

**DOING RESEARCH IN A MISSION HOSPITAL**

**PAPER PRESENTATION**

**@**

**MONTH-END FELLOWSHIP**

**BINGHAM UNIVERSITY TEACHING HOSPITAL CHAPEL'S DEVOTION**

**JOS**

**BY**

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# **OUTLINE:**

**Introduction**

**Research Notions**

**Reason for Research**

**Types of Research**

**Historical Note on Mission Hospitals**

**Development of Research Proposal**

## **DEFINITIONS**

### **Mission: NOUN**

Latin word “**MISSIONEUM**” Meaning:

Act of sending or dispatching – equivalent to MISS-US

A group of people sent by religious body especially Christian Church to foreign country to do religious and social work

An establishment of Missionaries in a foreign land.

### **Mission as Adjective:**

Relating to mission e.g. Mission school, Mission hospital.

**MISSIONARY** – A person sent on religious mission especially one sent to a foreign land to promote Christianity.

**Synonyms:** Priest, Evangelist, Minister

## **RESEARCH:**

Simple broad definition: A systematic process for generating new knowledge.

### **Scientific Research:**

A scientific inquiry aimed at learning new facts, testing ideas etc. It is a systematic collection, analysis and interpretation of data to generate new knowledge and answer certain question or solve a problem.

Research is a natural human instinct. A little child is always inquisitive to explore an environment to gain knowledge. Seeking for some lost items is a form of research.

## **Biblical Examples of Research:**

- i. Moses, Numbers 13 sent spies to search for information to gain knowledge and strategize for taking over the land of Canaan.
  
- ii. Samuel in ISam. 8: 8 – 13 went out to search for a leader to be anointed king Who has the following qualities:
  - a. Young
  - b. Without physical deformities
  - c. Physically robust
  - d. Handsome
  - e. Intelligence
  - f. A man with the heart of God

- iii. King Nebuchadnezzar of Babylon, Daniel chapter 1: vs 10 – 15 exemplified first classical biomedical research. His experiment was on comparison of effects of meat diet and wine vs beans and water. Intention was to see which group fared better. The group on beans and water were healthier.
  
- iv. Jesus Christ gave examples of:
  - Search for lost coin
  - Search for lost sheep – Luke 15: 4 – 8

## **WRONG NOTION ABOUT RESEARCH**

1. Not about new discoveries/inventions
2. Not for special group of persons
3. Highly sophisticated equipment not mandatory always
4. Lots of funds not always necessary

## **In Daily Human Life:**

Research could be a farmer planting 2 different types of sorghum side by side and comparing the yield.

A sociologist questioning people about their views on family planning

A non-health professional statistician analysing health impact of a particular medical intervention.



## WHY RESEARCH?

- Useful for acquisition of academic qualifications
- For publications to earn a promotion
- Just a means of livelihood
- To philosophers it is an outlet of ideas
- To analysts and intellectuals it is a basis of developing new theories
- Social scientist – useful in studying social relationship, seeking answers to various social problems
- Scientist – it inculcate scientific thinking, promotes development of logical habits of thinking.

## **In Medical Practice:**

Research Serves to:

- Identify and set frontiers in health problems i.e. major health problems in a community
- Guides and accelerate application of knowledge in solving health problems e.g smoking, alcohol
- Advance basic understanding and frontiers of knowledge
- Help in diagnosis, cure, prevention and rehabilitation
- Develop new tools and strategies
- Upgrade health of people through discovery and application of improved way of living and maintenance of good health.

## TYPES OF RESEARCH IN HEALTH

- (a) **Classification Applied Research:** Involves identifying priority problems and designing, evaluating policies and progress that will deliver the greatest health benefit i.e. for testing theory and its usefulness.
  
- (b) **Basic Research:** Involves generation of new knowledge and technology to deal with unsolved problem. Research is conducted for purpose of theory development.

## **OTHERS:**

**Qualitative Research:** This is concerned with subjective approach. It attempts to increase knowledge or understanding of why things are the way they are in social work. It attempts to answer such questions as:

- Why do people behave the way they do?
- How are opinions and attitudes formed?
- How are people affected by events that occur around them?
- How and why cultures are developed the way they have?

Quantitative research is based on quantitative measurements of some characteristics.

# CLINICAL RESEARCH

There is a wide range of topics under this heading ranging from prevention of diseases through new methods of treatment down to problem of care and rehabilitation.

(i) **Diagnostic:**

This is used to demonstrate whether a new diagnostic test is valid (can we trust it) and reliable (can it be repeated and obtain same result)

(ii) **Therapeutic:**

This is used to test the efficacy of a new drug treatment, surgical procedures, alternate methods of patient education.

This is clinical trial which involves 4 phases:

Phase 1: Of clinical trial of a drug conducted on small number of healthy people (who should be paid)

Phase 2: Conducted on a group of patients with the disease that the drug is intended to treat thereafter determine the efficacy or otherwise.

Phase 3: Research conducted with the drug on a larger number of patients and compared to another drug

Phase 4: Comes after the drug is licensed.

- (iii) **Screening:**  
Demonstrates the value of tests that can be applied to a larger population
- (iv) **Prognosis:**  
Determines what is likely to happen to someone whose disease is picked up in the early stage of illness
- (v) **Aetiology** (causation):  
Whether a putative harmful agents e.g. environmental pollution is relevant to development of disease
- (vi) **Randomised Controlled-Trials:**  
Participants are randomly allocated by a process similar to throwing a coin head/tail to either of the intervention e.g. drug treatment. The group is followed for a period of specified time and are then evaluated in terms of outcome.

## **ADVANTAGES OF RANDOMISED CONTROL-TRIALS:**

- Allows rigorous evaluations of a single variable in a precisely defined patients
- It is prospectively designed
- It uses hypothetical deduction or reasoning
- Eradicates bias to a large extend

## **DISADVANTAGES:**

- Time consuming and can be very expensive
- May introduce “hidden” bias
- Most of such trials are sponsored by large research bodies



(vii) **Case Controlled Studies:**

The group of patients with a particular disease or condition are matched with controls (patients with some other general population neighbours etc). Data then collected by searching back these people's medical records or by asking them to recall their own history. This can be applied to disease cause. E.g. Does whooping cough vaccine cause brain damage?

(viii) **Cohort Studies:**

Two or more groups of people can be selected on their basis of exposure to a particular agent (vaccines, environmental pollution) and are followed to see how many in a particular group develop disease or other outcome. Does contraceptive cause breast cancer?

## **RESEARCH IN A MISSION HOSPITAL**

### **Historical Evolution of Mission Hospitals in Nigeria:**

Roman Catholic Missionaries had been recorded as the first group to establish Western Medicine in Abeokuta in the 1860<sup>s</sup> when it established the Sacred Heart Hospital.

Throughout the colonial administration Roman Catholic, accounted for 40% of total number of mission based hospital beds by 1960. Around that period mission hospitals exceeded government hospitals in number; 118 mission hospitals to 101 government hospitals. Distribution of mission health facilities depended on religious activities of the missions.

Catholic concentration in South and Midwestern Nigeria.

Next to catholic in contribution of hospitals were the Sudan United Mission in middle belt areas while Sudan Interior Mission concentrated in the Islamic North and part of Plateau Province. Together they contributed 25 hospitals or other health facilities in the North in this period.

Missions played key roles in medical training and education, providing training for nurses, paramedical personnel sponsoring basic education including advance medical training abroad.

British colonial government began formal medical services with construction of clinics in Lagos and Calabar in the 1870<sup>s</sup>. These health facilities were initially solely for the use of Europeans. The hospital in Jos was founded in 1912 after the initiation of Tin Mining.

## **Research in a Mission Hospital Aims:**

1. Achieving high quality service for patient care towards attaining good health broadly defined as: A state of physical, social and spiritual wellbeing of an individual.
2. Revising and updating the right in-house process giving staff the right tools to do the jobs.
3. Developing the right culture for quality to flourish through training and retraining of manpower of different cadres.
4. Attracting and retaining the right people.

## Requirements:

1.
  - a. Clear mission goals and target
  - b. Strong quality initiative from the highest level of organisation board through management.
  - c. Regular quality initiative reporting
  - d. Safe environment
  - e. Clear definitions of staff roles

2. **Right Tools:**
  - a. Investment in IT with qualified staff. IT with emphasis on adopted specific culture priorities building up value for physicians to be able to carry out jobs quickly and efficiently. IT should include process of educating staff.
  - b. Management tools for monitoring
3. Performance measurements – using appropriate indicators
4. Constant monitoring of results.

# DEVELOPING RESEARCH PROPOSAL

Basically this involves:

- Planning
- Writing
- Introduction
- Objectives
- Literature Review
- Methodology



# METHODOLOGY

Research Methodology is the process used to collect information and data for making diagnosis, or making decision. The process involves:

- Planning and formulation of proposal
- Clear statement and definition of the problem
- Building on existing data both negative and positive
- Collection of data including field work where relevant
- Data analysis
- Report writing

## Formulation of the Proposal – Describe rationale

- Identification of the problem e.g. is there discrepancy between what is and what it should be?
- What could be the reason for this difference?
- What is the current state of knowledge or lack of it?
- What are the limitations?

## **Literature Review/Search:**

Aim – Find out the state of existing knowledge

Literature Review Exist at 3 Levels:

- (i) Browsing i.e. flicking through the pages
- (ii) Reading for information – just looking for a specific information on a particular problem
- (iii) Reading for research – to gain comprehensive view of state of knowledge, grey areas etc in a defined area.

## **How to Search Medical Articles:**

### Useful Sources:

- Medline data base
- Index medicus
- Online accessed over internet
- CD Rom
- Topic or paper article can be accessed using any word listed in abstract including names of authors, institutions.

## **WRITING:**

### **Title Page:**

State title as concise as possible reflecting the content of the work. Title can be in form of a question e.g. Is aspirin related to cardiac arrest?

### **Introduction:**

This should include statement of research problem state of knowledge, background and definition of the problem, significance of the proposal.

## **Objective: General Aim of the Study:**

### Specific Objectives:

- (a) Measureable statements on specific questions to be answered
  - Covering different aspects of the problem in logical sequence
  - Clearly stated
  - Must be realistic
  - Must meet the purpose of the study
  
- (b) Use Action Verbs
  - To measure .....
  - To verify
  - To compare
  - To find out etc

## **Materials and Methods:**

Entry of study design describing clearly details of study designs

- Interventional
- Non-interventionals
- Descriptive – cohort, cross sectional, prevalence study – pattern of disease
- Sampling technique – random, systematic
- Describe study population – hospital based, volunteers, community
- Collection methods – specimens, interviews, documentary, questionnaire, focus group discussion
- Data processing – manual, computer, coding system, analysis/tables, figures, test of significance (consult statistician)
- Results – discussions, appendices, references

Formatting of writing for submission depends on the particular need e.g. for Ph.D, Fellowship but to a large extent follows similar pattern.



## **Research Proposal for Funding:**

Research grants are given by sponsors or benefactors usually charitable organisations, NGO etc whose sole aim is to provide opportunities for scholars to pursue knowledge for welfare of humanity. They (granting agency) expect no material reward in return.

Before embarking on writing a research proposal for submission to such an organisation, the researcher must be familiar with vision of the organisation. Most research granting agencies provide forms to be filled by the applicant.

Applicant must clearly state the purpose of choice of the problem identified, where the work will be done, whether there are collaborators. Mission statement of the topic must be provided. Experience in the area of the proposed research essential. Attach relevant publications of research work on the topic by the applicant. Include work plan and budget.

Provide summary comprising the following components:

1. Title and cover page
2. Abstract
3. Table of contents
4. Introduction:
  - Statement of research problem
  - Background and definition of problem
  - State of knowledge
  - Significance of proposal

5. Objectives
6. Materials and methods
7. Data analysis
8. Work plan and budget
9. Appendices
10. References

## **Ethical Considerations:**

Human abuse in the 19<sup>th</sup> and 20<sup>th</sup> centuries when research involving human beings were being carried without consent. After World War II some physicians were convicted at Nuremberg code for gross violation of human rights. The World Medical Association 1947, took steps to ensure physicians were aware of their ethical obligation. This was reviewed in Helsinki and 9 reviews the last being 2013.

## **Examples of Ethical Abuse:**

- a. Emperor Frederick II (1192 – 1250 AD) King of Sicily and Jerusalem designed to find effect of exercise on digestion by feeding 2 Knights 1 cent to sleep, the other hunting. Then slaughtering them to examine stomach content.
- b. Physician Jan Baptista's designed study on phlebotomy in the 17<sup>th</sup> century.

## **The Principles of Ethical Consideration:**

1. Every proposal for medical research on human subjects must be reviewed and approved by an independent ethics committee before it can proceed.
2. Medical research involving human subjects must be justifiable on scientific grounds.
3. Social value is an important criterion for judging whether a research project should be funded.
4. If the risk is entirely unknown then the researcher shall not proceed until reliable data is available.
5. Voluntary consent of human subject is absolutely vital.

6. Confidentiality – Research subject has right to privacy with regard to their personal health information.
7. Conflicts of roles must be stated.
8. Honesty in reporting findings in publication mandatory.



## **Embed in these Principles are the following:**

- a. A physician's role in patient relationship is different from the researcher's role in the researcher research subject relationship.
- b. Even if they do not engage in research themselves, physicians must know how to interpret the results of research findings and apply to their patients.
- c. To maintain their competence, physicians must keep up with current research in their area of practice through research, medical education, continuing professional development.

## **Publications:**

- Original article based on research
- Reviews
- Editorials
- Case reports
- Books

## **CHALLENGES IN DOING RESEARCH IN BHUTH**

This title assumes and I think rightly so that Bingham University Teaching Hospital has been involved in carrying out research. Between January 2013 and July 2016, the Ethical and Research Committee of Bingham University Teaching Hospital had screened and approved 223 research proposals. The proposals indicated clearly that 75 of these research works were being carried out in BHUTH.

A few clearly located where the research were to be conducted e.g. Jos North Local Government and Kagoro a few stated Jos and its environs. The proposals were silent on the identities of principal investigators.

Fourthly, the purposes of the researches were not stated e.g. fellowship dissertations, Ph.D, Masters, Undergraduate projects, research for publications etc and what had been the outcome. If for obtaining qualifications what was the outcome? If for academic promotion where were these published?

Fifthly, it is not possible to know which of these were funded by research granting agency.

## **TYPES OF RESEARCH PROPOSALS APPROVED BY ETHICAL COMMITTEE OF BHUTH**

More than 90% of this research can be grouped under the subheading of clinical research e.g. diagnostic, biomedical, therapeutic etc. The remaining 10% were distributed as follows:

### **Others:**

- Social research – 19 (8.52%)
- Statistical Analysis – 3 (1.35%)
- Spiritual health – 2 (.0.89%)
- Leadership – 2 (0.89%)
- Chaplaincy – 1 (0.45%)

From the above simple analysis it can be inferred that most of the research were conducted by clinicians or under leadership of a clinician. Whatever the purpose of the research the outcome are centred on human wellbeing. At this point the advice of Alexander Pope in his ESSAY ON MAN appears relevant:

“KNOW THEN THYSELF  
PRESUME NOT GOD TO SCAN  
THE PROPER STUDY OF MANKIND IS MAN”

There is no better assessor of medical research (clinical) than the clinician who sees the patient and humanity in its frailty, its weakness and nakedness.

A clinician is a physician (doctor) who has person-to-person relationship with the patient, sharing their physical and emotional problems with the sole aim of providing relief.



Regardless of the location of clinical work either in a Teaching Hospital/Tertiary Hospital, General Hospital or a Rural Primary Health Care centre, the clinician achieves his assignment by gathering information namely history taking, observation of physical signs, physical examination, investigation and or surgical procedure (biopsy, radio imaging) to arrive at a definite pathological diagnosis.

## **How Does Research Come in Here?**

A clinician must be able to arrive at a goal from the evidence gathered. Quite often the evidence obtain do not fit any disease entity. Diagnostic backup become crucial. Documentation of all these records forms a vital basis of research.

Good diagnostic facilities require appropriate infrastructure, trained personnel and high technologic procedures. Let me illustrate this by few diagnostic techniques required in a teaching hospital like Bingham University Teaching Hospital.

## **DIAGNOSTIC/PROGNOSTIC MARKERS:**

Role of Tumour Markers in Diagnosis of Cancer. How many of these can we do in BHUTH?

Tumour markers are biochemical substances whose concentration can be related to the presence or progression of cancer. These can be determined in body fluid-blood, urine or cancer tissue.

### **Useful in:**

- a. Screening for primary disease
- b. Diagnosis of primary disease
- c. Predicting for recurrence
- d. Monitoring treatment
- e. Predicting prognosis

## **Examples of Tumour Markers:**

### **Foetal Antigen:**

- Alpha fetoprotein (AFP) in liver cancer, teratoma
- Carcinoembryonic antigen (CEA) (colon cancer)

### **Hormone:**

- Adrenocorticotrophic hormone (ACTH) – Pituitary gland, Adrenal gland
- Human placental lactogen (hPL) – Levels low in toxemia, hydatiform mole high multiple pregnancy
- Human chorionic gonadotropin – Choriocarcinoma, seminoma

## **Enzymes:**

- Prostatic Acid Phosphatase (AAP) – Prostate cancer
- Prostate Specific Antigen (PSA) – Prostate cancer

## **Others:**

CA – 125 – Ovarian cancer

Estrogen receptor/progesterone receptor in breast cancer.

## **Some Markers of Infections:**

Hepatitis B and C virus are common and major public health..... The following markers are used in diagnosis, monitoring progress etc.

Hepatitis B viral markers of infection

- HBSAg (Hepatitis B Surface Antigen)
- HBS (Antibody)
- HBe core antigen
- HBV IgM Antibody

## **Hepatitis C Virus**

- Anti – HCV antibody
- Hepatitis C genotype
- Hepatitis molecular assay to quantify HCV RNA
- Hepatitis C viral load
- DNA Polymerase Chain

## **Other viruses:**

Ebola, Lassa fever

Can we culture TB?

These and more are some of the challenges facing qualitative health care delivery. It is to be noted that carefully documented records of patient are essential ingredients of clinical research.

**Biomedical Research Technology Requires Among Other Things:**

- Trained and dedicated laboratory scientists, technicians who will be able to generate data for clinicians
- A state of modern equipment
- Biomedical Engineers, who will service, maintain, replace and fabricate new equipment
- Expertise in special services e.g. renal dialysis
- School of Biomedical Engineering/unit for training/retraining.



## **Next Challenge is Funding**

### **Sources of Research funding Include:**

- Public sector – Government
- International – Bilateral, Multilateral
- Industry – e.g. Pharmaceuticals
- Private sector – NGOs, Foundations etc
- University Research Board Grant
- University Teaching Hospital Proprietor

How much do we get from which of these bodies?

Even if BHUTH gets all the money needed for research, the cardinal issue is availability of trained staff in an efficient organisational structure for judicious use of the available funds.

A proactive Research Board either in the University or Teaching Hospital or both is an example of a body to manage research grants.

## **Motivation of Staff:**

It is a well-known fact that with the limited number of staff, a research leave for staff once a year should be considered. This should be in addition to staff annual leave. Can BHUTH afford this?

## **Staff Attraction and Retention:**

A conducive environment that will ultimately improve patient care, promote research, attracting and retaining quality staff – physicians, nurses, lab scientists, medical social workers etc.

- Nurses must be respected and empowered to play key roles
- Staff must be adequate in number
- Positive work conditions for growth
- There must be multi-disciplinary quality initiative team work spirit
- Safe environment
- Well-articulated, realistic implementable policies e.g. conference attendance, giving staff right tools to work

- Devising and updating the right in-house processes e.g.  
SMART:  
**S** – Simple  
**M** – Measurable  
**A** – Achievable  
**R** – Realistic  
**T** – Time bound
- Emphasis on IT (information technology) adopted to specific priorities including educating staff
- Good take-home pay.

The degree to which these are achieved or not achieved is an indicator of the challenges of meaningful research.

## **Improving Research:**

- Biomedical instrumentations for quick results in sophisticated blood chemistry etc
- Training manpower in scientific medical research
- Motivation
- Encourage research culture
- Computer education to enable staff transmits information electronically, review and publish papers online
- Regular scientific/research meetings

## **Publications:**

- Original article based on research
- Reviews
- Editorials
- Case reports
- Books

# SUGGESTED RESEARCH AGENDA

## 1. **Faith and Healing:**

Healing is an art that dates back to ancient times having been practiced by priest and clerics. Man was then to a large extent unaware of the causes of diseases and every illness was interpreted as supernatural. Medical advances have brought a lot of breakthroughs such as discovery of antibiotics and organ transplantations.



There is however, a growing a growing number of people. The world over including doctors who want to examine the connections between healing and spirituality. This change of attitude among doctors is nothing but a reflection of the yearnings of their patients. It is believed that prayer operates along biochemical pathways by relaxing certain chemicals – encephalin which brings relaxation.

What are the benefits of meditation in relieving stress, lowering blood pressure and immunity?

2. Other potential fertile areas of research for improving quality of care:
  - (i) Patient – Staff relationship
  - (ii) Patient satisfaction with services? What are the reasons for lack of satisfaction?
  - (iii) Medical audit – Average waiting time for a patient in the clinic to see a doctor. Waiting time to receive lab results.

- (iv) **Specialise Care Units** e.g. Newborn unit. Why do newborn who come to hospital die? When do they die? What if any difference between mortality of inborn vs outborn? What are nursing problems of nursing prematurity and very low birth weight? Do mothers recognise jaundice? How early, what care are offered before seeking health care in health facility?
- (v) **Other Special Care Units:**
- (a) Surgical Unit – mortality rate of emergency vs elective. Wound infection?
  - (b) Intensive care unit

## CONCLUSION

1. Research is vital for development of an organisation
2. Missionaries played crucial role in manpower development health sector inclusive
3. Research is not limited to any group
4. BHUTH comprising university teaching staff and teaching hospital staff have demonstrated that in spite of numerous constraints it is possible to conduct research

5. Clinical research in the present level of advances in medical sciences requires sophisticated equipment and techniques manned by well trained staff. This aspect poses serious constraints to researchers in BHUTH.
6. Some research does not require high technology to conduct.

**I THANK THE CHAPLAINCY FOR THIS  
OPPORTUNITY**