HL7 news
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HIMSS 2006: HL7 Standards Driving the Industry toward a National Health Information Network

The 2006 HIMSS Conference and Exhibition proved to be another success for Health Level Seven. HL7's exhibit attracted widespread attention on the showroom floor, where attendees got a firsthand account on the critical role HL7 Standards play in driving the industry toward a National Health Information Network (NHIN). Utilizing 2,000 square feet of exhibit space, HL7 highlighted how its standards provide real-life solutions, educated attendees on the plethora of HL7 standards activities, and showed how those standards will be a major component in the National Health Information Network (NHIN).

The exhibit was enlarged this year to include three main areas: a Provider Solutions Showcase Theater, an Educational Theater, and a Demo Center where attendees received personal demonstrations of the applications that use HL7 standards. The expanded exhibit was made possible through the generous support of our sponsors. HL7 extends special thanks to IBM for sponsoring the Education Theater, InterSystems for sponsoring the Provider Solutions Showcase Theater, and to the Cleveland Clinic for sponsoring the exhibit brochure. HL7 also thanks NextGen and Xpress Technologies for sponsoring several of the educational sessions.

HL7 Standards Providing Real-Life Solutions Every Day

Healthcare vendors and providers joined together throughout the week in the HL7 HIMSS Provider Solutions Showcase Theater to present real use cases of how they employ HL7 standards to provide real-life solutions to every

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Board member Liora Alschuler educates HIMSS attendees on HL7's Clinical Document Architecture (CDA) in the Educational Theater

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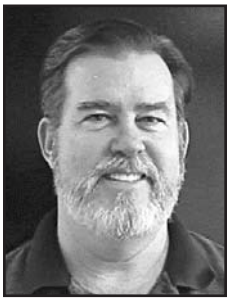

Chuck Meyer

HL7 Strategic Initiatives: A Vision for the Future

By Cherri McGrew, Principal Consultant, Strategic Initiatives Task Force
and Chuck Meyer, Chair, Health Level Seven and Co-chair, Strategic Initiatives Task Force

Cherri McGrew

Last summer HL7 was approached by the Robert Wood Johnson Foundation (RWJ) with a proposal to fund a project with the objective of improving the efficiency of the standards development process in our organization. You may recall that we were then in the throes of identifying issues and improving processes through the efforts of the Organizational Review Committee (ORC) and the Process Improvement Committee (PIC). These committees strove valiantly to get the job done; however, the very fact that they were composed of volunteers from our membership and inherently embedded in the problem space proved to be limiting factors. The Board of Directors quickly recognized that the RWJ proposal presented an opportunity to get a new perspective on our organization and process. An RFP was released and HL7 leadership selected a team of consultants, headed by Cherri McGrew, to lead the project.

In August 2005 the team met with the Board at their annual retreat to set the objectives for the project. Termed the Strategic Initiatives Project, its purpose and focus were established through discussion with the Board and the external Advisory Panel. It was determined that to position HL7 for success in the future it would be necessary to restructure the organization to more effectively address long-term strategic objectives; support its role at the national and international level in an increasingly crowded standards/interoperability space; and more efficiently and expeditiously develop standards while maintaining the organization's essential characteristics of open membership, consensus-based standards development, democratic election of leadership, and not-for-profit status.

The Board approved the formation of a Strategic Initiatives Task Force (SITF) to work with the consulting team to develop a viable strategic plan, including provisions for its announcement and implementation. The SITF was drawn from a broad spectrum of membership domains and functional areas. Chuck Meyer, at the time incoming Chair of HL7, and Hans Buitendijk, Board member and chair of the ORC, were selected to co-chair the SITF. Over the past six months the SITF, supported by the McGrew team, has completed significant outreach to the healthcare community, interviewing members and non-members, and collecting data via an online questionnaire. From the information gathered the SITF formulated a set of strategic issues that, through a series of meetings and teleconferences, were eventually honed into the strategic recommendations with key areas for consideration. These initiatives were presented to the Board in March and subsequently adopted as the basis for an implementation process now being developed by the SITF.

Let's take a quick look at the strategic initiatives and some key considerations. Note that the order of presentation is not intended to imply any priority. In fact, there is a certain interdependency that is obvious by the end of the list. Many of the activities surrounding the eventual implementation of the initiatives will, out of necessity, be happening concurrently.

HL7 will implement a new business model and organizational structure.

For too long, HL7 has ambled along without a well-conceived or well-communicated business plan and relied on its volunteers to promote its viability and existence. HL7 must clearly position itself as an international standards development organization, yet continue to address the various national initiatives of importance to its affiliates, including the United States. To accomplish this and provide support for the other strategic initiatives, HL7 must institute a more effective organizational structure including a CEO, CTO, and Technical Directorate with project management capabilities, an enhanced Web presence, and greatly enhanced tooling. All of this will demand significantly more funding than is currently generated in support of the organization. It is imperative that the new business plan include a revised and enhanced funding model to provide for increasing revenue and ongoing operations support and growth of the organization. With operational control at the executive level, the Board must assume responsibility for HL7's strategic direction.

HL7 will adopt a formal product and services strategy to be reviewed annually by the Board of Directors.

HL7 must have a product and services strategy that both provides coherence and accommodates the stated requirements of HL7 members and industry leaders. This strategy is essential for product positioning and branding and for organizational positioning with various stakeholders. This strategy must support HL7's commitment to have all standards adopted internationally through ISO. It must facilitate timely delivery of standards by refining the focus of HL7's standards work. The product and services strategy will embrace what's become recognized as HL7's role as the health information architecture group: supporting messaging, document exchange, and services. It will define HL7's relationship with other SDO and certification groups.

HL7 will optimize the use of its volunteers and other resources.

Our volunteer culture is fundamental to the organization. However, our extraordinary growth, international reach, and expanded domain coverage has taxed the limits of volunteerism as we know it. Plans to enhance the contributions of our volunteers must focus on two major issues: institutional knowledge and tools. HL7 must develop and implement a comprehensive approach to orientation, education, and mentoring of its volunteers, be they committee members or leaders. This process must facilitate the recruitment and retention of new volunteers from yet untapped sectors. Tooling must be developed or purchased to allow the volunteers to focus their efforts on contributing to the standards versus handling the mundane tasks of assembling and bringing the outcome to ballot.

HL7 will develop a brand hierarchy to help the marketplace better understand the relationship of its products to each other and to the organization.

AND

HL7 will develop consistent organizational messages and a communications strategy to disseminate those messages.

In the past, HL7 the organization was synonymous with HL7 the standard. The change from a single standard to multiple standards began with CCOW and Arden Syntax. What HL7 is/does was further diffused by the introduction of the RIM, Version 3, and CDA. We have done little to alleviate this situation. HL7 must identify its core products and develop a brand hierarchy that helps the marketplace differentiate the products and better relate to the organization. Having established our branding strategy, communicating it to the industry is imperative. However, HL7 must first identify its target audiences and then prepare a comprehensive communications plan, using common communication tools, to disseminate its message to its diverse stakeholders. Given the correlation of these initiatives, a single work group will be developing a comprehensive implementation process for both brand hierarchy and communications.

HL7 will implement a product-oriented project management approach to ensure development of high-quality standards and associated products in a committed timeframe.

AND

HL7 standards will undergo quality testing at key stages of the development process.

HL7 must improve its ability to produce high-quality standards and associated products necessary for supporting successful end user implementation in a shorter timeframe in order to maintain its world-wide leadership in health care information exchange. A well-defined project management approach will improve the predictability of timely delivery of implementable standards. These strategic initiatives address the developmental process specific to meeting that objective. Given that quality control is an inherent component of product lifecycle management, a single work group will develop a comprehensive implementation process addressing these two initiatives.

The Task Force and the Board of Directors jointly will be developing plans for implementation of these initiatives. Plans for implementation will be presented to the Board for review and approval in May. An update on the Strategic Initiative will be presented on May 10th during the Wednesday morning general session.

Charles (Chuck) Meyer,
HL7 Chair (2006-2007)

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Health Level Seven, Inc.
3300 Washtenaw Avenue, Suite 227
Ann Arbor, MI 48104-4261 USA
Phone: (+1) 734-677-7777
Fax: (+1) 734-677-6622
WWW.HL7.ORG

Mark D. McDougall
Publisher

Andrea Ribick
Managing Editor

Karen Van Hentenryck
Technical Editor

HIMSS 2006: HL7 Standards Driving the Industry, continued

day situations. Twelve vendors staffed the HL7 booth: 3M, GE, Health Language, Inc., IBM, IMSI, Intersystems, Language and Computing (L&C), National Cancer Institute, Center for Bioinformatics (NCICB), NextGen, Sentillion, SNOMED Clinical Terms, and the University of Nebraska Medical Center. Provider Showcase presentations covered topics such as achieving semantic interoperability, processing Version 3 messages in Ensemble, a provider's perspective on the Clinical Context Management Specification (CCOW) standard, and the Claims Attachment pilot and the use of the Clinical Document Architecture (CDA).

The HL7 Educational Theater showcased eleven different sessions on compelling HL7 subjects such as Claims Attachments and HIPAA, CCOW, CDA, Common Terminology, Version 2, and the newly released Version 3 standards. Presentations were also given on the Continuity of Care Document (CCD), a joint HL7/ASTM project, and on HL7's Electronic Health Record System (EHR-S) Functional Model Draft Standard for Trial Use (DSTU).

The HL7 Demo Center allowed attendees to get a firsthand look at participants' HL7-enabled applications as well as watch demos featuring electronic health records (EHRs), and presentations by SNOMED International and the National Cancer Institute, Center for Bioinformatics (NCICB). In addition, an on-site press briefing was held on Tuesday. These activities, along with recognition in advertisements, the exhibit brochure and on-site signage, provided participating vendors and sponsors with exceptional exposure and a rewarding experience.

HL7 would like to thank all of the participants and sponsors in our 2006 HIMSS exhibit for their help in making it a success again this year. It is through the support of these organizations, and the time, effort and expertise of their employees that HL7 is able to develop, test and gain wide acceptance of its standards. We appreciate your support and look forward to and invite participation in another successful HL7 exhibit at HIMSS 2007 next February in New Orleans.

George "Woody" Beeler, Jr., PhD, presents a tutorial on Version 3 in the Educational Theater.

Upcoming Co-Chair Elections

The following HL7 Technical Committees and Special Interest Groups will conduct co-chair elections at the May Working Group Meeting in San Antonio:

- Anatomic Pathology - electing two new co-chairs
- Attachments - electing two co-chairs
- Cardiology - electing one new co-chair
- Community Based Health - electing one co-chair
- Financial Management - electing two co-chairs
- Healthcare Devices - electing one co-chair
- Infrastructure and Messaging - electing one co-chair
- JAVA - electing one co-chair
- Laboratory - electing one co-chair
- Modeling & Methodology - electing one co-chair
- Patient Administration - electing one co-chair
- Patient Care - electing one co-chair
- Pediatric Data Standards - electing one co-chair
- PIC - electing one co-chair
- Security - electing one co-chair
- Services Oriented Architecture - electing three new co-chairs
- Templates - electing one new co-chair

HIMSS 2006 Press Briefing Highlights Events of 2005

An on-site press briefing was held on Tuesday during the 2006 HIMSS Conference and Exhibition highlighting HL7's major successes of 2005. Chuck Meyer, Board Chair of HL7, gave an overview of the events of this past year, including the release of the Version 3 (V3) Normative Edition. Meyer remarked that while V3 was long-awaited, HL7's Version 2 (V2) messaging standard retains its crucial role in healthcare interoperability. V3 will first serve new use cases such as structured documents (Clinical Document Architecture), genomics, structured product labeling (SPL), public health information networks (PHIN), and the Markle Foundation's Connecting for Health (CFH).

Meyer touched on another key event of 2005 at the press briefing: HL7's support of Hurricane Katrina evacuees in the effort to match children's vaccination records. Since the disaster, through the HL7 capabilities of the Houston-Harris County Immunization Registry a total of 38,360 vaccination records have been searched. The resulting 13,377 matches that were made translate to a cost savings in redundant vaccines of over $1.5 million. Significant additional savings were realized in administrative and overhead costs.

The press briefing also highlighted the collaboration between HL7 and ASTM International to develop an implementation guide for the Continuity of Care Document (CCD). The CCD is a specification that results from the use of ASTM's standardized data set—the Continuity of Care Record (CCR)—to constrain HL7's V3 Clinical Document Architecture (CDA), Release 2 specifically for summary documents. This implementation guide will afford the United States healthcare industry an incremental but immediate step toward the level of interoperability needed for a national Electronic Health Record (EHR).

Another recent HL7 collaboration highlighted at the press briefing is with the Accredited Standards Committee (ASC) X12 and involves the Notice of Proposed Rule Making (NPRM) on Electronic Claims Attachments that the Department of Health and Human Services (HHS) published in the Federal Register. The publication of this NPRM—in accordance with the Health Insurance Portability and Accountability Act (HIPAA) of 1996—is a landmark event for ASC X12 and HL7, whose members have worked collaboratively on these complex standards for electronic claims attachments since 1997. Further collaboration in this area between HL7, X12 and the National Council for Prescription Drug Programs (NCPDP) involves attachments for retail pharmacy prior authorizations to meet another pressing regulatory requirement under the Medicare Modernization Act.

HL7 is also strengthening its relationship with the Electronic Health Record Vendors Association (EHRVA) through participation in the Interoperability Collaborative (IC). The IC is the result of an agreement between HIMSS, HL7, Integrating the Healthcare Enterprise (IHE) and EHRVA. The IC marked a decision to accelerate interoperability by joining forces, where appropriate, to provide the industry with unified solutions for progress.

Finally, Meyers addressed the theme of the HL7 HIMSS exhibit. *HL7 Standards: Driving the Industry toward a National Health Information Network (NHIN)* illustrates how HL7 interoperability standards are essential to the success of the four NHIN pilots currently underway. The four Consortia headed by Accenture, CSC, IBM and Northrop Grumman will attempt to simulate a Nationwide Health Information Network by either creating prototype regional health information networks (RHIN) with a small technology infrastructure, or building upon existing inter-organizational provider networks, which tend to resemble the RHIO model and already make extensive use of HL7 V2.x standards.

HL7 Board Chair Chuck Meyer discusses the highlights of 2005 at the Tuesday morning press briefing.

In our 20th year... HL7 keeps on ticking

Update from Headquarters

By Mark McDougall, Executive Director, Health Level Seven, Inc.

Mark McDougall

Borrowing the tag line that television commercials for Timex watches used many years ago, it really is amazing to think back to HL7's origins and how far HL7 has come.

Since I am only in my 15th year as HL7's E.D., I do not have first hand experience with HL7's newborn or toddler years. We hope to hear more about those early years from the founding Board Chairman, Sam Schultz, PhD, during our upcoming Plenary meeting on September 11th at the Boca Raton Resort in Florida.

However, I can share a few glimpses of the HL7 organization as of its 5th year in 1991. For example, prior to opening HL7's office with dedicated staff and office operations, there was not a dedicated telephone number to call for HL7 information. Instead, materials on HL7 could be requested by faxing a request to a fax machine in Aarne Elias' dining room. Since Aarne reported to Sam Schultz, he became the unofficial volunteer administrator of many of HL7's operations.

When we opened HL7's offices in Ann Arbor, Michigan, in October 1991, HL7 staff consisted of 1.5 full time equivalent (FTE) employees, including 50% of my time as the E.D. and one fulltime administrative support staffer. Our first order of business was to launch a tiered corporate membership dues structure. As HL7's revenue and income grew throughout the years via increased membership and larger working group meetings, we were able to add staff resources. HL7's headquarters staff now totals about 10 FTEs.

Ten years ago we recognized the following 17 individuals as "HL7 Pioneers" for their early years of dedicated contributions to the HL7 organization.

Philip Bartleson
Philip L. Caillouet III, PhD
Sue Campbell
Jim Gabler
Mike Glickman
Ed Hammond, PhD*
David Kingdon
Bill Lachenaue
Clem McDonald, MD*
Tom Pirelli
John Quinn*
Wes Rishel*
Sam Schultz II, PhD
Don Simborg, MD
Woody Trautman
Terry Van Valkenburgh
Chris White

**Amazingly, ten years later we still have four of these early pioneers still actively involved with HL7, including Clem McDonald, MD, Ed Hammond, PhD, John Quinn and Wes Rishel. Their almost 20 years of dedicated service to HL7 is incredible and sincerely appreciated. They exemplify the best of HL7.*

Thinking back for myself, 20 years ago I was living in Chicago, running my first (and only) marathon, playing basketball, rooting for an amazing young basketball player named Michael Jordan, dating my soon to be beautiful wife, Shelly, and in the midst of a career change from management engineering/consulting to association management by becoming the Associate Director of the Healthcare Information and Management Systems Society (HIMSS).

Since then, I have been blessed with two incredible sons (Jack – 12 and Alex – 10), almost 17 years of married bliss ☺, still playing basketball one or two nights a week, and enjoying a very rewarding 15 years as HL7's Executive Director.

I'm not sure who initially said this, but time really does fly by. Let's all make sure that we enjoy the ride.

Speaking of enjoying the ride, please be sure to peruse the photos on page 8 to see HL7 members enjoying themselves at our 20th anniversary party.

Years of Standards Development

A Thousand Thanks

By Mark McDougall, HL7 Executive Director

A passing of the gavel, along with outgoing Board members, Linda Quade and meeting sponsors were recognized during the recent Working Group Meeting in Phoenix.

Past chair Mark Shafarman (left) passes the gavel to incoming chair, Chuck Meyer.

Outgoing Board Members

After two fine years as the HL7 Board Chair, Mark Shafarman passed the gavel to HL7's new Board Chair, Chuck Meyer. Mark will continue to serve on the HL7 Board and Executive Committee as the Immediate Past Chair. Mark oversaw a significant growth in HL7's scope and international presence. His gentle soul, hard work and tremendous dedication to the HL7 organization have been sincerely appreciated. As a token of our appreciation, Mark was presented with a gavel plaque during the recent meeting.

Linda Quade accepting plaque of appreciation (from left to right: Barb Tardiff, Rebecca Kush, Linda Quade, and Randy Levin)

The January Working Group meeting also brought an end to three other Board members' terms on the HL7 Board of Directors, including Woody Beeler, Jane Curry and Charlie Mead. I know the HL7 membership, staff and Board of Directors join me in thanking these individuals for their dedicated service as members of the Board of Directors. We look forward to their continued involvement in the organization.

Outgoing Board members, from left to right: George (Woody) Beeler, Jane Curry, Chuck Meyer (current chair) and Charlie Mead

A photo of our 2006 HL7 Board of Directors appears on page 9.

Linda Quade Recognized

Long-time HL7 member Linda Quade was recognized for her many years of service to the organization and particularly to the Regulated Clinical Research Information Management (RCRIM) Technical Committee at the Wednesday morning general session in Phoenix. Linda retired from Eli Lilly and HL7 following the January meeting. Rebecca Kush, Randy Levin and Barb Tardiff presented Linda with a plaque of appreciation from the RCRIM Technical Committee. Eli Lilly honored Linda by providing a beautiful and tasty cake on Wednesday afternoon to recognize Linda's many years of service.

Meeting Sponsors

I would like to recognize the following organizations that sponsored key components of our recent January Working Group meeting in Phoenix, Arizona:

Accenture – Networking reception

Eli Lilly – Wednesday afternoon break (Linda Quade's retirement cake)

Link Medical Computing, Inc. – Morning coffee breaks all week

McKesson – Badge Lanyards

Silicon Spirit Consulting – Onsite guide

Thomson – Tuesday's continental breakfast and cookie break

The additional sponsorship support provided by these organizations contributes heavily to HL7's meeting budget and is much appreciated.

John Quinn accepting a plaque of appreciation from Board Chair Chuck Meyer for sponsoring the 20th anniversary networking reception

Enjoying the 20th Anniversary Party

HL7 Welcomes Two New SIGs

The Technical Steering Committee and Board of Directors approved the formation of two new special interest groups (SIGs) at the January Working Group Meeting. They are the Anatomic Pathology SIG and the Services Oriented Architecture SIG. Both SIGs are holding official co-chair elections at the May Working Group Meeting in San Antonio. Until then, the Anatomic Pathology SIG is being led by interim co-chairs John Gilbertson, University of Pittsburgh, and John Madden, MD, PhD, College of American Pathologists. The Services Oriented Architecture SIG is being led by interim co-chairs Alan Honey, Kaiser Permanente; Jari Porrasmaa, University of Kuopio, Finland; and Ken Rubin, EDS Corporation.

HL7 Anatomic Pathology Special Interest Group

The Anatomic Pathology SIG supports the HL7 mission to create and promote interoperable standards for anatomic pathology laboratories and for the communication of anatomic pathology findings to clinical data systems. This will be accomplished by:

- Promoting and developing anatomic pathology specificity in standards for text reports and structured data
- Serving as a point of entry for anatomic pathologist and system vendors specialized in anatomic pathology to network with HL7 and become part of HL7

HL7 Services Oriented Architecture Special Interest Group

The Services Oriented Architecture SIG (SOA) supports the HL7 mission to promote and create standards by identifying common architectural "services" and their behaviors and establishing an industry position on the form these services take. The Services SIG will produce Service Functional Models (SFMs) which will be balloted HL7 standards declaring the functions and information appropriate to them. The SOA SIG will identify service candidates, prioritize and determine functional boundaries for those services, and relate them to existing HL7 content and other relevant standards.

These services will promote the interoperability of healthcare systems, including but not limited to EHR systems for inter-product, intra-organization, inter-organization, regional, and national efforts.

The 2006 HL7 Board of Directors

Back row standing from left: Mark McDougall; W. Edward Hammond, PhD; Kai Heitmann, MD; Hans Buitendijk; Klaus Veil; Robert Dolin, MD; Randy Levin, MD; and Wes Risbel. Bottom row seated from left: John Quinn; Linda Fischetti, RN, MS; William Braithwaite, MD, PhD; Freida Hall; Charles "Chuck" Meyer; Liora Alschuler; Daniel Russler, MD; and Mark Shafarman.

Building an Adaptable Framework for Emergency Response and Health Information Exchange

By Donald J. George, Chief Technology Officer, Georgia Department of Human Resources

Donald George

Donald George spent over fourteen years as a senior enterprise architect, where he led the design and implementation of multi-million dollar enterprise systems integration, and development of technical architecture and infrastructure technologies in Fortune 500 and Fortune 1000 companies, in government, and in a successful entrepreneurial wireless start-up. He developed a white paper which focused on integrating data using frameworks and XML/HL7 V.2/V3/HIPAA EDI X.12N transaction code sets. As an entrepreneur, George designed middleware for total practice integration, including hospitals, pharmacy, physicians' offices and managed care organizations. At DHR, he has focused on strategies for Public Health interoperability, demonstrated in the technology used at the 2005 G-8 Summit held in Georgia.

The challenge

September 11th exacted a horrible human and physical toll on the United States; but that date also marked an intensified emphasis on emergency preparedness and response. Terrorist bombings and bioterrorism are now certainties. Public agencies across the United States have new roles and critical responsibilities to enhance capabilities and infrastructure for response to future terrorism.

Along with coping with bioterrorist events, public health agencies are also mandated to protect and improve the general health of the population through surveillance of health trends, regulation, health promotion, disease prevention and decision support for natural disasters. With the threat of a pandemic flu, health issues related to Katrina, SARS and other disease outbreaks, public health agencies are on the front lines for collecting secure, real-time data. Over appropriate health information infrastructure, this data will provide surveillance, monitoring, detection, and alert notification to first responders, emergency management, the healthcare community, and law enforcement personnel. In short, integrated health data has become critical to both providing protection and ensuring health to the U.S. and world populations.

To address the various threats to the United States population and support heightened capabilities in public health agencies, the Centers for Disease Control (CDC) initiated the Public Health Information Network (PHIN) grant to provide an approach to integrate public health systems and enable consistent exchange of response, health, and disease tracking data between public health partners. The Georgia Department of Human Resources work with PHIN in 2005 underscores the fact that this information exchange must be accomplished through standard codes sets, standardized vocabulary, common infrastructure standards and strong collaborative relationships throughout the healthcare sector. In short, the alignments between PHIN and Public Health had to be recognized (See Figure 1).

PHIN as a foundation for health data integration

In early 2005, the Georgia Department of Human Resources (DHR) Office of Information Technology began to assess the CDC's PHIN requirements for developing a Georgia PHIN architectural framework. Strategically, the framework needed to point to interoperability between public health systems, improvement of preparedness and response for disease outbreak, increased data sharing, and secure data exchange in real-time. Core PHIN infrastructure requirements

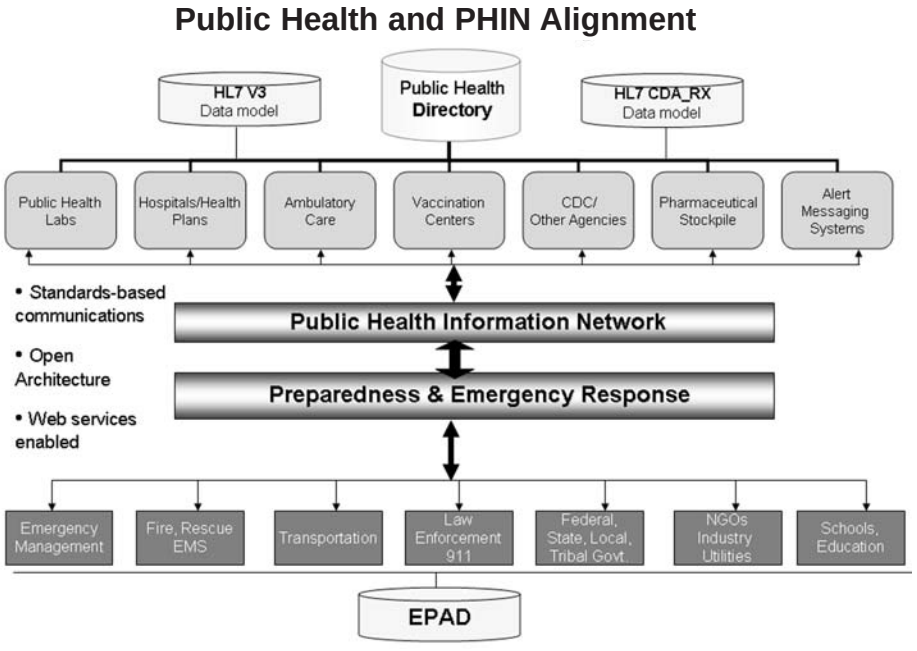

Figure 1: PHIN Alignment with Public Health

included directory services, component-based systems, health IT standards, messaging standards, business intelligence, and Geographical Information System (GIS). These requirements were framed to support Public Health core business architecture: detection, monitoring, data analysis, knowledge management, alerting, and response. A surveillance system based on the business architecture is noted in Figure 2.

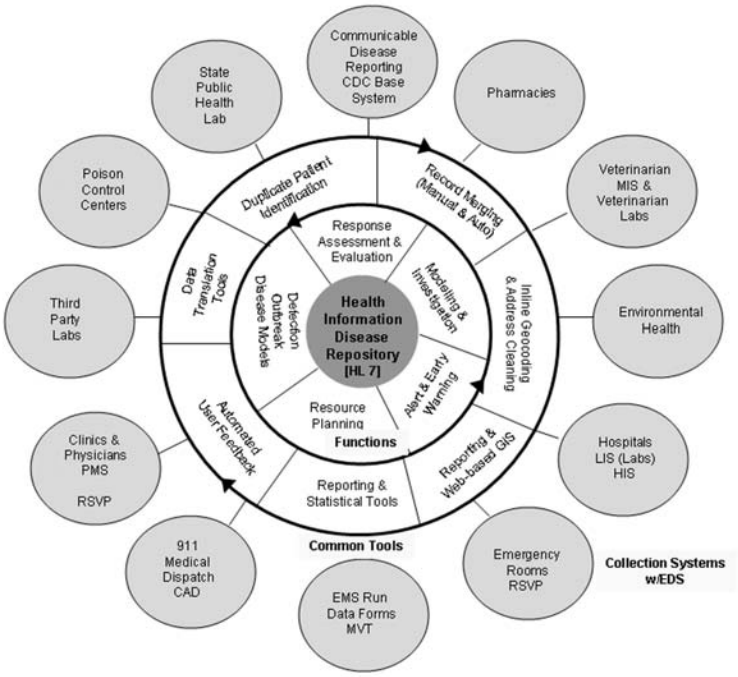

Figure 2: A surveillance system based upon Public Health business architecture.

PHIN proved to be a drastic shift from any previous requirement from the CDC. However, the architectural framework for the Georgia Public Health Information Network (GPHIN) was carefully crafted and aligned to public health business processes with a new IT architectural framework. The GPHIN framework ushered in a new perspective about how business architecture would bridge the business of public health with the appropriate integrated technologies. The GPHIN framework formed a new vision for Public Health—an adaptable architecture provided a context for a new business model that enabled the integration of business processes across public health.

An adaptive framework provides context

Only one architectural approach met all of the CDC PHIN requirements: a Service-Oriented architecture (SOA) aligned to the Federal Enterprise Architecture (FEA). This architecture was component based, employed health IT standards based on XML to support common messaging, and leveraged web services for interoperability with other systems. It was a gigantic leap from both a business and a technology perspective.

An Enterprise Service Bus (ESB) provided a SOA infrastructure for common messaging to integrate public health systems, along with data transformation, guaranteed message delivery, and routing. Furthermore, the GPHIN SOA framework extended the ESB to integrate services from external systems to enable interoperability and data sharing between healthcare partners. To provide a reusable infrastructure for the GPHIN SOA framework, OIT developed a virtualized environment for the development of public health public projects.

Applying the SOA framework

Understanding the benefits of SOA in developing the GPHIN framework was critical because of the need for real-time, integrated business processes, the need for orchestration of multiple business processes and the requirement to provide common data service access. These provisions remain key as requirements for an adaptive framework that supports alert notification and response, geospatial analysis, bio-surveillance and health information with external health partners. Figure 3 shows a model adaptive framework.

SOA is about the business results that can be achieved from having better alignment between the business and IT. Thus, implementing the GPHIN SOA framework required business architecture—a business model that defined business services. One key facet of SOA is the development of a business design or a business architectural model to detail the business processes and define the supporting IT tasks that are repeatable and reusable. For example, alert notification is a business task that is supported by repeatable, reusable IT services. Thus, the SOA provided a way to integrate business tasks as sets of linked IT services.

Healthcare information framework

To meet the challenges of the CDC PHIN requirements, DHR's OIT used health IT standards to facilitate interoperability and data sharing between healthcare partners. A framework which continues to offer secure interoperability will directly impact needs to improve health informatics, to integrate with national public health information systems (CDC), and to develop closer integration with external public health and clinical systems.

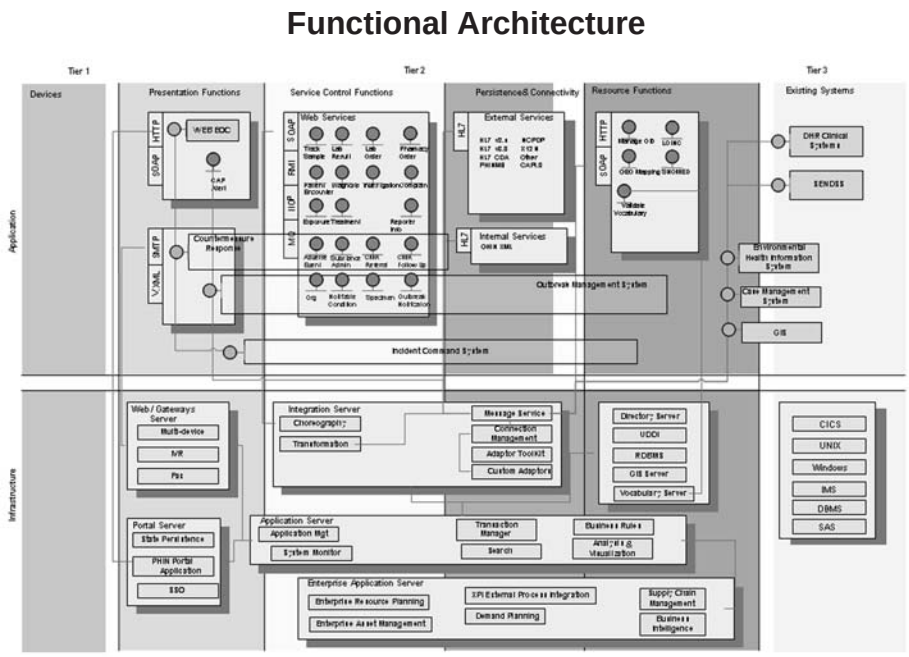

Figure 3: Georgia PHIN SOA Framework

To provide exchange of health information with private healthcare organizations and other public agencies, Georgia's enterprise data model foundation is based on V3 of Health Level Seven (HL7) Reference Information Model (RIM), a static model of healthcare information in which data types are represented in XML to support public health business needs for data sharing. The HL7 V3 standard enables the Georgia Division of Public Health (GDPH) to exchange health information with hospitals, physicians, and other public health agencies. By using the enterprise service bus capability for transformation and mapping, different HL7 versions (V2.3, V2.5 etc.) can be used to interoperate with the various healthcare organizations locally and nationally.

Public Health Connect to NHII

In 2004, President Bush stated that the United States would achieve the creation an Electronic Health Record (EHR) for all Americans by the year 2010. The Department of Health and Human Services (HHS) developed a strategic framework for healthcare to achieve the goals set by President Bush to create an EHR for every American. A National Health Information Infrastructure (NHII) initiative was created to provide guidance for healthcare providers, vendors and payers. The NHII can best be described as a standards-based architecture framework to enable more secure, seamless sharing of person-specific health information. Such sharing will require something far greater than just a public health information network—a National Health Information Network (NHIN) will be needed to link disparate healthcare information systems to allow patients, physicians, hospitals, public health agencies and other authorized users across the nation to securely share clinical information in real-time. The NHIN is envisioned as an inter-networking of community health information exchanges.

The use of an extensible framework based on public health business architecture aligns Georgia's effort with the National Health Information Network. In assessing Georgia's public health strategy with the NHII, OIT focused on standards to develop an EHR employing HL7 Clinical Document Architecture (CDA), which defines a XML-based document markup that standardizes the structure and content of clinical document exchange. CDA is a strong candidate for the foundational technologies for the national EHR. This approach will extend beyond the PHIN efforts to provide a consistent view of any patient's continuum of care, as data is integrated across regional health information organizations (RHIOs). As in other states, Georgia DPH collects and manages a vast amount of information from various healthcare organizations, hospitals and physicians. The potential value to healthcare providers is enormous and public health participation in RHIOs or health information exchanges is essential to their long-term viability and to achieving the goal set by President Bush for an EHR for every American by 2010.

Extended and enabled

Georgia DHR has recognized the critical need for aligning business architecture with extensible health care information frameworks. The PHIN project in 2005 demonstrated that extensible health frameworks based on a Service Oriented Architecture, reusable services, Health IT Standards, and modeled within the Federal Enterprise Architecture (FEA) can accelerate the collaborative processes in RHIOs. In order for RHIOs to be successful, healthcare stakeholders and IT professionals must agree on a framework for security access, identity management, quality of data, and the aggregation of patient information across multiple health systems to build a total EHR that is accurate and up-to-date. At Georgia's DHR/OIT we are working on these critical components that are required for the survival of a health information exchange. Appropriately governed RHIOs in which public health is included will play a key role in forging the infrastructure for a NHIN that is fully enabled for maintaining decision support and information to protect and guard the health of all United States citizens.

The HL7 Clinical Genomics Family History Interoperability Implementation Project

By Amnon Shabo (Shvo) and Kevin Hughes

ABSTRACT:

Following the HL7 Board approval of the HL7 Clinical Genomics DSTU that includes specifications for Family History representation and exchange of information, we have started an implementation project led by Kevin Hughes, MD, of Massachusetts General Hospital and Partners HealthCare and Amnon Shabo (Shvo), PhD, of IBM Research Lab in Haifa, in collaboration with the University of Massachusetts at Lowell (Prof. Georges Grinstein, and his PhD students John Sharko, Brian Drohan, and Christine Lawrence) with the support of Partners HealthCare CIRD (Clinical Informatics R&D).

BACKGROUND:

A number of family history applications are in use by health care professionals (e.g., CAGENE, Progeny, Partners Health Care Patient Gateway, Avon Tablet System) as well as by patients (e.g., the US Surgeon General's Family History Program). Each has its own proprietary data format for pedigree drawing and for the maintenance of family history health information. Interoperability between applications is essentially non-existent. To date, disparate family history applications cannot easily exchange patient information. The receiving application should be able to understand the semantics of the incoming family history and enable the user to view and/or to edit it using the receiving applications interface. We envision that any family history application will be able to send and receive an individual's family history information using the newly created HL7 Clinical Genomics Specifications through the semantic Web, using services that will transform one format to the other through the HL7 canonical representation.

OBJECTIVES:

We are in the midst of an implementation project where the above vision is being realized in a stepwise approach. In the first phase, we have developed the transformations between the proprietary data format of CAGENE and the Avon Tablet System Program to the HL7 Clinical Genomics Family History model.

Amnon Shabo

In the next phases we plan on expanding the transformations to include more healthcare applications for family history, as well as patient oriented applications like the Surgeon General's Web tool for recording your family history. We have also corresponded with labs that screen cancer gene mutations and who require family history data to accompany each order for genetic testing. We would like these labs to use the HL7 format in their communications with healthcare providers so that genomic data can be incorporated more easily into the patient pedigree for risk assessment purposes.

We held a Bird-of-a-Feather (BOF) session at the HL7 WGM in Phoenix (January 2006), during which we described the issues we have addressed in this project. These issues included vocabularies, pedigree structure (flat or hierarchical), transformations from proprietary data formats of family history applications, ways to deal with patient-entered data of his/her family history as related to discussions on PHR, and the increasing availability of patient-entered data through new web tools such as the US Surgeon General's Family History Program.

We would like to encourage other institutes to join this project and develop transformers between their data and HL7. In this way we can achieve the goal of family history interoperability on a national level using standard components that can later be incorporated into the operational clinical information systems. We already know of Intermountain Health Care, which is developing new programs for family history as part of their new Clinical Genetics Institute. We plan on a follow-up BOF session in the HL7 WGM in San Antonio (May 2006) to report on our progress.

HL7 Names Two New Advisory Committee Members

By Karen Van Hentenryck, HL7 Associate Executive Director

The HL7 Board of Directors has named two new members to serve on its advisory committee—**Philip Burstein, MD**, vice president therapeutic area management, biometrics and data at GlaxoSmithKline; and **Richard Dixon-Hughes**, Managing Director, DH4 Pty Limited, and Deputy Chairman, Standards Australia.

Burstein and Dixon-Hughes join the following members of the HL7 Advisory Committee: Sam Brandt, MD, Vice President, Chief Medical Informatics Officer, Siemens Medical Solutions Health Services Corporation; Gary Christopherson; Carl Dvorak, chief operating officer, Epic Systems Corporation; Ian R. Ferrier, founder and chair of Bogart Delafield Ferrier, LLC; Mark Frisse, director of regional informatics programs at the Vanderbilt Center for Better Health, and professor in the Vanderbilt department of Biomedical informatics; C. Martin Harris, chief information officer, chairman, Information Technology Division of the Cleveland Clinical Foundation; Dr. Tim Jones, clinical and technical design owner, National NHS Care Record, National Programme for IT; Penelope J. Lie, senior director in healthcare development at Oracle Corporation; Janet Marchibroda, chief executive office, eHealth Initiative, executive director, Foundation for eHealth Initiative; and Don Schoen, chief executive office and president of MediNotes Corporation.

HL7 Welcomes New Staff Members

Don Lloyd

Technical Publication Manager

Don Lloyd has joined HL7 with a varied background in content management, web programming, editing, and higher education. For the past five years he has served as a portal and intranet content manager, working for such companies as Ford Motor Company and Huntsman Petrochemicals. Before moving into web technologies in the mid-90's, Don taught English for over eight years at TCU in Fort Worth and Michigan State University in East Lansing. Don has a PhD in English.

Lillian Bigham

Director of Meetings

Lillian Bigham has over twenty-five years of experience planning meetings and conventions. She was responsible for the Microsoft Healthcare Users Group (MS-HUG) Annual Convention and the Florists Transworld Delivery Association (FTD) Annual Members Meeting, Convention and Trade Fair. She also planned the FTD Annual International Tour, Top Member Conference, Member Rose Bowl/Game Tour and Educational Seminars.

Andrea Ribick

Director of Communications

Andrea Ribick earned a Bachelor of Arts in International Studies and a minor in Spanish from Rhodes College in 1998. She completed a Master of Business Administration with a specialization in marketing from Eastern Michigan University in 2003. Andrea has over four years of experience in marketing communications. Most recently, Andrea held the positions of assistant editor and marketing coordinator at The Institute of Continuing Legal Education at the University of Michigan. While in this role, she assisted the marketing manager in the planning, scheduling, and production of marketing promotions and sales events. Her responsibilities included project oversight, budget management, editorial duties, supervision of creative staff, and functioning as the key liaison with other departments and outside vendors.

UPCOMING WORKING GROUP MEETINGS

May 7 – 12, 2006

May Working Group Meeting
San Antonio Hyatt
San Antonio, Texas

September 10 – 15, 2006

20th Annual Plenary/ Working Group Meeting
Boca Raton Resort
Boca Raton, FL

January 7 – 12, 2007

January Working Group Meeting
Town & Country Resort
San Diego, CA

PLEASE BOOK YOUR ROOM AT THE HL7 MEETING HOTEL

HL7 urges all meeting attendees to secure their hotel reservations at the HL7 Working Group Meeting Host Hotel. In order to secure the required meeting space, HL7 has a contractual obligation to fill our sleeping room block. If you make reservations at a different hotel, HL7 risks falling short on our obligation and will incur additional costs in the form of penalties. Should this occur, HL7 will likely be forced to pass these costs on to our attendees through increased meeting registration fees.

Thank you for your cooperation!

Upcoming Out-of-Cycle Meetings

HL7 RCRIM Out-of-Cycle Meeting
April 25, 2006
Berlin, Germany

The HL7 Technical Committee on Regulated Clinical Research Information Management (RCRIM) will be holding an out-of-cycle meeting in Berlin, Germany, on April 25, 2006. The meeting is co-sponsored by HL7 and CDISC for the purpose of reaching out to the European clinical research community and to acquaint them with the standards development activities of RCRIM. Although RCRIM's mission is international in scope, most of our meetings are in the United States, and due to the barriers of international travel we don't always get the international participation that we would like. This meeting is designed to encourage participation from any and all Europeans interested in clinical research and the relevant standards from CDISC and HL7.

Intended audience: The European clinical research community, European HL7 affiliates, European CDISC affiliates, and EMEA.

Program: An overview of RCRIM standards development activities along with discussions of how to increase involvement from the European community.

Format: One day meeting of back-to-back presentations on RCRIM activities, along with ample opportunity for discussion.

Registration: There is no charge to attend this meeting; however, seating is limited to the first 35 participants. To register, send an email message to swilliams@cdisc.org stating your name and company name.

HL7 EHR TC Out-of-Cycle Meeting
April 25-26, 2006
Chicago, IL

The HL7 Electronic Health Records Technical Committee will be convening an out-of-cycle meeting on April 25th and 26th to complete the cleanup of the recently balloted Functional Model for an Electronic Health Record DSTU. Members are welcome to participate in this face-to-face meeting; the agenda will focus solely on the harmonization of existing content of the standard, not its substantial revision or the creation of any new content. The meeting will convene at

AHIMA Offices
233 North Michigan Avenue
Chicago, IL 60601

To register your interest or for more information, please go to the HL7 website at

http://www.HL7.org/events/ehr042006/index.asp

The Infrastructure and Messaging (INM) TC will hold an out-of-cycle meeting related to Transmission and Transports in San Antonio immediately prior to the WGM.

HL7 Infrastructure and Messaging TC Out-of-Cycle Meeting
May 6-7, 2006
San Antonio Hyatt

During this meeting INM will perform mini-harmonization in the domains related to transport and transmission, and in addition, find solutions for some of the festering issues that exist in the overlapping areas between these areas.

The group will be dealing with a large number of outstanding issues. Generally, there is a scope question relating the concept of interactions, transmissions, transports, how they inter-relate with each other, and how the historical HL7 approach relates to approaches taken in other industries or by other standards bodies. Specifically, there is a list of issues on our plate on the wiki:

http://informatics.mayo.edu/wiki/index.php/Open_ATS_Issues

http://informatics.mayo.edu/wiki/index.php/Open_Transmission_Wrapper_Issues

http://informatics.mayo.edu/wiki/index.php/Open_Control_Act_Issues

Other than the open issues on the wiki, there are also these issues:

- relation of the Abstract Transport Specification to SOA message delivery patterns
- SOA vs Webservices & ebXML, overlapping functionality between HL7 & the transport protocol (reliability, commit ack, sequence number protocol)

The meeting agenda will develop as the attendee list develops. The Agenda will be developed on the wiki page at http://informatics.mayo.edu/wiki/index.php/INM_Pre-May_WGM_out-of-cycle_Meeting

There will be no charge for the meeting. Meals will not be provided as part of the meeting. You will need to find accommodation (we have been informed that the WGM hotel may not have accommodation).

Please register for the meeting by adding your name to the list on this page:

http://informatics.mayo.edu/wiki/index.php/INM_Pre-May_WGM_out-of-cycle_Meeting_Attendees
or by emailing an INM co-chair.

HL7 Pharmacy SIG Out-of-Cycle Meeting
May 13-14, 2006
San Antonio Hyatt

The Pharmacy SIG will be convening an out-of-cycle meeting immediately following the May Working Group Meeting to finish peer review of query material and medication administration messages for subsequent ballot and, time permitting, potential harmonization with Structure Product Labeling.

For more information or to register for the meeting, contact one of the Pharmacy co-chairs.

Congratulations *to the following people who passed the HL7 Certification Exam*

Certified HL7 V2.5, Chapter 2 Control Specialist

March 8, 2006
Shannon M. Bollig
Thomas W. Burke
Todd Davis
Oran L. Dennison
Angela J. Dormagen
Dana P. Hare
Kristen K. Kleist
Suju Koshy
Ratnakar Malla
Jared F. McCaffree
Enrique M. Meneses
Constance Pinder
Darlene F. Sutara

February 8, 2006
Eng. Carlos Alfaro
Eng. Mário André Teixeira Pinto Bessa
Maria Inês Pedro Branco
Bruno Miguel de Almeida Campos
Prestimo Guerreiro
Hugo Manuel Marques
João Nora
Helder Rocha
Maria Santos Soares de Albergaria Rodrigues
Carlos M. F. Silva

January 25, 2006
Lisa A. Mauer
Elizabeth A. Mausser

HL7 Canada
Kin Kei Fung
Kenneth Leung

HL7 India
January 21, 2006
Arunmozhi
Arimappamagan
Preetha A S
Umapriya Krishnasamy
Jayalakshmi P
Bini Peter
Srinivasan Paul Pandian
Leeja Pillai
Anitha Shanmugam
Shakthi Syamala

January 19, 2006
Jason M. Bergeman
Qin Mu
Anne Blay
Miranda Nguyen
Gary D. Cade
LaRae Prue
Edward Carter
Dana Rice
Jeffery Elrod
David E. Sampson
Jesse D. Flygare
Jawad Shaikh
Jack Germany
David Stibbards
Susan J. Goughary
Mike Strandell
Robert Henneise
Ryan D. Tracy
Carrie Hieber
Jim Walker
Nancy A. Martin
James A. White
Scott McDaniel
Terry B. Wolter
Lagen McLachlan

January 12, 2006
Ken W. Chadwick
Johanna Darrough
Stewart Ferguson
William L. Flowers
Linda D. Gmitter
Mitra A. Rocca
Jason R. Settlers

HL7 Taiwan
December 31, 2005
Chih-Hsun Chang
Po-Jung Chao
Hui-Wen Chen
Hung Pin Chen
Chia Te Chiang
Yi-Fang Lee
Chien-Hung Lin
Horng-Ching Lin
Yu Ching Lin
Yu-Te Lin
Chen-Po Tsai
Hsiao-Hei Wang
Hsin-Lien Wang

December 15, 2005
Nitin Bhatia
Athalia Grazette
Kyle Hager
Rajat Kher
Kartik Nagaraja
Sai Ramakrishnan
Jaspreet Taneja

December 7, 2005
Michelle Boyd
Faith Freeman
Brenda Hutchinson
Joseph Iannucci
Steven Kerckhof
Margo MacDow
Heather Stuit
Catherine Woodling

HL7 Spain
November 30, 2005
Maria Castejón
Daniel Cañete Román
Alvaro Dominguez Bragado
Ignacio Enrique Cabero
Agustín Iglesias
Jose Miguel Lozano Losa
Miguel Mongil
Alberto Saez Torres
Carmen María Turiel
Juan Venturello

Discover San Antonio

Photo Courtesy of SACVB / Al Rendon

San Antonio captures the spirit of Texas. Now the eighth largest city in the United States, the city has retained its sense of history and tradition, while carefully blending in cosmopolitan progress. The city has always been a crossroads and a meeting place. Sounds and flavors of Native Americans, Old Mexico, Germans, the Wild West, African-Americans and the Deep South mingle and merge. Close to twenty million visitors a year delight in the discovery of San Antonio's charms.

Texas History 101

For history buffs, San Antonio is a mecca. Native Americans first lived along the San Antonio River, calling the area "Yanaguana," which means "refreshing waters," or "clear waters." A band of Spanish explorers and missionaries came upon the river in 1691, and because it was the feast day of St. Anthony, they named the river "San Antonio."

The actual founding of the city came in 1718 by Father Antonio Olivares, when he established Mission San Antonio de Valero, which became permanently etched in the annals of history in 1836 as where 189 defenders held the old mission against some 4,000 Mexican troops for 13 days. The cry "Remember the Alamo" became the rallying point of the Texan revolution against Mexico. Located in the heart of downtown, today the Alamo is a shrine and museum.

Photo Courtesy of SACVB / Al Rendon

Frank Tolbert, a noted Texas historian and journalist, once said, "Every Texan has two homes–his own and San Antonio." After your visit to San Antonio, we hope that you will consider San Antonio your second home and return again and again to experience all the city has to offer.

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HL7 EDUCATIONAL SUMMITS

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What is an Educational Summit?

The HL7 Educational Summit is a specific schedule of tutorials—newly expanded in 2006 to three days—focused on HL7-specific topics such as Version 2, Version 3 and Clinical Document Architecture. Educational sessions also cover general interest industry topics such as HIPAA Claims Attachments.

Why Should I Attend?

This is an invaluable educational opportunity for the healthcare IT community as it strives for greater interoperability among healthcare information systems. Our classes offer a wealth of information designed to benefit a wide range of HL7 users, from beginner to advanced.

Among the benefits of attending the HL7 Educational Summit are:

- **Efficiency**
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- **Economical**
  A more economical alternative for companies who want the benefits of HL7's on-site training but have fewer employees to train

UPCOMING EDUCATIONAL SUMMITS

July 11-13, 2006
Renaissance Philiadelphia
Airport Hotel
Philadelphia, PA

November 7-9, 2006
Embassy Suites Hotel Seattle-
North/Lynnwood
Lynnwood, WA

7th International HL7 Interoperability Conference IHIC 2006 in Cologne, Germany

August 24–25, 2006

The conference is formerly known as the International Affiliates Meeting and after having met in Dresden (Germany) in 2000, then Reading (United Kingdom), Melbourne (Australia), Daegu (Korea), Acapulco (Mexico), and last year in Taipei (Taiwan), we will now be meeting late August in Cologne. IHIC 2006 is hosted by HL7 Germany and is co-organized by HL7 Germany and HL7 the Netherlands.

In contrast to regular Working Group Meetings, this conference focuses on the exchange of international experiences with HL7 Version 3:

- Projects, small ones or large scale, implementing HL7 Version 3 messages or documents – what lessons have been learned?
- Strategies, local or national – why plans and policies are important?
- Dealing with implementation guidelines, test tools, constraints and profiles – what are the pitfalls and the benefits?
- Beyond messages and documents – what else needs to be addressed?
- Future – what will happen, what should happen and what if?
- Education – what kind of tutorials could be offered at IHIC?

Please mark your calendars. More details on this conference are available at: http://ihic.hl7.de/index.html

INTERNATIONAL AFFILIATE CONTACTS

HL7 Argentina
Dr. Fernan Bernaldo de Quiros
Phone: 0054-11-4958-1715
Email: fernan.quiros@hospitalitaliano.com.ar

HL7 Australia
Klaus Veil
Phone: 61-412-746-457
E-mail: chair@HL7.org.au

HL7 Brazil
Dr. Marivan Santiago Abrahao
Phone: 55-11-3045-3045
Email: marivan@abrahao.net

HL7 Canada
Grant Gillis
Phone: 416-481-2002
E-mail: ggillis@cihi.ca

HL7 China
Zijun Zhou
Phone: 8610-82802265
Email: ZHOU2265@tom.com

HL7 Croatia
Gjuro Dezelic, Ph.D.
Phone: +385 1 4590 105
Email: duro.dezelic@zghtnet.hr

HL7 Czech Republic
Petr Hanzlicek
Phone: 420-2-66053788
Email: petr.hanzlicek@euromise.cz

HL7 Denmark
Kenneth Ahrensberg
Phone: 45-3996-6101
E-mail: ka@ds.dk

HL7 Finland
Niilo Saranummi
Phone: 358-20-722-3300
Email: niilo.saranummi@vtt.fi

HL7 France
Francois Macary
Phone : 33-0-4-7268-8758
Email : francois.macary@gwi-medica.fr

HL7 Germany
Kai Heitmann, M.D.
Phone: 49-221-478-6507
Email: HL7@kheitmann.nl

HL7 Greece
Dimitris Koutsouris
Phone: 30-210-7723926
Email: dkoutsou@biomed.ntua.gr

HL7 India
Saja Salam, M.D.
Phone: 044-254-0555
Email: hisind@yahoo.com

HL7 Ireland
Peter Lennon
Phone: 01-635-3011/13
Email: pamlennon@eircom.net

HL7 Italy
Massimo Mangia
Phone: 39-091-2192-457
Email: massimo.mangia@katamail.com

HL7 Japan
Michio Kimura MD MS
Phone: 81-53-435-2770
Email: kimura@mi.hama-med.ac.jp

HL7 Korea
Yun Sik Kwak, M.D., Ph.D.
Phone: 82-53-420-6050
Email: yskwak@wmail.knu.ac.kr

HL7 Mexico
Mauricio Derbez del Pino
Phone: 52-55-5238 2713
Email: mauricio.derbez@imss.gob.mx

HL7 The Netherlands
Robert Stegwee
Phone: 31-30-689-2730
E-mail: robert.stegwee@capgemini.com

HL7 New Zealand
Martin Entwistle
Phone: 58-717-0465
Email: martin.entwistle @enigmapublishing.com

HL7 Spain
Joan Guanyabens
Email: jguanyabens@telefonica.net

HL7 Sweden
Fredrik Strom M.Sc.
Brainpool AB
Phone: 46 805270400 00
Email:fredrik.strom@brainpool.se

HL7 Switzerland
Beat Heggli
Phone: 41-1-806-1164
Email: beat.heggli@isoft.ch

HL7 Taiwan
Jin-Shin Lai, M.D.
Phone: 886-2-25233900
Email: jslai@ntu.edu.tw

HL7 Turkey
Bulent Kunac
Phone: 90 312 291 91 00
Email: bkunac@tepeteknoloji.com.tr

HL7 UK Ltd.
Charlie McCay
Phone: 44-01743-232278
Email: chair@hl7.org.uk

Hospital Italiano de Buenos Aires: from HL7 V2 messaging to the CDA Project

The long road to interoperability

By Dr. Fernán González Bernaldo de Quirós, HL7 Argentina, Chair
Hospital Italiano de Buenos Aires, Argentina, CIO, HIS Information Dept.,
Diego Kaminker, HL7 Argentina, Technical Coordinator
Grupo Bioquímico S.A., Chief Developer

Brief

The Hospital Italiano de Buenos Aires is one of the founding members of HL7 Argentina, and has used HL7 standards since 1999.

Framed by the process of integrating the information systems for the EHR, Ancillary Services and Patient Services, the Hospital Information Department of the Hospital Italiano de Buenos Aires developed a document repository for clinical documents and final reports from ancillary services, using HL7 V2.x messaging and CDA documents to achieve full systems interoperability.

In this context, employing HL7 as our messaging standard allowed us to continue using already functional independent departmental systems without being restrained to a particular hardware or software platform. Bringing further integration while leveraging the existing messaging platform, the Hospital Italiano de Buenos Aires will use CDA Release 2 documents digitally signed using the XML signature standard to store a fully authenticated history of each patient in a central document repository.

Use of HL7 Standards

The process of integration between the Hospital Italiano's EHR and the autonomous Central Laboratory Service managed by Grupo Bioquímico S.A. utilizing HL7 began in 1999. It was followed by the integration of other ancillary services (Imaging, Cardiology, Nuclear Medicine) and fully implemented in 2000. During this process the computerized order entry and result reception were integrated for both outpatients and inpatients.

Previous results achieved internationally and from our own experience using HL7 standards led us to combine both tools. This allowed us to improve health care quality, patient and physician service, and leverage and empower institutional communication.

Until this project, all ancillary results got into the EHR using V2.x messaging. Also implemented since 2003 were V2.x query for results with full HTML/PDF and/or CDA Release 1 documents responses from the ancillary services.

The technological model for the EHR application development is based in Web Containers and Web Services and was written according to the J2EE standard. The implementation was deployed over Oracle 10g RAC Application Servers.

The information model was stored in a Oracle RAC 9i. The ancillary services use a mix of Oracle, MS SQL Server, Pervasive and DB400 databases, in platforms ranging from MS Windows 2000 to Netware 6/Linux and AS/400.

Regarding the message interchange, the HL7 Version 2.3 standard was used along with an IBM MQSeries Message Server as the message handler. This allowed us to simplify the low level implementation tier of HL7 while still retaining the conceptual frame of Event/Message/Response, without the need of a synchronic connection. By doing this, we were able to increase scalability and redundancy.

The only problem with this result transfer scheme to the EHR was that the V2 messages may present only temporary and partial information, and are not digitally signed or authenticated from the sender.

Coping with the EHR needs for signed and validated documents, the HIS information department asked the technical staff to find a transfer and storage standard with some intrinsic properties: authenticable, non-repudiable, independent from the generating applications and flexible. We discovered that CDA release 2 also allowed us to include the images generated by CAT and MRI that were stored in our central repository. This permitted them to be viewed in the same context of the information stored in the CDA, increased the quality of the information of the RIS report and also authenticated the images with the digital signature.

CDA R2 also allowed us to include coded clinical information inside the body of the document, which we used to do the final storage of the results in the EHR and enabled us to implement data mining and exploration using the CDA documents themselves.

In addition, it also allowed us to register non-codified information in free

text form like cardiology and neurology reports. We used CDA R2 to store and display care record summaries, including orders, pharmacy indications, referrals, and additions to the patients' problem list.

Decisions were made in the following areas:

- Authentication/digital signature using local markup, XML Signature algorithms and X509 certificates for the responsible physicians stored in USB tokens.
- CDA tags and datatypes: we carefully defined each tag in the Header for all attributes needed for operational, legal and regulatory requirements (our clinical lab, for instance, is inspected by the CAP, which defines a minimum set of information that must be present in the lab report headings).
- Document correction mechanisms (using a defined set of CDA header attributes): we defined the valid transitions for document edition (only replacement and addendum to existing CDA documents sent).
- Vocabulary (registries, OIDs): patients, medical concepts (i.e.: LOINC for laboratory results), payers, personnel, hierarchical structure of the hospital, and physical places (point of care locations).
- XSLT style-sheets for document rendering (an extension of CDA R2 plain style-sheet). The documents can also be rendered using HL7 provided original style-sheet. This technology allowed us to use the same source for all needs: EHR visualization, auditing, final printed report, etc.
- Document transfer mechanisms: we decided on HL7 V2.x messaging as recommended by the CDA spec.
- Document generation: using DOM and/or extensive use of XSL transformations from simpler XML documents

Conclusions

The HL7 standard is a primary tool for integrating systems without data duplication. It covered all that we required to implement a fully authenticated clinical document repository.

Mail Addresses

Dr. Fernán Bernaldo De Quirós:
fernan.quiros@hospitalitaliano.org.ar

Diego Kaminker:
diego.kaminker@kern-it.com.ar

HL7 Welcomes its Newest Affiliate: HL7 Sweden

The HL7 affiliate in Sweden was formed in December 2005 to meet the needs of standardized use of electronic healthcare information in Sweden. The goal of HL7 Sweden is to help our members to understand and use standards from HL7.

The focus for the coming year is on spreading the knowledge of HL7 and the use of standards, through seminars and courses, and to facilitate the use of competence and knowledge. We are also working together with various organizations to promote the use of standards.

The board of HL7 Sweden consists of:

Chair: Fredrik Ström, Brainpool Consulting
Vice Chair: Åsa Schwieler, Carelink
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Björn-Erik Erlandsson, Uppsala Universitet
Inger Wejerfeldt, Västra Götalandsregionen
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Consultants

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Child Health Corporation of America
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Nat'l Center for Research Resources, NIH
New Jersey Dept. of Health and Senior Services
New York State Department of Health, Wadsworth Ctr
NICTIZ National Healthcare
North Carolina DHHS-DMH/DD/SAS
Northern Alberta Institute of Technology
Ochsner Medical Foundation
Oregon Health & Science University
Pennsylvania Dept of Health-Bureau of Information
PHAST
Public Health, Seattle & King County
RTI International
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SINTEF
Software and Technology Vendors' Association
Southwest Research Institute
Stanford Medical Informatics, Stanford University
Sultanate of Oman, Ministry of Health
Tennessee Department of Health
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U.S. Department of Health & Human Services

HL7 ORGANIZATIONAL MEMBERS

University of Colorado / BioServe Space Technology
University of Washington - Dept. of Biostatistics
US Army Institute of Surgical Research
UT Health Center at Tyler
Washington State Department of Health
Winnipeg Regional Health Authority
Wisconsin Dept. of Corrections
WorldVistA
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Payers

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HL7 ORGANIZATIONAL MEMBERS

Computrition, Inc.
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WebVMC, LLC
Wellinx
Wellsoft Corporation
Wyndgate Technologies
XIFIN, Inc.
XPress Technologies
ZOLL Data Systems
Zynx Health

HL7 Technical Committee and Special Interest Group Co-chairs

Anatomic Pathology

John Gilbertson (Interim)
University of Pittsburgh
Phone: 412-657-5853
Email: gilbertsonjr@upmc.edu

John Madden MD PhD (Interim)
College of American Pathologists
Phone: 919-681-6671
Email: john.madden@duke.edu

Architectural Review Board

Mead Walker
Mead Walker Consulting
Phone: (610) 518-6259
Email: dmead@comcast.net

Arden Syntax

Robert Jenders, MD
Cedars-Sinai Medical Center
Phone: 310-423-2105
Email: jenders@ucla.edu

R. Matthew Sailors
University of Texas-Houston,
Dept. of Surgery
Phone: (713)500-6192
Email: matthew.sailors@uth.tmc.edu

Attachments

Michael Cassidy
Siemens Medical Solutions
Health Services
Phone: 610-219-3036
Email: michael.cassidy@siemens.com

Wes Rishel
Gartner
Phone: (510) 522-8135
Email: Wes.Rishel@Gartner.com

Penny Sanchez
EDS Corporation
Ph: (916) 636-1168
Email: penny.sanchez@eds.com

Maria Ward
Pricewaterhouse Coopers LLP
Phone: (312) 890-8572
Email:
maria.t.ward@us.pwcglobal.com

Cardiology

Jon Elion, MD
Heartlab, Inc.
Phone: 401-596-0592
Email: jle@heartlab.com

Brian McCourt
Duke Clinical Research Institute
Phone: 919-668-8999
Email: brian.mccourt@duke.edu

Clinical Context Object Workgroup (CCOW)

Barry Royer
Siemens Medical Systems
Phone: (610) 518-6259
Email: barry.royer@siemens.com

Michael Russell, MD
Duke University Health System
Phone: (919) 684-2513
Email: michael.russell@mc.duke.edu

Rob Seliger
Sentillion, Inc.
Phone: (978) 749-0022
Email: robs@sentillion.com

Clinical Decision Support

Robert Greenes, MD, PhD
Partners HealthCare /Brigham &
Women's Hospital
Phone: (617) 732-6281
Email: rgreenes@dsg.harvard.edu

Robert Jenders, MD
Cedars-Sinai Medical Center
Phone: 310-423-2105
Email: jenders@ucla.edu

Ian Purves
Sowerby Centre for Health
Informatics at Newcastle
Phone: 011-44-191-256-3100
Email: ian.purves@ncl.ac.uk

R. Matthew Sailors
University of Texas-Houston,
Dept. of Surgery
Phone: (713)500-6192
Email: matthew.sailors@uth.tmc.edu

Clinical Genomics

Peter Elkin, MD
Mayo Medical School
Phone: 507-284-1551
Email: elkin.peter@mayo.edu

Jill Kaufman
IBM Life Sciences
Phone: 201-447-0227
Email: jillkauf@us.ibm.com

Amnon Shabo
IBM Research Lab in Haifa
Phone: 972-54-714070
Email: shabo@il.ibm.com

Scott Whyte
Catholic Healthcare West
Phone: 602-697-0567
Email: scott.whyte@chw.edu

Clinical Guidelines

Robert Greenes, MD, PhD
Brigham & Women's Hospital
Phone: (617) 732-6281
Email: rgreenes@dsg.harvard.edu

Guy Mansfield
IDX Systems Corporation
Phone: (206) 607-5562
Email: guy_mansfield@idx.com
Community Based Health Services

Community Based Health Services

John Firl
McKesson Provider Technologies
Phone: (417) 874-4000 x 4423
Email: john.firl@mckesson.com

Robert Swenson
Cerner Corporation
Phone: 913-385-0212
Email: rwswenson@cerner.com

Max Walker
Department of Human Services
Phone: 61-3-9616-1471
Email: max.walker@dhs.vic.gov.au

Conformance

Lisa Carnahan
National Institute of Standards
and Technology
Phone : (301) 975-3362
Email : lisa.carnahan@nist.gov

John Lyons
Siemens Medical Solutions
Health Services
Phone: 610-219-4792
Email: john.lyons@siemens.com

Frank Oemig
HL7 Germany
Phone: 49-208-781194
Email: frank@oemig.de

Education Committee

Tim Benson
Abies Ltd
Phone: 44-20-7431-6428
Email: tim.benson@abies.co.uk

Abdul-Malik Shakir
Shakir Consulting
Phone: (909) 596-6790
Email: ShakirConsulting@cs.com

Electronic Health Records

Peter DeVault
Epic Systems Corporation
Phone: (608) 271-9000
Email: pdevault@epicsystems.com

Linda Fischetti RN MS
U.S Department of Veterans Affairs
Phone: (301) 734-0417
Email: linda.fischetti@med.va.gov

David Rowlands
Department of Health & Aged Care
Phone: 61-7-3234-0073
Email:
David.Rowlands@Standards.org.au

Corey Spears
Physician Micro Systems, Inc.
Phone: (206) 441-2400
Email: cspears@pmsi.com

Electronic Services Committee

Ken McCaslin
Quest Diagnostics
Phone: 610-650-6692
Email: kenneth.h.mccaslin
@questdiagnostics.com

David Murray
Siemens Medical Solutions Health
Services
Phone: 610-219-8207
Email: david.a.murray@siemens.com

Wes Rishel
Gartner
Phone: 510-522-8135
Email: Wes.Rishel@Gartner.com

Klaus Veil
HL7 Australia
Phone: 61-412-746-457
Email: klaus@veil.net.au

Nancy Wilson-Ramon
Verilet
Phone: 310-614-0879
Email:
nancy.wilson-ramon@att.net

Emergency Care

Kevin Coonan
University of Utah School of
Medicine / ACEP
Phone: 801-580-4236
Email: kevin.coonan@utah.edu

Donald R. Kamens, MD
XPress Technologies
Phone: 904-493-6037
Email: xpress@gmail.com

Jim McClay, MD
University of Nebraska
Medical Center
Phone: 402-559-3587
Email: jmcclay@unmc.edu

Todd Rothenhaus
Assistant Professor of
Emergency Medicine
Boston University
Phone: 617-864-8014
Email: trothenh@bu.edu

Financial Management

Kathleen Connor
Fox Systems, Inc.
Phone: (480) 423-8184
Email: kathleen.connor@foxsys.com

TC and SIG Co-chairs, continued

Francine Kitchen
GE Healthcare
Phone: (360) 592-8001
Email: Francine_Kitchen@idx.com

Susan Lepping
Siemens Medical Solutions Health Services
Phone: (610) 219-8673
Email: susan.lepping@siemens.com

Generation of Anesthesia Standards

Martin Hurrell, PhD
International Organization for Terminology in Anesthesia
Phone: + 44 (0) 141 548 8020
Email:
martin.hurrell@informatics.co.uk

Terri G. Monk, MD
Department of Anesthesiology
Duke University Medical Center
Phone: (919)636-0354
Email: Terri.Monk@duke.edu

Government Projects

Jim McCain
U.S. Department of Veterans Affairs
Phone: 520-232-2233
Email: james.mccain@med.va.gov

Nancy Orvis
US Department of Defense
Health Affairs
Phone: (706) 681-3918
Email: nancy.orvis@tma.osd.mil

Healthcare Devices

Todd Cooper (Interim)
Breakthrough Solutions, Inc.
Phone: 858-484-8231
Email: t.cooper@ieee.org

John Firl
McKesson Provider Technologies
Phone: (417) 874-4000 x 4423
Email: john.firl@mckesson.com

Thomas Norgall
University Erlangen
Phone: 49-9131-776-5113
Email: norgall@computer.org

Imaging Integration

Fred Behlen, PhD
LAI Technology
Phone: (708) 960-4164
Email: fbehlen@laitek.com

Helmut Koenig, MD
Siemens Medical Solutions
Health Services Corp.
Phone: 49-9131-84-3480
Email: helmut.koenig@siemens.com

Implementation Committee

Lisa Carnahan
National Institute of Standards and Technology
Phone: (301) 975-3362
Email: lisa.carnahan@nist.gov

Charlie McCay
Ramsey Systems, Ltd.
Phone: 44-1743-232-278
Email: charlie@ramseysystems.co.uk

Infrastructure & Messaging

Grahame Grieve
Kestral Computing Pty Ltd
Phone: 61-3-9450-2222
Email: grahame@kestral.com.au

Anthony Julian
Mayo Clinic/Foundation
Phone: (507) 266-0958
Email: ajulian@mayo.edu

Joann Larson
Kaiser Permanente
Phone: (925) 979-7441
Email: Joann.larson@kp.org

Doug Pratt
Siemens Medical Solutions Health Services
Phone: (610) 219-3050
Email: Douglas.Pratt@siemens.com

Rene Spronk
(HL7 The Netherlands)
Ringholm GmbH
Phone: 31-655-363-446
Email: rene.spronk@ringholm.com

International Committee

Jane Howarth (HL7 Canada)
IM&T Consultant
Phone: (905) 717- 3717
Email: jhowarth@aci.on.ca

Miroslav Koncar (HL7 Croatia)
Ericsson Nikola Tesla, d.d.
Phone: 38-5136-53479
Email: miroslav.koncar@ericsson.com

Laura Sato (HL7 UK)
NHS Connecting for Health
Phone: 44-7733-324338
Email: laura.sato@cph.nhs.uk

Klaus Veil (HL7 Australia)
HL7 Systems & Services
Phone: 61-412-746-457
Email: Klaus@veil.net.au

Java

Peter Hendler, MD
Sun Microsystems
Phone (510) 903-9562
Email: peter@javamedical.com

Gunther Schadow
Regenstrief
Phone: 317-630-7070
Email:
gunther@aurora.regenstrief.org

Laboratory

Austin Kreisler
SAIC
Phone: (404) 498-2959
Email: austin.j.kreisler@saic.com

Ken McCaslin
Quest Diagnostics, Inc.
Phone: (610) 650-6692
Email: kenneth.h.mccaslin
@questdiagnostics.com

Craig Robinson
iemens Medical Solutions
Health Services (Interim)
Phone: (610) 219-1567
Email: craig.robinson@siemens.com

Marketing Committee

Norbert Mikula
Intel Corporation, Digital Health Group
Phone: 503-712-8006
Email: norbert.h.mikula@intel.com

David Murray
Siemens Medical Solutions
Health Services
Phone: 610-219-8207
Email: david.a.murray@siemens.com

Medical Records/Information Management

Nancy LeRoy
U.S. Department of Veterans Affairs
Phone: (315) 425-4645
Email: nancy.leroy@med.va.gov

John Travis
Cerner Corporation
Phone: (816) 201-1465
Email: jtravis@cerner.com

Modeling and Methodology

George "Woody" Beeler Jr., PhD
Beeler Consulting, LLC
Phone: (507) 254-4810
Email: woody@beelers.com

Lloyd McKenzie
HL7 Canada
Phone: (780) 231-4528
Email: lloyd@lmckenzie.com

Dale Nelson
Zed-Logic Informatics, Inc.
Phone: (770) 856-0885
Email: dale@zed-logic.com

Craig Parker
IDX Systems
Phone: (801) 442-4398
Email: craigparkermd@gmail.com

Iona Singureanu
Eversolve, LLC
Phone: 603-548-5640
Email: ioana@eversolve.com

Orders/Observations

Hans Buitendijk
Siemens Medical Solutions
Health Services
Phone: (610) 219-2087
Email:
hans.buitendijk@siemens.com

Gunther Schadow, MD
Regenstrief Institute for Health Care
Phone: (317) 630-7960
Email: gunther@aurora.rg.iupui.edu

Jeff Sutherland
PatientKeeper, Inc.
Phone: (617) 987-0300
Email: jeff.sutherland@computer.org

Organizational Review Committee (ORC)

Hans Buitendijk
Siemens Medical Solutions
Health Services
Phone: (610) 219-2087
Email: hans.buitendijk@siemens.com

Mark Shafarman
Shafarman Consulting
Phone: (510) 593-3483
Email:
Mark.Shafarman@earthlink.net

Outreach Committee for Clinical Research (OCCR)

Chuck Jaffe
Intel Digital Health Group
Phone: 610-793-7773
Email: jaffec@saic.com

Patient Administration

Jean Ferraro
McKesson Provider Technologies
Phone: (631) 968-4057
Email: jean.ferraro@mckesson.com

Gregg Seppala
U.S. Dept of Veterans Affairs
Phone: (703) 824-0995
Email: gregg.seppala@med.va.gov

Klaus Veil
HL7 Systems & Services
Phone: 61-412-746-457
Email: Klaus@veil.net.au

TC and SIG Co-chairs, continued

Patient Care

William Goossen
HL7 The Netherlands
Phone: 31-318-540069
Email: stichinghl7nl@dynamiek.net

David Rowed
VAMC Clinic
Phone: 612 9419 3411
Email: drowed@bigpond.net.au

Daniel Russler, MD
McKesson Provider Technologies
Phone: (404) 338-3418
Email: dan.russler@mckesson.com

Patient Safety

Clive Flashman
National Patient Safety Agency
Phone: 44-0-207927-9551
Email: clive.flashman@npsa.nhs.uk

Lise Stevens
Food and Drug Administration
Phone: (301)-827-6085
Email: stevensl@cber.fda.gov

Pediatric Data Standards

David C. Classen MD MS (Interim)
First Consulting Group
Phone: (801) 532-3633
Email: dclassen@fcg.com

Kate Collins
Child Health Corporation of America
Phone: 913-262-1436 x118
Fax: 913-262-1575
Email: kate.collins@chca.com

Andy Spooner, MD, FAAP (Interim)
University of Tennessee & Le Bonheur Children's Medical Ctr.
Phone: (901) 572-3292
Email: spooner@tennessee.edu

Personnel Management

June Rosploch
Kaiser Permanente
Phone: 925-926-5139
Email: june.rosploch@kp.org

Leon Salvail
Global Village Consulting Inc.
Phone: 604-608-1779
Email: lsalvail@global-village.net

Pharmacy

Robert Hallowell
Siemens Medical Solutions Health Services
Phone: 610-219-5612
Email: robert.hallowell@siemens.com

Julie James
Blue Wave Informatics
Phone: 44-0-1392-811961
Email: julie_james@bluewaterinformatics.co.uk

Michael van Campen
HL7 Canada
Phone: 250-812-7858
Email: Michael.vanCampen@GPinformatics.com

Process Improvement Committee

Nancy Wilson-Ramon
Phone: 310-614-0879
Email: nancy.wilson-ramon@cox.net

Public Health and Emergency Response (PHER)

Rita Altamore
Washington State Department of Health
Phone: (360) 951-4925
Email: rita.altamore@doh.wa.gov

Jim Case
American Association of Veterinary Lab Diagnosticians
Phone: (530) 754-9719
Email: jtcase@ucdavis.edu

Daniel Pollock
Centers for Disease Control and Prevention
Phone: (404) 639-7715
Email: dap1@cdc.gov

Publishing Committee

Jane Foard
McKesson Provider Technologies
Phone: 847-495-1289
Email: jane.foard@mckesson.com

Helen Stevens Love
Gordon Point Informatics
Phone: (250) 888-5824
Email: helen.stevens@gpinformatics.com

Klaus Veil
HL7 Systems & Services
Phone: + 61 412 746 457
Email: Klaus@Veil.net.au

Regulated Clinical Research Information Management

Randy Levin, MD
FDA Center for Drug Evaluation & Research
Phone (301) 827-9874
Email: levinr@cder.fda.gov

Barbara Tardiff
Merck & Co., Inc.
Phone: 732-594-4146
Email: barbara_tardiff@merck.com

Edward Tripp
Abbott Laboratories
Phone: 847-937-2021
Email: edward.tripp@abbott.com

Scheduling and Logistics

Anita Benson
DataScene
Phone: (860) 567-5523
Email: anita@datascene.com

Jane Foard
McKesson Provider Technologies
Phone: (847) 537-4800
Email: jane.foard@mckesson.com

Security

Bernd Blobel, MD
The University of Magdeburg
Phone: 49.3916713542
Email: bernd.blobel@mrz.uni-magdeburg.de

Mike Davis
U.S. Department of Veterans Affairs
Phone: 760-632-0294
Email: mike.davis@med.va.go

Glen Marshall
Siemens Medical Solutions Health Services Corp.
Phone: 610.219.3938
Email: glen.f.marshall@siemens.com

Services Oriented Architecture

Alan Honey (Interim)
Kaiser Permanente
Phone: 925-979-7459
Email: alan.p.honey@kp.org

Jari Porrasmaa (Interim)
University of Kuopio, Finland
Phone: +35 817162899
Email: jari.porrasmaa@uku.fi

Ken Rubin (Interim)
EDS Corporation
Phone: 703-845-3277
Email: ken.rubin@eds.com

Structured Documents

Liora Alschuler
The Word Electric
Phone: (802) 785-2623
Email: liora@the-word-electric.com

Calvin Beebe
Mayo Clinic/Foundation
Phone: (507) 284-3827
Email: cbeebe@mayo.edu

Fred Behlen
American College of Radiology
Phone: 703-648-8900
Email: fbehlen@laitek.com

Bob Dolin, MD
Kaiser Permanente
Phone: (714) 562-3456
Email: robert.h.dolin@kp.org

Templates

Brett Esler
HL7 Australia
Email: expert@hl7.org.au

Russ Hamm
Mayo Foundation / Clinic
Phone: 507-284-9348
Fax: 507-284-0360
Email: hamm.russell@mayo.edu

Angelo Rossi Morri
HL7 Italy
Phone: 39-06-86090250
Fax: 36-06-86090340
Email: angelo@itbm.rm.cnr.it

Tooling Committee

Jane Curry
Health Information Strategies
Phone: (780) 409-8560
Email:janecurry@healthinfostrategies.com

Lloyd McKenzie (HL7 Canada)
LM&A Consulting Ltd.
Phone: 780-231-4528
Email: lloyd@lmckenzie.com

Laura Sato (HL7 UK)
NHS Connecting for Health
Phone: 44-7733-324338
Email: laura.sato@cph.nhs.uk

Vocabulary

Christopher Chute, MD
Mayo Clinic/Foundation
Phone: (507) 284-5506
Email: chute@mayo.edu

Stan Huff, MD
Intermountain Health Care
Phone: (801) 442-4885
Email: coshuff@ihc.com

Cecil Lynch
OntoReason, LLC
Phone: 916-412-5504
Email: clynch@ontoreason.com

William T. Klein
Klein Consulting, Inc.
Phone: (631) 924.6922
Email: kci@tklein.com

XML

Paul Knapp
Canadian Dental Association
Phone: (604) 987-3313
Email: pknapp@pknapp.com

Charlie McCay
Ramsey Systems, Ltd.
Phone: 44-1743-232-278
Email: charlie@ramseysystems.co.uk

HL7 FACILITATORS

Modeling and Methodology Facilitators

George (Woody) Beeler, Jr., PhD
Beeler Consulting LLC
Committee: Facilitator At Large
Phone: 507-254-4810
Email: woody@beelers.com

Anita Benson
DataScene
Committee: Scheduling & Logistics; Patient Safety
Phone: 860-567-5523
Email: anita@datascene.com

Kathleen Connor
Fox Systems Inc.
Committee: Financial Management TC
Phone: 480-423-8184
Email: kathleen.connor@foxsys.com

Jane Curry
Health Information Strategies Inc.
Committee: International
Phone: 780-459-8560
Email: janecurry@healthinfostrategies.com

Norman Daoust
Daoust Associates
Committee: Patient Administration TC
Phone: 617-491-7424
Email: normand@daoustassociates.com

Robert Dolin, MD
Kaiser Permanente
Committee: Medical Records/Information Management; Structured Documents
Phone: 714-562-3456
Email: robert.h.dolin@kp.org

Jane Foard
McKesson Provider Technologies
Committee: Scheduling & Logistics TC
Phone: 847-495-1289
Email: jane.foard@mckesson.com

Sarah Glamm
Epic Systems Corporation
Committee: Laboratory SIG
Phone: 608-271-9000
Email: sglamm@epicsystems.com

Hugh Glover
HL7 UK
Committee: Immunization; Medication Information; Pharmacy
Phone: 44-0-1392-271274
Email: hugh_glover
@bluewaveinformatics.co.uk

Robert Grant
ZOLL Data Systems
Committee: Personnel Management TC
Phone: 800-474-4489
Email: rgrant@zolldata.com

Grahame Grieve
Kestral Computing Pty Ltd
Committee: Infrastructure & Messaging TC
Phone: 61-3-9450-2222
Email: grahame@kestral.com.au

William "Ted" Klein
Klein Consulting, Inc.
Committee: Vocabulary TC
Phone: 631-924-6922
Email: kci@tklein.com

Austin Kreisler
SAIC - Science Applications International Corp
Committee: Laboratory SIG
Phone: 404-498-6596
Email: austin.j.kreisler@saic.com

Lloyd McKenzie
HL7 Canada
Committee: Facilitator At Large
Phone: 780-231-4528
Email: lloyd@lmckenzie.com

Nancy McQuillen
California Department of Health Services-Berkeley
Committee: Public Health Emergency Response SIG
Phone: 916-650-6885
Email: NMcQuill@dhs.ca.gov

Charlie Mead, MD, MSc
Oracle Corporation – Healthcare
Committee: RCRIM
Phone: 510-541-8224
Email: Charlie.mead@oracle.com

Dale Nelson
Zed-Logic Informatics, Inc.
Committee: CMET
Phone: 770-856-0885
Email: dale@zed-logic.com

Craig Parker, MD
GE Healthcare Information Technologies
Committee: Clinical Decision Support TC; Clinical Guidelines
Phone: 801-733-9352
E-mail: craig@HL7.wherever.org

Gunther Schadow, MD
Regenstrief Institute, Inc.
Committee: Orders/Observations TC
Phone: 317-630-7070
Email: gunther@aurora.regenstrief.org

Amnon Shabo
IBM
Committee: Clinical Genomics SIG
Phone: 972-544-714070
Email: shabo@il.ibm.com

Abdul-Malik Shakir
Shakir Consulting
Committee: Modeling & Methodology TC
Phone: 909-596-6790
Email: abdulmalik@shakirconsulting.com

Publishing Facilitators

Raymond Aller, MD
L.A. County Department of Health Services
Committee: Government Projects
Phone: 213-840-9072
Email: raller@ladhs.org

Douglas Baird
Guidant Corporation
Committee: Templates
Phone: 651-582-3241
Email: douglas.baird@guidant.com

Anita Benson
DataScene
Committee: Scheduling & Logistics
Phone: 860-567-5523
Email: anita@datascene.com

Doug Castle
IDX Systems Corporation
Committee: Vocabulary
Phone: 802-859-6365
doug_castle@idex.com

Mark Diehl
CSC Global Healthcare
Committee: Government Projects
Phone: 301-624-1779
markdata@aol.com

Robert Dolin MD
Kaiser Permanente
Committee: Medical Records/Information Management
Phone: 714-562-3456
Email: robert.h.dolin@kp.org

Julie Evans
CDISC
Committee: Public Health; RCRIM
Phone: 202-675-6977
Email: jevans@cdisc.org

Jane Foard
McKesson Provider Technologies
Committee: Scheduling & Logistics
Phone: 847-495-1289
Email: jane.foard@mckesson.com

Alexis Grassie
HL7 Canada
Committee: Canadian Realm
Phone: 416-481-2002
Email: agrassie@cihi.ca

Irma Jongeneel-de Haas
HL7 The Netherlands
Committee: International
Phone: 31-347-327777
Email: irma.jongeneel@mckesson.nl

Anthony Julian
Mayo Clinic/Foundation
Committee: Infrastructure & Msg
Phone: 507-266-0958
Email: ajulian@mayo.edu

Mary Ann Juurlink
Gordon Point Informatics
Committee: Care Provision; Patient Care
Phone: 780-920-5224
Email: maryann.juurlink@gpinformatics.com

Helmut Koenig, MD
Siemens Medical Solutions Health Services
Committee: Imaging Integration
Phone: 49-9131-84-3480
Email: helmut.koenig@siemens.com

Joann Larson
Kaiser Permanente
Committee: Infrastructure & Msg
Phone: 925-924-5029
Email: joann.larson@kp.org

Margaret (Peggy) Leizear
Food and Drug Administration
Committee: RCRIM
Phone: 301-827-5203
Email: peggy.leizear@fda.hhs.gov

Patrick Loyd
Icode Solutions
Committee: Orders & Observations
Phone: 415-209-0544
Email: p.loyd@verizon.net

Glen Marshall
Siemens Medical Solutions Health Services
Committee: Security
Phone: 610-219-3938
Email: glen.f.marshall@siemens.com

Kenneth McCaslin
Quest Diagnostics, Incorporated
Committee: Laboratory; Specimen
Phone: 610-650-6692
Email:
kenneth.h.mccaslin@questdiagnostics.com

Sue Mitchell
Omnicare Information Solutions
Committee: E.H.R
Phone: 740-862-4458
Email: suemitchell@hotmail.com

Dale Nelson
Zed-Logic Informatics, Inc.
Committee: CMET
Phone: 770-856-0885
Email: dale@zed-logic.com

Frank Oemig
HL7 Germany
Committee: Conformance; German Realm
Phone: 49-208-781194
Email: frank@oemig.de

Nancy Orvis
U.S. Department of Defense, Military Health System
Committee: Government Projects
Phone: 703-681-5611
Email: nancy.orvis@tma.osd.mil

HL7 Facilitators, continued

Craig Parker, MD
GE Healthcare Information Technologies
Committee: Clinical Decision Support TC
Phone: 801-733-9352
E-mail: craig@HL7.wherever.org

June Rosploch
Kaiser Permanente
Committee: Personnel Management
Phone: 925-924-5035
Email: june.rosploch@kp.org

Gregg Seppala
U.S. Department of Veterans Affairs
Committee: Patient Administration
Phone: 703-824-0995
Email: gregg.seppala@med.va.gov

Amnon Shabo
IBM
Committee: Clinical Genomics
Phone: 972-544-714070
Email: shabo@il.ibm.com

Margarita Sordo
Partners HealthCare System, Inc.
Committee: Gello
Phone: 617-732-6271
Email: msordo@dsg.harvard.edu

Helen Stevens Love
Gordon Point Informatics Ltd.
Committee: Patient Safety; Public Health Emergency Response SIG; RCRIM
Phone: 250-888-5824
Email: helen.stevens@gpinformatics.com

Michael van Campen
Gordon Point Informatics Ltd
Committee: Immunization; Medication; Pharmacy
Phone: 250-812-7858
Email:
Michael.vanCampen@GPinformatics.com

Bob Yencha
Alschuler Associates, LLC
Committee: Structured Documents
Phone: 207-772-5121
Email: bobyencha@maine.rr.com

Vocabulary Facilitators

Anita Benson
DataScene
Committee: Patient Safety; Scheduling and Logistics
Phone: 860-567-5523
Email: anita@datascene.com

Paul Biondich
Regenstrief Institute for Health Care
Committee: Pediatric Data Standards
Phone: 317-630-8134
Email: pbiondich@regenstrief.org

James Case
American Veterinary Medical Association
Committee: Public Health & Emergency Response
Phone: 530-752-4408
Email: jtcase@ucdavis.edu

Kathleen Connor
Fox Systems Inc.
Committee: Financial Management
Phone: 480-423-8184
Email: kathleen.connor@foxsys.com

Jane Foard
McKesson Provider Technologies
Committee: Scheduling & Logistics
Phone: 847-495-1289
Email: jane.foard@mckesson.com

Hugh Glover
HL7 UK
Committee: CMET
Phone: 44-0-1392-271274
Email:
hugh_glover@bluewaveinformatics.co.uk

Margaret Haber, BSN, RN, OCN
National Cancer Institute Center for Bioinformatic
Committee: RCRIM
Phone: 301-594-9185
Email: mhaber@mail.nih.gov

W. Edward Hammond, PhD
Duke University Medical Center
Committee: Templates
Phone: 919-383-3555
Email: hammo001@mc.duke.edu

Robert Hausam, MD
TheraDoc, Inc.
Committee: Laboratory SIG
Phone: 801-415-4412
Email: robert.hausam@theradoc.com

Stanley Huff, MD
Intermountain Health Care
Committee: Vocabulary
Phone: 801-442-4885
Email: stan.huff@ihc.com

Julie James
Blue Wave Informatics LLP
Committee: Immunization; Medication Information; Pharmacy
Phone: 44-1392-271274
Email:
julie_james@bluewaveinformatics.co.uk

William "Ted" Klein
Klein Consulting, Inc.
Committee: Modeling & Methodology
Phone: 631-924-6922
Email: kci@tklein.com

Peter MacIsaac
HL7 Australia
Committee: International
Phone: 61-2-6289-7494
Email: peter.macisaac@hl7.org.au

Usha Reddy
IBM
Committee: Clinical Genomics
Phone: 215-997-1411
Email: usharedy@us.ibm.com

Julie Richards
Canada Health Infoway
Committee: E.H.R.
Phone: 843-388-1214
E-mail: jrichards@infoway-inforoute.ca

June Rosploch
Kaiser Permanente
Committee: Personnel Mgt
Phone: 925-924-5035
Email: june.rosploch@kp.org

Harold Solbrig
Mayo Clinic/Foundation
Committee: Modeling & Methodology
Phone: 507-284-0753
Email: solbrig.harold@mayo.edu

Harry Solomon
GE Healthcare Information Technologies
Committee: Imaging Integration
Phone: 847-277-5096
Email: harry.solomon@med.ge.com

Sandra Stuart
Kaiser Permanente
Committee: Infrastructure & Msg
Phone: 510-625-4992
Email: sandra.stuart@kp.org

Wayne Tracy
Health Patterns, LLC
Committee: Med Records/Info Mgmt
Phone: 509-994-5487
Email: wrtracy@att.net

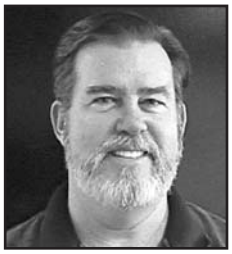
International Liaisons

Helen Stevens
HL7 Canada
Committee: Orders/Observations
Phone: (250) 888-5824
E-mail: helen.stevens@gpinformatics.com

Irma Jongeneel-de Haas
HL7 The Netherlands
Phone: 31-347-327733
E-mail: irma.jongeneel@mckesson.nl

2006 HL7 BOARD OF DIRECTORS

Chair



Charles "Chuck" Meyer
Phone: (407) 695-8338
E-mail: cmeyer327@aol.com

Immediate Past Chair

Mark Shafarman
Shafarman Consulting
Phone: (510) 593-3483
E-mail: mark.shafarman@earthlink.net

Treasurer

William R. Braithwaite, MD, PhD
eHealth Initiative
Phone: (202) 624-3279
Email:
bill.braithwaite@ehealthinitiative.org

Secretary

Freida Hall
U.S. Department of Veterans Affairs
Phone: (727) 398-3212
Email: freida.hall@med.va.gov

Directors-At-Large

Liora Alschuler
Alschuler Associates, LLC
Phone: (802) 785-2623
Email: liora@alschulerassociates.com

Hans Buitendijk
Siemens Medical Solutions Health Services Corporation
Phone: (610) 219-2087

Robert Dolin, MD
Kaiser Permanente
Phone: (714) 562-3456
Email: robert.h.dolin@kp.org

Linda Fischetti, RN, MS
U.S. Department of Veterans Affairs
Phone: (301) 734-0417
Email: linda.fischetti@med.va.gov

Randy Levin, MD
Food and Drug Administration
Phone: (301) 827-7784
Email: randy.levin@fda.hhs.gov

Daniel C. Russler, MD
McKesson Provider Technologies
Phone: (404) 338-3418
Email: dan.russler@mckesson.com

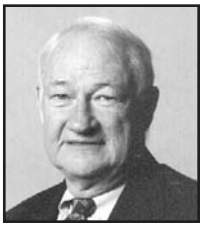
Wes Rishel
Gartner
Phone: (510) 522-8135
E-mail: Wes.Rishel@Gartner.com

Klaus Veil
HL7 Systems & Services
Phone: 61-412-746-457
E-mail: klaus@veil.net.au

Technical Committee Chair

John Quinn
Accenture
Phone: (216) 583-1242
Email: john.f.quinn@accenture.com

Technical Committee Vice-Chair



W. Edward Hammond, PhD
Duke University Medical Center
Phone: (919) 383-3555
E-mail: hammo001@mc.duke.edu

International Representative

Kai Heitmann, MD
University Hospital of Cologne
Phone: 49-221-478-6507
Email: HL7@kheitmann.nl

Executive Director

Mark McDougall
Executive Director, HL7
Phone: (734) 677-7777
Email: markmcd@HL7.org

May 7 - 12, 2006
Hyatt Regency on the Riverwalk
San Antonio, Texas

May Working Group Meeting

Photo Courtesy of SACVB

Early Bird Registration & Hotel Cutoff:
April 10, 2006

Online Registration Cutoff:
April 17, 2006

On-site Registration Begins:
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