

A VA Executive's Guide to Past Notes

INTRODUCTION

This TS Note revisits three previous TS Notes and combines their highlights into one document. This provides readers one location where they can find overviews, examples and benefits of a larger IT concept, and use them in strategic or investment decisions. The TS Note series covered three topics in Health Data and Informatics over the past year: mobile fitness devices and patient-generated data (PGD); radio-frequency identification (RFID); and health informatics and its relationship with VA's IT Vision. This TS note will define and give background information on each of these concepts, and aligns the associated technologies to the VA's IT Vision.

BACKGROUND

The proliferation of smartphones, remote monitoring devices, application development platforms and ubiquitous networks is enabling massive growth of PGD as well as the

number of adults who have a health application running on that device. The last decade has witnessed a surge of interest in the integration of fitness device PGD into healthcare systems. According to the American Medical Informatics Association, "within five years, the majority of clinically relevant data will be collected outside of clinical settings." The use of fitness device technology to create, store and share health-related activity data in patient/ provider communications encourages patients to take a proactive role in the generation of their healthcare data and creates new opportunities for care. As part of VA's IT Vision, integration of fitness devices into healthcare, that may or may not be hardwired into VA's network, would provide the Veteran flexibility to share their lifestyle and activity data. Fitness devices allow you to track everyday activities like steps, distance, calories, active time, dietary

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choices, weight, and sleeping habits/ quality and can continuously send those statistics to a computer or mobile device. PGD from fitness devices is created, recorded, and gathered by people for the purpose of wellness monitoring and to help address health patterns and concerns. As healthcare providers, patients, and health devices have begun generating (and storing) large sets of computable data, the formal discipline of health informatics has emerged to help manage all the data and turn it towards positive outcomes (see Figure). In addition, the informatics community is also figuring out ways to help capture or create more data to use, not simply manage what's already there. Health informaticians design algorithms and computer models based on various medical processes and protocols and apply them to large data sets. If a patient uses a mobile app to gather health or fitness data over the course of a year, these models allow a clinician to translate all of this data into

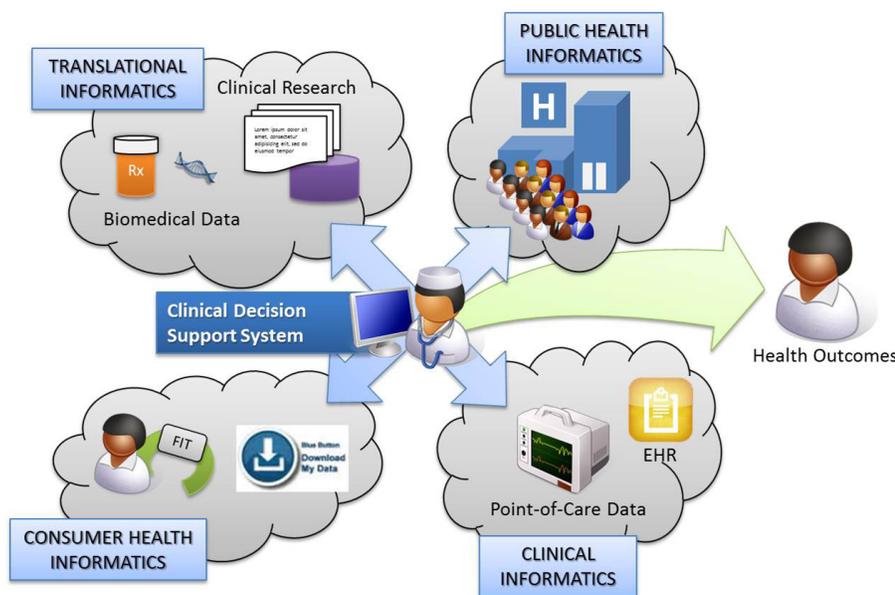


Figure: Health Informatics Ecosystem

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proactive or preventive decisions. As health informatics is adopted across the healthcare industry, these models and algorithms will form the basis of electronic health record (EHR) solutions and health information management systems.

There are some parallels between RFID and the creation and use of PGD. While mobile applications and devices focus on a user's input, RFID technology focuses on asset- or machine-generated data. The benefits of using RFID in healthcare range from simple administrative improvements to more complex data supporting diagnoses or drug safety. RFID use also supports mobile strategies in healthcare, as mobile devices can use or track the data generated by RFID sensors. RFID systems, also known as real-time location systems (RTLS), comprise a tag, which holds data about an item; a reader, which will read the data stored on a tag; and software/databases that act on the information. It is a blend of technology, medical practice, and research methods, focused on where the intervention of health IT can drive improvement in healthcare delivery.

BENEFIT TO VA

Most fitness devices now give access to application program interfaces (APIs) that allow developers to analyze the data on a user's device. Once web-enabled interfaces like these are developed, clinicians within organizations like VA will be able to access their patients' data, share it with members of the healthcare team, and link it with the electronic health record. Understanding the patient's needs inside and outside the doctor's office can lead to healthcare system improvements such as shorter wait times. Because fitness device data is created outside the physical and device boundaries of VA, we must continue driving toward a vision whereby Veterans and their dependents, as well as VA customers and partners, will have the technology and support necessary to receive seamless services and information on any device, anywhere, anytime. By establishing device freedom policies and integration technologies, Veterans and the professionals that care for them would have the flexibility to share approved fitness device data. RFID provides key benefits to VA as it evolves its health IT infrastructure to meet the new patient-centric and data-heavy healthcare environment.

The goal is to expand asset management functionality by "leveraging technologies (barcode, RFID, mobile computing, etc.) to enhance, locate, track and manage VA assets." The benefit of implementing RFID is not isolated to this kind of operational intelligence at the administrative level.

RFID is now used for generating data that support diagnoses, healthcare delivery, patient safety, and many other outcomes directly related to patient health. RFID technology offers solutions that align to VA's IT Vision, documented in the ETSP, and integrate with strategic objectives (such as mobile device strategies) to help create a holistic response to the evolving nature of the healthcare industry.

New data and new sources of data are also driving the future of healthcare. Patients are taking control of generating health data using apps, smart appliances, and other personal devices. Medical devices are being designed in smarter ways so that they capture or generate health data that can be computed by clinical decision support system's (CDSS) or even simply stored in an EHR. VA's efforts to transform healthcare delivery to Veterans through health informatics go beyond developing a corps of informatics professionals and modernizing Vista. Investing in health informatics technologies is a key part of the Information Management area of VA's IT Vision. The OneVA Enterprise Technical Strategic Plan (ETSP) identifies the benefits of data mining, business intelligence, and analytics technologies. These technologies, applied to federated database systems and data warehouses, will help VA discover patterns, make predictions, and deliver improved outcomes for Veterans. As VA adapts to a healthcare environment that is becoming more patient-centric as well as data-driven, health informatics will help the agency meet clinical needs (providing smart devices to patients, therefore giving them ownership over health data) as well as use large data sets to deliver positive health outcomes.

If you have any questions about health informatics, don't hesitate to ask TS (askTS@va.gov) for assistance or more information.

For more information on these topics, please check out the original TS Notes (Volume 1, Issues 6, 8, and 9) [here](#). (vaww.blog.va.gov/oit360).