

HL7[®]
International

THE OFFICIAL PUBLICATION
OF HEALTH LEVEL SEVEN[®] INTERNATIONAL

NEWS

© Health Level Seven, HL7, CDA, FHIR and the FHIR flame image are registered trademarks of Health Level Seven International, registered in the US Trademark Office.

Healthcare Information Management on HL7 FHIR

Blazing a Path for Digital Clinical
Research Using HL7 FHIR[®]

HL7[®] Launches FHIR[®]
Accelerator Program

Point-of-Care Enabled
Precision Medicine
Service with GACS

HL7[®] FHIR[®]

In this Issue

Update from Headquarters2

Process Points by PIC6

Neither a Sprint nor a Marathon.....8

Upcoming International Events.....9

ONC Grant Funded Project Updates.....10

HL7 Welcomes New Members.....11

Troubleshooting Co-Chair Election Problems.12

Blazing a Path for Digital Clinical Research
Using HL7 FHIR® 14

HL7* Launches FHIR* Accelerator Program.16

Małopolska Medical Information System..... 20

HL7 Standards Approved by ANSI, Since
September 201822

Invitation to Warsaw for IHIC 201923

Success with Telemedicine for Pregnant
Women with Complicated Pregnancies 24

Point-of-Care Enabled Precision
Medicine Service with GACS26

Benefactors29

Organizational Members30

2019 Technical Steering Committee Members33

Steering Divisions.....33

HL7 Work Group Co-Chairs.....34

HL7 Work Group Facilitators38

HL7 Work Group Facilitators39

Affiliate Contacts 40

2019 HL7 Staff 41

2019 HL7 Board of Directors 42

Upcoming HL7 Meetings..... 44

Update from Headquarters



By Mark McDougall,
HL7 Executive Director

HIMSS19 Became Known as “HIMSS on FHIR”

HL7 has exhibited each year at the annual conference of the Healthcare Information and Management Systems Society (HIMSS) for 30 years. This year’s HIMSS conference convened in Orlando, Florida during the week of February 11.

The opening keynote presentation at the HIMSS conference took place on Tuesday, February 12 and featured a panel of industry leaders who quickly articulated their support of HL7 Fast Healthcare Interoperability Resources (FHIR®).

Seema Verma, Administrator of the Centers for Medicare & Medicaid Services, highlighted the proposed rules that were released one day earlier on February 11, 2019. HL7 and its standards—such as FHIR—are central to these proposed rules. For example, *HL7 FHIR would be required as the standard for supporting all APIs under the ONC’s proposal.*



The HIMSS Opening Kenote Panel

“The embrace of (HL7) FHIR APIs means that we’re not going to have a Betamax-VHS fight in healthcare,” said Aneesh Chopra, President of CareJourney and the first CTO of the United States.

Comments like these quickly led to the convention becoming known as “HIMSS on FHIR.”

Dedicated Volunteers

For decades HL7 has been blessed with incredibly dedicated volunteers and their support for the HL7 booth at HIMSS is no exception. I wish to express our appreciation and sincere thanks to the dozens of individuals who volunteered to staff our booth and/or make presentations in our HL7 booth at the HIMSS convention as listed below. This year’s MVP award goes to Mary Kay McDaniel who provided the most hours of booth duty.

- | | | |
|---------------------|---------------------|----------------------|
| James Agnew | Michael Gould | Patrick Murta |
| Calvin Beebe | Grahame Grieve | Lisa Nelson |
| Paula Braun | Michael Hansen, PhD | Craig Newman |
| Mark Braunstein, MD | Eric Heflin | Viet Nguyen, MD |
| Michael Brody, DPM | Chuck Jaffe, MD PhD | Philip Parker |
| Hans Buitendijk | Roman Jahnke | Julie Rockey |
| Janet Campbell | Robert Jenders, MD | Nikolai Ryzhikov |
| Chris Carr | Jocelyn Keegan | Kanwarpreet Sethi |
| Patrick Combes | Wayne Kubick | Mark Schrimshire |
| Durwin Day | Russ Leftwich, MD | Howard Strasberg, MD |
| Dave deBronkart | Carol Macumber | Micky Tripathi |
| Gay Dolin | Josh Mandel, MD | Isaac Vetter |
| Richard Esmond | Susan Matney, PhD | Grant Wood |
| Howard Follis, MD | David McCallie, MD | Pele Yu |
| Dan Gottlieb | Mary Kay McDaniel | |

HL7 News

is the official publication of

Health Level Seven International

3300 Washtenaw Avenue, Suite 227
Ann Arbor, MI 48104-4261 USA
Phone: +1 (734) 677-7777
Fax: +1 (734) 6777-6622
www.HL7.org

Mark McDougall, *Publisher*
Andrea Ribick, *Managing Editor*
Karen Van Hentenryck, *Technical Editor*
Kai Heitmann, *Photographer*

HL7 Exhibit at HIMSS

HL7's Director of Communications, Andrea Ribick, once again was exceptional at developing an attractive and functional booth for HL7 and producing 27 presentations on HL7 standards and relevant topics. Most of the presentations attracted crowds that filled the theater area and were standing room only. Presentations that attracted the most attendees were on:



Andrea Ribick

- FHIR presentations (7)
- Da Vinci Project
- Argonaut Project
- CDS Hooks



In addition to presentations in the HL7 Exhibit, HL7 was also well represented at other HIMSS Sessions.



Above: Josh Mandel, MD, discusses CDS Hooks and HL7 FHIR to a standing-room only crowd at HIMSS19.



Second HL7 FHIR DevDays Event in the US will be on the Microsoft Campus

We are pleased to announce that our next HL7 FHIR DevDays event will occur June 10-12, 2019 at the Microsoft Conference Center in Redmond, Washington. Given the tremendous interest in HL7 FHIR during the HIMSS conference, along with the ONC's proposed rules requiring it as the standard for supporting all APIs, we anticipate that the June DevDays will once again sell out.

HL7 FHIR DevDays offers focused hackathons, 102 tutorials, six keynotes and plenty of networking opportunities. Experts from around the world will instruct, guide and discuss further improvement of the HL7 FHIR standard. Another valuable component of the DevDays event is that we provide a work room with over 30 tables organized by topic and supported by subject matter experts.

This event offers health IT professionals the chance to learn about FHIR in a collaborative environment. The DevDays pillars are education, sharing of ideas and networking, which create a unique opportunity to work with the specification surrounded by others doing the same thing, along with experts to answer any questions.



DevDays attendees will also enjoy an incredible outing to the Museum of Pop Culture (MoPop) in Seattle that features dozens of one of a kind exhibits that will certainly be a night to remember.

As a reminder, our June 2018 FHIR DevDays event in Boston sold out and over 100 were placed on a waiting list that were not able to attend. This year's meeting space is certainly larger, but we encourage you to register early to ensure you will be able to join the largest FHIR event in the US. For general information on the program and to register, please visit:

<http://www.hl7.org/events/fhir/devdays/2019/>

For program content details, please visit:

<https://www.devdays.com/us/>

Board Changes

As previously announced, we are pleased to welcome three new directors of the HL7 Board of Directors each serving two-year terms: Kensaku Kawamoto, MD; Janet Marchibroda; and Diego Kaminker. Melva Peters has also started a two-year term as the Secretary of the Board, and Walter Suarez, MD, started a four-year term that includes Chair-elect (or Vice Chair) for 2019, Board Chair for 2020-21, and Past Chair (or Vice Chair) for 2022.

During the January WGM, Board Chair, Calvin Beebe, welcomed the new members of the Board of Directors and also recognized the exceptional contributions over many years from these outgoing Board members whose terms concluded December 31, 2018:



Pat Van Dyke



Hans Buitendijk



Frank Oemig, PhD

We look forward to working with the new Board members along with the entire 2019 HL7 Board of Directors that are listed on page 42. On behalf of the entire HL7 organization, I thank each member of the HL7 Board for their ongoing leadership, contributions and dedication to HL7.



2019 HL7 International Board of Directors

January WGM and Payer Summit

We are pleased to report that 600 attendees participated in our January Working Group Meeting activities held in San Antonio, Texas January 12-18, 2019, at the Hyatt Regency San Antonio Riverwalk Hotel. Over 50 HL7 work groups met in San Antonio, of which 18 conducted co-chair elections. Attendees also took advantage of 26 tutorials that week, as well as the FHIR Connectathon and our annual Payer Summit—both of which were very well attended.

Benefactors and Gold Members

We are very thankful for the organizations for their ongoing support of HL7 through their membership at the HL7 benefactors and gold member levels, who are listed on page 30. 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 and at all of our HL7 working group meetings. A special thank you is extended to the list of firms that represent our 2019 HL7 benefactors and gold members.

Organizational Member Firms

HL7 is proud of the impressive list of HL7 organizational member companies listed on pages 30-32. We appreciate their ongoing support of HL7 via their organizational membership dues.

In Closing from the Home Front

While our oldest son is a mechanical engineer working at Bell Helicopter, our youngest will soon graduate from college and start working for a software vendor. Of course, we are very proud of both sons. However, I also have mixed feelings about officially becoming “empty nesters.” The last 25 years have truly flown by so quickly. May you and your loved ones be blessed with the invaluable skill and discipline to smell the roses and enjoy each and every day.

Mark E. McDougall

Meeting Sponsors

I am also pleased to recognize the following organizations that sponsored key components of our January 2019 Working Group Meeting in San Antonio:

WGM Sponsors

- AEGIS
- Corepoint Health
- INTERFACEWARE

Payer Summit Sponsors

- HULFT
- Virence
- Edifecs
- HealthLX
- Juxly
- Lexigram



The sponsorship support provided by these organizations is much appreciated.

Process Points by PIC

Getting the Most from the 80-20 Rule

One of the core tenets underpinning the HL7 Fast Healthcare Interoperability Resources (FHIR®) specification and the culture of our FHIR community is the so-called “80-20 Rule.” However, it isn’t a rule at all, but rather a guideline (and not even part of the formal documentation). How that guideline is applied in practice has significant implications to the standard and the community. Let’s take a few moments to explore this in a bit more detail, both to understand the context and how to best use this tool.

Part of the power in the HL7 FHIR standard draws upon long experiences from HL7 Version 3 (V3) work, which attempted to fully specify every nuance within the health domain. What we collectively learned was that such approaches were impractical and unsustainable, as there were countless exceptions to be managed and complexities to be addressed.

From this experience, when FHIR was conceived, the intention was established early to very deliberately address the core need, and leave disagreements, as well as nuanced and organizationally or geopolitically-specific requirements outside of the core specification. In addition, new and advanced use cases that do not yet have community endorsement can be trialed before coming forward for wider endorsement.

To complement the 80% “coverage” within the core specification, we defined an inherent extension mechanism to allow for requirements beyond those catered to by the standard to be specified and formalized. In this way, HL7 FHIR was “more implementable” and developer-friendly than V3 had been, yet still allowed for those exceptions and organizational or regional considerations to be addressed without violating the standard.

The result has been broad support and marketplace adoption.

So, what then is the problem?

Problems with the 80-20 Rule

There are varying interpretations about how the 80-20 rule is intended to be applied, which can result in disenfranchisement of HL7 stakeholders and lessened utility of the standard. Let’s dispel some misconceptions.

The “80-20” Rule is not a rule; it is a guideline.

The intention of the guideline is to home in on areas of broad agreement and support, and to include those within the core standard. In so doing, some deliberate decisions are made about content that varies among implementations. What implementations have implemented is an important input into this process since it measures what is real; however, it is not the only input.

The “80-20” Rule is about requirements, not clinical cases. The guideline says that we look for requirements “where 80% of implementations support a requirement or approach.” This is inherently qualitative as it is not assessed scientifically, but it does convey an important intent. It does not mean that 80% of attendees vote for a proposal. Further, it does not mean that 80% of organizations will agree to a proposal nor that 80% of data instances will meet this requirement.

Our work group isn’t sure whether a requirement falls within the 80% or not. What should we do?

Start by looking at other existing specifications. Finding elements that are common across other specifications is a good indicator of common use, making the candidate a more likely part of the 80%. It is also beneficial to consult the implementer community, both through work group meetings and through <http://chat.fhir.org>.

If there’s continued uncertainty, the community best-practice is to define a standard extension and monitor HL7 FHIR Connectathons as well as early implementations for adoption patterns that would indicate promotion of the extension into the core specification.

I have a critical requirement; therefore, it should be part of the 80%. HL7 FHIR seeks to strike a balance between addressing the needs of systems implementers and pragmatic interoperability concerns while meeting health and healthcare business functional needs. There will be some critical requirements that will fall outside of the 80%, thus affirming the need for extensions. If a critical requirement is not widely implemented, it should be subject to considerable review as to the circumstance (e.g., newly documented safety concerns/recommendations, for instance). Critical requirements that are broadly accepted and recognized should be addressed in the core standard.

A decision has been made about something being excluded from the core specification. How do we revisit that? We need to strike a balance between moving work forward (not constantly revisiting decisions already made) and being judicious and thoughtful about our work and continuous improvement. While immediately revisiting a decision is probably not appropriate, a periodic check-in on older decisions may be warranted, as market situations change, and needs evolve. For example, something that was a fringe use case a year ago may evolve into a mainstream need. When revisiting decisions, committees need to follow procedures for re-opening issues, as documented in their decision-making practices (DMPs).

Consideration should also be made as to the potential/likely impact on implementers, and whether such changes would be substantive. For instance, if the community has already standardized the use of an extension, they may prefer to retain that implementation mechanism rather than shift to a core element even if adoption patterns would justify the change. Implementer sentiment will be determined following the usual process for substantive change for any artifacts that have a maturity level of four or higher.

Note: Maintaining and curating a backlog of issues will allow for better identification and management of these needs as well as serve as indicators for when to revisit historical decisions. Work groups that feel that more implementation experience or time to measure adoption patterns is necessary before re-evaluating a decision can mark an issue as deferred. Such

items will automatically come up for review each time there's a new release of the specification.

Something's been included in the core specification, but I don't think it meets the 80% 'rule'. Can that be changed? Just as it's possible to move elements previously designated as extensions into the core specification, it's also possible to move elements out. Concerns about the inclusion of an element should be based on a belief about the lack of industry consensus and adoption rather than the behavior of any specific system or environment. Also, once a resource has gone normative, elements won't be removed from core.

I am not sure my work group chair is fairly applying the 80-20 rule. What should I do? There are several potential courses of action open to you. We recommend discussing the matter with the presiding chair, or other work group co-chairs. You may approach the FHIR Management Group or any of its members to request an independent assessment or raise the matter to the Process Improvement Committee to advocate on your behalf. Work groups need to strive for transparency and consistency around these rules, and any review will consider what process was engaged in when deciding not to include something in the core specification. Change proposals should specifically document pertinent facts considered when making the decision. ■

* * * * *

Note: This process point has been brought to you courtesy of the HL7 Process Improvement Committee. Our role is to help keep HL7 working smoothly, or to advocate on behalf of the membership to help address issues and concerns that are raised. We are available at working group meetings, or at pic@lists.hl7.org.

Special thanks to Grahame Grieve for his assistance and contribution to this article.

We encourage questions and comments:

By email to: pic@lists.hl7.org

or by post to our Confluence site:
<https://confluence.hl7.org/display/PIC/WorkGroup+Home>



Tooling Update

Neither a Sprint nor a Marathon



By Wayne Kubick, CTO, HL7 International

Our ongoing tooling journey at HL7 continues, neither as a sprint nor a marathon. For us, it's really more like an odyssey—an ongoing journey where there is always something more to be done, another path to explore, and a final destination (retirement, for example) seems far out of reach. In the case of HL7 tooling, a fair number of tooling retirements are well overdue.

Despite the wait, it's gratifying to see when tangible progress is actually achieved. On the Confluence front, we're in the home stretch of phase 1 of the rollout, though there's a whole new course to pursue just around the bend. We now have all work groups on Confluence (!) and have also migrated many more projects, committees and collaborations. New functions and help features in Confluence (including a major facelift for confluence.hl7.org) are being added regularly, and you can keep up with these by checking the CTO Tooling Update page. This enabling platform is already unleashing many new opportunities within the HL7 community. Our next target is to work toward optimizing our processes with online forms and workflow. The online project scope statement (PSS) pilot is now underway and will give us an opportunity to speed up reviews

and approvals as well as make new projects more visible to the community in the hope we can avoid last minute catchups.

Having 1-click access to forms will help enormously, but we also need to broaden our thinking. For example, we want all project leads to recognize that it's important to declare the intention to begin a new project at the earliest stages rather than just before ballot. We need to see a more streamlined process to announce a new project at the earliest stage in order to allow those who want or need to participate to have the opportunity to jump in as well as to identify potential problems or risks before too much time is sunk navigating blind alleys. Because the Notification of Intent to Ballot (NIB) deadline is always too late. Early transparency leveraging the wisdom of crowds is critical to the operation of a healthy HL7 community.

This brings our focus on another critical destination in our journey—making each of these new collaboration tools excel as a single source of truth. For Confluence, this will encompass not just meeting agendas and minutes, but also provide quick and easy access to all the information the committee needs to sail through the HL7 processes, including a new online handbook, precepts, TSC guidance, forms and FAQs all one click away. Like the rest of our move, it means a search and destroy operation to remove all redundant, obsolete or inaccurate versions that can generate so much confusion and frustration. We want a simpler, leaner, more shipshape organization carrying us on this journey.

For JIRA, we're beginning to implement solutions based on JIRA workflow, with Unified Terminology Governance process (UTG) entering a pilot stage with

a goal to replace harmonization within a year, and for online forms like the PSS. The Fast Healthcare Interoperability Resources (FHIR®) community is already migrating issue tracking to the more robust JIRA environment, recognizing that building comfort and familiarity with JIRA is a useful prerequisite to making the transition to JIRA balloting. We still expect to begin balloting in JIRA later this year once we complete our system testing. Also, as mentioned previously, we'll be using JIRA and Confluence to replace many other feedback, FAQ and support systems.

Another priority of the tooling roadmap is web publishing on microsites, which will become increasingly common in the future for other standards in addition to FHIR and Clinical Quality Language (CQL). Current efforts are under way to publish CDS-Hooks, Clinical Document

Architecture (CDA®), Consolidated CDA (C-CDA), UTG terminologies and even Version 2 as web pages, among many others.

A less visible but critically important effort has been led by our Webmaster, David Johnson, on moving HL7 systems to the Cloud. This effort has been made possible through the support of Amazon Web Services. This increases reliability, scalability and performance for the basic activities of HL7, just as the support we've gotten from Google Cloud has achieved similar benefits in hosting FHIR servers. These advances, like so many, are made possible due to the generous support of HL7 members.

Making the Switch

Some have asked about whether we plan to sunset GForge and MediaWiki. Recognizing how difficult it is to migrate decades of content, we don't have plans to sunset either of these tools in 2019.

However, moving forward, we would prefer all new committee content to be created on Confluence instead of MediaWiki. Once the dust settles in moving from Tracker to JIRA later this year, we'll be encouraging all work groups to forbear from creating new content in GForge.

Upcoming Destinations

Meanwhile, we're continuing to move along a new series of projects to improve our tooling for standards development, with the help of ongoing funding support from the US Office of the National Coordinator for Health IT (ONC). Projects to re-engineer FHIR publishing and replace the ballot systems are already underway. We will continue to issue new requests for proposals (RFPs) for assistance from the community through the contractwork@lists.hl7.org listserv. The journey continues, and glad to have you all along on the ride. ■

Upcoming International Events

May 26-29, 2019 e-Health Canada 2019	www.e-healthconference.com Toronto, Canada	September 12, 2019 Swiss eHealth Summit 2019	www.ehealthsummit.ch Bern, Switzerland
June 10-12, 2019 HL7 FHIR DevDays	www.fhirdevdays.com/ Redmond, Washington	October 7-10, 2019 HIMSS AsisaPac19	www.himssasiapacconference.org Bangkok, Thailand
July 16-17, 2019 Australia eHealth Summit	www.himssasiapac.org/events/australia-ehealth-summit Sydney, Australia	October 23-24, 2019 IHC 2019	www.ihic.info/ Warsaw, Poland
August 12-14, 2019 HIC 2019	www.hisa.org.au/hic/ Melbourne, Australia	February 1-7, 2020 HL7 February International Conference & Working Group Meeting	www.HL7.org Sydney, Australia
August 26-30, 2019 MedInfo 2019	www.medinfo-lyon.org/en Lyon, France		

News from the HL7 Project Management Office

ONC Grant Funded Project Updates



By Dave Hamill,
Director, HL7 Project
Management Office

Confluence/Jira and the Project Scope Statement (PSS)

Continuous improvement is happening for the Project Scope Statement within Confluence. The initial PSS template has been replaced by a Confluence ‘form’. This replaces the existing template made from tables with a form containing dropdowns and checkboxes (both of which are dynamic) meaning, based on the information entered, the form will add or remove areas of the PSS. Logic has also been added to ensure required fields/information are provided when necessary.

The PSS review/approval workflow has been piloting since March. A centralized overview for each PSS is available in Confluence and includes the progress of approval, involved work groups, and links to the applicable Jira workflow. It can be viewed at <https://confluence.hl7.org/display/PSS/Project+Scope+Statement>.

The Jira workflow systematically alerts necessary groups that a project has been submitted to them for review. The group can approve, reject or request additional information from the project facilitator. Additionally, the workflow alerts the PMO of any stagnant review requests thus insuring a PSS proceeds smoothly and quickly through all the required approvals.

ONC Grant Project Updates

Work continued on projects funded by the ONC’s \$1,360,000 extension of the grant for

Maturing C-CDA and FHIR Standards. As of Q1, 2019, efforts underway included the following:

1. Piloting the Unified Terminology Governance (UTG) process and tooling
2. Flat FHIR (Bulk Data & Push)
3. Migrating FHIR issue/project tracking and ballot reconciliation to Jira
4. Provide a coordinator to support FHIR implementation guide (IG) publication
5. Support FHIR Connectathons by providing an administrator
6. HL7 FHIR Product Director support
7. Compare IPS & Argonaut US Core Implementation Guides
8. US Core Ballot Reconciliation Support
9. Create additional FHIR education
10. Continuing C-CDA Implementation-A-Thons (IAT) as tracks within FHIR Connectathons
11. Conduct a virtual FHIR Connectathon focusing on the Health Care Directory

Details regarding each project are as follows:

Unified Terminology Governance

The Unified HL7 Terminology Governance (UTG) Pilot project will develop a working demonstration pilot for UTG-based terminology maintenance system. It will also conduct beta testing and prepare for production in 2019, where UTG will replace Harmonization.

Flat FHIR

Flat FHIR (Bulk Data & Push) will ballot the FHIR Bulk Data Implementation Guide (IG) in HL7’s 2019 May ballot cycle. It will also develop a test suite and utility to verify vendor compliance with the bulk data spec Flat FHIR format, design a Bulk Data import approach, and maintain reference implementation by adding performance monitoring and user/traffic management.

FHIR Jira Ballot Process & Tooling Project

Work continued on the Improving the FHIR JIRA Ballot Process & Tooling project, including establishing how best to get information to participants without overwhelming them. It also included creating dashboards that allow users to quickly see relevant information, documenting the JIRA ballot process and completing and testing the MIF conversion process.

FHIR IG Publication Coordinator

The FHIR Implementation Guide (IG) Publication Coordinator role was created. Responsibilities will include monitoring the FHIR IG publishing and balloting processes, facilitating review/approval of the IGs that will be published in a given ballot cycle, and providing educational materials on processes related to the publication and balloting of IGs.

FHIR Connectathon Administrator

Funding for a FHIR Connectathon Administrator continued. This position was created to support the growing needs of HL7's FHIR Connectathons. The primary objective of the administrator is to maximize the participant's experiences and outcomes at the FHIR Connectathon. Responsibilities of the FHIR Connectathon Administrator include preparing a FHIR Connectathon communication plan, a pre-connectathon and post-connectathon survey; an orientation package for all track leads and an event report.

HL7 FHIR Product Director Support

Support for the HL7 FHIR Product Director continued in order to provide increased administrative support for standards development, publication and maintenance to facilitate the release of each new version of the FHIR core specification work as well as with other key FHIR subject matter experts to implement specific improvements for long-term, sustainable FHIR processes and tools.

Compare IPS & Argonaut US Core Implementation Guides

The Compare IPS & Argonaut US Core Implementation Guides project performed a comparison between the International Patient Summary and the Argonaut / US Core Implementation Guides. The primary deliverables were an HL7 white paper, ready for publication, containing a narrative description of the similarities and main differences of the two guides along with a detailed list of the differences in terms of FHIR resources used, required elements, vocabularies, constraints and REST interactions and operations.

*US Core Ballot**Reconciliation Support*

The US Core Ballot Reconciliation Support project provided support for reconciliation and publication of the US Core Implementation Guide, based on FHIR Release 4 (R4), which was balloted in the January 2019 ballot cycle. That ballot added support for clinical notes, fixed errata logged since publication of release 3, and upgraded all the resources to support the FHIR R4 release.

Additional FHIR Education

Creating additional FHIR education will result in webinars and other learning material targeted for federal government project/program managers leading HL7 related projects. The deliverables will provide guidance on selection of FHIR releases, implementation guides and profiles to be used within projects.

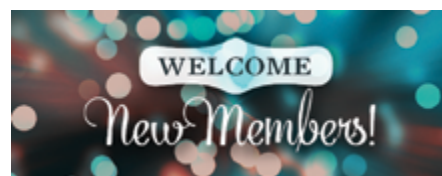
C-CDA Impmentation-A-Thons

January's C-CDA Implementation-A-Thon was held as a track within the FHIR Connectathon. Discussion topics and notes from the IAT can be found at: <https://confluence.hl7.org/display/IAT/C-CDA+Implementation-A-Thon+Track+Agenda>.

Virtual FHIR Connectathons

A Virtual FHIR Connectathon - Health Care Directory was held in December. Documented discussions, findings and conclusions reached from each topic within the event can be found at: http://wiki.hl7.org/index.php?title=201901_vhdir.

As a final note, HL7 appreciates ONC's continued support of C-CDA and FHIR for 2019 and beyond. ■

**HL7 Welcomes New Members****Benefactor**

- CRISP
- Guidewell
- NewWave

Gold

- AbleTo, Inc.
- Audacious Inquiry
- Chorus Software Solutions
- Community Care HIE
- Community Care Network of Virginia, Inc.
- d-wise
- immutaMED, LLC
- Inovalon Inc.
- IRIS Health Solutions, LLC
- Prime Healthcare Management, Inc.
- Prime Therapeutics LLC
- State of New Hampshire

Organizational

- Adeptia Inc.
- Conéctate Soluciones y Aplicaciones SL
- Exscribe, Inc.
- Fleet Health
- Gillette Children's Specialty Healthcare
- MedEvolve, Inc.
- Mettle Solutions LLC
- Montefiore Medical Center
- MYHEALTH ACCESS NETWORK, INC.
- MyHealthcare Online Inc.
- Secure Health Chain

Scenarios for Potential Election Issues and Their Solutions

Troubleshooting Co-Chair Election Problems



By Karen Van Hentenryck, Associate Executive Director, HL7 International

Over a year ago, we replaced our manual, paper ballot system for electing co-chairs at the working group meetings (WGMs) with Election Runner, an electronic polling/election tool. Overwhelmingly, the response to Election Runner has been positive, with most individuals reporting that the new process is both easier and faster.

At the January 2019 Working Group Meeting, some individuals reported that they did not receive the invitation to vote in a co-chair election for which they felt they were eligible. Most of the reported problems were due to one of the easily-corrected issues outlined below:

1. *A member is subscribed to the work group listserv using a different email than the one attached to his/her member record.*
One of the first criteria for determining who is eligible for a work group's co-chair election is whether any of the emails in our membership database match those on the work group listserv. If there is a match and the member was subscribed by the appropriate date, the email is added to the list of eligible voters. In about 98% of the cases where a problem is reported, this is the culprit. The only way to correct this problem permanently is to ensure that you are subscribed to all listservs using the same email address that is attached to your member record.
2. *A non-voting member employed by an organization member is subscribed to the work group listserv using an email address whose domain differs from that of the organizational member.*
Let's say you are employed by Epic but subscribed to the listserv using a gmail account. This is essentially the same problem noted above. Since we are using email addresses to verify eligibility, you aren't going to be on the list of eligible voters because we can't verify that you are employed by Epic unless you use an email with the same domain.
3. *You are a non-voting member of an HL7 organizational member and are subscribed to the work group listserv but register onsite.*
Since one of the criteria for non-voting members to vote is attendance at the working group meeting you won't automatically be an eligible voter as we determine this prior to the start of the WGMs using our registration list. To correct this problem, come see me at the meeting or send me an email. Once I verify that you are eligible and have registered, I will add you to the list of eligible voters.
4. *Your server rejects/won't accept the Election Runner invite.*
This happens infrequently, but it does happen. Election Runner sends me a note whenever one of the intended recipient's servers rejects the message. If possible, check with your IT staff in advance of the meeting to ensure that your server will accept emails from Election Runner. If I can verify your eligibility and you have a secondary (usually personal) email address, I can usually add you to the list of eligible voters and allow you to vote.

Election Runner is flexible, so regardless of which of the above issues is preventing you from receiving the email inviting you to vote, we can usually identify a solution to get you onto the list of eligible voters without a lot of fuss.

In conclusion, prior to an upcoming WGM, I encourage you to check your listserv subscriptions and subscribe using the email connected with your membership record, if possible. This will eliminate most of the problems. Feel free to contact me should you have questions or concerns about our use of Election Runner for co-chair elections. ■

SHOW THE WORLD YOU HAVE STANDARDS



Why get HL7 certified?

- Achieve industry-recognized levels of expertise
- Increase career opportunities
- Stand out from the crowd
- Get exams fees reimbursed as an eligible veteran

Visit [HL7.org/certification](https://hl7.org/certification)

HL7[®] International Corporate Training



Customized training, straight from the source of HL7 standards!

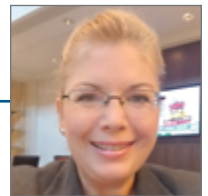
- Learn from the author and authority on HL7 standards and FHIR[®]
- Expert faculty and customized training focused on your requirements
- Staff learns together and can address internal issues
- Economical and convenient, saving time and travel expense
- Enhance staff skills and expertise

Learn more: [HL7.me/onsite](https://hl7.me/onsite)



Bringing Life-Saving Therapies to Market More Quickly

Blazing a Path for Digital Clinical Research Using HL7 FHIR®



By Amy Nordo,
MCCI, RN, CPHQ

Why Digitize Clinical Research?

Female cardiac symptoms differ from those of men. This is well known and published now, but a decade ago, knowledge of this was not as prevalent. That was when my mother had a myocardial infarction (MI). She arrived at the emergency department (ED) with signs that presented more like the flu than an MI, had no electrocardiograph (EKG) changes, and her troponins were within normal limits. Her cardiologist conducted an exploratory catheterization which discovered major coronary artery disease. After angioplasty and a stent, she was released from the hospital.

Disaster averted, or so we thought. Within the week, my mother returned to the ED with more extreme symptoms. Again, the cardiologist conducted a catheterization and discovered that despite the appropriate anti-coagulant/anti-platelet therapies, the stent had occluded. He saved her life

that day. However, no at-market medications existed to prevent the stent from re-occluding. Thankfully, there was a clinical trial for a new therapeutic that my mother could join, which she did. That was over a decade ago.

That drug is now on the market, and my mother has not suffered another episode since. My mother was lucky; every mother should be this lucky. The reality that it takes between 12 and 15 years to bring a breakthrough therapy to market limits everyone's opportunity to be treated with the clinically appropriate medication. Clinical research needs to be streamlined so that lifesaving therapies are available to patients faster.

Background of Clinical Research Interoperability

For the last sixty years, the cost and time of clinical trials has increased^{1,2}; however, these problems persist despite effort to reduce them. Improvement in data collection is an area ripe for impactful advancement. Since

2007, with the Starbrite study³, the industry has searched for a better way to exchange data for clinical research. While there have been small steps made in various settings since then, a full-scale production use of interoperability to collect clinical care data for clinical care is needed.

The current "swivel chair"⁴ data collection process requires that the clinical research coordinator not only document the necessary data within the electronic health record (EHR), but then also manually search for that necessary data within the EHR and retype it into the electronic data capture system (EDC). In the current state, clinical research is reusing clinical data in a manual, duplicative data entry that is error prone, time consuming, and raises patient

1 Eisenstein, E.L., et al., *Reducing the costs of phase III cardiovascular clinical trials*. Am Heart J, 2005. 149(3): p. 482-8.

2 Eisenstein, E.L., et al., *Sensible approaches for reducing clinical trial costs*. Clin Trials, 2008. 5(1): p. 75-84.

3 Kush, R., et al., *Implementing Single Source: the STARBRITE proof-of-concept study*. J Am Med Inform Assoc, 2007. 14(5): p. 662-73

4 [Cited: February 2016], Bain, Landen

safety risks⁵. Multiple studies have been conducted globally to address the electronic exchange of clinical data for clinical research⁶ and many have found improved evaluative outcomes. Still, these improved evaluative outcomes have not been sufficient for the clinical research community to adopt interoperability. Why? One of the main reported barriers by industry stakeholders is the low amount of data available for exchange and the difficulty in producing a scalable, reproducible process.⁷ The joke that “if you have seen one continuity of care document (CCD), you’ve seen one CCD,” is an unfortunate reality in this use case. Semantic and structural interoperability standards have existed for years but not in a way that has driven adoption.

Solution

To overcome this barrier, a new standard that the clinical research community could align with was needed in order to drive interoperable exchange of clinical care data for clinical research. HL7 Fast Healthcare Interoperability Resources (FHIR®) is a standard that will positively disrupt the way clinical trials are conducted. Clinical care’s disruption by FHIR has gained the attention of the clinical research community. Stakeholders from clinical research are actively engaged with HL7 investigating the use of FHIR for research for the last several years. One example

of this involvement in HL7 is a project scope statement (PSS) for an implementation guide on FHIR to Structural Data Tabulation Model (SDTM), a Clinical Data Interchange Standards Consortium (CDISC) standard, is currently under way in the Biomedical Research and Regulatory (BR&R) Work Group. This is representative of just some of the work on FHIR for research both completed and in progress in BR&R.

Clinical research needs to be streamlined so that lifesaving therapies are available to patients faster.

It’s time to put the good work from BR&R into action. Data availability when reusing clinical care data for clinical research is reported to range between 45-70% without the use of the HL7 FHIR standard. Industry experts hypothesize that the clinical research data that is available with the use of the existing FHIR resources (for domains such as demography, labs, vitals signs...) ranges between 60-90%. Reuse of the current FHIR domains for clinical research is a scalable, reproducible process that is technologically feasible.

Lessons Learned

Some of the previous barriers are removed with the use of HL7 FHIR for research, but key opportunities remain:

1. Matching the patient medical record number (MRN) to patient subject ID, ensuring the patient’s status on a study and even what study the patient is currently enrolled in, needs a more scalable solution. While there are many flavors of solutions, FHIR research resources hold the most promise.
2. Representational data quality mismatch is not exclusive to clinical research, but is an area that provides opportunity for improvement. The Common Clinical Registry Framework (CCRF) project in the Clinical Interoperability Council (CIC) is actively addressing representational data quality issues.
3. The cultural divide separating the current process and the future digital clinical trials must be bridged. Clinical research is a risk adverse, conservative industry.

Conclusion

Research data collection utilizing HL7 FHIR, although nascent in its maturity, is the path forward in digitizing clinical trials. There is work to be done, but as a community, HL7 can deliver the necessary solutions to make digitized clinical trials a production capable, scalable, reproducible process. Healthcare technology is a rapidly expanding environment and the opportunities for clinical research are just beginning to be discovered. ■

5 Nordo, A., et al., *Evaluative Outcomes in Direct Extraction and Use of EHR Data in Clinical Trials*. International conference addressing Information Technology and Communications in Health (ITCH): February 14-17, 2019, Victoria, BC, Canada.

6 Garza, M., et al., *eSource for Standardized Health Information Exchange in Clinical Research: A Systematic Review*. International conference addressing Information Technology and Communications in Health (ITCH): February 14-17, 2019, Victoria, BC, Canada.

7 Nordo, A., et al., *Use of EHRs Data for Clinical Research: Historical Progress and Current Applications*. Learning Health Systems, 2018.



Fast Track Development and Adoption of FHIR Standard HL7® Launches FHIR® Accelerator Program



By Andrea Ribick,
Director of
Communications

The CARIN Alliance joins HL7 Argonaut and Da Vinci Projects to accelerate FHIR

HL7 recently announced the launch of the **HL7 FHIR® Accelerator Program**. The program is based on an innovative model piloted by the HL7 Argonaut Project and, more recently, the HL7 Da Vinci Project. The goal is to strengthen the FHIR (Fast Healthcare Interoperability Resources) standard and enhance market adoption through a programmatic approach available to myriad stakeholders.

“HL7 FHIR has achieved remarkable adoption on a global scale,” said Dr. Charles Jaffe, CEO of HL7. “An ever-growing community of implementers has emerged across a broad spectrum of health care, eager to participate in an agile onramp for FHIR adoption and implementation. The HL7 FHIR Accelerator Program provides the framework for that community to leverage the technical capability, management expertise and experience gained during the creation and growth of the Argonaut and Da Vinci Projects.”

Building on the success of current projects—Argonaut (provider-provider and provider-patient) and Da Vinci (payer-provider)—The CARIN Alliance has recently been approved as an HL7 FHIR Accelerator project (payer-patient). The three projects are complementary initiatives.

“On behalf of the CARIN Alliance, its board and membership, we are grateful for the opportunity to work more closely with HL7 as part of the FHIR Accelerator Program as we work to develop additional FHIR implementation guides so consumers can get access to more of their health information,” stated Ryan Howells, CARIN Alliance Project Manager and Principal at Leavitt Partners. “Consumers and their authorized caregivers are requesting more access to health care data with less friction to empower them to become more informed, shared decision-makers in the care they receive.”

The original concept behind accelerating HL7 FHIR began approximately four years ago with the advent of the Argonaut Project.

“In 2015, HL7 and the Argonaut Project successfully established a new model for engaging implementers to accelerate FHIR maturity and adoption to support emerging market needs for provider-provider and provider-patient clinical information exchange,” said Micky Tripathi, Project Manager of the Argonaut Project. “We are excited to see the HL7 FHIR Accelerator Program institution-alizing this model to support other FHIR adoption initiatives working on complementary use cases.”

The Da Vinci Project began September 2018 to accelerate the standards required to advance value-based care through the use of HL7 FHIR.

“Through Da Vinci, we have worked with HL7, CMS and other stakeholders from the

private sector to bring together the best and brightest minds in the FHIR community to create an ‘industry first’ environment that not only values innovation but drives forward-thinking momentum to promote standards,” said Jocelyn Keegan, Da Vinci Program Manager. “It’s this collaborative environment that has made it possible for Da Vinci to accelerate the development

of multiple balloted standards in just one year. We look forward to collaborating on best practices, tools, and lessons learned with other organizations so we can work to fuel interoperability.”

Additional impetus for the introduction of the HL7 FHIR® Accelerator Program initiative comes in the form of shared priorities with

The Centers for Medicare & Medicaid Services (CMS).

Seema Verma, Administrator of CMS within the Department of Health and Human Services outlined the Centers’ priorities for the upcoming year in a letter she sent to HL7 on February 7, 2019.

“It’s more apparent than ever that HL7 will play a critical role

Continued on page 18

The Argonaut Project

1. **R4 update:** Add Encounter resource and clinical notes. Update existing resources to R4. Develop ‘write’ capabilities for selected resources
2. **FHIR Clinical Data Subscriptions:** Develop FHIR Subscriptions resource to push updates of medical record information to authorized recipients. Eliminates need to continuously poll FHIR servers for updates. Supports ‘push’ use cases such event notifications.
3. **Provenance:** Define expectations on what provenance information is retained when information is imported into a FHIR server. Test round trip write, update, retrieve
4. **Web Messaging and CDS Hooks for Radiology Ordering:** Create CDS Hooks profile to support radiology ordering (to support Protecting Access to Medicare Act requirements), add web messaging channel to allow apps to functionally communicate with EHR sessions.

The DaVinci Project

1. **Data Exchange for Quality Measures** – In HL7 ballot reconciliation as draft standard
2. **Coverage Requirements Discovery** – In HL7 ballot reconciliation as draft standard
3. **Documentation Templates and Coverage Rules** – Under Active Development
4. **Health Record Exchange: Clinical Data Exchange** – Under Active Development
5. **Health Record Exchange: Payer Data Exchange** – Under Active Development
6. **Prior Authorization Support** – Under Active Development
7. **Gaps in Care and Information** – 2019 Use Case
8. **Risk Based Contract Member Identification** – 2019 Use Case
9. **Alerts: Notification (ADT), Transitions in Care, ER Admit/Discharge** – 2019 Use Case
10. **Performing Laboratory Reporting** – Use Case Awaiting Resourcing
11. **Chronic Illness Documentation for Risk Adjustment** – Use Case Awaiting Resourcing
12. **Patient Cost Transparency** – Use Case Awaiting Resourcing

Continued from page 17

HL7® Launches FHIR® Accelerator Program

The CARIN Alliance

1. **Blue Button 2.0 for Commercial health plans** – Under Active Development *Focus:* Develop a common consumer payer data set (similar to Blue Button 2.0) and corresponding implementation guide for the set of resources that payers can display to consumers via a FHIR API
2. **Real-time Pharmacy Benefit Check** – Under Active Development *Focus:* Develop a consumer-facing API version of real-time pharmacy benefit check to enable consumers to access their drug formulary and benefit information, financial responsibility, therapeutic alternatives, and cash price in accordance with the ‘Patient Right to Know Drug Prices Act’ (Gag Clause legislation; 10/10/2018).
3. **Post-Acute Care / Data Element Library** – Under Active Development *Focus:* Develop a consumer-facing API related to the post-acute care assessment information that is found in the CMS data element library.
4. **Consumer ID and Authentication** – Under Active Development *Focus:* Develop a set of best practices and a framework for implementing the NIST Identity Assurance Level 2 (IAL2) and Authenticator Assurance Level 2 (AAL2) guidelines in health care
5. **Application Endorsement Framework using Open APIs** – Under Consideration *Focus:* Using UDAP and POET, develop a portable, digital certification and endorsement framework to send verified attributes about a client application to an OAuth server.

in furthering CMS’s objectives this year and well into the future,” said Jaffe. “We’re delighted that CMS has clearly acknowledged HL7’s contribution and integral role in creating a more interoperable health system that supports patients, providers, payers and many others.

“Through collaboration with many other contributors, HL7 will promote the acceleration and implementation of the FHIR platform with the new HL7 FHIR® Accelerator Program initiative,” Jaffe added.

Implementation communities will be able to select a range of solutions based on their own needs and resources, ranging from

self-service templates and tools, to contracted project management, SME and infrastructure services.

Certain minimum program requirements for implementation communities seeking to become HL7 FHIR Accelerator Projects include the following:

- Maintaining HL7 brand and trust in the community
- Covering the cost of HL7 activities and not imposing additional work on volunteers and working groups

Applicants must also demonstrate clear goals, governance, commitment to creating balloted artifacts, access to adequate resources, and HL7 member representation.

A baseline project package is available for an initial setup fee and annual fees thereafter. Additional fees vary depending on services selected beyond the base package. ■

For more information about the HL7® FHIR® Accelerator Program, see:
www.hl7.org/about/fhiraccelerator



HL7[®] FHIR[®] DevDays



Learn from the experts at HL7 FHIR DevDays!

The largest HL7 FHIR-only event in the world!

June 10–12, 2019

Microsoft Conference Center, Redmond, WA

Organized by
HL7^{International} **firely**

Host sponsor



Partner



www.fhirdevdays.com



HL7 Board Elections are open July 1 - July 30

Don't forget to vote!



Implementation Use Case for Health IT Standards in Poland

Małopolska Medical Information System

Małopolska, also known as “Lesser Poland”, is one of the sixteen regions forming the highest level of Polish administrative subdivision units.



By Michael Rigby, PhD, Visiting Professor, Imperial College London



The region is located in the southern part of the country. Its population exceeds 3.4 million citizens. The capital city, Krakow, is visited by 13 million tourists annually. **Małopolska Medical Information System** is a health

information exchange project run by the Marshal’s Office, which is a regional public administration office, in cooperation with 38 public hospitals operating in the region.

The project receives 85% (41 million Euro) of its funding from the European Regional Development Fund (Project no. RPMP.02.01.05-12-0228/18). The region is active in the proliferation of interoperability standards and profiles in Poland and became an organizational member of HL7 Poland last year.

The main goals of the project include the delivery of IT infrastructure for electronic clinical document sharing between healthcare provider organizations, as well as providing patients with access to their documents and to the regional e-scheduling service. The overall architecture of clinical document exchange will be based on the

IHE Cross-Enterprise Document Sharing (XDS.b) integration profile accompanied by the PIX, PDQ, ATNA and CT profiles.

All documents to be shared must conform to the regional specification derived from the Polish National Implementation of the HL7 Clinical Document Architecture (CDA®) standard, which is a legally binding standard for the entire country. Certain classes of documents are intended to be stored and shared through the regional documents' repository. These are comprised of discharge summaries, admission refusal documents, information for GPs from specialized care units and radiological examination results. However, any type of an HL7 CDA document may be shared using local repositories belonging to the participating hospitals as long as these documents conform to the regional documents' specification. Laboratory test results are the first type of documents to be shared this way. Medical image sharing will also be supported by implementing the IHE Cross-Enterprise Document Sharing for Imaging (XDS-I.b) integration profile. The images will remain stored in the local picture archiving and communications system (PACS) instances of the participating hospitals, while DICOM manifest and key objects selection will be registered and stored regionally to facilitate the data retrieval from local PACS servers. Documents delivered to the regional repository for sharing will also become the source of data for future secondary use of data. Certain data will be

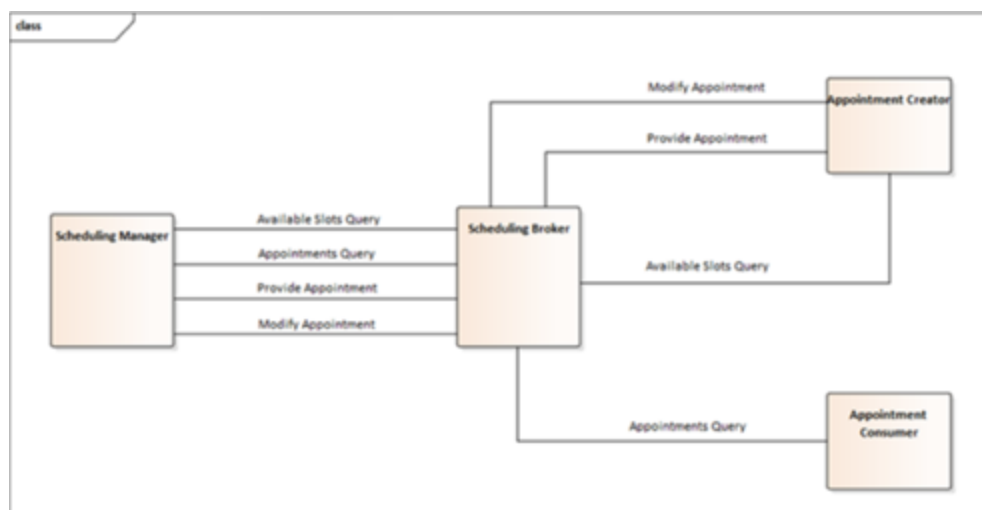


Fig. 1. Regional e-scheduling architecture

extracted from those documents and stored in conformance to the openEHR standard. These data may then become subject to querying with the Archetype Querying Language (AQL). There are two special data sets already planned for initial extraction. One is an emergency data set which will be based on deliverables of HL7 International Patient Summary (IPS) project. The set will contain patients' demographic data, diagnoses, performed medical procedures, medication lists, allergies, vaccinations and implants. The second set will gather data intended for the 'medical event', that will be required to be reported to the Polish national e-Health platform. In case of the above two special sets, the data are made available by dedicated HL7 Fast Healthcare Interoperability Resources (FHIR®) interfaces and the appropriate structure definitions and operations are specified. Clinical documents exchange with other medical data sharing communities, including national, regional and corporate

platforms, will be based on the IHE Cross-Community Access (XCA) profile and gateways.

The regional e-scheduling service for patients will be implemented almost exclusively in HL7 FHIR standard. A number of new profiles are defined along with dedicated FHIR operations that allow the ability to query, create, manage and modify appointments. The solution is based on the concept of a regional scheduling broker that processes transactions between the respective actors, i.e. units in participating hospitals, patient portal and medical practitioner portal, with the hospitals retaining a high degree of independence in the management of their local schedules.

Substantial financial support is provided to the participating hospitals so that they are able to achieve a high efficiency in creating electronic clinical documents and effectively utilize the regional services delivered by the project. Thus, the hospital systems will be well integrated

Continued on page 22

Continued from page 21

Małopolska Medical Information System

with the regional HIE using interoperability standards and profiles. However, to assist medical practitioners when they need access to medical data while outside of a hospital environment, the project will also deliver a dedicated medical practitioner portal. The portal will enable its users to locate and display clinical documents, including HL7 CDA documents and DICOM objects, using a web browser. A medical practitioner will also be able to schedule an appointment for a patient in any of the medical facilities taking part in the regional project.

The patient portal will provide web access to the services for the patients themselves, their legal representatives, their parents (if juvenile) or any other individuals authorized by a patient. The

main functionalities of the portal are access to clinical documents and ability to schedule appointments. The latter requires the possibility to search for or browse regional facilities and medical services provided. Users will also be able to create and manage consents regarding sharing and accessing their clinical documents. A consent may refer to a single document or a set of them and pertain to a single medical provider or an organization. Both opt-in and opt-out policies will be implemented. National law enumerates cases where access to a document may be permitted to a medical practitioner irrespective of the patient consent, which includes care continuity and emergency cases. However, all cases involving access to the documents will be logged and

presented to the portal users. The IHE Advanced Patient Privacy Consent (APPC) profile will be implemented and consent documents in XACML format will be stored in the regional repository.

Both portals will be constructed according to the responsive web design approach to make them available on mobile devices. To further support mobile solutions, the system will conform to the IHE Mobile Access to Health Documents (MHD) profile that is based on HL7 FHIR and will make use of HL7 FHIR Terminology Services.

The public tender for the regional part of the system is expected to be announced in the middle of 2019, while the whole platform should be operational in the beginning of 2021. ■

HL7 Standards Approved by ANSI Since November 2018



Name	Designation	Date
HL7 Version 3 Standard: Core Principles and Properties of Version 3 Models, Release 2	ANSI/HL7 V3 CPPV3MODELS, R2-2018	11/1/18
HL7 CDA® R2 Implementation Guide: Trauma Registry Data Submission, Release 2 - US Realm	ANSI/HL7 CDAR2 IG TRAUMAREG, R2-2019	1/17/19
ANSI/HL7 Implementation Guide: UDI Pattern, Release 1	HL7 IG UDI, R1	2/21/2019
Characteristics of a Value Set Definition, Release 1	ANSI/HL7 VSD, R1-2019	3/1/2019

October 23 – 24, 2019 / Warsaw, Poland

Invitation to Warsaw for IHIC 2019



by Roman Radomski,
Chair, HL7 Poland

HL7 Poland cordially invites you to the International HL7 Interoperability Conference.

The International HL7 Interoperability Conference (IHIC) has been held for 18 years as a healthcare interoperability scientific conference that provides a review of standards implementation projects around the world. IHIC 2019 will be held on October 23-24 at the Polin Conference Center in Warsaw, Poland. IHIC 2019 will be co-located with Integraton 2019, the second edition of the interoperability testing event that was successfully led by HL7 Poland as a domestic conference in 2018.

Conference Format and Program

The IHIC format will remain similar to what we have seen in the previous years but will include some modifications. Tutorials and seminars, led by top international experts, will take place on the first day of the event, along with a demonstration of interoperability testing tools. IHIC participants and Integraton testing team members are invited to take part in all tutorials and seminars without any extra fee. A key difference this year is that the main conference on the second day will not focus on scientific papers, but rather on presentations about practical implementation of interoperability standards.

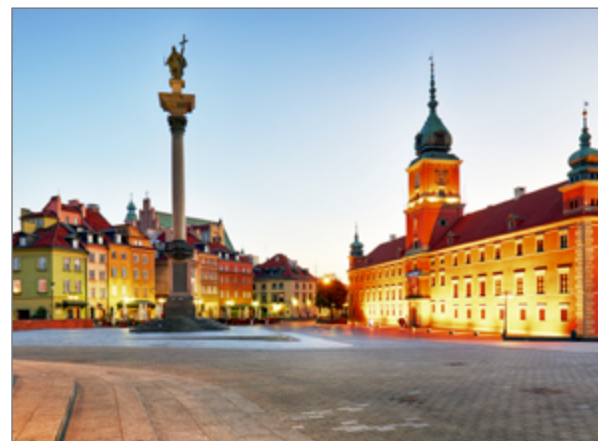
European, national, regional and local projects will be presented by invited speakers to share experiences, best practices, project deliverables and specifications and tools that might be useful for other implementers. The main goal is to attract representatives of planned or running projects in healthcare interoperability from all over the world and to fulfill their needs and expectations.

Interoperability Testing Event

Integraton 2019 will be a satellite event of IHIC and will begin on October 22. It will cover testing of conformance to HL7 standards and IHE integration profiles. Several derived specifications, including the Polish national HL7 CDA implementation guide, HL7 FHIR profiles and operations for scheduling and regional IHE XDS.b metadata and transactions specifications as well as other IHE integration profiles will serve as a basis for content validation and peer-to-peer integration tests. Due to the fact that this year Integraton is organized in conjunction with IHIC 2019, the international track for interoperability testing will also take place. All tests are to be performed on the Tukan platform, the national testing tool delivered and maintained by HL7 Poland.

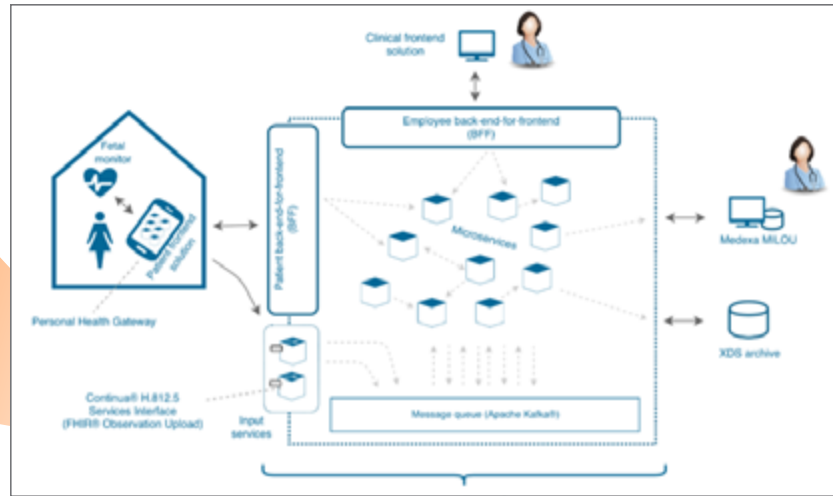
City of Warsaw

Warsaw, the capital and largest city in Poland, lies halfway



between the Baltic Sea and the Carpathian Mountains, in the heart of Europe. It has several hundred years of rich history and is a major international tourist destination as well as a significant cultural, political and economic hub. Almost completely destroyed during World War II, the city has been reconstructed, including historic Old Town, which is now designated a UNESCO World Heritage Site. Undoubtedly, the most beautiful part of the city is the Royal Route, running from the Royal Castle to the south through the heart of Warsaw, passing Łazienki Park with the Palace on the Water, and ending at another royal residence, the Wilanów Palace. The city straddles the Vistula, the longest river in Poland, which flows through many other Polish cities like Cracow in the south and Gdańsk in the north. ■

For the most up-to-date information about IHIC,
visit <http://ihic.info> and follow #ihic2019



Open-Source Modules Key to Software Implementation

Success with Telemedicine for Pregnant Women with Complicated Pregnancies



By Jacob Andersen, PhD, Senior Software/ICT Engineer, Alexandra Institute; Member, HL7 Denmark

A recently completed project in Denmark within telemedicine has shown that remote monitoring of pregnant women with complicated pregnancies makes a big difference. The number of hospital admissions is reduced, women feel more secure, and often they do not have to attend follow-up appointments at the hospital.

In 2010, Skejby Hospital in Central Denmark Region wanted to analyze if they could do something for pregnant women who were predisposed to e.g. premature rupture of membranes or pregnancy toxemia. This category of pregnant women often goes for checks and is admitted to the hospital at a much greater extent than other pregnant women. Because of this, Skejby Hospital wanted to investigate whether it was possible to make the process easier for the pregnant women and perhaps reduce the number of admissions.

The Central Denmark Region launched a regional pilot project that included home monitoring for

the pregnant patients, where the women were equipped with a tablet, a sphygmomanometer and equipment for measuring contractions and fetal heart beats. The results of the measurements were subsequently sent to relevant staff at Aarhus University Hospital, the new name for Skejby Hospital after it merged with Aarhus Hospital in 2011.

Due to the resources and finances of the pilot project, there was a need for the basic software to be simple, flexible, adjustable and possible to subsequently roll out on a larger scale. Such software did not exist, and they therefore decided to develop new software.

Telemedicine Based on Open-Source Modules

Together with the Alexandra Institute, which helps to develop the software, the Central Denmark Region decided (as part of the research in telemedicine) to explore the possibility of building the IT system of modules, each module being easily replaceable and transferable to other applications. The idea was to also develop the system via open source, thereby enabling several parties, including other municipalities, to help develop and finance the software.

The fundamental concept of a “module” in this architecture is a unit of software which has a single, isolated purpose, also known as a “single responsibility”. This approach offers a fine-grained reuse of modules, which can be compared to building creations out of LEGOs. On a concrete system running on a server, each module will be a micro-service – a small service executing in an independent Docker container and communicating with other modules on an asynchronous bus. For apps on the users’ own devices, such as smartphones and tablets, we have developed a similar run-time environment that will accept and orchestrate an assembly of independent modules – much like a light version of a micro-services architecture for tablets and smartphones.

Standardization as Quality Assurance of Open-Source Software

When software is developed in many places, control and quality assurance present special challenges. Therefore, it is necessary that the

responsibility for ensuring uniform interpretation, correct data exchange, and integration of software should lie with one company only.

Today, the Alexandra Institute has governance and responsibility for quality assurance and process documentation. However, data interchange between the systems (personal health device, smartphone, server etc.) was already settled in 2013 when Danish regions and municipalities agreed on the national “Reference Architecture for Collecting Health Data from Citizens”, which refers to the Continua Design Guidelines published by the Personal Connected Health Alliance (PCHA). Following this decision, national profiles were developed for the three central HL7 Clinical Document Architecture (CDA®) document types: Personal Healthcare Monitoring Reports (PHMR) for measurements, Questionnaire Form Definition Document (QFDD)/Structured Form Definition Document (SFDD) for questionnaires, and Questionnaire Response Documents (QRD) for questionnaire responses. Furthermore, a national XDS-based infrastructure was established to collect, store, and exchange these CDA documents. Data interchange between individual modules on the same system requires the same level of attention. Because of this, HL7 Fast Healthcare Interoperability Resources (FHIR®) was chosen as the appropriate foundation. Currently, a profile of all the main resources needed for this application is in place and is based on HL7 FHIR Release 4 (R4).

Observations and devices are modelled according to the recently developed implementation guide for HL7 FHIR R4 based communication of Personal Health Device [PHD] observations, which was on the Jan 2019 HL7 ballot.

Generic Modules of Great Value to the Business Model

The open-source business model is not very well defined; therefore, one of the objectives has been to find a feasible business model. An outline of the model is now in place. The business case of offering telemedicine treatment to pregnant women has proven successful and is generating fantastic results. The Central Denmark Region is now putting the system into operation, and it will be offered to the entire country in the coming years.

The thesis is that more regions will use this IT system, also for other telemedicine solutions, because of its flexibility and facility to design the modules as needed.

The modules will be applied in many ways. Many of the components are generic and can also be used in other countries, such as Australia or China. Although the modules were developed for this project, the components can be used for other projects as well. Some of the modules manage questionnaires or gather measurements from smart home monitoring systems, which can be used in other systems, such as those for COPD patients. Other modules could show data on the indoor climate. The modules should be viewed as building blocks to be selected and combined depending on what you would like to build. ■



By Gil Alterovitz, PhD, Assistant Professor, Harvard/MIT Division of Health Sciences and Technology, Boston Children's Hospital



Aziz Boxwala, MD, PhD, President, Elimu Informatics



Bret Heale, PhD, Solutions Architect, Intermountain Healthcare

Clinical Genomics Track Tests Pharmacogenomics Project Point-of-Care Enabled Precision Medicine Service with GACS

After several months of preparation, a collaboration during the Clinical Genomics track has created and tested the first point-of-care enabled FHIR application with a Genomics Archiving and Communication System (GACS) service.

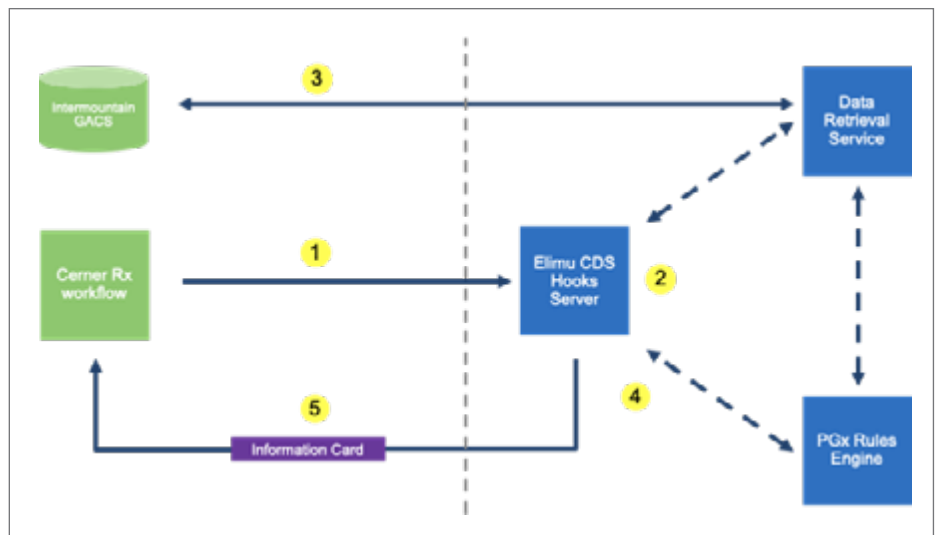
Members from Elimu Informatics, Intermountain Healthcare, Cerner Corporation and Harvard Medical School/Boston Children's Hospital worked to integrate these pieces into a production EHR system using CDS Hooks and the FHIR Genomics components in the emerging HL7 FHIR data standard. The test took place during the 20th HL7 FHIR connectathon on January 12, 2019.

The pharmacogenomics service is designed to function inside clinicians' existing workflows, so providers don't need to consider genomics details until they are determined to be both applicable and actionable for the current patient.

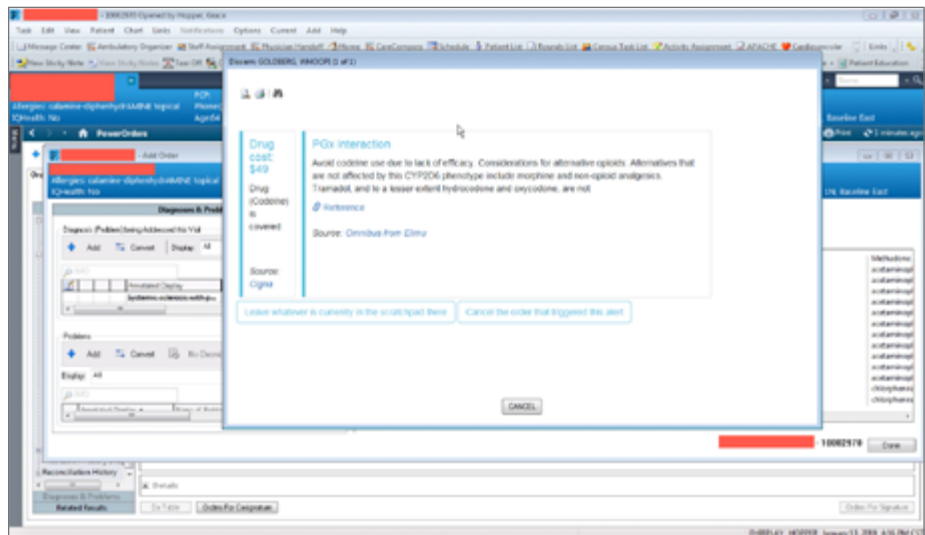
The Clinical Genomics track, led by Dr. Gil Alterovitz, filled three tables of participants and brought together organizations from around the world. The pharmacogenomics project team included Elimu's product team, Bret Heale, James Jones, Kevin Power and Gil Alterovitz, with remote participation from Grant Wood.

First, a test cloud-server hosted by a representative from Intermountain was populated with example FHIR genomic data translated directly from public VCF files from the 1000 Genomes Project. A sample EHR patient was linked with a de-identified individual in the 1000 Genomes Project data, and CDS Hooks were implemented between the Cerner EHR and Elimu's Omnibus CDS platform. New pharmacogenomic CDS rules were written for this scenario, designed so that when a medication with a known drug-gene interaction was prescribed in the EHR's prescription workflow, the Intermountain GACS would be queried for any FHIR observations containing information of that gene for the selected patient. The rules evaluated the bundle of FHIR resources that the GACS system retrieved, and determined whether there was data corresponding to a genetic variant that may impact the drug's efficacy. If a match was found, a CDS information card was provided directly to the EHR suggesting an alternative dose or drug.

This test run was calibrated for querying observations of the CYP2D6 gene for its ability to convert the common drug codeine into its active metabolite, morphine. The system provided actionable feedback and reasoning based on the expected phenotype from the information in the server. Future work is planned to extend the capabilities of this system to cover the Clinical Pharmacogenetics Implementation Consortium (CPIC) top 60 drug-gene interactions. Where sufficient data about the interacting gene regions is unavailable,



Workflow of the platform triggered by the EHR



Sample Information Card returned to the clinician when ordering a drug with evidence of pharmacogenomic implications

the CDS platform may suggest ordering a genetic test prior to prescription if it is warranted. This remarkable integration test shows just one use case that is greatly benefited by using HL7 FHIR to communicate genomics data. The components used in the FHIR interface between Elimu's CDS platform and Intermountain's GACS were seen to be fast, scalable and easily interpreted both by developer and machine. The success highlights

that HL7 FHIR and its genomics capabilities are ready for further testing in production-ready environments across the globe. Organizations everywhere are welcome to join in the emerging integration efforts through future HL7 FHIR Connectathon events. Those looking to take FHIR Genomics to the next level in terms of implementations can also join the HL7 FHIR Foundation and explore initiatives like the Consortium for Agile Genomics. ■



Get Your Training Straight from the Source!

Introduction to CDA	Online	5/20-21/2019
Advanced CDA	Online	5/22-23/2019
HL7 Fundamentals Course	Online	5/30-8/22/2019
Hitchhikers Guide to HL7	Online	6/18-19/2019
HL7 FHIR Fundamentals	Online	7/18-8/15/2019
C-CDA 2.1	Online	8/6-7/2019
C-CDA on FHIR	Online	8/8-9/2019
HL7 Fundamentals Course	Online	9/12-12/5/2019
FHIR Tutorials at Working Group Meeting	Atlanta, GA	9/14-20/2019
FHIR Profiling	Online	10/9-10/2019
Understanding & Using Terminology in FHIR	Online	11/6-7/2019
HL7 FHIR Fundamentals Course	Online	10/31-11/28/2019

Visit [HL7.org/events](https://hl7.org/events) for more information

Benefactors



HL7 FHIR Fundamentals Course

Next edition begins July 18, 2019!



<http://HL7.me/FHIRfun>

July 18-August 15, 2019

- An introductory online course on HL7 FHIR - no experience necessary!
- Four week course includes new module each week
- Guided real-world exercises with instructor assistance and feedback
- Interactive online community with students and instructors

Organizational Members

BENEFACTORS

Accenture
 Allscripts
 Centers for Disease Control and Prevention/CDC
 Cerner Corporation
 CRISP
 Duke Clinical & Translational Science Institute
 Edifecs, Inc.
 Epic
 Food and Drug Administration
 GE Healthcare
 Google
 Guidewell
 Intermountain Healthcare
 InterSystems
 Kaiser Permanente
 Office of the National Coordinator for Health IT
 Optum
 NewWave
 Partners HealthCare System, Inc.
 PEO DHMS - DoD/VA Interagency Program Office
 Philips Healthcare
 Quest Diagnostics, Incorporated
 Scope Infotech, Inc.
 U.S. Department of Defense, Military Health System
 U.S. Department of Veterans Affairs
 UnitedHealthcare
 Virence Health

GOLD

AbleTo, Inc.
 Academy of Nutrition & Dietetics
 ActioNet, Inc
 ACUTA LLC
 Advocate Healthcare Laboratories
 Altarum
 American College of Physicians
 American Medical Association
 Apprio, Inc.
 Asymmetrik Ltd.
 Audacious Inquiry
 Aurora Health Care
 Availity, LLC
 Blue Cross and Blue Shield of Alabama
 Blue Cross Blue Shield Association
 CAL2CAL Corporation
 Chorus Software Solutions
 CITRIOM LLC
 Community Care HIE

Community Care Network of Virginia, Inc.
 Computrition, Inc.
 Connecticut Department of Public Health
 Consolo Services Group, Inc.
 Corepoint Health
 d-wise
 eHealth Initiative
 ESAC Inc
 EyeMD EMR Healthcare Systems, Inc.
 Health Care Service Corporation
 ICANotes, LLC
 immutaMED, LLC
 Info World
 Inofile
 Inovalon Inc.
 INTERFACEWARE, Inc.
 IRIS Health Solutions, LLC
 Klein Consulting Informatics LLC
 MaxMD
 Microsoft Corporation
 Milliman IntelliScript
 Moxe Health
 National Association of Dental Plans
 National Marrow Donor Program
 NeuralFrame
 NHS Digital
 NICTIZ Nat.ICT.Inst.Healthc.Netherlands
 NIH/Department of Clinical Research Informatics
 Northrop Grumman Technology Services
 NYC Department of Health and Mental Hygiene
 PenRad
 Prime Healthcare Management, Inc.
 Prime Therapeutics LLC
 Public Health Informatics Institute
 Ready Computing Inc.
 Rochester RHIO
 Samvit Solutions
 Security Risk Solutions, Inc. (SRS)
 SMART Health IT
 Sparx Systems
 St. Jude Children's Research Hospital
 Starwest Tech
 State of New Hampshire
 Symptomatic, LLC
 Tabula Rasa HealthCare, Inc
 Tennessee Department of Health
 Transcend Insights
 UCSF Center for Digital Health Innovation
 University of Arkansas Medical Sciences
 UW Medicine Information Technology Services

CONSULTANTS

AEGIS.net, Inc.
 Carradora Health, Inc.
 CentriHealth
 Cognosante, LLC
 Curandi
 Dapasoft Inc.
 doc.ai Inc.
 Elimu Informatics Inc.
 EnableCare LLC
 Fleet Health
 Health eData Inc.
 Health Intersections Pty Ltd
 HLN Consulting, LLC
 Interfix, LLC
 J Michael Consulting, LLC
 Lantana Consulting Group
 M*Modal, Inc.
 Mathematica Policy Research
 Point-of-Care Partners
 Professional Laboratory Management, Inc.
 Shafarman Consulting
 SLI Compliance
 Smallboard
 Vermonster LLC
 Vernetzt, LLC
 WaveOne Associates Inc.

GENERAL INTEREST

Agence eSante Luxembourg
 Alabama Department of Public Health
 American Assoc. of Veterinary Lab Diagnosticians
 American Clinical Laboratory Association
 American College of Cardiology
 American College of Obstetricians and Gynecologists
 American Dental Association
 American Immunization Registry Association (AIRA)
 ASIP SANTE
 Australian Digital Health Agency
 Baylor College of Medicine
 Bipartisan Policy Center
 CA Department of Public Health
 California Department of Health Care Services
 CAQH
 CENS
 Center for Medical Interoperability
 Centers for Medicare & Medicaid Services
 Centre for Development of Advanced Computing
 College of American Pathologists

Organizational Members (continued)

College of Healthcare Information Mgmt. Executives	New York State Office of Mental Health	Humana Inc
Colorado Regional Health Information Organization	NJ Division of Developmental Disabilities	Lumeris, Inc.
CommonWell Health Alliance	NJDOH	Meridian Health Plan
Contra Costa County Health Services	NYS DOH, Office of Quality and Patient Safety	Noridian Healthcare Solutions
Council of Cooperative Health Insurance	Object Management Group (OMG)	Wisconsin Physicians Service Ins. Corp.
Council of State and Territorial Epidemiologists	Oklahoma State Department of Health	PHARMACY
DGS, Commonwealth of Virginia	Oregon Public Health Division	GlaxoSmithKline
DirectTrust	OSEHRA	Merck & Co. Inc.
European Medicines Agency	PCHAlliance	UCB
GS1 US	PCPI	PROVIDERS
Health and Welfare Information Systems Centre	Pharmaceuticals & Medical Devices Agency	Acuity Healthcare
Health Sciences South Carolina	Radiological Society of North America	Alaska Native Tribal Health Consortium
HealthHIE Nevada	Ramsey County Public Health	Albany Medical Center
HIMSS	Republican Center for Medical Technologies	almerys
HSE - Health Service Executive	Rhode Island Quality Institute	Blessing Hospital
I3L @ GaTech	RTI International	Boston Medical Center
ICCBBA, Inc.	SC Dept. of Health & Environmental Control HS	Cedars-Sinai Medical Center
ICH	Social Security Administration	Central Illinois Radiological Associates
Idaho Health Data Exchange	The Joint Commission	Children's Mercy Hospitals and Clinics
Illinois Department of Public Health	The Sequoia Project	Children's of Alabama
International Society for Disease Surveillance	UC Davis School of Medicine	CHRISTUS Health
Iowa Department of Public Health	United Network for Organ Sharing	Dayton Children's Hospital
IT Division at Ministry of Health	United Physicians	Diagnostic Laboratory Services
Japan Pharmaceutical Manufacturers Association	University of AL at Birmingham	Emory Healthcare
Michigan State University HIT	University of Miami	Gillette Children's Specialty Healthcare
Michigan Technological University	University of Minnesota	HCA IT&S
Minnesota Department of Health	University of Texas Medical Branch at Galveston	Hendricks Regional Health
Missouri Department of Health & Senior Services	Utah Department of Health	Johns Hopkins Hospital
NAACCR	Virginia Department of Health	Laboratory Corporation of America
National Cancer Institute	Washington State Department of Health	Loyola University Health System
National Center for Health Statistics/CDC	Westat	Mary Greeley Medical Center
National Centre for Healthcare Information Systems	Wisconsin Department of Health Services	Mayo Clinic
National Council for Prescription Drug Programs	WorldVistA	Mediclinic Southern Africa
National Institute of Standards and Technology	WV Department of Health and Human Resources	Milton S. Hershey Medical Center
National Library of Medicine	PAYERS	Montefiore Medical Center
NC Division of Public Health	Anthem, Inc.	MultiCare Health System
NCQA	Arkansas Blue Cross Blue Shield	New York-Presbyterian Hospital
Nebraska Dept of Health and Human Services	Blue Cross Blue Shield of Kansas City	North Carolina Baptist Hospitals, Inc.
Nebraska Health Information Initiative (NeHII)	Blue Cross Blue Shield of Louisiana	Palmetto Health Tuomey
New York eHealth Collaborative	Blue Cross Blue Shield of Michigan	Perry Community Hospital
New York State Department of Health	Blue Cross Blue Shield of South Carolina	Rady Children's Hospital
	Cambia Health Solutions	Regenstrief Institute, Inc.
	Healthfirst Management Services LLC	Sharp HealthCare Information Systems
	HealthNow New York Inc.	South Bend Medical Foundation, Inc.
	Healthspring	Sparrow Health System
	Highmark Health	Spectrum Health
		St. Joseph's Healthcare System
		Stanford Children's Health
		Sutter Health
		The Children's Hospital of Philadelphia

Organizational Members (continued)

UK HealthCare
 UNC Health Care System
 University of Louisville Physicians
 University of Nebraska Medical Center
 University of Utah Health Care
 University Physicians, Inc.
 UT M.D. Anderson Cancer Center

VENDORS

A2C Medical
 Adeptia Inc.
 Amtelco
 Apelon, Inc.
 Apple Inc.
 Applied PilotFish Healthcare Integration
 athenahealth
 Azuba Corporation
 BayHealth Development
 Beckman Coulter, Inc.
 Becton Dickinson
 Bizmatics, Inc.
 By Light Professional IT Services LLC
 CareRelay, Inc.
 Caristix
 Carium
 Cedaron Medical, Inc.
 Change Healthcare
 Clinical Architecture LLC
 Clinical Software Solutions
 Clinicom, Intl
 Cognitive Medical Systems
 Community Computer Service, Inc.
 Complia Health
 Conéctate Soluciones y Aplicaciones SL
 Cyrus-XP LLC
 Data Innovations, LLC
 Deer Creek Pharmacy Services
 Diameter Health
 Document Storage Systems, Inc.
 DocuTrac, Inc.
 Due North Innovations, LLC
 Dynamic Health IT, Inc.
 Eccovia Solutions
 eClinicalWorks
 ELEKTA
 EMR Direct
 Evident
 EXTEDO
 ezEMRx
 FEI.com
 Foothold Technology
 Forte Research Systems, Inc.

Genesis Systems, Inc.
 Geriatric Practice Management
 Goldblatt Systems, LLC
 Greenway Health
 Health Care Software, Inc.
 Health Catalyst
 HealthLX
 heartbase, inc.
 IBM
 Infor
 Information Builders
 Information Management Associates
 Innovaccer Inc.
 Intelligent Medical Objects (IMO)
 Interbit Data, Inc.
 iPatientCare, Inc.
 Jopari Solutions
 KaMMCO
 Lab Warehouse, Inc.
 Labware, Inc.
 Leidos, Inc.
 LINK Medical Computing, Inc.
 Logibec
 McKesson Corporation
 MDT Technical Services, Inc.
 MedConnect, Inc.
 Medecision
 MedEvolve, Inc.
 MedicaSoft
 Medicomp Systems, Inc.
 MediSked, LLC
 Medisolv Inc
 MEDITECH, Inc
 Medtronic
 Mettle Solutions LLC
 MGRID
 ModuleMD LLC
 MYHEALTH ACCESS NETWORK, inc.
 MyHealthcare Online Inc.
 NaviHealth
 NetDirector
 NextGen Healthcare Information
 Systems, Inc.
 NoMoreClipboard.com
 OneHealthPort
 Orchard Software
 Patient Resource LLC
 Perspecta
 PHI Medical Office Solutions
 Premier Healthcare Alliance
 Prometheus Computing LLC

Prometheus Research, LLC
 Pulse Systems Inc.
 QS/1 Data Systems, Inc.
 Quantros, Inc.
 Qvera
 Real Seven, LLC
 Redox
 Reed Technology and
 Information Services Inc.
 Roche Diagnostics International Ltd.
 Rosch Visionary Systems
 Sabiamed Corporation
 Secure Health Chain
 Sisoft Healthcare Information Systems
 SIVSA SOLUCIONES
 INFORMATICAS, S.A.U.
 Softek Solutions, Inc.
 Software AG USA, Inc.
 Southwestern Provider Services, Inc
 SRSsoft, Inc.
 StreamlineMD, LLC.
 Summit Healthcare Services, Inc.
 Summit Imaging, Inc.
 Surescripts
 SurgiVision Consultants, Inc.
 TGX Medical Systems
 The CBORD Group Inc.
 The MITRE Corporation
 TIBCO Software Inc.
 Uniform Data System for
 Medical Rehabilitation
 Varian Medical Systems, Inc.
 VigiLanz Corporation
 WebMD Health Services
 Wellsoft Corporation
 Wolters Kluwer Health
 XchangeWorx
 XIFIN, Inc.
 Yardi Systems, Inc.
 Zoho Corp.

2019 TECHNICAL STEERING COMMITTEE MEMBERS

CHAIR

Austin Kreisler, FHL7
Leidos, Inc.
Phone: +1 706-525-1181
Email: austin.j.kresler@leidos.com

CHIEF TECHNOLOGY OFFICER

Wayne Kubick
Health Level Seven International
Phone: +1 847-842-1846
Email: wkubick@HL7.org

ARB CHAIR

Anthony Julian, FHL7
Mayo Clinic
Phone: +1 507-266-0958
Email: ajulian@mayo.edu

ARB VICE CHAIR

Lorraine Constable
HL7 Canada
Phone: +1 780-951-4853
Email: lorraine@constable.ca

INTERNATIONAL REPRESENTATIVES

Giorgio Cangioli
HL7 Italy
Email: giorgio.cangioli@gmail.com

Jean Duteau
Duteau Design Inc.
Phone: +1 780-328-6395
Email: jean@duteaudesign.com

ADMINISTRATIVE CO-CHAIRS

Mary Kay McDaniel
Cognosante, LLC
Email: marykay.mcdaniel@cognosante.com

Ulrike Merrick
Vernetzt, LLC
Phone: +1 415-634-4131
Email: rikimerrick@gmail.com

CLINICAL CO-CHAIRS

Floyd Eisenberg, MD
iParsimony LLC
Phone: +1 202-643-6350
Email: feisenberg@iparsimony.com

Melva Peters
Jenaker Consulting
Phone: +1 604-512-5124
Email: melva@jenakerconsulting.com

INFRASTRUCTURE CO-CHAIRS

Russell Hamm
Intelligent Medical Objects (IMO)
Phone: +1 847-613-6645
Email: russellhamm@gmail.com

Paul Knapp
Knapp Consulting Inc.
Phone: +1 604-987-3313
Email: pknapp@pknapp.com

ORGANIZATIONAL SUPPORT CO-CHAIRS

Virginia Lorenzi, FHL7
New York-Presbyterian Hospital
Email: vlorenzi@nyp.org

Sandra Stuart
Kaiser Permanente
Phone: +1 925-519-5735
Email: sandra.stuart@kp.org

AD-HOC MEMBERS

Ken McCaslin MAR, FHL7
Accenture
Phone: +1 267-216-1428
Email: H.Kenneth.McCaslin@accenture.com

John Roberts
Tennessee Department of Health
Phone: +1 615-741-3702
Email: john.a.roberts@tn.gov

Steering Divisions

ADMINISTRATIVE

Attachments
Electronic Health Records
Financial Management
Imaging Integration
Orders & Observations
Patient Administration

CLINICAL

Anesthesia
Biomedical Research & Regulation
Clinical Decision Support
Clinical Genomics
Clinical Interoperability Council
Clinical Quality Information
Community-Based Care and Privacy
Emergency Care
Health Care Devices
Learning Health Systems
Patient Care
Pharmacy
Public Health

INFRASTRUCTURE

Arden Syntax
Clinical Information Modeling Initiative
Conformance
FHIR Infrastructure
Implementable Technology Specifications
Infrastructure & Messaging
Mobile Health
Modeling & Methodology
Security
Services Oriented Architecture
Structured Documents
Templates
Vocabulary

ORGANIZATIONAL SUPPORT

Education
Electronic Services & Tools
Process Improvement Committee
Project Services
Publishing

HL7 Work Group Co-Chairs

ANESTHESIA

Martin Hurrell, PhD
 Phone: +44 7711-669-522
 Email: martinhurrell@outlook.com

Ellen Torres
 Email: etworks@outlook.com

John Walsh, MD
 Partners HealthCare System, Inc.
 Phone: +1 857-282-3953
 Email: jwalsh@partners.org

ARCHITECTURAL REVIEW BOARD

Lorraine Constable
 HL7 Canada
 Phone: +1 780-951-4853
 Email: lorraine@constable.ca

Anthony Julian, FHL7
 Mayo Clinic
 Phone: +1 507-293-8384
 Email: ajulian@mayo.edu

ARDEN SYNTAX

Peter Haug, MD
 Intermountain Healthcare
 Phone: +1 801-507-9253
 Email: peter.haug@imail.org

Robert Jenders, MD, MS
 Charles Drew University/UCLA
 Phone: +1 323-249-5734
 Email: jenders@ucla.edu

ATTACHMENTS

Durwin Day
 Health Care Service Corporation
 Phone: +1 312-653-5948
 Email: dayd@bcbsil.com

Christol Green
 Anthem, Inc.
 Phone: +1 303-435-6195
 Email: christol.green@anthem.com

Russell Ott
 Deloitte Consulting LLP
 Email: rott@deloitte.com

BIOMEDICAL RESEARCH AND REGULATION

Boris Brodsky
 Food and Drug Administration
 Phone: +1 301-796-5179
 Email: boris.brodsky@fda.hhs.gov

Myron Finseth, BS, MSc
 Medtronic
 Phone: +1 763-526-3071
 Email: myron.finseth@medtronic.com

Hugh Glover, FHL7
 Blue Wave Informatics
 Email: hugh_glover@bluewaveinformatics.co.uk

CLINICAL DECISION SUPPORT

Guilherme Del Fiol, MD, PhD
 University of Utah Health Care
 Phone: +1 801-213-4129
 Email: guilherme.delfiol@utah.edu

Robert Jenders, MD, MS
 Charles Drew University/UCLA
 Phone: +1 323-249-5734
 Email: jenders@ucla.edu

Kensaku Kawamoto, MD, PhD
 University of Utah Health Care
 Phone: +1 801-587-8076
 Email: kensaku.kawamoto@utah.edu

Bryn Rhodes
 Database Consulting Group
 Phone: +1 801-210-0324
 Email: bryn@databaseconsultinggroup.com

Howard Strasberg, MD, MS
 Wolters Kluwer Health
 Phone: +1 858-481-4249
 Email: howard.strasberg@wolterskluwer.com

CLINICAL GENOMICS

Gil Alterovitz, PhD
 SMART Health IT
 Email: gil@chip.org

Robert Freimuth, PhD
 Mayo Clinic
 Phone: +1 507-266-4078
 Email: freimuth.robert@mayo.edu

Bob Milius, PhD
 National Marrow Donor Program
 Phone: +1 612-627-5844
 Email: bmilius@nmdp.org

Kevin Power
 Cerner Corporation
 Phone: +1 816-201-3026
 Email: kpower@cerner.com

Patrick Werner
 HL7 Germany
 Phone: +49 15150602008
 Email: pa.f.werner@gmail.com

CLINICAL INFORMATION MODELING INITIATIVE

Richard Esmond
 PenRad
 Phone: +1 763-475-3388
 Email: richard.esmond@gmail.com

Stanley Huff, MD, FHL7
 Intermountain Healthcare
 Phone: +1 801-507-9111
 Email: stan.huff@imail.org

Galen Mulrooney, MBA
 U.S. Department of Veterans Affairs
 Phone: +1 703-815-0900
 Email: galen.mulrooney@jpsys.com

Claude Nanjo
 University of Utah Health Care
 Phone: +1 810-587-6092
 Email: cnanjo@gmail.com

CLINICAL INTEROPERABILITY COUNCIL

Laura Heermann Langford RN, PhD
 Intermountain Healthcare
 Phone: +1 801-507-9254
 Email: laura.heermann@imail.org

Lindsey Hoggle
 IRIS Health Solutions, LLC
 Email: lhoggle@irishealthsolutions.com

Russell Leftwich, MD
 InterSystems
 Phone: +1 617-551-2111
 Email: russell.leftwich@intersystems.com

Amy Nordo, MMCi, RN
 Pfizer
 Email: amy.nordo@pfizer.com

CLINICAL QUALITY INFORMATION

Patricia Craig, MS, MIS
 The Joint Commission
 Phone: +1 630-792-5546
 Email: pcraig@jointcommission.org

Floyd Eisenberg, MD
 iParsimony LLC
 Phone: +1 202-643-6350
 Email: feisenberg@iparsimony.com

Yan Heras
 Optimum eHealth
 Phone: +1 949-566-3361
 Email: yanheras@gmail.com

Juliet Rubini, MS, MSIS
 Mathematica Policy Research
 Phone: +1 609-750-3181
 Email: julietkrubini@gmail.com

Kanwarpreet Sethi
 Lantana Consulting Group
 Phone: 802-785-2623
 Email: kp.sethi@lantanagroup.com

COMMUNITY-BASED CARE AND PRIVACY

Johnathan Coleman
 Security Risk Solutions, Inc. (SRS)
 Phone: +1 843-442-9104
 Email: jc@securityrs.com

Suzanne Gonzales-Webb
 Department of Veteran Affairs
 Phone: +1 727-605-5081
 Email: suzanne.webb@bookzurman.com

James Kretz
 SAMHSA
 Phone: +1 240-276-1755
 Email: jim.kretz@samhsa.hhs.gov

David Pyke
 Ready Computing Inc.
 Phone: +1 212-877-3307 x101
 Email: david.pyke@readycomputing.com

HL7 Work Group Co-Chairs (continued)

CONFORMANCE

Nathan Bunker

American Immunization
Registry Association
Phone: +1 435-635-1532
Email: nbunker@immregistries.org

Frank Oemig, PhD, FHL7

HL7 Germany
Phone: +49 208-781194
Email: hl7@oemig.de

Ioana Singureanu, MSCs, FHL7

U.S. Department of Veterans Affairs
Phone: +1 603-548-5640
Email: ioana.singureanu@bookzurman.com

Robert Snelick

National Institute of Standards & Technology
Phone: +1 301-975-5924
Email: robert.snelick@nist.gov

ELECTRONIC HEALTH RECORDS

Michael Brody, DPM

Email: mbrody@cmeonline.com

Gary Dickinson, FHL7

CentriHealth
Phone: +1 951-536-7010
Email: gary.dickinson@ehr-standards.com

Stephen Hufnagel, PhD

Apprio, Inc.
Phone: +1 703-575-7912
Email: shufnagel@apprioinc.com

Mark Janczewski, MD, MPH

Medical Networks, LLC
Email: mark.janczewski@gmail.com

John Ritter, FHL7

Phone: +1 412-372-5783
Email: johnritter1@verizon.net

Feliciano Yu, MD, MS

University of Arkansas Medical Sciences
Email: pele.yu@archildrens.org

ELECTRONIC SERVICES AND TOOLS

David Burgess

Laboratory Corporation of America
Phone: +1 615-221-1901
Email: burgesd@labcorp.com

Elizabeth Newton

Kaiser Permanente
Phone: 925-997-8150
Email: elizabeth.h.newton@kp.org

Brian Pech, MD, MBA

Kaiser Permanente
Phone: +1 678-245-1762
Email: brian.pech@kp.org

Andrew Statler

Cerner Corporation
Phone: +1 816-201-3336
Email: andrew.statler@cerner.com

Michael Van der Zel, BSc

HL7 Netherlands
Phone: +31 503619876
Email: m.van.der.zel@umcg.nl

EMERGENCY CARE

Dominik Brammen

HL7 Germany
Phone: +49 700-7777-6767
Email: dominik.brammen@aktin.org

Laura Heermann Langford, RN, PhD

Intermountain Healthcare
Phone: +1 801-507-9254
Email: laura.heermann@imail.org

James McClay, MD

University of Nebraska Medical Center
Phone: +1 402-559-3587
Email: jmcclay@unmc.edu

FHIR INFRASTRUCTURE

Rick Geimer

Lantana Consulting Group
Phone: +1 650-209-4839
Email: rick.geimer@lantanagroup.com

Ewout Kramer

HL7 Netherlands / Firely
Phone: +31 3467171
Email: ewout@fire.ly

Joshua Mandel, MD

SMART Health IT
Phone: +1 617-500-3253
Email: jmandel@gmail.com

Lloyd McKenzie, FHL7

HL7 Canada / Gevity
Email: lloyd@lmckenzie.com

FINANCIAL MANAGEMENT

Kathleen Connor, FHL7

U.S. Department of Veterans Affairs
Phone: +1 727-519-4607
Email: kathleen.connor@comcast.net

Paul Knapp

Knapp Consulting
Phone: +1 604-987-3313
Email: pknapp@pknapp.com

Mary Kay McDaniel

Cognosante, LLC
Email: marykay.mcdaniel@cognosante.com

Benoit Schoeffler

Almerys
Phone: +33 473982044
Email: benoit.schoeffler@almerys.com

HEALTH CARE DEVICES

Todd Cooper

Intermountain Healthcare
Phone: +1 801-290-6887
Email: toddcooperafc@gmail.com

Chris Courville

Epic
Phone: +1 608-271-9000
Email: ccourvil@epic.com

John Garguilo

National Institute of Standards
Email: john.garguilo@nist.gov

John Rhoads, PhD

Philips Healthcare
Phone: +1 978-659-3024
Email: john.rhoads@philips.com

IMAGING INTEGRATION

Jonathan Whitby

Vital (Canon)
Phone: +1 678-245-1762
Email: jwhitby@vitalimages.com

IMPLEMENTABLE TECHNOLOGY SPECIFICATIONS

Paul Knapp

Knapp Consulting Inc.
Phone: +1 604-987-3313
Email: pknapp@pknapp.com

Brian Pech, MD, MBA

Kaiser Permanente
Phone: +1 678-245-1762
Email: brian.pech@kp.org

Andy Stechishin

HL7 Canada
Phone: +1 780-903-0885
Email: andy.stechishin@gmail.com

INFRASTRUCTURE & MESSAGING

Anthony Julian, FHL7

Mayo Clinic
Phone: +1 507-293-8384
Email: ajulian@mayo.edu

Nick Radov

UnitedHealthcare
Phone: +1 800-328-5979
Email: nradov@uhc.com

Sandra Stuart, FHL7

Kaiser Permanente
Phone: +1 925-519-5735
Email: sandra.stuart@kp.org

HL7 Work Group Co-Chairs (continued)

INTERNATIONAL COUNCIL

Peter Jordan, MSc LLB
 HL7 New Zealand
Phone: +64 21-758834
Email: pkjordan@xtra.co.nz

Melva Peters
 Jenaker Consulting
Phone: +1 604-512-5124
Email: melva@jenakerconsulting.com

Line Saele
 HL7 Norway
Phone: +47 9592-5357
Email: line.sele@nasjonalikt.no

LEARNING HEALTH SYSTEMS

Russell Leftwich, MD
 InterSystems
Phone: +1 617-551-2111
Email: russell.leftwich@intersystems.com

John Roberts
 Tennessee Department of Health
Phone: +1 615-741-3570
Email: john.a.roberts@tn.gov

MOBILE HEALTH

Nathan Botts, PhD, MSIS
 Westat
Phone: +1 760-845-8356
Email: nathanbotts@westat.com

Gora Datta
 CAL2CAL Corporation
Phone: +1 949-955-3443
Email: gora@cal2cal.com

Matthew Graham
 Mayo Clinic
Phone: +1 507-284-3028
Email: mgraham@mayo.edu

Frank Ploeg
 HL7 Netherlands
Email: r.f.ploeg@umcg.nl

MODELING AND METHODOLOGY

Jean Duteau
 Duteau Design Inc.
Phone: +1 780-328-6395
Email: jean@duteaodesign.com

Grahame Grieve, FHL7
 HL7 International; Health
 Intersections Pty Ltd
Phone: +61 3-98445796
Email: grahame@hl7.org; grahame@healthintersections.com.au

AbdulMalik Shakir, FHL7
 Hi3 Solutions
Phone: +1 626-644-4491
Email: abdulmalik.shakir@hi3solutions.com

Ron Shapiro
 Qvera
Phone: +1 801-335-51-1 x7011
Email: ron@qvera.com

ORDERS/OBSERVATIONS

Hans Buitendijk, MSc, FHL7
 Cerner Corporation
Phone: +1 610-219-2087
Email: hans.buitendijk@cerner.com

David Burgess
 Laboratory Corporation of America
Phone: +1 615-221-1901
Email: burgesd@lapcorp.com

Lorraine Constable
 HL7 Canada
Phone: +1 780-951-4853
Email: lorraine@constable.ca

Robert Hausam, MD, FHL7
 Hausam Consulting, LLC
Phone: +1 801-949-1556
Email: rob@hausamconsulting.com

Patrick Loyd, FHL7
Email: patrick.e.loyd@gmail.com

Ken McCaslin, MAR, FHL7
 Accenture
Phone: +1 267-216-1428
Email: h.kenneth.mccaslin@accenture.com

Ulrike Merrick
 Vernetzt, LLC
Phone: +1 415-634-4131
Email: rikimerrick@gmail.com

John David Nolen, MD, PhD
 Children's Mercy Hospitals and Clinics
Phone: +1 816-701-4882
Email: jdlnolen@gmail.com

PATIENT ADMINISTRATION

Alexander de Leon
 Kaiser Permanente
Phone: +1 626-381-4141
Email: alexander.j.deleon@kp.org

Irma Jongeneel-de Haas, FHL7
 HL7 Netherlands
Phone: +31 681153857
Email: jongeneel@vzvz.nl

Brian Postlethwaite, BaSc
 HL7 Australia
Phone: +61 420-306-556
Email: brian_pos@hotmail.com

Line Saele
 HL7 Norway
Phone: +47 9592-5357
Email: line.sele@nasjonalikt.no

PATIENT CARE

Stephen Chu, MD
 HL7 Australia
Phone: +61 416960333
Email: chuscmi88@gmail.com

Laura Heermann Langford, RN, PhD
 Intermountain Healthcare
Phone: +1 801-507-9254
Email: laura.heermann@imail.org

Emma Jones
 Allscripts
Phone: +1 919-859-8441
Email: emma.jones@allscripts.com

Jay Lyle
 U.S. Department of Veterans Affairs
Email: joseph.lyle@va.gov

Michelle Miller
 Cerner Corporation
Phone: +1 816-201-2010
Email: mmoseman@cerner.com

Michael Padula, MD, MBI
 The Children's Hospital of Philadelphia
Phone: +1 215-590-1653
Email: padula@email.chop.edu

Michael Tan
 NICTIZ
Phone: +31 7031-73450
Email: tan@nictiz.nl

PHARMACY

Jean Duteau
 Duteau Design Inc
Phone: +1 780-328-6395
Email: jean@duteaodesign.com

John Hatem, FHL7
Email: jnhatem@hotmail.com

Melva Peters
 Jenaker Consulting
Phone: +1 604-512-5124
Email: melva@jenakerconsulting.com

Scott Robertson, PharmD, FHL7
 Kaiser Permanente
Phone: +1 310-200-0231
Email: scott.m.robertson@kp.org

PROCESS IMPROVEMENT COMMITTEE

Ken Rubin
 U. S. Department of Veterans Affairs
Phone: +1 301-613-3104
Email: ken.rubin@utah.edu

Sandra Stuart, FHL7
 Kaiser Permanente
Phone: +1 925-519-5735
Email: sandra.stuart@kp.org

HL7 Work Group Co-Chairs (continued)

PROJECT SERVICES

Rick Haddorff

Mayo Clinic
Email: haddorff.richard@mayo.edu

Freida Hall, FHL7

Quest Diagnostics, Inc.
Phone: +1 610-650-6794
Email: freida.x.hall@questdiagnostics.com

PUBLIC HEALTH AND EMERGENCY RESPONSE

Erin Holt, MPH

Tennessee Department of Health
Phone: +1 615-741-3570
Email: erin.holt@tn.gov

Joginder Madra

Madra Consulting Inc.
Phone: +1 780-717-4295
Email: hl7@madraconsulting.com

Craig Newman

Altarum
Phone: +1 608-345-3606
Email: craig.newman@altarum.org

Laura Rappleye

Altarum
Email: laura.rappleye@altarum.org

Danny Wise

Allscripts
Phone: +1 919-239-7401
Email: danny.wise@allscripts.com

PUBLISHING COMMITTEE

James Agnew

University Health Network
Email: james.agnew@uhn.ca

Brian Pech, MD, MBA

Kaiser Permanente
Phone: +1 678-245-1762
Email: brian.pech@kp.org

SECURITY

Kathleen Connor, FHL7

U.S. Department of Veterans Affairs
Phone: +1 727-519-4607
Email: kathleen_connor@comcast.net

Alexander Mense

HL7 Austria
Phone: +43 01-1-333-40-77-232
Email: alexander.mense@hl7.at

John Moehrke

By Light Professional IT Services LLC
Phone: +1 703-224-1000
Email: john.moehrke@bylight.com

Chris Shawn

U.S. Department of Veterans Affairs
Phone: +1 518-681-1858
Email: christopher.shawn2@va.gov

Patricia Williams, PhD, MSc

HL7 Australia
Phone: +61 420-306-556
Email: patricia.williams@flinders.edu.au

SERVICES ORIENTED ARCHITECTURE

Jerry Goodnough

Cognitive Medical Systems
Phone: +1 541-338-4911
Email: ferret@stormwoods.com

Stefano Lotti

HL7 Italy
Phone: +39 06-42160685
Email: slotti@invitalia.it

Vince McCauley, MBBS, PhD

Telstra Health (Australia)
Phone: +61 298186493
Email: vincem@bigpond.com.au

Diana Proud-Madruga

U.S. Department of Veterans Affairs
Phone: +1 619-467-5568
Email: diana.proud-madruga@va.gov

STANDARDS GOVERNANCE BOARD

Lorraine Constable

HL7 Canada
 Phone : +1 780-951-4853
Email: lorraine@constable.ca

Paul Knapp

Knapp Consulting Inc.
Phone: +1 604-987-3313
Email: pknapp@pknapp.com

STRUCTURED DOCUMENTS

Calvin Beebe, FHL7

Mayo Clinic
Email: cbeebe@mayo.edu

Gay Dolin, MSN RN

Intelligent Medical Objects (IMO)
Phone: +1 847-613-6645
Email: gdolin@imo-online.com

Benjamin Flessner

Redox
Email: benjamin@redoxengine.com

Austin Kreisler, FHL7

Leidos, Inc.
Phone: +1 706-525-1181
Email: austin.j.kreisler@leidos.com

Sean McIlvenna

Lantana Consulting Group
Phone: +1 802-785-2623
Email: sean.mcilvenna@lantanagroup.com

Andrew Statler

Cerner Corporation
Phone: +1 816-201-3336
Email: andrew.statler@cerner.com

TEMPLATES

Kai Heitmann, MD, FHL7

HL7 Germany
Phone: +49 172-2660814
Email: hl7@kheitmann.de

Mark Shafarman, FHL7

Shafarman Consulting
Phone: +1 510-593-3483

Email: mark.shafarman@earthlink.net

VOCABULARY

Reuben Daniels

HL7 Australia
Phone: +61 408749769
Email: reuben@saludax.com

Heather Grain

eHealth Education
Phone: +61 3-956-99443
Email: heather@lginformatics.com

Russell Hamm

Intelligent Medical Objects (IMO)
Phone: +1 847-613-6645
Email: russellhamm@gmail.com

Robert Hausam, MD, FHL7

Hausam Consulting, LLC
Phone: +1 801-949-1556
Email: rob@hausamconsulting.com

William Ted Klein, FHL7

Klein Consulting Informatics LLC
Phone: +1 307-883-9739
Email: kci@tklein.com

Caroline Macumber

Apelon, Inc.
Phone: +1 203-431-2530
Email: cmacumber@apelon.com

Robert McClure, MD, FHL7

MD Partners, Inc.
Phone: +1 303-926-6771
Email: mcclure@mdpartners.com

HL7 Work Group Facilitators

BIOMEDICAL RESEARCH AND REGULATION

D. Mead Walker, FHL7
Modeling and Methodology
Mead Walker Consulting
Phone: +1 610-518-6259
Email: dmead@comcast.net

Myron Finseth, BS, MSc
Publishing
Medtronic
Phone: +1 763-526-3071
Email: myron.finseth@medtronic.com

Julie James
Vocabulary
Blue Wave Informatics
Email: julie_james@bluewaveinformatics.co.uk

CLINICAL DECISION SUPPORT

Craig Parker, MD, MS, FHL7
Modeling and Methodology; Publishing
Email: craigparkermd@gmail.com

Robert McClure, MD, FHL7
Vocabulary
MD Partners, Inc.
Phone: +1 303-926-6771
Email: mcclure@mdpartners.com

CLINICAL GENOMICS

Amnon Shabo, PhD, FHL7
Modeling and Methodology
Philips Healthcare
Email: amnon.shvo@gmail.com

Grant Wood
Publishing
Intermountain Healthcare
Phone: +1 801-408-8153
Email: grant.wood@imail.org

Joel Schneider
Vocabulary
National Marrow Donor Program
Phone: +1 763-406-8207
Email: jschneid@nmdp.org

CLINICAL INFORMATION MODELING INITIATIVE

Susan Matney, PhD, RN
Vocabulary
Intermountain Healthcare
Email: susan.matney@imail.org

CLINICAL INTEROPERABILITY COUNCIL

AbdulMalik Shakir, FHL7
Modeling and Methodology
Hi3 Solutions
Phone: +1 626-644-4491
Email: abdulmalik.shakir@hi3solutions.com

Amy Nordo, MMCi, RN
Publishing
Pfizer
Email: amy.nordo@pfizer.com

Sarah Ryan
Vocabulary
Email: ryansaraha1@earthlink.net

COMMUNITY-BASED CARE AND PRIVACY

Ioana Singureanu, MSCs, FHL7
Modeling and Methodology; Publishing
U.S. Department of Veterans Affairs
Phone: +1 603-548-5640
Email: ioana.singureanu@bookzurman.com

Kathleen Connor, FHL7
Vocabulary
U.S. Department of Veterans Affairs
Phone: +1 727-519-4607
Email: kathleen_connor@comcast.net

EDUCATION ADVISORY COUNCIL

Heather Grain
Vocabulary
eHealth Education
Phone: +61 3-956-99443
Email: heather@lginformatics.com

ELECTRONIC HEALTH RECORDS

Corey Spears
Modeling and Methodology
Infor
Phone: +1 917-426-7397
Email: corey.spears@infor.com

John Ritter, FHL7
Publishing
Phone: +1 412-372-5783
Email: johnritter1@verizon.net

EMERGENCY CARE

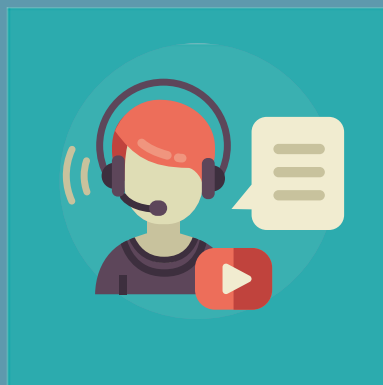
Kevin Coonan, MD
Modeling and Methodology
Email: kevin.coonan@gmail.com

FINANCIAL MANAGEMENT

Kathleen Connor, FHL7
Modeling and Methodology; Vocabulary
U.S. Department of Veterans Affairs
Phone: +1 727-519-4607
Email: kathleen_connor@comcast.net

Beat Heggli, FHL7
Modeling and Methodology; Publishing
HL7 Switzerland
Phone: +41 44-297-5737
Email: beat.heggli@netcetera.com

Mary Kay McDaniel
Publishing; Vocabulary
Cognosante, LLC
Email: marykay.mcdaniel@cognosante.com



Watch the HL7 website for
upcoming hl7 online classes!

See more details at:

[http://www.hl7.org/
training/calendar.cfm](http://www.hl7.org/training/calendar.cfm)

HL7 Work Group Facilitators

HEALTH CARE DEVICES

Ioana Singureanu, MSCs, FHL7
Modeling and Methodology
 U.S. Department of Veterans Affairs
 Phone: +1 603-548-5640
 Email: ioana.singureau@bookzurman.com

Todd Cooper
Vocabulary
 Intermountain Healthcare
 Phone: +1 801-290-6887
 Email: toddcooperafc@gmail.com

Christof Gessner
Vocabulary
 HL7 Germany
 Phone: +49 172-3994033
 Email: christof.gessner@gematik.de

IMAGING INTEGRATION

Elliot Silver, MSc
Vocabulary
 Change Healthcare
 Phone: +1 604-279-5422 x2686
 Email: elliot.silver@changehealthcare.com

INFRASTRUCTURE AND MESSAGING

Grahame Grieve, FHL7
Modeling and Methodology
 Health Intersections Pty Ltd./
 Health Level Seven International
 Phone: +61 3-98445796
 Email: grahame@healthintersections.com.au / grahame@HL7.org

Anthony Julian, FHL7
Publishing
 Mayo Clinic
 Phone: +1 507-293-8384
 Email: ajulian@mayo.edu

Sandra Stuart, FHL7
Vocabulary
 Kaiser Permanente
 Phone: +1 925-519-5735
 Email: sandra.stuart@kp.org

MODELING AND METHODOLOGY

AbdulMalik Shakir, FHL7
Modeling and Methodology
 Hi3 Solutions
 Phone: +1 626-644-4491
 Email: abdulmalik.shakir@hi3solutions.com

William Ted Klein, FHL7
Vocabulary
 Klein Consulting Informatics LLC
 Phone: +1 307-883-9739
 Email: kci@tklein.com

ORDERS AND OBSERVATIONS

Patrick Loyd, FHL7
Modeling and Methodology
 Email: patrick.e.loyd@gmail.com

Lorraine Constable
Publishing
 HL7 Canada
 Phone: +1 780-951-4853
 Email: lorraine@constable.ca

Robert Hausam, MD, FHL7
Vocabulary
 Hausam Consulting LLC
 Phone: +1 801-949-1556
 Email: rob@hausamconsulting.com

PATIENT ADMINISTRATION

Alexander Henket
Modeling and Methodology; Publishing
 NICTIZ Nat.ICT.Inst.Healthc.Netherlands
 Phone: +31 7031-73450
 Email: henket@nictiz.nl

Wendy Huang
Vocabulary
 Email: wendyyjhuang@gmail.com

PATIENT CARE

Jean Duteau
Modeling and Methodology
 Duteau Design Inc.
 Phone: +1 780-328-6395
 Email: jean@duteaudesign.com

Susan Matney, PhD, RN
Vocabulary
 Intermountain Healthcare
 Email: susan.matney@imail.org

PHARMACY

Jean Duteau
Modeling and Methodology
 Duteau Design Inc.
 Phone: +1 780-328-6395
 Email: jean@duteaudesign.com

Scott Robertson, PharmD, FHL7
Publishing
 Kaiser Permanente
 Phone: +1 310-200-0231
 Email: scott.m.robertson@kp.org

Julie James
Vocabulary
 Blue Wave Informatics
 Email: julie_james@bluewaveinformatics.co.uk

PUBLIC HEALTH

Joginder Madra
Modeling and Methodology
 Madra Consulting Inc.
 Phone: +1 780-717-4295
 Email: hl7@madraconsulting.com

Jean Duteau
Publishing
 Duteau Design Inc.
 Phone: +1 780-328-6395
 Email: jean@duteaudesign.com

Susan Barber
Vocabulary
 Email: subarber3@gmail.com

Sunanda McGarvey, BS
Vocabulary
 Northrop Grumman Technology Services
 Phone: +1 404-679-9384
 Email: sunanda.mcgarvey@ngc.com

SECURITY

Mike Davis
Publishing
 U.S. Department of Veterans Affairs
 Phone: +1 760-632-0294
 Email: mike.davis@va.gov

Kathleen Connor, FHL7
Vocabulary
 U.S. Department of Veterans Affairs
 Phone: +1 727-519-4607
 Email: kathleen_connor@comcast.net

SERVICES ORIENTED ARCHITECTURE

Diana Proud-Madruga
Vocabulary
 U.S. Department of Veterans Affairs
 Phone: +1 619-467-5568
 Email: diana.proud-madruga@va.gov

STRUCTURED DOCUMENTS

Austin Kreisler, FHL7
Modeling and Methodology
 Leidos, Inc.
 Phone: +1 706-525-1181
 Email: austin.j.kreisler@leidos.com

Sheila Abner, PhD
Vocabulary
 Centers for Disease Control
 and Prevention/CDC
 Phone: +1 470-344-2864
 Email: sha8@cdc.gov

TEMPLATES

Douglas Baird
Publishing
 Boston Scientific Corporation
 Phone: +1 651-582-3241
 Email: douglas.baird@guidant.com

Mark Shafarman, FHL7
Vocabulary
 Shafarman Consulting
 Phone: +1 510-593-3483
 Email: mark.shafarman@earthlink.net

VOCABULARY

William Ted Klein, FHL7
Vocabulary
 Klein Consulting Informatics LLC
 Phone: +1 307-883-9739
 Email: kci@tklein.com

HL7 ARGENTINA

Fernando Campos, FHL7
Phone: +54 11-4781-2898
Email: fernando.campos@hospitalitaliano.org.ar

HL7 AUSTRALIA

Jason Steen
Phone: +61 488881882
Email: chair@HL7.org.au

HL7 AUSTRIA

Stefan Sabutsch
Phone: +43 664-3132505
Email: stefan.sabutsch@hl7.at

HL7 BOSNIA & HERZEGOVINA

Samir Dedovic
Phone: +387 0-33-721-911
Email: samir.dedovic@medit.ba

HL7 BRAZIL

Marivan Abrahao, MD
Phone: +55 11-5573-9580
Email: marivan@mac.com

HL7 CANADA

Ron Parker
Phone: +1 416-595-3448
Email: ron@parkerdhc.com

HL7 CHINA

Professor Baoluo Li
Phone: +86 010-65815977
Email: liblpumch@qq.com

HL7 CROATIA

Miroslav Koncar
Phone: +385 99-321-2253
Email: chair@HL7.hr

HL7 CZECH REPUBLIC

Libor Seidl
Phone: +420 605740492
Email: seidl@HL7cr.eu

HL7 DENMARK

Sofia Stokholm
Phone: +45 39966222
Email: svs@ds.dk

HL7 FINLAND

Juha Mykkanen, PhD
Phone: +358 29-524-8038
Email: juha.mykkanen@thl.fi

HL7 FRANCE

Francois Macary
Phone: +33 786-160-591
Email: francois.macary@phast.fr

HL7 GERMANY

Christof Gessner
Phone: +49 172-3994033
Email: christof.gessner@gematik.de

HL7 GREECE

Alexander Berler
Phone: +30 2111001691
Email: a.berler@gnomon.com.gr

HL7 HONG KONG

Chun-Por Wong
Phone: +852 3488-3762
Email: chair@HL7.org.hk

HL7 INDIA

Naresh Yallapragada BDS, MSc
Email: chairman@HL7india.org

HL7 ITALY

Giorgio Cangioli
Phone: +39 06-42160685
Email: giorgio.cangioli@gmail.com

HL7 JAPAN

Michio Kimura, MD, PhD
Phone: +81 53-435-2770
Email: kimura@mi.hama-med.ac.jp

HL7 KOREA

Byoung-Kee Yi, PhD
Phone: +82 234101944
Email: byoungkeeyi@gmail.com

HL7 NETHERLANDS

Rob Mulders
Phone: +31 30-689-2730
Email: r.mulders@furore.com

HL7 NEW ZEALAND

Peter Jordan, MSc, LLB
Phone: +64 21-758834
Email: pkjordan@xtra.co.nz

HL7 NORWAY

Line Saele
Phone: +47 9592-5357
Email: line.sele@nasjonalikt.no

HL7 PAKISTAN

Kahlid Latif
Email: khalid.latif@Hl7.org.pk

HL7 POLAND

Roman Radomski, MD, MBA
Phone: +48 605-404-363
Email: radomski@iehr.eu

HL7 PORTUGAL

Paulo Alves
Email: paulo.alves@proside.pt

HL7 ROMANIA

Florica Moldoveanu
Phone: +40 21-4115781
Email: florica.moldoveanu@cs.pub.ro

HL7 RUSSIA

Sergey Shvyrev, MD, PhD
Phone: +7 495-434-55-82
Email: sergey.shvyrev@gmail.com

HL7 SAUDI ARABIA

Wael Al Dahhasi
Phone: +966 11-2021555
Email: HL7@cchi.gov.sa

HL7 SINGAPORE

Adam Chee
Email: HL7@binaryhealthcare.com

HL7 SPAIN

Francisco Perez
Phone: +34 637208657
Email: fperezfernan@gmail.com

HL7 SWEDEN

Mikael Wintell
Phone: +46 736-254831
Email: mikael.wintell@vgregion.se

HL7 SWITZERLAND

Roeland Luykx, PhD
Phone: +41 71-279-11-89
Email: roeland.luykx@arpag.ch

HL7 TAIWAN

Yu-Ting Yeh
Phone: +886 2-2552-6990
Email: yuting@tmu.edu.tw

HL7 UAE

Mohamed AlRedha, MD
Phone: +971 50-883-9916
Email: maalredha@dha.gov.ae

HL7 UK

Dunmail Hodkinson
Phone: +44 8700-112-866
Email: chair@HL7.org.uk

HL7 UKRAINE

Leonid Stoyanov
Phone: +380 443336829
Email: leo@hl7.org.ua

2019 HL7 Staff

Chief Executive Officer



Charles Jaffe, MD PhD
+1 858-720-8200
cjaffe@HL7.org

Chief Technology Officer



Wayne Kubick
+1 847-842-1846
wkubick@HL7.org

Executive Director



Mark McDougall
+1 734-677-7777 x103
markmcd@HL7.org

Associate Executive Director



Karen Van Hentenryck
+1 734-677-7777 x104
karenvan@HL7.org

Director of Education



Sadhana Alangar, PhD
+1 734-677-7777 x116
sadhana@HL7.org

Director of Meetings



Mary Ann Boyle
+1 734-677-7777 x141
maryann@HL7.org

FHIR Product Director



Grahame Grieve
+1 734-677-7777
grahame@HL7.org

Director of Marketing



Patricia Guerra
+1-773-516-0943
patricia@HL7.org

Director, Project Management Office



Dave Hamill
+1 734-677-7777 x142
dhamill@HL7.org

Director of Membership and Administrative Services



Linda Jenkins
+1 734-677-7777 x170
linda@HL7.org

Director of Technical Services & Webmaster



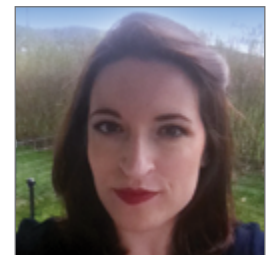
David Johnson
+1 734-677-7777 x125
davidj@HL7.org

Director of Technical Publications



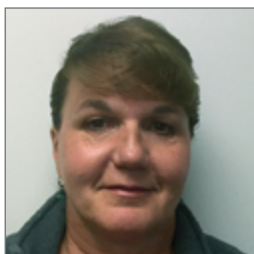
Lynn Laakso, MPA
+1 906-361-5966
lynn@HL7.org

Web Developer



Laura Mitter
+1 740-963-9839
laura@HL7.org

Accounting Manager



Renee Previch
+1 734-677-7777 x106
renee@HL7.org

Applications Manager



Joshua Procious
+1 734-677-777 x107
joshua@HL7.org

Director of Communications



Andrea Ribick
+1 734-677-7777 x165
andrea@HL7.org

Education Marketing Manager



Melinda Stewart
+1 734-677-7777 x101
melinda@HL7.org

HL7 Project Manager



Anne Wizauer
+1 734-677-7777 x112
anne@HL7.org

2019 HL7 Board of Directors

BOARD CHAIR



Calvin Beebe, FHL7
Mayo Clinic
cbeebe@mayo.edu

CHAIR-ELECT



Walter Suarez, MD, MPH
Kaiser Permanente
+1 301-801-3207
walter.g.suarez@kp.org

BOARD SECRETARY



Melva Peters
Jenaker Consulting
+1 604-512-5124
melva@jenakerconsulting.com

BOARD TREASURER



Russell Leftwich, MD
InterSystems
+1 617-551-2111
russell.leftwich@intersystems.com

CHAIR EMERITUS



W. Edward Hammond, PhD, FHL7
Duke Clinical & Translational Science Institute
+1 919-668-2408
william.hammond@duke.edu

APPOINTED DIRECTORS



Dave Shaver, FHL7
Corepoint Health
+1 214-618-7000
dave.shaver@corepointhealth.com



Mary Ann Slack
Food and Drug Administration
+1 301-796-0603
maryann.slack@fda.hhs.gov



Andrew Truscott
Accenture
+1 713-855-8402
andrew.j.truscott@accenture.com



Diego Kaminker
HL7 Argentina
+54 11-4781-2898
diego.kaminker@kern-it.com.ar



Line Saele
HL7 Norway
+47 9592-5357
line.sele@nasjonalikt.no

AFFILIATE DIRECTORS

TSC CHAIR



Austin Kreisler, FHL7
Leidos, Inc.
+1 706-525-1181
austin.j.kreisler@leidos.com



Jennifer Covich Bordenick
eHealth Initiative
+1 202-624-3270
jennifer.covich@ehidc.org

DIRECTORS-AT-LARGE



Kensaku Kawamoto, MD, PhD
University of Utah Health Care
+1 801-587-8076
kensaku.kawamoto@utah.edu



Janet Marchibroda
Bipartisan Policy Center
+1 202-379-1634
jmarshibroda@bipartisanpolicy.org



Nancy Orvis, MHA
U.S. Department of Defense, Military Health System
+1 703-681-6350
nancy.j.orvis.civ@mail.mil

NON-VOTING MEMBERS



Charles Jaffe, MD, PhD
HL7 CEO
+1 858-720-8200
cjaffe@HL7.org



Wayne Kubick
HL7 CTO
+1 847-842-1846
wkubick@HL7.org



Mark McDougall
HL7 Executive Director
+1 734-677-7777 x103
markmcd@HL7.org



Certified HL7 Version 2.x Chapter 2 Control Specialist

DECEMBER 2018

Ramakanth Poralla
Roopasree C
S Sai Venkat
Sarang Tade
Shivali BR
Anurag Dongre
Binaya Kumar Patel
Joy Merson
Pavitra B I
Rajratna Mihir
Sachin Kumar Suman
Mandara K R
Sushmitha Jayaraman
Frank Parth
Abdul Kalam Azad
Abhishek Kumar Singh
Abhishek Pradhan
Akanksha Priya
Aravind Raghunath
Ashish Shroff
Bipin Singh
Chetan Palavalli
Divya Rajput

Eunice Esther Lovel M
Faraasha K. A
Mohammed Khalid Nehan
Murari Kiran Kumar
Padmashree K V
Prashanth Prakasha
Pratyush Kumar Singh
Satinder Singh Butter
Chetana G
Atul Shah
Sana Moin
Iván Florencio Sosa Ménde
Namrata Anand
Anubhav Seth
ZhaoHui Liu
Michael Lipton

JANUARY 2019

Avinash Kumar Singh
Pegeen Ladeau
Odysseas Batsios
Vivek S
Mason Dansie
Ana Belen Jaime

Disha Verma
Kavyashree H R
Manish Kumar
Mohammed Sajid Mustfa
Namita Anand
Navaneetha Krishnan P
Neeraj Bora
Praveen Kumar Sekaran
Puneet Valad
Ranu Goyal
Sonu Kumar
Yogesh Shukla
Gaurav Singh
Anarghya V Kini

FEBRUARY 2019

Ruchir Bhardwaj
Miguel Bras
Daniel Martinez Rodriguez

MARCH 2019

Marcos Suñen
Asim Ahmed

Certified HL7 CDA 2.0 Specialist

DECEMBER 2018

Jose Antonio Pardos Mateo
Jesús Roman Ledesma
Clara Cirac Nerin
Jesus Campos Alvarez
Luis López Alonso
Francisco Mansilla de Sebastian
Wojciech Parchanski
Manan Kansara

JANUARY 2019

Eduardo Muntané Molina
Mathias Ghys

FEBRUARY 2019

James Blue

HL7 FHIR STU Proficient Certified

DECEMBER 2018

Rakesh Waghulde
Daniel Nebot
Alece Studtmann
Nilesh Sawal
Rohan Chavan
abhijeet badale
Neha Kadmane
Alka Jain
Rashmi Nair
Ravindra Kulkarni
Shailesh Nair
Mallika Padte
Aarti Naik

Phong Nguyen
Nisarg Khandekar
Sharad Sinha
Vicky Nathani
sameer singh
Sunny Goyal
Ramandeep Dhanoa
Mukul Matkar
Rajat Sharma

JANUARY 2019

Sushant Komawar
Sumankumar Kareti
Srinivas Velamuri
Hemant Garg
Divya Ahuja

FEBRUARY 2019

Vivek Chaudhari
Shital Surve

MARCH 2019

Rajesh Saini





June 10-12, 2019
HL7 FHIR Dev Days

Microsoft Conference Center

Redmond,
Washington



September 14-20, 2019
**33rd Annual Plenary &
Working Group Meeting**

Atlanta Marriott Marquis

Atlanta, GA



February 1-7, 2020
**International Conference
& Working Group Meeting**

To be announced

Sydney, Australia



May 16-22, 2020
Working Group Meeting

Hyatt Regency San Antonio on
The Riverwalk

San Antonio, TX



September 18-25, 2020
Working Group Meeting

Baltimore Renaissance
Harborplace

Baltimore, Maryland