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Department of Veterans Affairs

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Schema Archetype

Regional/National Health Systems/Networks

Schema Factors

Inpatient, Outpatient, Community, Academic, Military health

Organization Summary

The Veterans Administration (VA) Healthcare System, comprised of 152 medical centers as of January 2011, is one of the largest integrated delivery systems in the U.S. It has an extensive field structure for delivery, which includes 152 Medical Centers and more than 700 Community-Based Outpatient Clinics.

IT Environment

The VA's CDS systems are part of the Veterans Health Information Systems and Technology Architecture (VistA), a rich, automated environment that supports day-to-day operations at local VA health care facilities. VA selected MUMPS as the primary programming language and began developing applications using VA programmers who worked directly with user groups in software prototyping environments. The VA implements software on a national scale supporting integrated health care delivery.

VistA is built on a client-server architecture, which ties together workstations and personal computers with graphical user interfaces at VA facilities, as well as

software developed by local medical facility staff. The CDS is embedded in the electronic medical record, called the Computerized Patient Record System (CPRS)

The VA uses BCMA and documentation forms and templates to help facilitate medication safety. There are over 30 national order checks that are performed within CPRS. Drug-drug interactions (DDI) and drug-allergy (DA) alerts are part of the order entry system. Interactions are classified as "significant" or "critical". DDI alerts are presented when an order dialog is accepted and again when the order is signed. Pharmacists are also alerted during the verification process if a prescriber overrides an alert. DDI, DA and duplicate therapy order checks are performed based on enterprise VistA (data from all 129 VistA systems) as well as DoD's electronic health record, not just local data.

The VA National Clinical Reminders Committee identifies components of reminders that will be standardized nationally, ensuring that clinicians are accountable for using clinical reminders to document identified care components.

The medical centers and Veterans Integrated Service Networks (VISNs) are permitted to continue to develop local reminders for items where no national standardization is in place and to determine local practices for those components that are not standardized. Tools are available to write both alerts and reminders and there are also tools to share reminders.

CDS Achievement

The VA was the earliest healthcare system to achieve almost 100% computerized order entry (achieved by 2002). Numerous studies have also documented the VA's high performance on quality measures associated with the use of clinical reminders and the performance incentives tied to this performance. Online and in-person training programs are available to help clinicians use the CPRS and CDS.

The VA supports national and local research, evaluation, collaboration, and development of clinical decision support.
(See local VA example - Puget Sound VA). The Quality Enhancement Research Initiative (QUERI), a Health Services Research and Development (HSR&D) program, and the National Clinical Practice Guidelines Committee joined with the Office of Information, (SD&D), to design national reminders and dialogs that promote informed decision-making and consistency of care practices.

For example, the Palo Alto VA has been developing, implementing, and evaluating automated CDS systems under the ATHENA-CDS project. These "knowledge-based"

systems contain encoded clinical knowledge (typically from VA-DoD guidelines, supplemented by other sources). The encoded Knowledge Bases can be processed with patient EHR data to generate recommendations for clinical management. This has been developed extensively for hypertension and chronic pain management. There are many more examples of local VA research to improve the effectiveness and use of CDS for care management and avoidance of medical errors.

Lessons Learned

Mandatory and highly supported adoption, the deployment of clinical application coordinators at each VistA site, the linkage of CDS with performance measures and incentives, and readily accessible CDS training tools have all been associated with the high and effective use of CDS.

Facilitating and funding local VA research and collaboration with academic and clinical partners has lead to important CDS improvements and knowledge, as well as improved care to veterans.

Awards Recognitions, and Citations

Several local VA centers have won Davies and other awards. (see Puget Sound example).

The White House has praised the advanced technologies of the VA's VistA system and suggested that it could be widely distributed to private medical practices:
http://archinte.ama-ssn.org/cgi/content/full/165/10/1111

The VA won an Innovation Award from the Kennedy School at Harvard: http://www.innovations.harvard.edu/awards.html?id=39711

VA's CDS described in VistA VA's CDS described in VistA Monograph: http://www4.va.gov/vista_monograph/

VA Online training of VISTA and CDS:
http://www.vehu.va.gov/vehu/WBTPages/WBT08.cfm?ClassNum=157

The Software Document Library for Clinical Reminders is available at: http://www.va.gov/vdl/application.asp?appid=60

There are numerous studies on the CDS systems in the VA as well as studies documenting that the VA has achieved high performance on quality measures related to the use of clinical reminders. Studies show improvement in treatment, prevention, and documentation quality.