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Ethics of Digital Contact Tracing by U.S. Employers during the COVID-19 Pandemic (4/30, GSU and WellStar)

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Abstract

What is the message? Digital contact tracing is the use of digital technologies, including smartphone proximity tracking and electronic case reporting, to trace individual movement (paths) and create alerts when an individual may have been exposed to an infectious disease case. Digital contact tracing is not likely to be mandated by governmental entities in the U.S. during the COVID-19 pandemic, but may be made available for voluntary use. An interesting possible exception, though, is mandated or strongly recommended use for employees as they return to physical employment locations. While use of digital contact tracing by employers may reduce COVID-19 risks for employees and customers, and we are only speculating as to what U.S. employers may require or request, it raises a number of ethical issues. We identify and discuss three primary ethical issues associated with employer (organization) digital contact tracing use: 1) employee choice (opt-in vs. opt-out vs. mandated), 2) COVID-19 case and proximity information quality, and 3) COVID-19 health information rights and use.

What is the evidence? The authors draw on experience in health information technology (health IT) and ethics as well as recent articles on COVID-19 and digital contact tracing.

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What Is Contact Tracing?

Contact tracing includes two primary processes: (1) case identification and investigation, and (2) proximity tracking, alerting, and follow-up.[1] Contact tracing is used by public health officials to slow the spread of an infectious disease through investigation of confirmed or suspected cases, notification, follow-up, and potential quarantining of exposed contacts during the disease incubation period.[2] This approach, while potentially effective in reducing the spread of infectious diseases, particularly during a pandemic, is labor intensive and requires significant public health resources, political will, and public cooperation.

What is digital contact tracing?

An alternative to in-person contract tracing, requiring less intensive public health resources, is *digital contact tracing.* Digital contact tracing is based on the same fundamental principles as *contact tracing*, but instead relies upon the use of digital technologies, such as smartphones and electronic case reporting, to trace the paths of individuals and generate options for alerting those who may have come into proximity ("contact") with positive or suspected cases.[3] For example, mobile contact tracing was effectively used during the 2014-2016 Ebola epidemic in Sierra Leonne where challenges with paper-based contact tracing systems were overcome using a pilot smartphone app.[4]

Digital contact tracing for COVID-19 cases has begun to be used in countries such as South Korea, China, and Singapore – and is beginning to be debated in many others, including the U.S.[5-7] For instance, Apple and Google have recently announced the development of tools that could be used to facilitate the development of contact tracing applications.[1] The CDC has also

announced the coming availability of an electronic case reporting application, which will enhance the ability of health care providers to report positive or suspected cases of COVID-19,[2] and has posted preliminary criteria for the evaluation of digital contact tracing tools for COVID-19.[3]

While digital contact tracing has significant potential for leveraging health information to reduce the spread of COVID-19 in a timely and efficient way, it raises ethical concerns. As benefits, contact tracing for COVID-19 has allowed many businesses to stay open while also facilitating quarantining of positive cases and those who may have come into contact with cases.[6]

Nonetheless, concerns arise because, while efforts have been made to ensure privacy and prevent exploitation or inappropriate use of the digital contact tracing system and the health information it consumes and generates, full anonymization is not always possible. As a result, unintended consequences are already occurring. One example is inadvertently identifying individuals who are positive or suspected to be of high risk with only minimal effort. Another is expanding the scope of the system to include additional personal data such as travel and credit card information to determine individual proximities, such as whether one ate in the same restaurant as a suspected case at the same time.[6,7]

Possible Use of Digital Contact Tracing by U.S. Employers

U.S. employers might consider digital contact tracing as employees return to work in-person in order to: 1) reduce SARS-CoV-2 transmission; 2) enhance employee and customer perceptions of safety; 3) reduce liability risks; and 4) proactively mitigate future insurance premium increases, especially if the employer is self-insured. Thus, an outstanding question is whether or not employers will require, or strongly suggest, that returning employees not only be tested for COVID-19, but also participate in transmission reduction efforts by installing a digital contact tracing application on their phones. Such applications could then alert the employee, the employer, or public health professionals of potential exposure to a positive or suspected case of COVID-19.

Mitigation actions could then be taken. For example, given that COVID-19 was declared a national public health emergency in the U.S., public health officials have special authority to

implement quarantine measures for high-risk individuals.

We are only speculating as to what U.S. employers may require or encourage of their employees as they return to work at physical locations. Digital contact tracing may not end up being used widely in the U.S. or by U.S. employers. However, the potential use of digital contact tracing raises ethical questions that should be proactively addressed to the extent possible. For instance, if such an approach is implemented by employers as employees return, digital contact tracing might be managed as part of "wellness" programs.

The focus and messaging of such programs will likely be on employee safety and enhanced customer safety. Both staff and clients may be unwilling to go to an organization that is not actively monitoring their team members.

However, challenges with COVID-19 are that testing, case identification, and reporting are still highly varied, and that individuals can be asymptomatic carriers. Further, effective prevention might necessitate the rapid expansion of initially narrow approaches into more ethically dubious domains, such as the expansion of digital contact tracing to include non-work hours and routines.

We do not take a position on whether or not digital contact tracing use by employers is appropriate or ethically supportable. Rather, we identify fundamental ethical issues that should be addressed if such an approach is considered or implemented. We specifically focus on U.S. employers.

Digital Contact Tracing Ethical Considerations and Implications

Three primary ethical issues associated with potential digital contact tracing use by U.S. employers are: 1) employee digital contact tracing choice, such as opt-in vs. opt-out vs. mandated; 2) COVID-19 case and proximity information quality; and 3) COVID-19 health information use and rights.

Ethics of COVID-19: Employee Digital Contact Tracing Choice

Will digital contact tracing application, installation, and use be mandatory for employees returning to physical work locations? Take, for instance, a health care organization that begins

to re-open clinics, departments, and operating rooms that were previously closed. Employees returning to such environments may need to be tested and cleared for COVID-19 to initially return to work, especially given the rate of COVID-19 spread among healthcare workers.[4] However, if the employees come into contact with a positive or suspected COVID-19 case after being tested, either while at work, on the way to work, or in their personal lives, they put patients and other employees of that organization at risk.

A digital contact tracing application could be used in all settings or only while the employee is at work to ensure that those in contact with COVID-19 cases, such as ICU providers and staff, do not unintentionally interact with other employees. Such a program could be initially implemented on a phone or device supplied by the organization and even left at the organization when the employee is not present, such as when they go home or out to lunch. The challenge, of course, is that the employee is likely to come into contact with other potential COVID-19 cases outside of the workplace, which creates significant risk for those who come to the organization in-person.

Thus, one underlying ethical challenge is addressing how much *choice* returning employees should have when determining whether or not to use, as well as when to use, digital contact tracing. Will such use be mandated and, if so, will such mandates only apply while in the work environment? If digital contact tracing use is not mandated, will it be encouraged or even coerced through wellness or safety programs?

A concern which will need to be addressed, like other employee wellness programs, is whether employees are given an incentive to participate in the program. Providing incentives can run afoul of unduly influencing employees to participate, hence undermining the voluntariness of such programs.[8] Further, if usage is voluntary, either through opt-in or opt-out programs, technology access and sample selection are likely to be issues. For instance, will employees be required to use the app on their personal phones? What if they do not have a personal phone or would prefer not to use the app on personal devices?

Employers should avoid implementing programs that exacerbate existing health disparities. What if only healthy employees opt-in, while employees who may be positive opt-out in order to be able to return to work or to avoid potential stigma? Would all employee population segments

be equally encouraged to opt-in or would certain populations, such as those with chronic conditions, be more encouraged to opt-in? The challenge here, as with other ventures in health care, such as the Affordable Care Act, is that if a sufficient number fail to opt-in, the impact of digital contract tracing will be significantly decreased.[3,5]

Ethics of COVID-19: Case and Proximity Information Quality

COVID-19 raises strong challenges. It can be difficult to identify positive, infectious cases due to testing constraints. Questions exist regarding whether or not previously positive cases could now have sufficient antibodies to prevent future infection.

Additionally, while efforts are being made to improve health information fragmentation in our health care system,[9,10] t aggregating high-quality health information remains a significant challenge, especially when individuals visit multiple healthcare providers. Further, it is unclear how to best standardize proximity data, including proximity distance and duration.

Identification of exposures to asymptomatic cases will be especially challenging. Even if we assume high accuracy and reliability of proximity tracing data, the accuracy and reliability of COVID-19 case data will be highly variable, at best, for some time. Further, it is not known whether digital contact tracing applications will only rely on objective data, such as results from approved lab tests, or will also rely on subjective data, such as the self-reporting of symptoms or suspected cases. If subjective data is also used, the accuracy and reliability of such data is likely to be even more varied and raise even more ethical questions.

Therefore, another primary underlying ethical issue is that of the *quality of the information that serves as the input to digital contact tracing*. Particularly concerning is proximity and case information quality, as well as the quality of corresponding health information that might be used to identify high risk cases. For instance, will there be consistent benchmarks for being flagged as either positive or having crossed paths with a person who has been flagged? Is self-reported information adequate or does it need to come from a clinician or confirmed test?

The nature of the information raises concerns. In non-pandemic time periods, employers do not have access to an individual employee's protected health information. We recognize there are times that medical information about an employee is needed, particularly with regard to

whether they can complete assigned work, and perhaps COVID-19 status is one piece of that medical information. However, an argument needs to be offered to justify sharing that information with the employer.

Further questions arise. How do we address false positives and challenges of clearing stigma if falsely identified? What if an employee self-reports as positive in order to be able to work from home, but is not actually positive? What if an employee who is positive self-reports as negative, or does not report, to avoid potential consequences or stigma, possibly due to the potential for discrimination against groups with pre-existing conditions?

Experience from other employer-sponsored programs shows that groups can be stigmatized. For instance, disabled individuals are often stigmatized in employee wellness programs as never being able to be considered "well enough" to meet criteria for the program.[8,11] Even further, will the absence of alerts, such as not receiving a proximity alert, provide a false sense of security?

Ethics of COVID-19: Health Information Use and Rights

While we have strong individual rights for identifiable health information in the U.S., we also have enforceable laws requiring reporting of notifiable diseases and conditions to public health agencies. Such identifiable information associated with notifiable diseases and conditions has traditionally been kept private by public health agencies and then reported in the public domain either in aggregate or in other non-identifiable ways.

We do not anticipate health information rights laws or norms to be changed or violated during COVID-19. Nonetheless, mediation via a third-party application, potentially not covered by HIPAA, raises important ethical concerns. This may be especially troubling if employees are self-reporting data.

Fundamentally, this is a debate over COVID-19 *health information rights and allowances for use*. For instance, who has rights and access to digital contact tracing information? How would stigmatization or identification be avoided? If an employer obtains information that an employee is positive, could this impact insurance rates, work requirements (e.g., must work from home), or access to resources (e.g., can't come into the office)? It may even result in employers wanting employees who return after being positive to be on the "front-lines" as they are assumed to

have antibodies.

Consider the following scenario. What if an employer doesn't have rights or access to the information, an employee tests positive, but then does not report that or that information does not come up via the digital contact tracing app? Is liability then a concern either for the employee or for the employer?

Resolving Ethical Tensions

As with any ethical tension, resolution requires a systematic process. While numerous frameworks exist, the American College of Healthcare Executives (ACHE) provides a useful example (Table 1).[12]

Table 1: Ethical Decision-Making Process[12]

Step 1: **Circumstances**. Recognize the circumstances leading to the ethics conflict or uncertainty
Step 2: **Question**. Identify the specific ethical question that needs clarification
Step 3: **Principles and values.** Consider the related ethical principles and organizational values
Step 4: **Options**. Determine the options for response
Step 5: **Select**. Recommend a response
Step 6: **Anticipate.** Anticipate the ethical conflict

Take for example applying this framework to the ethical issues associated with "Ethics of Employee Digital Contact Tracing Choice."

Step 1: Circumstances. Systematic ethical evaluation, conducted during assessment of potential digital contact tracing implementation, should begin with recognition of potential ethical conflicts and establishment of facts. For example, employer preferences and employee perceptions may not be fully aligned. Before determining the best course of action, however, facts need to be established. For instance, what is the incidence rate of COVID-19 in the

community, amongst employees currently, how is the disease spread, and how might it impact our team members? An employer should ensure to collect as much background information as initially possible in order to inform decision making and enable ethical evaluation.

Step 2: Question. While specific ethical questions may vary by organization and situation, the individuals participating in the process should make sure that the question is an ethical one and not something else, e.g., a question of compliance, law, or clinical process adherence. In this context, specific questions might be: Should employers implement digital contact tracing? How much freedom should employees have in adopting it?

Step 3: Principles and values. The organization should then consider who is a stakeholder in the situation, e.g., the employee, employer, consumers, and community, and what values they bring to the discussion. Often important in these contexts, the organization itself should be considered a stakeholder and the values of the organization should be considered alongside other stakeholders. One should always ask if the approach being considered is consistent with the organizational values.

Step 4: Options. Then, options and what values each option promotes should be considered. In most ethical matters, there will be risks and benefits to promoting one value over another. One option in this case is to mandate adopting the app for all employees in all settings, i.e., an app that is active irrespective of whether the employee is at work or not. The employer should consider the benefits to this, such as being able to ensure all points of contact with the employee and burdens endured as well as whether or not employees may perceive their individual freedom as being unduly overridden and subsequently choose not to work for the employer.

Step 5: Select. Finally, after weighing the arguments for and against each option, a choice should be recommended using the framework of, “We made the decision to _____ because doing so promotes this value_____.” As applied to this case, “We made the decision to mandate adoption of digital tracing app because doing so promotes the safety and protection of our employees and community.”

Step 6: Anticipate. As with other ethical situations, employers should consider how future ethical conflicts associated with digital tracing could be avoided. If the organization believes

mandated tracing is the ethically appropriate option, they should, for example, inform potential future employees of their decision and the justification for it. Doing so enables future employees to make an informed choice regarding whether to join the company. Finally, the organization should develop a resolution processes for ethical conflicts that emerge during program implementation and use, such as may arise when needing to balance individual and community rights.

Finally, for those who have access to ethics resources, such as an ethicist on staff, an ethics committee, or a connection with local academic institution's ethics center, working with them on these issues is beneficial to organizations, employees, and even customers. We recognize that COVID-19 has brought to light ethical issues businesses are just now having to face. Having an ethics resource available to them is now more important than ever as leaders confront these challenges.

Conclusion

Digital contact tracing has significant potential for reducing the spread of SARS-CoV-2, as both a substitute and a complement to public health resources currently available. While digital contact tracing for COVID-19 is unlikely to be mandated for all U.S. citizens and residents, U.S. employers, seeking to enhance safety, reduce liability, and proactively address potential insurance premium increases, may mandate or coerce returning employees to use digital contact tracing applications.

This paper has analyzed these issues from an ethical perspective. We identified and discussed ethical issues and implications of: 1) employee digital contact tracing choice such as opt-in vs. opt-out vs. mandated; 2) COVID-19 case and proximity information quality; and 3) health information use and rights. Ethical considerations need to play a central role in the potential planning for implementation of digital contact tracing by U.S. employers.

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[2] Please see the following for more details: https://www.fiercehealthcare.com/tech/cdc-plans-to-roll-out-reporting-app-for-covid-19-cases-ma

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[3] Please see the following for more details: https://www.cdc.gov/coronavirus/2019-ncov/downloads/php/prelim-eval-criteria-digital-contact-tracing.pdf

[4] Please see https://www.pbs.org/newshour/health/health-care-workers-are-10-20-of-u-s-coronavirus-cases for more details.