

Scenario:

You are a quality improvement manager at a regional health organisation that provides acute and community healthcare services for adults. Your organisation is made up of a 70-bed acute hospital that provides adult medical, obstetric and surgical services, and three ambulatory care centres that offers community and outreach nursing. There has been a recent spike in the number of gram-negative blood stream infections (BSI) in your hospital. A large proportion of these infections have been caused by *Escherichia coli* (*E. coli*), a common gram-negative bacterium. The NSW Ministry of Health has contacted your infectious diseases department to further investigate and respond to the situation. You have been asked by the Medical Director to search the literature and appraise the evidence surrounding interventions that have been shown to reduce the number of *E. coli* gram-negative BSIs in adults. You are aware that the National Health Service (NHS) in England has recently embarked on a nation-wide strategy to reduce gram-negative BSIs.

You do a quick search on the internet, and come across the following resource recently produced by NHS Improvement: <https://www.england.nhs.uk/patient-safety/preventing-gram-negative-bloodstream-infections/>

Using the above link to NHS England improvement (and their recommended resources) please answer the following questions:

TOTAL WORD COUNT: 1300 words

Q1: Please frame a research question in PICO(T) format and justify in a few short sentences why you have chosen each element of PICO(T). (100 words)

Marking rubric:

Systematically frames a PICO(T) research question with brief explanations for all elements. (3 marks)

Composes a coherent, logical research question (1 mark)

Addresses the key objective from the question stem provided (1 mark)

Q2: The NHS England Improvement resource lists multiple systematic reviews (SR) related to reducing gram-negative BSIs.

Refer to the above article (Jones 2019) and answer the following questions in your own words: (400 words)

1. What is the research question the SR is trying to answer?

a. Identify the PICO(T) elements of the research question in your answer

Clearly identifies the PICO(T) elements of the research question with brief explanations for all elements (2.5 marks)

2. Does the SR try to assess the methodological quality of primary studies?

a. If yes, please provide examples in your answer

b. If no, please explain your reasoning Correctly describes if the SR assessed methodological quality of the primary studies

Clearly justifies their response with direct examples from the SR where relevant (2.5 marks) UNSW School of Population Health 2

3. Does the SR discuss the reasons for any variations/heterogeneity between individual studies/overall results?

a. If yes, please provide examples in your answer

b. If no, please explain your reasoning Correctly describes if the SR considered variations/heterogeneity between individual studies and/or overall results

Clearly justifies their response with direct examples from the SR where relevant (2.5 marks)

4. Does the SR report on the clinical relevance/importance of the results?

Discuss. Correctly describes if the SR reported on clinical relevance/importance of the results

Clearly justifies their response with direct examples from the SR where relevant (2.5 marks)

Q3: Preventing urinary tract catheter infections have been shown to reduce gram-negative BSIs in adults. However urinary catheters are often inappropriately placed in hospitalised patients, leading to increased rates of infection.

Refer to the above article (Jansen 2012) and answer the following questions in your own words.(400 words)

a) What was the major aim(s) of the study?

Correctly identifies the major aim(s) of the study (2 marks)

b) What were the primary and secondary outcomes?

Correctly identifies the primary and secondary outcomes of the study (2 marks)

c) What type of study design was employed?

Correctly identifies the study design used Provides a brief explanation with reference to the study methods (2 marks)

d) What is an alternative study design that could have been used to answer the same research question?

Briefly describe how you would design this study and its methodology Appropriately identifies an alternative study design that meets the UNSW School of Population Health 3 aims/objectives

Provides a brief discussion of alternative study design and methods (4 marks)

Q4: Choose one intervention (e.g. antimicrobial stewardship) described in any of the resources provided by the NHS England Improvement website to reduce gram-negative BSI in adults: (400-500 words)

a) Describe the intervention and the evidence (max. 5 references) supporting its use and efficacy
Describes an appropriate health intervention shown to reduce gram negative BSIs Brief literature review with reference to peer-reviewed articles (max 5) (5 marks)

b) Discuss whether you think the intervention is applicable to your healthcare organisation

Discusses applicability of intervention to health organisation with some consideration of:

- Acute and/or community model
- Regional services
- Evidence / cost effectiveness / resources (4 marks)

c) Please provide a list of references (max 5) that you have used Reference list provided (max 5) and correctly cited (1 mark)