IncUsing academic writing standards and APA formatting of references, respond to each of the following learning objectives. Using this document, enter the responses next to the corresponding learning objective. 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 and submit to the dropbox.

Learning Objective	Response
1. Describe the incidence and prevalence of catheter associated urinary tract infection (CAUTI).	Incidence, by definition, is the probability of occurrence, rate or frequency of a disease or medical condition (Buttaro et al., 2017). Reported rates of UTI in patients with urinary catheters vary. For example, Lawrence et al., (2019) reported the use of indwelling urinary catheters was responsible for approximately 75% of hospital acquired UTI cases. Saint et al., (2016) stated the national incidence of CAUTI increased by 6% from 2009 to 2013. Prevalence is defined as the proportion of a specific population affected by a medical condition, disease or risk factor at a specific point in time. It is derived by comparing the number of people found with the condition with the total number of people studied. It is usually expressed as a fraction, percentage or number of cases per 100,000 (Buttaro et al., 2017). For example, national data from acute care hospitals in 2006 showed a range of mean CAUTI rates of 3.1 to 7.5 infections per 1000 catheter days. The daily risk of bacteriuria with catheterization was 3% to 10%. The risk increased to near 100% after thirty days (Gould et al., 2017). This was attributed to the formation of biofilms by urinary pathogens, rendering them resistant to antimicrobial treatment. In the nursing home setting, up to 13% of men and 12% of women had an indwelling catheter on admission, and 5% to 8% continued using a catheter past 30 days, rendering them at increased risk for CAUTI.
2. List factors associated with the development of CAUTI.	Factors associated with developing CAUTI may be endogenous or exogenous. Exogenous CAUTI involves meatal, rectal or vaginal colonization. In the exogenous form, contamination may occur from unclean hands of caregivers or from equipment that was not disinfected. In addition, pathogens enter the urinary tract either by the extraluminal route by migrating along the outside of the catheter or by the intraluminal route via migration along the internal lumen of the catheter from a contaminated collection bag or catheter- drainage tube junction. (Gould et al, 2017). Sepsis, hospital admission, and antimicrobial use contribute to developing CAUTI. Moore and

	Franklin (2016) further described symptoms of fever, suprapubic or flank pain, hematuria, change in mental status, and a positive blood culture that grows the same organism as the urine culture. In the elderly, an altered mental status or change in urinary pattern may signal a CAUTI. In addition, predisposing an individual to CAUTI includes 1) Not using aseptic technique with catheter insertion. Insertion and maintenance should be performed by properly trained personnel. 2) Inappropriately using a catheter for the sole purpose of controlling incontinence. 3) Using a urinary catheter for the long-term instead of exploring alternative incontinence controlling measures. Monitoring the use of indwelling catheters and encouraging brief use for thirty or less days in women, the elderly and patients with compromised immunity discourages the development of CAUTI. Lastly, 4) Failure to maintain an unobstructed urine flow increases the risk of developing CAUTI (Gould et al., 2017).
3. Discuss nursing evidence-based interventions for CAUTI prevention and management.	The Healthcare Infection Control Practices Advisory Committee (HICPAC), a division of the Centers for Disease Control and Prevention, and Department of Health and Human Services published updated guidelines in 2017 for the prevention of CAUTI. These recommendations included various levels of evidence for best practice. Category IA indicated a strong recommendation supported by high to moderate quality evidence. Category IB offered a strong recommendation supported by low quality evidence suggesting net clinical benefits, harms or accepted practice. For example, aseptic technique was supported by low to very low-quality evidence. Category IC described a recommendation required by state or federal regulation. Category II suggested a weak recommendation supported by any quality of evidence that weight benefit versus harm. Pertinent recommendations include, 1. Consider intermittent catheterization in children with myelomeningocele and neurogenic bladder, and in spinal cord injury patient (Category II). 2. Avoid using urinary catheters in patients and nursing home residents for management of incontinence (Category IB). 3. Perform hand hygiene immediately before and after insertion or manipulation of a catheter or site (Category IB).

	4. Follow aseptic technique when inserting the urinary catheter & maintain a closed drainage system. However, even with a closed drainage system bacteriuria can occur over time with breaks in the sterile system by the extraluminal route (Category IB). 5. Ensure only properly trained personnel educated in aseptic technique for catheter insertion and maintenance have this responsibility (Category IB). 6. Insert catheters only when appropriate, not for convenience, and keep them no longer than needed (Category IB). 7. Consider using external catheters as an alternative to indwelling urethral catheters in male patients without urinary retention or bladder outlet obstruction (Category II). 8. Intermittent catheterizing is preferred to indwelling urethral or suprapubic catheters in patients with bladder emptying dysfunction. (Category II). 9. Use intermittent catheterization at regular intervals to prevent the bladder from overdistention. (Category 1B) 10. For operative patients, remove the catheter within 24 hours if possible (Category IB). 11. In the non-acute setting, use clean, not sterile, technique for intermittent catheterization (Category 1A). 12. Minimize using a urinary catheter in higher risk populations such as women, elderly and patients with compromised immunity (Category IB). 13. Maintain unobstructed urine flow with patent tubing (Category IB). 14. If the CAUTI rate is not decreasing after implementing appropriate strategies, consider using antimicrobial/antiseptic impregnated catheters (Category IB). 15. Use urinary catheter systems with preconnected, sealed catheter-tubing junctions (Category II).

	16. Hydrophilic catheters may be preferred to standard catheters for patients requiring intermittent catheterization (Category II). 17. Low quality evidence shows a benefit in reducing the risk of asymptomatic CAUTI with silver alloy-coated catheters instead of silver oxide-coated catheters (Category IB). 18. Use a sterile, single-use packet of lubricant jelly for catheter insertion (Category IB). 19. Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended. Change them based on clinical indications such as infection, obstruction or compromised closed system (Category II). 20. Routine use of antiseptic lubricants is not necessary (Category II). 21. Clamping indwelling catheters is not necessary prior to removal. (Category II). 22. Use portable a ultrasound device to assess urine volume in patients undergoing intermittent catheterization to assess urine volume and reduce unnecessary catheter insertions (Category II). 23. Implement quality improvement programs or strategies to enhance us of indwelling catheters appropriately & to reduce the risk of CAUTI (Category II). 24. Perform hand hygiene immediately before & after insertion or with any manipulation of the catheter site or device (Category 1B). 25. Give caregivers a periodic in-service training to refresh skills in the correct techniques and procedures for catheter insertion, maintenance and removal (Category IB). 26. Provide quarterly feedback of unit-specific CAUTI rates to nursing staff and clinical staff (Category II). The CAUTI Prevention Tool Kit (Lawrence, et al., 2019) offers recommendations for insertion &

	timely removal of an indwelling urinary catheter, use of an insertion checklist, catheter securement, maintaining a closed, patent system, keeping the urometer off the floor and below the bladder vesicle. Overall, there is low-quality evidence for 1) preventing bacteriuria with methanamine for long-term catheterized patients. 2) Bladder irrigation with indwelling or intermittent catheters. 3) Using an antiseptic product in urinary drainage bags. 4) Antimicrobial prophylaxis in patients using short-term catherization. 5) Antiseptic meatal cleaning before or during catherization to prevent CAUTI. 6) Changing urinary bags more frequently than once a month. 7) Using securing devices. 8) Using dilute povidone-iodine instead of dry storage in air after cleansing catheters used in clean intermittent catheterization. Lastly, 9) There is no benefit of clamping versus free drainage before catheter removal (Gould et al., 2017). Mody et al., (2017) conducted a large-scale prospective implementation project in 404 community-based nursing homes that participated in the Agency for Healthcare Research and Quality Safety Program for Long-Term Care. The study was conducted in 2014 to 2016. The authors described catheter-associated UTI prevention interventions that successfully reduced the incidence of CAUTI. CAUTIs decreased from 6.42% to 3.33% per 1000 catheter days. Seventy five percent of the nursing homes reported at least a 40% reduction in CAUTI rates. Many of the recommendations included those of HICPAC. They followed the CAUTI memonic. **C**atheter Removal: Remove catheters if there is no evidence-based medical indication. **A**septic Insertion: Use hand hygiene and insert the catheter using aseptic technique. Use the smallest catheter size that will allow good drainage. Unlike the HICPAC, this study recommended using catheter securement devices. **U**se Regular Assessments: Use a process to assess at regular intervals if a resident needs a catheter. Incontinence is not an indicator. Consider alternatives to catheter use. For example, a bladder scanner can guide management, condom catheters for males, intermittent straight catheterization, and recording and measuring daily weight instead of using indwelling urinary catheters. Furthermore, appropriate Indications for an indwelling urinary catheter include 1) Use in

	healing open sacral or perineal wounds in incontinent residents. 2) For acute urinary retention or bladder outlet obstruction. 3) To improve comfort for end of life care, if needed. Moore & Franklin (2016) stated avoiding bladder overfill, avoiding frequent catheterization was a good prevention strategy to avoiding UTIs. In addition, antibiotics prophylactically can be used in children with high-grade reflux. **T**raining for Catheter Care: Train staff, resident and family. Provide caregivers with data on CAUTI with monthly feedback on prevalence and incidence. Develop tailored educational materials that can be incorporated into annual education for competency testing for nurses. Use a closed drainage system & patent urine flow. Use routine hygiene. Do not clean periurethral area with antiseptics. Do not routinely change the catheter or perform a urinalysis with culture (Saint et al., 2016). **I**ncontinence Care Planning: Develop an incontinence care plan for each resident. Include behavioral interventions.
4. Identify selection criteria for appropriate indwelling catheter size.	The catheter size is obtained by measuring the outer diameter of the catheter using the French Scale (Moore & Franklin, 2016). The age of an individual is a useful guide. For the premature infant, newborn and toddler, a size 5-6 French is appropriate. For a child age 11-12 years, a French size 8-10 catheter would be used. A female older than 13 years, would use a 12-14 size. An adult with hematuria or clots, a size 18 French would be selected. An adult with obstruction would use a 20-24 French and lastly and adult with prostatic bleeding would use a size 30 French. In addition, the authors mention that pure silicone catheters have a thinner wall and wider lumen, useful for individuals who need long term catheterization and who produce mucous, potentially clogging the tube. A wider lumen allows better drainage.
5. Differentiate between a urinary tract infection and colonization.	UTI's can be characterized as uncomplicated and complicated. Uncomplicated symptoms of a UTI include bladder irritation, increased frequency, urgency, dysuria, suprapubic pain, odorous urine and occasionally hematuria. It is characterized as uncomplicated, given the pathogen infects an otherwise healthy individual. The urine culture is positive with bacteria >100,000 CFU/ml. There is no underlying urologic or gynecologic abnormality. It is narrowed to a small number

	of pathogens that can be treated with first line antibiotics. A complicated UTI, on the other hand, has an acute presentation of high fever, chills, flank pain, CVA tenderness, nausea & vomiting and pyuria in the presence of a positive urine and blood culture. Colonization of the bladder means that the urine culture contains a sizeable quantity of bacteria, but bacteria in the bladder are not significantly great enough to cause an inflammatory reaction. The patient is asymptomatic. There are a few leukocytes, but urethral cultures are negative (Buttaro et al., 2017).
List at least three current references that support your responses (textbook required as one of the references),and include the citations in the body of the written responses.	References Buttaro, T.M., Trybulski, J., Polgar-Bailey, P., & Sandberg-Cook, J. (2017). *Primary Care: A Collaborative Approach*. Elsevier. Gould, C.V., Umscheid, C.A., Agarwal, R.K., Kuntz, G., Pegues, D.A., & HICPAC. (2017). Guideline for prevention of catheter-associated urinary tract infections. Healthcare Infection Control Practices Advisory Committee, (pp 1-61). https://www.ced.gov/infectioncontrol/guidelines/cauti/ Lawrence, K.G., Bliss, D.Z, Dailey, M., Trevellini, C., & Poontieri-Lewis, V. (2019). The CAUTI Prevention Tool Kit. *Journal Wound, Ostomy, Continence Nursing*, 46(2), 154-157. Mody, L., Greene, M.T., Meddings, J., Krein, S.L., McNamara, S.E., Trautner, B.W., Ratz, D., Nimalie, et al., Saint, S. (2017). A national implementation project to prevent catheter-associated urinary tract infection in nursing home residents. *JAMA Internal Medicine*, 177(8), 1154-1162. Moore, K.N., & Franklin, L. (2016). Indwelling and intermittent catheterization. In D. B. Doughty & K.N. Moore. *Wound, Ostomy and Continence Nurses Society Core Curriculum: Continence Management* (pp 232-247). Wolters Kluwer.

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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.