

Using academic writing standards and APA formatting of references, respond to each of the following learning objectives. Using this document, **enter the responses directly next to the corresponding learning objective in the grid below.** Responses should be 150-350 words in length. Scroll down to see assignment rubric for specific details on how the project will be assessed and how the will be points awarded. Save the completed document as the assignment title with your name, and submit to the dropbox.

Learning Objective	Response
<p>1. Describe the incidence and prevalence of catheter associated urinary tract infection (CAUTI).</p>	<p>The most frequent kind of healthcare-associated infection (HAI) are CAUTIs, which accounts for more than 30% of acute care hospital infections. There are approximately 449,334 CAUTI events per year and each occurrence costs around \$758. Thus, a grand total of over \$340 million is spent per year on health care, related to CAUTIs. Also, there are about 13,000 deaths per year because of UTIs (Hospital safety grade, n.d.). Roughly 15-25% of patients hospitalized who have indwelling urinary catheters (IUC) with extended catheterization times develop CAUTIs. In long-term catheterization that lasts 30 days or more, CAUTIs develop in 100% of patients. These patients usually have two or more symptoms of fever, suprapubic pain, hematuria, visible biofilm buildup on catheter tubing, as well as acute confusion (Majumder et al., 2018).</p> <p>Incidence refers to the percentage or amount of persons who acquire a CAUTI over a particular period of time (Anonymous, 2016). For example, in one study, 20,467 surgical patients were analyzed over a four year period of time. Over these four years, it was found that only 16 individuals acquired a UTI. With six (37.5%) of these individuals, the IUCs were removed after 48 hours. The other ten (62.5%) had legitimate reasons for IUCs like chronic neurogenic bladder, obstruction, or acute need to measure urine intake and output. The evidence clearly showed that the longer an IUC is in place, the greater the risk for a CAUTI (Kuy et al., 2020).</p> <p>Prevalence signifies the entire amount of people with CAUTIs at a precise moment in time likened to the total populace being researched. This can also be signified as a “picture” or “snapshot” in time (Anonymous, 2016). In a 2018 prevalence survey conducted in public hospitals in Hong Kong, it was shown that out of the 16,914 patients surveyed, 4,567 patients or 0.27%, had developed CAUTIs. The study stated the compliance was generally good, however documentation of a catheter stabilization device as well as a planned removal date was not very well followed (Chen et al., 2020).</p>
<p>2. List factors associated with the development of CAUTI.</p>	<p>A CAUTI is caused by biofilm that appears on the internal and external surfaces of the indwelling urinary catheter (IUC) as soon as 24 hours after insertion. The longer the IUC remains in place, the more the biofilm collects on the catheter’s surfaces. The biofilm is defended by an</p>

	<p>extracellular polymeric substance matrix, that is basically impermeable to antibiotics once instituted. The organisms within the biofilm originate from the periurethral area and make its way up via the external and internal surfaces of the catheter. This grants microbes admittance to the bladder, with new organisms developing at a rate of 3% to 7% per day. <i>Escherichia coli</i> is the most common infectious organism, for the urethra is very close to the anus, especially in female patients. <i>Candida</i> and <i>Enterococcus</i> species, along with additional gram-negative and gram-positive organisms, are frequently found on urine cultures, and many are resistant to antibiotics. With long term catheterization (more than 30 days), there are more microbiologic environmental changes. With that being said, different species such as <i>Proteus mirabilis</i>, start to develop. <i>Proteus mirabilis</i> is proven to be a species who excretes large amounts of biofilm (Moore & Franklin, 2016).</p> <p>In one study of adult ICU patients aged 18 and older, it was shown that patients over fifty years of age and those catheterized over six days were at greater risk for CAUTIs (Auggi et.al, 2019). In a different study, which was over a four year interval and included both pediatric and adult patients, it was shown that patients who had cerebrovascular disease, paraplegia, as well as the female gender, were at higher risk for developing CAUTIs (Letica-Kriegel et al., 2019). Thus, it is shown that evidence-based risk factors for CAUTI include: prolonged catheterization, female sex, and older age. Additionally, those with impaired immunity are at risk for developing CAUTI's. Lastly, maintaining sterile aseptic technique upon inserting IUCs as well as maintaining a closed urinary drainage system, is essential to avoid CAUTIs. Thus, it is imperative only trained medical professionals can insert IUCs, such as LPNs and RNs (Gould, n.d.).</p>
<p>3. Discuss nursing evidence-based interventions for CAUTI prevention and management.</p>	<p>Obviously, the best strategy for prevention of CAUTIs, is the decision to not place the IUC at all. However, if this cannot be attained, following the HIC-PAC CDC guidelines for appropriate catheter insertion are essential. The guidelines are to only use catheter in these following circumstances: to control urinary retention or bladder outlet obstruction, to deliver precise urine production measurements, to handle the bladder short-term following specific surgical procedures, to aid in the curing of perineal wounds at risk of infection by urine, and to ease discomfort at the end of life (Moore & Franklin, 2016).</p> <p>Brian T. Connor PhD, RN, thoroughly researched evidence-based interventions to aid medical staff in the prevention of CAUTIs by strictly adhering to the Joint Commission's patient CAUTI related safety goals. He and a colleague developed a UTIP (UTI prevention) bundle that was successfully implemented based upon the primary factor that CAUTIs are directly related to the</p>

	<p>duration of catheterization. They found four key nursing elements to be effective as a set of guidelines related to catheter use. One, daily unit monitoring of patients with an IUC and the duration noted along with the catheter type and size. Two, the use of the smallest antimicrobial impregnated catheter appropriate for the patient (i.e., a 14 or 16-French). Three, there needs to be a way to alert the physician daily to reevaluate catheter necessity and urinary status. This can be completed as a task review every time one opens the electronic patient chart as well as discussion in daily rounds. Lastly, a way to remind nurses every shift to document catheter specifics such as size, type, condition of catheter, securement method, and evaluation for catheter removal (Connor, 2018).</p>
<p>4. Identify selection criteria for appropriate indwelling catheter size.</p>	<p>The French scale is how one specifies the size of an IUC. The appropriate size for an IUC is a 16 French for an adult if ongoing catheterization is going to be required. Smaller or larger sizes might be warranted based on a specific urologic reason. For example, an adult with blood clots or hematuria requires an 18 French catheter. Next, an adult with urinary obstruction necessitates a 20-24 French catheter. Lastly, an adult male with bleeding of the prostate can warrant up to a 30 French catheter (Moore & Franklin, 2016).</p> <p>One might think the bigger the catheter tube and balloon, the lower the chances of catheter dislodgement. Which can be true, however, the risk of injury to one's meatus, bladder neck, and urethra, as well as periurethral gland compression, is much higher with a larger catheter circumference and balloon. With a larger balloon and tube size, this directly increases the catheters weight. Consequently, this can cause constant tension on the catheter, and further contribute to the incompetency of sphincter function and deterioration of the bladder neck. Additionally, the risk of bladder spasm increases, which in turn can cause leakage, possible expulsion of the catheter, and ultimately an increase in pain. Antimuscarinics can help the patient who experiences leakage and bladder spasms, once one has ruled out all other causes of bladder overactivity. In conclusion, a smaller catheter size and balloon, as well as routine use of a catheter stabilizing device, will significantly decrease the risk of leakage, bladder neck/urethral erosion, and bladder spasms (Moore & Franklin, 2016).</p>
<p>5. Differentiate between a urinary tract infection and colonization.</p>	<p>Every patient who is catheterized with an IUC will cultivate a considerable colonization of microbes within a few days. This is known as asymptomatic bacteriuria (ASB) which does not warrant treatment of any kind, for it does not generate any symptoms. However, a urinary tract infection (UTI), does indeed make one develop symptoms and merits treatment. UTIs caused by IUC insertion (CAUTIs) are especially important to treat. This is because they can lead to systemic sepsis if left untreated and are rendered an avoidable harm per the Centers for Medicare and</p>

	<p>Medicaid Services (CMS) and will not be reimbursed if infection occurs during hospital stay (Moore & Franklin, 2016).</p> <p>Bacterial colonization is defined as the bacterial count of a single organism to be above 100,000 per mL (milliliter) of urine. One’s urine might be cloudy with an odor present, and darker in appearance. However, this does not necessarily indicate infection if the patient is asymptomatic. Conversely, if one has UTI symptoms such as abdominal cramping, frequency and/or pain with urination, fever/chills, leakage/incontinence, or the urine is malodorous, a urinalysis and culture/sensitivity is warranted to determine which antibiotics are specific to the bacteria present in your urine (Gillette, 2021).</p> <p>A lower quantitative bacteria count may be sequestered from a urine culture prior to that 100,000 cfu (colony forming units)/mL mark. However, these lower counts probably reveal the presence of bacteria in the biofilm developing along the catheter, instead of actual bladder bacteriuria. Biofilm usually presents as a mixed bacterial grouping on a culture (i.e., polymicrobial colonization). Therefore, it is suggested that a new catheter be inserted and a specimen collected from a fresh catheter prior to starting antimicrobial therapy for a symptomatic UTI (Majumder et al., 2018).</p>
<p>References See the course syllabus for specific requirements on references for all assignments.</p>	<p>Anggi, A., Wijaya, D.W., & Ramayani, O.R. (2019, October 14). Risk factors for catheter-associated urinary tract infection and uropathogen bacterial profile in the intensive care unit in hospitals in Medan, Indonesia. <i>Open Access of Macedonian Journal of Medical Sciences</i>, 7(20): 3488-3492. https://doi.org/10.3889/oamjms.2019.684</p> <p>Anonymous. (2016). <i>Introduction to urinary incontinence</i> [PowerPoint slides]. R.B. Turnbull, Jr. MD School of WOC Nursing. https://www.youtube.com/watch?v=INkC1FsJFi8</p> <p>Chen, H., Yan Lee, J.W., Ho Yu, K.C., Wai Chain, C.K., Yau Wong, A.T., Man Lai, R.W., & Chun Fung, K.S. (2020, January 8). Prevalence survey on catheter-associated urinary tract infection</p>

	<p>(CAUTI) in public hospitals in Hong Kong 2018. <i>Infection Control & Hospital Epidemiology</i> 41(3): 365-368. https://doi.org/10.1017/ice.2019.370</p> <p>Connor, B.T. (2018). <i>Reducing catheter-associated urinary tract infections</i>. American Nurse Today. https://www.myamericannurse.com/wp-content/uploads/2018/02/ANT_BestPractices_CautiPrevention.pdf</p> <p>Gillette Children’s Specialty Healthcare. (2021). <i>Bacterial colonization in urine and symptomatic urinary tract infection (UTI)</i>. https://www.gillettechildrens.org/your-visit/patient-education/bacterial-colonization-in-urine-and-symptomatic-urinary-tract-infection-uti</p> <p>Gould, C. (n.d.). <i>Catheter-associated urinary tract Infection (CAUTI) toolkit</i>. Centers for Disease Control and Prevention. https://www.cdc.gov/hai/pdfs/toolkits/cautitoolkit_3_10.pdf</p> <p>Hospital Safety Grade. (n.d.). <i>National Healthcare Safety Network (NHSN) catheter-associated urinary tract infection (CAUTI) outcome measure</i>. https://www.hospitalsafetygrade.org/media/file/CAUTI.pdf</p> <p>Kuy, S., Gupta, R., Roy, C., & Awad, S. (2020, April 22). Incidence of catheter-associated urinary tract infections with compliance with preventative guidelines. <i>JAMA Surgery</i>, 155(7): 661-662. https://doi.org/10.1001/jamasurg.2020.0428</p> <p>Leticia-Kriegel, A.S., Salmasian, H., Vawdrey, D.K., Youngerman B.E., Green, R.A., Furuya, E.Y.,</p>
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	<p>Calfee, D.P., & Perotte, R. (2019, February 21). Identifying the risk factors for catheter-associated urinary tract infections: A large cross-sectional study of six hospitals. <i>BMJ Open</i>, 9(2): e022137. https://doi.org/10.1136/bmjopen-2018-022137</p> <p>Majumder, M.I., Ahmed, T., Ahmed, S., & Khan, A.R. (2018, November 5). <i>Microbiology of catheter associated urinary tract infection</i>. IntechOpen. https://doi.org/10.5772/intechopen.80080</p> <p>Moore, K.N. & Franklin, L. (2016). Indwelling and intermittent catheterization. In D. Doughty & K. Moore (Eds.), <i>Wound, Ostomy and Continence Nurses Society™ core curriculum: Continence management</i> (pp. 232-249). Wolters Kluwer.</p>
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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.