AIHA’s Real Time Detection Systems (RTDS) Committee has prepared some considerations where instrumentation and data could support the protection of public and occupational health during this pandemic event. As such, the committee encourages occupational health and safety science professionals to consider the following while working to advance technology and data during the crisis, as well as to prepare businesses for people to return to work.

For those working from home, consider using in-home artificial intelligence devices (such as the Echo, Alexa, Cortana, etc.) so that data can be aggregated to geographic areas and assist in directing medical resources. This can be especially valuable where Artificial Intelligence (AI) can show emerging trends and give hospitals notifications of a particular area or location that may cause a surge in needed services and intervention. The RTDS Committee encourages all companies using personal home assistant devices share their findings to help lower the surge of COVID-19 cases and provide a better focus for medical services for greater impact.

Currently, these RTDS technologies are available for COVID-19 mitigation and control:

- **Bioluminescence.** Laboratory research conducted on scavenging systems to control pathogens from infected patients at Post-Anesthesia Care Units at medical centers in Indiana by Purdue University researchers showed a significant decrease in bacteria and viruses. The scavenging system was most effective when a high-efficiency particulate absorbing (HEPA) filter was used at the end of the patient’s scavenging unit using a market available scavenging system. (Contact Dr. James McGlothlin for more information.)

- **Fluorescence.** Powders and/or liquids that fluoresce using a black light (such as Glo Germ) are a simple real-time visual tool that can be used to educate people on how a virus can spread and infect individuals by contacting contaminated surfaces.

- **Temperature Sensors.** In the ear or forehead temperature assessment for workforces should already be in place. If not, the committee recommends incorporating a daily entry to work protocol that tracks employee temperatures. This will help identify trends and contacts for day zero establishment.

- **Best practices.** Link with other AIHA committees such as the Healthcare Work Group or Ergonomics Committee to find synergies in creating recommendations to workplaces to help contain and control COVID-19.

- **Facial recognition.** These emerging algorithms can possibly be used to identify someone who is sick with disease such as COVID-19. The concept is similar to infrared imaging technology that is installed at flight arrival platforms to detect passengers with fevers. The facial recognition data could be further analyzed using artificial intelligence to show those with early signs (asymptom-
atic under current practices). The illnesses could range from subtle facial expressions to irregular walking patterns.

– During the initial outbreak of COVID-19 in Wuhan, China, the Chinese Centers for Disease Control (CDC) may have used their computers to develop algorithms and artificial intelligence platforms to cross-match pictures and videos taken by cameras in public areas of people who appeared to be fine but later had COVID-19. While there could be privacy issues, the outcomes from such research could be lifesaving in terms of screening, early detection, diagnoses, and treatment.

Additionally, we have found some RTDS technologies that are being impacted during COVID-19 responses:

• All four and five gas detectors bearing Carbon Monoxide sensors can be expected to respond under cross-sensitivities from hand sanitizers. Also, the sensors can be triggered by women’s perfume and men’s cologne. Such products are made with alcohols with known properties of sensor poisoning. In response, you should require multigas detector users follow these VERY IMPORTANT modifications for COVID 19 practices:
  – Don ONLY gloves not used for swabbing of surfaces with alcohol or EPA disinfectant.
  – Use ONLY warm water and detergent soaked rags for mopping down equipment.
  – If your local policy forbids this exception to COVID 19 practices, SHUT THE EQUIPMENT DOWN, use alcohol-based wipes, and place it under a light source (sunshine or lamp) to evaporate all alcohol.

• Conventionally used Optical Particle Counters (OPCs) for particulate detection have been shown to provide data poorly correlating bioaerosols to contagion risk. More about this is being researched by RTDS members and will be reported as information and references are made available.

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About Occupational Health and Safety Professionals

Occupational health and safety (OHS) professionals (also known as industrial hygienists) practice the science of anticipating, recognizing, evaluating, and controlling workplace conditions that may cause workers’ injury or illness. Through a continuous improvement cycle of planning, doing, checking and acting, OHS professionals make sure workplaces are healthy and safe.

Get additional resources at AIHA’s Coronavirus Outbreak Resource Center.

https://www.aiha.org/public-resources/consumer-resources/coronavirus_outbreak_resources

Find a qualified industrial hygiene and OEHS professionals near you in our Consultants Listing. https://www.aiha.org/consultants-directory.

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