ART-DECOR: An Open-Source Tool Bridging the Chasm Between Clinicians and Health IT

By Kai U. Heitmann, MD, FHL7, Past Chair, HL7 Germany; Co-Chair, HL7 Templates Work Group; Member, ART-DECOR Expert Team

Kai Heitman, MD

Abstract: It can sometimes be a long journey from the inception of an idea or from the requirement to electronically exchange clinical information to its actual implementation. It includes a process to determine content and methods, creation of a specification by means of standards that then get implemented in software application and the exchange of data in production. The process begins with a complete and consistent documentation along with an optimized collaboration among the experts involved in the work. A new tool, called ART-DECOR, is now used in many European projects and supports consistent and comprehensive documentation, specification, implementation and testing of communication solutions. This article briefly describes background, opportunities and objectives of this new tooling environment.

Collaboration Challenges for the Experts

It is usually a collaboration of experts who start with ideas or requirements and jointly develop a proper specification, achieve implementation and eventually the exchange of clinical information between applications. Experts come from the area of the request itself and can include physicians, nurses, and medical staff as well as from areas of requirements analysis, modeling, standardization (such as HL7 and IHE), software architects, interface specialists and – often forgotten – terminologists. They all take care of a common understanding of cross-domain semantics.

Previously, there was hardly any comprehensive or only scattered support by tools of a technical nature that allowed all of these groups of experts – in short: users, architects/modelers, terminologists and software engineers – to contribute their respective knowledge to the definition and implementation process and to get what they need in order to fulfill their tasks while things evolve.
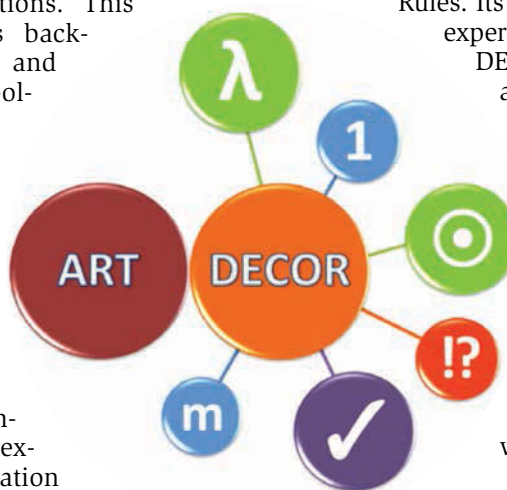
ART-DECOR

A new tool, called ART-DECOR, is now used in many European projects and supports creating consistent and comprehensive documentation. The tool offers support for specification, implementation and testing of, for example, Clinical Document Architecture (CDA®)-based specifications.

ART-DECOR stands for Advanced Requirement Tooling using Data Elements, Codes, OIDs and Rules. Its main objective is to support all experts in the development process. DECOR is a methodology to model and document the information requirements of clinical users. This model is then used to link various artifacts such as terminologies and templates together and generate documentation (implementation guides), XML and test tools, etc. Supported by consistent version management, the iterative improvement of all artifacts created during the working process is fostered.

DECOR is used to hold, among other things, data sets with a hierarchical list of concepts, data types, value sets, codes, identification schemes, business rules and templates. The underlying data format is XML. Generation of HTML and PDF documentation and XML materials is accomplished by transformation with style sheets and other methods.

In This Issue...

ART-DECOR, *continued from page 1*

DECOR consists of two parts: the methodology, a framework supporting modeling of artifacts (including documentation); and the transformation scripts, such as XML style sheets, and other tools such as XML schemas, schematrons, etc.

ART is the DECOR user interface to create and adapt DECOR files and artifacts. ART is based on the XML database eXist and uses XQuery and Orbeon XForms.

Who Benefits from ART-DECOR?

In particular, ART-DECOR supports:
- Regional and national networks, as well as large healthcare providers to document internal/external requirements in terms of data sets and data flows consistently with the objective to exchange information
- Standard experts, modelers, architects and terminologists who design their contributions based on target standards and procedures, supplementing the requirement specifications
- Healthcare software providers who are looking for a simplified implementation of standard specifications and optimum support for implementations

ART-DECOR is already being used in quite a few European projects. Experts from a variety of backgrounds handle their data sets, data types, value sets, identifier schemes, codes, and business rules by means of (HL7 Version 3/CDA) templates.
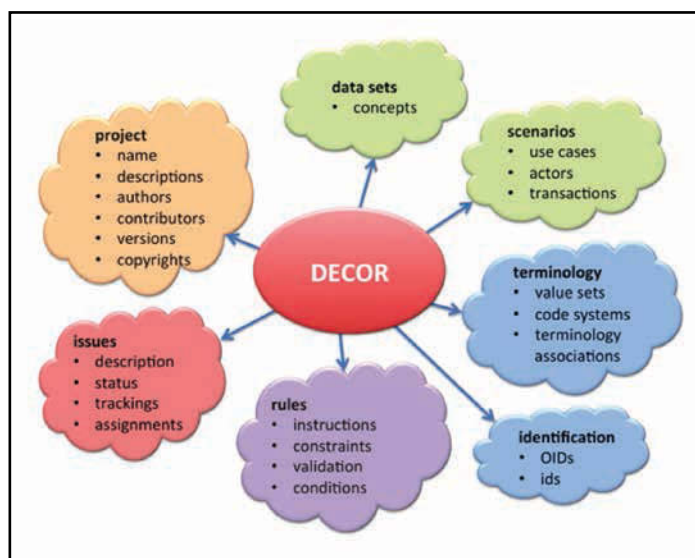
ART-DECOR supports the following steps during the business process, including requirement analysis, specification and implementation:
- Create and manage a data set, documentation of the structure and semantics from the perspective of healthcare providers
- Define the actors involved (i.e. performing physician), interactions and the exchange situations (scenarios)
- Setting of concepts and terminology guidelines (for example, sets of values, and codes) and identifications from the perspective of terminologists
- Define the structure and semantics, add business rules, identifier schemes, codes and link everything to i.e. HL7 templates from the perspective of standardization experts, modelers and interface specialists
- Version and change management
- Generation of ISO Schematron [isosch], documentation, etc.
- Test the communication in terms of content, correct display, etc.

In addition, information about the project is documented.

The ART-DECOR tool is project oriented and supports the definition and management of clinical concepts and scenarios, allows the definition of structure and semantics in terms of rules (templates, profiles), and identification schemes and terminologies (codes). It also provides a forum for project-based problems, questions, and suggestions for changes.
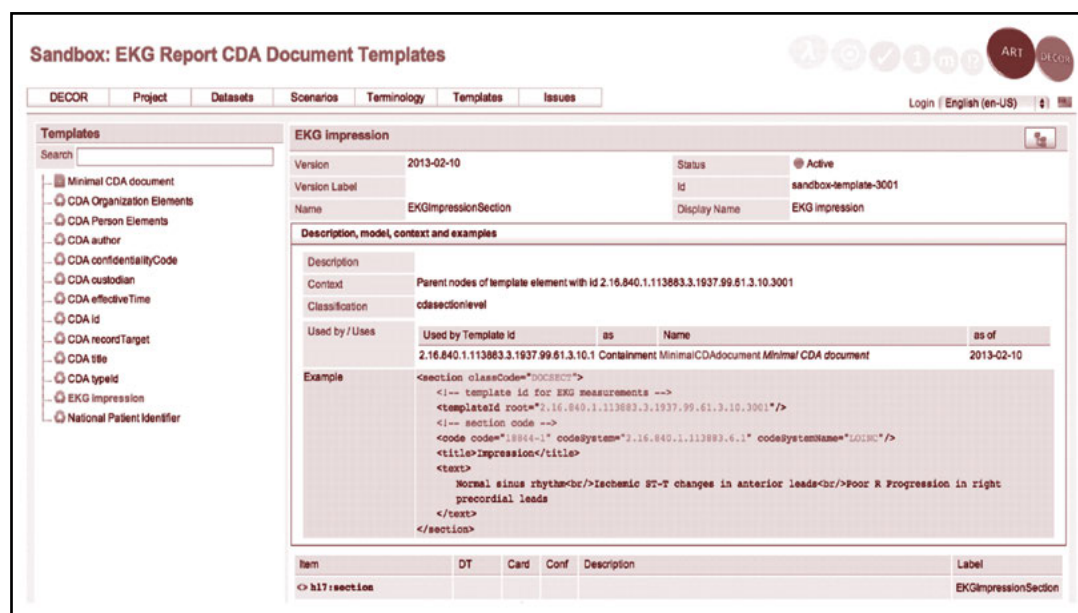
Figure 2: Template list (left) and detailed information with examples and cross-relation (template meta data, on the right) of a section-level template for the EKG results

- The creation of (parts of) messages and documents
- The validation of messages and documents
- Processing (parts of) messages and documents

ART-DECOR specifies of the structure and semantics of HL7 templates, identifies and codes from the perspective of, and for the benefit of, standardization experts, modelers and interface experts. XML instances are described as accurately as possible, and include: elements and attributes; structure; cardinality; conformance; data types; identification schemes required to be used and value sets with set of values; or units and accuracy of measurements. The result is an exact statement of how to build a conforming XML instance ("... Which item goes where and must be populated how?"), but also a way to validate created instances ("...Did I use the correct code?") or to process the received data. Templates in ART-DECOR focus on HL7 CDA templates, which are often used in modern specifications. However, any

This article does not focus on data set, scenarios and terminologies, so it is missing an extensive description. For more information about these, please visit the demo of the EKG example use case at the ART-DECOR sandbox at http://art-decor.org and have a closer look on how this is achieved in the tool.

HL7 Version 3 Templates

Templates are predefined structures describing structure and semantics of mostly clinical content (functional model) and specify what the associated XML instance looks like (technical model). They act as a pattern of existing HL7 models (for example, the CDA model). Ideally, they are designed as reusable semantic blocks that are used repeatedly. Examples include definitions for the "patient", the "authors of a document", a structure of a "diagnosis", or a "lab result".

Templates act as an aid for the following objectives:

Figure 3: Rendering of a CDA section-level template in ART-DECOR in detail (the so-called template design). The tabular form offers concise information on how the corresponding XML fragment has to be built up

ART-DECOR, *continued from page 3*

arbitrary XML instance can be described and validated in this way.

RESTful Services and Repositories

Many of the artifacts like value sets and templates can also be achieved by calling RESTful services. The templates format adheres to the HL7 Templates Standard: Specification and Use of Reusable Information Constraint Templates, Release 1. ART-DECOR is in fact a reference implementation of the exchange format described in the Templates draft standard for trial use.

Presently, we are collecting the experiences from a number of European projects and are examining to what extent they may be re-used at a higher level. For example, why should the ECG findings expressed in CDA in Norway be technically different from one in Germany? Therefore, are the definitions also usable in Germany?

The thoughts around re-usability led into the implementation of the Building Block repositories (BBR) that the ART-DECOR tool offers. At the European level, the BBRs are already populated with HL7 value sets and include CDA models as generic templates. Additional projects cover BBRs drawn from the epSOS project, CCD 1.0, C-CDA Release 1.1 (C-CDA R2 in preparation) and IHE. BBRs are directly available and usable in any ART-DECOR project. This means that a project simply references BBR components (rather than copies them) or refines existing definitions.

Gained in Practice, for Use in Practice

ART-DECOR is used in European countries in various, including in support of the national infrastructure ELGA in Austria, the Dutch Nictiz (National Healthcare Standards Institute) and the RIVM (National Institute of Public Health and the Environment in the Netherlands). The

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A summary of ART-DECOR in four bullet points: ART-DECOR…

…is an open-source tool and a methodology for various multidisciplinary stakeholders of healthcare information exchange

…supports comprehensive collaboration of team members within and between governance groups

…allows separation of concerns and different views on one single documentation for different domain experts

…supports creation and maintenance of HL7 templates, value sets, data sets and more

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Features of ART-DECOR 1.0 for HL7/ CDA Templates

- Template Viewer based on the Templates DSTU R1 exchange format (balloted), documentation of templates in ART as HTML or PDF
- Two Template editors for HL7 Version 3/CDA Templates
- Terminology Browser for various terminologies
- Value Set Editor
- Building Block Repositories with various "standard" templates and value sets, e.g. from C-CDA R 1.1, epSOS, IHE
- ISO schematron generator, works with open and closed templates
- RESTful services to get various artefacts
- FHIR® profile editor and repository under investigation

Edevelopment of the tool is driven by practice and experience and by what is needed in the field; not by theoretical constructs that may happen but have not been seen. Thanks to the modern development environment of the tool itself, innovations for all ART-DECOR projects can be made available with a very small time delay.

Summary

ART-DECOR is a free collaborative tool, which is now used in European projects for a consistent and comprehensive documentation, as an aid in specification, implementation and testing of communication solutions. More information can be found on the website of the ART-DECOR expert team at: www.art-decor.org. The website also includes an ECG findings sample.

Links/References

Orbeon XForms framework: www.orbeon.com
XForms Wikibook: http://en.wikibooks.org/wiki/XForms
XQuery Wikibook: http://en.wikibooks.org/wiki/XQuery
eXist XML database: http://www.exist-db.org/
ISO Schematron: ISO/IEC 19757-3, www.iso.org

A demo example at the ART-DECOR website can be found at
http://art-decor.org/art-decor/decor-project--sandbox-

15th International HL7 Interoperability Conference (IHIC 2015)

By the IHIC 2015 Planning Committee: Libor Seidl (Chair), Bernd Blobel, Christof Gessner, Kai Heitmann, Michal Huptych, Daniel Klimes, Alexander Mense and Stefan Sabutsch

HL7 Standards for International Cooperation

HL7 Czech Republic is proud to announce the 15th International HL7 Interoperability Conference (IHIC 2015) to be held February 9-11, 2015 in Prague, Czech Republic. The conference is also being supported by HL7 Austria and HL7 Germany.

The IHIC is a forum for scientists and implementers to present and discuss concepts, models and implementations for innovative interoperable eHealth solutions. The conference also aims to play the role of an interface between science, research and practice in the health and social care domain.

We invite scientists to submit papers to be presented in the conference and be published in the conference proceedings. All papers will be reviewed by at least two independent reviewers. Selected papers will be published in the special issue Standards for International Cooperation of the European Journal of Biomedical Informatics.

We invite implementers to submit short practice reports and experience summaries to be presented in the conference.

One highlight of the conference will be the announcement of the Joachim W. Dudeck Award for the best scientific paper of a young author (< 35 y). This award is worth US $1000 and is donated by HL7 International and the winner will receive a plaque that has been traditionally donated by HL7 Germany.

IHIC 2015 will conclude with a Tutorial Day offering one complimentary course to each registered participant, who will also have the opportunity to book additional tutorials. Furthermore, a special session is dedicated to the HL7 Educational Work Group, offering sharing of information and experiences between members and educators from around the world.

For more information about IHIC 2015, please visit the website at http://ihic2015.hl7cr.eu. Any questions regarding the conference can be directed to ihic@hl7cr.eu.

Call for papers

We invite scientists to submit papers to be presented in the conference and be published in the conference proceedings. All papers will be reviewed by at least two independent reviewers. Selected papers will be published in the special issue Standards for International Cooperation of the European Journal of Biomedical Informatics.

We invite implementers to submit short practice reports and experience summaries to be presented in the conference.

Topics for IHIC 2015

Papers should contribute to the following topics:
- Concepts and frameworks for Smart Interoperability Infrastructure Services
- Security and privacy concerns
- Local, regional or national electronic health records solutions
- Business intelligence and clinical decision support
- Joint HL7 & IHE implementations at regional and national level
- "Show me your CDA®" – CDA implementations at regional, national, and international levels

Submission and Format

Manuscripts should not exceed 5,000 words and must strictly follow the instructions for authors available at the conference website at http://ihic2015.hl7cr.eu/for-authors/

Joachim W. Dudeck Award

Since 2011, HL7 International bestows the Joachim W. Dudeck Award to one recipient on an annual basis at the International HL7 Interoperability Conference.

The award distinguishes extraordinary achievements in developing and/or implementing HL7-based interoperability solutions as well as promoting the use of HL7 and its harmonization with other specifications performed by young HL7 community members.

The award was launched in memory and honor of the outstanding physician, scientist, lecturer and standards developer Joachim W. Dudeck from Giessen, Germany. Joachim Dudeck was the founder and long term Chair of HL7 Germany, the first affiliate director at the HL7 board of directors and an author or contributor of many specifications around HL7 and XML in health informatics.
A jury consisting of six acknowledged scientists and standardization experts, headed by the acting HL7 Germany Chair, decides on the bestowment of this award to one author of a submission to the International HL7 Interoperability Conference who is younger than 35 years.
The paper must be written in English.

Important Dates

- Deadline for paper submissions: October 15, 2014
- Evaluation and notification: November 17, 2014
- Camera-ready papers due: December 4, 2014
- IHIC 2015: February 9-11, 2015

Update from Headquarters

Rendezvous in Paris

Mark McDougall

By Mark McDougall, Executive Director, HL7

Before I provide a few highlights of our most recent working group meeting (WGM), I would like to encourage all readers to start planning to join HL7 at our May 2015 WGM in Paris, France. The dates will be May 10-15, 2015 and the venue will be the Hyatt Regency Paris. We look forward to producing this meeting, including several tutorials as well as some special features such as additional plenary session presentations and social events. Please mark your calendars and start brushing up on your French.

The Launch of the Newly Expanded HL7 Help Desk

I am also pleased to report that the HL7 Help Desk has expanded its scope and offers members expanded FREE 24/7 professional help, peer support and a library of articles on these hot HL7 topics:

- **HL7 FHIR**

  Our newest HL7 standard and architecture, FHIR (Fast Healthcare Interoperability Resources)
- CDA®/C-CDA®
- V2.x Admissions, Transfers, and Discharges as well as HL7 Standard Infrastructure
- V2.x Orders and Observations
- V2.x and V3.0 Immunizations
- V2.x Meaningful Use HL7 Implementation Guides including Electronic Reporting of Lab Results to Public Health and Immunization Messaging
- V2.x ADT

Help Desk resources include:
- Detailed FAQs (frequently asked questions)
- Knowledgebase of exclusive reference materials
- Moderated Q&A discussion forum

To access the HL7 Help Desk, be sure to sign into the HL7 website with your member username and login. The Help Desk is located at: https://healthlevelseven.desk.com/.

May Meeting

Over 420 attendees participated in our May Working Group meeting held in Phoenix, Arizona, May 4-9, 2014. Over 40 HL7 work groups convened meetings, 18 of which conducted co-chair elections. Attendees also took advantage of over 30 tutorials and three certification tests that week.

During the May WGM we also welcomed our new Chair of the HL7 Board, Stan Huff, MD, who returned to the chairmanship for his second term.
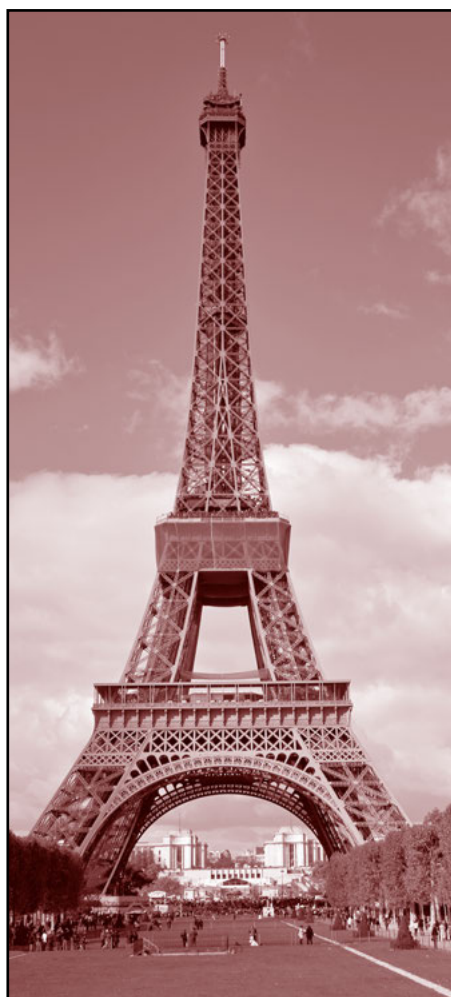
Meeting Sponsors

I am also pleased to recognize the following organizations that sponsored key components of our recent May Working Group meeting in Phoenix:
- AEGIS
- Beeler Consulting LLC
- Furore
- Gordon Point Informatics
- iNTERFACEWARE

The additional sponsorship support provided by these organizations con-

tributes heavily to HL7's meeting budget and is much appreciated.

28th Plenary Meeting

This year's Plenary meeting is focusing on big data analytics, privacy and ethics. The slate of speakers and topics being covered is quite impressive. Speakers confirmed to date include:

- Richard Platt, MD, Chair of the Department of Population Medicine, Harvard Pilgrim Health Care Institute, Principal Investigator, PCORI (Patient-Centered Outcomes Research Institute), National Patient Centered Clinical Research Network will discuss "Making Learning Healthcare a Standard(s) Activity"

- Zoi Kolitsi, PhD, Chief eHealth policy advisor, Informatics and Information Security Laboratory, Aristotelean University of Thessaloniki, Greece, will provide a presentation on "Data Protection and Innovation – Can We Strike a Balance?"

- Marc Overhage, MD, PhD, Chief Medical Informatics Officer, Siemens Healthcare will deliver the keynote presentation "JASON: A Man Wearing One Sandal?"

- Ken Goodman, PhD, FACMII, Chair of Biomedical Ethics, University of Miami will discuss "Interoperability is an Ethical Issue – and Failure to Achieve it is a Betrayal of Our Patients"

May Working Group Meeting sponsors with HL7 Chair, Stan Huff. Photo: Ken Rubin Photography

- Mike Jennings, Senior Director, Enterprise Architecture, Walgreens, will discuss "How Walgreens Leverages Information to Support Evolving Healthcare Models"

On Thursday, September 18 and Friday, September 19, HL7 will also be holding its first Payer Summit, designed exclusively with payers in mind. This two-day summit will feature industry speakers offering strategic direction and practical information on interoperability for healthcare payers, including hot topics such as ADT, mobile health, the regulatory environment and the HL7 FHIR® standard.

Benefactors and Gold Members

We are thrilled to have attracted the all time highest number of HL7 benefactors and supporters, who are listed on page 23. Their support of HL7 is very much needed and sincerely appreciated. We are pleased to recognize our benefactors in all of our HL7 newsletters, on the HL7 website, in all of our HL7 press releases, and at all of our HL7 working group meetings. A special thank you is extended to the list of firms that represent our 2014 HL7 benefactor and gold members

Organizational Member Firms

As listed on pages 23-25, HL7 is very proud to recognize the 546 organizations who are HL7 organizational member companies. We sincerely appreciate their ongoing support of HL7 via their organizational membership dues.

In Closing

I look forward to seeing many of you at our 28th Annual Plenary and Working Group Meeting in Chicago, Illinois this September 14-19. Until then, may you and your loved ones be blessed with good health, happiness and plenty of laughter.

Mark C. McDougall

Reflections on the
eHealth Forum 2014

Catherine Chronaki

By Catherine Chronaki, Secretary General, HL7 Foundation and Alexander Berler, Chair, HL7 Hellas

Give Health an E-Chance

"Give health an e-chance" was the theme at this year's premier eHealth event of the Euopean Union (EU)-presidency held in Athens, Greece in May. Despite the frail economy in many European countries, more than **1,278 participants from 38 countries and 150 speakers from around the globe** participated. Delegates gathered to present eHealth developments, share experiences, and form business alliances. The forum covered timely topics such as the European Silver Economy project, personalized and integrated care in the Horizon 2020 program, aging populations and chronic patients, and the activities of Action Groups and Reference Sites of the European Innovation Partnership on Active and Healthy Aging. The event included a session on the EU-US Memorandum of Understanding (MoU) on eHealth and the 4th EU-US Business Marketplace and Cooperation Assembly on interoperability and workforce skills. Other topics covered included patient empowerment, synergies, and the transformation of the traditional healthcare landscape and medical practice.

The event asserted the great expectations that eHealth and mobile health technologies will bring high quality care at sustainable cost, ensuring timely access for all citizens. 70 exhibitors participated from Europe and the US, including small to medium sized businesses (SMEs) and start-up companies embracing innovative business models. The EU Vice President and Commissioner for the Digital Agenda, Nellie Kroes, commented on Horizon 2020, the EU funding program that will be investing more than 1B Euro in ehealth over the next six years with the goal of increasing healthy life of Europeans by two years.

In her opening address, Ms. Kroes stressed that "Competition is global and needs to be fostered to make more jobs, because we need more jobs that are relevant to the situation of today."

In his opening address, EU Commissioner for Health, Tonio Borg, referenced the conference theme, stating that "Giving health an e-chance may actually give eHealth a chance to transform healthcare."

Commissioner Tonio Borg, "Give eHealth a chance to save health"

Standards and Interoperability

Standards and Interoperability were prominent on the agenda and HL7 had a strong presence workshops, presentations and demonstrations. HL7 CTO John Quinn was an invited speaker for the "Coordination of Standards" session on the eHealth Action plan, where he spoke HL7 International's active role in creating widely used standards and its support as a founding member of the Joint Initiative Council. In addition to HL7, the European Telecommunications Standards Institute (EETSI), the European Commission for Standardization (CEN), the World Health Organization (WHO), and the International Health Terminology Standards Development Organization (IHTSDO) participated in this session. The participation of these groups confirmed that

EU Vice President for the Digital Agenda Nellie Kroes and audience at the opening ceremony of the eHealth Forum

although standards development organizations have their differences, convergence, coordination, and cooperation are the only way forward.

With the support of the HL7 International Council, HL7 Hellas organized the HL7 Interoperability Pavilion. This booth was the second largest at the conference and thoroughly promoted the role of HL7 International and its affiliates as global enablers of interoperability in eHealth. HL7 affiliate information and their projects and achievements were presented on a large monitor in the center of the booth. Pamphlets on HL7 Hellas, the most recent HL7 in Europe newsletter, and information on HL7 projects in Europe were distributed to conference participants and country delegates. Trillium Bridge presented in collaboration with epSOS openNCP community and Gnomon Informatics patient-mediated exchange of patient summaries across the Atlantic. More than 10 HL7 Hellas members participated and demonstrated interoperability solutions with HL7 inside.

HL7 Interoperability Pavilion, the meeting place for interoperability at the eHealth Forum 2014

Paul Timmers, director of the Sustainable and Secure Society Directorate at DG Connect, presented the Green Paper on Health Apps highlighting the explosive growth of apps in the area of health and fitness. More than 96,000 apps target the needs of patients and health professionals. Timmers argued for short-term benefits and long-term perspective: "Mobile health apps can capture your activity but if disconnected from the health system at large you have issues because you cannot get to integrated healthcare treatment plans…There is a clear need for interoperability."

HL7 Fast Healthcare Interoperability Resources (FHIR®), the newest HL7 standard, aspires to serve the health apps and mobile health community. The **HL7 FHIR Workshop**, organized by HL7 International and HL7 Hellas, was chaired by Dr. Tassos Tagaris, director of standards at HL7 Hellas and co-chaired by Dr. Philip Scott, PhD, chair of HL7 UK. It featured presentations from John Quinn, Philip Scott

and Robert Worden. Quinn elaborated on the HL7 vision and outlook on FHIR. The workshop was well attended and generated a great deal of interest and questions.

Catherine Chronaki, E. Velidou, Dr. Alexander Berler, Dr. Tassos. Tagaris at the HL7 around the world poster, a centerpiece at the HL7 Interoperability Pavilion

Representatives from the **Trillium Bridge Project**, coordinated by the HL7 Foundation, presented progress on supporting the EU/US MoU Roadmap on eHealth cooperation with demonstrations, talks, and a workshop (For more information on this project, please see the article on pages 18-19).

The Integrating the Healthcare Enterprise (IHE) Symposium offered a practical perspective on how to accelerate standards-based interoperability implementation across eHealth projects, including best practice examples from a number of regional programs across Europe. This symposium was an opportunity to learn from eHealth interoperability experts from the industry, as well as testing experts and regional initiatives. Examples of successful interoperability implementations and analysis of the reasons for success and lessons learned were provided by Elena Vio from Venetto Region (Italy), Heiko Zimmerman from Luxembourg eSanté, and Dr. Leonidas Tzimis from Greece. Lapo Bertini, chair of IHE-Europe, presented on IHE's relevance to eHealth, and Karima Bourquard, director interoperability at IHE-Europe, presented IHE as an interoperability engine for Europe. Alexander Berler, chair

Dr. Alexander Berler presenting at the IHE symposium

Reflections on the eHealth Forum 2014, *continued from page 9*

of HL7 Hellas, commented on how IHE profiles can benefit eHealth projects in Greece and noted that eventually "Information will be liberated from silos and return where they belong to benefit the patient."

The Antilope South East Europe Summit provided decision makers with a unique opportunity to learn about and understand why such tools and associated policies are required and how HL7 standards are used to promote European-wide software certification processes. Summit attendees were provided details as to what is needed to promote and support interoperability in Greece and across South East Europe (For more information on this summit, please see the article on pages 16-17).

Christina Papanikolau at the closing ceremony of the eHealth Forum 2014

Throughout the eHealth Forum, the European Guideline for patient summaries had a prominent role. The **HL7 CDA® in Action Workshop** included different perspectives from HL7 affiliates, industry initiatives, and large integrated health systems. This joint event was organized by the Athens Medical Society (AMS), HL7 International and HL7 Hellas. The workshop's goal was to identify and bridge the viewpoints of healthcare professionals and eHealth communities, and reaffirm the added value of new standard-based e-services for clinical governance. The event included two parts: the first was held at the eHealth Forum 2014 in English and the second was held at the 40th Panhellenic Medical Congress in Greek. The use of CDA for clinical governance, cross border healthcare, health records, and patient summary applications focusing on reuse of standards and best practices was noted.

The first part held during the eHealth Forum was titled "Clinical Governance: the use of e-tools and CDA documents." The perspective and role of HL7 affiliates on accelerating adoption of patient summaries and CDA was

presented by representatives from HL7 Italy, Croatia, Romania, UK and Greece.

Experience and best practices from Kaiser Permanente in the US and e-prescription in Greece were shared by Jamie Ferguson, vice president of health IT strategy and policy and Dr. Haralampos Karanikas respectively. HL7 CTO John Quinn spoke on "The emerging role of eHealth standards and standards development in global economy," while Dr. Charalampos Xanthopoulakis, senior software designer at Philips Research presented the industry perspective, sharing his experience with the implementation of HL7 CDA Personal Health Monitoring Reports in "Interconnecting Patient Home Telehealth and the United Kingdom NHS."

The second part of the CDA in Action Workshop was held for the community of health professionals in the Panhellenic Medical Congress. It was a time of joy and reflection.

Christina Papanikolaou, secretary general of public health at the Hellenic Ministry of Health and chair of the organizing committee of the eHealth Forum 2014, summed up her conclusions on the forum: "Europe's goal is to make systems patient-centred; the eHealth Forum 2014 in Athens addressed major issues and showed the way forward for healthcare reform; cross-border provision of health and social care services; the value of innovation; and the development of the eHealth market. It was made perfectly clear that Europe must move forward under a common vision and agenda, in a coordinated way, so as to improve citizens' and patients' quality of life through the use of eHealth solutions and other digital innovations as enablers of change."

Helpful Links:
eHealth Forum: www.ehealth2014.org and www.hl7.org.gr
European Innovation Partnership for Healthy and Active Aging: http://ec.europa.eu/research/innovation-union/index_en.cfm?section = active-healthy-ageing
Horizon 2020 Program: http://ec.europa.eu/programmes/horizon2020/en

John Quinn at the HL7 CDA in Action Workshop

Andrea Ribick

HL7 Names Four New Advisory Council Members

By Andrea Ribick, HL7 Director of Communications

Health Level Seven® International (HL7®), the global authority for interoperability in healthcare information technology with members in 55 countries, today announced that HL7's Board of Directors has named the following individuals to serve a two-year term on the HL7 Advisory Council: Russell Branzell, FCHIME, CHCIO, president and CEO of the College of Healthcare Information Management Executives (CHIME); Andrew Roddam, vice president and global head of epidemiology at GlaxoSmithKline (GSK); Mary Ann Slack, director of the Center for Drug Evaluation

and Research at the Food and Drug Administration (FDA); and Don Sweete, CEO of the International Health Terminology Standards Development Organization (IHTSDO).

"We are pleased to welcome these individuals who bring their strategic leadership from a broad spectrum of stakeholders to the HL7 Advisory Council," said Charles Jaffe, MD, PhD, CEO of HL7. "Their diverse experience and expertise will contribute greatly to HL7's goal of achieving secure health IT interoperability and improving the quality of patient care across the globe."

Russell Branzell, FCHIME, CHCHIO, is the president and CEO of CHIME. He has held several leadership positions prior to joining CHIME. Most recently, he served as the CEO for the Colorado Health Medical Group. Branzell was also the vice president of information services and CIO for Poudre Valley Health System and the president and CEO of Innovation Enterprises (PVHS' for-profit IS entity), as well as the regional deputy CIO and executive director of information services for Sisters of Mercy Health System in St. Louis, Mo. Before his time in St. Louis, Branzell served on active duty in the United States Air Force. While on active duty, he served in numerous healthcare administration positions, including CIO for the Air Mobility Command Surgeon General's Office. Branzell earned an undergraduate degree in business administration specializing in human resource management and labor relations from the University of Texas. In addition, he earned a Master's degree in Aerospace Science from Embry-Riddle University with an emphasis in management.

Andrew Roddam, PhD, is the vice president and global head of epidemiology at GSK, where he leads a team responsible for providing population-based evidence on diseases and the effects of treatments. He earned his doctorate degree in statistics from the University of Oxford and completed a post-doctorate in infectious disease epidemiology. During his time at Oxford, he was a senior researcher at the Cancer Epidemiology Unit and a co-investigator on two large cohort studies, including leading the linkages of these population studies to routinely collected health data as well as leading an international collaborative project on hormonal risk factors for prostate cancer. Prior to his current role at GSK, he held a number of positions at Amgen, including the international head of the

center for observational research and the international head of epidemiology. He is a member of several professional societies and is very active in the area of the use of EHR data for clinical research.

Mary Ann Slack is the director of the Center for Drug Evaluation and Research at the Food and Drug Administration and has over 25 years of experience in technology and informatics in both the public and private sectors. Since joining FDA's Center for Drug Evaluation and Research (CDER) in 2003, Slack has led a number of initiatives implementing informatics solutions to business problems. She serves as an FDA representative to the International Conference on Harmonization (ICH) on several multidisciplinary working groups charged with establishing data exchange standards and structures in support of drug and biologic regulatory review. Slack currently leads the FDA CDER data standards development program and co-chairs FDA's data standards advisory board.

Don Sweete is the chief executive officer at IHTSDO and has been an active member of its Management Board since 2011. Prior to his current role, Sweete served as the executive regional director of the Atlantic region of Canada Health Infoway for over a decade. He has extensive experience in health services and health information technology, and has held executive positions in both the commercial and governmental sector for the past 32 years, including Siemens, Cerner, and Corporate Services Ministry of Health Nova Scotia.

The full list of HL7 Advisory Council members is available at: http://www.hl7.org/Special/committees/advisory.

The Early History of HL7, Part 3:
The Early HL7 Organization

Rene Spronk

By Rene Spronk, Senior Consultant and Trainer, Ringholm; Co-Chair, HL7 Application Implementation and Design Work Group

HL7 was founded in 1987. The early HL7 specifications were largely based on the StatLAN protocol, which in turn was largely based on a protocol defined by Don Simborg at USCF (see part 1 of this series).

Start of the HL7 Organization

In 1985, the board of Simborg Systems, a struggling start-up company that sold StatLAN, a LAN-based best of breed solution, decided that in order to have commercial success there needed to be a non-proprietary OSI Level 7 healthcare protocol.

"We weren't trying to be charitable," said Don Simborg. He continued, "We were thinking what was in the best interest of the company. So we made the decision to try and organize a standards organization in healthcare." It felt necessary to create a new organization because the focus of the other standardization efforts at the time was either fragmented, in a different direction, or with a different scope than that desired by Don Simborg. He was interested in creating standards for all of what would be required for an HIS composed of best of breed, whereas ASTM E31.11 (see part 2 of these series) was focused on lab data and then would expand.

A meeting was held March 29-31, 1987 with the aim to create a standards organization. Simborg Systems invited the four hospitals that were the first four StatLAN users: Moses Cone, Auburn Faith Community, Rochester General, and Hospital of the University of Pennsylvania (HUP). They also invited the vendors that had agreed to use the StatLAN protocol at those initial four hospitals - mostly vendors of departmental systems. Sam Schultz (CIO at HUP) was asked to be the non-commercial organizer.

 "I also wanted to invite some industry people who I felt could help promote this. Hence the later involvement of people like Clem McDonald, Ed Hammond and Mike Glickman, who all were very influential in the process", said Simborg. He continued, "I was a founding member of the American College of Medical Informatics (ACMI) in 1984

and thus was close to all the major players at that time. Co-founding members included Clem McDonald, Ed Hammond, Morrie Collen, Bruce Blum, Octo Barnett, Fred Jelovsek, Gio Wiederhold. They were all important people in helping to promote the standard. We were a small community at that time, and of course I engaged them in my efforts."

Sam Schultz, a very political person, was instrumental in getting the various parties (most of them vendors contracted by HUP) to join the meeting. The initial HL7 meeting had 75 attendees, who represented 20 vendors as well as a small number of hospitals and consulting organizations. In order to ensure that meeting would be taken seriously by the press, Sam Schultz arranged for about 45 of his colleagues to show up. The actual participants of the meeting numbered about 30, and not 75.

At the end of the first day there was a fair amount of despair amongst the meeting organizers about if this thing was going to go anywhere. A lot of people had talked yet nothing had coalesced into a set of ideas at that point. Simborg recalls, "People weren't excited about starting an organization, and wondered who is going to run it and how are we going to fund it. I remember worrying that the whole thing was going to fall apart. We had about 7 or 8 people that really were pushing this; some of them were vendors and others represented hospitals. We actually didn't have the term 'HL7' until the ad-hoc meeting that first night."

At the start of the second day Sam announced that a group had split off in the evening and had come up with some ideas. The idea that was presented was that a non-profit organization would be created, and that those who were interested would meet within a few months at the Simborg Systems offices.

The second meeting, where the first few chapters (2 and 3) were created, was a much smaller meeting consisting of about 20 attendees. Most of the content was based

on the StatLAN protocol specifications. The third meeting had about 8 attendees. HL7 Version 1 (more about versions 1/2.0/2.1 in the upcoming part 4 of these series) was published in October 1987.

Neutral Organization

"In the early years, HL7 looked like a Simborg Systems ploy," said Don Simborg. He stated that "It didn't appear to be a neutral body that was available to everybody. We really controlled HL7 in the early years. Wes Rishel and I probably were the main force behind it. A lot of the early people were all Simborg Systems related. That wasn't good for HL7." A conscious effort was made to try and pull back to allow HL7 to go on its own.

At that point, Simborg decided to bow out to encourage others to take over some of the leadership positions. He asked Ed Hammond to become the chair of HL7 in 1988; however, Hammond had just taken on some new work, and had to turn him down. Hammond did accept Simborg's request in 1989 and became the first non-Simborg Systems related HL7 chair. "Much of the world gives me credit as Father of HL7" according to Hammond. However, "I have always been careful to give Don the credit he deserves."

Marketing

HL7 held a trade-show interoperability demonstration at the August 1988 American Hospital Association (AHA) convention in New Orleans. The testing and validation process prior to the interoperability demonstration was hosted and coordinated by Andersen Consulting. They tested the connectivity of each interface as well as its functionality, and then all on an integrated basis before going live at a trade show. That work was the first of what has now become known as a connectathon. As such, HL7 predated IHE by a couple of years. Subsequently a demonstration involving 7 vendors was held at the HL7 Booth during the HIMSS meeting in February 1989 (in Anaheim, with a total of 1200 attendees). The demonstration was based on Version 2.0 and included ADT, pharmacy, laboratory, radiology, and accounting.

The HL7 marketing pitch in the early 1990s was primarily related to the cost of interfaces, which was around $100,000 prior to the introduction of HL7, and about $10,000 for HL7 interfaces. Saving money on interfaces appealed to the hospitals. It also appealed to the niche player vendors, as it was their way into the market place.

HL7 tried to leverage both. Hospitals were starting to require the vendors to support HL7 and HL7 gained a lot of credibility once it became an American National Standards Institute (ANSI) accredited standards development organization (SDO) in June of 1994.

Enterprise-oriented System Vendors

HL7's marketing pitch was successful to such a degree that the enterprise-oriented system vendors (a.k.a. the "big players") had to take notice. Not only were they losing quite a bit of systems interfacing revenue, both in terms of licenses as well as maintenance fees, but they also felt the increase in competition of the smaller departmental system vendors.

A significant number of enterprise-oriented vendors felt compelled to become a members of HL7 (in the 1989-91 time frame) in order to monitor HL7's activities and to ensure that HL7 stayed away from marketing 'best of breed' and rather focused purely on the development of interoperability standards instead. Early enterprise-oriented vendors to join HL7 included SMS, HBO, Health Data Sciences, Technicon Data Systems (TDS), and Phamis. SMS was the first enterprise-oriented system vendor to join HL7 around 1989. "SMS's primary motive for getting involved was the marketing challenge presented by HL7 and those promoting the best of breed concept," according to Mead Walker, who worked at SMS at the time. He stated, "Marketing people at SMS thought it necessary for us to become involved in HL7." Gary Dickinson said that his company, Health Data Sciences "Joined HL7 as a counter-balance to claims of 'plug and play' interoperability and 'best of breed' equivalence."

HL7 had come a long way since its inception in 1987. It had its first executive board retreat in 1990, and signed an administrative/management support contract in 1991 – the next steps in creating a mature standards development organization.

This is the third part of a series of articles about the early history of HL7. This article is an abridged version of a creative commons article available at http://bit.ly/1e7KScz – you are referred to the full article for references. See http://bit.ly/1njzICA for video interviews related to these series. Please let us know should you have additional information about the early history of HL7.

Training Without Traveling

By Sharon Chaplock, PhD, HL7 Director of Education

Sharon Chaplock, PhD

HL7's new education initiative offers virtual onsite training that brings remote team members together for learning and saves you money. Known as Virtual Classroom Training (VCT), this alternative to in-person onsite training provides instructor-led, customized training for your group in real time, online, and by expert instructors and practicing professionals experienced in the standards. VCT uses online instructional tools on GoToWebinar platform to engage your team with class lectures, exercises and demonstrations. This flexible training alternative enables teams to learn together even though individuals may be at different locations. Team members can interact with each other for collaborative learning without the time and expense of traveling to a common site. HL7 instructors engage students in an interactive environment where students are able to ask questions and collaborate in real time. This environment supports engaged learning through active participation and results in better comprehension. Should a student miss a scheduled class, recordings bring the absent team member up to speed quickly.

Following training sessions, instructors are available during online

Member Spotlight on Chris Millet

Chris Millet joined the HL7 community as a volunteer in 2012. He first heard about HL7 in graduate school, but became actively involved while working for the National Quality Forum (NQF). He is currently a co-chair of the Clinical Quality Information Work Group where he collaborates with other work groups to evolve the standards that impact quality measurement, reporting and improvement. Chris notes that he originally became involved with HL7 out of frustration, but has remained active in the organization as he now more fully understands the unique challenges to achieving interoperability and appreciates the dedication of the volunteers who commit an enormous amount of time and effort trying to improve the healthcare infrastructure.

Chris has worked at the Federal Reserve Bank of New York, IBM and NQF. He provided IT support to the banks Markets group and Security Group at the Federal Reserve and was an application developer and business analyst at IBM for clients such as the Department of Defense and Department of Human Services. At NQF, Chris led efforts to incorporate HL7 standards into NQF's work around evaluating measures represented using HL7's Health Quality Measure Format (HQMF), including their new pilot program that specifically catered to eMeasure evaluation. He was also involved in NQF's early work related to the Measure Authoring Tool, which helps users create HQMF documents; and 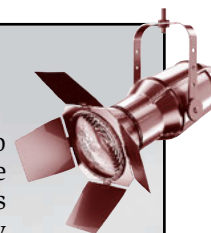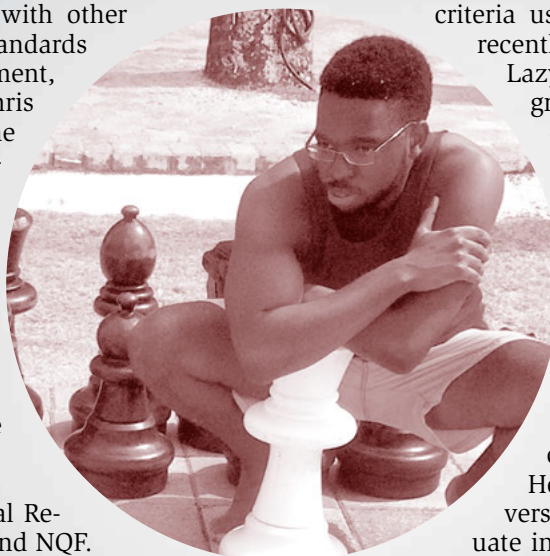the Quality Data Model, which tries to standardize criteria used in HQMF documents. Most recently, Chris founded the company Lazy. The goal of Lazy is to build great software that leverages standards such as HL7 to help solve real-world problems that will make peoples' lives easier in some small way.

Chris hails from Brooklyn, New York. His parents emigrated from Grenada in the West Indies. Both in personal and in business life, Chris promotes the more relaxed lifestyle of his family's Grenadian roots. He attended Carnegie Mellon University, obtaining both an undergraduate information systems and a graduate degree healthcare information systems management. He enjoys fitness activities such as basketball, running and yoga. An interesting fact is that he has even played basketball with two members of President Obama's cabinet. Chris has also enjoyed planning and hosting parties for which he donated the proceeds to charity. Finally, he admits he enjoys long walks on the beach and prefers rum, although he will accept other drinks as well.

Craig Gabron

Payer's Corner

HL7 ADT Messages in Support of Care Coordination

By Craig Gabron, Co-Chair, HL7 Attachments Work Group; Reimbursable Management, Blue Cross Blue Shield of South Carolina

Just imagine "John Patient" is diagnosed with type 2 diabetes. Over the weekend John experienced complications from his diabetes and was rushed to the emergency room. Care was administered and the emergency department provided a detailed list of instructions for John to follow, including a new prescription and a different dosage for one of his current medications. However, it turns out that John has a history of not following doctors' orders.

During this episode, John's primary care provider (PCP) was not notified of the emergency room visit and again John's wayward ways led him back to the emergency room 20 days later from complications due to diabetes.

There has to be a better way to coordinate care so all that all of John's caregivers can provide him the right care at the right time! This is where Health Level Seven's (HL7) ADT (Admission, Discharge and Transfer) messages come into play. Payers are discovering that ADT messages are

ubiquitous in hospital information systems and thousands of these messages are exchanged every day inside and outside of the hospital system. Armed with ADT messages, a payer can keep John's PCP in the loop with automated messaging, including alerts about updated medications, a patients state (admission, discharge, transfer) and updates of personal demographic information (such as patient's name, insurance, next of kin attending doctor, etc.). John's PCP can then schedule follow-up visits, update medications lists, help John understand his care plan, and ensure prescriptions are filled. With payers adopting HL7 ADT messages and supporting care coordination through automated alerts, patients like John are beginning to reap the rewards.

So how does this payer system of automated ADT messages work?

Healthcare providers are enrolled to participate in automated ADT messages and can choose the patients he or she wants be notified about.

When one of the listed patients experiences an event (admission, discharge, transfer), this triggers an ADT message from the facility to a central alerting system (payer).

The alerting system uses information contained within the HL7 ADT message (such as patient demographic data and provider information) to associate the patient with his/her doctor or caregiver.

The rules based alert system sends electronic notification about the patient's status, who should receive the alert, the format of the alert (pdf, text, etc.), and how to route the message to ensure it gets where it needs to go. As a result, John is doing much better today and is following his doctor's orders. His diabetes is under control thanks, in large part, to the adoption of HL7 ADT messaging automated alerts; a new tool in the arsenal of care coordination.

Training Without Traveling, *continued from page 14*

"office hours" through live Skype chats to answer follow-up questions and provide additional feedback. An online forum during VCT encourages students to post their comments and learn from each other through asynchronous discussions after class. Instructor travel and per diem costs of traditional onsite training are eliminated, and all training materials are provided online. Computer based certification testing (CBT) after the training can be arranged through local HOST testing centers or proctored online from the test-taker's laptop at their convenience. For more details

about CBT, visit the Certification page on the HL7 website: http://www.hl7.org/implement/certification.cfm.

Popular training on the standards includes the following courses:
- Introduction to Version 2
- Introduction to Version 3
- Introduction to Clinical Document Architecture
- Advanced Clinical Document Architecture
- Introduction to FHIR®
- Preparation for Specialist Certification in Version 2, Version 3 or Clinical Document Architecture

For details about fees, please visit the VCT page on the HL7 website at http://www.hl7.org/implement/virtualClassroomTraining.cfm.

VCT gives more options for training your team without sacrificing quality. With HL7's virtual training, expert instructors with experience in the standards are closer to you now than ever before. Contact Dr. Sharon Chaplock at Sharon@hl7.org to schedule your next Virtual Training Classroom event.

Report from the Antilope South East Europe Summit

By Nikos Kyriakoulakos, Board Member, HL7 Hellas; and Alex Berler, Chair HL7 Hellas

Nikos Kyriakoulakos

Alex Berler

Perceiving the importance of interoperability in eHealth and recognizing the obstacles deriving from the differences in national eHealth strategies across Europe, the European Commission launched the thematic network Antilope – Advancing eHealth Interoperability, in collaboration with various European organizations. The main goal of this network is to propose a framework for eHealth systems, with interoperability testing, quality labeling and certification as its main pillars. 10 regional summits were planned through Europe, with the support of international standardization bodies to achieve wide adoption of this framework throughout Europe. The purpose of these summits was to engage stakeholders from each region where they would exchange ideas and collaborate efficiently with the goal of evaluating an interoperability quality management system along with supportive test tools, quality labels and certificates for interoperable eHealth solutions.

The Antilope South East Europe sector comprised of Bulgaria, Cyprus, Greece, Romania and Turkey, participated in a summit on eHealth interoperability that took place during the eHealth Forum at the Megaron Athens International Conference Center in Athens, Greece on May 13, 2014. The Antilope Summit was organized by HL7 Hellas and was coordinated by the HL7 Hellas Chair Dr. Alexander Berler. The agenda of the summit focused on the key messages of Antilope, including quality management,

Dr. Alexander Berler, Chair of HL7 Hellas giving the welcoming address at the Antilope Summit for South East Europe.

tools for testing interoperability, and setting up labeling and certification. In addition, use cases from the European Interoperability Framework were also presented.

The summit opened with a welcome address by Dr. Alexander Berler that was immediately followed by an introduction to the Antilope project by Jos Devlies from EuroRec. His discussion focused on the adoption of standards and profiles for eHealth interoperability.

The attendees had the opportunity to observe variations in eHealth strategies of the participating European countries. This highlighted the different needs and backgrounds of each country and confirmed the need to move toward a common line for a regional-wide and European-wide interoperability framework in the near future.

Jos Devlies from Euro-Rec provided an overview of Antilope.

Mina Boubaki spoke on behalf of the Greek Ministry of Health about the Greek eHealth srategy under public consultation. During this talk, Boubaki outlined the importance of interoperability in the recent health reforms in Greece regarding existing infrastructures and constraints, especially in the e-prescription system. She also pointed to a national health information system in which a national eHealthcare interoperability framework will be adopted.

The eHealth strategy and initiatives in Cyprus were presented by Andriana Achilleos from the Cyprus Ministry of Health. This presentation highlighted experiences from the Tele-Prometheus and the Tele-Rehabilitation services.

Next, Gokce Banu Laleci Erturkmen from the Turkish eHealth community presented the healthcare information technology infrastructures in Turkey, focusing on the Saglik-Net and the Family Medicine Information System.

Dr. Rostislava Dimitrova, vice president of the Center of

Andriana Achilleos presented the eHealth strategy of Cyprus.

Report from the Antilope Summit *continued from page 15*

Gokce Banu Laleci Erturkmen presented health information technology infrastructures in Turkey.

eHealth and Innovation at the University of Sofia discussed existing eHealth deployment and future eHealth strategy in Bulgaria.

The president of the Prorec Romania member of EuroRec, Mircea Focsa, closed the presentations on nation-specific eHealth strategies, with an overview on the Romanian eHealth strategy including the Romanian Integrated HIS.

Mircea Focsa presented the eHealth Strategy of Romania.

The Antilope testing tools were presented by Milan Zoric from the European Telecommunications Standards Institute (ETSI). Zoric outlined the need for testing tools, alongside an introduction to existing testing tools in various testing tool categories. Overall, the Antilope Summit for South East Europe achieved its objective to provide its stakeholders with quality networking as well as a unique opportunity to learn about and understand why such tools and associated policies are required, and how they will support interoperability in each country and across Europe.

Morten Bruun – Rasmussen presented on the quality manual for interoperability testing, and examined the requirements for entities performing interoperability testing as well as the interoperability testing processes. The refinement of the European eHealth Interoperability Framework was the subject of the presentation given by Vincent van Pelt from the National Healthcare ICT Competence Centre Netherlands.

Karima Bourquard, director of interoperability at IHE – Europe discussed the quality label and certification processes and examined various functional models in detail.

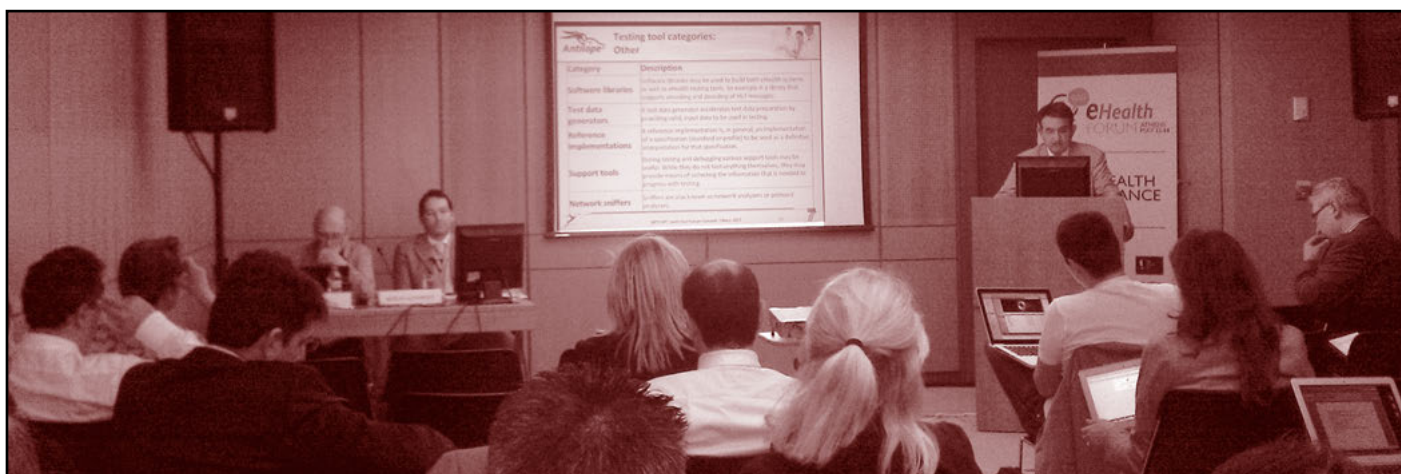*Dr. Rosti Dimitrova presented the eHealth Strategy of Bulgaria*

Judging from the reactions of delegates and the comments left in the evaluation questionnaires, the summit was successful and gave all the participants the chance for a constructive exchange of know-how and allowed them to bring key messages home and report back on the opportunity.

Links:

Presentations from the Antilope Summit can be downloaded at the following link: http://www.antilope-project.eu.

Karima Bourquard presented on Antilope quality labeling and certification processes.

Milan Zoric for the European Telecommunications Standards Institute (ETSI) presents on interoperability testing tools

An Update on Trillium Bridge– "Bridging Patient Summaries across the Atlantic"

Catherine Chronaki

By Catherine Chronaki, Secretary General HL7 Foundation, Coordinator Trillium Bridge Project

The Trillium Bridge project achieved three major milestones in Athens, Greece during the eHealth Forum 2014. First, the official release of Deliverable 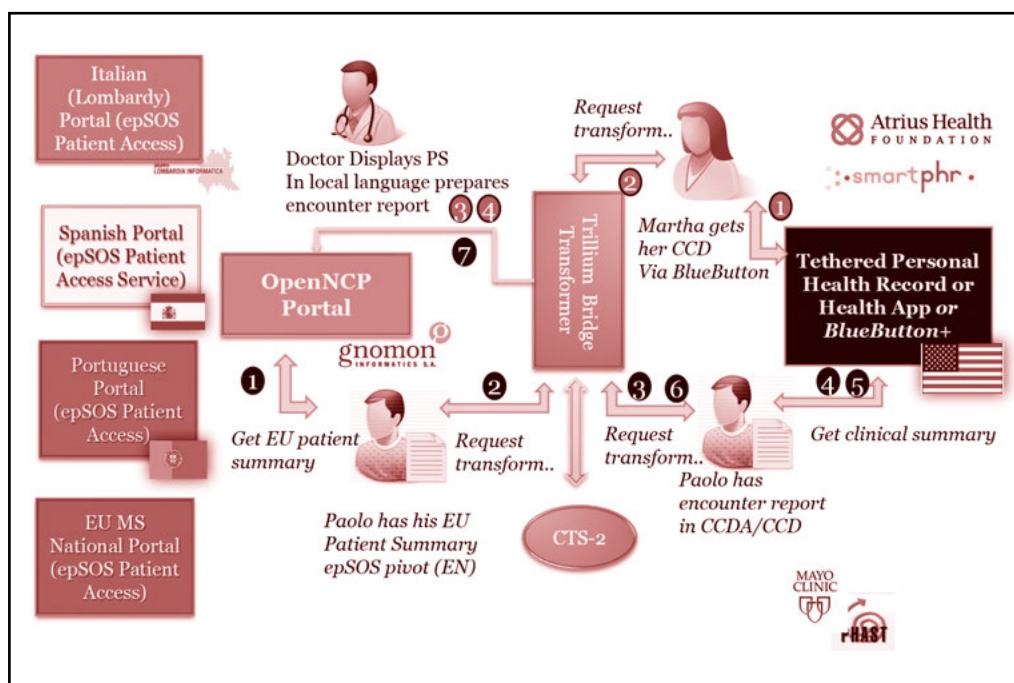D2.2 "Comparing Patient Summaries in the EU and US: Gap Analysis and Pilot Use Case Definition" was announced. This is now available on the Trillium Bridge website (www.trilliumbridge.eu).

The second milestone was reached when WP3 Interoperability Assets leaders, Ana Estelrich from Phast in France, and Harold Solbrig from the Mayo Clinic in the US, collaborated on a terminology service, which is now available in alpha version at http://extension.phast.fr/STS_UI/. This terminology service offers all the value sets in epSOS and CCDA®/CCD® as used in Meaningful Use Stage 2. It also offers applicable mappings among relevant value sets.

Lastly, in collaboration with the OpenNCP community, epSOS was extended to support the patient mediated exchange of patient summaries across the Atlantic. The OpenNCP community has taken over the responsibility of maintaining and extending the software for national contact points in open source.

Delegates visiting the HL7 Interoperability Pavillion as well as those that attended the EU/US MoU roadmap session at the eHealth Forum 2014 had the opportunity to meet Paolo, a retired Italian businessman who was robbed while visiting the US and lost his newly prescribed hypertension medication. Paolo and his US-based physician were able to access his patient summary through the Lombardia region's extended epSOS portal and review the specific medication as well as historically recorded vital signs. This allowed the physician to make an informed decision.

Patient mediated exchange of electronic health record summaries across the Atlantic

Members of the Trillium Bridge community were thrilled not only for these achievements but also for the future opportunities.

Deliverable 3.1: "Clinical models and terminology mappings: methodological approach and user guidance" was also met in mid-July and is now available on the Trillium Bridge website. By the end of August 2014, we also expect the first pilot implementation of the Trasformer, which will take a European Union patient summary and covert it in HL7 CCDA/CCD and vice versa. By that time, IHE Europe will also release the testing specifications.

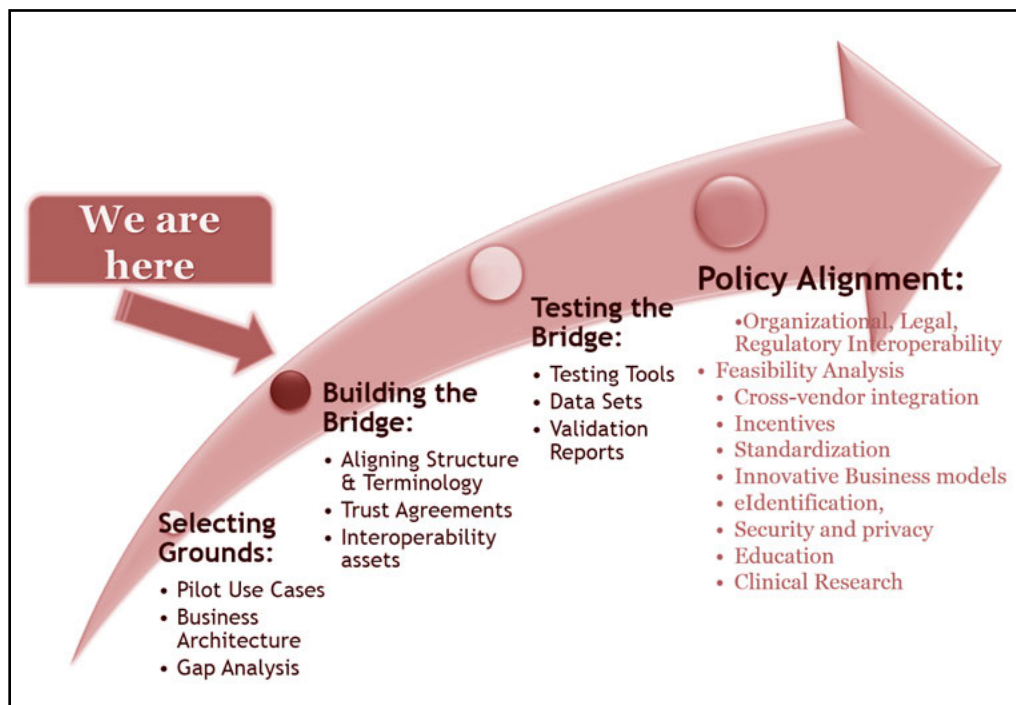*The epSOS OpenNCP Community in Athens during the eHealth Forum 2014*

On October 21-22, 2014 in Boston, MA, provider mediated exchange of patient summaries will be demonstrated in the context of the EU/US marketplace in collaboration with the ONC S&I Framework EHR WS. Kaiser Permanente from the US and eSante of Luxembourg from Europe, with support from the epSOS OpenNCP community and Healtheway, will revisit the scenario of Paolo, the retired businessman with hypertension as well as Martha, the US citizen who faints during a visit in Europe. In the scenario, Trillium Bridge plans to demonstrate the full use case: request, retrieval and display of the patient summary and submission of a healthcare encounter report (HCER) from the treating physician to the home physician of Paolo and Martha.

This exercise will no doubt offer valuable insights as HL7 moves toward a global standard for patient summaries. Come join us in Boston for the next milestone of Trillium Bridge! Details are available at http://www.masstech.org/eu-us-ehealth-marketplace-and-conference.

Helpful Links:

- Trillium Bridge website: www.trilliumbridge.eu

- epSOS OpenNCP commnity: https://openncp.atlassian.net/wiki/display/ncp/OpenNCP + Community + Home

- D2.2: "Comparing Patient Summaries in the EU and US: Gap Analysis and Pilot Use Case Definition" http://www.trilliumbridge.eu/repository/Deliverables/FP7-SA610756-D2 % 202-20140531_v13.pdf

- Presentations at the eHealth Forum: http://www.trilliumbridge.eu/index_file/Page499.htm

- Pilot Terminology Service for Trillium Bridge: http://extension.phast.fr/STS_UI/
- EU/US Marketplace, Boston Oct 21-22, 2014: http://www.masstech.org/eu-us-ehealth-marketplace-and-conference

The Trillium Bridge community has started building the bridge

Congratulations

To the following people who passed the HL7 Certification Exams

Certified HL7 Version 2.x Chapter 2 Control Specialist

March 2014
Sathish Yadlapalli
Shawn Ashcraft
John Freeman
Kelley McFarland
Santhosh Sunderrajan

April 2014
Alyson Goodwin
Sreejith P. Sukumaran
Barb Adams
Dwight Blubaugh, PhD
Jenny Couse
Scott Pettigrew
Stacey Potts
Chris Zander
Neela Jeyakumar
Chitra Seetaramaiah
Donna Watts
Bhargavi Yalavarti

May 2014
Jayalakshmi Pagadala
Sreedev Narayanan
Sahil Maken
Shane Bagley
Vincent Chung
Daniel Golson
Terry Rinck
Manoj Shaw
Sanket Solgama
Marco Demarmels
Cameron Gunderson
Kapil Dev Tejwani

June 2014
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Suresh Kumar Palli
Sugandhini G
Ramesh Krishnan B
Abhijit Purkayastha
Tushar Joshi
Pallavi Metuku
Arijit Roy
Namrata Janardhan Karkera
Indrajeet P Kohok
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Vinit Vasant Kabir
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Vimal Kumar Dhale
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Sagar Prakash Mhatre
Chaitanya Dynaneshwar Gholap
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Jaiee Adivarekar
Joyce DCosta
David Hunt
Alexander Coyle

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John Wiles
Maria Baker
Chris Schmidt
Julie Marulappa
Daniel Ellis
Stephen Sweriduk

Certified HL7 CDA Specialist

March 2014
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Ryan Brunswick
Manasa Chintapatla
Michael Germain
Jim Horner
Hema Patel
Vadim Polyakov
Prasenjit Satpathy
Varun Vedantham

April 2014
Timo Kaskinen
Abderrazek Boufahja
Heather Patrick

May 2014
Monica Secara
Melva Peters
Thierry Dart

June 2014
Marcin Pusz
Pankaj Pramod Patil
Rohini Ambure
Gautam Rajendra Bhatt
Kavitha Vaidhya

July 2014
Viveka Panwar
Thais García Sánchez
Verónica Martínez Núñez
Sergio Muñoz Sánchez
José Tamarit Dolz
Carmina Córcoles Olmo
Luis García Sevillano
Cristina Vázquez Llobregat
Gabriel Leiva Carrión

Certified HL7 Version 3 RIM Specialist

May 2014
Monica Secara
Andreea Pripoae
Cristi Potlog

June 2014
Sujata Sahay

July 2014
David Reche

Upcoming INTERNATIONAL EVENTS

HL7 28th Annual Plenary & Working Group meeting
Chicago, IL
September 14–19, 2014
For more information, please visit
http://www.HL7.org/events/
workgroupmeetings.cfm

eChallenges e-2014 Conference
Belfast, Ireland
September 14–19, 2014
For more information, please visit
http://www.echallenges.org/e2014/
ISO/TC 215 Health Informatics

European Telemedicine Conference
Rome, Italy
October 7–8, 2014
For more information, please visit
http://www.telemedicineconference.eu/

Health 2.0 Europe
London, England
November 10–12, 2014
For more information, please visit
http://www.health2con.com/events/
conferences/health-2-0-europe-2014/

mHealth Summit
Washington, DC
December 7–11, 2014
For more information, please visit
http://www.mhealthsummit.org/

HEALTHINFO 2015
Lisbon, Portugal
January 12–15, 2015
For more information, please visit
http://www.healthinf.biostec.org/

15th International HL7 Interoperability Conference
Prague, Czech Republic
February 9–11, 2015
For more information, please visit
http://ihic2015.hl7cr.eu/

HL7 May Working Group Meeting
Paris, France
May 10–15, 2015
For more information, please visit
http://HL7.org

MEDINFO 2015
São Paulo, Brazil
August 19–23, 2015
For more information, please visit
http://www.medinfo2015.org/

HL7 Benefactors
as of September 4, 2014

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PARTNERS HEALTHCARE SYSTEM

PHILIPS

Quest Diagnostics

health.mil
MHS MILITARY HEALTH SYSTEM | U.S. Department of Defense

Department of Veterans Affairs

Epic

HL7 Welcomes New Staff Members

Melanie Hilliard
Director of Marketing

Melanie Hilliard has more than 12 years of experience in the marketing and communications field. She most recently served as the director of marketing for the College of Healthcare Information Management Executives (CHIME) where she was responsible for overseeing the development and execution of the organization's marketing initiatives. Prior to holding that position, she was the marketing and promotions coordinator for Nestlé Nutrition. She also worked in various positions at TMP Worldwide, the world's leading recruitment advertising agency (and formerly part of Monster Worldwide).

Melanie holds a Master's in communication studies from California State University Northridge (CSUN) and a B.S. in communication studies from Northwestern University. She is currently an adjunct instructor in the e-marketing program at Washtenaw Community College.

Tamara Kamara
Director of Technical Services

Tamara Kamara joins HL7 with over 20 years in the information technology field. Most recently, she served as the director of information technology for the College of Health Information Management Executives (CHIME) for 15 years. In this role, she oversaw several website redesigns as well as upgrades to the association's membership management system.

Tamara also handled on-site audio/visual needs at the CIO Forums and provided technical support to staff throughout the year.

Tamara began her career in information technology as a computer programmer in the banking industry. She held programmer and webmaster positions in the automotive and retail industries as well as academia before joining CHIME in 1999.

In her free time, Tamara serves on the Board of Directors of The Park Players, the oldest community theater group in Detroit, and has served as the group's president. She also is the past president and board member of the North Rosedale Park Civic Association (a 501(c)3 non-profit) and is the technical administrator for the association.

Tamara holds a Bachelor of Science degree in Finance from Wayne State University in Detroit, Michigan.

Juba Wright
Director of Technical Publications

Juba Wright is a seasoned IT professional with over 13 years of experience in server and client-side programming, network administration and software development. He is proficient in multiple programming and scripting languages and brings strong software and problem analysis resolution skills to HL7. His previous experience includes work as a systems developer, software developer and mission-critical hardware and software support. In his limited free time, Juba enjoys boating, fishing and playing with his dog, Peanut.

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American Assoc. of Veterinary Lab Diagnosticians
American College of Physicians
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American Dental Association
American Health Information Management Association
American Immunization Registry Association (AIRA)
American Medical Association
American Psychiatric Association
American Society of Clinical Oncology
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Cabinet for Health and Family Services
California Correctional Health Services
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Centers for Medicare & Medicaid Services
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College of American Pathologists
College of Healthcare Information Mgmt. Executives
Colorado Regional Health Information Organization
Community Mental Health Center of Crawford County
Contra Costa County Health Services
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European Medicines Agency
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NAACCR
National Association of Dental Plans
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Pharmaceuticals & Medical Devices Agency
Phast
Primary Care Information Project, NYC Dept Health
Radiological Society of North America

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Payers

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Mobile Health
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HL7® FHIR® Institute & Meaningful Use Standards Implementation Workshop

Gain real-world HL7 knowledge
TODAY
that you can apply
TOMORROW

What is the HL7 FHIR® Institute?

The HL7 FHIR® Institute provides resources and training for the next generation standards framework created by HL7: Fast Health Interoperability Resources or FHIR®. The FHIR® Institute focuses on making this new standard easier to understand and implement across the healthcare community. Training at the FHIR Institute includes both face-to-face and virtual events and is targeted at software developers, implementers and executives. Learn about FHIR straight from the source at FHIR® Institute programs delivered by expert FHIR standard developers.

What is an Implementation Workshop?

An HL7 Implementation Workshop is a three-day interactive hands-ons event focused on HL7-specific topics such as Version 2, Clinical Document Architecture (CDA®), Quality Health Reporting Document Architecture (QRDA), and Health Quality Measure Format

(HQMF). It includes a combination of exercises and presentations to help attendees learn how to implement HL7 standards.

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 Implementation Workshop are:

- **Efficiency**
  Concentrated format provides maximum training with minimal time investment

- **Learn Today, Apply Tomorrow**
  A focused curriculum featuring real-world HL7 knowledge that you can apply immediately

- **Quality Education**
  High-quality training in a "small classroom" setting promotes more one-on-one learning

- **Superior Instructors**
  You'll get HL7 training straight from the source: Our instructors. They are not only HL7 experts; they are the people who help produce the HL7 standards

- **Certification Testing**
  Become HL7 Certified: HL7 is the sole source for HL7 certification testing, now offering testing on Version 2.7, Clinical Document Architecture, and Version 3 RIM

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

Upcoming Event in Portland, OR

November 10-13, 2014
HL7 FHIR Institute & Meaningful Use Standards Implementation Workshop
The Benson Hotel, Portland, OR

Upcoming WORKING GROUP MEETINGS

September 14 – 19, 2014
28th Annual Plenary
& Working Group Meeting
Hilton Chicago Hotel, Chicago, IL

January 18 – 23, 2015
Working Group Meeting
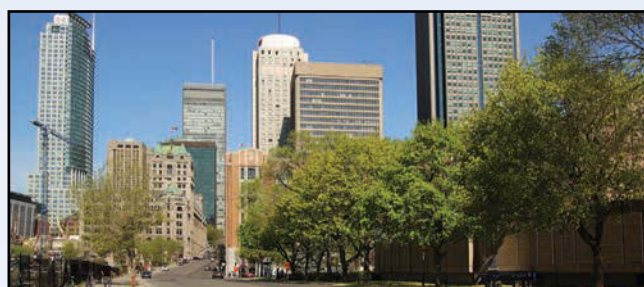Hyatt Regency on the Riverwalk
San Antonio, TX

May 10 – 15, 2015
Working Group Meeting
Hyatt Regency Paris –
Charles de Gaulle Hotel, Paris, France

October 4 – 9, 2015
29th Annual Plenary &
Working Group Meeting
Sheraton Atlanta Hotel, Atlanta, GA

January 10 – 16, 2016
Working Group Meeting
Hyatt Regency Orlando
Orlando, Florida

May 8 – 16, 2016
Working Group Meeting
Le Centre Sheraton
Montreal (Quebec), Canada

September 18 – 23, 2016
30th Annual Plenary &
Working Group Meeting
Hyatt Regency Baltimore, Baltimore, MD