

You must answer **FOUR** questions – at least one from three different areas, and a final one of your choosing

FOUNDATIONS

1. The use of quality improvement tools and techniques is fairly widespread in healthcare. But the business case for doing so has been lacking. In other words there is little evidence that improving the quality of healthcare processes makes good business sense. Explain why this is the case. Then either provide your attempt to offer a business case or argue why it does not make economic sense to adopt quality improvement in health care.
2. The US Health Care System is frequently labeled a 'non-system'. Is this challenge correct? Please explain your answer, using ideas and findings from your readings in health care delivery.

INFORMATION SYSTEMS

- 1) Hospitals, medical clinics, and public health authorities are building health information systems that will track clients' health status and their uses of health services. The National Health Information Infrastructure (NHII) proposes seamless integration of health care information across all delivery institutions and personal health records. However, the NHII remains an unrealized vision, with only a few regional health information networks actually in existence (e.g. Santa Barbara, Indianapolis/Regenstreif Clinical Data network). Of the many barriers to regional or national information integration, a most significant one arises from the lack of an incentive structure that encourages individual health care facilities to share their data. As an IE, you will be in the position to advise a health care facility whether, and when, to participate in data sharing. Identify the key challenges to an individual health care institution's participation in sharing patient-identifiable information on a regional basis, and describe how you would build the evidence to advise a hospital authority whether or not to participate in a regional health information-sharing project.
- 2) Healthcare technologies such as telemedicine, electronic health records and eHealth are becoming an important part of healthcare. But with the exception of some encouraging recent trends for electronic health records they have not been widely adopted. Explain why and what must happen for their potential to be fulfilled.

MEASUREMENT AND MODELING

- 1) BRIEF ANSWERS –answer all three parts
 - a) Give a rationale for discounting health benefits to present value in a CEA?
 - b) What is the current recommended discount rate for published CEAs of medical technologies in the United States? (Just give the percentage)
 - c) What is meant by "societal perspective" for an analysis, and please describe how the conclusions might differ from the societal perspective and two other distinctly different perspectives.
- 2) Patients with acute squamulitis have been diagnosed with conventional x-ray films of the abdomen in the past. They generally come to the emergency room (ER) with abdominal

complaints. Unless diagnosed and treated immediately with surgery, patients with squamulitis have a reduced life expectancy; if treated in time, they have same life expectancy as others their age. A regular X-ray of the abdomen is generally accepted to have sensitivity of 90% and specificity of 80% for diagnosing acute squamulitis. The cost of the plain x-ray and radiologist's fee combined is \$250. It is proposed that such patients now be evaluated by MRI, at combined cost of \$1200 per patient. However the MRI has 91% sensitivity and 85% specificity so is a better test. Show your work –

- a) Show a diagram for computing the incremental cost effectiveness of MRI vs. conventional x-ray films and label it just as you would set up the problem to do a CEA.
- b) What is the incremental cost per life year of MRI compared to conventional x-ray for diagnosis of squamulitis based on this and the further information given below:
 - prevalence of actual acute squamulitis among patients presenting to the ER with symptoms sufficient for them to be worked up for the disease: 5%
 - cost of treatment for squamulitis: \$25,000
 - life expectancy of average patient presenting with the diagnostic dilemma: 24y
 - life expectancy of average patient w/ untreated squamulitis: 22y
 - life expectancy of average patient w/ treated squamulitis: 24y

HEALTH CARE PROGRAMS EVALUATION

The debate over whether to allow U.S. citizens to purchase medications from Canadian pharmacies has intensified over the past few months. Proponents of the policy have argued that U.S. citizens should be able to take advantage of substantially lower drug prices in Canada, while opponents of the policy have raised safety and security concerns about purchasing drugs from Canada. The Agency for Health Research and Quality has asked you to design an evaluation to help decide what U.S. policy should be on this issue.

- 1) What are the primary measures that you would include in your evaluation design? (Include examples of measures from a variety of perspectives, including both benefit and cost measures, and include both measures that are directly related to the research question and those that reflect "unintended" outcomes of the policy.)
- 2) What are the primary threats to internal validity of the evaluation design, and why
- 3) What are the primary features of an information system that could be established to monitor or evaluate the outcomes of the policy as it is implemented?