognize correct positioning for a breastfeeding newborn. Explain different positions for a breastfed newborn. 	2
	Skills lab	<ul style="list-style-type: none"> Practical assessment on the general assessment of newborn, Recognize elements of assessment for a newborn t and explain the procedure to assess the newborn. Demonstrate practical skills for helping babies breathe. Pay attention when helping babies breathe Appreciate appropriate language while providing care to a newborn Respect clients' rights and privacy Demonstrate professionalism when providing care to a newborn. Using Neonatalie model in skills lab, carry out simulations of newborn assessment. Using Neonatalie model in skills lab, carry out simulations of Helping babies breathe. 	2

	End unit assessment	The lesson was conducted very well and all students were involved and they are capable to achieve the key competences of the lesson.	2
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Lesson 1: Concept of immediate care and components of essential newborn care.

a) Learning objectives:

- Define the term immediate care of a newborn.
- Enumerate components of essential newborn care.

b) Teaching resources

Student's book and teacher guide of the unit, mannequin, white board, computer, projector, flipcharts, marker, papers and pens.

c) Prerequisites/Revision/Introduction:

This is the first lesson of the sixth unit of immediate care of the new born. In this lesson, the teacher will be dealing with the explanation of different key terms and the essential new born care during the time of providing immediate care to a new born. The first thing to do before starting teaching is to remind students that they have learnt about antenatal care, management of the third stage of labor and normal delivery in maternal and child health (S4), reproductive health in biology (S4), and let them discuss the meaning of some key terms related to the immediate care to a new born so that they can prepare themselves for this lesson.

d) Learning activity 6.1

Guidance:

- Provide an activity 6.1 given in student teacher textbook and ask them to do the related questions, attributed to each group,
- Provide the necessary materials.
- Move around in silence to monitor if they are having some problems
- Remember to assist those who are weak but without giving them the knowledge.
- Invites any five students to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on white board / paper the student's ideas.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers for activity 6.1

1. Answers for activity 6.1 At the time of birth and over the first hour of life,
2. whether in the health facility or at home.
3. Thermal care (including prompt drying and maximizing skin-to-skin contact and covering the baby at birth, delayed bathing, maintaining “warm chain”).
4. The terminology of early breastfeeding in the immediate newborn care refers to initiate it as early as possible or within 1 hour after birth.
5. Clearing of airways, if necessary, not as routine, Maintenance of body temperature, eye care, cord care, initiation of breastfeeding, Administration of vitamin K, newborn measurements, monitoring of baby, care of baby when exposed to HIV or HEP B.

Answers for self-assessment 6.1

Expected answers are:

1. The key components include; drying the baby, stimulating, assessing breathing, cord care, skin to skin contact, initiating breastfeeding, eye care, administering of vitamin K, measuring baby and identification.
2. The importance of applying antibiotics is to prevent eye infections in newborn babies.
3. Thermal care (including prompt drying and maximizing skin-to-skin contact and covering the baby at birth, delayed bathing, maintaining “warm chain”). Early initiation and exclusive breastfeeding.
4. The newborn loses heat in four ways that are;
 - Evaporation: when amniotic fluid evaporates from the skin.
 - Conduction: when the baby is placed naked on a cooler surface, such as the floor, table, weighing scales, cold bed.
 - Convection: when the baby is exposed to cool surrounding air or to a draught from open doors and windows or a fan.
 - Radiation: when the baby is near cool objects, walls, tables, cabinets, without actually being in contact with them.

Lesson 2: APGAR score assessment

a) Learning objectives:

- Define the term Apgar score.

- Describe elements of APGAR score
- To determine the need for resuscitation.

b) Teaching resources

Student's book and teacher guide of the unit, a watch, mannequin, white board, computer, projector, flipcharts, marker, papers and pens.

c) Prerequisites/Revision/Introduction:

This is the second lesson of the sixth unit of immediate care of a new born. In this lesson you will be dealing with the elements of APGAR score during the assessment of the new born. The first thing to do before starting teaching is to remind students that they have learnt about antenatal care and normal delivery in maternal and child health (S4), and let them discuss the meaning of some elements of the APGAR score so that they can prepare themselves for this lesson.

d) Learning activities

Guidance:

- Ask students to work in pair and do the activity 6.2 in student's book.
- Provide the necessary materials to the learners.
- Move around in silence to monitor if they are having some problems, sharing ideas in pairs.
- Assist those who are weak but without giving them the knowledge.
- Invite any of the three pairs to present their findings to the rest of students.
- Ask other students to follow carefully the presentations
- Note on white board / paper the student's ideas.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Encourage the students to have more practice on the assessment of the mother.
- Harmonize and conclude on the learned knowledge and still engage students in making their own conclusion.

Answers of activity 6.2

1. APGAR is a quick test performed on a baby at 1 and 5 minutes score after birth, the 1 minute score determines how well the baby tolerated the birth process.
2. This helps to identify the babies that have need for resuscitation /difficulty breathing or have other problems that need further care.

Answers for self-assessment 6.2

1. APGAR is a quick test performed on a baby at 1 and 5 minutes score after birth, the 1 minute score determines how well the baby tolerated the birth process. The 5 minutes' score tells the healthcare provider how well the baby is doing outside the mother's womb.
2. A= Appearance, P=Pulse Rate, G= Grimace, A= Activity, R=Respiratory Rate
3. Dr. Virginia Apgar was an obstetrical anesthesiologist designed and introduced the Apgar Score, the first standardized method for evaluating a new-born's transition to life outside the womb.
4. She created a system in 1952

Lesson 3: Requirements, aims and importance of the assessment of the newborn immediately after birth.

a) Learning objectives:

- To determine the requirements for newborn assessment.
- To show the importance of newborn assessment.
- Discuss the elements of newborn assessment.

b) Teaching resources

Student's book and teacher guide of the unit, white board, computer, projector, flipcharts, marker, papers and pens.

c) Prerequisites/Revision/Introduction

The students already know about the elements of APGAR score during the assessment of the new born learnt in the previous lesson, the teacher is also recommended to help them to work on this activity of practice for applying the elements of APGAR score for the assessment of a new born as it is in the student book and the teacher will use the student's ideas through the practice and student's presentations hence preparing for the next lesson.

d) Learning activities 6.3

Guidance:

- Tell the students to go to the class room.
- Ask the students to collect the necessary materials.
- Ask the students to brainstorm on the aims and importance of the assessment of the new born immediately after birth.

- Supervise the practice how it is being conducted and give the students' opportunity to work in their respective groups
- Ask students to record findings on the paper sheet
- Help the students to summarize what they have learnt.
- Ask the students to present what they have done.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers of activity 6.3

1. The requirements are mother & baby together, warm room, fresh clean sheet/clothes, pulse oxymeter, thermometer, weighing scale, watch with seconds, stethoscope.
2. To carry out an examination of a baby soon after birth
 - To screen for malformations
 - To observe smooth transition to extra uterine life
 - An overall of baby's condition

Answers for self-assessment 6.3

1. To carry out good interpersonal communication.
 - To take complete history about the mother and neonate.
 - To be sure that the neonate has identification band.
 - To perform complete physical assessment (General appearance, vital signs, growth measurements, gestational age assessment).
 - Prevention of hemorrhage (administer vitamin K if not given in the delivery room).
 - Documentation.
2. The aim of assessing/examining the newborn baby immediately afterbirth is to:
 - To describe and carry out an examination of a baby soon after birth
 - To screen for malformations
 - To observe smooth transition to extra uterine life
3. Mother & baby together
 - Warm room, fresh clean sheet/clothes
 - Thermometer, weighing scale, watch with seconds, stethoscope

4. During the first 30 min. through which the baby is characterized as physiologically unstable, very alert, cries vigorously, may suck a fist greedily, & appears very interested in the environment.

Lesson 4: Anthropometric measurements

a) Learning objective:

To enumerate the measurements to be taken for newborn.

To differentiate normal ranges of measurements from abnormal and need for referral.

b) Teaching resources

Student's book and teacher guide of the unit, mannequin, white board, computer, projector, flipcharts, a tape measure, a balance, marker, papers and pens.

c) Prerequisites/Revision/Introduction

The teacher makes a revision on the assessment of the new born immediately after birth, the activity in student book create the clear connection to the measurements that could be based on for further assessment of the new born. The teacher will ask the learners some questions related to the measurements which may help to assess the new born appropriately after birth.

d) Learning activities 6.4

Teacher's activities

- Ask the students to collect the materials needed to conduct the assessment of the new born immediately after birth.
- Ask the students to brainstorm the measurements to be used during the assessment of the new born.
- Supervise the task how it is being conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.
- Tick the correct findings and correct those ones which are incorrect and try again to complete those which are incomplete.
- Harmonize and conclude on the learned knowledge and still engage students in making that conclusion.

Answers for activity 6.4

1. The nurse is measuring head circumference, length and weight of the baby.

2. Weighing baby after birth is very important as it indicates babies who are at greater risk for problems like hypothermia, hypoglycemia.
3. The normal range of newborn's head circumference is 33 to 37 cm.

Answers for self-assessment 6.4

1. The essential measurements are head circumference, chest circumference, weight, length.
 - a) Head circumference is between 34-37cm, chest circumference is between 31-33cm, weight ranges between 2500-4000 grams, and the normal babies range is 45 to 50 cm of length.
 - i. Molding of the skull may give inaccurate measurement of the head circumference. So it should be measured after 48 hours after birth.
 - ii. If the baby weighs less than 2500 grams or more than 4000grams; the associate nurse must quickly refer the baby for further advanced care.

Lesson 5: Vital signs measurements of the newborn

a) Learning objectives:

To enumerate vital signs to be taken and show their normal ranges.

b) Teaching resources

Student's book and teacher guide of the unit, mannequin, and materials for vital signs, white board, computer, projector, flipcharts, marker, papers and pens.

c) Prerequisites/Revision/Introduction

The students already learned the anthropometric measurement during the assessment of the new born and they are given enough time to practice the assessment of the new born and the teacher will ask different questions on the vital paramters and the materials to be used for taking the vital signs of the new born immediately after birth. From the answers provided by the learners, the teacher gives the progress of the lesson.

d) Learning activities 6.5

Guidance:

- Give the students the materials to be used for taking the vital signs of the new born and guide them.
- Ask the students to separate figures located in student book based on their role.
- Ask the students to brainstorm on the interpretation of the figures.

- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.
- Encourage the students to have more practice of taking the vital signs of the new born.

Answer for activity 6.5

1. The nurse is taking heart rate/ pulse rate, temperature and respiration.
2. Temperature: Normal range: 36.5 to 37.5 C axillary
3. Respiratory rate: Normal range: 30 to 60 breaths per minute.

Answers for self-assessment 6.5

- It stabilizes in 8 to 10 hours after delivery
- When baby is crying heart rate reaches 180 beats /min.
- Crying may elevate temperature.
- Asymmetrical chest movements, apnea >15 seconds, diminished breath sounds. Grunting, nasal flaring, retractions, deep sighing, tachypnea, respirations > 60, persistent irregular breathing, excessive mucus.

Lesson 6: Head and neck assessment

a) Learning objectives:

- To identify the abnormal findings from head and neck.
- Describe elements of assessment for a newborn's head and neck.

b) Teaching resources

A projector, machine (Laptop), white board/wall, flipchart, markers, tape measure, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces the lesson by showing the images illustrating some parts of the head and the neck and ask different questions such as what elements do you think the nurse will assess to that baby's head and neck? What do you understand by word fontanel? From the answers provided by the learners, give you the progress of the lesson.

d) Learning of learning activities 6.6

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the images showing the head and the neck of the new born.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.
- Encourage the students to have more practice on the head and neck assessment of the new born.

Answer of learning activity 6.6

1. The nurse assesses head for skull bones, shape, symmetry, suture lines and fontanels and neck palpate for masses and the clavicles are palpated for crepitus, which could indicate an injury. Neck of the new born is short and has various folds and it should be checked for mobility, and webbing of the neck.
2. It is closed at 12-18 month of age.
3. A space between the bones of the skull in an infant, where ossification is not complete and the sutures not fully formed.

Answers for self-assessment 6.6

1. The anterior fontanel closes at 12-18 months of age
2. The posterior fontanel closes at 2 months of age
3. The associate nurse will check for any asymmetry, spacing, and movement, oedema, discharge, colour of sclera. Position of the eyes and distance between inner canthus of both eyes (hypertelorism hypotelorism) and pupils' reaction to the light.
4. The associate nurse looks at the eyes, ears, nose, and cheeks. He/ She he also examines the face for any asymmetry or obvious malformation.
5. Sutures are fibrous bands of tissue that connects the borns of the skull.

Lesson 7: Chest and lungs assessment

a) Learning objectives

To apply the effective assessment of chest and lungs.

b) Teaching resources

A projector, machine (Laptop), white board, flipchart, markers, a tape measure, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces this lesson by demonstrating some images showing an associate nurse who is assessing the chest and lungs of the new born and the teacher may ask the learners some different question like What elements do you think the nurse will assess newborn's chest? What do you think about inter costal retractions during breathing? From the answers provided by the students, give the teacher the progress of the lesson.

d) Learning activities 6.7

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the images showing an associate nurse that is assessing the chest and lungs of the new born.
- Ask the students to brainstorm on the rate and rhythm of the respiration of the new born.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.

Answer of learning activity 6.7

- The chest is barrel shaped. A malformed chest could indicate a problem. Retractions may be observed with respiratory difficulty, observes the nipple and breast tissue. Breast size and location should be assessed. He/she observes witch's milk (milky discharge due to effect of maternal hormones).
- Inter costal retractions indicate respiratory difficulties.

Answers for self-assessment 6.7

- The nurse assesses chest for shape, symmetry, the chest is barrel shaped. A malformed chest could indicate a problem. Retractions may be observed with respiratory difficulty.

- Parents of the baby should not be worry because it will be resolved slowly and there is no treatment for it because witch's milk is a milky discharge due to effect of maternal hormones.
- Normally, the chest is barrel shaped.
- The lungs should be auscultated while the infant is quiet.

Lesson 8: Abdomen, back and genitalia assessment

a) Learning objectives:

To determine what to assess on abdomen, back, and genitals for both boys and girls.

b) Teaching resources

A projector, machine (Laptop), white board, flipchart, markers, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces the lesson by showing some pictures of an associate nurse examining the abdomen, back and the genital parts of the new born and the teacher ask some different questions like What elements do you think the nurse will assess to the back, abdomen, spine and genitalia of the newborn? What do you think to be observed on umbilical cord after birth? From the answers provided by the learners, the teacher gives the progress of the lesson.

d) Learning activities 6.8

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the pictures of an associate nurse examining the abdomen, back and genital parts of the new born.
- Ask the students to brainstorm on how to examine the abdomen, back and genital parts of the new born.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.
- Encourage the students to have more practice for assessing the abdomen, back and genital parts of the new born.

Answer for learning activity 6.8

1. The shape and distension, also check for bowel sounds, and observe the umbilical cord for infection and any discharge, redness and observe two arteries and one vein. Check for any hernia or any abnormality. Abdomen should feel soft during palpation. Abnormal spinal curvature, hair on the skin, depression in the spine, spina bifida, meningocele, meningomyelocele. On female genitalia the associate nurse will check if the labia major cover the labia minor (sign of maturity) and if the clitoris is visible on separating the labia. Urethral opening should be below the clitoris. Pink red mucous vaginal discharge may be found during the first week due to sudden decrease of maternal hormones, which is known as pseudo menstruation.
2. Observe two arteries and one vein. Check for any hernia or any abnormalities.

Answers for self-assessment 6.8

1. Umbilical cord for infection and any discharge, redness and observe two arteries and one vein. Check for any hernia or any abnormalities.
2. On the back, the associate nurse will check for any abnormal spinal curvature, hair on the skin, depression in the spine, spina bifida, meningocele, meningomyelocele.
3. The testes should be inspected and palpated for descend; scrotum appears pigmented and wrinkled with rugae. Pens should be inspected for urethral opening. Check for hydrocele and inguinal hernia.
4. The Pink red mucous vaginal discharge may be found during the first week due to sudden decrease of maternal hormones.

Lesson 9: Assessment of the limbs

a) Learning objectives:

To explain the importance of assessing the newborn's limbs.

b) Teaching resources

A projector, machine (Laptop), white board, flipchart, markers, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces this lesson by showing some images with an associate nurse who is assessing the limbs of the new born and the teacher ask will some different questions such as what elements do you think the nurse will assess newborn's limbs? What is the meaning of the term polydactyl? From the answers provided by the learners, the teacher offers the progress of the lesson.

d) Learning activities 6.9

Guidance:

- Give the students the materials to be used and guide them.
- Ask students to observe the images illustrating an associate nurse that is assessing the limbs of the new born.
- Ask the students to brainstorm how on congenital malformations of the limbs.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.

Answer of learning activity 6.9

1. On limbs, the associate nurse assesses arms, Legs, Hands, checks for any symmetricity, abnormal length and deviations, fractures, paralysis, and weakness. Also assess if there is polydactyly, syndactyly and abnormal skin creases. Hips: On hips, assesses the range of motion adequate and click. If any deviation, it indicates congenital hip dislocation. Plantar creases: These are creases on the soles of the feet. They can range from absent to covering the entire foot, depending on the maturity.
2. The term polydactyl is the condition of having more than the normal number of fingers or toes.

Answers for self-assessment 6.9

1. The associate nurse checks for any symmetry, abnormal length and deviations, fractures, assess if there is polydactyl.
2. The associate nurse checks for any symmetry, abnormal length and deviations, fractures, paralysis, and weakness, assess for syndactyly and abnormal skin creases.
3. The associate nurse assesses the range of motion adequately. If any deviation, it indicates congenital hip dislocation.

4. Plantar creases are creases on the soles of the feet. They can range from absent to covering the entire foot, depending on the maturity.

Lesson 10: Assessment of the skin

a) Learning objectives:

To explain the importance of assessing newborn's skin.

b) Teaching resources

A projector, machine (Laptop), white board/wall, flipchart, markers, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces this lesson by explaining the characteristics of the skin of the new born and how it differs from that of the adults and the teacher will ask some questions such as which elements do you think that the nurse will assess on the newborn's skin? From the answers provided by the learners, give the teacher the progress of the lesson.

d) Learning activities 6.10

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the images showing the skin of the new born.
- Ask the students to brainstorm on the skin conditions that could affect the skin of the new born.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.

Answer of learning activity 6.10

1. Elements assessed on the newborn 'skin':
 - Assess the Miliaria (Heat Rash)
 - Petechiae on scalp and face after vertex delivery
 - Vernix Caseosa(Cheesy white skin covering present at birth)
 - Transient vascular phenomena like skin mottling related to cold exposure and positional erythema on the dependent side of the body.

- Erythema toxicum neonatorum (Yellow papules on red base affected face and trunk, disappearing within days to a week)
 - Neonatal Pustular Melanosis(Milky fluid filled Vesicles without erythema, <5 mm on torso, buttock, forehead, chin)
 - Milia(Pinpoint white, keratin-filled Papules (blocked Sebaceous Glands) on nose and cheeks)
 - Lanugo(Fine hair on Shoulders and back). If too much, it can indicate prematurity
 - Spontaneous Fat Necrosis
 - Acne Neonatorum
2. Lanugo is the fine hair on Shoulders and back. If too much, it can indicate prematurity.

Answers for self-assessment 6.10

1. The normal short term skin conditions are;
- Erythema toxicum neonatorum (Yellow papules on red base affected face and trunk, disappearing within days to a week.
 - Neonatal pustular melanosis (milky fluid filled Vesicles without erythema, <5 mm on torso, buttock, forehead, chin)
 - Milia(Pinpoint white, keratin-filled Papules (blocked Sebaceous Glands) on nose and cheeks.
 - Lanugo (Fine hair on Shoulders and back). If too much, it can indicate prematurity.
 - Spontaneous Fat Necrosis
 - Acne Neonatorum.
2. The Normal Birthmarks that the associate nurse checks on the newborn:
- Mongolian Spots (large up to 10 cm bluish-gray pigment patches on extremities as well as lumbar, sacral and buttock region).
 - Nevus simplex (macular pink to red capillary dilations that fade with time, occurring on upper Eyelids, forehead, nape of neck.
 - Anemia),Jaundice onset within first day of life(indicates hemolytic disease of the newborn and neonatal jaundice), cyanosis(can indicate respiratory distress, cardiovascular disorders, hypoxia), mottling (can indicate sepsis, or hypothermia), gray skin coloration(is a sign of metabolic Acidosis), vesicles (can indicate neonatal HSV), bullae.

- Pallor indicates bleeding or Anemia.

Lesson 11: Reflexes assessment

a) Learning objectives:

- To explain the reflexes to be assessed in newborns after birth.
- To explain the importance of reflexes in newborns.

b) Teaching resources

A projector, machine (Laptop), white board, flipchart, markers, charts for the babies with different reflexes, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

- The teacher introduces different reflexes and asking different questions such as what do you think about necessity of assessing the reflexes on baby? From the answers provided by the learners, give the teacher the progress of the lesson.

d) Learning activities 6.11

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the images illustrating different reflexes and there are located in the student book.
- Ask the students to brainstorm on how to assess the reflexes from the new born.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.

Answer of learning activity 6.11

1. Grasping, stepping reflex, moro reflex, sucking reflexes.
2. Healthcare providers check reflexes to determine if the brain and nervous system are working well. The presence and strength of a reflex is an important sign of nervous system development and function.

Answers for self-assessment 6.11

1. The associate nurse has to check for Babinski reflex as follows: stroke outer sole (Babinski) and the baby's toes will spread, and great toe in dorsiflexion.

2. The associate nurse checks for Moro Reflex (Startle Reflex) as follows:
 - Hold supine infant by arms a few inches above bed
 - Gently drop infant back to elicit startle
 - Baby throws Arms out in extension and baby grimace.
3. Reflexes are involuntary movements or actions. Some movements are spontaneous and occur as part of the baby's normal activity. Others are responses to certain actions.
4. The presence and strength of a reflex is an important sign of nervous system development and function.

Lesson 12: Helping the Baby Breathe (HBB)

a) Learning objectives:

- Define HBB.
- Explain Golden minute in HBB.
- Perform the procedure of Help babies breathe.

b) Teaching resources

A projector, machine (Laptop), white board, flipchart, markers, materials for HBB, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces the meaning of the Golden minute and the teacher will ask some different questions such as what do you think about the Helping the Baby Breathe (HBB) program? What do you think will be done to help the baby breathe in the first minute (golden) of birth? From the answers provided by the learners, give the teacher the progress of the lesson.

d) Learning activities 6.12

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the chart located in student book demonstrating how HBB is being done.
- Ask the students to brainstorm on the routine care provided for HBB.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.

Answer for learning activity 6.12

1. Helping Babies Breathe (HBB) is a simulation-based neonatal resuscitation program for low resource settings.
2. The Golden Minute: within one minute of birth, a baby should be breathing well or should be ventilated with a bag and mask. The Golden Minute identifies the steps that a birth attendant must take immediately after birth to evaluate the baby and stimulate breathing.

Answers for self-assessment 6.12

1. Within one minute of birth, a baby should be breathing well or should be ventilated with a bag and mask.
2. The routine cares provided in HBB:
 - Dry thoroughly
 - Is the baby crying?
 - Keep warm, check for breathing
 - Clamp or tie the umbilical cord
3. Drying helps for keeping the baby to stay warm and stimulates breathing.
4. The preparation of the delivery area before delivery includes:
 - Identify a helper and review emergency plan
 - Prepare the area for delivery
 - Wash hands
 - Prepare the area for ventilation
 - Assemble disinfected equipment and supply
 - Test the ventilation bag, mask

Lesson 13: Breastfeeding

a) Learning objectives:

- To define term breast-feeding and exclusive breast feeding.
- To educate the mother to initiate breast feeding and to show how to proper position baby for good latchment.
- Recognize correct positioning for a breastfeeding newborn.
- Explain different positions for a breastfed newborn.

b) Teaching resources

A projector, machine (Laptop), white board/wall, flipchart, markers, mannequin, student books for this unit and teacher's guide book.

c) Prerequisites/Revision/Introduction

The teacher introduces the importance of breastfeeding and ask different questions such as When do you think the baby starts to breastfeed after birth? From the answers provided by the learners, give the teacher the progress of the lesson.

d) Learning activities 6.13

Guidance:

- Give the students the materials to be used and guide them.
- Ask the students to observe the image located in the student book showing a mother who is breastfeeding the baby.
- Ask the students to brainstorm on the positions of breastfeeding of the new born.
- Supervise the work how it is conducted and give the students' opportunity to work in their respective groups.
- Ask the students to present what they have done
- Help the students to summarize what they have learnt.

Answer of learning activity 6.13

1. It is best to try to breastfeed the baby in the first hour after birth.
2. The advantages of breastfeeding for the mother
 - Breastfeeding burns extra calories, so it can help losing pregnancy weight faster.
 - It releases the hormone oxytocin, which helps uterus to return to its pre-pregnancy size and may reduce uterine bleeding after birth.
 - Breastfeeding also lowers risk of breast and ovarian cancer.

Answers for self-assessment 6.13

1. Exclusive breastfeeding is recommended for 6 months.
2. Colostrum is thick, yellowish first milk phase production, and there's not a lot of it, but there's plenty to meet the baby's nutritional needs.
3. Advantages of breastfeeding to the baby are:

- It has a nearly perfect mix of vitamins, protein, and fat everything your baby needs to grow
 - Breast milk provides the ideal nutrition for infants.
 - Increase bonding
 - Regulate temperature, heart rate
4. Breastfeeding positions are: cross-cradle hold, cradle, football, side-lying, laid-back positions.

6.6 Summary of the unit for unit 6

Immediate care of the newborn is the care given to the neonate after birth by qualified personnel in the delivery room. Essential newborn care refers to key routine practices in the care of the newborn, particularly at the time of birth and over the first hours of life, whether in the health facility or at home.

The immediate care of the newborn baby is an important first step in allowing term babies to transition safely between intrauterine and newborn life. Examination at birth includes assessment of certain important parameters, and to evaluate the adjustment of newborn to these life processes.

The newborn assessment database includes information gathered from the history, reviewing mother's record, head to toe examination for physical and neurological characteristics and is used to establish nursing priorities, which guide nursing diagnosis and nursing interventions.

For optimal breastfeeding the associate nurse should do the following:

- Help the mother begin breastfeeding within the first hour of birth.
- Help the mother at the first feed. Make sure the baby has a good position, attachment, and is sucking well. Do not limit the length of time the baby feeds; early and unlimited breastfeeding gives the newborn energy to stay warm, nutrition to grow, and antibodies to fight infection.

The steps to keep the newborn warm:

- Warm the delivery room.
- Immediate drying.
- Skin-to-skin contact at birth.
- Breastfeeding.
- Bathing and weighing postponed.
- Appropriate clothing/bedding.
- Mother and baby together.
- Warm transportation for a baby that needs referral.

6.7 Additional information

The activity requires the teacher to take students inside the skills lab and help them to do it. As teacher, you have to divide the students into groups, provide necessary materials to be used and guide them accordingly. Remember to call student for presentation of their results.

6.8 End unit 6 assessment

SECTION A. MULTIPLE CHOICE QUESTIONS

1. C
2. C
3. C
4. D
5. C
6. D
7. A
8. C
9. A
10. B

SECTION B: SHORT ANSWER QUESTIONS

11. The head is about 31-33cm. and the chest is 2-3cm less than head circumference.
12. For the first 24 to 48 hours of life, the head and chest circumference may be equal.
13. By observing the startle reflex by the loud noise.
14. The associate nurse will palpate for crepitus.
15. Nose will be assessed for patency, depression or low nasal bridge. He/ she will also assess for nasal discharge, deviated nasal septum, and nasal flaring.
16. Position of the eyes and distance between inner canthus of both eyes should be checked, it should be 2 cm in diameter. If it is more than 2 cm; it is known as hypertelorism and if it is less than 2 cm; it is known as hypotelorism.
17. Pink red mucous vaginal discharge found during the first week due to sudden decrease of maternal hormones, which is known as pseudomenstruation.

18. While assessing the respiration patterns for the baby the associate nurse will notice:

- Asymmetrical chest movements
- Apnea >15 seconds
- Diminished breath sounds
- Seesaw respirations
- Grunting
- Nasal flaring
- Retractions
- Deep sighing
- Tachypnea - respirations > 60
- Persistent irregular breathing
- Excessive mucus
- Persistent fine crackles
- Stridor (Crowing respiratory sound)

19. 5 Abnormal findings or lesions on the newborn 'skin that requires evaluation, specific management or observation:

- Pallor (indicates bleeding or Anemia)
- Jaundice onset within first day of life(indicates Hemolytic Disease of the Newborn and Neonatal Jaundice)
- Cyanosis(can indicate respiratory distress, cardiovascular disorders, hypoxia).
- Mottling(can indicate Sepsis, or Hypothermia)
- Gray Skin Coloration(is a sign of metabolic Acidosis)
- Vesicles(can indicate Neonatal HSV)
- Bullae
- Nevus sebaceous which is a yellow hairless plaque on scalp or face. It may be associated with epidermal nevus syndrome and carries risk of future skin cancer in 10-15% of cases
- Hyperpigmentation
- Cafe-Au-Lait Macule"Coffee with milk" (tan to brown) colored flat
- Macule, <4 cm located on trunk

20. The healthcare providers need to check the reflexes in order to determine if the newborn's brain and nervous system are working well.

21. In HBB, the health care provider before delivery should do the following:

- Identify a helper and review emergency plan
 - Prepare the area for delivery
 - Wash hands
 - Prepare the area for ventilation
 - Assemble disinfected equipment and supply
 - Test the ventilation bag, mask
22. The most common ways to know that the baby is hungry is “cry”. Other signs showing that the baby wants to breastfeed include:
- Licking their lips or sticking out their tongue
 - Rooting, which is moving their jaw, mouth, or head to look for breast
 - Putting their hand in their mouth
 - Opening their mouth
 - Fussiness
 - Sucking on things

6.9. Additional activities

6.9.1 Remedial Activities:

1. What do you understand with term essential newborn care?

Answer: Essential newborn care refers to key routine practices in the care of the newborn, particularly at the time of birth and over the first hours of life, whether in the health facility or at home.

2. What are the ways that the newborn loses heat?

Answer: The newborn loses heat in four ways

- **Evaporation:** when amniotic fluid evaporates from the skin.
- **Conduction:** when the baby is placed naked on a cooler surface, such as the floor, table, weighing scales, cold bed.
- **Convection:** when the baby is exposed to cool surrounding air or to a draught from open doors and windows or a fan.
- **Radiation:** when the baby is near cool objects, walls, tables, cabinets, without actually being in contact with them.

3. What is the normal range of birth weight for term baby?

Answer: The normal range of birth weight for term baby is from 2.5 to 4 kg.

4. What is the in full of APGAR score?

Answer: APGAR score means Appearance, Pulse, Grimace, Activity, and Respiration.

5. What are the roles of the associate nurse during the assessment of the newborn baby immediately afterbirth?

Answer: The role of the nurse/midwife is:

- To carry out good interpersonal communication.
- To take complete history about the mother and neonate.
- To be sure that the neonate has identification band.
- To perform complete physical assessment (General appearance, Vital signs, Growth measurements, Gestational age assessment).
- Prevention of hemorrhage (administer vitamin K if not given in the delivery room).
- Documentation.

6. What is the different between anterior fontanel and posterior fontanel?

Answer:

Anterior fontanel	Posterior fontanel
Bounded by the parietal and frontal bones It is diamond in shape It is about 2.5 cm long and 4 cm wide It is closed at 12-18 month of age It is also called bregma	Bounded by occipital and parietal bones It is triangular in shape It is about 2.5 cm wide and 2.5 cm long. It is closed at 2 month of age It is also called lambda

6.9.2 Consolidation activities

1. Why is it necessary to study HBB in the associate nursing program?

Answer: The first minutes after birth are critical to reducing neonatal mortality. Helping Babies Breathe (HBB) is a simulation-based neonatal resuscitation program for low resource settings. The associate nurse has to perform the nursing activities from HBB for saving the life of the new born.

2. Observe the following image and try to give its interpretation, its contribution

during the immediate new born care.



Answer: Breastfeeding is when baby is feed with breast milk, and the breast milk is the ideal food for new born. It is safe, clean and contains antibodies which help protect against many common childhood illnesses. Breast milk provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one third during the second year of life. It's best to try to breastfeed the baby in the first hour after birth because by latching on and sucking rhythmically, the breast begins switching on the cells to initiate the body's breast milk supply.

6.9.3 Extended activities

1. Explain the positions used by the mother during breast feeding of new born.

Answer: The some common positions for breastfeeding the baby:

- **Cradle position.** The mother rests on the side of the baby's head in the crook of her elbow with the whole baby's body facing the mother. The mother positions the baby's belly against her body so they feel fully supported. Other, "free" arm can wrap around to support the baby's head and neck -- or reach through the baby's legs to support the lower back.
- **Football position.** The mother lines the baby's back along the mother's forearm to hold the baby like a football, supporting the head and neck in her palm. This works best with new-borns and small babies. It's also a good position for the mother recovering from a cesarean birth and need to protect the belly from the pressure or weight of the baby.
- **Side-lying position.** This position is great for night feedings in bed. Side-lying also works well if the mother is recovering from an episiotomy, an incision to widen the vaginal opening during delivery. The mother uses pillows under head to get comfortable. Then snuggle close to the baby and the mother use her free hand to lift the breast and nipple into the baby's mouth. Once the baby is correctly "latched on," the mother supports the baby's head and neck with her free hand so there's no twisting or straining to keep nursing.
- **Cross-cradle hold.** The mother sits straight in a comfortable chair that has armrests. The mother holds her baby in the crook of her arm that's opposite

the breast she will use to feed them.

The mother supports the baby's head with her hand. She brings the baby across her body in a way that her tummies face each other. She uses her other hand to cup the breast in a U-shaped hold. She brings the baby's mouth to her breast and cradles them close, and does not lean forward.

2. Explain the procedure used for drying the new born immediately after birth.

Answer: Procedure

Dry the baby thoroughly at birth. Drying help keeping the baby to stay warm and stimulates breathing. A newly born baby is wet and may become cold even in a warm room.

- Dry the body, head, arms, and legs by rubbing gently with a cloth
- Drying the back provides important stimulation to breathe. Wipe the face, clean of feces and blood.
- Drying can be done on the mother's abdomen.
- Place a clean cloth on the mother's abdomen before birth.
- Position the baby on the cloth and dry thoroughly.

Remove the wet cloth and place the baby on skin to skin with the mother and cover with a dry one. A baby who is crying is receiving routine care and kept warm and check breat

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