

The Components of Automated Healthcare Order Management

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The physician ordering process initiates activities representing 80% of the care delivery costs of healthcare. Because order management is a complex capability, it is important to clearly define its various components. This will permit care delivery organizations (CDOs) to better evaluate vendor capabilities and thus obtain products that better meet their needs.

ORDER MANAGEMENT

This is a general term that refers to all of the order-related actions taken on behalf of a patient. It is Gartner's umbrella term that encompasses order creation, processing and execution. This includes creating and capturing the order, dispensing and administering pharmaceutical agents, requesting and performing tests or consultations, establishing dietary constraints and activity schedules, scheduling all requested actions, and capturing and transmitting appropriate billing information. Figure 1 illustrates the overall relationship between the components of order management.

ORDER CREATION

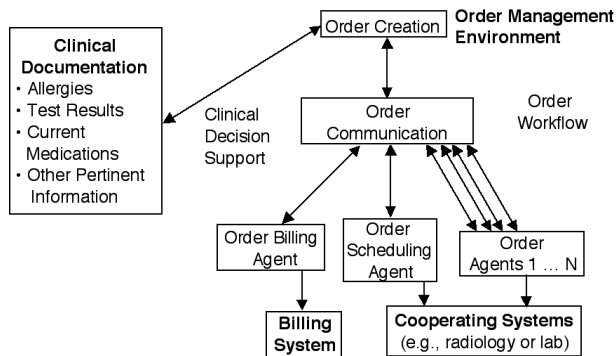
This process, which also is known as order entry or order capture, includes the generation of an order by a caregiver and its entry into the order management system and the medical

record. This process must include identification of the patient, identification of the user, determining the relationship/role between the two, acquiring the order and any related information (e.g., medication, dose, frequency, termination, scheduling, special conditions, existing orders, allergies, other pertinent information to set the clinical context and billing codes), and time stamping the transaction. It may also include identification of the agents responsible for carrying out the order. It is essential that order creation be integrated with clinical documentation and clinical decision support.

ORDER MANAGEMENT ENVIRONMENT

This term covers the many "intelligent," rule-based activities and processes surrounding the creation, processing and fulfillment of orders. It includes activities as diverse as ensuring that all required information for an order has been acquired, that an order does not conflict with other therapies (e.g., drug-drug interactions), that it complies with reimbursement regulations, that it is consistent with "best practice" management guidelines and that there are not more cost-effective alternative therapies. It is essential that there be clinical decision support, workflow and communication tools in place. The summation of these processes is ultimately

Figure 1
Order Management Components



what provides the maximal value in order management because the time surrounding order capture is the optimal time to positively affect clinical efficiency and quality.

CLINICAL DECISION SUPPORT

The inclusion of a clinical decision support system (CDSS) and its ability to positively influence the cost and quality of clinical care is potentially the most valuable function offered to clinical caregivers by an orders system. It must integrate disparate sources of information and provide pertinent alerts and reminders in real time and near-real time. The rules used in CDSS should be part of a rules engine that allows the end users to update and enhance the rules without the necessity of IS or vendor support.

ORDER WORKFLOW

This is the series of subprocesses required to successfully complete an order. It is represented as a series of steps with each step carried out by an order agent. For example, when a lab test is ordered, the specimen must be collected, the test scheduled and run, the result validated, workload recorded and the result reported. Workflow also is responsible for reporting the status of an order and “exploding” an order set into its individual components.

ORDER COMMUNICATION

This is the process of communicating information to and from various order agents. It includes determining the proper agent for a process, passing on the needed information for

that agent to perform its task, verifying that the agent receives and properly performs the specified activity and receiving any status reports on the task from the agent.

ORDER AGENT

This is an entity (human or machine) that can carry out a process related to the fulfillment of an order. It receives information defining the work to be done, performs the work and returns a message or messages indicating the status of the work. Examples include a nurse checking vital signs and a scheduling system scheduling a procedure. An order may involve a single agent or may require numerous agents working in concert. As examples, the order scheduling agent handles scheduling of ordered items, while the order billing agent ensures the capture of charges.

SUMMARY

Clearly defining the various components of order management can facilitate unambiguous communication between vendors, CDOs and users. It can also elucidate the critical subprocesses that must function properly for an order management system to succeed. CDOs should ensure that the components we have defined are adequately supported when investigating a vendor/product to support order management in their institutions. The choice of an inadequate order-processing system can constitute a major barrier preventing a CDO from achieving its financial, operational and medical quality goals.