HL7

HL7 is a standards developing organization (SDO) that is accredited by the American National Standards Institute (ANSI). Its purpose is exchange, integration, sharing and retrieval of electronic health information. Before the HL7 standard arrived, hospitals and other healthcare organizations would typically have many different software applications running on a variety of operating systems and hardware platforms, and running in isolation. Different software applications running on different operating systems, hardware platforms and running in isolation and when these applications supported some network connectivity in hospitals and other healthcare centers organizations, this made integration of applications particularly from different vendors extremely difficult. For example, a patient registration system would be unable to communicate with a billing system, or a laboratory system, and therefore, these systems would be unable to provide a consolidated view of a patient's profile for use by healthcare professionals, and integrating and maintaining healthcare systems was extremely high. HL7 is a messaging standard that helps clinical applications exchange healthcare information. HL7 and its membership provided rules on how messages for various events occurring within the healthcare domain should be structured, formatted, transmitted and received. HL7 messages are often created and sent by an information system in response to an occurrence of an event such as a patient admission, a patient discharge or it may be a query to another system. Each message contains information about that event. Different HL7 events trigger different message types - each message type has a defined set of segments that are joined together to provide all the required information regarding that event and some segments are mandatory, and must be included in the message, and other segments are optional. There could be many segments describing information about a patient for example there are four segments in a message, first segment contains details about the message such as sending and receiving systems, dates and message type, the second segment contains details about the triggered event such as event type, event date/time, the person that triggered the event, the third segment contains details about the relevant patient and last segment contains details of the patient's visit to hospital, such as visit number, ward/bed, attending doctor, financial classification and so on. So, all relevant information about the patient admission event is communicated to the receiving systems using this message. In the same manner, other information pertaining to patient, observation, finance and billing-related information can also be communicated between various software systems. HL7 is a structured protocol that is used as a means of communicating between healthcare applications. Here are some characteristics of the HL7 protocol. First one is event driven protocol in which real-world events, such as the admission of a patient, cause messages to flow between applications. The second one is application to application in which a communication between two independent applications, rather than between closely coupled, client/server applications is defined. Third one is point to point which is typically used in a client/server environment for

employing some form of a point-to-point protocol. LLP (lower layer protocol used for transmitting HL7 messages using TCP/IP) Transport method to transfer messages between a client and a server. However, since a client must establish a connection to a server before a message can be sent, the client must have prior knowledge about the server. Next one is OSI level 7 which indicates that HL7's scope is the format and content of the data exchanged between the applications rather than how the messages are transmitted between computers or networks which means HL7 does not specify how messages will be delivered between the applications. Data exchange is also a protocol in which HL7 specifies the way data exchange between applications will be accomplished. HL7 creates open standards for the exchange, management and integration of electronic healthcare related data. Its standards are both based on the messaging (HL7 v2.x, HL7 v3 messaging) as well as on the document (HL7 v3 documents – CDA) paradigm. Clinical Document Architecture (CDA) is a HL7 standard for the representation and machine processing of clinical documents in a way that makes the documents both human readable and machine process able.[1] it's a XML-based markup standard intended to specify the encoding, structure and semantics of clinical documents for exchange. CDA typically are documents about a Discharge Summary, Imaging Report, Admission & Physical, and Pathology Report and so on. The CDA standard describes the XML elements and attribute that are used to convey clinical information. A CDA document has two main parts first one is header , sets the context for the clinical document such as when the document was written, who wrote it, for what organization, which patient it applies to and the visit or encounter for which it describes healthcare centers. It contains the human readable narrative text.CDA standard supports interoperate ability at multiple levels so it can be implemented incrementally.

References:

1.http://www.ringholm.com/docs/04200_en.htm