

International

2021 ANNUAL REPORT

RE-ENVISIONING HL7



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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CEO REPORT



Charles Jaffe, MD, PhD
HL7 International
Chief Executive Officer

**It was the best of times.
It was the worst of times.
Amid a devastating global
pandemic, which claimed
more lives than any time
in more than a century,
**HL7 made
remarkable strides.****

HL7®
International



A Look Back

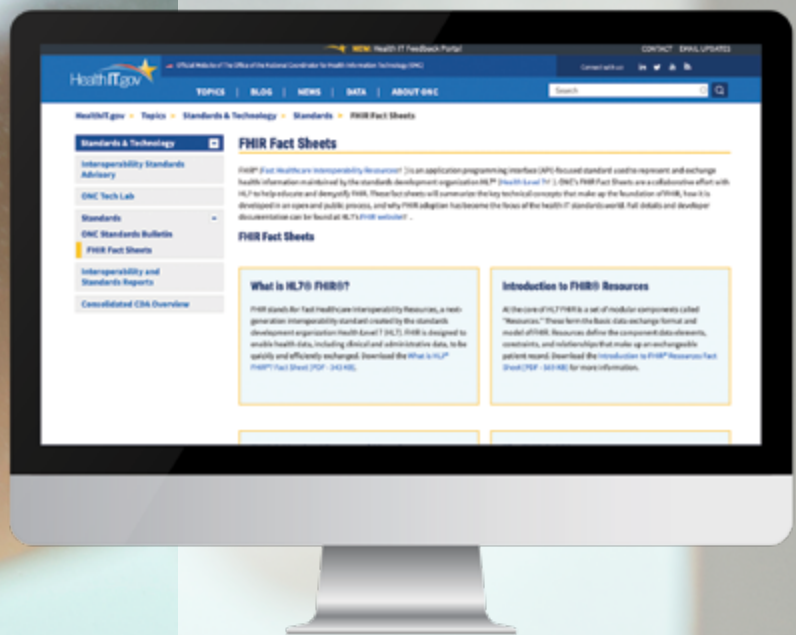
Challenged by public health requirements and travel restrictions, the members of HL7 were nonetheless able to conduct remarkably successful meetings, to develop the standards that the world most tangibly needed and to advance a re-envisioned framework for our organization.

While our technology and governance changed in substantial ways throughout the pandemic, the work groups grew and thrived. New communities, some committed to patient advocacy and to the social determinants of health, found a vibrant home at HL7.



The FHIR standard and its implementation garnered a global audience and recognition by the private sectors and by government agencies.

Few developments were as impactful as the naming of HL7 FHIR by US regulatory authorities, notably ONC (Office of the National Coordinator for Health IT) and CMS (Center for Medicare and Medicaid Services). Globally, governments adopted FHIR in their strategic approach to health data interoperability.



Re-envisioning HL7 International

Perhaps no changes were more evident than the creation of new divisions within the organizational framework of HL7, including standards development and standards implementation divisions. In reality, the process emerged from years of growth in the fundamental demand to ensure that our standards met the needs of the communities that used them and could be verified and tested. Never lacking in this landscape was a recognition that training and education were at the core of our DNA. As the interest in our standards grew on a remarkable trajectory, so did our capabilities to reach out to new communities and new members.

At the end of 2021, we announced new critical roles for the HL7 organization, but the faces who were to lead them were familiar to many.

[Dan Vreeman, DPT](#) became the first Chief Standards Development Officer, [Viet Nguyen, MD](#) assumed the new role of Chief Standards Implementation Officer, and [Diego Kaminker](#) was named as the Deputy Chief Standards Implementation Officer. They brought with them decades of experience in leadership at HL7 and remarkable commitment to the tasks at hand. Perhaps most important was an inexorable commitment to seamlessly collaborate in making the two divisions function as one. Moreover, they were committed to dividing the responsibilities, and not the people.



Implementation Division

The new division is committed to a vision of closing the chasm between the development of HL7 standards and their implementation. This lofty goal is fundamentally aligned with the processes to ensure achieving that vision. It is specifically aligned with the re-envisioning principles of focus, agility, global relevance, sustainability and community. Successfully achieving those goals will be driven by an even greater commitment to testing, education and training, and to a self-sustaining environment.

None of this will bring our communities closer than a clear focus on global implementation and an ear to the voices of those who most need to be heard. The vision was set by the now iconic Community Spiral, developed by Diego Kaminker. It is critical to understand that organizations and individuals wish to participate in the HL7 continuum at different levels. There is a small but highly committed group of individuals



dedicated to the development, curation, and enhancement of our standards. We celebrate their devotion to the process. At the other end of the community spiral are the organizations and people who utilize our standards and envision new and often critical ways of employing them. Those individuals number in the millions or more. In between are the organizations that ensure the safe and meaningful implementation of the standards as well as the government agencies and regulators that fulfill a vital role in their adoption.

During the crises brought on by the global pandemic, HL7 standards were implemented in new and often unique ways, from delivering public health data to establishing a reliable and secure means for verifying Covid immunization. Collaboration was demonstrated across the private sector, among government agencies and around the globe.

The new divisions, the growing communities of implementers and users, and the fundamental commitment of our Board, recognize the need to be sustainable and not reliant on a single source of funding for these ambitious programs.

Mandate

In order to achieve the ambitious goals of the Implementation Division, some successful programs will be enhanced, and some new concepts and technologies will be introduced.

Enhanced platforms for certification testing and credentialing will be added to the already highly successful education and training program. To be successful, the division will partner with current thought leaders and add new collaborations. Most importantly, the division will advance dynamic and continuous testing of FHIR APIs and enrich the programs during the connectathons. Nearly two dozen public testing servers exist, and the Implementation Division will maintain a native sandbox that is currently relied upon by many HL7 members. The future will bring a robust ecosystem in support of a learning health system.

The FHIR Accelerator Program is becoming an integral part of the division ecosystem. To the existing six FHIR Accelerators currently supported (Argonaut, Da Vinci, CARIN, CodeX, Gravity, and Vulcan), two new Accelerators are rapidly becoming key contributors to the program. From ONC comes the FAST (FHIR at Scale Taskforce) Accelerator, which provides needed infrastructure to the existing platform and enables global support for future development. In addition, the CDC has introduced the Helios Accelerator to provide public health reporting to a large international community.


The Implementation Division is not only promising seamless collaboration among FHIR Accelerators but is developing Good Practice programs and playbooks to enhance cybersecurity and support playbooks that enable “spec to wire” continuity, upon which developers and



implementers will rely. On a very different plane, the division is building community outreach programs that will offer discovery of, and robust access to, the specification.

Although the FAST FHIR Accelerator was begun as a US-centric initiative with funding through ONC, it has recognized emerging support from the private sector, non-profit organizations, academia and academic health systems. In the future, FAST is certain to be embraced by a large global community that will value the infrastructure it brings to FHIR implementation initiatives.

Likewise, Helios has envisioned a broad remit in public health reporting, research, and knowledge management. It encourages participation by global organizations due to global demand for data sharing in support of evidence-based policy. Lastly, other accelerators are eager to become a critical component of the ecosystem. At the fore is the vision of a clinical accelerator, driven by specialty medical societies such as the AMA, as well as CodeX and academic partners. Likewise, after some years of challenging dynamics, a genomics accelerator appears to have a promising future.



In the future, FAST is certain to be embraced by a large global community that will value the infrastructure it brings to FHIR implementation initiatives.


Collaboration: New and Old

Among our oldest partners are HIMSS and WEDI (Workgroup for Electronic Data Interchange), with which we will be introducing new programs in the coming year. In the academic sphere, we have increased our commitment to partner with AMIA (American Medical Informatics Association). Also in the US, the NIH (National Institutes of Health) has begun an ambitious program for delivering FHIR training to both intramural programs and to NIH grantees. Lastly, OMG (Object Management Group) will add to the opportunities to bring standards collaboration to the forefront.

With a global perspective in mind, our collaboration with both ISO (International Organization for Standardization) and WHO (World Health Organization) have taken an increasingly positive turn. In the future, those partnerships will deliver much needed support for our standards and our Implementation Division. Most importantly, this year saw the addition of a new collaborator in ODHSI (Observational Health Data Sciences and Informatics)

to grow our commitment to research informatics and the ultimate sharing of data between research and clinical care environments. In fact, we have now partnered on an ambitious program, OMOP on FHIR, which will integrate the OMOP (Common Data Model) and FHIR, leveraging the strengths of both data platforms.

Firely, the creator of HL7 FHIR DevDays, is also one of HL7's critical collaborators. This program has become the preeminent global training program, HL7 will partner with Firely for continued annual global DevDays programs, which will alternate between Europe and North America. The future may see DevDays programs on other continents as well.



**Indeed, we are living
in exciting times. We
will continue to strive
to make our planet a
healthier and safer one.**

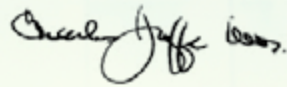
Looking Ahead

Beyond our new technical skills and tools and the programs that they support, 2022 promises to be an exciting year. The collaborations that we have enjoyed in the past will take on added relevance and new partnerships are emerging.

Our relationship with HIMSS is an old, endearing one, but this coming year we will have an opportunity to showcase our training and outreach efforts. The same can be said for Health Data Management (HDM), which has been resurrected as an online platform for healthcare IT innovation and education. Although

we have long partnered with CHIME (College of Healthcare Information Management Executives), we can expect closer collaboration on education, policy, and outreach. Lastly, the RAND Corporation has introduced some new opportunities to collaborate on the Implementation Division.

Indeed, we are living in exciting times, but also in an era that challenges our compassion, our focus on evidence, and our support for our fellow citizens around the globe. We will continue to strive to make our planet a healthier and safer one.



Cheryl Jeffers

CHAIR REPORT



Walter Suarez, MD, MPH
HL7 International
Board Chair

Greetings Fellow HL7 International Members

Welcome to 2022!

Last year was marked by the ups and downs of the COVID-19 pandemic. To some, it was a transition year towards recovery and renewal. The world got vaccinated, albeit not to the extent or at the speed needed. New variants appeared, including Beta from South Africa and Delta from India. Cases continued to grow. Anti-viral drugs were developed. Use of digital vaccine certificates began in some regions of the world. And in November, another new variant, first discovered in South Africa, began to quickly spread around the world: Omicron. By the end of the year, not only had Omicron become the dominant cause of new cases around the world, it was also spreading extremely fast and easily, including among those fully vaccinated (so-called “breakthrough infections”).

There was also a glimmer of hope. This new variant was not causing the severe and deadly symptoms of previous variants, particularly in vaccinated patients and those with natural defenses. Unfortunately, because of the sheer number of new cases, and the number of cases among non-vaccinated people, the actual volume of hospitalizations and fatalities was also extremely high. This put significant new pressures on our already stressed-out front-line clinicians and care providers, the true heroes of this pandemic, and also on the already stretched-thin hospitals and healthcare systems. The somewhat good news was that while the peak was growing very high and fast, the decline in cases afterward was also very rapid. I expect that the World Health Organization will soon declare the official end of the pandemic, and we will move to the post-pandemic (endemic) phase of the disease.

HL7 2021 Highlights

2021 was also an exceptional year for HL7 International, from many different perspectives.

Strategically, we worked hard to fast forward our “Banner Initiative”—Re-Envisioning HL7 (<https://confluence.hl7.org/display/RH>) and began to implement several major internal and external changes as a result of it.

Due to the pandemic, we also transitioned all our meetings (working group meetings, Connectathons, HL7 FHIR DevDays, Implementation-A-Thons, Board, Advisory Council and TSC Retreats) to a virtual platform—Whova—and became quite effective and successful at doing so.

We also implemented our new COVID Protection Policy (<http://www.hl7.org/events/covid.cfm>) and our Anti-Trust Meeting Statement, and continued to advance our global Diversity, Equity, and Inclusion policy (<https://www.hl7.org/documentcenter/public/legal/HL7-Statement-on-Diversity-Equity-and-Inclusion.pdf>), our Code of Conduct policy (<http://www.hl7.org/legal/code-of-conduct.cfm>), and our Code of Ethics policy (<http://www.hl7.org/legal/code-of-ethics.cfm>).

We celebrated the 10th anniversary of the creation of HL7 FHIR, and the establishment of HL7 Europe, two outstanding milestones for HL7 International.

And on the financial side, against all odds and challenges, we were able to achieve one of the most successful years in the history of the organization—see our board treasurer’s report for details.

The following highlights the most significant accomplishments during 2021, framing them around our Re-Envisioning HL7 Initiative.

Re-Envisioning HL7 International: 5 Bold Principles

FOCUS

- Expanded our work on HL7 Fast Healthcare Interoperability Resources (FHIR®) across all work groups, products, and projects.
- Worked with the HL7 International community to develop product roadmaps to FHIR, including Clinical Document Architecture (CDA®), Version 3 (V3), Version 2 (V2) and other product families.
- Worked on developing a new Standards Lifecycle Framework to address the state of products and artifacts in the standards maintenance process and will be launching the Specification Lifecycle Dashboard in 2022.

AGILITY:

- Implemented several structural, process and technical changes to our internal systems to streamline, simplify, and make our standards development and maintenance functions more efficient and effective.
- Revised the TSC leadership election process and implemented member term limits.
- Phased out several structures, including the Steering Divisions, Architecture Review Board, Standards Governance Board, integrating all under the TSC.
- Established the Terminology Management Group to oversee HL7's Terminology Authority, Unified Terminology Governance, and Vocabulary Working Group.
- Simplified Project Scope Statement (PSS) workflows and linked Project Proposals to PSS.
- Retired Gforge and transitioned all HL7 balloting to JIRA and enabled Affiliate balloting via JIRA.
- Selected a new Association Management System, which will be implemented in 2022.
- Identified several workflows to be transitioned to Confluence, including spec reaffirmation and withdrawals, NIB forms, Publication Request Forms, and others in 2022.
- Developed plans for implementing online FHIR IG proposals and FHIR ballot readiness checklist in 2022.

GLOBAL IMPACT:

- Identified strategies to strengthen our HL7 affiliates, expand affiliate presence, developed a Global Advocacy Strategy, and enhanced and expanded our external partnerships with global, regional, and local organizations.
- Welcomed new HL7 International affiliates, including Mexico and Slovenia, with a number of other country applications under review, including Colombia and Israel.
- Developed plans to create new pathways to enhance and strengthen our HL7 affiliates worldwide, improve representation from affiliates at various governance structures including the Board of Directors, establish an Affiliate Dashboard, an Affiliate Maturity Model, and develop a new survey of activities as part of the Affiliate Annual Report.
- Developed a new 2022-2025 Global Advocacy Strategy thanks to our Policy Advisory Committee and will implement it in 2022.
- Expanded our external partnerships to groups such as WHO, PAHO, World Bank, and Regional Banks—such as the Interamerican Development Bank; established the Global Consortium for eHealth Interoperability in partnership with HIMSS and IHE International (<https://www.globalhealthinterop.org/>); and continued to strengthen our ongoing relationships with many other international SDOs, associations, and industry groups

COMMUNITY:

- Acknowledged the significance of the HL7 implementers community by creating a new Standards Implementation Division, in addition to the existing Standards Development and Maintenance and Administrative and Operation Divisions. More information about these major re-structuring changes is available in the CEO report.
- Expanded the number of HL7 FHIR Accelerators and welcomed new accelerators focusing on Research (Vulcan - <https://www.hl7.org/vulcan/>), and Public Health (Helios - <https://www.hl7.org/helios/>). We also experienced an incredibly strong ongoing, expansion of our existing accelerators, including Gravity, DaVinci, CodeX, Argonaut and CARIN. More about our HL7 FHIR Accelerators can be found at <https://www.hl7.org/about/fhir-accelerator/>.

SUSTAINABILITY:

- Developed strategies to ensure the organization's financial viability and long-term sustainability, including enhancements to our education offerings, improvements to our internal financial operations; and development of an advocacy strategy in the U.S. to seek stronger financial support from the U.S. federal government.
- Enhanced and expanded our education, communications and outreach programs, including new education and certification programs focusing on HL7 FHIR.
- Recommendations were also made to improve the efficiency and effectiveness of our internal financial operation and create a new controller position to lead this effort.
- Collaborated with the new Friend of HL7 group to advance the inclusion of HL7 FHIR development support in the U.S. federal appropriations legislation for the federal fiscal year 2022 and beyond, with the goal of increased direct federal funding to HL7 International in support of HL7 FHIR development.

Conclusion

The aforementioned work demonstrates the full and unwavering commitment of the HL7 Board of Directors to chart the course of this transformative journey, and make HL7 a more agile, approachable, efficient, productive, and globally impactful standards development and implementation organization for years to come. This is not only the right thing to do, but also the right time to do it, and the right moment to make the significant financial investment we are making to support this transformation. Particularly at a time when we have had one of the best financial performances in our history, and with the careful fiduciary controls being put in place this year.

With all these changes in place, we are now working on developing our 2022-2025 Business and Strategic Plan, rooted in the five bold principles of our Re-Envisioning Initiative, and focused on measurable performance goals for each of our three divisions.

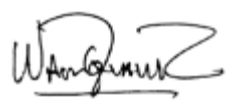
This impressive array of accomplishments could not have been achieved without the leadership, engagement and support of our

entire HL7 International community—our members, International Council leadership and affiliates, FHIR Accelerators’ leaders and participants, TSC members and work group co-chairs, our Education Council and our Policy Advisory Committee, the Advisory Council, all the members of our Board of Directors and Board Officers, and our amazing executive and professional staff. To each and every one of you I am extremely grateful for your dedication and your commitment to helping HL7 International achieve its mission of “...providing standards that empower global health data interoperability...”

It has been my honor and privilege to serve as the Chair of the Board of Directors of HL7 International for the past two years.

I wish you all the very best for a safe, healthy and prosperous 2022.

Be Well,



CTO REPORT



Wayne Kubick
HL7 International
Chief Technology Officer

2021 was a year fraught with many new opportunities and challenges coupled with the continuing frustrations of extended pandemic-fatigue.

It was a transitional year, as anticipation for a new Release 5 of FHIR competed with the desire of many implementers to stabilize on R4, and the HL7 community had to wrestle again with the cognitive dissonance of having to build consensus-based standards without the benefit of in-person working group meetings. Early in the year, we were optimistic we'd be back together in person by the January 2022 WGM, but alas, the virus was uncooperative. Now the hope is to reconvene in September 2022, though even then it's likely that many familiar faces from the good old days still won't be able to join.

As CTO, my theme for the year was “focus on finishing”—though early on, I didn't realize how on point that theme would be. Of course, I realized that despite such a goal, many major initiatives would not actually get finished by the end of the year, which shouldn't be surprising, given the rapid pace of change in the world of healthcare and technology. However, the key word was “focus”—directing attention toward doing things that would lead to putting new ideas and solutions into practical use.

For HL7, this focus led to establishing the new Standards Implementation function, which would help implementers and users on the last mile of putting standards to work effectively. For my work as CTO, it was about the focus on driving standards, tooling and process improvement projects to completion as well as actually realizing more of the benefits that I'd been anticipating during my tenure.

Vital Signs

As usual, HL7's industrious and committed volunteer community produced a wealth of new and updated standards in support of HL7's mission to provide standards that empower global health data interoperability:

- 12 recognized ANSI standards (including reaffirmations)
- 5 new normative publications (CQL, CDA HAI R3, PSIM, QRDA III, PHR R2)
- 5 technical corrections/errata (DaVinci PDEX formulary, C-CDA Companion 2.1, EHR Dental, V2.9, CDA R2.1)
- 8 Informative publications
- 27 new STU releases, 9 STU updates and 18 STU extensions

This reflects a drop from 2020, though hardly implying a reduction of effort or productivity. Rather, 2021 saw work begin on many new FHIR implementation guides (IGs), and the FHIR IG Publisher log in GitHub lists 100's of builds in progress. We're seeing an expected increase in the development of FHIR specifications, which is not yet showing up in the publication count. In fact, the January 2022 ballot cycle included nearly half again as many balloted artifacts as in the prior three cycles, and it appears that 2022 will generate quite a few more balloted artifacts than ever before.

Contracts

In addition to these publication milestones, HL7 also initiated or continued many direct contracted projects:

- 50 standards-related development projects run by HL7 volunteers (without contractual support)
- 14 contracts funded from the HL7 tooling budget—including new contracts or amendments to ongoing projects
- 55 new government-funded contracts or amendments to ongoing contract

These numbers are very comparable to 2020, perhaps at least partly due to the focus on finishing that may have somewhat prioritized an essentialist's goal to “do less, better” over starting too many more new projects. It's also worth noting that the focus on finishing centered on many very big projects, including JIRA balloting, UTG, the new AMS and web publishing.

Strength in Collaboration

In 2020, the US Office of the National Coordinator (ONC) awarded two major new contract vehicles to HL7, which led to a spike in significant new projects and initiatives for HL7 to deliver in addition to the other ongoing tooling projects that had been supported under a 2018 Cooperative Agreement.

Under the new Cooperative Agreement related to Covid-19, HL7 began projects involving Covid-19 concept models, security and privacy, natural language processing, social determinants of health and public health.

Under a new contract for the US Realm, we successfully balloted updates to the US Core FHIR Implementation Guide and C-CDA to accommodate the second release of ONC's US Core Data for Interoperability (USCDI)—an important accomplishment, since it will have to be repeated annually for future updates of USCDI. This contract also supported introduction of a prototype dashboard for

tracking work in progress and supporting efforts such as updating and supporting adoption of the International Patient Summary, which promises to greatly increase visibility into HL7 ongoing projects.

It bears repeating that much of what was accomplished during my six years at HL7 was really made possible with the ongoing support of ONC, together with the contributions of many HL7 staff and members.

Tooling Highlights

With ONC's considerable help, there were several major new improvements in our publication tooling, which now produces terminology.hl7.org and will soon support future releases of C-CDA. As noted above, the FHIR IG Build and Publishing is used for hundreds of new IGs (some produced by affiliates, partner organizations like IHE, and other collaborators) even as it's being expanded to publish other specifications like C-CDA and CDA. We commenced new projects to further enhance and improve the usability of our Unified Terminology Governance (UTG) tooling, which is under the governance of a new Terminology Services Management Group to help meet the many challenges of semantic interoperability. 2021 also saw the rollout of JIRA balloting and the online workflow Project Scope Statement, as part of a continued effort to put essential content in a single, cloud-based source of truth and reduce submission of forms and comments as email attachments.

We also made additional progress in increasing the reliability and scalability of HL7 HQ's IT infrastructure, with additional use of cloud hosting and an expanded technical support team. The project to replace HL7's antiquated membership management system with the Salesforce-based Fonteva product is proceeding toward a planned cutover and will bring many new capabilities to

improve customer relationships and our member experience. 2022 will also likely see a new project to replace HQ's core financial management systems.

Simplicity and Essentialism

It's been gratifying that my core principles of simplicity and essentialism continue to be embraced by HL7 leadership and the community. HL7 work groups have reclassified many older standards as retired—still available for reference but no longer recommended for new implementations. A great deal of progress has been made in cleaning obsolete information from the hl7.org website, retiring the old Wiki, and archiving outdated information. The HL7 Essentials page continues to be updated with best practices and guidelines for making the HL7 experience less burdensome on co-chairs and volunteers, but it's clear that there are many more things that can be done to reduce the stress and workload of our contributors. Clearly, it's a critical success factor to continue to attract and develop new leaders and contributors throughout the community, and it's important to remember how HL7's success depends on the co-chairs, project leads and active members who produce the HL7 standards that provide the backbone of interoperability, and that you—our most vital resources—are the driving force behind them.

Epilogue

This year's Linked In messages congratulating me on my six-year anniversary as HL7 CTO from contacts began to arrive *en masse* on January 31, 2022—which was coincidentally my last day at HL7. It was drolly ironic to thank my

friends and colleagues who reached out, while also announcing that I had just retired, and rather amusing to look forward to receiving similar messages next year on the anniversary of my new position as Former CTO.

As I look back to 2021, it was gratifying to see how much progress had been made on building an improved infrastructure that should be able to support the expanded scope and growth of a re-envisioned HL7. For me, while much had been accomplished, it was also clear that there was much more to be done, and HL7 would benefit from the energy and fresh ideas of a new generation of leadership to take it to the next level. I can't imagine leaving things in better hands than those of Dan Vreeman, DPT, Viet Nguyen, MD, and Diego Kaminker. I look forward to being amazed at all the great things they, together with Grahame and the full HL7 community, will accomplish in the next generation.

But in the words of George Harrison, "All things must pass", and this will be my last CTO update for the annual report. In fact, it will be the final CTO update by anyone since the title of HL7 CTO has been retired along with me. While rumors that it will take three individuals to replace me are surely exaggerated, since my successors will be responsible for a much bigger, faster moving and rapidly expanding scope, I'm also grateful to have had this wonderful opportunity to have been part of the HL7 and FHIR Community. I can't wait to turn the page and see what the next chapters will yield for all of us.

WJRK



TREASURER REPORT



By Floyd Eisenberg, MD
*HL7 International
Board Treasurer*

2021 was another positive year for HL7 strategically and financially.

The organization gained from experience in 2020, proceeding with a highly successful year entirely based on virtual events. While pandemic-related health and economic disruption continued worldwide, HL7's leadership and management staff continued to effectively convert existing face-to-face meeting contracts minimizing cancellation and rescheduling penalties while protecting the health and safety of our membership.

Meetings

HL7 held highly successful FHIR connectathons and working group meetings (WGMs) in January, May and September. Attendance at all meetings has been excellent and relatively stable since moving to the virtual environment for the WGMs (496, 415, and 419 individuals, respectively) and significantly higher at the FHIR Connectathons (798, 589, and 718, respectively). Due to significantly lower expenses, the net income from these events has been excellent and consistent with our experience in the latter half of 2020.

Figure 1 provides graphic view of attendance and net revenue from 2018 to 2021. As compared to 2020, the WGMs and FHIR connectathons generated HL7 International \$367k more than 2020 as net results from the February 2020 meeting accrued to HL7 Australia and

HL7 International produced a FHIR Connectathon in May 2020 without a WGM. Therefore, direct comparison of 2020 to 2021 revenue is not relevant. The 2021 WGMs and FHIR connectathons generated \$120k more than budget expectations. The June 2021 FHIR DevDays generated \$324k in revenues, which is \$109k under budget and \$90k less than what was produced from the 2020 DevDays event. The number of attendees to the 2021 DevDays was 543, which is 136, or 20%, fewer than the 679 that attended the 2020 event.

Education

Revenue from education has grown by 26.9% and net income increased by 6.7% with greater attendance in approximately the same number of events compared to 2020. Revenue from certification testing increased by 63.9% and the net income increased by 53.9%, a significant improvement over 2020 results. Revenue from educational webinars and virtual classroom programs were \$23k more than 2020 and surpassed the 2021 budget by \$154k, or 56%. Revenue from distance learning courses increased by \$183k as compared to 2020 and were \$299k over the 2021 budget. Revenue from certification tests increased by \$44k as compared to 2020 and were \$68k more than the 2021 budget. Figure 2 shows the increasing revenue trend from 2018 to 2021.

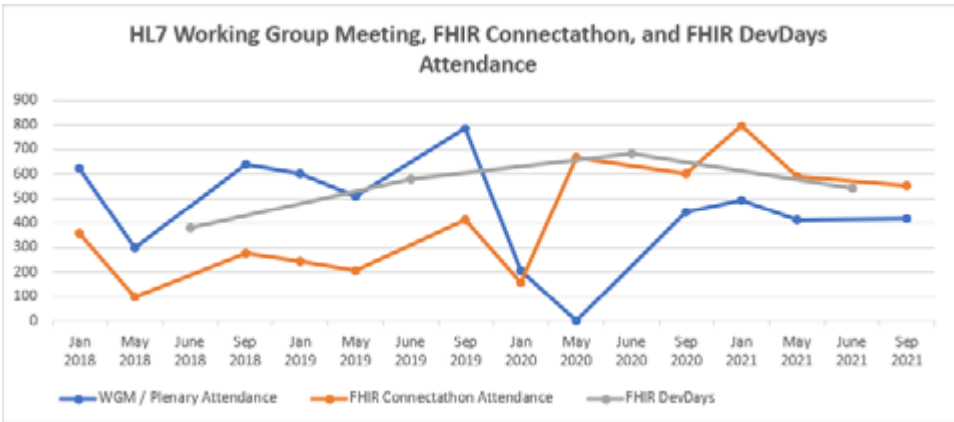


Figure 1. Attendance at WGM, FHIR Connectathons, FHIR DevDays, and net revenue from WGMs and FHIR Connectathons 2018-2021.

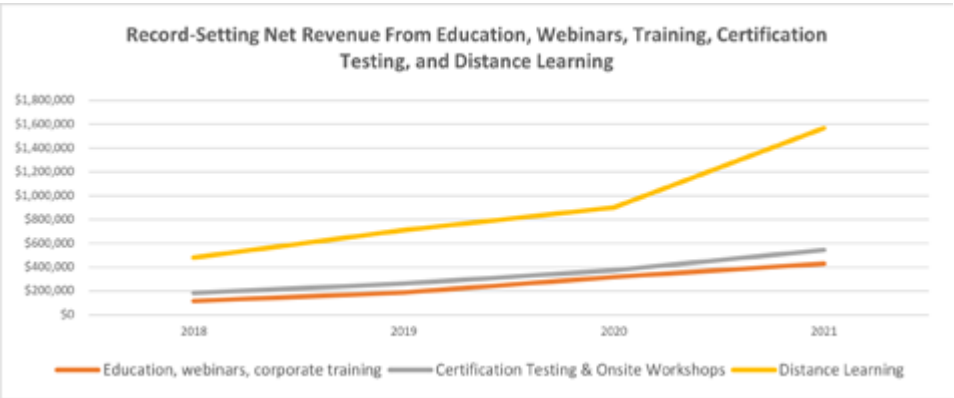


Figure 2. Net revenue from education, webinars, training, certification testing, and distance learning.



Membership

Organizational and individual membership revenues have continued to increase (3.5% and 7.3% over 2020, respectively). As compared to 2020, organizational membership revenues increased by \$107k, or 3.5%, and individual membership revenues increased by \$7k, or 7%. As compared to the 2021 budget, organizational membership revenues exceeded the budget by \$311k and individual membership revenues exceeded it by \$12k. The trend over the past six years of year-by-year reduction in organizational members continues to stabilize and individual memberships have started to recover from decline experienced through 2019. Figure 3 shows changes in membership from 2018 through 2021. Revenues from individual memberships are proportionally small relative to total membership revenues, most of which represent organizational memberships. In 2021, membership revenues were \$324,429 more than budgeted, with positive budget variances for organizational memberships or \$311,729 (11% increase) and for individual memberships \$12,700 (13.8% increase). Increased interest and activity with FHIR and participation of FHIR Accelerators seem to have stabilized membership, although HL7 membership among FHIR Accelerator participants varies.

The Organization

HL7's net income dipped slightly in 2020, especially due to the May 2020 WGM cancellation, but income has rebounded in 2021 with successful management of virtual meetings and events. Figure 4 shows the pattern of expenses and revenue over the past four years.

Figure 5 shows HL7 reserves, which have increased annually to show a current reserve of 17.2 months. Our ability to rely on such reserves allows HL7 to take steps to implement our re-envisioning strategy and invest in new infrastructure and staff to help move the process forward. The HL7

Board approved a change to our investment strategy from a very conservative approach to allow our advisors (Morgan Stanley) to increase our allocation of moderate risk investments leading to a 10.28% return for 2021 compared to an average of 8.17% over the last three years. The returns will likely be lower in the first half of 2022 due to a number of global concerns; the HL7 Finance Committee reviews progress regularly with our financial advisors.

The HL7 re-envisioning has progressed including creation of new HL7 funded positions, Chief Standards Development Officer, Chief Standards Implementation Officer, Deputy Chief Standards Implementation Officer to more directly support standards implementation and more comprehensively address standards development. We have also been able to address infrastructure and support for our members with a new Director of Technical Services and Webmaster and a Network Administrator. In addition, HL7 is moving to new member management software (Fonteva) and, based on re-envisioning activity recommendations, we have budgeted for new financial system software to better support our new endeavors.

Our positive financial status has allowed HL7 to move forward with these positions to enhance our leadership capabilities in health information technology standard development and implementation. HL7 has been fortunate that membership and participation has remained strong. As we begin to move back to in-person events and operationalize our re-envisioning efforts, we will also be watching and seeking to enhance our revenue streams to support sustainable enhancements moving forward. I am personally highly optimistic about HL7's future.

Respectfully submitted,





Figure 3. HL7 membership 2018-2021.

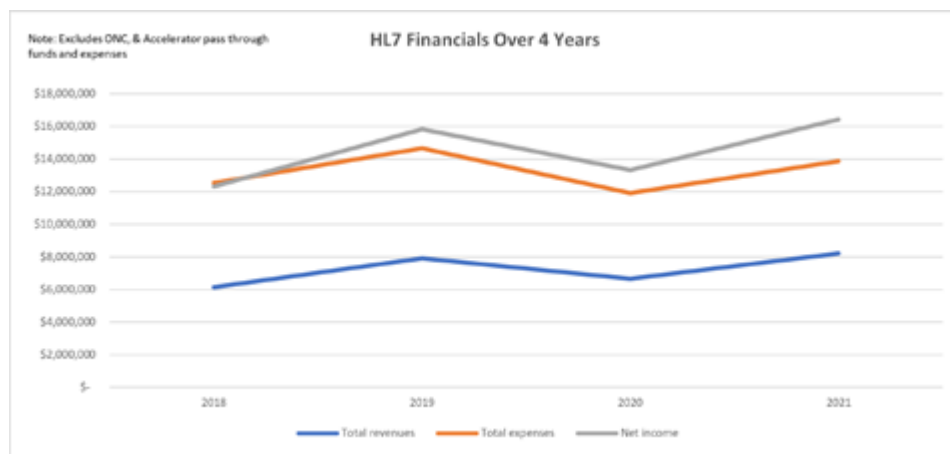


Figure 4. HL7 financials over the past four years, showing revenues, expenses and net income.

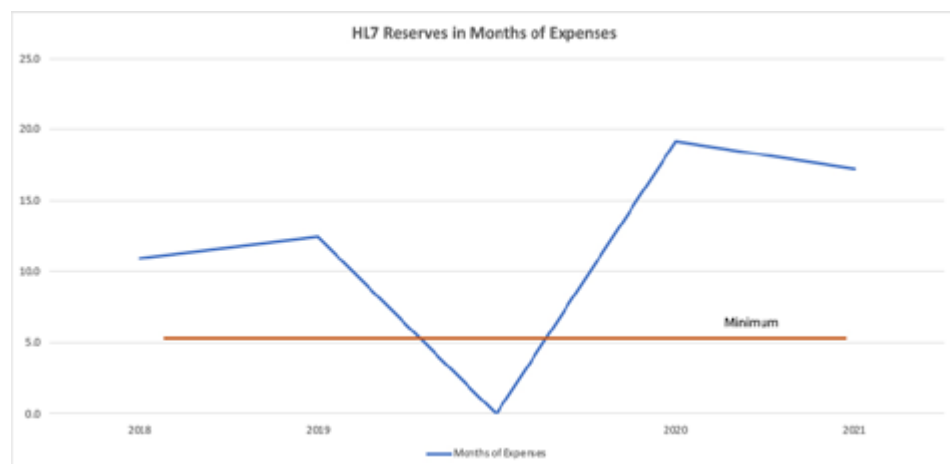


Figure 5. HL7 reserves shown in months of expenses available

HL7 INTERNATIONAL COMMITTEES AND WORK GROUPS

Affiliate Due Diligence	FHIR Management Group	Payer/Provider Information Exchange
Arden Syntax	Financial Management	Pharmacy
Biomedical Research Integrated Doman Group	Governance and Operations	Policy Advisory Committee
CDA Management Group	Human and Social Services	Public Health
Clinical Decision Support	Imaging Integration	Publishing—Electronic Services and Tooling
Clinical Genomics	Implementable Technology Specifications	Recognition and Awards
Clinical Information Modeling Initiative	Infrastructure and Messaging	Security
Clinical Interoperability Council	International Council	Services Oriented Architecture
Clinical Quality Information	Leadership Development and Nominations Committee	Structured Documents
Community-Based Care and Privacy	Learning Health System	Technical Steering Committee
Conformance	Mobile Health	Terminology Authority
Cross-Group Projects	Modeling and Methodology	Terminology Services Management Group (TSMG)
Devices	Orders and Observations	US Realm Steering Committee
Education	Patient Administration	V2 Management Group
Electronic Health Records	Patient Care	Vocabulary
Emergency Care	Patient Empowerment	
FHIR Infrastructure		

EXECUTIVE DIRECTOR REPORT



Mark McDougall
HL7 International Executive
Director

HL7 is dependent upon the service of hundreds of key members who drive the organization forward.

Membership Report

HL7 had 1,547 members as of December 31, 2021, as compared to 1,501 one year earlier, representing a 3% increase. The Benefactor level remained steady at 30 members and there was a modest gain in Gold level memberships from 93 in 2020 to 95 in 2021.

Individual Memberships

As of December 31, 2021, HL7 had a total of 140 individual members, which represents a 12% increase from 125 total individual members one year earlier.

Organizational Memberships

There were 411 organizational member firms on December 31, 2021, as compared to 404 at the end of 2020. In 2021 there were 84 new organizational members and 51 organizational reactivations. This compares to 60 new organizational members and 54 organizational reactivations in 2020. For the year, there was a net increase of 24 organizational memberships which compares to a decrease of 16 during 2020.

Membership Recognition

Volunteers of the Year

We were pleased to recognize three incredible volunteers for their dedicated service to HL7. This year marks the 25th year that we have recognized such individuals via the *W. Ed Hammond, PhD HL7 Volunteer of the Year Awards*. The recipients of the 2021 HL7 Volunteer of the Year Awards included:

- John D'Amore, President, More Informatics and Co-Founder and Strategic Advisor, Diameter Health
- Janet Marchibroda, President, Alliance for Cell Therapy Now
- Feliciano "Pele" Yu, MD, Chief Medical Information Officer, University of Arkansas Medical Sciences

We are honored to recognize John, Janet and Feliciano 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 well-deserved.

HL7 Fellows Class of 2021

The HL7 Fellowship program recognizes individuals with outstanding commitment and sustained contribution to HL7 with at least 15 years of active membership. During HL7's 35th Plenary meeting, HL7 honored the following well-deserving members with distinction as HL7 Fellows in the Class of 2020:

- | | | |
|----------------------|-------------------|----------------|
| • Lorraine Constable | • Paul Knapp | • Melva Peters |
| • Jean Duteau | • Galen Mulrooney | • Rik Smithies |
| • Jamie Ferguson | • Ron Parker | • Michael Tan |

Board Election Results

The new year of 2022 will bring HL7 new members of the HL7 Board of Directors. The new Board members were elected to serve two-year terms from January 2022 through December 2023.

- Treasurer of the Board:
Floyd Eisenberg, MD,
President, iParsimony, LLC
- Director: Janet Marchibroda,
President, Alliance for
Cell Therapy Now
- Affiliate Director: Peter Jordan,
Solutions Architect, Patients First
Ltd, Chair, HL7 New Zealand

As announced last year, Andy Truscott, Partner, Accenture, began his two-year term as the Chair of the HL7 Board of Directors on January 1, 2022.

Later in 2021, the HL7 Board approved launching a new HL7 Implementation Division and hired two individuals to work half-time each to lead the development and deployment of this new division.

- Viet Nguyen, MD, Chief Standards
Implementation Officer
- Diego Kaminker, Deputy Standards
Implementation Officer

Viet and Diego will also join the HL7 Executive Committee and serve as non-voting members of the HL7 Board of Directors.

With Viet and Diego taking on these new roles at HL7, they both resigned from the HL7 Board of Directors. As defined in HL7's Governance and Operations Manual, their positions on the HL7 Board were filled by the individuals who received the second most votes. Therefore, we are pleased to welcome two new members on the HL7 Board:

- John Loonsk, MD, The Johns
Hopkins University
- Ron Parker, HL7 Canada

Congratulations and a sincere thank you to these individuals for their commitment and service to HL7 as members of the HL7 Board of Directors.

Farewell to Wayne

After six years of serving as HL7's Chief Technology Officer, Wayne Kubick retired from HL7 at the end of January 2022. During the January WGM we celebrated Wayne's contributions via toasts from several HL7 leaders, as well as a memorable send off from John Cleese (English actor, comedian and co-founder of the Monty Python comedy troupe) who is Wayne's favorite comedian. Personally, I would like to thank Wayne for his leadership and friendship throughout the years.

Welcome to Dan Vreeman, DPT

With Wayne's departure, the HL7 Board was pleased to announce the hiring of Dan Vreeman, DPT, who now serves as HL7's Chief Standards Development Officer. Dan has also joined the HL7 Executive Committee and serves as a non-voting member of the HL7 Board of Directors.

Meetings and Education Report

Virtual January FHIR Connectathon and Working Group Meeting

HL7's virtual events continued to provide an effective forum for our HL7 community to collaborate in a seamless manner.

The January WGM attracted 496 participants and 798 participated in the FHIR connectathon. Also, 49 work groups convened productive meetings. Our January WGM also featured several surprise guest speakers that were fun and well-received, including:

- Comedian Cedric the Entertainer
- Meditation guru Deepak Chopra
- Sports reporter Erin Andrews
- Improvisational comedian
Colin Mochrie from Whose
Line Is It Anyway
- Carol Baskin, Big Cat Rescue who
became infamous via the Tiger King
television series
- Actor Sean Astin who starred
in the Lord of the Rings,
Rudy and The Goonies

We were thrilled to realize that our HL7 WGMs and FHIR Connectathons are productive, meaningful and successful in person or virtually.

May FHIR Connectathon and Working Group Meeting

The May WGM attracted 415 participants and 589 participated in the FHIR connectathon. Our May WGM also featured several surprise guest speakers that were fun and well-received, including:

- Anthony Anderson, actor in *Blackish* and several movies
- Dr. Mehmet Oz
- Lisa Leslie, WNBA basketball legend
- Steve Wozniak, co-founder of Apple Computers
- Stephen Tobolowsky, actor from several television shows provided hilarious bits for HL7 attendees

In addition, 42 work groups convened productive meetings. We were thrilled to receive positive feedback in our ability to produce virtual meetings that are both productive and meaningful to the community we serve.

Virtual FHIR DevDays in June

Our second version of a virtual FHIR DevDays successfully delivered the content that the participants were seeking. Kudos to our HL7 and Firely teams for producing another well-received and successful event with 543 participants. Special thanks to Mary Ann Boyle for managing the HL7 staff on the many aspects of the event planning and coordination of speakers from around the world. We would also like to thank Wayne Kubick as well as the Firely team, particularly Rien Wertheim and Marita Mantle-Kloosterboer, for their partnership in producing another successful event.

35th Annual Plenary & Working Group Meeting

The 35th Annual Plenary, WGM and FHIR connectathon were all produced virtually. The plenary meeting attracted

718 attendees, the WGM attracted 419, and the FHIR connectathon attracted 554 participants. Also, 41 work groups convened productive meetings.

The Plenary meeting featured two panel presentations. The first panel addressed the trends and challenges of using artificial intelligence in healthcare:

- *AI in Genomics & Population Health* by Xihong Lin, PhD, Professor of Biostatistics & Coordinating Director of the Program in Quantitative Genomics, Harvard University
- *Overview of AI Lab, Ethics, Skunkworks & Developments in Clinical Care* by Jennifer Hall, AI Senior Data Scientist, NHSX, London, England
- *AI in Argentina: Lessons Learned at Hospital Italiano de Buenos Aires* by Sonia Benitez, MD, PhD, Internal Medicine Specialist, Hospital Italiano, Buenos Aires, Argentina
- *AI: Its Positive Impact on Health Outcomes in Asia Pacific, Japan and Beyond* by Julian Sham, MD, Healthcare Lead, Asia Pacific & Japan, Amazon Web Services, Singapore

Moderated by Walter Suarez, MD, Chair of HL7 Board of Directors and Executive Director, Health IT Strategy and Policy, Kaiser Permanente

The second panel presentation focused on the future of interoperability from the uniquely qualified perspectives of current and former US National Coordinators for Health Information Technology, including:

- Micky Tripathi, PhD, National Coordinator for Health Information Technology
- Karen DeSalvo, MD, Chief Health Officer, Google and former ONC National Coordinator
- Don Rucker, MD, Former National Coordinator at ONC
- Moderated by Lori Evans Bernstein, Co-Founder and President, HealthReveal

Online Classes

The HL7 online program offered 20 paid synchronous classes in HL7 FHIR, CDA and V2.

- Each class was recorded and posted to HL7 Education on Demand portal for fee-based or free access.
- HL7 provided training via six online courses to four companies.

Webinars

More than 20 webinars were delivered, engaging participants around the world.

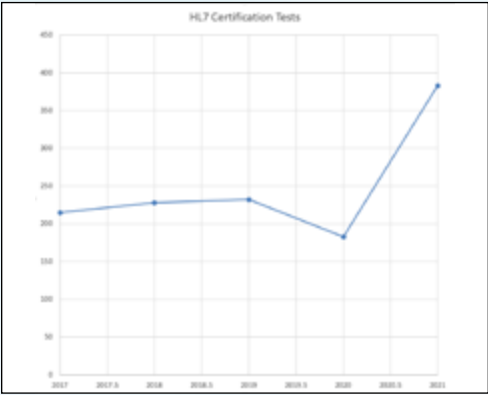
- Eight free Member Advantage webinars, including two addressing GOM proposal changes
- Six co-chair webinars
- Four sponsored webinars
- Three webinars on behalf of HL7 Europe
- Two webinars hosted by the HL7 Education Advisory Council—Gained knowledge about HL7 education around the world including Africa where HL7 does not have an affiliate

Co-Chair Training, Member Forums & Listening Sessions

- Hosted three co-chair trainings
- Hosted eight Q&A sessions for Jira balloting
- Offered three member forums as part of re-envisioning initiative
- Offered four listening sessions for affiliates
 - Affiliate sessions included Asia, New Zealand, Australia, Europe and Latin America
 - Latin America session was conducted in Spanish

Metrics | Registrants & Revenue

- Approximate total registrants for all webinars and online classes: 6,000
- Total revenue from online classes and



- virtual corporate training: \$362,000
- Total revenue from sponsored webinars: \$38,000

Education on Demand

Education on Demand continues to provide a cloud-based portal for HL7’s educational archive.

- Accessible on any device with no applications required
- Features “My Activity” that maintains record of attendance and certificates
- Includes downloadable certificates of completion
- More than 1,120 people accessed free and fee-based courses
- Revenue totaled \$92,000

Fundamentals Courses

HL7 International offers web-based, asynchronous workshops which include guided exercises and projects that teach by practice and examples.

2021 Courses

- Three HL7 Fundamentals courses
- Three FHIR Fundamentals courses
- Three FHIR Intermediate courses
- Three HL7 FHIR Proficiency Exam Prep courses
- One Advanced V2 course

Corporate Training

Our very popular FHIR Fundamentals and FHIR Intermediate courses were offered as corporate training for a benefactor organization.

The HL7 Fundamentals and FHIR Fundamentals courses are produced by HL7 Argentina and in 2021, were also offered by our affiliates in Austria, Brazil, Italy and Pakistan.

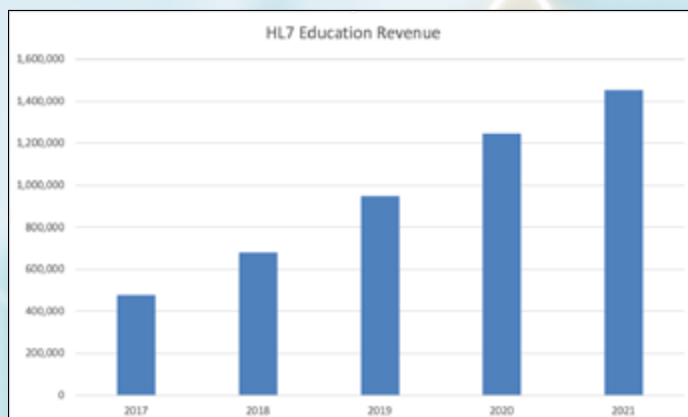
Revenue

- Total revenue from all eLearning courses set a new record: \$1,025,000
- More than 10% increase over 2020 revenue
- Served 1,250 students

Online Certification Testing Program

Through computer-based testing (CBT), HL7 offers opportunities world-wide to those seeking certification in CDA®, Version 2.7, Version 3 RIM and FHIR. Exam results, certificates and badges are available immediately and a certification directory is featured on HL7.org.

A robust web page centralizes information about certification specialties, training opportunities and resources for exam preparation, and provides a gateway to registration. HL7 partners with Kryterion, a leader in test development and delivery,



to administer its certification exams at over 900 High Stakes Online Secure Testing (HOST) Centers worldwide. In addition to HOST 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.

Many of the Kryterion centers were closed during the pandemic. Despite this, 383 individuals registered for exams in 2021 as compared to 183 in 2020, 232 in 2019, 228 in 2018, and 215 during 2017. The increase from 183 to 383 represents an impressive 109% growth as compared to 2020.

Certification Across the HL7 Standards

Certification Exam	# Registered in 2021	# Certified in 2021	Total # Certified
Clinical Document Architecture	10	5	795
FHIR	249	152	340
Version 2	124	77	4,006
Version 3 Reference Information Model (RIM)	0	0	381
Total	383	234	5,522

HL7 INTERNATIONAL COUNCIL REPORT

By the HL7 International Council Co-Chairs



The International Council (HL7 IC) provides a forum for the HL7 International Affiliates and other interested HL7 members to communicate and exchange views as well as discuss issues regarding the international development, adoption, application and implementation of HL7 interoperability standards. The International Council recommends to the Board of Directors actions and policies on behalf of the International Affiliates.

Leadership

HL7 International has three co-chairs reflecting a range of locations around the globe.



Peter Jordan
HL7 New Zealand

Peter has been involved in national implementations of HL7 standards since the early 1990s. He has just commenced his third two-year term as the HL7 New Zealand Affiliate Chair and has developed an HL7 FHIR Terminology Server (Terminz) for local use.



Line Saele
HL7 Norway

Line has been involved with HL7 since 2009, and is currently working with the Norwegian Institute of Public Health. She is also a member of the HL7 Europe Board of Directors.



Ron Parker
HL7 Canada

Ron has been participating in HL7 since 1998 and has held the positions of co-chair for the Architecture Review Board (ARB) and FHIR Governance Board in the past. He is in his second term as HL7 Canada Affiliate Chair.

The co-chairs coordinate closely with the international representatives to the HL7 Board of Directors, this includes our IC Co-Chair Peter Jordan and Ron Parke (both Affiliate Directors), together with Diego Kaminker of Argentina (Deputy Chief Standards Implementation Officer).

International Council Activities

Due to the ongoing pandemic, International Council meetings continued to be held virtually on a bi-monthly basis. The 2021 meetings were held on January 26, March 24, May 19, September 15, and November 17. These meetings were all scheduled using Universal Time Coordinated (UTC) with alternating meeting times (10:00 and 19:00 UTC) so that no international affiliate is consistently disadvantaged in relation to their local time.

Highlights

- Internationally Scoped FHIR Implementation Projects** These include the International Patient Summary (IPS), International Patient Access and SMART Health Card Projects. In particular, the IPS had attracted several affiliate participants working in collaboration with government bodies as part of the Global Digital Health Partnership's Interoperability Work Stream.
- Base National HL7 FHIR Implementation Guides** Following the granting of the exclusive rights to determine and publish these implementation guides, by the Affiliate Agreement, nearly half of the affiliates have already done so—either on their own, or in tandem with a national standards body.
- Participation in the HL7 Board Re-envisioning Task Groups** The HL7 IC continued its active representation in several of the task groups established as part of the HL7 Re-envisioning strategy. These included the Global Relevance—Affiliate Relationships, Internal Organizational Structure, and Community Task Groups.
- New and Returning HL7 Affiliate Members** We welcomed new and reinstated other HL7 Affiliate members over the course of the year, including:
 - Mexico
 - Slovenia
- Regional Listening Sessions** In partnership with HL7 International, well-attended sessions were provisioned by regional leads for Europe and Latin America, plus two for the expansive APAC Region.
- HL7 Canada, HL7 New Zealand and HL7 The Netherlands each celebrated 25 years as an HL7 Affiliate** This follows HL7 Germany, who in 2020, were the first affiliate to reach this milestone.

Plans for 2022

The Affiliate Task Group is currently working on a process for affiliates to provide their annual reports online and with a revised set of questions that will feed into an online dashboard, thus creating a more transparent picture of affiliate activity for both HL7 International and the international community.

The International Council will continue to conduct virtual meetings until in-person working group meetings (WGMs) resume. Thereafter, it is likely to continue to hold virtual meetings scheduled between the WGMs. The IC will also work closely with the new HL7 International Standards Implementation Division as well as a refreshed Affiliates Due Diligence Committee to further HL7’s global outreach and relevance goals.

Countries with HL7 Affiliates in 2021

Argentina	Greece	Romania
Australia	Hong Kong	Russia
Austria	India	Saudi Arabia
Belgium	Italy	Singapore
Brazil	Japan	Slovenia
Canada	Korea	Spain
Chile	Mexico	Sweden
China	Netherlands	Switzerland
Croatia	New Zealand	Taiwan
Czech Republic	Norway	UAE
Denmark	Pakistan	UK
Finland	Philippines	Ukraine
France	Poland	US Realm
Germany	Portugal	

HL7 COLLABORATES

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

American Dental Association (ADA)	eHealth Initiative, Inc. (eHI)	Observational Health Data Sciences and Informatics (OHDSI)
American Hospital Association (AHA)	GS1	Pharmaceutical Users Software Exchange (PhUSE)
American Medical Informatics Association (AMIA)	Health Information Management Systems Society (HIMSS)	Regenstrief/Logical Observation Identifiers Names and Codes (LOINC)
America's Health Insurance Plans (AHIP)	Integrating the Healthcare Enterprise International, Inc. (IHE)	Smart Open Services for European Patients (epSOS)—European eHealth Project
American Society for Testing Materials (ASTM)	International Conference on Harmonization (ICH)	SNOMED International
CEN/TC 251 (European Committee for Standardization)	International Organization for Standardization (ISO)	The Sequoia Project
Council for Affordable Quality Healthcare, Inc. (CAQH)	Logica Health (Formerly HSPC)	TransCelerate
Clinical Data Interchange Standards Consortium (CDISC)	National Council for Prescription Drug Program (NCPDP)	UDAP.org
Digital Imaging and Communication in Medicine (DICOM)	OASIS	Web3D Consortium
	Object Management Group (OMG)	Workgroup for Electronic Data Interchange (WEDI)

HL7 2021 STANDARDS SNAPSHOT



HL7 Standards Receiving ANSI Approval in 2021

HL7 Privacy and Security Logical Data Model, Release

Approved: 6/10/2021

HL7 EHR System Long Term Care Functional Profile, Release 1 - US Realm

Approved: 8/9/2021

HL7 Version 3 Implementation Guide for CDA Release 2 - Level 3: Emergency Medical Services; Patient Care Report, Release 2 - US Realm

Approved: 8/9/2021

HL7 Version 3 Standard: Healthcare (Security and Privacy) Access Control Catalog, Release 3

Approved: 8/9/2021

HL7 CDA® R2 Implementation Guide: Quality Reporting Document Architecture (QRDA III), Release 1 - US Realm

Approved: 9/13/2021

HL7 EHRS-FM Release 2: Personal Health Record System Functional Model, Release 2

Approved: 10/12/2021

HL7 Version 3 Standard: Pharmacovigilance - Individual Case Safety Report, Part 1: The Framework for Adverse Event Reporting, R2

Approved: 12/9/2021

HL7 Version 3 Standard: Pharmacovigilance - Individual Case Safety Report, Part 2: Human Pharmaceutical Reporting Requirements for ICSR, R2

Approved: 12/9/2021

HL7 CDA® R2 Implementation Guide: Privacy Consent Directives, Release 1

Approved: 12/9/2021

HL7 CDA® R2 Implementation Guide: Personal Healthcare Monitoring Reports, Release 1

Approved: 12/10/2021

HL7 Version 3 Standard: Reference Information Model, Release 7

Approved: 12/10/2021

HL7 Version 3 Standard: Privacy, Access and Security Services (PASS) Access Control, Release 1

Approved: 12/16/2021

2021 Publications

Errata

Technical Correction Published for HL7 Messaging Standard Version 2.9

Errata Publication of HL7 Clinical Document Architecture, Release 2.1

Errata issued for HL7 Version 2.9 Messaging Standard

Errata publication of Informative Document: HL7 Electronic Health Records (EHR) Dental Health Functional Profile, Release 1- US Realm

Errata publication of HL7 CDA® R2 IG: C-CDA Templates for Clinical Notes

Informative Documents

Informative Publication of HL7 Domain Analysis Model: Birth Defects Reporting, Release 1

Informative publication of HL7 Version 3 Specification: Ordering Service Interface, Release 1—U.S. Realm

Informative Publication of HL7 Informative Document: Gender Harmony—Modeling Sex and Gender Representation, Release 1

Informative publication of HL7 Logical Model: Standardized Terminology Knowledgebase, Release 1

Informative Publication of HL7 Guidance: Implementation of Standard Attachments for Healthcare Transactions (ACP)—US Realm

Informative publication of HL7 Domain Analysis Model: Unique Device Identification (UDI), Release 1

Normative

Normative publication of HL7 Cross-Paradigm Specification: Clinical Quality Language (CQL), Release 1

Normative Publication of ANSI/HL7 Privacy and Security Logical Data Model, Release 1

Normative publication of HL7 Version 3 Standard: Healthcare (Security and Privacy) Access Control Catalog, Release 3 (reaffirmation of ANSI/HL7 V3 RBAC, R3-2016)

Normative Publication of HL7 Version 3 Implementation Guide for CDA Release 2—Level 3: Emergency Medical Services; Patient Care Report, Release 2—US Realm (reaffirmation of ANSI/HL7 CDAR2L3IG EMSRUNRPT, R2-2016)

Normative Publication of HL7 EHR System Long Term Care Functional Profile, Release 1—US Realm (reaffirmation of ANSI/HL7 EHR LTCFP, R1-2010)

Normative Publication of HL7 CDA® R2 Implementation Guide: Quality Reporting Document Architecture (QRDA III), Release 1—US Realm

Normative Publication of Reaffirmation of HL7 Version 3 Standard: Privacy, Access and Security Services (PASS) Access Control, Release 1

Normative Publication of Reaffirmation of HL7 Version 3 Standard: Reference Information Model, Release 7

Normative Publication of Reaffirmation of HL7 Version 3 Standard: Pharmacovigilance—Individual Case Safety Report, Part 2: Human Pharmaceutical Reporting Requirements for ICSR, R2

Normative Publication of Reaffirmation of HL7 Version 3 Standard: Pharmacovigilance—Individual Case Safety Report, Part 1, Release 2

Normative Publication of Reaffirmation of HL7 CDA® R2 Implementation Guide: Personal Healthcare Monitoring Reports, Release 1

Normative Publication of Reaffirmation of HL7 CDA® R2 Implementation Guide: Privacy Consent Directives, Release 1

HL7 Standards for Trial Use (STUs) Published in 2021

STU Update for HL7 Version 2.5.1 Implementation Guide: S&I Framework Laboratory Test Compendium Framework (eDOS), Release 2—US Realm

STU Publication of HL7 FHIR® Implementation Guide: Clinical Guidelines, Release 1

STU Publication of HL7 FHIR® Implementation Guide: Pharmacist Care Plan Document, Release 1—US Realm

STU Publication of HL7 Model-based Transformation Service, Release 1

Informative Publication of HL7 Domain Analysis Model: Patient Centered Care Team, Release 1

STU Publication of HL7 FHIR® Implementation Guide: Risk Based Contract Member Identification, Release 1—US Realm

STU Publication of HL7 FHIR® Implementation Guide: FHIRcast, Release 1, STU2

STU Update of HL7 Version 3 Implementation Guide: Clinical Quality Language (CQL)-based Health Quality Measure Format (HQMF), Release 1, STU 4.1—US Realm

STU Publication of HL7 CDA® R2 Implementation Guide: Healthcare Associated Infection Reports, Release 4, STU 1—US Realm

STU Publication of HL7 FHIR® US Core Implementation Guide STU 4 Release 4.0.0

STU Publication of HL7 FHIR® Implementation Guide: Clinical Decision Support for Immunizations,

Release 1—US Realm

STU Update of HL7 Version 2.6 Implementation Guide: Vital Records Death Reporting, Release 1 STU 2.2—US Realm

STU Publication of HL7 FHIR® Implementation Guide: Data Exchange for Quality Measures STU3 for FHIR R4—US Realm

STU Publication of HL7/NCPDP FHIR® Implementation Guide: Specialty Medication Enrollment, Release 1—US Realm

STU Update of HL7 CDA® R2 Implementation Guide: Consolidated CDA Templates for Clinical Notes; Occupational Data for Health Release 1, STU 1.1—US Realm

STU Publication of HL7 CDS Hooks: Patient-View Hook, Release 1

STU Publication of HL7 CDA® R2 Implementation Guide: Pharmacist Care Plan Document, Release 1—US Realm

STU Publication of HL7 Services Functional Model: Consent Management Service, Release 1

STU Update of HL7 FHIR® Profile: Occupational Data for Health (ODH), Release 1—US Realm

STU Update of HL7 FHIR® Implementation Guide: Consumer Directed Payer Data Exchange (CARIN IG for Blue Button®), Release 1—US Realm

STU Publication of HL7 FHIR® Implementation Guide: FHIR to CDISC Joint Mappings, Release 1

STU Publication of HL7 FHIR®
Implementation Guide: SDOH Clinical
Care, Release 1—US Realm

STU Publication of HL7 CDA R2
Implementation Guide: Dental Data
Exchange, Release 1, STU 1—US Realm

Informative publication of HL7/
NCPDP Informative Document:
Standardized Medication Profile,
Release 1

STU Publication of HL7 FHIR®
Implementation Guide: Situational
Awareness for Novel Epidemic
Response (SANER) STU 1

STU Publication of HL7 FHIR®
Implementation Guide: Vital Records
Birth and Fetal Death Reporting,
Release 1—US Realm

STU Update Publication for HL7
FHIR® Implementation Guide:
Payer Data Exchange (PDex) Drug
Formulary, Release 1—US Realm

STU Publication of HL7 FHIR®
Implementation Guide: NHSN
Adverse Drug Event—Hypoglycemia
Report, Release 1- US Realm

STU Publication of HL7 FHIR®
Implementation Guide: NHSN
Inpatient Medication COVID-19
Administration Reports, Release 1

STU Publication of HL7 FHIR®
Implementation Guide: Vital Records
Common FHIR Profile Library,
Release 1

STU Publication of HL7 FHIR®
IG: SMART Application Launch
Framework, Release 2

STU Publication of HL7 FHIR® IG:
Bulk Data Access IG, Release 2

Normative Publication of HL7
EHRS-FM Release 2: Personal Health
Record System Functional Model,
Release 2

STU Publication of HL7 FHIR®
Implementation Guide: Post-Acute
Care Cognitive Status, Release 1- US
Realm

STU Publication of HL7 FHIR®
Implementation Guide: Post-Acute
Care Functional Status, Release 1- US
Realm

STU Publication of HL7 FHIR®
Implementation Guide: Dental Data
Exchange, Release 1—US Realm

STU Update Publication of HL7
FHIR® Implementation Guide: Prior-
Authorization Support (PAS), Release
1- US Realm

STU Publication of HL7 FHIR®
Implementation Guide: Common Data
Model Harmonization for Research
(CDMH), Release 1—US Realm

STU Update Publication of HL7 CDA®
R2 Implementation Guide: Quality
Reporting Document Architecture
Category I (QRDA I) Release 1, STU
Release 5.3—US Realm

STU Publication of HL7 CDA® R2
Implementation Guide: National
Healthcare Safety Network (NHSN)
Healthcare Associated Infection (HAI)
Reports for Long Term Care Facilities
(HAI-LTCF-CDA), Release 1, STU 1—
US Realm

STU Publication of HL7 Cross-
Paradigm Domain Analysis Model:
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