



## Editor's Notes...

Our February issue looks at radio frequency identification (RFID) technology in healthcare. The first article notes the abundance of web content concerning RFID in healthcare and identifies two sites that provide additional deployment perspectives. The second article summarizes an RFID integration project at The University of Alabama-Birmingham Hospital's perioperative services. Both articles accentuate RFID as an information technology that can significantly impact healthcare data quality, productivity, and innovation.

I hope everyone has taken the opportunity in February to answer the 16th AMCIS call for papers and submit their research to one of the seven SIGHealth mini-tracks.. As listed in the January call for papers, February's newsletter details the AMCIS 2010 SIGHealth mini-tracks. I look forward to seeing your research presentations in Lima, Peru.

In early April, the Kay Center for e-health and AHIMA will sponsor "A Unique Healthcare IT Workshop" presented by the Claremont Graduate University's School of Information Systems and Technology. The workshop theme is "Bridging the Disconnect between Healthcare Providers and Information Technologies." For interested members, this newsletter provides summary information for the workshop and provides a URL link to further details.

In closing, I hope you will share your practitioner and research experiences with other SIGHealth members through article contributions to your newsletter. Content received by the 20th of each month will appear in that month's issue and content received after the 20th will appear in the next month's issue. Here are some of the content categories that you may wish to share:

- News about SIGHealth members (up to 300 words): honors and awards, professional activities, new appointments, interesting projects, new books or publications, etc.
- We welcome SIGHealth related essays (about 900 words) from industry professionals .
- News and approaches to teaching e-health (up to 1800 words): new programs, curricula issues, teaching ideas or cases, sample syllabus, etc. Submissions may be a one or two-paragraph description, or a well-developed essay/complete syllabus.
- "How to's" on research methods, getting papers published, reviewing papers, etc.
- Abstracts of new SIGHealth dissertations that have been completed. Please include author's contact information.
- Short essays/opinions/research studies (up to 2,500 words)
- Interesting SIGHealth related journals and/or special issues, including citation information, brief description, table of content (for special issues), etc.
- Book reviews (about 900 words).
- Any other announcements (up to 300 words for each item).

Warmest regards,

Jim Ryan, Ph.D.

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### RFID in Healthcare...

Jim Ryan

If you attended AMCIS 2007 and visited the cyber café, you witnessed a novel illustration in the applicability of radio frequency identification (RFID). You may have even had your name badge tagged with a RFID transmitter. The tag resembled a paper adhesive label, containing the transmitter (microchip and antenna), which was then applied to the back of your name badge. The RFID exhibitors recorded the unique serial number in the transmitter's microchip, cross-referencing it with the attendee's name from their badge, and storing the serial-to-name cross-reference in a database. An application, integrated with the cross-reference database and RFID readers, extended a personal greeting to tagged attendees on their way to and from the cyber café. Each time a tagged attendee walked past the reader, the large display screen flashed a personal greeting with the attendee's name.

Shifting focus to the present, the deployment of integrated RFID technology is increasing across healthcare IT portfolios. An application with integrated RFID deployment offers a tighter coupling with: productivity increase, automatic data capture standardization, as well as continuing quality improvement and more. As an example of the abundant content of RFID in healthcare, my favorite browser and search engine had over 1.6 million results to the query "RFID in health-care." The phrase "RFID and healthcare" had similar results. The following site descriptions detail some of the "RFID in healthcare" resources available.

**RFID Journal** The top webpage in both searches was RFID Journal, the first media company devoted solely to RFID business applications. The company advocates RFID technology deployment across numerous industries and hosts an annual RFID in Health Care Conference. Its website is both free and subscription-based, which offers a primer in RFID technology essentials, questions to ask your vendor and integrator, as well as other healthcare integration resources covering:

- Practitioner news articles
- Case studies
- Videos
- Conference features
- Discussion wall
- White papers

**The RFID Healthcare Consortium** The second webpage in both searches was The RFID Healthcare Consortium, which is directed by the RFID Educational Foundation. The consortium's stated mission is "... to establish and promote the successful use of wireless technologies that impact patient care and safety, including delivering educational programs, support for standards, development of benchmark specifications, and sponsorship of events for all interested parties in the healthcare industry." Its website predominately offers news articles, current issues, and RFID in healthcare events.

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### RFID in the OR...

Jim Ryan | Barbara Doster

The University of Alabama-Birmingham Hospital (UABH) has chosen a phased approach to integrating RFID technologies into its clinical scheduling software within its perioperative services. Perioperative services provide surgical care for inpatients and outpatients during immediate pre-operative, intra-operative, and immediate post-operative periods. Specifically, UABH's phased project will integrate RFID technologies with its current clinical scheduling system (CSIS) to track, manage, and report inventories across:

- Phase one: tissue
- Phase two: medical devices
- Phase three: medical equipment
- Phase four: perioperative staff

Both tissue and medical device inventories are housed in non-sterile areas, so the infrastructure installation among the first two project phases will occur outside the sterile field of the operating room. During both phases, the particular inventory and its history will be transferred first to the circulating nurse and then to the receiving patient's history, without source data entry.

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UABH requires proof of concept (POC) from each project phase project prior to proceeding on to the next phase. Phase one's implementation completion requires POC that the integrated RFID technologies and CICS will transfer tissue history data to the receiving patient's medical history. Phase one's POC requires the substantiation of CICS metrics and benchmarks in achieving and maintaining a high standard of data quality with no source data entry. Productivity increase may occur as a result during phase one, but it is not a requirement. Achieving phase one's POC will enable phase two's implementation of medical devices, which will follow a similar methodology. Phase two's POC will also focus on high standards of data quality without source data entry as well as productivity increases as a requirement. Phase two's POC will also require high validity as to the contextual location of the individual medical devices within a defined proximity.

Phase three and four requires installing RFID infrastructure within the sterile field of the operating room. Phase three's implementation time for medical equipment will vary, depending on the ability to schedule down individual operating rooms for infrastructure installation. Phase four's implementation of the perioperative staff will run off the same sterile RFID infrastructure as the medical equipment. As a result, phase four's implementation time will be significantly less. The POC for tracking and managing medical equipment, as well as perioperative staff, will require similar CICS benchmark substantiation as phase two's POC for medical devices.

**Phase one: Tissue** The term "tissue" covers many human products transplanted for medical uses, such as heart valves, pericardium, tendons and ligaments, ground bone or bone chips, skin, corneas, etcetera. Tissue transplantation is a rapidly growing industry that is closely regulated by the Food and Drug Administration (FDA). Federal law requires tissue banks to maintain donor information on all tissue as well as implanting hospitals to maintain the cross-reference of tissue donor information within the receiving patient's medical history. UABH views integrated RFID technology as a solution to manage roughly \$500K (Tissue Bank cost) in tissue inventory. However, UABH views the importance of this project as a solution that maintains stringent data quality standards in the transfer of donor history to the receiving patient's medical history. The existing CICS already has a tissue donor information module and UABH is currently waiting on a request for quote from a certified third party integration vendor. This initial phase is anticipated to take two to six months for installation, implementation and POC substantiation.

**Phase two: Medical Devices** Medical devices include artificial joints (i.e. ankle, knee, hip, etc.), pins, screws, bolts, bone graphs, stints, etc.. UABH considers these devices as high-value inventory items (in excess of \$5M) that occupy very little space. Even though they are located in secured areas, their physical size affords many opportunities for inventory error. Visiting vendor representatives can easily create large inventory discrepancies by misplacing a handful of screw, pins or bolts—thus the need for contextual location of each inventory unit.

**Phase three: Medical Equipment** Within each operating room, each piece of equipment is mobile. The entire room can be cleared in a matter of minutes and human nature allows for errors when resetting a room:

- errors of omission that impact the patient's safety
- errors of duplication that limit the use of scarce medical equipment
- errors of surplus in having equipment that is not needed

Currently, equipment check lists are manually entered before and after each surgery. By installing RFID infrastructure in each operating room and installing RFID proximity tags on all medical equipment, contextual inventory by room will be dynamically managed while achieving substantial productivity increases.

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## Featured Articles...

### RFID in the OR... (continued)

Jim Ryan | Barbara Doster

Phase three's POC will require substantiation of the productivity increases as well as:

- Automatic identification of duplications and/or omissions
- automatic identification of surplus
- automatic identification of out of context for particular procedures

***Phase four: Perioperative Staff*** While the patient is physically in the operating room, perioperative procedures and regulations require the documentation of each person (i.e. name, title, time of entry or exit, and length of attendance) attending, entering, or exiting a surgical procedure. Manual data entry of these events into the CSIS is currently the UABH standard operating procedure. For phase 4, all perioperative staff would be issued badges with RFID proximity tags. Surgical patients currently have barcoded wrist bands. The contextual location of all surgical patients, perioperative staff, and visitors within the sterile field, through RFID/CICS integration, would provide automatic logging of all individuals in attendance during each surgery. Phase four's POC would require substantiation of attendance logs without source data entry.

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## Networking Opportunities...

Spread the word: SIGHealth is a group on  **LinkedIn**®

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### April 2010...Claremont Graduate University & AHIMA | A Unique Healthcare IT Workshop

The two-day conference theme is "Bridging the Disconnect between Healthcare Providers and Information Technologists" and the sponsors are the Claremont Graduate University School of Information Systems & Technology and the Kay Center for E-Health Research. As healthcare reform takes center stage this year, it is clear that Healthcare IT will play a pivotal role in shaping the next generation of healthcare services both nationally and globally. Healthcare Informatics is a rapidly growing field that deals with the structure, acquisition and use of medical information. With the global boom in healthcare and quantum advancements in IT, medical informatics is already becoming an exciting career choice. However it is anticipated that not enough skilled healthcare informaticians will be available to fill the growing need.

While the current environment may be filled with uncertainties, CIOs are continually challenged to make definitive actions that cut spending on IT where possible and align IT around initiatives that run, grow and transform the business. CxOs and external influencers now expect IT to be a key differentiator to effectively enable care and business strategies. This workshop explores the challenges and actions that IT can take in the new uncertain environment. Even if you are an experienced IT manager, this 2-day intense workshop will provide you with in-depth exposure to the milieu of how medicine is practiced, the issues and challenges with electronic medical records, the impact of consumer driven health care using Internet, cell phones and social networking along with the how to reap maximum value for your healthcare IT enterprise architecture.

This workshop's audience is primarily aimed at administrators, executives, directors and C-level managers in healthcare organizations, physicians and nurses who want to broaden their knowledge on electronic medical records, and students who want to pursue a career in healthcare informatics. The workshop will be taught by faculty members of Claremont Graduate University, Loma Linda University and leading practitioners from healthcare industry.

[More Details](#)

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### AMCIS 2010 | IT in Health Care (SIGHealth) Minitracks CFP

Next August in Peru, our SIGHealth will offer publication opportunities in the following seven mini-tracks:

#### **0053- Information Infrastructures in Health Care**

Minitrack Chair: Tina Blegind Jensen - E-mail: [tbj.inf@cbs.dk](mailto:tbj.inf@cbs.dk)

Minitrack Chair: Margunn Aanestad - E-mail: [margunn@ifi.uio.no](mailto:margunn@ifi.uio.no)

#### **0085- E-Health and Quality**

Minitrack Chair: Nilmini Wickramasinghe - E-mail: [nilmini.work@gmail.com](mailto:nilmini.work@gmail.com)

Minitrack Chair: Rajeev K. Bali - E-mail: [r.bali@conventry.ac.uk](mailto:r.bali@conventry.ac.uk)

Minitrack Chair: Jurgen Seitz - E-mail: [seitz@dhbw-heidenheim.de](mailto:seitz@dhbw-heidenheim.de)

Minitrack Chair: Doug Vogel - E-mail: [isdoug@cityu.edu.hk](mailto:isdoug@cityu.edu.hk) This

Minitrack Chair: Yang W. Lee - E-mail: [ylee@mit.edu](mailto:ylee@mit.edu)

#### **0086- Cosumer-Centric Health Information Systems**

Minitrack Chair: Bengisu Tulu - E-mail: [bengisu@wpi.edu](mailto:bengisu@wpi.edu)

Minitrack Chair: Samir Chatterjee - E-mail: [samr.chatterjee@cgu.edu](mailto:samr.chatterjee@cgu.edu)

#### **0089- Electronic Healthcare Records and Information Technology**

Minitrack Chair: Alexander McLeod - E-mail: [amcleod@unr.edu](mailto:amcleod@unr.edu)

Minitrack Chair: Barbara Hewitt - E-mail: [bshewitt@gmail.com](mailto:bshewitt@gmail.com)

#### **0090- Business Processes and Standards for Healthcare Integration**

Minitrack Chair: Elliot B. Sloane - E-mail: [elliott.sloane@villanova.edu](mailto:elliott.sloane@villanova.edu)

Minitrack Chair: Mark Gaynor - E-mail: [mgaynor@bu.edu](mailto:mgaynor@bu.edu)

Minitrack Chair: Craig Van Slyke - E-mail: [cvanslyk@slu.edu](mailto:cvanslyk@slu.edu)

#### **0099- Business Modeling in E-Health**

Minitrack Chair: Ton AM Spil - E-mail: [a.a.m.spil@utwente.nl](mailto:a.a.m.spil@utwente.nl)

#### **0110- Role of Technology in Improving Health Care Delivery Process**

Minitrack Chair: Diane Strong - E-mail: [dstrong@wpi.edu](mailto:dstrong@wpi.edu)

Minitrack Chair: Bengisu Tulu - E-mail: [bengisu@wpi.edu](mailto:bengisu@wpi.edu)

Papers are due March 1, 2010. More details are available at the AMCIS website.

#### **CFP: Workshop on “Healthcare Service Management and Modeling” AND DSS Journal special issue on “Modeling for Better Healthcare”**

Workshop panels are due March 15, 2010. Workshop papers are due March 31, 2010. [More Details](#)

#### **CFP: Special Issue of International Journal of Medical Informatics on Supporting Collaboration in Healthcare Settings**

Papers are due March 31, 2010. [More Details](#)

#### **CFP: Second International Workshop on Organizational Design and Engineering (IWODE10)**

Papers are due May 1, 2010. [More Details](#)

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