Basics of research

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Research vs Audit

• Research - Finding new knowledge

Audit – Comparing current practices with a given standard

Steps in conducting research / audit

- Formulate a research question
- Write a research proposal
- Obtain ethical clearance
- Start data collection
- Data analysis and dissemination of findings

Formulating a research question

- What are our the questions / concerns ?
 - Are our patients satisfied with the service we provide?
 - What is the infection rate?
 - What is the success of initiating breatfeeding with the first hour?
 - Are we better than the other unit?
 - Are we better than before?

Formulate your research topic

Need to be specific

Identify your study population, study setting

Include your study design

Formulate your research topic

- Are our patients satisfied with the service we provide?
- Satisfaction of mothers admitted to University Unit, De Soysa Hospital for Women regarding the management of labour
- What is the infection rate?
- Incidence of sepsis in the Neonatal Unit, De Soysa Hospital for Women from
 2020 2022

How do we design our research?

- What is the background? Define your topic and state why it is important to explore this area of study? (Background)
- What are you hoping to achieve ? (Objectives)
- What work has already been done by others? (Literature review)
- Is there a gap in knowledge? (Gap in knowledge)
- Justify why it is important to undertake this research in this study setting in this study population ? (Justification)

Background

- Define the problem and highlight its importance
 - Are our patients satisfied with the service we provide?
 - Define patients, satisfaction, service etc.
 - Talk about why patient satisfcation is important

- What is the infection rate?
 - Define infection.
 - Talk about why infection rate is important.

Objectives

- General objective
 - Overall parameters that are going to be measured

- Specific objectives
 - Breakdown into different subcomponents within the general objective

Objectives

Need to state in measurable terms

- Need to use action verbs
 - Determine
 - Identify
 - Describe
 - Compare
 - Assess

General Objective

• To determine the satisfaction of mothers admitted to University Unit,

De Soysa Hospital for Women regarding the management of labour

• To determine the percentage of sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 – 2022

Specific objectives

- To determine the percentage of sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022
- To determine the percentage of culture positive sepsis in the Neonatal Unit,
 De Soysa Hospital for Women from 2020 2022
- To identify the aetiological agents causing culture positive sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022
- To assess the factors associated with culture positive sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022

Literature review

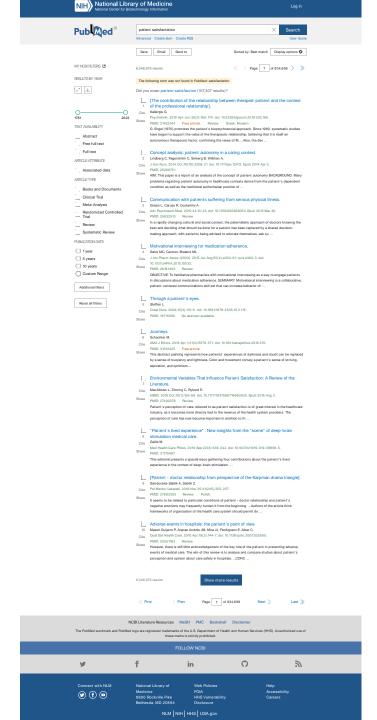
Need to search the literature for work done by others

• Electronic search – use sites like "Pubmed", "Google scholar"

Go through journals and conference proceedins

Look for standards and guidelines – nationally and internationally

Literature review





1 2 3 4 5 6 7 8 9 10 >

Identifying the gap and writing the justification

- What is already known?
- What has already being published / presented nationally and internationally?
- Is there a gap in the literature ?
- Justify why this study needs to be done and how it will help to improve the current practice / knowledge

How are we going to do the research?

Methodology

Methodology

- Identify the most appropriate study design
- Determine the study setting
- Determine the study duration and timing
- Determine the study population
- Identify the inclusion and exclusion criteria
- Determine the variables that are going to be studied
- Determine the most appropriate data collection methods and tools the measure the desired variables

Study design

- Will depend on the research question
 - Are our patients satisfied with the service we provide?
 - Can collect data after delivery at a single time point Cross sectional study
 - Are we better than the other unit?
 - We need to collect same variables from both units and run a comparative analysis
 - Are we better than before ?
 - We need to collect same variables from before and after and run a comparative analysis

Study design

- Will depend on the research question
- Research question Outcome of preterm babies
- Need to collect long term data longitudinal study

- Research question Is oxygen dependency associated with higher incidence of ROP?
- Is the period of gestation related to the outcome?
- Need to look at the realtionship between variables

Study design

- To determine the percentage sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022 (description)
- To determine the percentage culture positive sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022 (description)
- To identify the aetiological agents causing culture positive sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022 (description)
- To determine the factors associated with culture positive sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022 (relationship between sepsis and gestational age, sex, birth weight, duration of stay etc)

Characteristics of research design



Neutrality



Reliability



Validity

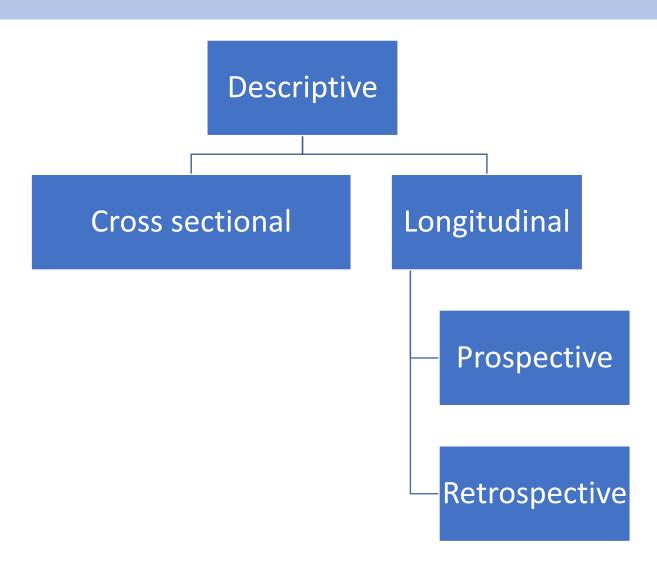


Generalization

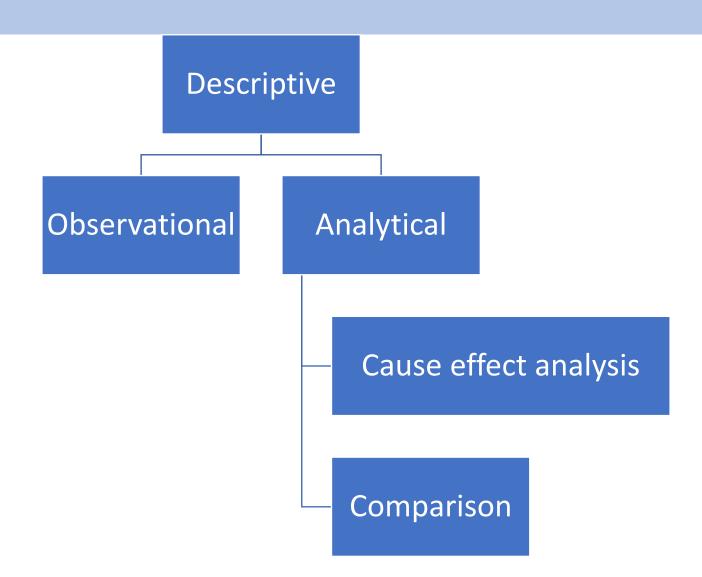




Types of descriptive studies



Types of descriptive studies



Methodology

• Determine the study setting – where the study is done - location

Determine the study duration and timing – how long, and on which dates

Incidence of culture positive sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 –

Methodology

- Determine the study population
- Identify the inclusion and exclusion criteria

Defining study population

Incidence of sepsis in the Neonatal Unit, De Soysa Hospital for Women from
 2020 – 2022

Study population

- All neonates admitted to the Neonatal Unit, DSHW from 2020 2022 who have been diagnosied to have sepsis
- Inclusion criteria
- All neonates wih sepsis whose parents give consent
- Exclusion criteria
- All neonates with major congenital abnormalities

Identify the study variables

- How common is sepsis in the Neonatal Unit, De Soysa Hospital for Women from 2020 2022
- Study variables
- Clinical features suggestive of sepsis
 - Poor perfusion, lethargy, irritability
- Investigations suggestive of sepsis
 - CRP
 - FBC
 - Blood culture
 - Swab culture
- Data to eliminate confounding factors need to exclude hyupoglycemia, hypothermia, dehydration due to delayed establishment of breastfeeding

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Data collection methods and tools

- Questionaire
 - Self administered
 - Interviewer administered

- Data recording form
 - BHT
 - Monitoring charts

References

- Need to acknowledge where you have obtained your information from with regard to definitions, and what is Iready known about the topic. – to avoid plagiarism
- Cited within the text, next to the relevant statement within brackets
- Listed at the end of the research proposal / report / article with all details

Common referencing styles

- Harvard referencing
 - Cite in text in as first authors last name and year of publication
 - References listed according to alphabetical order

- Vancouvre referencing
 - Cite within text as a number (super script / bracket)
 - References listed numerically according to the order that it appears in text

In-cite referencing (Harvard style)

- Increasing interest in child growth and development during the first half of the 20th century resulted in longitudinal studies resulting in growth reference charts such as the Harvard Growth Study (1922-1935), Fels Study (1929-1975), Harpenden Study (1948-1972) resulting in the 1966 UK growth references, 1977 United States NCHS reference and the UK 1990 growth reference (*Cole*, 2012.)
- The Fels longitudinal study from 1929-1975, was the longest operational longitudinal study in the world. The study included children who were products of normal birth and were apparently healthy, from middle class families in Ohio, USA, who were measured at birth, 1, 3, 6, 9, 12, 18, 24, 30 and 36 months (*Himes, 2006, Hamill et al., 1977, Johnson et al., 2012*).

Reference list (Harvard style)

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- Collins C, Reid J, Makrides M. et al. Prediction of body water compartments in preterm infants by bioelectrical impedance spectroscopy. Eur J Clin Nutr 2013;67(Suppl.1):S47–S53.

In-cite referencing (Vancouvre style)

 Adiposity at birth is a significant predictor of childhood obesity from 2 to 6 years of age. Abdominal circumference at birth has been shown to have a high correlation with ultrasound measured abdominal adipose tissue, both subcutaneous and visceral. Although there are only few studies describing the abdominal circumference at birth, waist circumference in children has been shown to be the best predictor of visceral adipose tissue assessed by MRI.³ Abdominal obesity, based on waist circumference has also been reported as a better predictor of cardiovascular risk factors compared to BMI-defined obesity in children. 4 Skinfold thickness (SFT) is widely used as an indicator of subcutaneous adipose tissue. 5 Both waist circumference and SFT of subscapular and supra-iliac regions have been associated with increased risk of liver disease and metabolic dysregulation in children. 6

Reference list (Vancouvre style)

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- 5. Eaton-Evans J. Nutritional Assessment: Anthropometry. In: Caballero B, Allen L, Prentice A (eds). Encyclopedia of Human Nutrition. 3rd ed. Oxford, UK Academic Press, 2013. pp 227-32.
- 6. Mager DR, Yap J, Rodriguez-Dimitrescu C, Mazurak V, Ball G, Gilmour S. Anthropometric measures of visceral and subcutaneous fat are important in the determination of metabolic dysregulation in boys and girls at risk for non- alcoholic fatty liver disease. Nutr Clin Pract. 2013;28:101-11.