# HL7®
## International
## 2018 ANNUAL REPORT

# HL7® International

## HL7® VISION

A world in which everyone can securely access and use the right health data when and where they need it.

## HL7® MISSION

To provide standards that empower global health data interoperability.

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# CHAIR REPORT

Calvin Beebe

*HL7 International Board Chair*

As we close the books on 2018 and look into the New Year, it's tempting to count the number of standards published, the new members who have joined, and reflect on the financial results in the balance sheet. These are important matters; they provide insight into the health of the organization and a measure of how well we are doing.

However, one of the Board's responsibilities is to rise above the day-to-day operations and look forward at the goals and challenges we see ahead. To that end, the HL7 Board reviewed the strategic goals & objectives that make up the HL7 Strategic Plan in September 2018.

You will find that it is very similar to the plan developed by the Board under its previous chair, Pat Van Dyke. The plan continues to emphasize HL7's global reach and image, the development of sustainable revenue, and the continued growth of FHIR and support of standards in current use.

As we move into 2019, the HL7 leadership (Chuck Jaffe MD, PhD, CEO; Wayne Kubick, CTO; and Mark McDougall, Executive Director) will be presenting their detailed action plans to support these goals and objectives to the Board. The Board will review and offer revisions as appropriate and put them in place for 2019 calendar year.

**HL7®**
International

## THE HL7 INTERNATIONAL STRATEGIC PLAN

### Our Core Strategic Goals for 2019

**Goal 1:** Enhance the public image and achieve recognition by stakeholders as the leading standards developing organization (SDO) for worldwide health data interoperability standards

**Goal 2:** Secure long-term sustainable revenue to realize the vision and improve customer experiences (internal and external)

**Goal 3:** Establish Fast Healthcare Interoperability Resources (FHIR®) as a primary standard for global health data interoperability and enhance and maintain quality of and accessibility to HL7 standards in current use

### Our Strategic Objectives for 2019

#### HL7's Image

- Expand HL7 image/perception from standards to solutions (I)
- Improve relevance of HL7 International with key target audiences globally and establish/strengthen relationships with key stakeholders (M)
- Enhance value of standards to target audiences globally (L)

#### Organizational Vitality

- Protect existing revenue sources (I)
- Increase revenue from new partners and stakeholders (M)
- Pursue new revenue streams (L)

#### HL7 Standards

- Ensure the community understands that FHIR is a product of HL7 (I)
- Increase understanding of FHIR usage and value worldwide (I)
- Establish a strategic life cycle tooling plan for standards (I)
- Demonstrate the value of FHIR in enabling interoperability (M)
- Ensure efforts are most effectively focused (M)
- Increase efficiency and effectiveness of standards update process (M)
- Improve accessibility (M)

Priority Key:  (I) – Immediate   (M) – Mid-term   (L) – Later

# CHAIR REPORT

### 2018 HL7 Board Retreat

The HL7 Board retreat offers the Board an opportunity to reflect and dig deeper into the issues facing HL7. At the July retreat, the Board received useful advice from the HL7 Advisory Council. Carl Dvorak, Co-Chair of the Advisory Council, provided an update to the Board on the following topics:

- FHIR Foundation and HL7 International
- Trusted Exchange Framework and Common Agreement (TEFCA) – patients moving data out of EHRs
- Registries – opportunities for modeling and products
- Monetizing FHIR – balancing open source model and staying in business

HL7 owes a debt of gratitude to the Advisory Council members, who provide the Board with both advice and counsel.

The Board also reviewed numerous Strengths, Weaknesses, Opportunities and Threats (SWOT) analyses provided by the HL7 Technical Steering Committee, the International Council and the HL7 staff.

### HL7 SWOT Reports

- Austin Kreisler reported on the Technical Steering Committee SWOT
- Melva Peters reported on the International Council SWOT
- Mark McDougall reported on the HL7 Staff SWOT

Each SWOT provided a prospective on the strengths, weaknesses, opportunities and threats facing HL7 International. The Board itself created a set of SWOTs and discussed their findings as a group. This input was discussed on the second day of the retreat and a series of mega issues were identified.
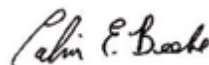
### Looking Ahead to 2019

From that list, three issues will likely be progressed in 2019:

- The FHIR Foundation and HL7 International's relationship
- What changes should be made to HL7's business model
- What is the role between HL7 and affiliates and how do we collaborate

The first two are in progress and provided status reports at the January 2019 Working Group Meeting in San Antonio. The last item will start soon and hopefully provide recommendations before the end of the year. None of these are trivial issues, as they were on our mega list, but all represent opportunities that HL7 International needs to explore.

I'm mindful that I'm at the halfway point in my term, but want to assure you that your Board has risen to the task of ensuring HL7's future, and as always, I'm reminded that the most important people in the HL7 community are our members. Each of you makes us successful. Thank you!

*Calvin E. Beebe*

# COUNTRIES WITH HL7 AFFILIATES IN 2018

| | |
|---|---|
| Argentina | Korea |
| Australia | Netherlands |
| Austria | New Zealand |
| Bosnia & Herzegovina | Norway |
| Brazil | Pakistan |
| Canada | Poland |
| China | Portugal |
| Croatia | Romania |
| Czech Republic | Russia |
| Denmark | Singapore |
| Finland | Spain |
| France | Sweden |
| Germany | Switzerland |
| Greece | Taiwan |
| Hong Kong | Ukraine |
| India | United Arab Emirates |
| Italy | United Kingdom |
| Japan | |

# CEO REPORT

Charles Jaffe, MD, PhD

*HL7 International*
*Chief Executive Officer*

More than ever, the HL7 portfolio of standards is increasingly diverse. This trend has emerged in parallel with a growth of scientific knowledge, with a changing focus on the patient, and with an increasing focus on the financial burden of healthcare on our societies. Much of this change within HL7 has been achieved through the global implementation of HL7 Fast Healthcare Interoperability Resources (FHIR®).

Our community grew from a unique vision that recognized the opportunities afforded by the unique construct of the open API (Application Programming Interface). In eight short years, FHIR has emerged.

## The Collaboration Paradigm

In the fall of 2014, the JASON Task Force report identified the principles underlying a successful march toward interoperability. Only three months later, the Argonaut Project was created by a small group of leaders from the industry and the provider community committed to accelerating the development and implementation of FHIR. At the same time, the SMART (Substitutable Medical Apps, Reusable Technology) Health IT Project at Boston Children's Hospital, funded by a grant from the Office of the National Coordinator, developed a platform for app development and the tools for testing them. In collaboration with HL7, the Boston Children's team developed an indispensable layer of security and authentication for this technology that became SMART on FHIR.

Within HL7, this process took the form of leveraging three decades of standards development. By 2016, there were estimates that HL7 Version 2 (V2) and the Clinical Document Architecture (CDA®) were responsible for the transport and exchange of nearly half of the world's biomedical information. We continued to enhance our legacy standards, and many were written into regulation by governments and supported by national health systems. Today, nearly 50 work groups continue to enhance their standards. Perhaps as importantly, members support the integration of those standards into the FHIR platform.

Contributions from both the public and private sector are showcased at the HL7 FHIR Applications Roundtable. This annual event for developers around the world highlights some of the innovation and diversity of the

**Ewout Kramer from Firely addresses a full crowd at HL7 FHIR DevDays 2018 in Boston, MA.**

FHIR implementation community. One of the most rewarding aspects of this program stems from the opportunity for networking among FHIR platform developers and implementers. In years past, small and mid-sized developers began collaboration from which truly global applications emerged. In 2018, remarkable applications were showcased by Microsoft and by the CDC, with its memorable *Death on FHIR* implementation.

Later in the year, six major healthcare cloud vendors (IBM, Google, Amazon, Salesforce, Microsoft and Oracle) committed to making their healthcare cloud data interoperable through a sustainable FHIR gateway at the Interoperability Summit in Washington, DC.

Other organizations and communities joined the process of FHIR development and implementation. In the Netherlands, Furore (now Firely) began a private sector effort to enhance and expand the FHIR platform with development tools, FHIR servers, application registries and education programs. Perhaps the most successful of these, called HL7 FHIR DevDays, was held annually in Amsterdam. In 2018, HL7 and Firely collaborated to bring this program to North America and an extraordinarily eager audience. In June 2019, a newly emerging community of FHIR implementers will reprise the event at Microsoft's Conference Center in Redmond, Washington.

# CEO REPORT

As interest in FHIR grew, so did the challenges of providing solutions for a broad cross-section of the healthcare continuum. The HL7 Partners in Interoperability program brought experts and thought leaders from communities of clinicians, payers and clinical researchers (biopharma). The commitment to leveraging FHIR to solve a broad array of challenges continued to grow. Late in the fall of 2017, the Da Vinci Project brought together a diverse partnership of payers, health systems and EHR developers to address the demands of value-based care. In 2018, the addition of CMS (Center for Medicare and Medicaid Services) brought new insights and new values to Da Vinci. In that short time, progress in achieving critical technical solutions has shown great promise.
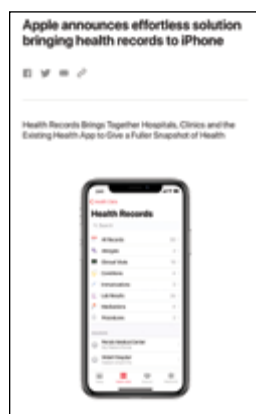
## Growth and Change

In many ways, the basic and applied sciences of engineering, information technology and biology are no longer changing incrementally. This growth has become exponential. In each of these disciplines, critical alliances and dependencies have emerged. Both the public and private sectors are responding to this progress. The timing is more critical than ever, as inescapable pandemics, global climate change and political upheaval have shortened our response times and our need for international collaboration.

Early in 2018, Apple announced that it had embedded the FHIR implementation guides, developed by the Argonaut Project, into its operating system. What began as a small pilot program of a dozen academic medical centers, has grown to over 500 health systems in the United States. This promises to provide patients a platform to aggregate their health data from diverse providers and disparate electronic health records.

Other patient-centric initiatives have emerged, including the VA Lighthouse Gateway project, which leverages FHIR to provide veterans and their dependents with seamless access to their health data. In parallel, CMS introduced Blue Button 2.0, offering Medicare and Medicaid beneficiaries similar access to health record data. Finally, the CARIN Alliance, a private-sector initiative, will leverage the FHIR platform to enable patients to have access to their health data from care supported by the private payer community.

**Apple's announcement of the new Health Records feature, based on the FHIR implementation guides developed by the Argonaut Project.**

In the United States, population health studies and interventions have been hampered by slow and often inadequate access to clinical data. The CDC (Center for Disease Control and Prevention) has initiated a state-supported project to access clinical data in near real-time for morbidity and mortality reporting. If successful, this program could dramatically increase the timeliness and accuracy of communicable disease outbreaks and disease clustering.



**Collaboration is essential to achieving HL7's vision. Shown here — attendees at a recent FHIR Connectathon work together to solve real-world challenges with FHIR.**

On a global scale, the race to integrate genomic data into patient diagnosis and treatment is well underway. Often referred to as personalized medicine or precision medicine, there are significant challenges to bringing to the patient-care and research process first-hand knowledge of gene and genome identification. The Sync4Genes project, which began in 2017, continues to offer a growing knowledge base of genetic associations with disease process and clinical treatments. In addition, HL7 has begun a collaboration with GA4GH (Genetic Alliance for Global Health) to accelerate this process. At the same time, HL7 published the first comprehensive Genomic Domain Analysis Model, which promises to identify processes and workflows for genomic analysis and whole exome sequencing.

### Scaling Systems

None of this rapid progress could have taken place without the support of the Office of the National Coordinator for Health IT (ONC). Its leadership has embraced the opportunity which FHIR promises. Through 2019, ONC has provided immeasurable guidance, technical support and resources that have accelerated FHIR development and global implementation.

In 2018, critical collaborations emerged in support of system interoperability. Notable among these were FHIR API capabilities that were adopted for use among a large and diverse groups of provider organizations served by the Sequoia Project and the Commonwell Alliance. In addition, the application of quality measures and metrics has become a

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# CEO REPORT



**Members of the HL7 Bow Tie Sig proudly show off their attire at a recent HL7 working group meeting.**

critical factor if the promise of accountable care is to be realized. In 2017, HL7 began a partnership with NCQA (National Committee for Quality Assurance) to advance the applications of quality measures by leveraging FHIR. Planning is now underway for a third summit in 2019 to showcase progress.

Throughout its existence, HSPC (Health Services Platform Consortium) has relied upon FHIR for its technical implementation. Founded in 2013, HSPC has focused on developing clinical models in order to reduce concept ambiguity, one of the fundamental barriers to interoperability. In 2019, HSPC will merge with the HL7 CIIC (Clinical Information Interoperability Council), in which experts from clinical specialties contribute domain expertise to clinical modeling.

Many HL7 collaborations, which were decades old, found new meaning with the emergence of FHIR. The AMIA (American Medical Informatics Association) 2018 Summit brought the FHIR App Showcase to a standing room only contingent from the medical informatics community. In addition, HL7 and IHE (Integrating the Healthcare Enterprise) introduced the Gemini Project to facilitate collaboration on FHIR implementation by driving efficiencies in FHIR implementation.

In 2019, several important alliances will be enhanced by programs to leverage the FHIR platform. Among these are emerging initiatives with WEDI (Workgroup for Electronic Data Interchange), NCPD (National Council for Prescription Drug Programs) and X12.

The success of the Argonaut and Da Vinci projects has provided experienced leadership, governance modeling and fiscal management skill sets. Many of the emerging and growth collaborations will take advantage of this knowledge and leadership through a new HL7 program, now known as Standards as a Service (SaaS). Unlike traditional one-size-fits-all models, this program will enable projects and programs to customize FHIR implementation processes, governance framework and business models that are best suited to their community of end-users as well as their technical requirements.

In addition to traditional FHIR education training initiatives, HL7 has developed a remarkable array of remote learning programs. In 2019, plans are underway to collaborate with HIMSS to bring FHIR education to a larger and more diverse audience. Perhaps the most ambitious of these programs is a model for training medical students, first developed at Georgia Tech, but more recently implemented in Australia. This approach leverages FHIR to augment clinical training for medical students while introducing them to the fundamentals of medical informatics.



**Attendees participate in a hands-on session at the Boston HL7 FHIR DevDays event in June 2018.**

We ended 2018 with the publication of HL7 FHIR Release 4 (R4), which was the culmination of more than a year of collaboration among standards developers from around the world. Among the family of FHIR products, R4 is unique because it includes a number of key normative components, which will ensure stability and backward compatibility for developers and for implementers. For many in this community, there is a promise that FHIR will continue to evolve and add new capabilities and functionality. In the coming year, there will be another story to tell. It will most certainly begin and end with the collaborations that have defined this community.

# CTO UPDATE

WAYNE KUBICK
*Chief Technology Officer*
*HL7 International*

As we look forward to 2019—a year when we expect to see a sea change of progress toward the HL7 vision—we can look back at 2018 as another year of transition. While we moved forward on several fronts, many of our most ambitious goals are still in transit, though certainly much closer to their target destinations.

From my very first working group meeting as CTO, we outlined five strategic themes which I still use as my guiding lights. Let's take a brief look at what transpired with each of these during a most eventful 2018.

## Vision and Roadmap

In 2017, we introduced the notion of a product roadmap, which was further refined with the assistance of the Board and the Technical Steering Committee (TSC) during 2018. The roadmap offers observations on four major product families from a product lifecycle perspective:

• Fast Healthcare Interoperability Resources (FHIR®) has become HL7's most visible, dynamic and rapidly growing product.

• Version 2 is likely in the latter stages of maturity, but remains a critical foundation block for health data interchange .

• The Clinical Document Architecture (CDA®) is tipping over the peak of maturity while beginning to nudge closer toward FHIR.

• Though many Version 3 (V3) standards are still in active use and require support, most new V3 messaging standards development is in decline.

Understanding these life cycle stages clarifies HL7's tooling investment priorities.

## Simplification, Tooling and Processes

While these critical areas represent two of the five strategic themes, they are so closely intertwined that they're best discussed as one.

During 2018, we made a great leap forward in beginning to realize the value of Confluence, and in 2019 we want it to begin replacing some of our older tools. Regarding such transitions, I typically use the metaphor of moving from a 30-year old house to a modern city condo. You realize you can only move what you really need, and thus must use this opportunity to clean out the attic and basement, either throwing out the rest or packing it away into long-term storage. We want to focus on keeping only the most essential furnishings ready at hand in that shiny new space. That's where we are with Confluence. We've started moving in to the new condo, but we still have a toe in the old home. And while we won't tear down the old house once we move out—so that we can reach back in when necessary—we'll plan to use it for storage rather than as a living space.

Bringing in new tooling naturally affords the opportunity to apply essentialism, focus and simplicity in managing information and improving processes, while also maintaining a commitment to quality and ANSI (American National Standards Institute) compliance. The TSC has embraced this philosophy by revising the work group structure to be more practical and understandable. We're working on making essential information one easy click away—like the new online project scope statement (PSS), ballot calendar and Co-Chair Handbook. We expect to continue to transition to online forms that can be crowdsourced and reviewed in parallel to improve transparency and reduce cycle times for approvals.

We'll also be looking at re-engineering (rather than just reproducing) many of our processes in Confluence to find new efficiencies to support global work group interaction, including collaborative editing and commenting and using eVoting to record decisions. One critical goal is to make it easier for global volunteers to more actively participate in work group discussions without having to directly join teleconferences scheduled at inconvenient hours.

JIRA is already in use at HL7, but in 2019 we want to make it the primary system for tracking and ballot processes just as we want Confluence to be the primary home for work group activities. Last year Zulip Chat was made available to the entire HL7 community, but we have not yet built the types of active communities that chat.hl7.org has established. In addition, the HL7 GitHub repository is now the primary source control system, but we have not fully transitioned from GForge. We hope to complete the shift to these new environments in 2019, catalyzed by the rollout of the new JIRA Ballot System and the Unified Terminology Governance system.

# CTO UPDATE

## FHIR Transcendent

We closed 2018 with a watershed event – the publication of HL7 FHIR Release 4 (R4), the first release with normative content. This coincides with the requirement for providers to make patient data available via APIs under the US 21st Century Cures Act as well as continued expansion of FHIR activity across the world, including more traction in South America, Asia and Africa in addition to continued growth in Europe, North America and Australasia. FHIR is now truly a global standard, as evidenced by the vibrant, expansive FHIR community. In addition to the new R4 core specification, 2018 witnessed an upsurge in the development and release of FHIR implementation guides (IG) from both within the HL7 community and among other stakeholders such as the Argonaut Project and IHE. The fourth HL7 FHIR Applications Roundtable demonstrated an expanding range of influence of FHIR-based apps together with a palpable increase in sophistication and maturity. In addition, the Da Vinci Project made rapid progress in creating new HL7 FHIR IGs focused on the needs of value-based care. With the release of R4, so many new IGs, and the continued growth and vitality of the FHIR community, we expect FHIR to reach a tipping point in 2019 toward significantly advancing the HL7 vision.

## With Appreciation and Thanks

During 2018, HL7 continued to benefit from the generous grant support offered through the US Office of the National Coordinator (ONC) to promote progress and increase adoption for the Consolidated CDA (C-CDA) and FHIR. 2018 Projects included:

• Improvements to FHIR infrastructure and publication tooling
• A draft IG and reference servers for FHIR Bulk Data Access
• Mappings and guidance for converging C-CDA with FHIR

ONC is continuing support for HL7 with additional funding in 2019 for work on UTG, JIRA balloting, improvements to the FHIR registry and publication and testing capabilities for FHIR Bulk Data.

## Strengthening Collaborations

There was increased engagement in 2018 with pharmaceuticals on new FHIR-related projects initiated by TransCelerate Biopharma, the Society for Clinical Data Management and PhUSE. We also saw increased FHIR interest among regulatory authorities for use with the ISO IDMP standard and as a means of acquiring real world evidence. 2018 also saw the announcement of the new Project Gemini initiative with IHE International, which will facilitate

use of FHIR in IHE profiles and support a set of collaborative projects that leverage the strengths of both organizations. In 2019, we'll continue to build awareness in the research community of how patient care and research really should inseparably co-exist to make the dream of a learning healthcare system a perceptible reality.

## Publication Milestones

As in prior years, HL7's dedicated volunteer community produced a wide range of new and updated standards in support of HL7's mission to provide standards that empower global health data interoperability:

- 18 ANSI standards recognized (including reaffirmations)
- 8 normative publications
- 4 normative standards awaiting ANSI approval
- 6 informative publications
- 21 new balloted STU releases, 3 unballoted STU updates and 9 STU extensions

## Looking Ahead to 2019

Yes, 2018 was another year of transition, and we can anticipate more change, coupled with what we hope is only a modicum of disruption as we leap into 2019. We have many ambitions, with much yet to do, but we're starting to feel the benefits of change and expect to see some of these new developments having major positive impacts on the way we develop standards at HL7. We can expect a few more callouses along the way as this marathon journey continues, and we know we can only edge closer to "a world in which everyone can securely access and use the right health data when and where they need it." We also know the world can't get there without our tireless, committed HL7 community of volunteers. I hope I can somehow make it easier for you to take us there.

# TREASURER REPORT

**Russell Leftwich, MD**

*HL7 International
Board Treasurer*

## Net Operating Income Offset by Investment Loss

Loss of organizational members is clearly mitigating and in spite of a continued decline in individual memberships, HL7 membership revenue is up. Revenue from education and certification has grown overall. In addition, revenue from working group meetings (WGMs) and other events has increased significantly despite incurring a significant loss from the 2018 international meeting in Cologne, Germany. Investment losses associated with recent market declines have resulted in a significant decline in reserves.

This report is based on projections of year end results and not on actual results. All meetings and the significant revenue a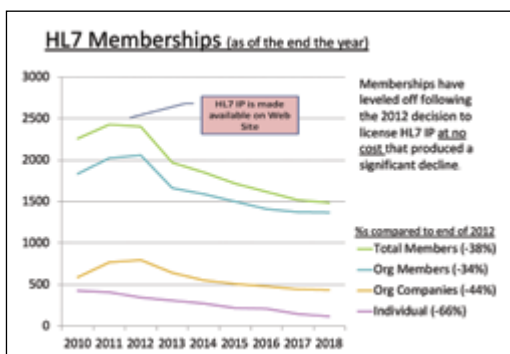nd expenses associated with them are included and membership renewals and revenues extend into December. Investment results, although not final, are based on projections made in December.

The trend over the past six years of declining year-by-year reduction in organizational members has clearly moderated, although individual memberships continues to steadily decline. Revenues from individual memberships are proportionally much less of total membership revenues than organizational memberships. In 2018,



**HL7 Memberships** (as of the end the year)

Memberships have leveled off following the 2012 decision to license HL7 IP at no cost that produced a significant decline.

%s compared to end of 2012
- Total Members (-38%)
- Org Members (-34%)
- Org Companies (-44%)
- Individual (-66%)

HL7 IP is made available on Web Site

revenues from organizational memberships are net positive in spite of a loss of 13 memberships due to offsetting increases in dues.

WGM attendance for U.S.-based meetings continues to show an increase with a resultant increase in revenue from registrations, although expenses have also increased. The New Orleans and Baltimore WGMs in 2018 attracted the largest attendance in history. Net income from these U.S. meetings was sufficient to offset the net loss from the Cologne meeting, which also had higher than projected expenses.

Educational offerings outside of WGMs continue to be a significant source of revenue. The addition of administrative support for education and
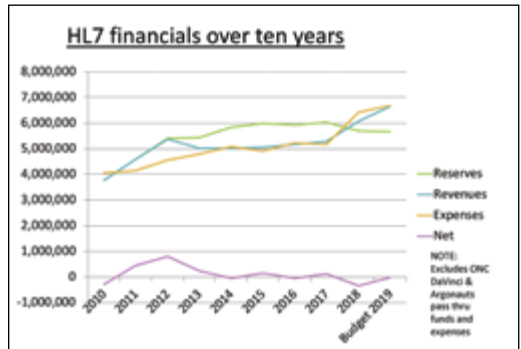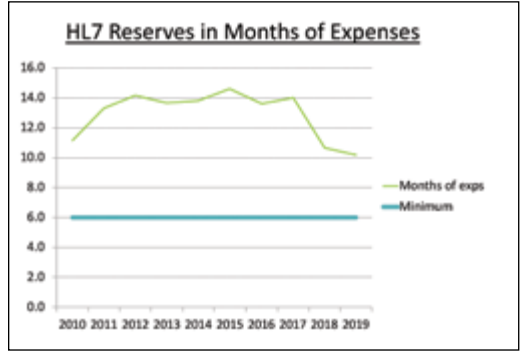
marketing has been associated with an increase in revenues and net income from distance learning and webinars, which more than offset declines for onsite education and certification.

The unaudited year-end operating revenue projection for 2018 is $6.4 million, which is 9% above budget. The unaudited expenses for 2018 are $6.422 million, 3.4% greater than budget, due primarily to WGM expenses being above budgeted projections. Net operating income is about $16,000 which is $324,000 better than the budgeted loss. This includes approximately $308,000 invested in new and expanded programs.

Investment losses due to the recent market downturn are estimated at $358,000. The resultant decrease in reserves, the first absolute decrease in over five years, leaves projected year end cash reserves of $5.697 million. This figure equates to 10.64 months of expenses.



HL7 Reserves in Months of Expenses



HL7 financials over ten years

The 2019 budget includes $6,679,297 in expenses and $6,647,525 in income. This projects a $31,371 loss for 2019. Combined with the 2018 year end projection, this leaves 10.18 months of reserves at the end of 2019 based only on operating income and expenses.

# EXECUTIVE DIRECTOR REPORT

Mark McDougall

*HL7 International
Executive Director*

## Membership Report

HL7 had 1,486 members as of December 31, 2018, as compared to 1,519 one year earlier. The net decline of 33 total members represents approximately two percent of HL7's membership. This decline is primarily attributed to HL7's decision to license much of its intellectual property at no cost. We currently have 25 benefactors and 69 gold members, which is a gain of two additional benefactors (9%) and 20 additional gold members (41%) as compared to 2017.

## Individual Memberships

As of December 31, 2018, HL7 had a total of 117 individual members, as compared to 148 one year earlier. For the 2018 year, there was a net loss of 31 individual members, as compared to a net loss of 62 in 2017. The net loss was largely due to a new policy limiting eligibility for individual memberships to those from organizations with less than five million in revenues.

## Organizational Memberships

There were 436 organizational member firms on December 31, 2018, as compared to 445 one year earlier. In 2018, 148 new organizations joined (83) or were re-instated (65) as compared to 137 in 2017. For the year, there was a net decrease of nine in organizational memberships which compares to a decrease of 31 members during 2017 and 33 members during 2016.

## International Affiliate Members

There were 35 countries with active HL7 affiliates in 2018 including the following: Argentina, Australia, Austria, Bosnia & Herzegovina, Brazil, Canada, China, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, India, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Pakistan, Poland, Portugal, Romania, Russia, Singapore, Spain, Sweden, Switzerland, Taiwan, United Arab Emirates, United Kingdom and Ukraine.

## Membership Recognition

### *Volunteers of the Year*

We were pleased to recognize three incredible volunteers for their dedicated service to HL7. This year marks the 22nd year that we have recognized such individuals via the W. Ed Hammond, PhD, HL7 Volunteer of the Year Awards. The recipients of the 2018 HL7 Volunteer of the Year Awards included:

- Brett Marquard (WaveOne Associates)
- Ulrike (Riki) Merrick (Vernetzt)
- Bryn Rhodes (Database Consulting Group)

We are honored to recognize Brett, Riki and Bryn as dedicated individuals who have made significant contributions on many fronts, including in specific HL7 work groups and throughout the larger HL7 global organization. Their efforts and contributions are sincerely appreciated, and this recognition is certainly well-deserved.



**Volunteers of the Year Award Winners pose with W. Ed Hammond. Pictured, from left to right: Brett Marquard, Bryn Rhodes, W. Ed Hammond, and Ulrike (Riki) Merrick.**



**The 2018 HL7 Fellows pose with board chair Calvin Beebe.**

### *2018 Class of HL7 Fellows*

The HL7 Fellowship program recognizes individuals with outstanding commitment and sustained contribution to HL7 with at least 15 years of HL7 membership. During HL7's 32nd Plenary meeting, HL7 honored the following five well-deserving members with distinction as HL7 Fellows in the Class of 2018:

- David Hay, MD, New Zealand
- Beat Heggli, Switzerland
- Patrick Loyd, USA
- Rob McClure, MD, USA and Panama
- Corey Spears, USA

# EXECUTIVE DIRECTOR REPORT

## Board Election Results

During HL7's annual business meeting in Baltimore, the results of the recent Board elections were announced for the HL7 Board of Director positions listed below. Other than the Chair-elect position, the others will serve a two-year term from January 2019 through December 2020.

- **Chair-elect:** Walter Suarez, MD, MPH, Kaiser Permanente (who will serve as the Chair-elect in 2019, as Board Chair 2020-21, and as Vice Chair in 2022)
- **Secretary of the Board:** Melva Peters, Jenaker Consulting
- **Director-External Influencer:** Kensaku Kawamoto, MD, PhD, University of Utah
- **Director-Sales/Marketing/Fundraising:** Janet Marchibroda, Bipartisan Policy Center
- **Affiliate Director:** Diego Kaminker, HL7 Argentina

We are pleased to congratulate these individuals for their commitment and valued service to HL7 as members of the HL7 Board of Directors.

## Membership Milestones

As I've have stated from the podium for over 25 years, HL7's community of incredibly talented and dedicated volunteers are HL7's most valuable asset. Such a community relies upon the service of hundreds of key members who drive the organization forward through various leadership roles on the Board, Technical Steering Committee (TSC), work groups, mentors, facilitators and tutorial speakers. The co-chairs of our work groups are truly the backbone of the organization. These co-chairs drive HL7 forward via meetings and conference calls throughout the year. We thank all co-chairs for their invaluable contributions to HL7.

We are also pleased to recognize HL7 leaders who have supported HL7 for more than 25 years. We sincerely thank the following for their incredible contributions to the industry and dedication to HL7.

*HL7 members for more than 25 years:*

- Hans Buitendijk
- Gary Dickinson
- Ted Klein
- Virginia Lorenzi
- Clem McDonald, MD
- Doug Pratt
- Mark Shafarman
- Mead Walker

*HL7 members for more than 30 years:*

- Wes Rishel
- W. Ed Hammond, PhD

## Meetings & Education Report

### HL7 FHIR DevDays in Boston

After being produced by Firely the previous four years in Amsterdam, HL7 FHIR DevDays came to the United States for the first time on June 19–21, 2018. HL7 and Firely organized the event and sold out with 380 attendees and had over 70 people on the waitlist. The three pillars for the event are: education, sharing of ideas and networking. The HL7 FHIR DevDays program encompass a combination of focused hackathons, tutorials, keynotes and networking opportunities. Fast Healthcare Interoperability Resources (FHIR®) experts from around the world were present to instruct, guide and discuss the further improvement of the HL7 FHIR standard. The event also provided a chance to work with the specification while surrounded by others doing the same thing, alongside experts who were available to answer any questions.

We are pleased to announce HL7 and Firely will partner again to produce another US-based HL7 FHIR DevDays event on June 10-12, 2019, on the Microsoft Corporation campus in Redmond, WA. While the venue is larger than last year, we encourage all interested parties to register early to avoid the risk of being waitlisted.

### January Meeting in New Orleans

We are pleased to report that an all-time record of 624 attendees participated in our January Working Group Meeting held in New Orleans, Louisiana, January 27–February 2, 2018, at the Hilton New Orleans Riverside Hotel. Fifty-five HL7 work groups met in New Orleans, of which 24 conducted co-chair elections. Attendees also took advantage of 30 tutorials, a FHIR connectathon and a payer summit.



**New Orleans brass band leads HL7's second line parade through the French Quarter at the January 2018 Working Group Meeting.**

The networking reception was a highlight of the week and concluded with HL7 having its own "second line" and street parade led by a New Orleans brass band that started in the hotel ballroom and went throughout the French Quarter and near Bourbon Street. Our HL7 second line street parade was enjoyed by hundreds and quickly became one of HL7's most memorable networking events.

# EXECUTIVE DIRECTOR REPORT

## WGM in Cologne Germany

We produced a productive meeting with 310 attendees at our May Working Group meeting in Cologne, Germany on May 12-18, 2018. Over 50 HL7 work groups, committees and steering divisions convened meetings in Cologne, 19 of which conducted co-chair elections. Attendees also took advantage of 16 tutorials and a FHIR connectathon.

Several volunteers played key roles in the planning of the Cologne WGM. Kai Heitmann, MD, was critical to the preparations for the Cologne WGM. His ongoing support and guidance have been sincerely appreciated for about 20 years. I would also like to recognize and extend a special thank you to the following volunteers who were instrumental in developing the program as well as planning and producing the WGM in Cologne:

- Kai Heitmann, MD
- Christof Gessner, PhD
- Catherine Chronaki
- Frank Oemig, PhD
- Stefan Sabutsch
- Robert Stegwee, PhD
- Julian Sass
- Dominik Ludmann

## 32nd Plenary Meeting

Earlier this year we established a new record by attracting 624 attendees to our January WGM in New Orleans. However, that record was short-lived as our October Plenary & WGM in Baltimore attracted a new record of 637 attendees. The WGM was held at the Hyatt Regency Inner Harbor Hotel in Baltimore where 23 tutorials were produced and 60 work groups and committees convened meetings.

The plenary meeting also featured an impressive series of keynote presentations:

- Update from the National Coordinator Donald Rucker, MD, Office of the National Coordinator (ONC) for Health Information Technology, U.S. Department of Health and Human Services
- A payer's perspective to interoperability by Sagran Moodley, Senior Vice President, UHC Clinical Data Services & Technology at UnitedHealth Group
- What is CIMI up to and how does it fit in by Stan Huff, MD, Chief Medical Informatics Officer, Intermountain Healthcare
- Interactive 3D visualization in the wide web of health by Nicholas Polys, PhD, Director of Visual Computing at Virginia Tech University

## Online Class Report

HL7 offered 20 online programs, totaling 30 individual online classes, many of which were multi-part series. Topics included the following: Introduction to Clinical Document Architecture (CDA®), Advanced CDA, Certificate Exam Review courses, Consolidated CDA (C-CDA), Version 2, CMS Proposed Rule Highlights, FHIR for Managers, FHIR for Clinicians and Administrators, FHIR for Software Developers, FHIR for Architects, FHIR for Clinical and Administrative Workflows, C-CDA on FHIR, FHIR Profiling, SMART on FHIR, HAPI on FHIR, IHE on FHIR, Understanding and Using FHIR Terminology and the Hitchhikers Guide to HL7. These programs attracted 650 attendees and resulted in revenue totaling $110,000. Each webinar was also recorded live and posted on the HL7 Education On Demand site, for fee-based or free viewing. Six companies also took advantage of virtual classroom training sessions using the GoToWebinar tool as an alternative to onsite training. Two online training sessions were also produced for the DaVinci Project participants.

## Education On Demand

Education On Demand continues to provide a cloud-based, digital storehouse for HL7's educational archive and is accessible on any device with no applications required. Additional features include downloadable certificates of completion and a "My Activity" area that maintains an attendance record and certificates earned for each user. During 2018, over 475 people accessed the free and fee-based courses, providing $55,000 in revenue.

## HL7 Fundamentals Course

The HL7 Fundamentals Course is a web-based workshop which includes a set of guided exercises that teaches by practice and example. The course focuses on learning by doing. During 2018, HL7 produced two Fundamentals courses and three FHIR Fundamental courses that served 600 students. These courses generated over $500,000 and were produced by HL7 International and HL7 Argentina.

# EXECUTIVE DIRECTOR REPORT

## Online Certification Testing Program

With the launch of computer-based testing (CBT) in 2013, HL7 expanded opportunities world-wide to those seeking certification in CDA®, Version 2, Version 3 RIM or a proficiency certificate in FHIR. Exam results, electronic certificates and electronic badges are now available immediately. A certification directory is also available on the HL7 website.

HL7 partners with Kryterion, a leader in test development and delivery, to administer its certification and proficiency exams at over 1,100 Kryterion Testing Centers worldwide. In addition to testing centers, test-takers may opt for online proctored testing from their own computers anywhere in the world, provided they have internet access and a qualified external webcam.

HL7's certification program continues to attract hundreds of individuals from around the globe each year. During 2018, 228 individuals registered for the exams, as compared to 215 during 2017 and 269 during 2016.

The table below reflects the number of individuals who became HL7 certified specialists in 2018. The worldwide number of certified HL7 specialists by exam is provided below.

| Certification and Proficiency Exams | # Registered in 2018 | # Certified in 2018 | Total # Certified |
|---|---|---|---|
| Clinical Document Architecture | 14 | 11 | 771 |
| FHIR | 83 | 71 | 80 |
| Version 2 | 129 | 89 | 3,798 |
| Version 3 Reference Information Model (RIM) | 2 | 2 | 379 |
| **Total** | **228** | **173** | **5,028** |

*Mark C. McDougall*

# HL7 INTERNATIONAL COMMITTEES AND WORK GROUPS

Affiliate Due Diligence

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Architectural Review Board

Arden Syntax

Attachments

Biomedical Research Integrated Doman Group

CDA Management Group

Clinical Decision Support

Clinical Genomics

Clinical Information Modeling Initiative

Clinical Interoperability Council

Clinical Quality Information

Clinical Statement

Community-Based Care and Privacy

Conformance

Education

Electronic Health Records

Electronic Services and Tools

Emergency Care

FHIR Infrastructure

FHIR Management Group

Financial Management

Governance and Operations

Health Care Devices

HL7 Foundation Task Force / Advisory Council

HL7 Membership and Strategic Resources Committee

Imaging Integration

Implementable Technology Specifications

Infrastructure and Messaging

International Council

International Mentoring Committee

Leadership Development and Nominations Committee

Learning Health System

Mobile Health

Modeling and Methodology

Orders and Observations

Patient Administration

Patient Care

Pharmacy

Policy Advisory Committee

Process Improvement

Project Services

Public Health

Publishing

Recognition and Awards

Security

Services Oriented Architecture

Standards Governance Board

Structured Documents

Technical Steering Committee

Templates

Terminology Authority

US Realm Steering Committee

V2 Management Group

Vocabulary

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# HL7 COLLABORATES

HL7 formally collaborates with many organizations across the industry. The organization currently holds formal agreements with the following groups:

Accredited Standards Committee X12 - ASC-X12

American Dental Association (ADA)

American Immunization Registry Association (AIRA)

American Medical Informatics Association (AMIA)

America's Health Insurance Plans (AHIP)

American Society for Testing Materials (ASTM)

CEN/TC 251 (European Committee for Standardization)

Digital Imaging and Communication in Medicine (DICOM)

eHealth Initiative, Inc. (eHI)

GS1

Health Information Management Systems Society (HIMSS)

Health Information Management Systems Society Europe (HIMSS Europe)

Health Care Services Platform Consortium (HSPC)

Institute for Electrical and Electronic Engineers (IEEE)

Integrating the Healthcare Enterprise (IHE)

International Conference on Harmonization (ICH)

International Organization for Standardization (ISO)

National Council for Prescription Drug Program (NCPDP)

OASIS

Object Management Group (OMG)

PCHAlliance

Pharmaceutical Users Software Exchange (PhUSE)

Regenstrief/Logical Observation Identifiers Names and Codes (LOINC)

Smart Open Services for European Patients (epSOS) – European eHealth Project

SNOMED International

The Sequoia Project

TransCelerate

Workgroup for Electronic Data Interchange (WEDI)

# HL7 2018 STANDARDS SNAPSHOT

## HL7 Standards Receiving ANSI Approval in 2018

HL7 Version 3 Standard: Common
Product Model CMETs, Release 4
*Approved: 2/27/2018*

HL7 Version 3 Standard: Structured
Product Labeling, Release 8
*Approved: 2/27/2018*

HL7 Version 3 Standard: XML
Implementation Technology
Specification - V3 Structures, Release 2
*Date Approved: 4/20/2018*

HL7 Version 3 Standard: XML
Implementation Technology
Specification R2; ISO-Harmonized
Data Types, Release 1
*Date Approved: 4/20/2018*

HL7 Version 3 Standard: Immunization
Messaging, Release 1
*Date Approved: 4/20/2018*

HL7 Version 3 Standard: Care
Provision; Care Record Topic, Release 1
*Date Approved: 4/20/2018*

HL7 Version 3 Standard: Care Provision
Domain Information Model, Release 1
*Date Approved: 4/20/2018*

HL7 Version 3 Standard: Care Provision;
Care Transfer Topic, Release 1
*Date Approved: 5/8/2018*

HL7 Templates Standard: Specification
and Use of Reusable Information
Constraint Templates, Release 1
*Date Approved: 5/8/2018*

HL7 Version 3 Standard: Care
Provision; Assessment Scales, Release 1
*Date Approved: 5/24/2018*

HL7 Version 3 Standard: Medication
Statement and Administration Event,
Release 1
*Date Approved: 5/24/2018*

HL7 Version 3 Standard: Abstract
Transport Specification, Release 1
*Date Approved: 5/31/2018*

HL7 Version 3 Standard: Care
Provision; Queries Care Record Topic,
Release 1
*Date Approved: 6/15/2018*

HL7 EHR-S Functional Profile:
Meaningful Use 2015, Release 1 - US
Realm
*Date Approved: 9/4/2018*

HL7 Version 3 Standard: Decision
Support Services, Release 2
*Date Approved: 9/6/2018*

HL7 Virtual Medical Record for
Clinical Decision Support (vMR-CDS)
Logical Models, Release 2
*Date Approved: 9/6/2018*

HL7 Version 3 Standard: Master File/
Registry Infrastructure, Release 1
*Date Approved: 10/19/2018*

HL7 Version 3 Standard: Core
Principles and Properties of Version 3
Models, Release 2
*Date Approved: 11/1/2018*

## HL7 Standards for Trial Use (STUs) Published in 2018

HL7 CDA® R2 Implementation Guide: Reportability Response, Release 1 STU Release 1.0- US Realm

HL7 Version 2.6 Implementation Guide: Vital Records Birth and Fetal Death Reporting, Release 1 STU Release 2

HL7 CDA® R2 Implementation Guide: C-CDA R2.1; Advance Directives Templates, Release 1 - US Realm

HL7 Version 2.5.1 Implementation Guide: S&I Framework Laboratory Test Compendium Framework (eDOS) R2, STU Release 3 – US Realm

HL7 Version 2.5.1 Implementation Guide: Laboratory Results Interface Release 1, STU Release 3 – US Realm

HL7 Version 2.5.1 Implementation Guide: Laboratory Orders (LOI) from EHR, Release 1, STU Release 3 - US Realm

HL7 FHIR® Profile: Quality, Release 1 STU Release 3 - US Realm

HL7 FHIR® Profile: C-CDA, Release 1 - US Realm

HL7 Specification: Clinical Quality Language (CQL), Release 1

HL7 CDA® R2 Implementation Guide International Patient Summary, Release 1

HL7 FHIR® IG: SMART Application Launch Framework, Release 1

HL7 CDA® R2 Implementation Guide: Healthcare Associated Infection Reports, Release 3, STU 3 - US Realm

HL7 CDA® R2 Implementation Guide: C-CDA Supplemental Templates for Unique Device Identifier (UDI) for Implantable Medical Devices, Release 1 - US Realm

HL7 Version 2.8.2 Implementation Guide: Immunization Messaging, Release 1 - US Realm

HL7 EHR-System Electronic Nutrition Care Process Record System (ENCPRS) Functional Profile, Release 2

## Informative Documents Published in 2018

HL7 Version 3 DAM: Biomedical Research Integrated Domain Group (BRIDG), Release 4

HL7 Cross Paradigm Specification: Allergy and Intolerance Substance Value Set(s) Definition, Release 1

HL7 Domain Analysis Model: Clinical Genomics, Release 1

HL7 CDA® R2 Implementation Guide: Supplemental QRDA Clinical Quality Data Sharing User Guide, Release 1

HL7 Domain Analysis Model: THEMES (Terminology Harmonization in Exercise Medicine and Exercise Science) Framework, Release 1

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