

# ARCHIVED DOCUMENT

(COVID-19)



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**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention

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

## COVID-19 Contact Tracing for Health Departments

### Introduction

The following preliminary<sup>1</sup> 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<sup>2</sup>. 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.

Listed in Table 1 below are minimum and preferred criteria applied to two distinct categories of contact tracing technology: those for case management<sup>3</sup>, and those for proximity tracking<sup>4</sup>. Minimum and preferred criteria of the tools' technical and general attributes are described in Table 2.













= case management



= proximity tracking

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

Contact Tracing Task	Criteria	
	Minimum	Preferred
Patient Identification / Follow-up	<ul style="list-style-type: none"> <li>Enables public health authorities (PHAs)<sup>5</sup> to import existing data (e.g., from PHA information systems)</li> </ul>	<ul style="list-style-type: none"> <li>Can be configured for real-time synchronization of data from PHA information systems</li> </ul>
	<ul style="list-style-type: none"> <li>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) </li> </ul>	<ul style="list-style-type: none"> <li>Enables patients to self-report relevant demographic data, data facilitating the connection with supportive services, and the best means of communication </li> </ul>
Contact Elicitation / Identification	<ul style="list-style-type: none"> <li>Enables PHAs to manually record data on contacts of index patients </li> </ul>	<ul style="list-style-type: none"> <li>Enables index patients to self-report contacts </li> </ul>
		<ul style="list-style-type: none"> <li>Can seamlessly import proximity data from index patient when consent received </li> </ul>
Contact Notification	<ul style="list-style-type: none"> <li>Enables manual and automated notifications<sup>6</sup> to known contacts in the following order of priority: recorded voice message, email, and SMS</li> <li>Messaging can be tailored to the likelihood of exposure, include links to health information resources, and provide next steps (e.g., testing, self-isolation) </li> </ul>	<ul style="list-style-type: none"> <li>Enables anonymous<sup>7</sup> automated notification to community contacts based on history of proximity to index patient (i.e., within 6 feet for 30 minutes or more) </li> </ul>
Contact Follow-up	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>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 </li> </ul>
	<ul style="list-style-type: none"> <li>Enables seamless restart of logic model / workflow upon confirmation of case status among any known contact </li> </ul>	<ul style="list-style-type: none"> <li>Self-reported data are used for automated prediction of case classification and provide immediate notification to contact and PHA when infection is likely </li> </ul>



[cdc.gov/coronavirus](https://cdc.gov/coronavirus)

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

Attribute	Minimum	Preferred
Technical		
Platform Support	<ul style="list-style-type: none"><li>Can be easily used within web browser on mobile environment</li></ul>	<ul style="list-style-type: none"><li>Provides cross-platform functionality (Android, and iOS, with reasonable backwards compatibility for older Android and iOS versions)</li></ul>
	<ul style="list-style-type: none"><li>Can be easily used within web browser on desktop environment</li></ul>	
	<ul style="list-style-type: none"><li>Supports offline data entry and caching</li></ul>	<ul style="list-style-type: none"><li>Supports offline data entry and caching across platforms</li></ul>
Data Interoperability	<ul style="list-style-type: none"><li>Supports manual data import from PHA information systems</li><li>Supports manual data export in common formats</li></ul>	<ul style="list-style-type: none"><li>Supports OAuth-secured programmatic means of data transfer<sup>8</sup> between information systems within and between jurisdictions</li></ul>
Trustworthiness	<ul style="list-style-type: none"><li>Uses open architectures and open standards</li></ul>	<ul style="list-style-type: none"><li>Is open source</li></ul>
Users	<ul style="list-style-type: none"><li>User access for PHAs</li></ul>	<ul style="list-style-type: none"><li>User access by index patients and their contacts</li></ul>
Availability	<ul style="list-style-type: none"><li>Ready to use and rapidly deployable</li></ul>	<ul style="list-style-type: none"><li>Already being used successfully by jurisdictions</li></ul>
Customizability	<ul style="list-style-type: none"><li>Requires vendor to perform all customizations for PHA</li></ul>	<ul style="list-style-type: none"><li>Allows PHAs to perform some of their own customizations (e.g., adding new data elements, implementing data validation rules)</li></ul>
Privacy	<ul style="list-style-type: none"><li>All use of personally-identifying information (PII) data is predicated on consent of index patient / contact, and all other data are anonymized before sharing</li><li>Data are encrypted in transit and at rest</li></ul>	<ul style="list-style-type: none"><li>Provides individuals access to their own data, and ability to delete / revoke consent at any time</li></ul>
	<ul style="list-style-type: none"><li>Authorized data access only for PHAs and must be limited to need-to-know basis</li></ul>	
General		
Technical Support	<ul style="list-style-type: none"><li>Developer / vendor provides comprehensive technical support for PHAs</li></ul>	
Vendor Experience	<ul style="list-style-type: none"><li>The developer / vendor has experience working in public health settings</li></ul>	
Localization	<ul style="list-style-type: none"><li>Self-reporting features are available in index patient's and contact's language of choice</li></ul>	

1. This document should be viewed as a living body of knowledge. It will be updated as more is learned.
2. This includes index case identification, contact elicitation / identification, contact notification, and follow-up.
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.
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. Public health authorities, including 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 tracking, we recommend [anonymous selective broadcasting methods](#). For tools with Bluetooth-enabled proximity tracking, 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 conforming to a common standard for data sharing between tools.