After reading the article “Update on Meaningful Use” (of EMRs), find at least 2 other articles that describe the key objectives and/or challenges associated with using and/or developing EMRs. (Be sure to cite the outside articles that you find.) Then answer the following questions.

Given the list of requirements stated in the Table of Essential Capabilities, name 5-7 key areas of information and computer science (ICS) with which healthcare providers and others involved with the delivery and use of EMRs should be familiar in order to effectively use the capabilities listed. For each area,
  • briefly describe the key ICS concepts that should be understood;
  • what are some evaluation mechanisms that can be used to ensure comprehension (e.g., exercises, quizzes, demos?); and
  • indicate the degree of familiarity that should be exhibited (1-10, 1 meaning has seen the term and 10 meaning expert).

As appropriate, you may wish to consider clusters of healthcare providers, each of which may have different proficiency needs with the ICS topic. For example, a nurse may have different technical needs than a physician, who may have different sets of skills than a radiologist or a pharmacist, who may have different skill needs than an administrator for an EMR system.

Here are possible topics to consider for ICS proficiency:

Algorithms (computation, complexity); abstraction (data, computation, etc.); programming languages (fundamentals, compilers); programming; modeling (workflow processes, software structure, behavior); computer architecture (CPU, I/O, computational model – sequential vs distributed); data representation (data abstractions, data structure); data storage; security (system integrity with respect to faults and security threats, data integrity with respect to corruption and privacy); networking and communication (data transmission, connectivity, secure/insecure, model of communication with respect to broadcast, point to point); web technology (navigation/browsing, HTML applications), others.