Case investigation and contact tracing are primary mitigating interventions used to control and prevent person-to-person spread of infectious diseases by identifying persons with confirmed and probable diagnoses (cases) and notifying, monitoring, and supporting the individuals who have been exposed and possibly infected (contacts).1-4 These are routine public health activities for sexually transmitted diseases, HIV, and tuberculosis, for which treatment can be offered to contacts who are infected, thereby interrupting the chain of transmission. Rapid identification and isolation of each new case and quarantine of any contacts who are potentially infected were key interventions that effectively limited secondary transmission resulting from the importation of Ebola virus to the US in 2014. However, until the COVID-19 pandemic, contact tracing had never been needed on such a large scale in the US.

**Delivery**

Case investigation and contact tracing succeed if persons with COVID-19 are promptly diagnosed, notified, and rapidly isolated and are willing and able to identify their close contacts during their infectious period—and if those contacts, on being notified of exposure, are willing and able to begin immediate quarantine, ideally before they themselves develop COVID-19 or transmit the causative virus (SARS-CoV-2). Even in the context of increasing cases and expanding COVID-19 vaccine availability, case investigation and contact tracing are cornerstone interventions of the US COVID-19 response. Because SARS-CoV-2 can spread through persons who are asymptomatic or presymptomatic, these public health services are most effective as part of a multifaceted response that includes other nonpharmaceutical interventions, including avoiding gatherings, universal masking, physical distancing, increasing testing, and other key mitigation strategies.2-5

**Support to Health Jurisdictions**

The primary role of the Centers for Disease Control and Prevention (CDC) during a pandemic is to provide guidance and technical assistance to state, tribal, local, and territorial health department partners. During the COVID-19 pandemic, the CDC has also provided guidance for use by health departments to train new and existing staff in effective delivery of case investigation and contact tracing. The CDC also encourages the use of innovative technologies to enhance these interventions, including anonymous notification of persons with exposures through smartphone applications and various digital tools to automate daily symptom monitoring.

Using funds from the Coronavirus Aid, Relief, and Economic Security Act, Paycheck Protection Program, and Health Care Enhancement Act, the CDC awarded almost $11 billion to 64 state, county, and territorial jurisdictions through the Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) cooperative agreement. An additional $19.1 billion has been approved through the Coronavirus Response and Relief Supplemental Appropriations Act of 2021 to continue to support state, local, and territorial health departments to build capacity around COVID-19 mitigation activities, including enhancing the ability to identify and investigate cases, conduct contact tracing, and implement containment measures. As such, the estimated number of case investigators reported by these jurisdictions increased by more than 50% (from approximately...
26,000 to 40,000) between July and October 2020, and the estimated number of contact tracers increased by about 90% (from approximately 30,000 to nearly 60,000) for the same period, representing the largest case investigation and contact tracing workforce the nation has ever known.

**Service Coverage and Workforce Capacity**

A recently published CDC analysis of nationwide case investigation and contact tracing activities during June 25 through July 24, 2020, identified an inverse correlation between mean caseload and interview timeliness. As investigators’ COVID-19 caseloads increased, the proportion of patients with new diagnoses who were interviewed within 24 hours following a report of their diagnosis to the health department decreased; the mean number of contacts identified also decreased as caseloads increased. This analysis of early work provided critical information on yield of case investigation and contact tracing relative to workforce capacity. In addition, this analysis has prompted revisions to subsequent ELC metrics to enable analysis of time intervals between case reporting, case interview, and contact notification and enumerate contacts referred for testing.

Ideally, prompt case investigation and contact tracing occur for each newly identified case of disease. However, nearly all US jurisdictions experienced increases in COVID-19 caseloads during the fourth quarter of 2020. These surges underscored the need for increases in skilled staff to perform timely case investigation and contact tracing as well as to prioritize populations at greatest risk for SARS-CoV-2 transmission (household contacts and group settings) and poor COVID-19 outcomes.

**Training and Implementation**

The CDC and the Association of State and Territorial Health Officials have produced a free on-demand online training, “Making Contact: A Training for COVID-19 Contact Tracers,” to teach the essential elements of effective contact tracing. During 2020, more than 88,000 persons completed this course, and more than 1200 staff completed additional skill-building trainings delivered virtually through regional training centers.

Despite mounting case counts and pandemic fatigue, the CDC continues to recommend contact tracing as an important public health tool to mitigate the spread of SARS-CoV-2. In situations in which COVID-19 surges outstrip current staffing capacity or variants with greater transmissibility emerge, prioritization can help ensure persons and groups at greatest risk are guided toward measures to protect their health. However, building public trust in the workforce that makes the initial telephone call or other outreach to provide guidance is essential to the success of this public health service. Misunderstanding the health department’s intentions when asking for personal information can result in too few contacts being named and thus too few persons who were recently exposed being quarantined. Other valid concerns that impede case investigation and contact tracing are personal loss of income for individuals in isolation and quarantine, as well as fear of stigma because of having inadvertently exposed another person to SARS-CoV-2.

The CDC recommends ongoing community engagement and media outreach to counter specific misperceptions about COVID-19 and build social support and provision of adequate wraparound services for the households asked to undergo short-term isolation and quarantine to protect their communities. Combined with widespread vaccination and other recommended mitigation activities, effective case investigation and contact tracing will help to propel the US forward to contain the COVID-19 epidemic more effectively.
Correction: This article was corrected on March 5, 2021, to add a middle initial to the byline for author Henry T. Walke MD, MPH, and a hyperlink for the skill-building training described in the Training and Implementation section. This article was further corrected on March 29, 2021, to change the phrase “sexually transmitted diseases, including HIV, and tuberculosis, for which treatment can be offered” to “sexually transmitted diseases, HIV, and tuberculosis, for which treatment can be offered,” for greater clarity.

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