

: *What is the status of Clinical and Hospital Administration DSS?*

by Dan Power

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Both clinical and hospital administration decision support are evolving rapidly. HealthIT.gov is an excellent source of current status information. Clinical decision support (CDS) refers to computer-based tools that "provide clinicians, staff, patients or other individuals with knowledge and person-specific information, intelligently filtered or presented at appropriate times, to enhance health and health care. CDS encompasses a variety of tools to enhance decision-making in the clinical workflow. These tools include computerized alerts and reminders to care providers and patients; clinical guidelines; condition-specific order sets; focused patient data reports and summaries; documentation templates; diagnostic support, and contextually relevant reference information, among other tools."

(<http://www.healthit.gov/policy-researchers-implementers/clinical-decision-support-cds>)

In 2006, I received an email from Mary Courty, a Decision Support Manager in a Hospital setting, who was looking for individuals that she could network with -- "do you know of any relevant DSS professional organizations?" I told her about AIS SIG DSS and indicated I'd check for relevant practitioner oriented Healthcare DSS associations/meetings. My response email also asked her what type of DSS she was working with? Clinical DSS or Hospital Administration DSS? Mary responded I'm "on the administrative side and looking for 'best practice' reporting for financials."

At about the same time, I listened to a podcast titled "Healthcare knowledge management in the 21st century". Perot Systems is organizing podcasts related to Healthcare Tech and the World. According to the press release, "Healthcare industry studies find that medical literature doubles every 19 years and more than 2 million facts are needed to practice medicine." The podcasts are exploring "the challenges of establishing methods to manage this influx of new knowledge while transforming data into meaningful decision support". Dr. Tonya Hongsermeier, Partners Healthcare System (www.partners.org) Director of clinical knowledge management, discussed why Partners has built knowledge management and decision support systems. The 21 minute interview conducted by Dr. Kevin Fickenscher is online at <http://perotsystems.mediaroom.com/index.php?s=pageF&item=19> .

Dr. Hongsermeier focuses on using expert systems to support

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evidence-based medicine. Her team at Partners Healthcare in Boston are aggregating and organizing an array of DSS to support many diverse decision situations. They use a taxonomy to organize clinical knowledge and various DSS. Hongsermeier emphasized that DSS uses and needs differ for various targeted users, Doctors, Nurses, Pharmacists, healthcare consumers. She asserted that research has demonstrated that their decision support systems are improving patient outcomes and reducing costs. She argues much needs to be done to more widely deploy Clinical DSS. Vendors need to reduce task interference, provide better functionality and improve pre-built content. She also argued the insurers and government need to offer incentives to speed adoption of Clinical DSS in Hospitals. Dr. Hongsermeier is a great spokesperson for clinical DSS and Clinical Knowledge Management. I encourage readers to listen to the podcast.

Healthcare professionals need more and better decision support systems. Administrative decision makers need data-driven DSS for performance monitoring, reporting and improved cost control. The administrative side can also benefit from more model-driven DSS to improve scheduling and utilization of facilities. Clinical decision makers need more and better knowledge, model and document-driven DSS. Communications-driven DSS can potentially assist in both administrative and clinical decision making.

Healthcare Informatics is an expanding field of study, but it is not my area of expertise. My background is in business administration so Mary's DSS issues are more familiar to me. A Google search helped me identify an expert in Health Informatics -- Prof. Enrico Coiera, Faculty of Medicine, University of New South Wales. The second edition of his book on the subject has 5 chapters on Decision Support Systems topics. Coiera's book is "written for healthcare professionals who wish to understand the principles and applications of information and communication systems in healthcare. "

At www.coiera.com you can read Chapter 25 on Clinical decision support systems (CDSS). Coiera notes "CDSS are by and large intended to support healthcare workers in the normal course of their duties, assisting with tasks that rely on the manipulation of data and knowledge. An AI system could be running within an electronic patient record system, for example, and alert a clinician when it detects a contraindication to a planned treatment. It could also alert the clinician when it detected patterns in clinical data that suggested significant changes in a patient's condition." Knowledge-driven

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DSS are the most common Clinical DSS. Such systems can help in diagnosis, therapy critiquing and planning, prescription of medications, providing alerts, and image recognition and interpretation. Coiera notes many CDSS are in clinical use. He states "Many of these are small, but nevertheless make positive contributions to care. Others, like prescribing decision support systems, are in widespread use and for many clinicians form a routine part of their everyday practice." One of the earliest Knowledge-driven clinical DSS was PUFF, a tool to aid in interpretation of pulmonary function tests (cf., Snow et al., 1988).

Coiera concludes that many benefits from CDSS have been reported in the literature. He cites Johnson & Feldman, 1995, Evans, 1996 and Sinchenko et al., 2002. The benefits are in three categories:

"1. Improved patient safety, e.g. through reduced medication errors and adverse events and improved medication and test ordering;"

"2. Improved quality of care, e.g. by increasing clinicians' available time for direct patient care, increased application of clinical pathways and guidelines, facilitating the use of up-to-date clinical evidence, improved clinical documentation and patient satisfaction; and"

"3. Improved efficiency in health care delivery, e.g. by reducing costs through faster order processing, reductions in test duplication, decreased adverse events, and changed patterns of drug prescribing favouring cheaper but equally effective generic brands."

Prof. Coiera also notes evaluation of CDSS is complex and a need still exists for more systematic empirical studies. Prof. Coiera ends his chapter with 3 provocative discussion points: 1. Which clinical tasks are worth automating?; 2. Who is responsible if a CDSS makes a recommendation to a clinician that results in patient harm?; 3. Should clinicians be able to use a CDSS without any specific training, or should we consider a CDSS as a specialised piece of clinical equipment that requires the user to first pass a certification course? Send me your responses to these questions and please help me identify relevant practitioner-oriented Healthcare DSS

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associations/meetings. The topic of Healthcare DSS probably warrants a follow-up column. Please help me and DSS News readers learn more about this important application area for computerized decision support systems.

The 28th Annual Meeting of the Society for Medical Decision Making (<http://www.smdm.org/>) will be held October 14-18, 2006 at the Hyatt Regency in Cambridge, MA. This forum will emphasize "patient-centered decision support systems, theory based interventions to promote behavior change, and decision aids to improve clinical practice and quality of care". The Society for Medical Decision Making's mission is "to improve health outcomes through the advancement of proactive systematic approaches to clinical decision making and policy-formation in health care by providing a scholarly forum that connects and educates researchers, providers, policy-makers, and the public." I won't be able to attend, but perhaps someone will send me a report about the highlights of the meeting.

References

Coiera, E., *Guide to Health Informatics* (2nd Edition), 2003, <http://www.coiera.com/>.

Evans, R.W., A critical perspective on the tools to support clinical decision making. *Transf* 1996;36:671–673.

Sinchenko, V., J. Westbrook, S. Tipper, M. Mathie, E. Coiera, Electronic Decision Support Activities in different healthcare settings in Australia. In *Electronic Decision Support for Australia's Health Sector*, National Electronic Decision Support Taskforce, Commonwealth of Australia, (2002) (available at <http://www.health.gov.au/healthonline/nedst.htm>)v

Snow, M.G., R. J. Fallat, W. R. Tyler, S. P. Hsu, Pulmonary consult: concept to application of an expert system, *Journal of Clinical Engineering*, 13(3), 201- 205, (1988).

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08/17/2006 Perot Systems Podcast: 'Healthcare knowledge management in the 21st century'

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