

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

Industry Connections Activity Initiation Document (ICAID)

Version: 2.0, 1 September 2022

IC20-018-02 Approved by the CAG 12 October 2022

Instructions

- Instructions on how to fill out this form are shown in red. Please leave the instructions in the final document and simply add the requested information where indicated.
- Spell out each acronym the first time it is used. For example, "United Nations (UN)."
- 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, physicians, 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 to support the future of hospital at home
- Create a reliable resource for healthcare practitioners and facilities to best evaluate solutions and guidance for prescribing or utilizing a trusted RPM (remote patient monitoring device)
- Establish the foundation of security, connectivity, accessibility, and privacy for future technological innovation in telehealth delivery

- Identify and develop a framework to address healthy equity and inclusion through accessible and feasible use of mobile health devices and telehealth services

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 DIITA (Digital Inclusion Identity Trust and Agency) 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 and 1752 families of standards, and build from some of the from P2418.6, P2418.1, P2933, 1708 and more.

3.3 Previously Published Material

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

Webinars/Podcasts

Part 1: Opportunities and Challenges in Telehealth Addressing Health Inequality: A Perspective from Europe and Asia / Part 2: Americas - May 2021

AgeTek: Robotics to Support the Aging 4 Part Webinar Series -
Webinar 1: June 2022

Podcast Season

ReThink Health Podcast Series - Season 4: Telehealth, Quantum Leap into Patient Centered Care (July 2022)

Blogs:

- Setting the Standard for Future Remote Patient Monitoring and Telehealth Solutions - June 2022
- The Future of a Patient-Centered Remote Patient Monitoring (RPM) System is Highly Competitive and Innovative
- The Future of Patient-Centered Mobile Remote Patient Monitoring (mRPM)

Articles

“The Future Innovations of Remote Patient Monitoring (RPM) as a Patient-Centered Healthcare System,”
Healthcare Business Today, April 2022

Virtual Pitch Competition:

ReThink the Machine: Transforming RPM into a Patient-Care System - February 2022

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 payers 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, HIPAA/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
- 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, GDPR and 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 accessibility framework for deployment of tele-robotics and remove assistive technologies to support the rising aging population.

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, AI/ML, IOMTs/BioSensors, Blockchain/DLT)
- Telecommunications Companies and Consortia/Alliances

3.5 How will the activity benefit the IEEE, society, or humanity?

Describe how this activity will benefit the IEEE, society, or humanity.

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: 09/2024

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCom and the responsible committee of the IEEE SA Board of Governors. Should an extension be required, please notify the ICCom 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 work streams 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) Identify and nurture opportunities for open source standards as it relates to data ontology, lexicon and and raw data from mobile health devices/sensors and processes in the telehealth experience. 12 months
- B) Prepare an assessment review of needed technical standards for driving innovation in RPM (remote patient monitoring) services across the continuum of care and which 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 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 integration of telehealth activities with patient's EHR (Electronic Health Record) – 18 months
- F) Collaborate with the newly instantiated Rural Connectivity and OpenRAN IC programs 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 – ongoing
- G) Continue to grow the telehealth start-up community for continued contribution towards innovation and providing ideas to drive development of technical and data standards for future opportunities. 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. Industry Connections Activities shall comply with the IEEE SA open-source policies and procedures and use the IEEE SA open-source platform for development of open-source software. Information on IEEE SA Open can be found at <https://saopen.ieee.org/>.

Will the activity develop or incorporate open-source software (either normatively or informatively) in the deliverables?

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.

No funding requirements will be required

7. Management and Procedures

7.1 Activity Oversight Committee

Indicate whether an IEEE Standards Committee or Standards Development Working Group has agreed to oversee this activity and its procedures.

Has an IEEE Standards Committee or Standards Development Working Group agreed to oversee this activity?

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

IEEE Committee Name:

Chair's Name:

Chair's Email Address:

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* ([entity](#), [individual](#)), (b) *Abridged Industry Connections Activity Policies and Procedures* ([entity](#), [individual](#)), (c) Standards Committee policies and procedures accepted by the IEEE SA Standards Board, or (d) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICom review and approval of the P&P is required. If option (c) or (d) is chosen, then ICom 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 few 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
Mass Brigham	Mike Carter	
Teladoc Health	Dr. Shayan Vyas	
Nuralogix	Dr. Keith Thompson	Ed Ellsworth
Stevens Institute of Tech	Kit August	
MITRE	Dr. Francis X Campion	Dr. Cj Rieser
Federal Electronic Health Record Modernization (FEHRM)	Charles Gabriel	
Virginia Commonwealth University	Elizabeth Baker	
WHO/UNICEF	Dimitrios Kalogeropoulos	
OWEAR	Geoff Giles	
Articulate Labs	Josh Rabinowitz	
Mayo Clinic	Stephanie Zawada	
Spherity	Christine Wiring	
Telemedicine-360.com	Robin Ohannessian	
Cherish Health	Sumit Nagpal	
Dinocrates Group / Linux Foundation	Jim St Clair	

8.4 Activity Supporter/Partner

Indicate whether an IEEE committee (including IEEE Societies and Technical Councils), other than the Oversight Committee, has agreed to participate or support this activity. Support may include, but is not limited to, financial support, marketing support and other ways to help the Activity complete its deliverables.

Has an IEEE Committee, other than the Oversight Committee, agreed to support this activity? Yes

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

IEEE Committee Name: Engineering Medicine Biology Society Standards Liaison Committee

Chair’s Name: Esteban Pino

Chair’s Email Address: epino@ieee.org

Please indicate if you are including a letter of support from the IEEE Committee. N/A