

Student name:

Gina Farinacci-Nugent _____

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).

According to Van Decker et al., (2021), approximately 9% of all hospital acquired infections are attributed to catheter associated urinary tract infection (CAUTI) and about 65%-70% of these infections are preventable. CAUTI occurs 80% of the time in patients with indwelling urinary catheter (Newman, 2022). The Centers for Medicare and Medicaid Services (CMS) in 2008 changed reimbursements regulations related to CAUTI because it is preventable. As evidence suggests, implementation of a CAUTI prevention bundle is effective in preventing the CAUTI. Only placing catheters that are necessary and early removal is key. Regular ongoing surveillance and nurse driven protocols based on latest evidence can also be effective in reducing CAUTI. A multidisciplinary team approach is essential to decreasing CAUTI. All members from nursing to PT/OT and NT must be on board to achieve success in lower CAUTI rates. The WOC nurse leads the team in this charge and uses their expertise to ensure the best outcomes for patients.

2. List factors associated with the development of CAUTI.

The main risk factor for CAUTI is prolonged duration of catheterization. According to Newman (2022), catheterization > 6 days is a risk factor for CAUTI. Indwelling catheters when used for only a few days are at risk for few complications such as UTI. However, indwelling catheters over 30 days are associated with serious complications such as CAUTI (Newman, 2022). The longer the dwelling time of the catheter the greater the risk of infection. The presence of biofilms which have been known to form in as little as 15 minutes of catheterization (Newman, 2022). Female patients are at high risk due to the proximity of the vagina and the anus to the catheter site. Other risk factors include but are not limited to the presence of comorbidities such as diabetes or paraplegia, immunosuppression, poor nutrition, and fecal incontinence. Catheters inserted outside of the OR in areas such as ER are not sterile. Complications of CAUTI include urosepsis, increased mortality, increased length of stay and increased cost. Understanding the risk factors of CAUTI is essential to decreasing patient and health care burden and the development of preventative measures.

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

According to Newman (2022), 50% of CAUTI's are preventable (p. 415). Indwelling catheters should only be placed if necessary and removed as soon as possible. Evidence shows that the establishing a prevention, catheter care, management, and education bundle reduces CAUTI (Newman, 2022). Prevention measures include strict hand hygiene, aseptic catheter insertion technique, and proper catheter maintenance. Strict adherence to infection control practices (CDC, 2015). Maintaining a closed system, keeping the drain spout off the floor and below the level of the bladder (R. B. Turnbull Jr, MD School of Nursing Education). Education of staff is critical in the prevention of CAUTI. Topics included should cover infection prevention, and hand hygiene. Best practice chart reminders and hard stops with prompts to review the need for indwelling catheter should be utilized (Newman, 2022). Clinical practices for catheter insertion and care should be reviewed by staff. Proper procedures for obtaining urine cultures and antibiotic stewardship.

Indwelling catheter management includes selecting the proper catheter and balloon size. The standard catheter size is 14 Fr. Using too large of a catheter and balloon can cause bladder trauma and permanent incontinence (Newman, 2022). Catheters should be inserted using a water-soluble lubricant. Indwelling catheter management includes daily cleaning perineal area with soap and water. Use of a device to secure the catheter prevents tension, trauma and maintains the tubing and drainage container. Cleaning of the drainage bag should be performed with diluted bleach or distilled white vinegar if the bag were to become disconnected (R. B. Turnbull Jr, MD School of Nursing Education). The entire system should be changed if tubing or drainage bag should become encrusted with mineral deposits. Encrustation can interfere with removal and deflation of the balloon (Newman, 2022). In certain situations, it may be necessary to use an indwelling catheter. If a catheter must be placed, it should be removed as soon as possible. Using evidence practice prevents and reduces CAUTI.

4. Identify selection criteria for appropriate indwelling catheter size.

There are many factors to consider when selecting a urinary catheter including indication for use, type of material, diameter of catheter and balloon size. Indwelling urinary catheters are indicated for acute urinary retention or bladder obstruction and for use in critically ill patients to monitor output. They are also appropriate for patients undergoing surgery. The use of a urinary catheter in patients with sacral stage III or IV pressure ulcers allows for healing (R. B. Turnbull Jr, MD School of Nursing Education). Indwelling catheters should not be used for patients to treat urinary continence (Newman, 2022). Urinary catheters are composed of silicone, latex, red rubber, PVC, and plastic. Latex and red rubber catheters are contraindicated in patients with latex allergy. Silicone catheters are appropriate for patients with allergies to latex and long-term use (Newman, 2022).

Selection of the appropriate size catheter depends on the patient's age and specific urologic conditions. Catheter sizes appropriate for Preemies, newborns, and toddlers range from 5 to 8 Fr. Children ages 11-12 8-10 Fr. The standard adult size urinary catheter is 14 Fr.

Larger diameter catheters such as an 18 to a 24 Fr. are appropriate for patients with hematuria, clots, or obstruction (Newman, 2022). When selecting a catheter, it is best to use the smallest size that allows for sufficient drainage. Using a catheter size that is too large can cause erosion of the bladder mucosa. Indwelling catheter tips comes are available with a straight or curved. Curved or coude' tipped catheters are appropriate for male patient's with BPH (Newman, 2022). Indwelling urinary catheters may also come with 2 or 3 ports. One port is for filling the balloon. The other is for drainage of urine. Catheters with a third port are available for irrigation. Indwelling catheters are maintained in bladder via inflation of a balloon. The standard balloon size 5 ml should be inflated using 10 cc of sterile water. NS should be avoided because it can crystallize in the tubing (R. B. Turnbull Jr, MD School of Nursing Education). The WOC certified nurse is an expert who is knowledgeable in the use of indwelling urinary catheters. Selecting the appropriate indwelling catheter size for patients leads to improved patient outcomes and patient satisfaction.

5. Differentiate between a urinary tract infection and colonization. According to Newman (2022), 80% of urinary tract infections (UTI) occur in the presence of an indwelling urinary catheter and within days most patients will develop colonization with bacteria (P. 411). Patient with long term indwelling catheters will most likely develop colonization after a month. The presence of bacteria in the urine is symptomatic or asymptomatic. In patients with an indwelling urinary catheter drainage, bacteria enter from the drainage bag through the catheter. Bacteria also enters when there is a break in the closed system or migration from urethral skin (Newman, 2022). Asymptomatic bacteria do not usually cause symptoms. Therefore, it is not considered an infection and does not require treatment. On the other hand, patients with significant bacteria in the lower urinary tract who are symptomatic are considered to have a UTI. Symptoms include dysuria, frequency, and urgency. In patients with an indwelling catheter, symptoms of CAUTI include fever > 100.4, suprapubic and CVA tenderness (Newman, 2022). UTI infections of the lower urinary tract are classified as non-complicated and complicated (Crader et al., 2022). Non-pregnant females are considered uncomplicated. Patients with urinary catheters, and recent treatment failure are considered complicated. If the patient is presenting with symptoms indicative of UTI, then it must be considered in the differential diagnosis of the patient. Obtaining the appropriate diagnostic testing including UA and urine culture is essential to determining if the patient has a UTI. EBP guidelines state that patients with asymptomatic bacteria should not be treated unless pregnant or immunocompromised or undergoing a urinary procedure (Crader, 2022). Treating patients with colonization and absence of symptoms exposes the patient to unnecessary antibiotics and antibiotics resistance.

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

Newman, D. K. (2022). Indwelling and intermittent urinary catheterization. In J. M. Ermer-Seltun, & S. Engberg (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Continence management* (2nd ed., pp. 405 -432). Wolters Kluwer.

R.B. Turnbull, Jr. MD School of WOC Nursing Education. (2023, May 2). *Urinary Catheterization*. {PowerPoint slides}. Vimeo@CCF.

Centers for Disease Control and Prevention (2015). Summary of recommendations.
<https://www.cdc.gov/infectioncontrol/guidelines/cauti/recommendations.html>

Crader, M.F., Kharsa, A., Leslie S.W. Bacteriuria. (2022, Nov 28). Bacteriuria. In *StatPearls*. StatPearls Publishing. Retrieved May 7, 2023 from
<https://www.ncbi.nlm.nih.gov/books/NBK482276/>

Van Decker, S. G., Bosch, N., & Murphy, J. (2021). Catheter-associated urinary tract infection reduction in critical care units: a bundled care model. *BMJ Open Quality*, 10(4), 1-7. <https://doi.org/10.1136/bmjog-2021-001534>