



Knowledge Management

Foundational Curriculum:

Cluster 8: Data

**Module 14: Collection of Data and Knowledge Management, including
Medical Coding and Terminology Concepts**

Unit 2: Knowledge Management

FC-C8M14U2

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Unit Objectives



- Define knowledge management
- Describe the concept of creating healthcare knowledge
- Describe the different ways in which knowledge can be collected, captured, compiled and managed
- State the differences between tacit, implicit and explicit knowledge
- Identify the relevant technology to help create and record knowledge



Knowledge Management

- **Knowledge management** is the process of creating, sharing, using and managing the knowledge of an organization
- O'Dell & Grayson (1998) defined knowledge management as: *“a conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organizational performance.”*





Knowledge Management in Healthcare



- **Knowledge management** is generally defined as the process of capturing, developing, sharing, and effectively using knowledge. Knowledge management efforts in healthcare generally focus on strategic objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration, and continuous improvement measures.
- There is a great complexity of relationships involved or the disparate data requests within the health care system. Fragmentation of data flow can occur when data is collected or knowledge is managed in silos.
- Health information technology (Health IT) has the potential to improve the collection and exchange of data, and knowledge management; these data could be included, for example, in an individual's personal health record (PHR) and then utilized in electronic health record (EHR) and other data systems





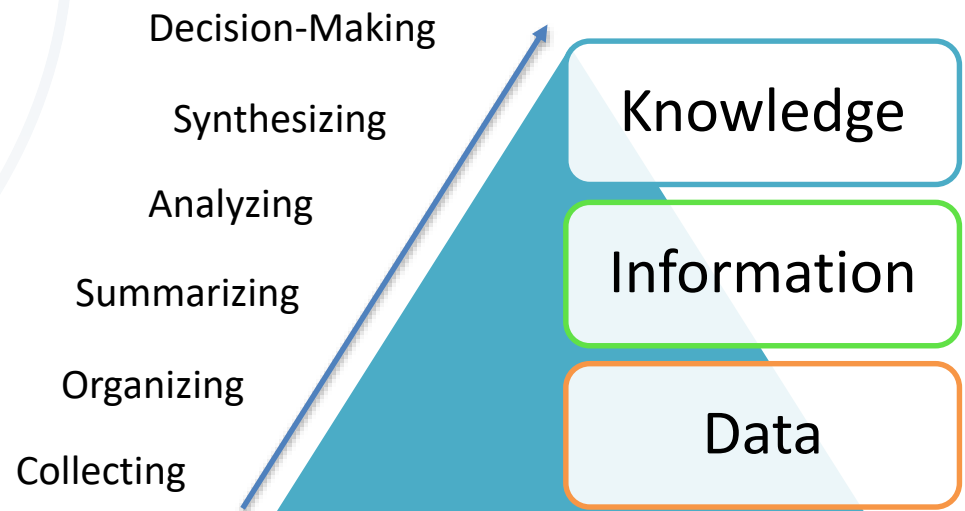
Knowledge Management



Knowledge management is an essential practice for researchers, providers, healthcare organizations and other entities. Knowledge development in healthcare adds long-term benefits in terms of decision-making abilities, quality, safety, privacy and security, clinical and operational efficiency, patients and populations, and data management.

Following are the six steps in knowledge management:

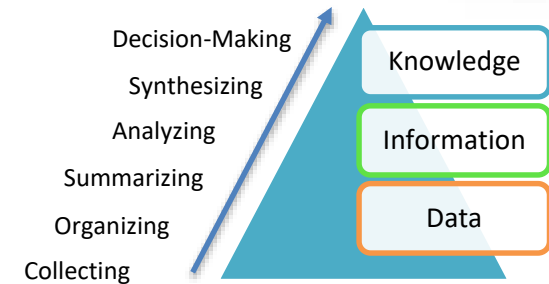
- Step 1: Collecting
- Step 2: Organizing
- Step 3: Summarizing
- Step 4: Analyzing
- Step 5: Synthesizing
- Step 6: Decision Making





Knowledge Management

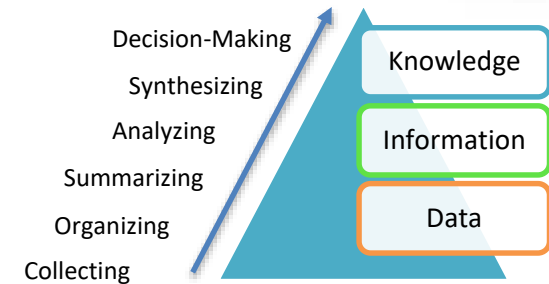
- Step 1: Collecting: The most important step of the knowledge management process involves collecting correct and relevant data, so that the resulting knowledge is the most accurate. Therefore, the decisions made based on such knowledge will be accurate as well.
- With data collection points, the data extraction techniques and tools are also defined. As an example, the sales report may be a paper-based report where a data entry operator needs to feed the data manually to a database whereas, the daily attendance report may be an online report where it is directly stored in the database.
- In addition to data collecting points and extraction mechanism, data storage is also defined in this step. Most of the organizations now use a software database application for this purpose.





Knowledge Management

- Step 2: Organizing
- The data collected need to be organized. This organization usually happens based on certain rules. These rules are defined by the organization.
- As an example, all sales-related data can be filed together and all staff-related data could be stored in the same database table. This type of organization helps to maintain data accurately within a database.
- If there is much data in the database, techniques such as 'normalization' can be used for organizing and reducing the duplication.
- This way, data is logically arranged and related to one another for easy retrieval. When data passes step 2, it becomes information.

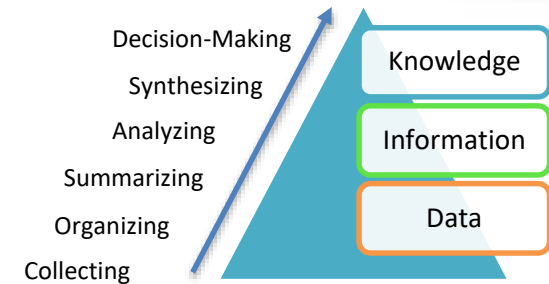




Knowledge Management



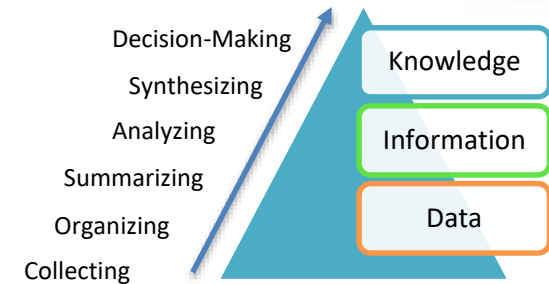
- Step 3: Summarizing
- In this step, the information is summarized in order to take the essence of it. The lengthy information is presented in tabular or graphical format and stored appropriately.
- For summarizing, there are many tools that can be used such as software packages, charts (Pareto, cause-and-effect), and different techniques.





Knowledge Management

- Step 4: Analyzing
- At this stage, the information is analyzed in order to find the relationships, redundancies and patterns.
- An expert or an expert team should be assigned for this purpose as the experience of the person/team plays a vital role. Usually, there are reports created after analysis of information.

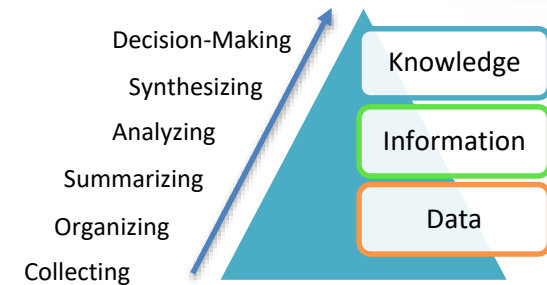




Knowledge Management



- Step 5: Synthesizing
- At this point, information becomes knowledge. The results of analysis (usually the reports) are combined together to derive various concepts and artefacts.
- A pattern or behavior of one entity can be applied to explain another, and collectively, the organization will have a set of knowledge elements that can be used across the organization.
- This knowledge is then stored in the organizational *knowledge base* for further use.
- Usually, the knowledge base is a software implementation that can be accessed from anywhere through the Internet.
- You can also buy such knowledge base software or download an open-source implementation of the same for free.

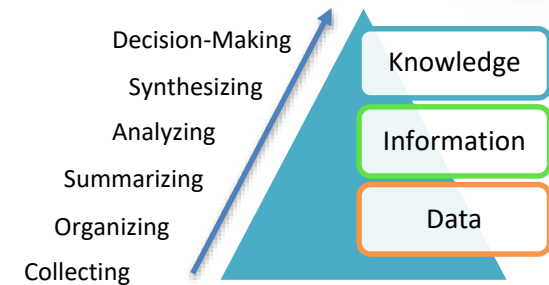




Knowledge Management



- Step 6: Decision Making
- At this stage, the knowledge is used for decision making. As an example, when estimating a specific type of a project or a task, the knowledge related to previous estimates can be used.
- This accelerates the estimation process and adds high accuracy. This is how the organizational knowledge management adds value and saves money in the long run.





Concept of Creating Healthcare Knowledge



- Healthcare knowledge is updated slowly: incorporating a new practice takes years or decades, as heavily validated proof is required to accept new technology or techniques
 - Patient safety is obviously the most important goal, thus nothing new can be started without significant evidence of safety
 - Ethical debates regarding animal testing slows down new innovations in medicine
 - Still, other methods of efficient testing have been developed
- Healthcare knowledge is updated from totally new innovations, adaptation of care processes starting from practitioners themselves or by changing the legislation related to healthcare





Collecting, Capturing, Compiling and Managing Knowledge

- The main processes of knowledge management are:
- *Collecting knowledge*: Various methods of **collecting knowledge** include observations, oral history, interviews, questionnaires, surveys, maps, PC based tools, as described in previous units
- *Capturing knowledge*: **Capturing knowledge** includes the transformation from *tacit* knowledge to *explicit* knowledge, transforming knowledge into readable form
- *Compiling knowledge*: **Compiling knowledge** is gathering different forms of knowledge based on different technologies into one source from sources such as text, programming, calculations, or other data formats
- *Managing knowledge*: **Management of knowledge** is the integration of different technologies that support the management of new and old knowledge





Tacit, Implicit and Explicit knowledge

- **Tacit knowledge** is knowledge that is hard to transfer from one person to another by means of writing or verbalizing. For example the ability to speak a language, play an instrument or use complex equipment is a form of tacit knowledge
- **Implicit knowledge** is gained through incidental activities and without awareness. The ability to walk or speak is a form of implicit knowledge
- **Explicit knowledge** is information that can be easily expressed as numbers, words, formulae etc. Standards, science and medical information is explicit knowledge





Tacit, implicit and explicit knowledge



Tacit knowledge

- Tacit knowledge is skills, ideas and experiences that people have but are not easily or at all verbalized, e.g. “What is beauty?”.

Implicit knowledge

- Implicit knowledge is often vague and specific and it is relatively hard to verbalize precisely, e.g. “How to ride a bicycle?”. Implicit knowledge can be turned into explicit knowledge.

Explicit knowledge

- Explicit knowledge is easy to access and it can be easily expressed and transmitted to others, e.g. manuals and textbooks.



Technology Helps to Create and Record Knowledge



Technology can help to create more knowledge in healthcare. Let's consider the three forms of knowledge:

Tacit

- Creation of new software is based on tacit knowledge, complex software require different strings of knowledge from various areas

Implicit

- Adaptation to new technology in healthcare improves implicit knowledge, since new work flows are integrated and the knowledge increases when new technology is well adapted

Explicit

- Technology provides easy storage for massive amounts of information and makes it available for larger group of people. When information is easily available, knowledge also increases. Knowledge can also be recorded for others to use.



Unit Review Checklist



- Described the concept of creating healthcare knowledge (AAB03)
- Described the different ways in which knowledge can be collected, captured, compiled and managed (AAL01)
- Stated the differences between tacit, implicit and explicit knowledge (AAB01)
- Identified the relevant technology to help create and record knowledge (AAB02)



Unit Review Exercise/Activity



1. Name the six steps of knowledge management.
2. Give an example of explicit knowledge in healthcare.



Unit Exam



1. Knowledge management includes sharing the right information to right people.
 - a) True
 - b) False
2. Healthcare knowledge is updated slowly because
 - a) Information is transferred slowly from one country to another
 - b) Evident proof is required for patient safety and product efficiency
 - c) Animal testing is expensive
3. What kind of knowledge is found in an instruction video for making a cup of coffee?
 - a) Tacit knowledge
 - b) Implicit knowledge
 - c) Explicit knowledge