

# 2020 Half-Year Report



## HYPERLEDGER Healthcare SPECIAL INTEREST GROUP

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### Hyperledger HC-SIG Half-Year Report

#### Special Interest Group

Healthcare Special Interest Group (HC-SIG)

#### HC-SIG Overall Health

##### General

The HC-SIG continues to mature as its membership mix and participation evolves. Total membership appears to have stabilized in a range between 950 and 980 members. We have successfully completed our transition to structure the general group to serve as a “front door” to better engage and keep prospective new members active in the community, align them with resources, and connect them more directly with our three HC-SIG subgroups and various ad hoc teams.

HC-SIG General Meetings are held regularly and are generally well-attended, with a pattern of membership “regulars” starting to be seen. It’s clear that meeting topic and/or special guest speaker typically drives attendance numbers.

##### COVID-19 Response

From March through May of this year, and in direct response to the COVID-19 virus pandemic, the HC-SIG hosted a series of six **HC-SIG Special Topic Meetings**, with the intent of focusing the attention and engagement of HC-SIG membership and guest attendees on solving issues as they relate to the pandemic, ideally through the use of blockchain technologies. These meetings were very well attended, with attendance averages generally doubling through this special series of meetings.

#### HC-SIG Subgroups

HC-SIG Subgroups continue to evolve and include:

- The Patient Subgroup
- The Payer Subgroup
- The Healthcare Interoperability Subgroup

The Patient Subgroup continues to meet at a regular pace, and with a great deal of membership involvement. The Payer Subgroup has recently “rebooted” and is now seeing a renewal in membership engagement and most recently, acceptance of their pharmacy management project into Hyperledger Labs. The Healthcare Interoperability Subgroup--the newest HC-SIG subgroup--debuted earlier in the year, and continues to establish itself within the HC-SIG community, but is very slow in acquiring a regular membership core team and cadence.

#### HC-SIG Ad Hoc Teams

HC-SIG Ad Hoc Teams are developed around a specific need or use case, generally of a fixed duration. Ad hoc team leadership, if necessary, may determine that through their investigations, the team should become more regularly established for the sake of membership, and request to become a subgroup. HC-SIG Ad Hoc Teams include:

- Active
  - **Use Case Development Team:** charged with the discussion and development of use cases as applicable in the context of the healthcare industry. This team held a very productive first meeting, but with a recent change in leadership, had been paused, but with new leadership in place, will likely resume in the coming weeks.
- In Recess
  - **Survey Review Team:** our annual review team convened and worked on the annual HC-SIG membership survey. The survey was released on February 14, [with results available here](#)
  - **Academic Research Team:** While this team was temporarily on hold as leadership stepped away on sabbatical, and had again begun working to re-establish a regular cadence, it has again slowed in development, and we are actively seeking leadership to drive this team forward

- **Charter Review Team:** charged with reviewing, rewriting, and maintaining the HC-SIG Charter. Currently in recess until a charter review is required
- **Wiki Redesign Team:** initially convened to redesign the HC-SIG wiki, now working to manage wiki page conversion to Confluence, and sync with other SIG design efforts. Currently in recess until needed for any future design/redesign efforts
- Inactive
  - **Subgroup Review Team:** convened to review the status of the EMR Subgroup, and to consider how other subgroup models may influence future HC-SIG subgroup designs (disbanded after making recommendations to leadership team)

## Of Merit

- From March through May of this year, and in direct response to the COVID-19 virus pandemic, the HC-SIG hosted a series of six **HC-SIG Special Topic Meetings**, with the intent of focusing the attention and engagement of HC-SIG membership and guest attendees on solving issues as they relate to the pandemic, ideally through the use of blockchain technologies. These meetings featured the following guest speakers:
  - Deniz Coskun, Chair of the [HC-SIG Patient Subgroup](#)
  - A special report from [HC-SIG Healthcare Interoperability Subgroup](#) member [Guillermo Diaz](#), Founder and Director of [VaNeMa Tecnología y Servicios](#)
  - [Brajesh Awasthi](#), Founder and CEO of [Symblock](#)
  - [John Walker](#), Principal at [SemanticClarity](#)
  - [Anesu Machoko](#), CEO & Co-Founder of [MetaDigital](#)
  - Jayakar Johnson Joseph, Principal of [Johnsons Medicom \(P\) Ltd.](#)
  - [Vipin Rath](#), Assistant Professor at the [University of Delhi](#), and Chair of the [Hyperledger Telecom SIG](#)
  - [Mark Treshock](#), Global Blockchain Solutions Leader for Healthcare and Life Sciences at [IBM](#)
  - [Heather Flannery](#), Founder and CEO of [ConsenSys Health](#)
  - [Dr. Wendy Charles](#), Chief Scientific Officer at [BurstIQ](#)
  - [Diógenes Firmiano](#), Chief Business Development Officer, Federal District of Brazil
  - [Naresh Jain](#), Co-Founder of [Snapper Future Tech](#)
- HC-SIG General Meetings hosted the following guest speakers to present on topics relevant to the blockchain technologies in healthcare community:
  - [Ben Parkison](#), Director of Product Management at [Lumedic, Inc.](#), a healthcare startup focused on revenue cycle management (RCM) solutions, and recently acquired by [Providence Health](#), presented to HC-SIG membership a self-sovereign identity (SSI) management solution live demonstration using [Hyperledger Indy](#) to permit patients to electronically update providers and payers with member details through secure digital wallet transactions
- Special thanks to [Raveesh Dewan](#) for the successful transition of the [HC-SIG Payer Subgroup](#) to an extremely vibrant and productive team. Raveesh's team has requested development access to Hyperledger Labs to move forward with their work efforts in this domain space, secured this lab space, and he and his team continue to develop their "modern pharmacy management" project using Hyperledger Fabric.
- Tory Cenaj, Founder and Publisher of [Blockchain in Healthcare Today \(BHTY\)](#) offered to HC-SIG membership an opportunity to participate in an [Identity-as-a-Service \(IDAAS\)](#) and [Blockchain in Healthcare Today \(BHTY\) Submission Opportunities](#)
- Worked with Hyperledger Community Leadership to help in the development of the [Hyperledger Webinars](#), intended to showcase guest presentations and events

## Issues

- Ongoing difficulties in assessing the value of work efforts exercised by HC-SIG leadership and membership attempting to broaden the overall appeal of the HC-SIG to new members
  - Engagement metrics would be greatly appreciated in helping to assess the overall success of such efforts
- New since the beginning of this year has been the deliberate attempt to extend HC-SIG General Meeting invitations and the use of social media cards through various social media channels, particularly for HC-SIG guest presentations
  - It's currently unclear if new membership signups are correlated to these efforts

## Overall Activity in the Past Half Year

### General Group

The general group serves as an entrée for prospective members in the global healthcare community interested in understanding how best to educate themselves and participate in the implementation of blockchain technologies—ostensibly using the Hyperledger Project umbrella of frameworks, tools, and extensive community—in order to create secure and healthcare-compliant enterprise solutions. For more established members, the general group serves as a resource for the notification and publication of relevant community healthcare activities (e.g., healthcare conferences and related events), as well as a means for promoting and encouraging the project engagement and accomplishments of each of its HC-SIG subgroups and ad hoc teams.

The general group holds a regular meeting on a bi-weekly basis on Friday mornings at 0700 (Pacific Time). As a regular agenda item, HC-SIG subgroup leads (or their proxy) "roll up" their subgroup activities so as to educate prospective new members on active project opportunities.

Membership and activity across the [listserv\(healthcare-sig@lists.hyperledger.org\)](mailto:listserv(healthcare-sig@lists.hyperledger.org)) appears to be stable. Our chat channel, [#healthcare-sig \(https://chat.hyperledger.org/channel/healthcare-sig\)](https://chat.hyperledger.org/channel/healthcare-sig), is seeing only periodic exchanges.

### Patient Subgroup

Active since June, 2018 and led by Deniz Coskun, the Patient/Member Subgroup continues to work towards a build effort leveraging Hyperledger tools in the healthcare space. The group have meetings every other week and we are active in the healthcare Special Interest Group mailing list (see the [Patient Subgroup page](#) for details).

Focus to date has been on the group's econsent solution for use in clinical trials. Two Hyperledger frameworks, Sawtooth and Fabric, have been used to develop two equivalent platforms, allowing the comparison of each for the use case of patient data sharing and monitoring in clinical trials.

## Payer Subgroup

The Payer Subgroup had decided to reorganize with 2020. Group has been working with a payer to identify and refine the use case to start a POC. Group will resume starting January 30th, 2020 Meeting.

- Resetting the bi-weekly meetings starting January 30th. Meeting will move from every other Tuesdays to every other Thursdays and earlier in the day to ensure attendance from various parts of the world.
- Payer group is planning to kick off the POC with Hyperledger Fabric in later January.
- Group working on the Blockchain Decision paper that will help payers understand and identify the need for blockchain
  - Link to the work-in-progress white paper - [Link to White Paper - IN-PROGRESS](#). Due to the lack of consistent members joining the meeting, this has slowed down. We are still continuing slowly to keep the momentum.
- Group has also started talking about how to engage additional volunteers and recruit more volunteers

### ***June 2020 Update***

Payer Subgroup started strong with the re-organization and with a focus on a POC.

- Meeting are now scheduled for every other Friday at 1:00 PM EST.
  - All meeting minutes recorded under - [2019 - 2020 Meeting Index and Summary](#)
- Started working on the Modern Pharmacy Management POC
  - Pharmacy Management Use Case - Download the - [Pharmacy Management Use Case](#)
  - Lap approved and the repo started – <https://github.com/hyperledger-labs/modern-pharmacy-management>
  - Use Case Details Document - [Use Case - Details](#)

## Healthcare Interoperability Subgroup

The Healthcare Interoperability Subgroup began meetings in August and despite low turnouts for the three meetings continues to be optimistic members will begin to coalesce around the goals of the group. Currently the group is working to:

- Build out a timetable divided into major epics of work so stories can be created to complete the epics.
- Define frameworks capable of representing clinical artifacts from episodes of care.
  - Is an **episode of care** a sufficient unit of work?
  - What frameworks are currently being used in the medical domain?
  - Are they semantically interoperable?
- What policies of consensus are needed to guarantee assets are semantically interoperable?
- How are assets stored and how are they retrieved?

## Planned Work Products

### General Group

Continuing activities planned by the general group include:

- The establishment of regular speaker presentations from across the healthcare community to provide "real world" experiences in the design, implementation and establishment of a Hyperledger Project solution within their enterprise context. To date, our HC-SIG Guest Speaker presentations have been very successful at driving new HC-SIG membership interests
- The establishment of additional HC-SIG subgroups or ad hoc teams that appeal to membership healthcare specialties
- The ongoing design/redesign of the HC-SIG Wiki in order to:
  - Provide a more meaningful, consistent, and facile "front door" experience for new members to quickly discover HC-SIG resources and subgroups
  - For established members, serve as a dashboard of activities and accomplishments
  - Better separate (and highlight) our subgroups and ad hoc teams from general group coordination activities and governance

### Patient Subgroup

The plan for the remainder of this year will be to explore and mature the clinical trials use case to a point where a POC for Informed Consent Process, E-Consent Process Flow can be defined and requirements expressed. Standardization of API's and Hyperledger Solutions is a high priority. Great participation from different cultures; (including, but not limited to, East & West Coast US, Switzerland, Ukraine and India). The group had calls almost twice a week, and created a fix team structure for the delivery of first POC on Hyperledger Sawtooth Framework. One of the important challenge was having SME Expert for E-Consent in the team.

Completed:

- The use case for the Informed Patient Consent process is fixed, a roadmap for 2020 is decided
- Two high level preliminary solution architectures are already in place, benchmark criteria (Fabric & Sawtooth) is defined
- Regulatory compliance is already discussed and compliance governance is defined (GDPR, FDA, HIPAA)
- GitHub repositories have been proposed, network and structure is created
- Proposals to two conferences were sent
- Presentation of Team Work at the HC-SIG General Meeting Call, on 13th of Dec. 2019

Planned:

- Sawtooth POC next version with smart contracts, End of 2020
- Fabric POC first version with smart contracts, End of 2020
- Presentations for sponsorships and corporations
- Admissions for international conferences (Hyperledger Global Forum 2020, HIMSS 2020) - cancelled due to Covid-19 pandemic

## Payer Subgroup

We have made good progress in 2020 and momentum continues to further deliver value. Below are some planned activities for Payer Subgroup

Planned:

- Complete the following deliverables for Modern Pharmacy Management POC
  - Pharmacy Management Use Case - Download the - [Pharmacy Management Use Case](#)
  - Lap approved and the repo started - <https://github.com/hyperledger-labs/modern-pharmacy-management>
  - Use Case Details Document - [Use Case - Details](#)
- Complete current white paper on Blockchain Decision Framework in parallel as this effort has stalled.
- Recruitment of new corporate members in the Payer Sub Group - Started and we have seen renewed interest
- Presence at international conferences - Exploring the possibility to present at various forums.

## Healthcare Interoperability Subgroup

The HIS team plans to deliver the following work products:

- Documentation describing the requirements for a semantically interoperable healthcare ledger including:
  - Policies that guarantee interoperability
  - Transactions needed to complete an episode of care
  - Semantically interoperable Assets that can represent clinical artifacts whether or not the actual artifact is stored on or off chain
  - Use-cases that reflect real-life episodes of care
- POC : A functional (minimally viable) blockchain
  - Multiple health systems capable of storing / retrieving assets
  - Software and system design documentation (SDD)
  - Git code repository
- Lessons Learned and next steps
  - Walk-in immunization use-case
    - Enumerate the assets and transactions needed to represent the episode of care
    - Develop the FHIR resources based on asset and transaction models
    - Implement a Proof of Interoperability that can calculate semantic interoperability based on algorithms developed by [Mayo Clinic](#).

## Participant Diversity

This is a very diverse membership with global representation (including, but not limited to, member participation from West Coast US, England, Canada, Switzerland, Hong Kong, and India). The majority of membership represents corporate healthcare entities, though we do regularly see regular (and perhaps increasingly so) participation from smaller healthcare startups.

## Additional Information

*None to date.*