Planning with Electron-Beam Computed Tomography (EBCT)

The use of electron-beam computed tomography (EBCT) for screening of asymptomatic high risk cardiac population to assess for developing coronary heart disease is a new low risk alternative to the traditional invasive heart catheterization. The cardiac CT is recommended by the American College of Cardiology (ACC) as a secondary prevention test to screen prior to a myocardial infarction and death. Garcia (2005) cites that 1 in 20 emergency department (ED) patients present with chest pain and 3-5% of heart attacks have been missed by ED physicians. Another 20-40% of patients who have an invasive heart catheterization are negative. He recommends the cardiac CT as a method to solve some of these issues; however, continued validation is needed. The CT is not an answer for all patients, such as the obese, where visualization is difficult, or those with irregular heart rhythms. Hospitals and clinics across the nation are now purchasing the EBCT scanners. This case study will discuss the screening ability and healthcare planning challenges when bringing in new technology to the healthcare market.

A recent purchase of an EBCT scanner was installed in a central U.S. clinic which serves a 300-bed tertiary hospital. The hospital and clinic took great care in training all staff in its use and patient preparation methods, including running a pilot on several local volunteers. Three months post pilot there remains limited use of this test. Why?

Case Questions: Answer the case questions, with research from your book, CDC, NIH and other quality sources to determine answers and solutions. You are to write a 2-3 page paper in APA formatting that addresses the following questions. Note: A minimum of two references should be used, which should include your textbook and the CDC, and others that support your responses in your paper. This is a paper, so your answer should not be numbered, but rather it should use titles and subtitles.

1. What are the sensitivity, specificity, and predictive values of EBCT?

2. Compare Valanis’s criteria for a good screening program with the eight criteria which the ACC/American Heart Association (AHA) panel proposed for selection of a screening procedure.

3. Provide descriptive epidemiology of this IL region to support the need to purchase a cardiac CT scanner.

4. (Health care planning) What should be done at this point to encourage use of this screening/diagnostic test for coronary heart disease?