

A technician wearing a blue uniform with reflective stripes, a white hard hat, and safety glasses is using a handheld gas detector. The detector has a digital screen showing '0.0' and '0.0'. The technician is holding the device near a large, complex industrial engine with various pipes, valves, and a large fan. The background shows a brick wall and some industrial equipment.

Enhancing Safety During a Global Pandemic

A Guide to Connected Safety and COVID-19

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blacklinesafety



AN INTRODUCTION TO BLACKLINE SAFETY

Blackline Safety is a global safety technology leader. We provide comprehensive live monitoring and wireless gas detection to help teams working in hazardous environments respond to emergencies in real-time and manage efficient evacuations. Our talented team of designers and engineers create and manufacture everything in-house, from wearable technology and personal gas detectors to cloud-hosted infrastructure and web-based interfaces for global industry.

We have created the world's first turnkey, work-anywhere safety monitoring solution that offers 3G wireless, remote gas detection, a two-way speakerphone and live monitoring to meet the demanding safety challenges of organizations in over 200 countries. Our vision is to become the leading supplier of wireless gas detection products in the world, and to that end, we offer the broadest and most complete portfolio in the industry.

The Threat of COVID-19

INTRODUCTION

We are all likely familiar with the events listed on the following page. The lack of a proven treatment or cure for COVID-19 has led to the emergence of measures known as Nonpharmaceutical Interventions (NPIs),¹ which is the primary tool in the fight against COVID-19. With the rapid spread of this disease, the pace of change and the scale of the human and financial cost of this pandemic, it can be difficult for an individual or even a single organization to know what they can and should be doing to contribute to the fight. Yet we have learned that everyone has a role to play in limiting the spread of COVID-19. The ability of your organization to contribute is even greater. This report aims to provide you with practical tools to aid you in your organization's efforts to flatten the curve.

KEY TERMINOLOGY²

Asymptomatic carrier An infected individual who does not have symptoms but can still pass on the virus through their respiratory droplets from coughs, sneezes or speaking.

Closure of public places Closing of public places where large groups of people typically gather such as schools, daycares, malls, libraries, playgrounds, etc.

Contact tracing The process of identifying the people and places that a sick individual may have been in contact with.

Flatten the curve The curve refers to the rate of growth in the number of cases over a period of time. The goal is to slow the growth in case numbers sufficiently to avoid overwhelming the capacity of the health care system to treat everyone who needs it.

Isolation Either an individual who has tested positive for COVID-19 or, in some countries, an individual who is showing any symptoms is isolated from others to prevent further potential spread.

Lockdown and curfew Either completely locking down cities, town, etc. where individuals are not allowed to leave their homes, or the implementation of a curfew requiring individuals to be in their homes by a specified time. Countries such as China, Italy and Spain have implemented lockdowns to slow the spread.

Social/physical distancing Maintaining a distance of at least six feet (two meters) from others to prevent the spread of the virus. Current medical consensus is that COVID-19 is primarily spread through respiratory droplets in coughs, sneezes and speech, which have a reach of up to six feet.

Super-spreader An infected individual who infects more people than the average infected person.³

Voluntary home quarantine Asking individuals to remain home and only leave their homes for necessary outings such as the grocery store, pharmacy, etc.

TIMELINE OF EVENTS⁴

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- 31 Dec 2019** China reported a small number of pneumonia cases in Wuhan, China to the World Health Organization (WHO). This was later identified as the novel Coronavirus (COVID-19).
 - 4 Jan 2020** WHO publicly reports the cluster of pneumonia cases with no deaths in Wuhan, China.
 - 10 Jan 2020** First recorded case of COVID-19 outside China confirmed in Thailand.
 - 20 Jan 2020** 282 cases confirmed in four countries including China, Thailand, Japan and Korea.
 - 26 Feb 2020** WHO issues new guidance for businesses and employers outlining ways to prevent the spread of COVID-19.
 - 7 Mar 2020** 100,000 cases of COVID-19 worldwide in more than 100 countries.
 - 11 Mar 2020** COVID-19 is characterized as a pandemic by WHO.
 - 13 Mar 2020** Europe becomes the epicenter of the pandemic with more cases and deaths than the rest of the world combined.
 - 20 Mar 2020** Canada and the United States close its borders to non-essential travel for at least 30 days.
 - 15 Apr 2020** Over 2 million cases of COVID-19 have been reported globally.⁵



HOW DOES COVID-19 SPREAD?

Understanding the transmission of COVID-19 is an ongoing process for medical professionals.⁶ Currently, it is understood that person-to-person transmission occurs through droplets expelled when an infected individual coughs, sneezes or speaks, notably when individuals are fewer than six feet (or two meters) apart from a sick individual.⁷ Other studies also show that some infected individuals may not present with symptoms, but still can transmit the virus through respiratory droplets.⁸ These individuals are known as asymptomatic carriers.

Transmission can also occur from contact with contaminated surfaces.⁹ COVID-19 can survive on surfaces for many hours or days depending on the material of the surface.¹⁰ To prevent transmission from contact with contaminated surfaces, wash your hands frequently with soap and water, and disinfect surfaces as often as deemed necessary.¹¹

LIMITING OR PREVENTING EXPOSURE WITH SOCIAL DISTANCING

According to the Center for Disease Control (CDC), the best way to prevent infection is to avoid exposure to the virus to the best of your ability.¹² This is called social distancing (also known as physical distancing). The key is to limit contact with people outside your household, and to maintain a distance of at least six feet (or two meters) from people outside your household.¹³

Current established best practices for social distancing include:

- Avoiding large gatherings and any close contact interactions with people outside your household (including friends and family you do not live with).¹⁴
- Only leaving the home for essential trips, such as getting groceries or going to the pharmacy.¹⁵
- Working from home.

When working from home is not a possibility, workers must ensure they maintain physical separation of at least six feet (or two meters) from all customers, clients and fellow employees.¹⁶

SLOWING THE SPREAD WITH CONTACT TRACING

What is contact tracing and how is it done?

Contact tracing is employed to understand and slow the rate of infection, discover and monitor potential cases, and introduce treatment and counselling procedures as soon as possible.¹⁷

Contact tracing is not new. It has been used in the management of numerous historical outbreaks, including smallpox, Ebola, various STIs and more.¹⁸

Traditionally, public health officials conduct interviews with infected individuals to determine where the infected individual has been, when they were there, for how long, and who they were in contact with.¹⁹ Interviewers rely on several memory aids to jog the individual's memory because they are attempting to retrace a person's complex movements over the past number of days or weeks. Some common memory aids are bank transactions, text message and email history, work records and receipts. While these are useful in jogging the infected individual's memory, there is still the potential for significant gaps in the individual's history.

What is technology's role in contact tracing?

Given the emergence of location-enabled wearable technology, it should not be surprising that a person's location history could be useful to improve the accuracy of contact tracing. One country that has had demonstrated success in using technology to aid in contact tracing is

South Korea.²⁰ As one of the first countries outside of China to experience a significant outbreak, South Korea quickly brought it under control using digital contact tracing techniques, including the use of GPS and CCTV.²¹

With significant surveillance technology already in place, South Korea was able to track each person with a confirmed case of COVID-19, determine who they had interacted with, and notify the public of all the recent movements of someone with a case of COVID-19.²² Combined with rapid large-scale testing, societal norms around mask-wearing and aggressive quarantining, South Korea successfully brought its outbreak under control.²³ While successful in South Korea and several other nations, privacy legislation prevents many governments from instituting such large-scale digital contact tracing.²⁴ In this case, we must adapt our available technology to augment traditional contact tracing techniques.



INTERVIEWS



BANK STATEMENTS



EMAILS AND TEXTS



RECEIPTS



GPS



CCTV

Connected Safety and COVID-19

CURRENT INITIATIVES IN CONNECTED SAFETY

Apple and Google are partnering to develop an app that will use Bluetooth technology to notify a user when they have been in contact with an individual who has voluntarily self-identified as being infected with COVID-19.²⁵ This initiative by Apple and Google could ease the pressure placed on public health officials by automating the process of contact tracing for infected individuals. While the app has faced criticism regarding privacy concerns, it could prove to be important in the global push to flatten the curve.

As planned, this app does not address two requirements of businesses. First, the app will not be functional on hazardous worksites where it is unsafe to carry a cell phone. Second, Apple and Google are proposing this as an “opt-in” tool, meaning that individuals will need to sign up for the service. Anyone who does not download the app will not be covered.

BLACKLINE SAFETY PRODUCTS AND CONNECTED SAFETY

Blackline Safety has leveraged the location technology in its safety wearables to bridge these gaps, delivering integrated digital contact tracing for the industrial workplace. Intrinsically safe, Blackline's G7 wearables are already carried by tens of thousands of workers around the globe.

As your company adapts to the new realities of COVID-19, you will need tools to promote improved social distancing and to aid in contact tracing. Blackline offers two tools to support you in these efforts:

- [Blackline Live History View](#)
- [Blackline Analytics Close Contact Report](#)

Improving social distancing

As your employees and company are adjusting to newly written rules and procedures that promote social distancing, you will want to be able to monitor their success in implementing these measures. The [Blackline Analytics Close Contact Report](#) provides you with improved visibility to the frequency of close contact between individuals and areas on your facility where close contact is frequently occurring. You can use this report to identify potential super-spreaders and to spot high-contact areas. To find out how to access the Close Contact Report, please see the FAQ.

Identifying potential super-spreaders

While most of your workforce may be taking social distancing measures seriously, there may be some individuals who are not taking the care required to maintain distance from their coworkers. The Close Contact Report provides you with a list of interactions for each worker, helping you proactively identify potential super-spreaders and implement corrective measures before they can place others at risk.

Identifying high-contact areas

Using the Close Contact Report's heat map feature you can quickly identify the areas on your facility where close contact is most frequently occurring. This is a starting point for your investigative work. Once you have identified the potential trouble areas you will be able to assess those areas and implement corrective measures.

Conducting contact tracing investigations

In the unfortunate case that your company does experience a worker with COVID-19, quick action will help mitigate the potential spread of the virus. A contact tracing investigation is necessary to determine interactions the infected worker has had and locations they have visited. The World Health Organization currently estimates that the

incubation period for COVID-19 is between 2 and 14 days.²⁶ During this period, the worker may have been contagious.

The starting point of your close contact investigation will be to gather documentation. Work orders, emails, text messages and receipts will serve as memory aids in the investigation. Gather this documentation and begin to build a timeline of locations and activities for the worker. To help you improve the accuracy of the timeline and identify potential exposures, you can use the **Blackline Live History View**, and the **Blackline Analytics Close Contact Report**.

Using Blackline Live History View

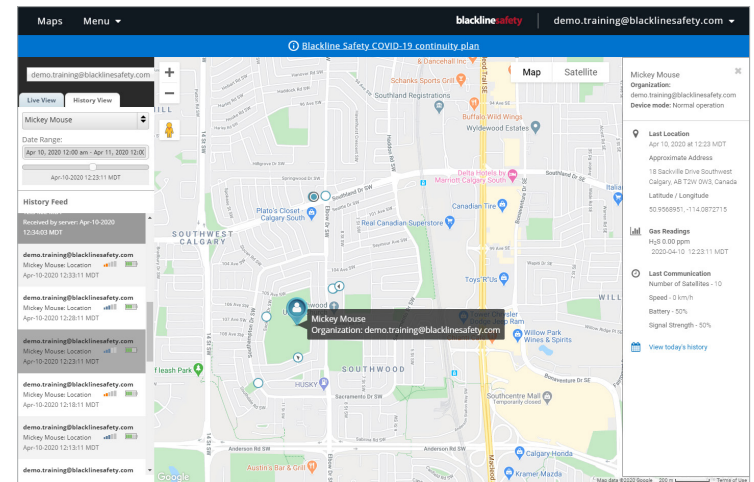
If your company is using Blackline Safety's connected safety products, authorized administrators in your business have access to your workers' location history. Blackline's devices automatically report a worker's location to our cloud-based online portal, Blackline Live. This tool can be used as an additional memory aid when conducting contact tracing. Use the **Blackline Live History View** to review the past two weeks' location history with the worker and document the people and places they interacted with. To find out how to access this tool, please see the FAQ.

Using the Blackline Analytics Close Contact Report

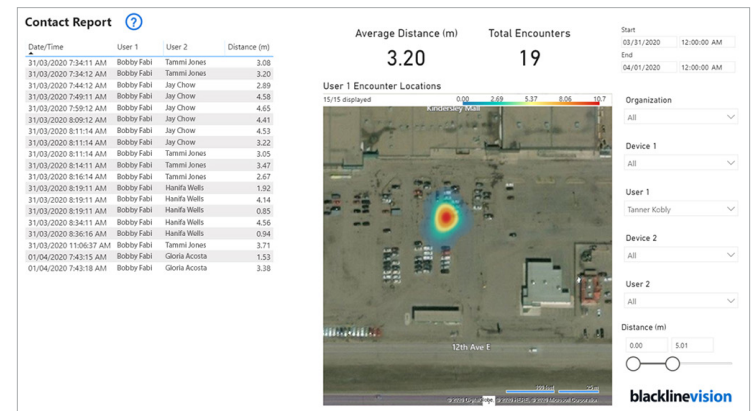
The **Blackline Analytics Close Contact Report** generates a list of all other Blackline device users that the infected individual interacted with. If the location history of the infected worker shows a reported location with two meters of another worker, the Close Contact Report will generate a list of potential interactions. This is intended as an investigative tool rather than a definitive list. The results of this report are subject to the limitations of GPS and indoor location technology, which we discuss further in the FAQ section at the end of this document.

PRIVACY AND CONNECTED SAFETY

It is important to recognize the privacy rights of your worker when conducting your close contact investigation. Make sure you comply with the privacy laws of your jurisdiction and your company's privacy policy. When discussing potential exposures with other employees or the public, do not reveal the identity of the employee with COVID-19. In many jurisdictions, public health authorities will inform people who may have been exposed without informing them of the source of the infection. This allows both your employee and the company to remain anonymous.



Blackline Live History View can be used to assist in recalling an employee's movements. The slider control makes it easy to review chronological location data.



Blackline Analytics Close Contact report can be used to find out which employee may have been at risk of exposure to COVID-19. The report can be customized for certain date ranges, distances and devices.



Frequently Asked Questions

How do Blackline Safety products report location information?

[G7c](#) reports location using our GPS technology and location beacons. G7c will automatically report its location to our online portal every five minutes. Should your organization require a shorter reporting interval, reach out to our customer care team for assistance.

For remote areas where cellular connectivity is not accessible, [G7x](#) uses GPS and location beacons to determine its coordinates. The satellite-enabled G7x reports its location to our online portal every 30 minutes. If interactions occur between the location reports, they could be missed in the Close Contact Report.

The [Loner Mobile](#) app reports the smartphone user's location to our online portal using its built-in GPS or WiFi location technology. Reporting frequency can be configured within a range of 1 to 15 minutes. More frequent location updates may impact battery life.

How do I access the Close Contact Report in Blackline Analytics?

To access the report, navigate to Blackline Analytics from the menu of Blackline Live. Apply filters for the date range and device ID of the user who is known to have COVID-19. The report will generate a list of each contact that occurred with that user and map the corresponding locations on a map. This information will be helpful to investigate potential points of contact with the user at risk of infection.

How do I access History View in Blackline Live?

To access History View, open Blackline Live and click the history view tab on the main screen. From there, you can filter for specific devices and date ranges. The pin on the map will show the earliest known location for the device based on the selected date range. Use the scroll bar to see all the intervals where the device stopped moving during the selected date range. Select any moment from the History Feed to update the pin on the map.

Will the multiple devices and products that my company uses all show up on our Blackline Live History View and Close Contact Report?

Yes. All Blackline Safety products report their location to the same online portal. Our reports will include data from any device that is included in your organization. History View presents past location data for one employee at a time. The Close Contact Report also reviews potential interactions one individual at a time, displaying the corresponding proximity to co-workers.

How does GPS accuracy affect the Close Contact Report?

While GPS is quite accurate, mainstream technology is not accurate to within two meters. Minor variations in location (up to 4 or 5 meters without overhead obstructions) can result in “scattering” of locations. When a user is near large obstacles or indoors accuracy is reduced. The Close Contact Report is provided as a contact tracing investigation tool or aid. Since users being located using beacons will show at the same position, their proximity will show as 0 m in the Close Contact report. Due to the accurate mapping of employee locations at a corresponding beacon, this data will be helpful to identify potential close contact between employees.

How does your indoor location technology work?

Blackline’s [indoor location beacons](#) are placed at appropriate intervals around your facility. Their locations are then recorded on Blackline’s online portal. When G7 comes within range of that beacon its reported location will match the beacon placement on the online portal. The minimum range of a beacon is approximately 15 feet. The Close Contact Report is provided as a contact tracing investigation tool or aid. Considering location beacon accuracy, it will help you identify potential interactions for further investigation.

Is there anything we can do to improve the accuracy of our Close Contact Report?

Yes. For G7c and Loner Mobile, an optional increase in location reporting frequency will provide a greater amount of data to support your investigation. Contact us to learn more.

Are there other ways to conduct digital contact tracing?

This topic is rapidly evolving. Currently, three main avenues are developing. First is the use of large-scale surveillance technology such as what we have previously described being used in South Korea. This has been shown to be effective but is not possible under the privacy laws of many jurisdictions. Second are the Bluetooth-based protocols being developed by Apple, Google and other technology companies. This technology is promising, but also has limitations in its accuracy because Bluetooth signals do not report a consistent range. Finally, we have the augmentation of traditional manual contact tracing through technology, which we have previously discussed in this document.

What actions should we take after conducting our close contact investigation?

First and foremost, contact the public health authority in your jurisdiction. Follow their direction to ensure public safety. Report the results of your investigation to the authorities. As a business, you may decide to take additional measures. Options at your disposal may include disinfecting locations visited by the person with COVID-19, monitoring the health of workers who had close contact with the infected person or even providing the worker with alternate work arrangements that limit their exposure to others in your company or the public. Ensure any actions you take comply with local legislation.

A close-up, profile view of a person wearing a blue safety jacket with reflective yellow-green stripes. They are holding a handheld device with a screen that displays "CALL IN PROGRESS". The device has the "blackline safety" logo at the top. The background is a bright, out-of-focus outdoor scene with trees and a clear sky.

Moving Forward

The fight against COVID-19 is an ever-changing landscape. Blackline's customers have demonstrated their commitment to risk mitigation and proactive health and safety through their investment in our technology. You can leverage the investment your company has made in safety to do your part in this fight, keeping your workers safe through proper social distancing and contact tracing.

For more information, please email us at info@blacklinesafety.com

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ADDITIONAL RESOURCES

COVID-19

[CDC – Cleaning and Disinfecting Your Home](#)

[CDC – Frequently Asked Questions](#)

[CDC – How COVID-19 Spreads](#)

[Government of Canada – COVID-19 Symptom Self-Assessment Tool](#)

[Health Canada – COVID-19 Updates and Information](#)

[Johns Hopkins – Coronavirus Resource Center Map](#)

[MIT Medical – COVID-19 FAQ](#)

[University of Rochester – COVID-19 Terminology and Definitions](#)

[WHO – COVID-19 Courses and Information](#)

[WHO – COVID-19 Situation Reports](#)

Blackline Safety

[Blackline Live Safety Monitoring Portal](#)

[Cleaning and Disinfecting Your G7 Safety Wearable](#)

[Using the Maps Page](#)