Preliminary Criteria for the Evaluation of Digital Contact Tracing Tools for COVID-19

COVID-19 Contact Tracing for Health Departments

Version 1.2

Introduction

The following preliminary[1] criteria define minimum and preferred characteristics of digital contact tracing tools to help health departments overcome one or more obstacles in the COVID-19 contact tracing workflow[2]. They are based on preliminary research and targeted discussions with contact tracing and informatics experts across county, state, and federal government; national public health associations; academic consortia; and nongovernmental organizations.

The table below lists minimum and preferred criteria for two categories of contact tracing technology: those for case management[3], and those for proximity tracing[4]. Minimum and preferred criteria of the tools' technical and general attributes are described in Table 2.

= case management **= proximity tracing**

Table 1. Minimum and Preferred Capabilities of Digital Contact Tracing Tools

Contact Tracing Task	Criteria	
	Minimum	**Preferred**
Patient Identification / Follow-up	• Enables public health authorities (PHAs)[5] to import existing data (e.g., from PHA information systems)	• Can be configured for real-time synchronization of data from PHA information systems
	• Enables confidential collection of data (via PHA manual input) facilitating the connection of laboratory-confirmed patient with services needed to support a 14-day self-isolation process (e.g., safe housing, food)	• Enables patients to report their validated testing status, relevant demographic data, data facilitating the connection with supportive services, and the best means of communication
Contact Elicitation / Identification	• Enables PHAs to manually record data on contacts of patients	• Enables patients to self-report contacts • Can seamlessly import proximity data from patient once consent is received
Contact Notification	• Enables manual and automated notifications[6] to known contacts in the following order of priority: recorded voice message, email, and SMS • Messaging can be tailored to the likelihood of exposure, include links to health information resources, and provide next steps (e.g., testing, self-isolation)	• Enables automated notification to community contacts who opt in to being notified, based on history of proximity to patient (i.e., within 6 feet for 30 minutes or more) while also preserving anonymity of patients[7]
Contact Follow-up	• Enables PHA to initiate direct, manual follow-up with known contacts and collect longitudinal data and data facilitating the connection of contacts with services needed to support a 14-day self-isolation process • Enables seamless restart of logic model / workflow upon confirmation of case status among any known contact	• Enables automated dispatch of reminders to known contacts and community contacts for 14 days with directions to call PHA or electronically self-report symptoms and other information facilitating the connection with supportive services • Self-reported data are used for automated prediction of case classification and provide immediate notification to contacts and PHA when infection is likely

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Table 2. Minimum and Preferred Attributes of Digital Contact Tracing Tools

Attribute	Minimum	Preferred
Technical		
Platform Support	• Can be easily used within web browser on mobile and desktop environments	• Provides cross-platform functionality (Android, and iOS, with reasonable backwards compatibility for older Android and iOS versions)
	• Supports offline data entry and caching	• Supports offline data entry and caching across platforms
Data Interoperability	• Supports manual data import from PHA information systems • Supports manual data export in common formats	• Use programmatic means of secure data transfer [8] between information systems within and between jurisdictions
Trustworthiness	• Uses open architectures and open standards	• Is open source
Users	• User access for PHAs	• User access by patients and their contacts
Availability	• Ready to use and rapidly deployable	• Already being used successfully by jurisdictions
Customizability	• Requires vendor to perform all customizations for PHAs	• Allows PHAs to perform some of their own customizations (e.g., adding new data elements, implementing data validation rules)
Privacy	• Transparently informs users of which data is collected, how it is used, and how long it will be retained • Implements measures to prevent introduction of false data • Requires consent of both index patient and contact before using of personally-identifying information (PII) • Encrypts data in transit and at rest • Provides individuals access to their own data and ability to revoke consent at any time	• Provides individuals the ability to delete their own data
	• Provides publicly available independent security and privacy assessment that address issues of trustworthiness, security, and privacy	
	• Authorized data access only for PHAs and must be limited to need-to-know basis	
General		
Technical Support	Developer / vendor provides comprehensive technical support for PHAs	
Vendor Experience	The developer / vendor has experience working in public health settings	
Localization	Self-reporting features are available in patient's and contact's language of choice	

[1] This document should be viewed as a living body of knowledge. It will be updated as more is learned.
[2] This includes each task included in the first column of Table 1.
[3] Tools to streamline the electronic capture and management of data on cases and contacts; may also provide means of automating communication and follow up with contacts of an infected individual. Workforce management software (e.g., for orchestrating virtual call centers) is currently beyond the scope of this document.
[4] Tools that use Bluetooth or GPS technologies to estimate the proximity and duration of an individual's exposure to an infected person; used in addition to contact tracing case management tools.
[5] Local, state, tribal, and territorial public health departments
[6] We recommend that automated messaging incorporate rapport-building human elements (e.g., delivered in audio or video by trusted local or national health figure)
[7] For tools using geolocation-based proximity tracing, we recommend participatory sharing methods that require health departments to validate case status. For tools with Bluetooth-enabled proximity tracing, we recommend decentralized, bidirectionally anonymous methods. For an example of a protocol that employs this method, see the PACT protocol. Inclusion does not indicate endorsement.
[8] E.g., RESTful API transferring data over HTTPS or SSH