

Unified Communications in Health Care

New communications solutions address compelling Health Care Industry concerns

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Timely and reliable communication of accurate information is critical to effective health care delivery. More than in most other industries, errors or delays impact peoples' lives and well-being. As the national agenda focuses on health care, these communication imperatives must be met in an environment increasingly under pressure to lower costs, improve productivity, and provide better care.

Health Care Challenges

Health care organizations face challenges in three areas; delivering quality patient care, streamlining care delivery processes, and improving business processes. These challenges are compounded by an environment with many time-dependent critical processes, multiple modes of communication, and many mobile caregivers and other workers with widely varying availability throughout the day. Duplications, delays, and errors in communications are a major factor in health care delivery processes, costs, and outcomes.

Effective communication is essential. As described in a Brief Article in the August, 2002 edition of *Health Care Benchmarks and Quality Improvement*, Richard K. Croteau, MD, Executive Director for Strategic Initiatives for The Joint Commission (JCAHO) said, "If there were one aspect of health care delivery an organization could work on that would have the greatest impact on patient safety, it would be improving the effectiveness of communication on all levels--written, oral, electronic."

One of the underlying causes of concern is the non-integrated and sometimes undocumented nature of the overall communication processes used in most health care environments. The health care industry has developed mechanisms, such as HL7 standards and interface engines or related integration platforms, to communicate data among siloed computer-based information systems. But there has been less emphasis on communicating multimedia information to a mobile workforce and on integrating human communications with the information systems. This is especially true for voice communication systems that currently depend on traditional technologies such as desk telephones, text pagers, and audible announcement systems.

Communications Breakthroughs

The current wave of interoperability standards development between communications systems is introducing opportunities for dramatic change. These standards encompass smart mobile communications devices and the information systems on which health care providers depend. Buyers can now demand that new systems, or even older systems purchased separately, be woven into the fabric of workflow that supports the demands of today's health care environment.

These new capabilities are known as Unified Communications (UC), which is defined at www.ucstrategies.com as, "communications integrated to optimize business processes." Both the communications systems vendors and the Electronic Health Record (EHR) vendors are now developing solutions which integrate communications capabilities, institutional workflows, and EHR systems.

UC in health care potentiates numerous breakthroughs in daily operation efficiencies. UC solutions integrate the right communication tools into the context of the user and task to minimize labor content, delays, and errors while supporting operational requirements. For example, UC can provide a single communications interface for voice, text, e-mail and video via mobile smartphones, via PCs or wireless tablets, and to a limited extent even via vocal telephone interfaces with speech recognition assistance. Further, these UC tools can be incorporated directly into the EHR system interfaces so the communications tasks are directly accessible within the treatment management environment. A nurse need not reach for the telephone to communicate. Clicking an icon on the EHR screen can establish a connection with an appropriately skilled resource.

Accessing the right resource is facilitated via the emerging concept of "presence." This is a key component of new UC solutions in which the status (availability, location, shift status, authorizations, etc.) of each caregiver is known and can be accessed by other people or systems. Software modules linked to the EHR systems can use presence to find the best available resource for clinical workflow, interaction, or consultation – usually with a single click or command. This is a major improvement over existing paging systems (requiring callbacks), telephone calls (with no status visibility), or e-mail (with time delays and limited visibility to others).

UC Health Care Application Examples

The following are examples of the many new, proven communications solutions for improved health care delivery. For these process improvements, UC is incorporated within the device interfaces and applications used in that process. Examples include:

- **Interaction Requests:** Many health care processes require interactions with a remote participant.

One example of such an interaction is an inpatient's attempt to call for the on-duty nurse. Now, with UC, this can be supported via smartphones, wireless tablets or wireless phones with text displays. The initial notification is accomplished by integrating existing nurse call paging systems with the new UC systems. When an interaction request is received, the nurse only needs to click one button to accept the request and open up a voice communications channel. The UC system manages these sessions and can log them to document the event and provide for service review.

Other nursing services examples include; requests for physician interactions and orders, requests for support services such as transportation or facilities, and for approval of patient status changes (admissions, discharges, transfers, etc.).

- **Results Delivery and Order Entry:** Many EHR vendors are offering software capabilities that deliver results to mobile devices, in addition to delivery to more traditional desktop computer displays and paper-based results reports. Mobile devices are capable of displaying consultative quality images as well as textual results. Audio or textual results, such as a radiologist's dictated or transcribed report can be delivered to a mobile device. These results may also identify any potential urgency for detailed review. The results could include embedded communications links (referred to as "context management") to facilitate immediate consultations.

This type of UC solution is producing very positive results for Mercy Health Partners as reported in the "Mercy Health Partners Overview and Case Study" at na.blackberry.com. They operate a five-hospital integrated health care network in the Greater Cincinnati and southwest Ohio area. Physicians receive secure patient information on BlackBerry devices including patient demographics, lab results, medication lists, pathology reports, and transcribed reports. Of course, the physician can respond through the most appropriate communications mode – calls, instant messages, or e-mails. The reported benefits include physician time savings, better patient care, and improved patient communications.

- **Process Automation:** UC also supports increases in process automation. For example, some hospitals have automated communications related to patient discharge, thereby relieving nursing staff from tedious chores. Requests are made by automated text messages or telephone calls, depending on the recipient's preferences, and responses via text or speech recognition are confirmed and then

posted to the discharge approval forms. Only exceptions require manual, skilled intervention.

An excellent discharge example was reported at VoiceCon Orlando 2009 by Steve Margolis, MD, Chief Medical Informatics Officer at Orlando Health. They are using an automated UC calling system to manage notifications, concurrences, and exceptions related to patient discharge. The call results are posted to the EHR system for easy access and exception processing. Formerly, each patient discharge often required as many as 15 to 25 phone calls by the nursing staff. With UC, the results have been dramatic – reducing patient discharge time by up to four hours; shifting nursing time back to patient care, and improving patient and family satisfaction.

These types of UC solutions also support effective outpatient care and many applications for UC are appearing in administrative areas, including collections management, facility services, and management communication.

Benefits

The benefits are significant in each of these examples. The value of these technology interventions is demonstrated by a growing number of success stories with results such as the following:

- Patient care and safety are improved by more timely, effective and accurate communications.
- Improved communications saves time and resources, reflected as improved facility utilization, shorter patient stays, and lower costs per case.
- The new UC technologies are secure and auditable and therefore support regulatory compliance requirements. Also, communications regarding patient-specific information can be restricted to those with authorized access, unlike the earlier voice telephony mode.
- These new UC options often reduce the amount of time spent in communications, since the most effective methods are used. The value is usually seen in the reduction of wasted staff time, as well as cost-saving reconfigurations of communications systems.

The value of these benefits through technology interventions is supported by a growing number of success stories and by increasing interest and investments in the Communications and EHR vendor communities. One such example is the alliance formed

by the authors earlier this year to combine the deep experience of a health care information technology consulting firm, a health care network infrastructure and system integration consulting firm, and two UC consulting firms. This multi-disciplinary alliance is uniquely qualified to assist health care organizations in understanding this new wave of UC solutions in health care and to apply those solutions during difficult economic times when improved productivity and quality of care become even more critical.

Summary: The Way Forward

The next generation of EHR Systems vendors are beginning to build UC capabilities into their products. Telecom and other IT vendors are also tailoring communications products for health care, providing integration links to the EHR systems, and supporting those products with health care vertical market expertise. As a consequence, reference models exist for implementation, thus reducing the cost, time and risk of creating a new solution from the ground up.

Over the past few years the Unified Communications trend has emerged as a major breakthrough possibility for supporting quality care, improving patient flow, and managing costs. The urgency and value of UC is underlined by important industry drivers including pay-for-performance, patient safety, HIPAA and ARRA requirements. As a result of these drivers and rapid industry changes, it is clear that traditional communications systems are inadequate and inefficient. Now is the time for health care organizations to assess their information systems in the context of UC breakthrough potential. The outcome of that assessment may well justify further action in strategic planning and subsequent targeted, progressive deployment of UC solutions