

Case Investigation and Contact Tracing

Accessible version: <https://www.cdc.gov/coronavirus/2019-ncov/global-covid-19/case-investigation-contact-tracing.html>

Case investigation and contact tracing have been used for decades to slow or stop the spread of infectious diseases and are essential in controlling the transmission of infectious diseases, including COVID-19. In nearly all countries, the number of COVID-19 cases and contacts has outpaced the capacity of the public health system to quickly notify and isolate all cases and quarantine all contacts.

What's the difference between case investigation and contact tracing?

Case investigation is part of the process of supporting patients with suspected or confirmed infection and includes a discussion to help patients recall everyone with whom they had close contact during the timeframe in which they may have been infectious.

Contact tracing lets people know they may have been exposed to an infectious agent and what to do next for their own health and the health of others.

Case investigation and contact tracing involves getting the names of all relevant contacts and following up with them. Case investigation and contact tracing programs for COVID-19 should be tailored to local resources and needs.

How does contact tracing help stop the spread of COVID-19?

Contact tracing slows the spread of COVID-19 by letting people know they may have been exposed to the coronavirus because they were in [close contact](#) with someone who tested positive for SARS-CoV-2, the virus that causes COVID-19. Therefore, they should stay home for 14 days. Public health authorities may consider [options to reduce quarantine](#).



Are there different ways to conduct contact tracing?

Traditional contact tracing (also called [forward contact tracing](#)): Programs may choose to focus their efforts on traditional contact tracing where the emphasis is on people who were exposed to/had contact with a person who tested positive.

- Ask the infected person who they were in contact with beginning from **2 days before their symptoms started** or before the date of their positive test if they did not have symptoms.
- Prioritize case investigation of those people who were recently infected with COVID-19 to rapidly identify infection in those they may have exposed while infectious. Isolating these newly infected people prevents them from spreading the virus to others.

Source investigation (also called [backward contact tracing](#)): Programs may choose to focus on, or include, source investigation during case investigation. Source investigation places the emphasis on identifying the source of exposure of the person who tested positive.

- Ask the infected person who they've been with and where they've been during the period **2-14 days before their symptoms started** or before the date of their positive test if they did not have symptoms.
- Probability of being infected as part of a cluster is greater than the probability of infecting someone, so it may be more efficient to identify the setting(s) where the infected person could have gotten COVID-19.

Source investigation may be more efficient than traditional contact tracing when the number of cases and contacts outpaces the capacity of the public health system to quickly notify and isolate all cases and quarantine all contacts.



Sample Case Study

A student develops symptoms on 1 December. The case investigator asks student about her **contacts** (who she was in contact with) **starting from 2 days** before her symptoms began, to find people she may have exposed to SARS-CoV-2, the virus that causes COVID-19.

Contact tracer finds:

- 155 total contacts
- Through contact tracing, all contacts told to quarantine and get tested
- No contacts develop symptoms or test positive
- No new cases identified



Source Investigation

Case investigator asks student about her **activities and contacts 2–14 days** before her symptoms started, between 17 to 29 November, to find where she may have been infected and ultimately who else might be infected.

Case investigator determines:

- Student attended birthday party on 21 November
- Student's family hosted a celebration on 26 November
 - 15 family members from three different cities attended
 - Total of 21 people attended family celebration

Case investigator cross references names of birthday party and family celebration attendees and finds:

- Nobody at birthday party identified as a COVID-19 case.
- 2 people identified at family celebration had already tested positive for COVID-19.
- Through contact tracing and source investigation, all 21 people who attended the family celebration are notified that they are close contacts of a case. They go into quarantine and are tested.
- This leads to 5 more people testing positive for COVID-19.



Final Result

Eight people, including the student who was the first to test positive on 1 December, were identified through the family celebration as infected cases.

Contact Tracing and Source Investigation Timeline

1. Student's family hosts a celebration on 26 November.
2. Fifteen family members travel from three different cities to attend dinner located in a 4th city.
3. Total of 21 people attend family celebration.
4. Two people who attended the family celebration test positive for COVID-19.
5. Source investigation identifies five more people who attended family celebration on 26 November. They also test positive for COVID-19.
6. Final result: 8 people including the student were identified through case investigation.

