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Points criteria:

Criteria	Under performance <3 points per criteria	Basic 3 – 3.9 points per criteria	Proficient 4.0 – 4.4 points per criteria	Distinguished 4.5 – 5 points per criteria
Required content objectives	Content objectives are missing or sparsely covered.	Content objectives are not consistently addressed. Demonstrates minimal understanding of content.	Content objectives consistently addressed. Demonstrates understanding of content.	Content objectives consistently addressed. Demonstrates mastery of content.
Academic writing standards	Writing lacks scholarly tone & focus. Sparse content. Multiple grammatical, spelling, & factual errors. Reliance on bullet points rather than effective writing in speaker notes. 4 or more direct quotes per project.	Writing is unclear and/or disorganized. Inconsistent scholarly tone. Inadequate depth of content. Grammatical and spelling errors. No more than 3 direct quote of less than 40 words per project.	Writing demonstrates general exploration of content. Responses are clearly written using scholarly tone. Few grammatical and/or spelling errors. No more than 2 direct quote of less than 40 words per project.	Writing demonstrates comprehensive exploration of content. Responses are clearly written using scholarly tone. Rare grammatical and/or spelling errors. No more than 1 direct quote of less than 40 words per project.
APA formatting	References and citations have multiple errors or are missing.	References and citations have errors.	References and citations have few errors.	References and citations have rare errors.

See course syllabus for reference requirements

Using academic writing standards and APA formatting of references and citations, respond to each of the following learning objectives. Using this document, enter your responses directly next to each objective listed below. Responses should be 150-350 words in length. Be sure to carefully review the assignment rubric on page one for specific details on how this assignment will be evaluated for points. Save the completed document as the assignment title with your name, and submit to the dropbox.

1. Describe the incidence and prevalence of catheter associated urinary tract infection (CAUTI).

Urinary tract infection ranks fifth of the most common healthcare-associated infections, and at least 80% of UTIs are associated with an indwelling urinary catheter (IUC) (Newman, 2022). It has been estimated that about 62,700 UTIs were accounted for in acute care settings in 2015 and reported to be greater than 9.5% of infections in acute care hospitals. About 12% to 16% of patients are placed with an indwelling urinary catheter during their inpatient stay. The longer a catheter stays in, the greater the chances of acquiring a catheter-associated urinary tract infection, up to 3% to 7%. In addition, it has been estimated that more than 13,000 mortality rate every year is associated with UTIs. CAUTIs can lead to critical complications like prostatitis, epididymitis, orchitis, cystitis, pyelonephritis, bacteremia, endocarditis, osteomyelitis, septic arthritis, and meningitis in patients *("Urinary Tract Infection (Catheter-Associated Urinary Tract Infection [CAUTI] and Non-Catheter-Associated Urinary Tract Infection [UTI]) Events, 2022).* In a survey, areas such as intensive care units (ICU), specialty care areas, step-down units, wards, rehabilitation, and long-term care are included in this data.

2. List factors associated with the development of CAUTI.

To be classified as CAUTI, there are specific guidelines by the Centers for Disease Control and Prevention (CDC). This includes the patient having an indwelling catheter for more than two days from the day of insertion, signs, and symptoms present like fever, suprapubic tenderness, flank pain, urinary frequency, urgency or dysuria, and a urine culture having more than 10^5 CFU/mL of a bacterial species. It has been determined in a data report that 69% of CAUTI events are avoidable (Letica-Kriegel et al., 2019). The longer duration of catheterization and female sex was identified as some factors in developing CAUTI, in which the main risk is having a catheter inserted for more than six days (Newman, 2022). In pediatric patients, the risk of having CAUTI in girls was significantly higher than in boys. Comorbidities play an essential element in having CAUTI. A study showed that stroke and paraplegia are more likely to get CAUTI or other neurologic events. Heart failure is a diagnosis that may seem to fit having an increased risk of CAUTI; however, since catheterization for heart failure patients has concrete indications like strictly for diuresis, fluid status has been more attentively monitored by the providers resulting in the timely removal of the catheter.

3. Discuss nursing evidence-based interventions for CAUTI prevention and management.

One of the causes of CAUTI is called biofilm. Biofilms have complex structures that form internally and externally of the urinary catheter, conditioning the structure for bacterial attachment. As the catheter stays longer, the biofilm burden further increases and replicates rapidly. Because of this, it makes the treatment more difficult to manage as it creates a strong barrier, reducing the efficacy of antibiotic therapy (Newman, 2022). The most common organism is Escherichia coli (E.coli). Research has shown that although there have been multiple attempts to prevent the development of biofilm from preventing CAUTI, flushing catheters with an acidic solution, antibiotic ointments, instillation of antibiotics to the urine bags, antibiotic prophylaxis, and bladder irrigations are not effective methods. According to CDC (2019), one preventive measure that must be implemented is the appropriate use of catheters. This means that urinary catheters are only to be used if in necessary situations. It is highly advised to minimize urinary catheter use and lessen the duration if possible. Using a urinary catheter as a first-hand treatment for incontinence is not recommended. Alternatives like external catheters, intermittent catheterization, and other incontinence interventions are to be considered. Proper techniques for urinary catheter insertion are another essential part of preventing CAUTI. This includes good hand hygiene before and after catheter insertion and any manipulation of the catheter; the aseptic technique should always be observed, proper sizing of the catheter, and maintaining good urethral care and urine flow. Different catheter materials are also available that may help prevent CAUTI.

4. Identify selection criteria for appropriate indwelling catheter size.

Selecting the proper catheter size is highly essential to achieving the optimal efficacy of using a urinary catheter. The gauge used is called the “French size” or Fr. The higher the number of the French size, the larger the diameter of the catheter. Age is one of the criteria considered when choosing the catheter size. For premature age, French 5-6 is the recommended size, newborn to toddler age is French size 5-8, school age of 11-12 years old, is French 8-10, and adults greater than 13 years old is French 12-16 (females can range from 12-14 and males from 14-16). Adults with hematuria or clots can range from French 18-20. If with obstruction, it can be up to 20-24, and if with prostatic bleeding, French 30 with a 30mL balloon is selected (Newman, 2022). If the catheter size is too small, bladder emptying may be difficult and would take longer to drain the urine, with possible retention or result in urine leakage. If the catheter is too big, urethral mucosa irritation and trauma are more likely to happen, resulting in pain or bleeding during insertion. The general rule is to select the smallest possible catheter size appropriate for the procedure and allow adequate urine drainage (Sanwari, 2022).

5. Differentiate between a urinary tract infection and colonization.

Knowing the difference between urinary tract infection and colonization is important to preventing the over-treatment of antibiotic therapy (Crader, Kharsa, & Leslie, 2022). Whether having a long-term catheter or routine catheterization, bacteria will be present in the urine. At times, the bacterial level is significantly high, but a patient may not experience signs and symptoms. On the other hand, the bacterial level can be high enough to cause physical symptoms of having urinary tract infections. Bacterial colonization, also known as asymptomatic bacteriuria (ASB), is the number of colonies of one or more organisms higher than 100,000 per mL. Although the bacterial level is high, if the patient has no symptoms, it is not recommended to prescribe antibiotics, as prescribing unnecessary antibiotic therapy can result in a multi-drug resistance organism. However, pregnant patients, patients undergoing a genitourinary procedure, or immunocompromised, who have no symptoms but with bacterial colonization, may be evaluated for antibiotic treatment. The factors developing bacterial colonization include incomplete bladder emptying, long-term use of a urinary catheter, and having ureteral stents. Postmenopausal women and fragile elders living in a nursing home are also found to be at risk of bacterial colonization (Nelles & Ermer-Seltun, 2022).

List your references used for this assignment (*See the course syllabus for specific requirements on references for all assignments).*

Crader M.F., Kharsa A., Leslie S.W. (2022, May 27). *Bacteriuria*. National Center for Biotechnology Information https://www.ncbi.nlm.nih.gov/books/NBK482276/

Guidelines for Prevention of Catheter-Associated Urinary Tract Infections. (2019, June 6). [PDF]. Centers for Disease Control and Prevention. https://www.cdc.gov/infectioncontrol/pdf/guidelines/cauti-guidelines-H.pdf

Letica-Kriegel, A. S., Salmasian, H., Vawdrey, D. K., Youngerman, B. E., Green, R. A., Furuya, E. Y., Calfee, D. P., & Perotte, R. (2019*). Identifying the risk factors for catheter-associated urinary tract infections: a large cross-sectional study of six hospitals.* National Center for Biotechnology Information. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6398917/

Nelles, K. & Ermer-Seltun, J. (2022). Urinary Tract Infection (UTI) Prevention and Management in Adults. In J. Ermer-Seltun & S. Engberg (Eds.,), *Wound, Ostomy, and Continence Nurses Society™ core curriculum: Continence Management* (2nd ed. pp. 381-401). Wolters-Kluwer

Newman, D. (2022). Indwelling and Intermittent Urinary Catheterization. In J. Ermer-Seltun & S. Engberg (Eds.,), *Wound, Ostomy, and Continence Nurses Society™ core curriculum: Continence Management* (2nd ed. pp. 406-427). Wolters-Kluwer

Sanwari, R. (2022, June 1). *Catheters and Size.* Shop Catheters. https://www.shopcatheters.com/ar-catheters-and-size.html

Urinary Tract Infection (Catheter-Associated Urinary Tract Infection [CAUTI] and Non-Catheter-Associated Urinary Tract Infection [UTI]) Events (2022, January). https://www.cdc.gov/nhsn/PDFs/pscManual/7pscCAUTIcurrent.pdf