Introduction to health informatics nursing essay

Clinical decision support systems are computer application clinicians interact with them in decision making and help them at the point of care. They interact with the clinician to determine diagnosis based on patient data or analysis of patient data. In addition, they link physician clinical observation with health knowledge to practice safe, quality health care. They vary depending on the complexity and desired function or application (Payne, 2000).

Purpose of clinical decision system in the delivery of health care

In today's health care, the goal for clinical decision support in the delivery of health strive to provide information to the right person, with the appropriate format, through the right channel and at the right point in clinical work flow to improve health and healthcare decision and outcome (Osheroff et al., 2006). The intervention aim to:

1. Delivery of quality evidence – based medical principals for diagnostic and disease management guidelines.

2. Alert for potential clinical safety and quality problem during the care of the patient and help prevent them.

3. Training and regulate clinician to updated information for the best clinical practice.

4. Improve the cash flow and operating margins.

Programs like internist 1, Dxplain and quick medical reference are functional computer application tools assists in diagnosis. Clinicians input clinical

values like historical and physical examination findings, laboratory and test results and based on the data, the computer application, provides differential diagnosis. After the diagnosis, other clinical application tools can be used to improve the diagnosis and patient outcome. For example, the management of community acquired pneumonia, clinician inputs required data of the patient then the clinical decision application tool would provide a recommendation on how to progress outpatient therapy decreasing the likelihood of medical errors (Marrie et al., 2000). This tool can be also used in the situation where a clinician is not sure or symptom seem confusing or complex and this save time for the clinician to act and document and comply with guidelines (Payne, 2000).

Patient alert-monitoring devices provide real time changes of patient condition, Warning and alert signal clinical staff for intervention. On the other hand, alerts and reminders provide tasks lists for clinicians, such as post-op checks for the purpose to assist in order entry. Application tool access different drug databases in different clinical setting system like laboratory, pharmacy and hospital system and it checks transcription errors and provide feedback to the clinician inputting the order on drugs compatibility and interaction, drug sensitivity, allergy and possible duplication in real time (Alliance for Health Reform, 2006).

Clinicians have the standards mandated by their practicing or clinical setting to perform a procedure, intervention based on patient or clinical data. Reminders and prompts applied before or during patient interaction with physician can aide physician decide the appropriate step for therapy. They have effectively proven in increasing preventive care standard and

prescribing. Therefore, clinician uses prompt and reminders in clinical decision support system for the purpose to improve clinical effectiveness. Patient based prompts contact patient by texting messages, emailing or voice. They are specific to obtain optimized results (Krall & Sittig, 2002). Lastly, the clinical decision applications tool integrates financial and clinical information to improve clinical performance as well control the cost.

Benefits computerized provider order entry (CPOE) and electronic prescribing

Provider order entry (CPOE) is a computer application tool of processing clinician orders for the client or patient care in the health care information system (Hebda & Czar, 2009). On the other hand, electronic prescribing (e-prescribing) refers to transmission of electronic drug prescription from the provider ordering system the pharmacy system near the client or preferred client pharmacy (Blair, 2006).

Many CPOE applications have access to evidence based clinical guidelines and interact with clinician with the aim for CPOE to reduce transcription and medication errors, decrease time for the time drug ordered to time drug dispensed, more ordering standards and completeness of the orders, and incorporation of alerts to warn potential drug dosage problem or critical lab value. In addition to allergy, drug interaction and contraindications such as during pregnancy and other health issues (Hebda & Czar, 2009). Medication error leads to adverse drug reaction, the largest cause of extended length of stay in the hospital before CPOE innovation (Sengstack & Gugerty, 2004).

Likewise, electronic prescribing reduces medication errors and provides understandable information to pharmacists from CPOE information system.

This is one of the key plans to enable adoption of Electronic Medical Record to a national electronic health infrastructure in America (Centers for Medicare and Medicaid Services, 2009). E -Prescribing has improved patient outcome due to new tools deployed to the system – drug-experience outcomes to provide the clinician feedback of the drug. This is a breakthrough to electronic patient quality of care (Schiff & Bates, 2000).