

Transforming the Telehealth Paradigm: Sustainable Connectivity, Accessibility, Privacy, and Security for All

Industry Connections Activity Initiation Document (ICAID)

Version: 1.0, 8 September 2020

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Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- **Shaded Text** indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE-SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Bruce Hecht

Email Address: bruce.hecht@ieee.org

Affiliation: VG2PLAY

Name: Narendra Mangra

Email Address: nmangra@ieee.org

Affiliation: GlobeNet, LLC

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Entity-Based.

3. Purpose

3.1 Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

The use of telehealth to connect with patients was slow to migrate into healthcare practice. Before the recent pandemic outbreak, healthcare practitioners demonstrated more activity in the use of telemedicine for their practice (Physician's use jumped 340% between 2015 and 2018; and 77% of patients embraced the concept of virtual care*). The slow acceptance and matriculation of telehealth into healthcare practice left many challenging technical and ethical issues on the backburner. With the dawn of this pandemic, telehealth was unleashed to the global patient population out of necessity, creating an environment where the impetus of patient security and privacy have been deprioritized (in the case of using commercial/consumer apps to fulfill needs) and where the underserved and unconnected are further endangered without any kind of access. As with other industry sectors, the process and operations of healthcare will be reimaged. Telemedicine will revolutionize the healthcare ecosystem from drug/therapy development through to bedside practice; however, it is critical that both patients and healthcare practitioners can have affordable and sustainable access and trust in the systems they use.

The purpose of this program is to enable collaboration, build consensus and develop technical solutions.

The goals are to:

- Develop a solution to have mobile healthcare platforms interoperable with digital patient portals to verify and validate the telehealth visit for payors, regulators and patients
- Enable the future of healthcare of mobilizing critical care and urgent care from the hospital to the home with a seamless, secure and private bioinformatic framework
- Address inconsistent or absent technical, security encryption and privacy by design protocols within mobile telehealth platforms
- Create a reliable resource for healthcare practitioners and facilities to best evaluate solutions and guidance for utilizing a trusted telehealth platform for patient care delivery
- Establish the foundation of security, connectivity, accessibility and privacy for future technological innovation in telehealth delivery

3.2 Related Work

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

This IC program will address the underlying challenges not addressed in the Tech and Data Harmonization for Decentralization Clinical Trials IC Program. It will support the work of WAMIII (Wearables and Medical IoT Interoperability & Intelligence) Program part of the Connectivity Harmonization of the Digital Citizen IC program.

It will support the underlying challenges addressed in Digital Inclusion, Identity, Trust, and Agency (DIITA) IC Program in the patient data privacy and agency discussion. It will work in alignment with the New Rural Connectivity IC Program.

Further it will utilize some of the work already in the 11073 family of standards and build from some of the from P2418.6 and P2418.1.

3.3 Previously Published Material

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

List the previously published material, if any.

3.4 Potential Markets Served

Indicate the main beneficiaries of this work, and what the potential impact might be.

This ICAID will have the following impact on industry:

- Establish a system for healthcare payors and regulators to combat uncertainty in verifying the occurrence and quality of care for the remote patient experience
- Global Regulatory policy that reflects standards or guidelines in the use of technologies and communications and security protocols for tele or mobile health
- Establishing trust amongst healthcare providers and patients that platforms are secure, Health Insurance Portability and Accountability Act(HIPAA)/General Data Protection Regulation (GDPR) compliant, and interoperable
- Providing quality and sustainable access supported by home healthcare practitioners to digital health for immobile, geriatric and rural communities who cannot or do not have healthcare facilities
- Enabling decentralized clinical trials - for sponsors of clinical trials to recruit and engage more inclusive and diverse population sets to meet enrollment guidelines while reducing risk amongst patients' access to infectious diseases
- Telemobile critical care and emerging care units - bringing the Intensive Care Unit(ICU) and Urgent Care (UC) to the patient with the use of 5G connectivity, remote patient monitoring devices, secure data storage and portability.
- Remote patient monitoring for real-time autonomous collection of patient data for therapy effectiveness, adherence and other diagnostic opportunities
- Delivering on-demand care for patients while reducing stress on healthcare and physician facilities for non-life threatening situations
- Through the development of standards for security, verification, General Data Protection Regulation (GDPR) and Health Insurance Portability and Accountability Act (HIPAA) compliant platforms, there will be universal acceptance by private and public healthcare insurance providers to cover associated costs with telehealth delivery when following protocols
- Creating a trusted and secure robust connectivity framework for deployment of robotics for on-field healthcare delivery in natural disasters or highly contagion environments.

TARGET MARKETS:

- Government Regulatory and Research Institutions
- Public and Private Health Insurance Payors
- Hospital/Health Systems
- Scientific and Medical Industry & Standards Associations, Consortia and Alliances
- Mobile Healthcare Platform Providers
- Pharmaceutical/Biotech/University Researchers (Sponsors of Clinical Trials)
- Digital Patient Portal Providers
- Cybersecurity Providers
- Technology Developers (Robotics, Artificial Intelligence/Machine Learning, Internet of Medical Things/Biosensors, Blockchain/Distributed Ledger Technology)
- Telecommunications Companies and Consortia/Alliances

3.5 How will the activity benefit the IEEE?

Telehealth is more than just the concept of remote delivery of care between patient and doctor. Telehealth is the future of mobilized healthcare touching many existing areas of the current IEEE SA ecosystem but also offering new opportunities to expand into new areas such as mobilized healthcare platforms, autonomous medical vehicles, and a critical component to enabling the future of healthcare. This will renew relationships with companies who may no longer interact with us, strengthen existing relationships and bring in new companies and revenue opportunities into the ecosystem in form of certifications.

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 09/2022

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICom and the IEEE-SA Standards Board. Should an extension be required, please notify the ICom Administrator prior to the two-year mark.

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

The Program will consist of workstreams that will identify gaps where solutions are needed in the domain, address the viability of standards development, guidance and documentation in the form of whitepapers and roadmaps addressing the following opportunities:

- A) Develop preliminary specification table for consensus-driven definition of sustainable accessibility, secure and private connectivity for telehealth care delivery – 12 months
- B) Prepare an assessment review of previous and existing pilots and contributions from service providers to assess what technical standards may be fast tracked (where applicable) – 12 months
- C) Develop best practice guide to verify and validate the patient experience and level of care to eliminate concerns of waste and fraud for health payors, patients and clinicians inclusive of regulatory compliance, and current technical standards to follow and responsible use of patient data privacy and governance – 12 months
- D) Preliminary roadmap for development of a certification program for patient data security and privacy in end-to-end data transmission from home to site to electronic health record (EHR) that incorporates ethical, privacy and data security protections along with regulatory guidelines (HIPAA, GDPR, etc.) – 18 months
- E) Develop preliminary pre-standards specification for interoperability of mobile healthcare platform to patient’s digital chart (patient’s interaction with doctor reflected in electronic health record) – 18 months
- F) Develop a gap analysis paper based on a collaborative test bed for the Tele-ICU focused on challenges, gaps, available tools (AI, robotics, blockchain, ML, 5G, cloud, etc.) and standards need to create the seamless, secure, private and accessible bioinformatics highway - 18 months
- G) Collaborate with the newly instantiated Rural Connectivity IC program to leverage specific outcomes that would provide more inclusive patient access to telehealth services regardless of geographic location that is sustainable, quality and compliant accessibility – 24 months

5.1 Open Source Software Development

Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable.

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables? No

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICom.

Specify funding requirements and sources, if any.

No special funding will be required

7. Management and Procedures

7.1 Activity Oversight Committee

Indicate whether an IEEE committee of some form (e.g., a Standards committee) has agreed to oversee this activity and its procedures.

Has an IEEE committee agreed to oversee this activity? No

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Committee Name

Chair's Name: Full Name

Chair's Email Address: who@where

Additional IEEE committee information, if any. Please indicate if you are including a letter of support from the IEEE Committee that will oversee this activity.

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

7.2 Activity Management

If no Activity Oversight Committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc).

This activity will be managed by an Executive Committee as described in the Activity's Policies and Procedures.

7.3 Procedures

Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures*, (b) Standards Committee policies and procedures accepted by the IEEE-SA Standards

Board, or (c) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICCOM review and approval of the P&P is required. If option (b) or (c) is chosen, then ICCOM approval of the use of the P&P is required.

Specify the policies and procedures document to be used. Attach a copy of chosen policies and procedures.

Industry Connections Activity Policies and Procedures (entity)

8. Participants

8.1 Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity, and will be invited to participate.

The enclosed list of companies and organizations is a sample representation. The program will recruit as many as these types of entities for respective projects to build consensus and develop trusted solutions.

TeleCommunications

- *AT&T*
- *Verizon*
- *Sprint*
- *TMobile/Deutsche Telekom*
- *IIT Bombay (India)*
- *Centre for Development of Telematics (CDoT)*
- *QuadGen Wireless Solutions*

Mobile Healthcare Providers

- *CVS*
- *Walmart*
- *Walgreens*
- *Soc Telemed*
- *Mobile Healthcare Vehicles (i.e., Nomad GCS)*
- *Telehealth Robotics*
- *Larger Hospital and Site Systems (Montefiore, Mayo Clinic, Northwell, UMass, UPenn, MSK, etc.)*
- *Narayana Health Organization*

Telehealth Platforms

- *Microsoft*
- *Cisco*
- *GE Healthcare*
- *Doxy.me*
- *American Well*
- *Carena*
- *CarePaths*
- *ChironHealth*
- *DigiGone*
- *eVisit*

Health Insurance Payors

- *Aetna*
- *Blue Cross Blue Shield*
- *United Healthcare*
- *Cigna*
- *Humana*
- *Allianz*
- *CMS (Center for Medicare Services)*

Digital Patient Portal Programs

- *ChangeHealthcare*
- *Kareo*
- *ChartLogic*
- *CareCloud Charts*
- *CompuLink (Healthcare solutions)*

8.2 Expected Number of Participants

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

100-150 entities

8.3 Initial Participants

Provide a number of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity	Primary Contact	Additional Representatives
PRA	Mike Carter	
BMS (Bristol-Myers Squibb)	Hassan Kadhim	
Analog Devices	Nicholas Karter	
Case Western University	Nick Barendt	
Symantec	Ashok Banerjee	
HIMSS	Amit Trivedi	
Chairman IEEE Southern California Council	Gora Dotta	
Defense Health Agency	Roger Boodoo	
NYC Health+Hospitals	Wilson Choi	

U.S. Department of Veterans Affairs	Jorge Ferrer	
Next Services	Satish Malnaik	
UC Davis Health	Michael Marchant	
Patientory	Chrissa McFarlane	
St. John's Medical Center	Sandip Ray	
Dinocrates Group	Jim St Clair	

Use the following table for an individual-based activity:

Individual	Contact name	Affiliation