From data, information and knowledge to wisdom

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From Data, Information and Knowledge to Wisdom The data-information-knowledge-wisdom (DIKW) continuum is a concept of the transformation of data into wisdom through cognitive processes. DIKW was initially used to illustrate principles of information management for the designing of information systems (Davenport & Pursak, 1989)(Saltworks, 2009).

DIKW models utilized bynursingsuch as the model by Englebart & Nelson (2002), incorporate principles of increasing complexity due to increasing interactions What is important and unique to nursing is the DIKW concepts and models also help describe thecritical thinkingprocesses that nurses use to transform knowledge into the delivery of patient care, intoeducationand learning and also into nursing research (ANA-American Nurses Association, 2008).

The purpose of this paper is to demonstrate the progression through the four steps of the data, information, knowledge, wisdom continuum that occurs research information to answer a clinical question pertinent to nurse practitioner practice. Standardized N nursing Language in Nurse Practitioner Practice The use of electronic information and decision support systems in nursing practice has brought about the introduction of several standardized nursing languages to document and communicate patient care. (McGonigle & Mastria, 2012).

The identity of the Nurse Practitioner is grounded in nursing practice but has also expanded to include the functions of a physician (O'Connor, Hameister, & Kershaw, 2000). Given the merged identity of the Nurse Practitioner the clinical question is : Would a standardized nursing language adequately document the patient care delivered by a nurse practitioner? The Search for

Clinical Data Data are discreet entities that in of themselves have no meaning. The search for data related to the clinical question was conducted through the Walden LibraryHealthScienceand Nursing Databases.

DATA TO WISDOM 3 Using the search words Nurse Practitioner and Standardized Nursing Language, both the CINHAL/Medline and the OVID data bases were queried. The search identified 6 articles. According to Bernstein (2009), The Data-Information-Knowledge-Wisdom hierarchy is based on filtration and reduction, so to select the most relevant articles, the titles and the keywords of the articles were reviewed first. This resulted in one article that did not contain the search words to be elimiated from further review. Translating Clinical Data to Information

To further evaluate the usefulness of the 5 remaining articles, their abstracts were read to identify any relevant information. Information is data that has some meaning to it. Davenport and Prusak (1989) describes information as data that makes a difference to the receiver of the data. The data which is now aggregated into informational sentences and paragraphs (complete thoughts) reveal that the NANDA Nursing Diagnoses, the Iowa Nursing Interventions, and Iowa Nursing Outcomes Classification SNLs have been explored for use in Nurse Practitioner practice.

This is information as it has context to the reason the literature search is being performed. Linking Information to Knowledge In the DIKW continuum, Knowledge is transformed from Information At the knowledge stage in Englebart's & Nelson's (2002) DIKW model, an increased level of complexity in thinking must occur as a result of the increasing occurrences of

interrelationships between information and knowledge (McGonigle & Mastrian, 2012).

Davenport and Pursak also describe the knowledge stage of the continuum as a level of higher order of thinking and go on to describe some of the higher level thinking actions that turn information into knowledge. DATA TO WISDOM 4 One such action is Comparison i. e. How does this information compare to other known facts ? In this case the information found was about one type of SNL, but it known that there are about 13 different SNLs in existence. Another action is making Connections i. e. How does this information relate to other pertinent topics? In this situation another pertinent topic in NP practice is e-Prescribing.

How does the use of an SNL relate to e-prescribing? Thus far the knowledge gleaned is not enough information has been found to answer the clinical question as written. Wisdom—Knowledge Applied in Meaningful Ways. Can informatics be used to gain wisdom? Interestingly the concept of wisdom has been eliminated from many DIKW models (DIK models) because according to Davenport and Prusak(1989) there is “ enough difficulty distinguishing among the three related concepts of data, information and knowledge” and so “ higher-order concepts such as wisdom and insight have been lumped into the category of knowledge”.

There are differences in defining what wisdom is. According to Bernstien (2009) “ wisdom means an ability to see the long-term consequences of any act”. Or wisdom is knowing when and how to apply knowledge to complex problems or needs (Englebart & Nelson, 2012). In this case Wisdom is knowing that more research needs to be done on the topic of SNL's and NP

practice in order to determine if standardized nursing language adequately applies to NP practice. It is what nurses do with the information available or lack of information available in informatic systems that creates wise decision making.

Summary In nursing, Data- Information- Knowledge-Wisdom continuum models help depict the critical thinking nurses use to provide patient care. In information science DIKW models depict information management systems. DATA TO WISDOM 5 Data and Information can be stored in the databases of information systems in the forms of numbers, symbols and words that in of themselves have no meaning. It is only when data and information have context and meaning and are correctly applied to a problem that they are transformed into Knowledge and Wisdom in the minds of the users of these information systems. DATA TO WISDOM 6 References American Nurses Association. (2008). Nursing informatics: Scope & standards of practice. Silver Springs, MD Bernstein, J. H. (2009) The Data-Information-Knowledge-Wisdom Hierarchy and its Antithesis.

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