



Technology in Safety

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By: Ealat Chaachouh, Contributor

Connected Safety: Five Steps to Drive a Smooth Transition

Never has the industrial workplace seen such a rapid digital transformation, giving rise to a new generation of cloud-connected safety devices to keep workers safe on the job. [74% of organizations](#) consider digital transformation a top priority.

Building on advances in automation, communication and analytics, today's wearables for gas detection and lone worker safety have the capability to link employees to live, around-the-clock monitoring; enable real-time information sharing; collect vital location data; support more informed decision making; and facilitate faster emergency response.

Along with these new developments comes the need for updated, safety-related procedures, policies, behaviors and expectations—to ensure workers embrace and use the technology to its fullest potential—all with a clear understanding of how it can help provide peace of mind, maximize operational efficiency and, most importantly, save lives.

In short, people are being asked to learn new skills and work in new ways, making change management—the application of processes and tools to help people transition from a

current state to a future state—a top safety practice priority for Industrial Hygienists.

Managing Change

New [research](#) indicates that when a coordinated change-management program is launched in tandem with a new technology rollout, employees feel prepared, equipped and supported. In addition, [studies](#) show that projects backed by change management are six times more likely to meet their objectives and five times more likely to stay on schedule.

The goal is to get employees committed to their organization's connected safety program. But exactly where do you start? Here are five essential steps that I have found to be most effective in driving successful change management and ensuring widespread adoption of wearable technology across any organization.

Align on change approach. The first step is to ensure workers understand why the change is happening in the first place. They may feel existing technologies and approaches to safety are working fine, failing to recognize all the advantages technology brings to the table. An effective change-management program starts by sending a clear, standardized



Building on advances in automation, communication and analytics, today's wearables for gas detection and lone worker safety have the capability to link employees to live, around-the-clock monitoring; enable real-time information sharing; collect vital location data; and more. (photo courtesy Blackline Safety)

message across an organization about why connected wearables are being introduced; how the new devices will operate; what's expected of users; and what benefits they can expect.

Provide vocal and visible leadership.

Executives and frontline managers must be front-and-center of the change, clearly articulating the rationale behind it and how the new connected safety technology will improve safety outcomes. [Research](#) shows that leaders who explain the purpose (the “why” as well as the “what”) of the change—and connect it to the organization's values—create stronger buy-in for the change.

It's also critical to keep employees updated regularly during the change process and

to demonstrate progress. If people start to resist change, bring their concerns to the forefront and help them see both the individual and business perspective. Take the time to listen, understand and address concerns, so they feel heard. When small wins happen, celebrate them. This will help maintain momentum and encourage further innovation and change.

Build a change network.

Studies show that [peer collaboration](#) is a preferred method of learning, with benefits that include higher engagement levels and a higher success rate. Select a group of individuals from within your organization who represent each of the areas affected by the change and who have indicated they are passionate about ensuring the technology adoption succeeds. They will become your Change Champions to serve

as agents, advocates, ambassadors and catalysts for change. Involve them in the process from the beginning, so they feel invested and will be well positioned to provide valuable feedback from their teams. Encourage them to cheerlead, rally and inspire their co-workers to get excited about using connected safety wearables. They can also be instrumental in helping to organize and lead training sessions on how to properly use the technology, including a mix of self-serve, virtual and on-site options to meet diverse business needs.

Invest in implementation. With any technology implementation, a user's first impression matters. It will serve as the key indicator for how much—or how little—they

will use their device going forward. That's why it's critical to follow a coordinated implementation process that is based on change-management practices. To facilitate a seamless rollout and adoption of connected safety wearables, Blackline Safety provides an end-to-end onboarding and implementation process. Users are supported by client implementation coordinators who guide them at every step, from introduction, configuration, training and testing—through to feedback, analytics, go-live and follow-up—which includes customer care and technical support.

Close the gaps with data. Simply getting the technology to go live without any hiccups doesn't equate to success. You'll want

to measure the rate of adoption; one of the easiest ways to do that is by monitoring the flow of data between installed connected devices, including information about usage, compliance and trends.

Some connected wearable gas detectors, for example, provide data by location, team or date range to show whether they are being regularly used, bump-tested and calibrated; or are experiencing false alarms—all of which can be used to determine successful uptake and indicate where more training or implementation support might be needed.

In [one case study](#), a national refrigeration and cooling company found using analytics during early implementation stages unlocked awareness into the field for the HSE managers; increased accountability for the area managers; and drove buy-in from field technicians—as they felt heard and supported. Post-training evaluations, employee engagement surveys and post-implementation meetings are also useful ways to gauge adoption and acceptance.

The path to a robust connected safety program can seem daunting. By keeping your eye on the prize—benefits like improved worker safety, real-time visibility, predictive and proactive safety, streamlined safety processes and worksite safety—clearly communicating what is changing and why, and involving employees at every step, you will get there. **IHW**

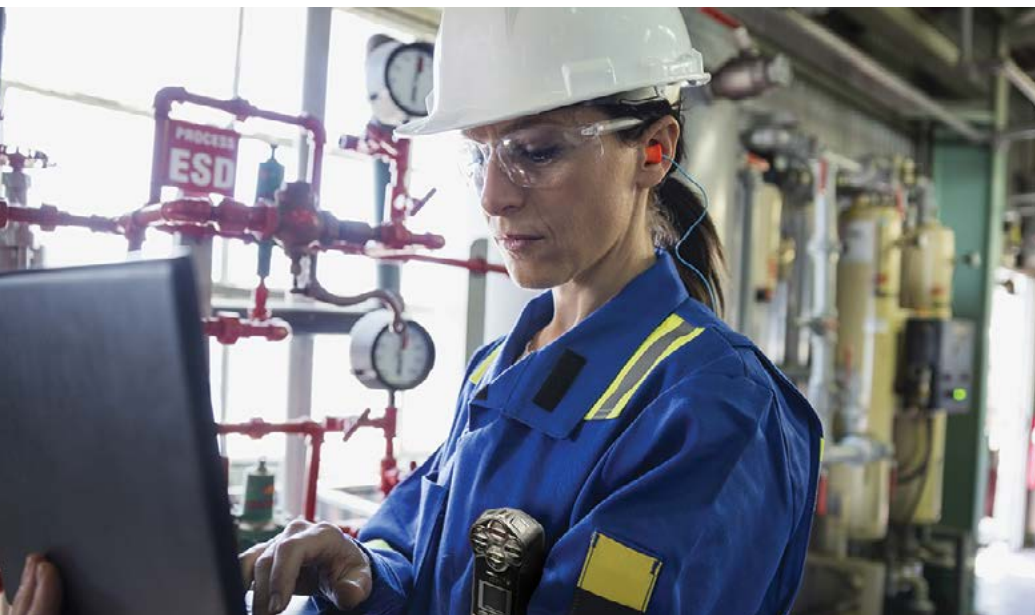
[Ealat Chaachouh is the Manager, Client Implementations - North America, at [Blackline Safety](#), a global leader in connected safety technology.]

POSITIVE CHANGE: CASE STUDY

A good change-management program starts by sending a clear, standardized message across an organization about why connected wearables are being introduced; how the new devices will operate; what's expected of users; and what benefits they can expect.

NiSource Inc., one of the largest fully regulated utilities in the U.S., is an example of a company that successfully navigated change management when implementing Blackline Safety lone worker and gas detection wearables. Their program, referred to as NiSAFE (Security/Awareness/Foresight/Empowerment), guided the rollout of nearly 3,000 devices paired with 24/7 live monitoring through Blackline's Safety Operations Centre.

Some of the best practices identified by the NiSAFE program included leveraging super users who trialed the technology and collected input; holding early discussions with leaders who would then pitch the technology to employees; reiterating the benefits of connected wearables through direct messaging from leaders; and gathering, listening and responding to feedback in a timely manner. They also engaged with Blackline Safety on configuration and sensitivity settings to ensure employee concerns about data privacy, access and security were addressed. **IHW**



Research indicates that when a coordinated change-management program is launched in tandem with a new technology rollout, employees feel prepared, equipped and supported. (photo courtesy Blackline Safety)



What is a Gas Detection Wearable: Top Questions about Connected Safety Technology

The number of workplace injuries remains nearly unchanged year-over-year, with more than 2 million nonfatal workplace injuries and illnesses reported by private industry employees in 2019.¹ And up to 90% of workplace injuries can be attributed to human error.²

While PPE has not traditionally had the capabilities to help prevent human error, the

latest safety innovations, such as gas detection wearables, can help provide the visibility and data-driven insights to help create adaptable, proactive safety programs and establish a culture of behavior-based safety.

But what is a gas detection wearable? What are the benefits of connected safety technology? Here are answers to those top questions:



WHAT IS A GAS DETECTION WEARABLE?

A gas detection wearable, such as the [ALTAIR io™ 4 Gas Detection Wearable](#), is designed to be worn by each individual worker, on his/her person, while on the jobsite. With a wearable detector that can simply clip directly on to apparel or other PPE, such as a fall harness, lone workers can be monitored in real-time to help provide critical data points about on-site workers to off-site safety managers, including emergency monitoring.

WHAT MAKES THE ALTAIR IO 4 DIFFERENT FROM OTHER GAS DETECTORS?

Compared to other portable gas detectors and other MSA ALTAIR detectors, the ALTAIR io 4 was built to be connected from the ground-up. The ALTAIR io 4 device's automatic CAT-M LTE cellular connectivity right out-of-the-box enables instant connection to MSA Grid cloud-based software.

With the ALTAIR io 4, you no longer need to involve IT teams or add a software service separately; the technology simplifies safety rather than making it more complicated. The device goes beyond only local alarm capabilities; its automatic integration with MSA's Grid cloud-based software means that safety managers have visibility of lone workers and remote worksites instantly.

WHAT IS THE DURABILITY RATING OF THE ALTAIR IO 4?

The ALTAIR io 4 was tested under the harshest conditions. It has the ability to survive a 25 foot drop test, exposure to extreme temperatures, and the cutting-edge performance of industry-leading XCELL® sensors. It has a dust and waterproof IP68 rating, and was tested through a 60-minute tumble test and 60-minute vibration table test.

WHAT ARE THE BENEFITS OF CONNECTED SAFETY TECHNOLOGY FOR GAS DETECTION?

A connected work program for gas detection can provide the visibility that is needed to manage large teams of workers and help establish a behavior-based culture of safety. Connected hardware and software solutions can provide real-time data such as worker location and how the detector is being used by each worker – which can all help inform safety training. With real-time visibility of lone workers, safety managers can help make sure those workers are protected, with instant alerts.

WHAT IS THE MSA CONNECTED WORK PLATFORM?

The Connected Work Platform includes hardware and software solutions to help build connections between workers and worksites to provide actionable data that

helps safety managers create safer and more efficient work environments.

Included in the Connected Work Platform are:

- 1 The ALTAIR io™ 4 Gas Detection Wearable
- 2 MSA Grid cloud-based software

3 MSA+ subscription offerings

The ALTAIR io 4 drives the platform, making the connection between the device as a gas detectors and the software that provides the data and insights to help your safety program.

HOW DOES MSA+ WORK?

MSA+ is a subscription program including hardware and software, that gives you access to powerful cloud-based solutions enabling faster implementation, increased warranty coverage and automatic software

and firmware upgrades – with minimal capital expense.

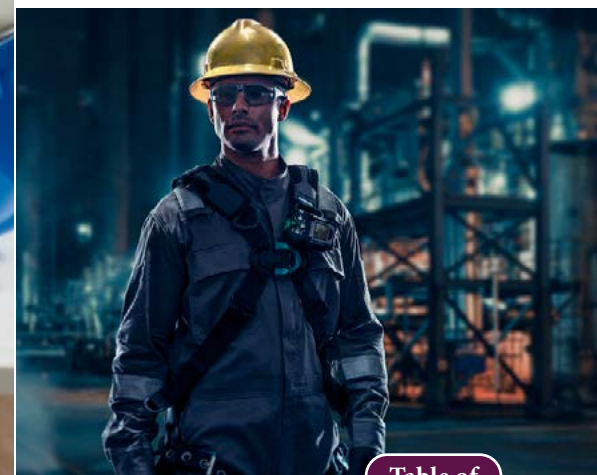
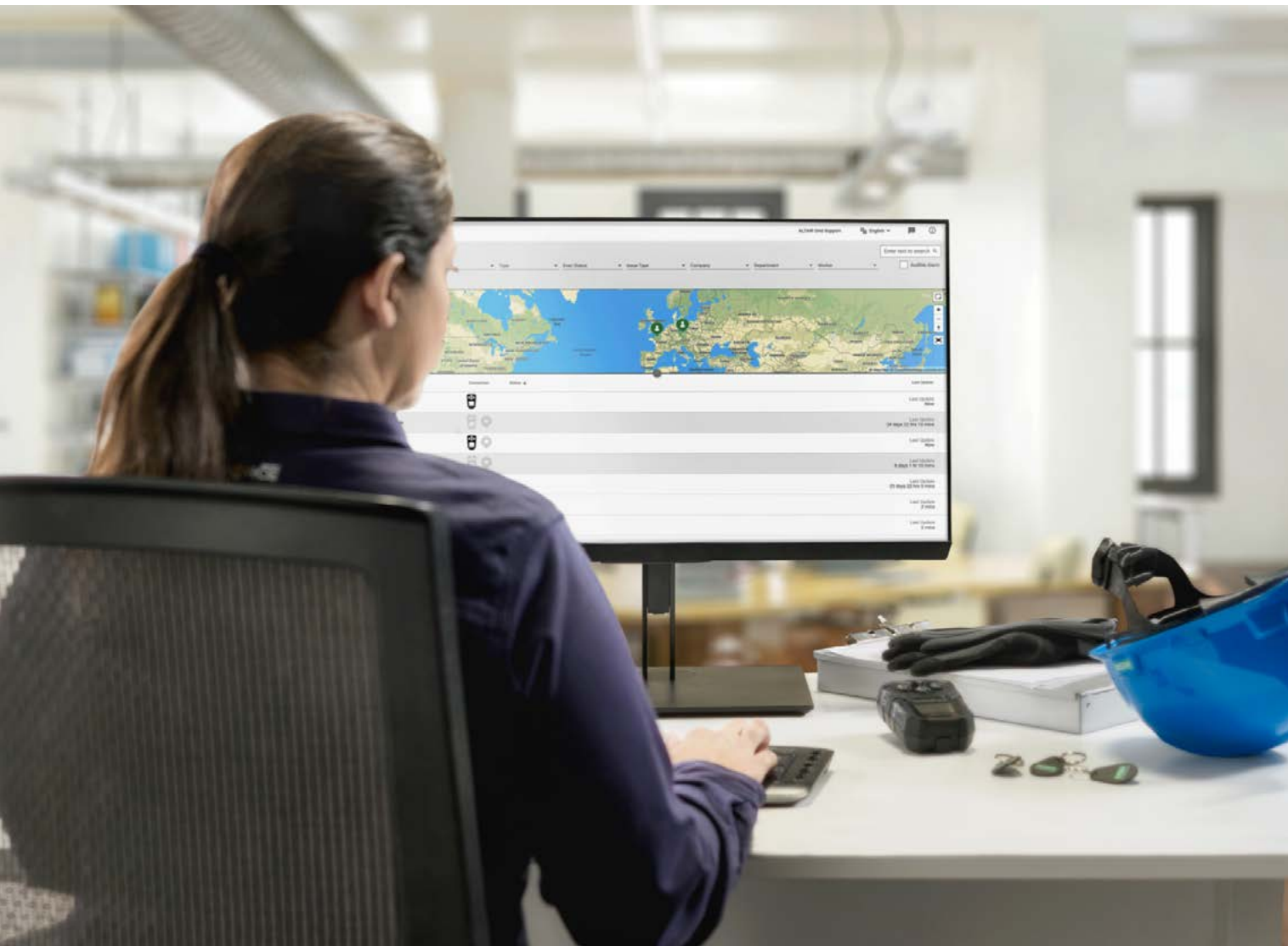
The ALTAIR io 4 is available through an MSA+ subscription. Benefits include:

- Devices are always under warranty for subscribers
- Minimal capex expense through monthly or annual subscriptions
- New features and functionality are pushed routinely to Grid software and your fleet for instant—and ongoing—improvements to your safety program

WHAT ARE THE SUBSCRIPTION OPTIONS FOR THE ALTAIR IO 4 AND GRID?

Based on what your safety program needs, you can choose from three levels of Grid software service – Grid Compliance Service, Grid Fleet Manager, or Grid Live Monitor – with pricing based on a 36-, 48-, or 60-month subscription plan.

Find out more about the ALTAIR io 4 Gas Detection Wearable and MSA Connected Work Platform [here](#).





**INSTANT CONNECTION.
REAL-TIME INTEL.**

**ALTAIR io™ 4
GAS DETECTION WEARABLE**

The ALTAIR io 4 comes with fully integrated connectivity for real-time visibility across your worksites from day one.

MSAsafety.com/io4

MSA
The Safety Company

Leverage Mobile Apps & Technology For Lone/Remote Workers

Whichever industry you're in, chances are high that you will be required to work alone at some point. This might be in a remote location of a large facility/plant or a rural area. Regardless of your job, there may be times when you're alone and, as a result, more vulnerable to specific occupational hazards.

The definition of a lone worker can entail positions in virtually every industry and is based on the core challenge of access to help in an accident or emergency. A lone

worker is a person performing their job in an environment or circumstances in which assistance isn't readily available or accessible if they experience an emergency or require support.

While there are lone workers in almost every sector, some industries employ more than others, such as [healthcare](#), [agriculture](#), hotel and hospitality, as well as [water](#) and electrical utilities—all areas that are essential to healthy communities and jurisdictions.

What They Face

People who perform this essential work face occupational hazards that are unique to their lone and isolated circumstances, such as increased violence and harassment from members of the public or animals; and safety hazards that wouldn't be typically dangerous with a coworker nearby to help, such as unconsciousness from a fall.

If you're alone and outside, it could be hazardous. According to recent [OHS research](#), slips, trips and falls make up about 30% of lone worker accidents and emergencies.

How Technology Can Help

Many positions require the employee to work alone, and it can be difficult, if not impossible, to have a coworker nearby—especially in confined spaces and structures in a remote environment. The solution to this is using emerging technologies and devices to track the safety of lone workers using innovations like satellite and GPS tracking and a safety app dedicated to lone worker check-ins.

According to the OSHA Act of 1970: *“Each employer shall furnish, to each of his employees, employment and place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”*

Proactively equipping lone workers with safety apps and technology demonstrates [compliance](#), creating a workplace free from recognized hazards that could harm these

workers—saving employees from harm and the company from potential litigation. By providing advanced safety apps and tools to lone workers, you are demonstrating that the safety of your people is a top priority, which is viewed favorably by others in your industry and future employees.

How to Stay Connected

Just as imperative as compliance, using mobile safety apps will maintain essential connection between the lone worker and the employer or safety monitor. Even for rural workers, that connection and communication can be maintained through satellite and GPS devices, such as [Globalstar](#).

But these channels, like mobile safety apps, are almost pointless if staff are not adequately trained in their use—and if they're not used regularly as part of operations and the workplace culture. A connected company is safer and more cohesive, with all the employees on the same OHS page, feeling safer when performing their various tasks and work.

Perform thorough work and research to determine which types of communication work best within the team and address your unique safety issues. Your people and your company are worth it. **IHW**

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A lone worker is a person performing their job in an environment or circumstances in which emergency assistance isn't readily available or accessible. (© chitsanupong - stock.adobe.com)



Tap into Expert Guidance on the Use of Direct Reading Instruments

The proper use of Direct Reading Instruments (DRI) is key to identifying dangerous environments in order to make real-time decisions that protect worker health and safety. Improve your proficiency by learning the foundations of DRI use and how to avoid common misuses.

AIHA University's certificate program, Use of Direct Reading Instruments, covers concepts that can be applied to any DRI, including hazard evaluation, chemistry for monitoring, types of hazardous gas and vapor monitors, DRI functions

and limitations, sensor specificity, calibration and functional tests, "reality checking" results, and recordkeeping and datalogging. You'll also learn to identify whether the equipment you're using is appropriate for the task at hand.

What's included:

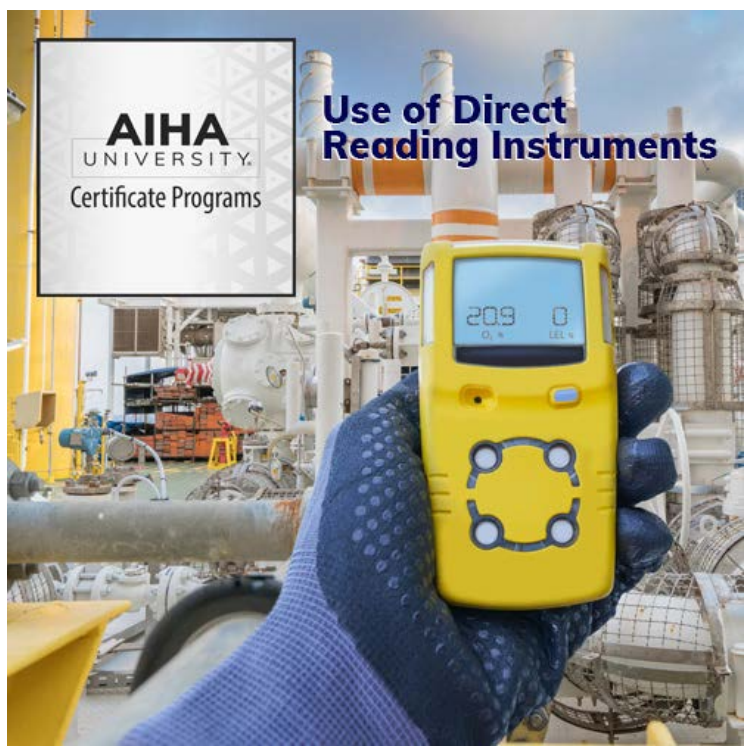
- Interactive knowledge checks throughout
- Practical case studies on DRI use and misuse
- Practice module utilizing a real-world scenario
- Customizable sample maintenance log, glossary of DRI

- terminology, and several other take-away documents
- Personalized certificate upon successful completion of the online assessment

AIHA University Certificate Programs are the first step in your journey to a successful career in the occupational and environmental health and safety (OEHS) field, awarding tangible proof of your technical knowledge and skills.

Certificate programs like this allow you to learn the principles you need to advance your career anytime, anywhere, without disrupting your busy schedule or draining your savings. An added benefit for those responsible for training is the bulk purchasing program, which can save you between 25-40% depending on your group size.

This certificate program displays just one of the ways AIHA University supports IH/OEHS professionals in their pursuit of healthier workplaces and a healthier world. The AIHA members who contribute their expertise to develop our education products and services put AIHA on the map as a trusted resource for scientific-based education and training. Consider taking your seat at the table by joining AIHA.



By: Ronald D. Brown, MD, Contributor

2023 TECH TRENDS: Latest Technology to Keep a Workforce Healthy

Infectious diseases like the flu, COVID-19, RSV and more continue to present emergencies for hospitals; epidemics for public health officials; and high absentee rates for employers. But, as much as workplaces can spread disease—if operated smartly—they can also help fight *against* it.

The best and easiest solutions for public health prevention will always be the basics: washing hands, covering the mouth while sneezing, easy-to-find educational hygiene signage and frequent surface decontamination. While most hygiene techniques used today date back a century, the lingering

threat of mass viral transmission is as contemporary as ever.

For a workplace hygiene solution to be effective, it must be simple to use. There are several new technologies that companies are using to safeguard themselves from potential viral spread. Recent innovations in hands-free, high-efficiency technology can help workplaces lower viral risk, cut employee sick leave and boost morale overall.

No-Touch Decontamination

Ensuring proper surface hygiene is an integral part of a holistic safety plan—and one of the easiest to mess up, due to a lack of personal motivation, ineffective technique or general awareness. By minimizing the human element, companies can reduce potential human error.

“No touch decontamination” (NTD) refers to technology that enables a user to decontaminate or disinfect surfaces without any physical contact. Many systems are deployed manually through a pressurized or electrostatic sprayer, while others utilize automated fogging or UV light processes that don’t require human involvement. NTD systems often use hospital-grade disinfectant to fill the interior of a treatment area with a “fog” that traps pathogens on surfaces and in the air and kills them.

This technology is perfect for routine cleansing of high-traffic areas, including break rooms, offices, bathrooms, machinery, keyboards and more. Companies should look for systems that offer completely hands-off cleaning and manual spot-cleaning nozzles to maximize potential use cases.

HEPA Filtration

A [1994 government analysis](#) of sick leave data for more than 3,000 workers found that [57% of all sick leave was attributable to poor ventilation](#). Poor indoor air quality can exacerbate allergies and asthma, causing headaches and fatigue, skin irritation, respiratory problems or an increased risk of infection due to contaminants in the air.

New advancements in “high-efficiency particulate air filtration” (HEPA) technology has become a necessary tool to fight against airborne contaminants. All HEPA-designated technology must be able to capture over 99.97% of all particulate pollution—including pollen, dust, mold, tobacco smoke and PM2.5 (among the smallest of all atmospheric particles). Many new air purifiers also bundle their HEPA technology with UV technology to thoroughly capture air and pass it through a filter exposed to UV-C light for an additional level of purification.

Workplaces that do invest in new air purification systems need to make sure the unit



One of the best ways to minimize potential contagion is to eliminate as many high-touch areas as possible; door handles, elevator controls, light switches and touch-screens should be wiped down at least twice a day to minimize health risks. (zaetsevgeniy – stock.adobe.com)



Many businesses are switching to hands-free motion sensors to minimize physical interaction and indirect contact. Becoming a hands-free office allows businesses to take proactive measures to reduce cross-contamination. (Mark – stock.adobe.com)

is serviced correctly; the filters are changed regularly; and the unit is fit for the amount of space it is actively purifying for the best performance possible.

Hands-Free Motion Sensors

One of the best ways to minimize potential contagion is to eliminate as many high-touch areas as possible—before they become a transmission source. Researchers at the [University of Massachusetts-Amherst](#)

found bacteria on doorknobs as soon as 15 minutes after the doorknobs were disinfected. Door handles, elevator controls, light switches and touch-screens should be wiped down at least twice a day to minimize any health risks.

In the wake of the COVID-19 pandemic, many businesses are switching to hands-free motion sensors to minimize physical interaction and indirect contact between

individuals. Hotels were some of the first businesses offering digital check-in, digital room keys and voice assistants for turning on lights. Something as simple as an overhead light sensor can drastically reduce the amount of contact and optimize energy efficiency as a bonus.

Hands-Free is Not Effort-Free

Becoming a hands-free office allows businesses to take proactive measures to reduce

cross-contamination. The more operations or interactions that become automated or touchless, the less probability workers may unknowingly infect each other with a debilitating virus.

However, researching, investing and installing new technology is only one part of creating a better work environment. A heavy investment in decontamination systems does not prevent a workplace from practicing other routine safety measures. Workplace safety needs intentional and consistent effort to create the optimal environment for employees to flourish. **IHW**

About the Author:

Ronald D. Brown, MD, is the CEO of AeroClave, a leading distributor of decontamination systems that was founded in response to the 2003 SARS epidemic. He has decades of experience in emergency medicine, acting as the EMS Medical Director for the Seminole County Department of Public Safety from 1985-2000.

By: Dante Moore, Contributor

Bonus Content

Tackle 2023 Resolutions with Connected Gas Monitoring Solutions

As we settle into the new year, safety managers and other emergency personnel have likely been reflecting on what goals they'd like to achieve—whether that's improving on last year's accomplishments or ensuring they're protecting employees in avoidable, hazardous situations.

One easy way to accomplish your goals in 2023 is to create a reliable gas detection, maintenance and safety program connected to the Industrial Internet of Things (IIoT). An IIoT-backed gas detection program with connected monitors and cloud-based software provides real-time site analytics and worker status updates—so you can reduce risk; make smarter decisions; and react quickly if there's an emergency to better protect your people and facility.

While creating an IIoT-connected gas detection program will surely help improve various aspects of your safety program, it's important to consider the entire picture of your facility. Think about day-to-day operations; communications between

your personnel and safety operators; visibility into your site; and more. Plus, don't forget what type of impact you'd like your gas detection program to have on your yearly goals.

Site Hazards: Improving Visibility, Communications

Whether your organization currently has a minimalist approach to its safety operations or a mature model already in place, having clear visibility into site hazards is key if you want to know not only where a hazard occurred, but also who was affected.

By implementing an IIoT-enabled gas detection program, you can easily share alarms and gas readings between workers and safety managers in real time, making it easier to quickly respond to gas hazards, panic alarms or man-down alarms. Depending on how robust your safety program is, safety managers can even receive this information directly to their own gas detector or can implement remote, live-monitoring

options to see readings instantly on a phone or laptop.

With an IIoT-connected gas detection program, you and your safety managers can also see where personnel are consistently facing hazardous exposure levels. If your team is equipped with monitors that can detect multiple gasses in an area prone to volatile organic compounds (VOCs), for example, it can mark the location of exposure by connecting to pre-placed beacons in your facility. This information is then sent to the cloud in real time to indicate any hazards to safety managers. You can take this a step further with gas monitoring devices that feature connectivity options including peer-to-peer, satellite, wi-fi and cellular.

These options can help you create a more robust safety program by enabling team members to look deeper into what's happening around their site with alarm reports highlighting who had which gas monitor; if they were exposed to any hazards; where the exposure came from; and more. This can

help to further increase situational awareness and decrease emergency response times by ensuring gas monitors always have a reliable connection. This also puts you on track to accomplish your 2023 goals.

While deep insights are important for your safety program, the ability to access real-time data, such as gas readings or emergency alerts, from anywhere is key in ensuring you aren't leaving workers stranded without help.

Maintaining the Fleet to Improve Operations

When looking further into day-to-day operations, deciding on the right IIoT-backed gas monitoring solution can be a difficult task. In addition to considering on-site hazards, connectivity and monitoring options, you need to keep a few questions in mind regarding your personnel and equipment. For example, who exactly is using your gas detectors—employees or general contractors? Or does your team ever lose gas monitors? Knowing these answers can help

you determine what type of equipment you need, as well as how much.

Ensuring that equipment is always ready to use, as well as to cut down on potentially lost monitors, your facility can turn to gas detection maintenance tools that show your entire fleet, making it easy to track and manage equipment.

Certain solutions, for example, include gas detection management software. This software provides clear visibility into your process to better manage hazards, people and equipment from one dashboard. With this software solution in place, you can see everything you need across your entire facility and process—including who is assigned to each gas monitor, so you can find out what happened if it isn't returned for any reason.

Successfully Tackle 2023 Resolutions

By using a combination of IIoT-enabled devices and live monitoring solutions, you can streamline operations, ensure device

readiness, enhance visibility into worker safety and site conditions, and respond faster during emergencies. With connected gas monitors, you can easily adopt elements that make sense for your business today and grow into more advanced capabilities as you see fit.

Overall, keeping teams connected through IIoT-enabled gas monitors and robust cloud-based software can create a reliable safety program to successfully tackle your 2023 resolutions. Whether you're responding quicker to gas hazards with real-time visibility and alerts; identifying high-risk areas; or simply knowing which monitors are being used, gas detection programs backed by IIoT networks and applications are the key to staying connected and safe, no matter where workers are. **IHW**

[Dante Moore is an Applications Engineer at Industrial Scientific Corporation and is specialized in helping companies find the right gas detectors for their applications. He can be reached at dmoore@indsci.com.]



The Ventis Pro5 gas monitor, from Industrial Scientific, has connected worker capabilities. It can detect multiple gases simultaneously and includes a man-down alarm and panic button, gas alerts, a customized message feature, Wi-Fi connectivity and more. (photo courtesy Industrial Scientific Corporation)

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