CHAPTER 1
INTRODUCTION

“It is usually normal and you should let it be normal,” said the midwifery teacher about pregnancy and childbirth. When I asked her to explain what is normal, she said, It is hard to tell what is normal, it depends on who is judging it”.

Jenny Gleisner

A woman feels complete in her life when she experiences the pleasure of motherhood. This birthing experience is a tedious experience of unparalleled joy and gateway to the next chapter of motherhood. A mother spends approximately two to six hours during delivery of fetus and placenta in the labour room. Within this period of the time mother undergoes a various repeated procedure such as per vaginal examination, rupture of membrane, episiotomy for assessing the progress of labour. While performing this procedure genital tract is prone to infection due to the substandard level of infection control practices.

According to the National Family Health Survey, the percentage of institutional births in India has doubled from 38.7% to 78.9% into 2015-16².

Studies have shown that health systems are under stress due to the increased use of under-resourced health facilities such as poor environmental conditions, overworked health workers, overcrowding, substandard clinical practices and a shortage of supplies. These facilities may result in poor and substandard Infection Control Practices which may result in increased risk of puerperal sepsis during intranatal and postnatal period³.
World health organization (WHO) categorizes Puerperal sepsis is an as the third most leading cause of maternal mortality and morbidity known as childbed fever\textsuperscript{4}.

Infection control is the most important area of concern in labour and delivery room. As a mother might get exposed to infection due to multiple vaginal examinations by health care personnel during the process of labour, while newborn babies take time to adapt to their surroundings, after immediately coming out of their mother’s womb\textsuperscript{5}.

The efficacy of infection control practices during obstetric and postnatal care directly reflects the quality of care provided to the women. The unhygienic practices and the shortage of clean types of equipment and materials contribute to the developing of infection during and after childbirth \textsuperscript{3,5}.

An infection control campaign ‘Clean Care is Safer Care’ launched by WHO during 2005-2015 as part of global patient safety challenge. Based on the evidences, the WHO guidelines gave first priority to hand washing\textsuperscript{6,7}. The Central of disease control and prevention (CDC’s 2006) “Guideline also recommended for Hand Hygiene in Health Care Settings”. The CDC strongly recommended that gloves must also be worn as part of standard precaution. Many research studies have reported the effectiveness of wearing gloves and wearing personal protective measures can be by allowed health care workers to avoid introducing infections to patients\textsuperscript{8}.

Biomedical waste management is another major concerned which has been notified worldwide due to its ill effect on human and environment. The Bio-medical waste management Rules which are revised periodically for safe disposal of waste. The recently revised BMW rules (2016, 2018) specifies standard color coding and type of container for disposal of BMW; those are yellow for all human blood and body product, red for sharp, blue for plastic material and black for non-infectious waste\textsuperscript{9}.
BACKGROUND OF THE STUDY

The incidence of contracting an infection, during labour has become a growing issue worldwide. The World Health Organization (WHO) defines the infection of genital tract occurring at the time of labour or within 42 days of the postpartum period. It is the third - most common cause after hemorrhage and abortion as a result of maternal death worldwide\textsuperscript{10}.

The World Health Organization (2013) report estimates 289,000 maternal deaths are yearly resulting due to childbirth problems\textsuperscript{4} out of which 15% maternal death are resulting due to puerperal sepsis. Worldwide India ranks fifth in maternal mortality with 167 per 1, 00,000 live births for which puerperal sepsis stands third most leading cause of death\textsuperscript{4}. (WHO 2013)

Sample Registration System (SRS), India estimated 11% maternal deaths between 2001 – 03 (special survey of deaths) were due to puerperal sepsis. In a population-based study in rural Maharashtra, puerperal sepsis was the second major cause of maternal mortality (13.2%) after postpartum hemorrhage\textsuperscript{4}.

Maternal mortality and morbidity rate is higher among women from poor communities and those who live in rural areas\textsuperscript{11}. Due to initiation of national rural health mission (NRHM) and National health mission (NHM) worldwide maternal mortality rate dropped by about 44% between 1990 and 2015. The global maternal mortality ratio needs to further reduce to less than 70 / 100, 000 live births according to Sustainable development goals\textsuperscript{11}.

Nearly 75% of all maternal deaths are due to complication such as severe bleeding after childbirth, infections (usually after childbirth), and high blood pressure during pregnancy (pre-eclampsia and eclampsia) and unsafe abortion. Infection after childbirth can be eliminated if early signs of infection are recognized and if good hygiene is practiced and treated in a timely manner\textsuperscript{12}. 
NEED OF THE STUDY

The National Population policy and Reproductive and Child Health Program (RCH) II (2002), set out goals for 2015 which stated that 80% of all deliveries should take place in institutions; 100% of such deliveries should be attended by training personnel to achieve the reduction of maternal mortality ratio (MMR) to less than 100 / 100,000 live births. The National Rural Health Mission (NRHM) (2005 – 2012) aimed to improve availability and access to maternal and child health services. There is a tremendous increase in the number of deliveries at health facilities which have been achieved through the financial incentives provided to health workers and to the pregnant women.

The World health organization (WHO) report showed that every minute a mother dies due to complications which occur during pregnancy and childbirth. The maternal mortality ratio is 27 / 100,000 live births in developed countries, while the ratio is 20 times higher in developing countries. Depending on the region Maternal mortality rate was varied between 167 and 230 per 100,000 live births in India.

Many lacerations, wounds and genital tract infections can be introduced during childbirth in the labour room. Puerperal sepsis is one of the most dangerous and life-threatening conditions during intranatal and postnatal period. Result of sixteen-year study conducted in Northern India and the results showed that 35% of maternal deaths were due to sepsis, while a 41.9% of deaths caused were due to sepsis in a study conducted in Southern India.

Most of the studies have shown that the major cause of maternal mortality is due to lack of intrapartum care. The place of delivery i.e. labour room also plays an important role in safe delivery. A baby born in unhygienic condition is more prone to getting an infection in the first week of life. A specific practice and procedure should be performed in the labour room to minimize or prevents infections for safe delivery. Followed sterile
technique during delivery with efficient personnel following aseptic precaution is highly advantageous to both mother and fetus during delivery\textsuperscript{13}. A proper followed aseptic precaution will help to prevent the introduction of infection to the mother\textsuperscript{13}.

Since the implementation of the infection control practices (according to the Biomedical Waste Management Rules 2016 revised in 2018), all health care personnel are expected to have proper knowledge, attitude, practices, and capacity to guide others regarding waste collection, segregation, management and proper handling techniques\textsuperscript{9,13}. The labour room generates a various form of hazardous waste which includes sharps, used disposable items, infectious waste (blood-soaked cotton, gauze, and sanitary pads) and anatomical waste i.e. placenta that can detrimental to the environment if not properly managed\textsuperscript{13}.

Huskins, Manchandaz, and Singh (2013) performed a structured assessment on Infection control in the labour room by using infection control assessment tool of five community health centers and district hospitals of Rajasthan and Odisha. The study results highlighted that general hygiene and cleanliness practices were poor due to the lack of supplies and awareness among health worker. Health care facilities were more concerned regarding the cleaning, segregation, processing, storage, and disposal of biomedical waste management. The study further suggested that, adequate training of nurses on asepsis procedures and adequate material supplies to the delivery room would enhance the Infection control practice in the labour room\textsuperscript{14}.

Shah R. et al (2014) performed Video Surveillance Audit of Handwashing Practices in a level 3 unit of a Neonatal Intensive Care Unit (NICU) in Gujarat. Hand washing practices were evaluated by installing motion-activated video cameras above the washing area of outborn NICU. 1081 hand washing procedures were evaluated, wherein 37.3\% were excellent, 48.2\% were acceptable, and 14.5\% were unacceptable. Study result also
recommended that innovative interventions are required to improve hand washing during night shifts.\textsuperscript{15}

Thobbi V, Deshpande G and Reddy (2015) performed a two-year retrospective study to evaluate the incidence of maternal mortality and to identify causes and preventable factors of death occurring in the district of Bijapur, Karnataka, India. There were 58 maternal deaths and 79,566 live birth; hence, the maternal mortality ratio was 73/100,000 live birth. Hemorrhage, septicemia, preeclampsia, and eclampsia were responsible for 44.82\%, 15.51\% and 6.89\%, respectively. A majority of the maternal deaths are preventable if these delays are avoided, such as delay in identifying the problem, seeking care, reaching referral institute and getting treatment on reaching the referral institute. The study findings also showed that puerperal sepsis deaths are also caused due to poor general hygiene in hospitals and poor practices of the asepsis technique and standard practices in the labour room. Maternal deaths may also be contributed due to shortage of manpower and other inadequacies in hospitals.\textsuperscript{16}

Three pillars of the education domain are knowledge, attitude and practices which make up the dynamic system of life itself. Knowledge is information that is gained or acquired\textsuperscript{5, 13}, while attitude shows in the approach towards the proper situation and practice refers to the skills acquired through practices and knowledge that lead to action. Thus, the right knowledge, a positive attitude, and good skills are vitally important to guide and serve the patient.\textsuperscript{13}

Competence is the ability to function proficiently through knowledge and skills acquired throughout their training of the midwives. Professional competencies are an outcome. It describes what someone can do, in order to reliably measure someone’s ability to do something. Competencies must be clearly defined and widely accessible standards through which performance is measured and accredited. "Core competencies in nursing" are the standard set
of performance, which is necessary to demonstrate proficiently to enter into professional practice\textsuperscript{13}.

Mehta R et al (2011) performed a need assessment on Infection Control in delivery care units in the state of Gujarat, India. The findings of the study revealed that there is a need to improve information system, protocols, procedures, and training and research in health facilities. The results highlighted that health facility via government schemes is not enough by sensitizing the behavior of women for safe delivery\textsuperscript{17}.

In domiciliary settings, the causes of puerperal sepsis are lack of knowledge, unhelpful attitudes, beliefs and an unsuitable infrastructure for hygienic delivery. The insufficient facilities of water, soap, clothes, traditional norms and beliefs can lead deliveries to take place in unsanitary facilities, which may cause puerperal infections and neonatal infections\textsuperscript{17}. Community knowledge of puerperal sepsis is often poor and infection remains unrecognized\textsuperscript{17}.

The researcher owns experience and observation shown that staff nurses often failed to practice competently aseptic techniques in the labour room. Practices of hand washing, before, during and after performing vaginal examinations and conducting safe deliveries are her important areas of concern where staff nurses must be careful\textsuperscript{13}. Standard precaution is crucial in preventing infections to the mother. Keeping in mind all the points stated above the investigator felt the need to assess the Effectiveness of Nursing Audit and Competency-Based Education on Infection Control Practices during Intranatal Period in Labour room on Knowledge Attitude and Practices of Nursing personnel\textsuperscript{13}. 

**PROBLEM STATEMENT**

“Effect of Nursing Audit and Competency-Based Education regarding Infection Control Practices during Intranatal period on Knowledge, Attitude and Practices of Nursing Personnel working in the Labour Rooms of selected Public Health Centres of Raigad District”\(^{13}\).

**OBJECTIVES OF THE STUDY**

1) To find out incidence of maternal mortality & morbidity rate in relation to Puerperal sepsis from records available in selected Public health facilities at the beginning and after 12 month of intervention

2) To assess the existing facilities, resources, protocols, information dissemination regarding Infection Control Practices in selected Public Health Facilities at the beginning and after 12 month of intervention

3) To compare the knowledge and attitude among nursing personnel in relation to selected Infection control practices during Intranatal period in the labour room before and after competency based education

4) To compare the Practices among Nursing Personnel in relation to selected Infection Control Practices during Intranatal period in the labour room before and after Competency Based Education.

**OPERATIONAL DEFINITION**

**Effect:** - According to the Oxford dictionary, an effect can be defined as a change which is a result of an action or other causes\(^ {18}\).

In this study, effect refers to the change in knowledge attitude and practices on infection control during the intranatal period in the labour room.

**Audit:** - According to the Oxford dictionary, an audit is an official inspection of an organization’s accounts\(^ {18}\).

**Nursing Audit:** - Nursing audit is an exercise to find out whether good nursing practices are followed.
In this study, Nursing Audit is a systematic analysis of the quality of infection control practices followed in labour room with regards to:

- The Physical layout of the labour room
- Policies, protocols, supplies, and equipment related to infection control
- Infection control practices in the labour room

**Competency Based Education:**
Competency means the ability to do something successfully or efficiently.
As per the Oxford dictionary Education is the process of receiving or giving systematic instruction. Competency-based Education is an approach to teaching and learning concrete skills than abstract learning.

In this study, competency-based education is pertains to Infection Control Practices during intranatal period in the labour room imparted through planned health teaching, discussions, demonstrations and live practices.

**Infection Control:**
As per the Centers for Disease Control (CDC), Infection control is the policies and procedures used to minimize the risk of spread of infections, especially in hospitals and human health care facilities.

Infection control practices help to prevent the transmission of diseases that can be acquired by contact with blood, body fluids non-intact skin and mucous membrane through safety measures such as hand washing, Personal Protective Equipment, sterilization & disinfection.

In this study, Infection control practices performed by the nursing personnel who will be assessed by using knowledge questionnaire, attitude Likert test and observational checklist on hand washing, Per Vaginal examination, safe conducting labour, cleaning, and waste management.

**Knowledge:** According to the Oxford dictionary, knowledge is defined as the information and skills gained through experience or education.

In this study, knowledge of infection control practices during the intranatal period in the labour room is assessed by pre and post-tests.
Attitude: According to Oxford dictionary, attitude is a way of thinking or feeling about something or someone\textsuperscript{18}.

In this study, attitude is assessed in the change in thinking regarding infection control practices in the labour room by Likert test through pre and post-tests.

Practices: - According to Oxford dictionary, practices are the action of doing something rather than the theorizing about it\textsuperscript{18}.

Intranatal period: The intranatal period is from the time of the onset of labor to the delivery of the placenta.

Nursing personnel: It refers to the nurses who are registered and working since last one year in the labour room.

Labour room: It is the area of a health care center that provides care for the mother during intranatal period as well as during the immediate postpartum period.

ASSUMPTION

Nursing personnel

- Having basic knowledge regarding Infection control practices during intranatal period in the labour room.
- Knowledge on Infection control practices may influence clinical practices.
- Adequate knowledge of Infection control practices will help in adopting a positive attitude towards healthy practices
- Competency-based education will increase their knowledge and proficiency in Infection control in the labour room.

HYPOTHESIS

- $H_{01}$ - There is no significant difference between knowledge and attitude with regards to infection control practices during the intranatal period in the labour room before and after competency-based education at 0.05 level of significance.
• H₀₂ - There is no significant difference between practices with regards to infection control during the intranatal period in the labour room before and after competency-based education at 0.05 level of significance.

**DELIMITATION**

• The study was delimited to selected public health facilities of Raigad district.

**ETHICAL CONSIDERATION**

• The study proposal has been approved by the Ethics Review committee, Mahatma Gandhi Memorial Institute of Health Sciences, Kamothe, Navi Mumbai where experts from the various field were present.
• Official permission is obtained from Directorate of General health services, Maharashtra to conduct the study in Raigad district.
• Prior permission is taken from Health Officers and District Health Officers and medical officers of the selected public health centers.
• The investigator explained the purpose and importance of the research study to the nursing personnel.
• The investigator provided complete freedom to the participant for deciding whether to participate or to withdraw from the study and right to ask questions.
• The participants were assured of confidentiality throughout the study, and while communicating the results. Written consent was obtained before data collection.
CONCEPTUAL FRAMEWORK

Conceptual framework presents logically constructed concepts to provide a general explanation of the relationship between the concepts of the research study, without using a single existing theory. It helps to organize the study and provide a context for the interpretation of the result in the study.

The investigator used Ernestine’s Wiedenbach’s “Helping Art of Clinical Nursing Theory” for the conceptual framework.

Ernestine Wiedenbach’s is a clinical nurse wrote Family-Centered Maternity Nursing in 1958. She developed the helping art of the clinical nursing perspective theory in 1964. According to this theory, there are three elements necessary for effective practice knowledge, judgment and skills.

This theory is based on three factors:

- The central purpose which the practitioners recognizes as essential to the particular discipline
- The perception for the fulfillment of the central purpose
- The realities in the immediate that influence the central purpose

1. **Central purpose**: It has 3 components for nursing philosophy namely reverence for the gift of life, respect for the dignity, worth, autonomy, and individuality of each human being and resolution to act dynamically in relation to one’s beliefs.

2. **The prescription**: Appropriate actions to implement a plan to carry out the action with the central purpose. Actions may be voluntary (Intended response) or involuntary (unintended response). There are three voluntary actions: Mutually understood and agreed upon action, recipient-directed action, and practitioner-directed action.

3. **The realities** - After the nurse determines the central purpose and has developed the prescription she considers the realities. There are five realities: the agent, the recipient, the goal, activities to achieve the goal and the framework which comprise the human, environmental, professional, and organizational facilities.
The practices of nursing are an art, wherein the actions are based on the principles of helping. Which consist of reflex (spontaneous), conditioned (automatic), impulsive and deliberate (responsible)

The nursing practice has 3 components as follows:

1. Identification of the patient’s needs
2. The Ministration of help needed
3. Validation of the action taken

**Step – 1: Identifying the need for help**

In this study, the Investigator and Nursing personnel came together with the goal of achieving an excellent level of Infection Control Practices through Nursing audit and Competency-based Education. Two components in identifying the need for help are as follows:

a) General Information: This comprises the conducting of a nursing audit, the collection of demographic variables and pre-test on knowledge, attitude, and practices on infection control during intranatal period in the labour room among nursing personnel.

b) Central Purpose: Central purpose refers to what the researcher wants to accomplish. In this study the central purpose was to improve the standards of health facilities and enhance the level of knowledge, attitude and practice of nursing personnel on infections control during intranatal period in the labour room.

**Step – 2: Ministering the needed help**

The researcher prepared a plan of meeting the needs, based on the available resources at the public health facilities.

a) Prescription: In this study, the prescription was Nursing Audit and Competency-Based Education on Infection Control Practices during Intranatal period in the labour room which is imparted through lecture cum discussion by using PowerPoint presentation and skills were demonstrated by using observation checklist.
b) Ministering (Manipulation): In this study, the researcher used Competency Based education on Infection Control Practices during the Intranatal period in the Labour room which included the following components:

• Policy and protocols on Infection control in labour room
• Standard practices on Infection Control Practices during the intranatal period in the labour room.
• Biomedical waste management.

c) Realities: It is the immediate situation that influences the fulfillment of the central purposes. Nursing personnel should understand the realities of the situation in which she has to provide nursing care to the mother.

The realities are as follows:
1. The Agent: The agent (Researcher) is a person who is providing care to the delegates.
2. The Recipient: The recipient is nursing personnel who are characterized by their personal attributes, problems, capacities, aspirations, and ability to cope with the problems, commitment, and competence in the nursing. In this study, the recipient was nursing personnel working in the labour room of selected public health facilities of Raigad district who received the Competency-based education.
3. The Goal: The goal is an outcome that the investigator wishes to achieve after intervention. In this study, the goals was to improve the standard practices of labour room, environment and enhance the level of knowledge, change the attitude and improve the skills on Infection Control of nursing personnel in the Labour room.
4. The Means: It is the activities carried out by researcher with the help of devices through which the researcher attains the set goals. The means include skills of standard procedures, techniques and devices that may be used to deliver nursing practices. The Competency Based Education on Infection Control Practices was imparted through a lecture by power point presentation,
discussion and live demonstration to improve the practices on infection control in the labour room among nursing personnel.

5. The Framework: It is the Public health facilities in which nursing care is practiced. In this study, the Labour room of all public health facilities of Raigad district was used as a framework of the study.

The total population of nursing personnel was 443 who work in the public health facilities of Raigad district. They are qualified as an ANM, LHV, GNM, PB BSC in Nursing. The break of the total population is as follows:

- One district civil hospital:– Comprises 272 beds with 60 to 80 beds for maternity patient and approximately 600 to 800 deliveries per month are conducted in which 11 nursing personnel is working in the labour room in shift duty.

- Five sub-district hospitals: – 30 to 50 bedded in each with 10 beds designated for maternity, on an average of 100 deliveries per month are conducted. Total 11 nursing personnel working in the district hospital and works in shift duty in labour unit.

- Seven Rural hospitals:– 10 to 15 bed in which 7 nursing personnel work in the labour unit in shift duty.

- Twenty-seven primary health centers operational 24/7 were 7 ANM and one GNM work in the labour room in respective PHC.

**Step – 3: Validating the needed help was met**

In this study, it involves the post-test assessment on knowledge, attitude, and practices after administering Competency-Based Education and the comparison to find out the outcome. This approach helps the investigator to make the suitable decision. It also recommended the action to continue, drop or modify the nursing action. In this study, it is the comparison of Nursing Audit before and after the intervention, pre-test and post test level of knowledge, attitude, and practices on Infection Control in the labour room among nursing personnel.
The expected outcome of the level of knowledge and practice on infection control in the labour room was categorized as into fair, good and excellent, while the attitude was positive, negative or neutral. The outcome of the audit was compared with frequency and percentage. The nursing personnel who had a fair level of knowledge and practice were enhanced by the lecture and demonstration given on infection control in the labour room.

**SUMMARY:**
This chapter highlighted on introduction, background, the need and the objectives of the study. It also deals with operational definitions, assumptions, hypothesis, delimitations, and ethical aspects. The researcher applied “Wiedenbach’s theory - Helping Art of Clinical Nursing” for describing the concepts of the conceptual framework.
**THE NURSE RESEARCHER**

**CENTRAL PURPOSE**
To improve the labour room standard and enhance the level of knowledge, attitude and practice to control infection in labour room

**IDENTIFICATION**

**CONTEXT:**
N= 40 Health centers of Raigad district and 443 nursing personnel
Civil district hospital – 16
Sub district Hospital – 36
Rural Hospital – 33
Primary health centers - 145

**MINISTERING**

**Realities**
- **Agent:** Researcher
- **Recipient:** Public health facilities and Nursing personnel working in labour room
- **Goal:** To improve labour room standards, and level of knowledge, attitude and practices on infection control during intranatal period in labour room of Nursing personnel
- **Means:** lecture, discussion and live demonstration on Infection control practices in labour room
- **Framework:** all labour rooms of public health facilities of Raigad district

**Prescription**
- **Competency based education on Infection control practices in the labour room**
- **Method**
  - Lecture cum discussion by poster, charts and power point presentation
  - Practices by live presentation by demonstration on hand washing, per vaginal examination, conducting labour and cleaning and waste management

**VALIDATING**

**Assessment of post test level of knowledge, attitude and practice on infection control in labour**

**Positive outcome**
- Improved labour room standard
- Good and Excellent level of knowledge, attitude & practice ICP in labour unit

**Negative outcome**
- No improvement in labour room setup
- Fair level of knowledge, attitude and practice on ICP in labour unit

**Figure No. 1. 9.1 Conceptual Framework Based on Ernestin Wiedenbach’s helping Art of Clinical Nursing Theory**