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Attitude and practice of Nurses toward prevention of catheter associated urinary tract infection at federal medical center Azare, Nigeria

Ahmad Abdulkadir Dahuwa and Sulaiman Umar

[1]Department of Nursing Sciences, Bayero University, Kano, Nigeria
[2]College of Nursing, Adesh University, Bathinda, Punjab, India

Abstract
Urinary Tract Infections (UTIS) are the most common type of healthcare-associated infection reported, among UTIS acquired in the hospital, approximately 75% are associatessd to urinary catheter. The aim of this study is to determine the attitude and practice of nurses toward prevention of Catheter Associated Urinary Tract Infection (CAUTI). A cross sectional survey design was used to select the sample of 148 Nurses. The data were collected using self-structured questionnaire and analyzed using SPSS version 16.0. The result shows that most of the respondents are males (59.1%) within the age range of 31-40years (56.9%) and with working experience of >3years (70.1%). The attitude of the respondent toward CAUTI prevention was good; practice was very good with more than 80%, catheter care was very good also with 84.7% agree that closed drainage system will prevent CAUTI. In conclusion the respondents shows good attitude and practice toward prevention of CAUTI.

Keywords: Attitude, practice, prevention and catheter associated urinary tract infection

Introduction
Urinary Tract Infections are the most common type of healthcare-associated infection reported to the National Healthcare Safety Network (NHSN), among Urinary Tract Infections acquired in the hospital, approximately 75% are associated with a urinary catheter, Between 15-25% of hospitalized patients receive urinary catheters during their hospital stay. The most important risk factor for developing a catheter-associated Urinary Tract Infection (CAUTI) is prolonged use of the urinary catheter. Therefore, catheters should only be used for appropriate indications and should be removed as soon as they are no longer needed. Center for Disease Control (CDC).Catheter-associated urinary tract infection (CAUTI) is defined by CDC as a urinary tract infection that occurs in persons with an indwelling urethral urinary catheter in place within the 48-hour period before the onset of Urinary Tract Infection. A urinary tract infection (UTI) is defined as an inflammatory response of the epithelium of the urinary tract to invasion and colonization by pathogen, usually a bacterial species. A catheter is defined as a drainage tube that is inserted into the bladder through the urethra, is left in place, and is connected to a closed drainage system. The catheter is sometimes called a "Foley catheter" or indwelling urinary catheter [1, 2, 3].

Materials and Methods
Methodology
Research approach
Research Approach is the description of the plan to investigate the phenomenon under study in a structured (quantitative), unstructured (qualitative) or a combination of the two methods (quantitative-qualitative integrated approach).
In present study research approach is quantitative method of approach

Research Design
The research design the research design refers to the researcher's overall plan for obtaining answer to the research questions.
Descriptive survey research design

Setting of Study:
The study setting is the location in which the research is conducted-it can be natural, partially controlled, or highly controlled.
The study was conducted at Federal Medical Centre (FMC) Azare, Nigeria.

Population
Population is the aggregation of all units in which a researcher is interested.

Target population: A target population consists of the total number of people or objects which are meeting the designed set of criteria by researcher.
The target population in this study are Nurses of FMC Azare, Nigeria.

Accessible population: It is the aggregate of cases that conform to designated criteria and also accessible as subject for a study.

In this study the accessible population are Nurses of FMC Azare, Nigeria.

Sampling and Sample Size
Sample is defined as representative unit of a target population.
Non-probability sampling method.
The proposed sample size for this study is 148.

Sampling Technique
In this study convenience sampling was used to select the sample.

Sampling Criteria
Inclusion Criteria
- Nurses of FMC Azare (male and females)
- Nurses who are willing to participate in the study
- Nurses who are available during the data collection.

Exclusion Criteria
- Nurses those who are not willing to participate will be excluded.
- Nurses who are not available at the time of data collection will not be included.

Variables
Variables refers to the attributes or characteristics that can have more than one value, such as height, weight.
In the present study the research variables are – Urinary Tract Infection.

Independent Variable: Variables that are purposely manipulated or changed by the researcher. In this study independent variable is Urinary Tract Infection.

Dependent Variable: Variables that change as the independent variable is manipulated by the researcher. In this study dependent variable is Nurse.

Description of Tool
Structured questionnaire. Tool 1

Section A: Performa for collecting socio-demographic variables It consist of demographic variables like age, sex, educational qualification, working experience, professional training on infections.

Part B: Structured questionnaire to evaluate Prevention of CAUTI. It consist of 6 Likert format questions, 1.strongly agree 2. Agree 3. Undecided 4. Disagree 5.strongly disagree.

Section C: Assessing The Need For Catheterization. It consist of 6 Likert format questions, 1.strongly agree 2. Agree 3. Undecided 4. Disagree 5.strongly disagree.

Section D: practice of CAUTI prevention. It consist of 7 questions YES or NO format.

Section E: Catheter Care. It consist of 7 questions Likert format agree, dis agree or undecided base on the statements. All these questions was to assess the attitude, practice and prevention of CAUTI using percentages.

Plan for Data Collection Procedure
Before actual collection of data, permission was obtained from the Hospital Research Ethical Commitee. Then the researcher introduced himself to the respondent regarding the tool. Each respondent will be given 60 minutes to complete the questionnaire.

Plan of Data Analysis and Interpretation
Data Analysis:–The data were summarized, organized, tabulated and analyzed using SPSS Version 16.0. The data was analyzed according to the objectives of the study by using non experimental descriptive statistics (frequency and percentage) The analysis and interpretation of data collected from the sample to determine the attitude and practice toward CAUTI.
A quantitative research approaches are used for the present study. The analysis is done in order to achieve the result of the study.
Organization of the study finding:-

Section A: Distribution of sample according to the socio-demographic variable.
Section B: Prevention of CAUTI.
Section C: Assessing The Need For Catheterization.
Section D: Practice of CAUTI prevention.
Section E: Catheter Care.

Summary
In this chapter we have included methodology research approach, research design, population, setting of the study, sample, sample size, sampling technique, criteria for sample selection, selection and development of tools content validity of tools, reliability of tools, description of final tools, pilot study, data collection procedure, plan for data analysis.

Results and Discussion
Data Analysis and Interpretation of Result
This chapter deal with analysis and interpretation of the data gather to assess the attitude and practice toward CAUTI among Nurses of FMC Azare, Nigeria.

Organization and Presentation of Data
The obtained data was analyzed using statistical package for social sciences (SPSS) version 16 and presented in tables of frequency and percentage. The statistic was used to analyze the variables and also to Asses the attitude and practice of the nurses toward prevention of catheter induced urinary tract infection.
The analysis of the data was organized and finalized according to the plan of data analysis and presented in the form of tables and figures, which is organized under the following sections.

Section A: Distribution of sample according to the socio-demographic variable.
Section B: Prevention of CAUTI.
Section C: Assessing The Need For Catheterization.
Section D: Practice of CAUTI prevention.
Section E: Catheter Care.

Table 1: Socio Demographic Data

		Frequency	Percentage(%)
Age	<20 Years	6	4.4
	21-30 Years	42	30.7
	31-40 Years	78	56.9
	>50 Years	11	8.0
	Total	137	100
Gender	Male	81	59.1
	Female	56	40.9
	Total	137	100
Working Experience	<1 Year	14	10.2
	1-3 Years	27	19.7
	>3 Years	96	70.1
	Total	137	100
Infection Control Training	Yes	84	61.3
	No	53	38.7
	Total	137	100
Ward / Department	Male Medical	24	17.5
	Female Medical	22	16.1
	Male Surgical	26	19.0
	Female Surgical	20	14.6
	Others	45	32.8
	Total	137	100

Table 1 show that majority of the respondent are within the age range of 31-40 years (56.9%), mostly males (59.1%). Majority of them (70.1%) worked for >3years and they also had infection control training (61.3%). Male surgical ward has the largest number of the respondent (19%).

Table 2: Nurses Attitude Toward Prevention of Catheter Induced Urinary Tract Infection.

	Strongly agree		Agree		Disagree		Strongly disagree		Undecided	
	N	%	n	%	N	%	n	%	N	%
Good environmental sanitation can reduce CAUTI	57	41.6	52	38.0	12	8.8	16	11.7	0	0
Hand washing before and after catheter insertion can prevent CAUTI	69	30.4	45	32.8	12	8.8	7	5.1	4	2.9
Use of antibiotic propylaxis can prevent CAUTI.	44	32.1	61	44.5	17	12.4	12	8.8	3	2.2
Reducing the duration of catheter stay can reduce the rate of UTI.	87	63.5	32	23.4	6	4.4	12	8.8	0	0
Cleaning urethral meatus with disinfectant can help prevent CAUTI.	68	49.6	50	36.5	13	9.5	3	2.2	3	2.2
Use of condom catheter for patient with incontinence can prevent CAUTI.	44	32.1	43	31.4	24	17.5	26	19.0	0	0

Table 2 shows the attitude of the respondent toward prevention of CAUTI, the percentages 41.6%,30.4%,32.1%, 63.5%,49.6%,32.1% strongly agree with the statements while 11.7%,5.1%,8.8%,8.8%,2.2%,19.0% respectively did not agree with the statements.

Table 3: Attitude of nurses toward assessing the need for catheterization

	Strongly agree		Agree		Disagree		Strongly disagree		Undecided	
	n	%	N	%	n	%	N	%	n	%
I always assess the need for catheter before the insertion	72	52.6	37	27.0	10	7.3	6	4.4	12	8.8
I only catheterize patient when clinically indicated	64	46.7	46	33.6	13	9.5	14	10.2	0	0
I always document the clinical indication for catheterization.	45	32.8	46	33.6	13	9.5	27	19.7	6	4.4
I always select the catheter with minimal possibility of causing urethral trauma and irritation to patient.	74	54.0	41	29.9	6	4.4	7	5.1	9	6.6
Patient is assessed for allergy to latex before catheterization.	63	46.0	26	19.0	10	7.3	18	13.1	20	14.6
Patient comfortability is assessed before catheterization.	71	51.8	26	19.0	16	11.7	20	14.6	4	2.9

Table 3 indicate the attitude of the respondent toward selecting catheter type, 52.6%, 46.7%, 32.8%, 54.0%, 46.0%, 51.8%.strongly agree with the statements mention in the table respectively. While 4.4%, 10.2%, 19.7%, 5.1%, 13.1%, 14.6% did not agree with the statement respectively

Table 4: The nurses practice toward prevention of CAUTI.

	Yes		No	
	N	%	N	%
Standard precautions must be observed by nurses when inserting and caring for urinary catheter.	129	94.2	8	5.8
Aseptic technique must be used by nurses during insertion of indwelling and intermittent catheter.	125	91.2	12	8.8
Aseptic technique will help reduce post procedure infection in patient.	121	88.3	18	11.7
Observing the five moment of hand hygiene by WHO will reduce the risk of CAUTI.	120	87.6	17	12.4
Wearing of personal protective equipments e.g. disposable apron and hand gloves will help reduced CAUTI.	112	81.8	25	18.2
Urethral meatus cleaning with disinfectant or sterile saline can reduced CAUTI.	126	92.0	11	8.0
An appropriate sterile lubricant or anesthetic gel from single use container should be applied to the urethral meatus and the catheter surface to reduce urethral trauma and infection.	123	89.8	14	10.2

Table shows the practice employed by the respondent when inserting a urinary catheter; the following percentages sequentially indicate those that answer yes to the questions, 94.2%, 91.2%, 88.3%, 87.6%, 81.8%, 92.0%, 89.8%.and those that answer NO has the percentages 5.8%, 8.8%, 11.7%, 12.4%, 18.2%,8.0% and 10.2% respectively.
4.5.

Table 5: The Attitude of Nurses toward Catheter Care.

	Agree		Disagree		Undecided	
	N	%	N	%	N	%
Nurse must apply Standard Precautions when caring for patients with a urinary catheter *insitu*.	116	84.7	21	15.3	0	0
A closed drainage system should be used for all patients with an indwelling catheter.	85	62.0	34	24.8	18	13.1
Using a pre-connected urinary catheter and drainage bag may reduce CAUTI.	76	55.5	46	33.6	15	10.9
Use single-use, sterile drainage bags, including night drainage bags with indwelling urinary catheterization.	87	63.5	38	27.7	12	8.8
The drainage bag should be below the level of the bladder and secured to a catheter stand to avoid contamination.	128	93.4	7	5.1	2	1.5
Access the catheter drainage system only when absolutely necessary (i.e., changing the drainage bag	125	91.2	10	7.3	2	1.5
Empty the catheter drainage bag regularly, using a clean container for each patient. Avoid touching the drainage tap with the container.	116	84.7	19	13.9	2	1.5

Table 5 shows the attitude of the respondents toward catheter care with 84.7%, 62.0%, 55.5%, 63.5%, 93.4%, 91.2%, 84.7% percentages of those that agree, 15.3%, 24.8%, 33.6%, 27.7%, 5.1%, 7.3%,13.9% disagree and 0%, 13.1%, 10.9%, 8.8%, 1.5%, 1.5%, 1.5% undecided respectively.

Equations
The sample size for this study was calculated using the following formula for calculating minimum sample size for descriptive study.

$$n = \frac{N}{N(e)^2 + 1}$$

Where
n = sample size required
N = Total population=234
e = degree of error = 0.05

$$n = \frac{234}{234(0.05)^2 + 1} = 147.6$$

To account for non response and loss of questionnaires, the same size was approximate to 148
About 148 nurses from medical, surgical, maternity, pediatric wards and amenity form the sample size.

Conclusion
Catheter associated urinary tract infection is one of the most common health care associated infections. It is largely preventable if indication for catheterization, method for catheter care and preventive measures are followed diligently. In this research although the respondents show good attitude and practice toward prevention of catheter associated urinary tract infection there is need for organizing seminars and other educational programs to the respondents to increase their knowledge of CAUTI and new developed methods of prevention.

Recommendations
The findings of this research have led the researcher to make some recommendations as follows: Researches should be conducted on the knowledge of nurses on the prevention of catheter associated urinary tract infection. This research should be conducted in other health care facilities to assess the attitude and practice of nurses toward prevention of catheter associated urinary tract infection and hospital management should ensure that regular training and seminars are organize to the staff to improve in their knowledge on infection control.

Implication to Nursing
The findings of this study will help in the following ways
- It will encourage application of evidence- based practice and quality improvement among nursing personnel.
- It serves as a stimulant for further research on the causes and other preventive measures of CAUTI.
- It serves as a prelude and a guide for nursing staff and student on infection control and as a reference point.

Appendix
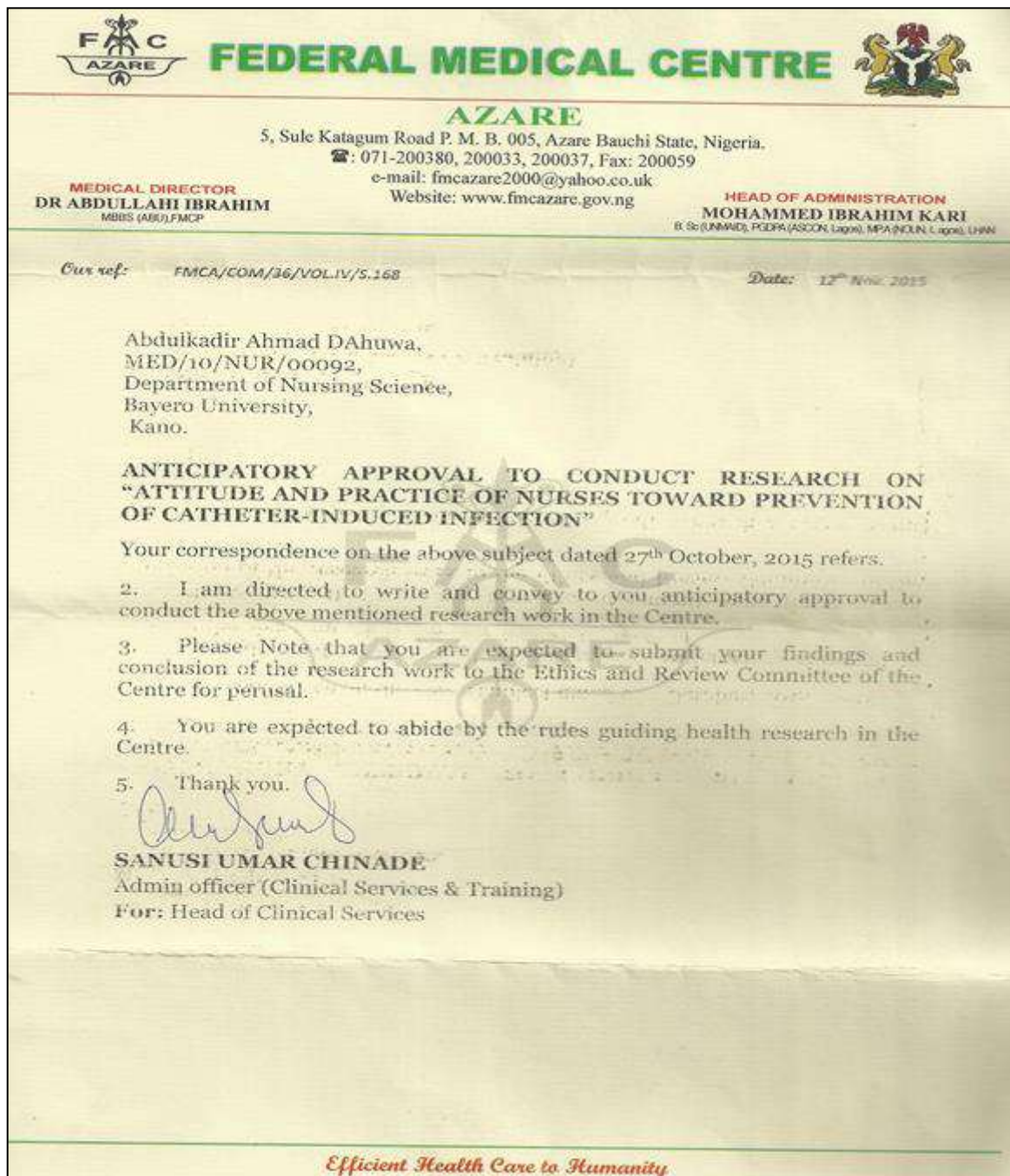
Appendixes, if needed, appear before the acknowledgment.

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