**xap task 2 CAUTI**

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1. **Introduction:**
2. **CAUTI a Healthcare Problem:**

A urinary tract infection is reported as the most common infection associated with healthcare known as Catheter-associated urinary tract infection (CAUTI). Seventy-five percent of urinary tract infection cases are associated with the urinary catheter. Infection can be involved in various body organs include kidney, urinary bladder, urethra, and ureters. The urinary catheter is a tube that is inserted through the urethra into the bladder to drain urine. Lack of proper care during and after the catheter removal can cause CAUTI. Therefore, there is a need for the proper indication for using catheter, and it should be removed as soon as it is no longer required. The main element related to the CAUTI is nurses. Nurses are associated with both stages, i.e. during the insertion of catheter and removal of the catheter. Therefore, they can play a vital role to control the infection. The existence of CAUTI as a common infection also indicates the lack of proper intervention by the nurses for the cause. Hence, there is a need to study the current healthcare practice performed by the nurses. The problems which result in CAUTI should be understood for the reduction of infection as fifty percent of the infection cases are preventable.

1. **The significance of the Problem:**

Catheter use sometimes becomes necessary in the hospital. This is why it is the most common infection associated with the hospital. Therefore it is significant to identify the causes for infection prevention. From the collection bag, bacteria can travel up the tube. Hence, CAUTI is an infection that can be a threat to the safety of the patient. CAUTI can occurs one day after the catheter is removed and two days after the insertion. It can cause infections like sepsis, cystitis, prostatitis, meningitis, and arthritis. Therefore it is significant to identify the problem. Through problem identification, a proper plan, recommendations, and implementations can be developing to increase the safety measure of the CAUTI’s patent. The significance of the problem is related to three people, i.e. patient, nurses, and hospital management. Through proper training of nurses, CAUTI can be controlled and therefore can result in the patient's good health, standardized hospital, and empowered nurses.

1. **Current Healthcare Practice:**

Various healthcare practices are being used by the hospitals to reduce the infection. CAUTI prevention initiatives are taken by The Hospital Research and Education Trust. The main goal of the organization is to develop learning collaborative for hospitals. Activities and incentives are introducing to enhance the safety of the patents. The model is applied known as the Comprehensive Unit-based Safety Program (CUSP) to disseminate the tools and knowledge to the hospitals. Also, the hospitals are promoting daily urinary catheter assessment tool. It helps to acquire the condition of the patient so the catheter can be removed when no longer required.

1. **CAUTI Affects:**

CAUTI affects not only the patients but hospitals as well. CAUTI is a hospital-acquired infection. Which means hospital reputation and efficiency can be questioned if the infection increases. Hospitals are required to make sure about fulfilling all the measures of cleanliness to fight with the bacteria. Hospital's preference is also linked to the performance and satisfaction of the patients. Health behavior of the patient due to the CAUTI indicates the inefficiency of the organization and it cannot only harmful for human life but also the organization economically.

The patients who got catheters are assessed so that the catheter can be removed as soon as it no more required. Patients remain unaware of the problem when they get discharged, and therefore the risk of infection increases. Infection lowers health behavior as it not only affects the patient physically, but its psychological impact is also severe. Patient's preference is to acquire a good and healthy life which is possible only by taking the CAUTI issue seriously.

1. **Literature Review:**

In the article "Nurse-Driven Protocol to Reduce Catheter-Associated Urinary Tract Infections" researcher Hamilton discussed the issue of CAUTI and its preventions. Hamilton argued that infection is preventable (Hamilton, n.d.), and it can be reduced by improving the quality of hospital through advance and well-trained nursing staffs and surgical units. For his argument, he presented evidence of medical error in America. Due to the error lac of people died because of CAUTI which was preventable. Evidence from the Institute for healthcare improvement is used which tells that about eighty percent of UTIs are linked with indwelling urinary catheters. Hamilton used quantitative data for analysis. Data was collected 28 nurses from a South Florida Hospital. A demographic survey was taken which was analyzed with the help of t-test and descriptive statistics. Results indicate that CAUTI is preventable if it gets identified on time. Evidence-based prevention can be essential for the problem. Programs that provide nurses staffs and surgical units proper training to acknowledge the patients about the issue and also the assessment tool can be helpful for CAUTI prevention.

In the article "The Impact of an Evidence-Based Practice Protocol on Catheter-Associated Urinary Tract Infections and Urinary Catheter Days," Herber discussed the chronic critically ill population. These patients are mostly diagnosing with CAUTI. The main purpose of the study is to identifies the significance of evidence-based urinary catheter protocol. Researcher claims that catheter protocol is the most effective tool to reduce the CAUTI. For the purpose, two methods used to collect data. Firstly, online education was to the hospital team, and secondly, assessments of the patients using catheter were collected. By focusing on the evidence that chronic critically ill get CAUTI due to various factors like aging, the trajectory of recovery and care, and laden with social burdens, the researcher analyzed the data collected from three month of online education and patient's assessment (“2015\_Helber\_DNP\_Document.pdf,” n.d.). Results indicate that through proper training not only CAUTI infection reduced up to 66%, but the duration of catheter insertion was also reduced to 16.3% days. It implies that by empowering the nursing staff, CAUTI can be controlled rapidly.

In the article "Culturing practices and the care of the urinary catheter in reducing NHSN-defined catheter-associated urinary tract infections," researcher Bardossy and fellows compared the interventions to control CAUTI in a more effective and faster way. Researchers argue that the main factor behind the infection in the hospital practices. Therefore it is necessary to apply interventions and tools to the hospital which can control CAUTI. To find out which intervention is more effective the research was made. For the purpose, researchers approached two teaching hospitals. The researcher made a weekly audit on indication and compliance of a urinary catheter with processes. The methodology that the researchers used was based on the training program. Proper guidance and training were given to the staff of both the hospitals (Bardossy et al., 2018). Also, identical training was provided to physicians about the efficient use of devices and laboratory equipment. The data were analyzed by using SPSS and Pearson test. Results indicate that the hospital identified 84.5% patient who had CAUTI infection. The identification of infection on time was due to the daily assessment and compliance with proper maintenance. Hospital successfully secured the patient and CAUTI rate was reduced as compared to the year 2014 and 2015. Hence research concluded that catheter protocol practice has great impact over the prevention of the CAUTI. It not only identifies the infection but also helps to secure the patient from it.

In this article," Implementing an evidence-based practice protocol for prevention of catheterized associated urinary tract infections in a progressive care unit," Revella and Gallo made research over the positive impact of evidence-based practice and a new protocol for the prevention of CAUTI. CAUTI rate is one of the scales for measuring the nursing quality for any hospital. Therefore research was made to observe the role and practices of the nurses in the hospital. For the purpose, the researcher selected four hospitals for data collection. Initially, data identified 00/1000 and 0.6/1000 urinary catheter days in surgical and medical ICU respectively. Researchers provide evidence-based practice training to the selected teams of the hospitals. Data was collected for 7 days from 41 patients. Data was based on information about the patient's name, age, admission date, catheter insertion date, removal date, and antibiotic coverage (Revello & Gallo, 2013). A power point presentation was given to a hospital team who supported as a volunteer in research. The result from data analysis indicates that after applying evidence-based practice infection and device days reduced to 0.7/1000 and 0.3/ device & patient days respectively. Therefore, it was concluded that five months after the implementation CAUTI rate decreased rapidly than before which means evidence-based practice is an effective tool for the prevention of CAUTI.

In the article “A qualitative study exploring the value of a catheter passport.” researchers highlighted the problem of communication gap between nurses and patients. Researchers argued that nurses do not provide sufficient guidance to the patients when they get discharge which results in CAUTI (Jaeger, Fox, Cooney, & Robinson, 2017). The data collection based on two methods, i.e. questionnaire and survey. Nurses and recently discharged patients provided the information. Data were analyzed with the help of thematic analysis. The result shows that hospitals are responsible for the communication gap between the nurses and patient. Nurses provide catheter passport without provided information about CAUTI and self-care. Result also highlighted the fact that the patent who knows about the infection can help them from CAUTI prevention. Therefore it is necessary to train the nurses to provide the patients with sufficient knowledge and information regarding infection so they can do self-care after being discharged.

In a study author indicates that the hospital does not take proper precautions to prevent the infection like CAUTI. Therefore, CAUTI surveillance is performed. It began in 2011. It includes the efforts and programs for the prevention of CAUTI. CAUTI rate is indicated in the number of infection per thousands of urinary catheter days. The programs and implementation that are using by the National Healthcare Safety Network includes improving urine sample, minimum use of the catheter, procedure for urine cultures, and programs to sustain evidence-based practices for prevention and maintenance (Gunaseelan, n.d.). The author discussed that evidence-based practice like educational training t the nurses can be useful to prevent the CAUTI. Also, the CAUTI guideline not only for nurses but also for the patient is playing an important role and reducing the CAUTI rate.

Another study implies that through proper evaluation of hospitals infection can be helpful for the prevention of CAUTI. The survey indicated that besides devices usage, multi-drug resistant organism, and surgery mostly hospitals had prevention policies for the infection. Also, practices to reduce the risk were not the same in all hospitals. Surgeon-specific rates were evaluated and identified with the surgeons in 75% of hospitals. It was a tool that can be helpful for surgeons to prioritize infection prevention. The conclusion of the survey indicated that evaluation of the hospitals from their policies and current practices could be effective for improvement in CAUTI rate. Some hospitals practices are not sufficient, and some have effective practices like evidence-based practice which is efficient for CAUTI prevention. In other words, evaluation should be made to provide the most effective programs and procedure to reduce the problem of CAUTI (“Evaluation Of Hospital Infection Prevention Policies Can Identify Opportunities For Improvement: Study,” n.d.).

**B1. Discussion:**

CAUTI is a serious problem. It is a preventable infection, but due to the lack of awareness, policies, and practices, it is becoming a severe problem. Nurses are the main factor which can help in reducing CAUTI rate. Also, inefficient nursing can also lead to an increase in the problem. The study indicates that the evaluation of hospital is necessary (“Evaluation Of Hospital Infection Prevention Policies Can Identify Opportunities For Improvement: Study,” n.d.). CAUTI is mostly acquired from the hospital; therefore, the hospital should adopt all possible strategies and implementation to control the CAUTI rate. It is necessary to evaluate the current practices, and if any hospital is not having advance and efficient practices, then it should seriously take into account. Another study indicates that National Healthcare Safety Network is helping in promoting programs and implementation for the problem. Different safety measure including patient's assessment (Gunaseelan, n.d.), minimum use of a catheter, and proper guidance to both patients and nurses is significant for the cause. Also, a training problem like catheter protocol practices for nurses can make nurses more skilled and professional for the prevention of infection.

The research on reducing CAUTI rate with the help of catheter protocol practice indicates those surgical units and well-trained nurses' leads to the improvement in CAUTI rate (Hamilton, n.d.). Proper training given to the nurses made them able to identify infection through daily assessment. Due to the identification of infection, it becomes easy to provide the necessary healthcare to the patient by removing the catheter and providing medication. Another qualitative research again discussed the gap between patients and nurses which mean nurses are the main elements that should be used for the prevention of CAUTI (Jaeger, Fox, Cooney, & Robinson, 2017). It is possible only by providing them knowledge and training regarding the method they should use during medication and also regarding the helpful communication relationship with the patients to make them well aware regarding the problem.

1. **PICO Question:**

By identifying the problem of CAUTI, PICO question can be developed. In PICO question "P" representing the population that is nurses, "I" representing the intervention which is an evidence-based protocol or the program which provide the sufficient knowledge to the nurses' regarding prevention of CAUTI. "C" in PICO is a comparison of nurses working efficiency before and after the catheter protocol practice, and "O" indicating the outcome which means the efficiency of nurses increased through educational program and trading regarding the practices for CAUTI prevention.

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|  | PICO QUESTION |  |
| P | Population | Nurses on a medical-surgical floor of a well-established hospital. |
| I | Intervention | Programs or knowledge for nurses regarding urinary catheter removal protocol. |
| C | comparative | Knowledge of nurses before providing training. |
| O | outcome | Change in nurses efficiency and CAUTI rate. |

1. **Evidence Matrix:**

Below is the complete evidence matrix indicating the useful information regarding the evidence used for the project.

**Evidence Matrix**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Authors | Journal Name | Year of Publication | Research Design | Sample Size | Outcome Variables Measured | Quality (A, B, C) | Results/Author’s Suggested Conclusions |
| Hamilton | Nova Southeastern University | 2018 | Quantitative | 28 nurses | Practice process | B | Programs that provide nurses staffs and surgical units proper training to acknowledge the patient about the issue and also the assessment tool can be helpful for CAUTI prevention |
| Helber, Betty | The Ohio State University | 2015 | Mixed | 147 eligible patients | Future action/ directions implementation | A | Through proper training not only CAUTI infection reduced up to 66% but the duration of catheter insertion was also reduced to 16.3% days. It implies that by empowering the nursing staff, CAUTI can be controlled rapidly. |
| Bardossy, A. C., Williams, T., Jones, K., Szpunar, S., Zervos, M., Alangaden, G., … Fakih, M. G. | Infection Control & Hospital Epidemiology | 2018 | Quantitative | 2 hospitals | Identification of effective CAUTI prevention technique | C | The culturing practice has great impact over the prevention of the CAUTI. It not only identifies the infection but also helps to secure the patient from it |
| Revello, K., & Gallo, A.-M. | Journal of Nursing Education and Practice | 2013 | Quantitative | 41 patients,  1 group of hospital staff | The effectiveness of evidence-based practice | B | CAUTI rate decreased rapidly than before applying practice which means evidence-based practice is an effective tool for the prevention of CAUTI. |
| Jaeger, M. D., Fox, F., Cooney, G., & Robinson, J. | British Journal of Nursing | 2017 | Qualitative | 9 patients,  11 nurses | The communication gap between nurses and patients | A | it is necessary to train the nurses to provide the patient with sufficient knowledge and information regarding infection so they can do self-care after being discharged |

1. **Recommended Practice Change**

* **Limited Use of Catheter:**

Through the literature review, the most important aspect for the prevention of CAUTI is the limited use of the catheter. Before any other intervention, nurses should be guided about the sufficient use of the catheter. Study (Hamilton, n.d.) indicates that education regarding the assessment tool can be helpful, (“2015\_Helber\_DNP\_Document.pdf,” n.d.) also highlighted the fact with the catheter protocol nurses can efficiently use the catheter and excessive use of catheter intervention can be eliminated. (Bardossy et al., 2018) reveals that through catheter protocol, nurses get able to identify the patients with CAUTI infection and catheter can be immediately removed which means through proper reporting nurses can use catheter sufficiently and excessive use can be prevented. (Revello & Gallo, 2013) indicates that when communication gap will be reduced between the nurses and patient, the patient can share their problem regarding catheter, and therefore use of catheter can be minimized (Jaeger, Fox, Cooney, & Robinson, 2017).

The study supports the fact that the assessment should be made before and after the intervention of the catheter. This is because through proper assessment catheter can be rapidly removed as soon it is not required anymore. Also if any patient has got CAUTI infection, it can be identified on time which can help to apply medication for the cure.

* **Catheter protocol Practice:**

Nurses are involved directly with the patients before and after the insertion of the catheter. Nurses are therefore responsible for providing sufficient healthcare to the patients. The limited interaction or lack of communication between patients and nurses can make difficulties to control the CAUTI. Study (Hamilton, n.d.) indicates that proper education and guidance should be provided to the nurses’ staff of the hospitals. So they can identify when catheter insertion is needed and when it should be removed. (“2015\_Helber\_DNP\_Document.pdf,” n.d.) highlighted the fact that when nurses get advanced training for CAUTI prevention, they become able to handle the situation efficiently. Their role becomes more effective for not only to identify the infection but after saving the patients by giving proper care, and assessment. (Bardossy et al., 2018) justifies the fact that through proper education regarding CAUTI prevention reduced the CAUTI rate also the patient who acquire the infection can be identified at early stages. Therefore, it becomes preventable. Comparison between two hospitals through education session provided to the hospital’s staff especially nurses justifies the need for training programs like catheter protocol practice to reduce the CAUTI rate (Revello & Gallo, 2013). Qualitative data results highly recommended the implementation of catheter protocol practice to control CAUTI in no time (Jaeger, Fox, Cooney, & Robinson, 2017). All studies show that nurses can be significant to control CAUTI. Proper education and training are required to do so. The catheter protocol practice should be implemented in the hospital to get a positive result.

* **Patient Guidance:**

The study indicates that most of the patients do not know about the consequences of CAUTI. Therefore, it becomes difficult to control infection. The patient should be well aware of the problem. The study (Hamilton, n.d.) indicates the evidence where lac of patient died because of CAUTI it is not because of the hospital. It also happened because the patient did not know about the infection and its prevention. Study (“2015\_Helber\_DNP\_Document.pdf,” n.d.) also highlighted the fact that chronic critically ill population is found infection acquired from the catheter which is identified by other medication not by the nurses after the catheter or patients. Both Studies (Bardossy et al., 2018), (Revello & Gallo, 2013) highlighted that with the help of trained nurses, patients also get aware about the problem which helps them for self-care. Study (Jaeger, Fox, Cooney, & Robinson, 2017) indicated that the patient had no guidance provided by the nurses while getting discharge and catheter removal. Which shows that the patient did not know the sufficient information to keep themselves safe from the infection.

All studies indicated that training for nurses is important not only to increase their work efficiency but also to reduce the communication gap between nurses and patient. They should provide information to the patient so they can take care to prevent the CAUTI.

1. **Implementation Process**
2. **Stakeholders:**

The main stakeholders are those who get directly affected by education. For instance, hospital leadership is the stakeholder because CAUTI is the hospital-acquired infection. If CAUTI reduces it will increase the efficiency and reputation of the hospital. The second stakeholder is the nurses. With the help of catheter protocol practice nurses not only help in preventing CAUTI but it will also increases their skills, and it will be useful for their progressive profession. The third stakeholder is the patients. Nobody wants to get ill because of unknown reason. Through study, the patients will be able to get sufficient knowledge regarding CAUTI.

1. **Barrier:**

The two main barriers to the implementation of the given recommendations can be time management and staff interest. Time management can be a barrier as hospitals have limited staff for the patient’s care. Therefore it becomes difficult to manage the regular duties along with extra time for training. The second barrier is related to the staff. They sometimes do not cooperate in additional duties or practice. It is difficult to bring the whole staff on the same platform because staff often avoids extra workload. In other words, without realizing the common interest, most of the time staff focus on their comfort zone and self-interest.

1. **Strategies:**

To avoid the barriers some useful strategies should be used. For instance, to balance the time management, staff can be divided into two groups which means training would have two sessions. In this way, training and regular duties can be performed without any problem. The second barrier that is staff interest can be developed through the number of strategies. For instance, a certificate or compensation can be announced. Also, the higher authority can make training official by making it mandatory for the whole staff so no one can avoid it.

1. **Indicator:**

Audit team of the hospital can measure the outcome. Report on the identification of CAUTI rate and prevention before and after the training can be developed systematically. Through the report, it will be easy to identify the effectiveness of nurses before and after the catheter protocol practice. Also, the rate of CAUTI can indicates how efficiently the hospital is working for the infection prevention.

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