RICOSH

Rhode Island Committee on Occupational Safety and Health

THE RICOSH NEWSLETTER

Newsletter on Occupational & Environmental Health Spring 2020

(SARS CoV-2) Infectious Disease and Infection Control

The steady ongoing transmission of SARS CoV-2 has ratcheted up attention to the multiple threats pandemic outbreaks present to a wide range of occupations and workers. The safety and health of workers in health care and emergency medical response will need to be a critical part of evolving infection control policies and practices since their ability to function will be crucial in halting and controlling the spread of an outbreak.

We as a society dropped the ball after SARS (in 2003).
Just because the virus went away, we naively thought,
well you know good-bye, Coronavirus…
This is the third Coronavirus outbreak in two decades.

~ Dr. David Ho

In addition, workers associated with the movements of infected individuals e.g., travel (airline and train and buses) and hospitality (hotels, restaurants) may also be at increased risk as will any workers in a facility or institution where positive cases develop. Many other collateral sectors will be signifcantly involved during an outbreak in maintaining critical infrastructure like food, transportation, communications, education, childcare, elderly care, and so on.

There have been ongoing infectious preparedness plans designed to stop, slow, or limit the spread of a pandemic in the United States for decades. These plans address limiting domestic spread and mitigating disease but also sustaining infrastructure and reducing the adverse effects of the pandemic on the economy and society. These plans have been developed by many sectors in response to potential small, medium and large scale outbreaks.

Infection control plans were created in response to the HIV epidemic in the 80s. After the Multi-Drug Resistant Tuberculosis crisis in the 90s ,the Centers for Disease Control (CDC) launched a nationwide effort to revitalize national capacity to protect the public from infectious diseases. (***Preventing Emerging Infectious Diseases: A Strategy for the 21st Century*** 1998). Interest in infection control planning and response was amplified for the avian flu and other flu outbreaks including a SARS virus that resembles SARS-CoV2 after the turn of the century. Infection control planning and response then took on even more urgency with the anthrax scare after 911 and the fear of a possible smallpox attack created networks of bioterrorism policies, practices and agencies.

However, as each disease threat waned, so did attention and resources to these plans. There were still highly articulate analyses and research on infection control and response in many sectors, especially health care, emergency response and in the military. When the EBOLA virus threatened a potential for a world-wide pandemic in 2014 - 2016 the Obama administration assembled a pandemic response unit within the National Security Council. They even presented a mock influenza epidemic scenario for the incoming Trump administration. The Trump administration disbanded the unit.

Coordinated Planning

There are two broad currents to the policies and procedures regarding infection disease control. The first is *extra-institutional*.

To win the Kampf against COVID-19, it is essential to trace the course of the virus as it moves through populations. But it is equally essential to measure its course within a single patient.

~ Dr. *Siddhartha Mukherjee*

This involves planning within the context of large-scale interventions usually by state actors in coordination with federal and local polities. ***Under our federalist structure each governor in each state is the final legal authority; in effect they are in charge for all disaster response in that state be it floods, fires, and infectious disease outbreaks.*** Infection control policies are usually an ensemble of connected themes:

- *locating and isolating cases and tracing contacts,*
- *monitoring and quarantining contacts,*
- *travel restrictions, screening travelers,*
- *maintaining strict infection control procedures within high risk settings,*
- *inventories of protective equipment,*
- *preparedness drills,*
- *pharmaceutical therapies that can immunize, or minimize impact of the infectious agent – (as yet none have been identified for COVID-19 though some are being rapidly explored,)*
- *stockpiling and distribution of same when and if they prove to be effective and available,*
- *altering work schedules and locations,*
- *shutdown of facilities or limiting employee turnout,*
- *social distancing, limiting public gatherings.*

Facility /Institutional Roles

Another important current within infection disease control is the specific infection disease control plan designed for specific issues related to that business, institution or networks of institutions. Some sectors like health care and public safety will require more resources since they will be directly treating and handling infected individuals, a crucial role in controlling an outbreak. But many other collateral sectors will play key social roles in controlling an outbreak like food shipping suppliers, transportation, communications, education, childcare, elderly care, and so on. They will need specific infectious disease control plans and support. All infection control policies should address worker safety and health.

Any infection control plan for any specific public or private institution will depend on the role they play – do they deliver babies or do they deliver packages. And, within the institution, target and focus will shift depending on the characteristics of an infectious agent – virulence, transmission mode (air, bodyfluids, surfaces), attack rates (in different age groups), vaccine protection (if any), susceptibility to antivirals, or other pharmaceutical treatments. Take as examples:

- *Units in a hospital may be designated as special quarantine units. Workers within these units will need specialized training as regards to controlling transmission and protecting themselves.*
- *Or, emergency or public safety responders may be first on the scene to deal with infected patients or asked to transport patients. They should understand the appropriate quarantine and infection control policies and procedures appropriate to their risk and situation.*
- *Sectors that deal with the general public like public transit, airlines, food and grocery services, pharmacies will need plans that may emphasize social distance. strict crowd controls, reorganization of the work environment. (A good training model is the crowd management requirements of the RI state Fire Code.)*
- *Key resources:* Many agencies and organizations can provide general and specific guidance: information, model control plans, training and up to date accurate and scientific based information as an outbreak progresses.

Key resources:
Many agencies and organization can provide general and specific guidance: information, model control plans, training and up to date accurate and scientific based information as an outbreak progresses. Contact us at RICOSH for more information or if you have any questions.

The Climate Project: The Case for Public Transit

"I'm here to make the case for massively expanding public transport now, to fulfill the ambition of fossil-fuel-free city streets by 2030. If this transition is done properly is will mean good jobs, reduced inequality and healthier cities for all. The time to act is now, and the 20 million transport workers we represent are ready to play their part. If we act now and act together, dangerous climate change can be averted."
~Stephen Cotton, General Secretary International Transport Workers' Federation (ITF)

As the challenges of climate crisis were discussed, the transportation sector often was overlooked as a key contributing sector of our Greenhouse Gas Emissions (GHG). Emissions from driving in the Providence metro area grew faster than the population between 1990 and 2017 according to data released through Boston University's Database of Road Transportation Emissions. Nationally, the bulk of *transportation emissions*, nearly 60 percent, come from passenger cars, SUVs and pickup trucks, according to the Environmental Protection Agency. Freight trucks contribute an additional 23 percent.

The Rhode Island Greenhouse Gas Emissions Reduction Plan released in December 2017 by the Executive Climate Coordinating Council (EC4) reported that 40 percent of those emissions – today and in 2050 – are and will be produced from the transportation sector – cars, trucks, buses, boats, ships and planes, trains. Not only is transportation the largest emissions contributor, *it is the fastest growing*.

Rhode Island does not, as yet, have a robust policy to reduce greenhouse gas emissions (GHG) in the transportation sector. However several recent developments signal an important shift to tackle GHG in the transpiration sector.

- Governor Raimondo has allocated a substantial portion of Rhode Island's share of the national Volkswagen settlement the funds to RIPTA to introduce electric buses (Electric vehicles hereafter EVs) into the fleet.

- In addition, Rhode Island has officially joined with several Northeast and Mid-Atlantic states to develop a regional clean transportation initiative, called the Transportation & Climate Initiative (TCI). The goal of the TCI is to design a new regional low-carbon transportation policy that would cap and reduce carbon emissions from the combustion of transportation fuels, and invest proceeds from the program into low-carbon and more resilient transportation infrastructure. With the final completion of the policy each signatory jurisdiction will then decide whether and how to adopt and implement the policy.

- Alongside the TCI pathway, a Transit Master Plan (TMP) is being developed to advance a comprehensive transit vision for Rhode Island over the next two decades. The TMP is an opportunity for Rhode Island to transform and expand its public transit to serve more Rhode Islanders more effectively and dramatically reduce the state's greenhouse gas emissions. The TMP is being developed by the Division of Statewide Planning, RIPTA, and Rhode Island Department of Transportation alongside the Bicycle Mobility Plan and Long-Range Transportation Plan (LRTP).

- Another interesting development is the Regional Rail proposal by Boston's TRANSITMATTERS that would integrate Rhode Island into a greater Boston regional high speed light rails system. A similar project has been envisioned by Grow Smart RI.

Public Transit: A Solution to Climate Woes

One feature that unites these proposals is that they see dramatic reductions in transportation – related GHG coming about by expanding public transit and supporting other alternative modes of movement. Embracing those two issues would entail a broad set of strategies that address mobility as well as new strategies to address the current car-centered built environment.

A more limited approach is one that has become tethered to one strategic proposal: 'decarbonize' the transportation sector through transitioning to electric powered cars, buses, and trucks (EVs). There are some implications of this isolated strategy that should not be left out of the discussion on climate and transportation.

First, it neglects the GHG emissions where EVs are manufactured, and GHG emissions added during EV transport from the source of manufacture by water (super-tankers) and by land
(trucks). Nor should we neglect the fact that as we transfer from a fossil fuel based source of transportation energies to an electric based source (a positive policy) the increased demand on the electric grid itself will reflect the modes and methods whereby the grid(s) obtains its energies; for the foreseeable future that will include, even as the proportion of renewable grows, many fossil fuel sources, coal, shale, and gas natural gas.

Also unaccounted for are GHG emissions embedded in the built environment imposed by *our reliance on personal single passenger vehicles, even if electric*. Thirty percent (30%) of real estate in many major cities are occupied by parking lots. There's an estimated two billion public parking spots allocated for about 250 million cars nationwide—an unprecedented waste of public space that contributes to traffic and congestion, dangerous conditions for pedestrians and cyclists, and unsustainable costs for residential and commercial development. The design of our communities, traffic patterns, parking lot construction, parking garages, where developers locate, and so on all serve to perpetuate the dominance of personal private vehicles. Land-use policies embedded in our reliance on private vehicles feed commercial and residential suburban sprawl that directly and indirectly increases GHG, as well as marginalizing economically disadvantaged communities and groups like the elderly and youth that rely on public transit. Low-wage households living far from employment centers spend almost 40% of their incomes on transportation; in contrast low-wage families in neighborhoods well served by public transit spend about 9% on transportation.

Public transit has been recognized by the US Centers for Disease Control (CDC), the American Public Health Association (APHA), and the Union of Concerned Scientists as a pivotal mode to reduce greenhouse gas emissions *as well as a wide range of air pollutants that are linked to respiratory and cardiovascular illness.* Electric vehicle use per se would not increase physical activity: every additional hour spent in a car – electric or fossil-fueled – is associated with a 6% increase in the risk of obesity, and every kilometer walked is associated with a 5% decrease in obesity risk. Public transit users walk a median of 19 minutes daily getting to and from transit stops. Nearly 30 percent of transit users exceed the 30 minutes of recommended physical activity per day.

The only way Rhode Island can dramatically reduce its greenhouse-gas emissions is to transform its transportation sector by expanding public transit and supporting alternative modes of movement. Embracing those two would also create jobs and address social inequity.

Funding for Public Transit

Public transit in Rhode Island does receive significant federal support from several pots of federal transportation programs especially for capital projects (purchase and maintenance of buses and vans). The budget to operate the system is funded from a portion of the gas tax. It has been broadly recognized that our state's current funding mechanism (the gas tax) is inadequate to sustain and expand public transit. And in fact as more car and vehicle purchases may shift to electric vehicles this further erodes this principle funding source. There should be an alternative funding mechanism created which ties mitigating impacts from climate change to expanding transit which reduces greenhouse gas (GHG) emissions. One of the principle goals of the multi-state Transportation & Climate Initiative (TCI) is to propose new revenue

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RICOSH **Factsheet**

RULES FOR RESPIRATORS

In the midst of the current SARS-COV-2 crisis there has been a lot of back and forth regarding respirators. CDC/NIOSH has announced broad crisis alternative strategies for respirators and respirator usages which deviate from normal practice and previous policy. OSHA has followed suit announcing several policies to allow for waivers in its respirator rule and how it is to be enforced.

What follows here is a brief review and interpretation of the OSHA standard for respirators and respiratory protection (offcially known as 29 CFR 1910.134) as it has been used up until the current crisis. In effect what is outlined here is a 'strict' interpretation or 'best practices' which all should know even if the COVID-19 pandemic creates pressures and obstacles to its achievement. And hopefully, what we will return to once the crisis passes. According to OSHA, waivers will end when the crisis ends.

OSHA Requirements for a Respirator Program

The pivotal foundation of OSHA's Respiratory Protection Standard is the development of a Respiratory Protection Program. This is the blueprint that establishes why, which, and how respirators are selected, used and maintained. Training the user is a pivotal element of all respiratory protection programs. Why? Because assigning and choosing and using a respirator is not like picking a pair of bowling shoes off the rack at the local bowling alley

Respirators must be designed for the hazards on the site. Different hazards require different respirators; different levels of the same hazard may require a different respirator. A respirator that is effective to protect against particles may be useless to project against gases or vapors. Emergencies require special respirators. And, conditions like lack of oxygen or other IDLH (Immediately Dangerous to Life and Health) conditions will require special respirators.

Respirators were first developed to protect against industrial and mining inhalation hazards. Respirator design selection and use has been based on measuring chemical, dust, and gas levels in the atmosphere of the work environment and comparing these measured levels to permissible exposure limits (PELs/RELs/OELs etc). Permissible Exposure Limits indicate at what exposure level a chemical or dust or gas can produce harmful health effects. The respirator is chosen to assure that the wearer is not being exposed to these harmful levels. It is better to lower exposure through engineering controls like direct ventilation or enclosed a toxin in an isolation hood. But there are circumstances where respirators are unavoidable.

But respirators are now used to protect against biohazards. In contrast, respiratory protection for biohazards like SARS-CoV-2 or TB cannot be selected based on similar chemical exposure levels because we do not have such exposure levels for biohazards and it is difficult to effectively measure biohazard levels in the air of the work environment. Respiratory protection is mostly a pass fail approach. If there are contagious individuals coming into the work environment, usually to be treated, then that would trigger using respiratory protection. In this domain, OSHA has in the past designated selected work activities and areas that generate high biohazard aerosols as high risk, and other activities and areas as medium or low risk. Respirator selection is then based to correspond to that risk.

Types of Respirators:

Respirators come in two basic families. The first are Air Purifying Respirators (APRs). Respirators of this type reduce toxins in the surrounding air using filters, sorbent canisters/cartridges by capturing particles, vapors, fumes, gases before they are inhaled by the wearer.

APRs range from Filtering Facepiece respirators (NRP 95/99/100) to quarter, half and full face elastomeric respirators. Filtering Facepiece respirators like N95s the whole respirator is the filter; whereas elastomeric respirators have reusable masks made of rubber and silicone and use exchangeable filters, cartridges, and canisters that can be replaced.

The second family of respirators protect the user by supplying breathing air that is independent of the surrounding work atmosphere; they do not filter toxins present in the immediate environment. These respirators supply breathing air into the respirator mask from an outside source. One type is a Supplied–Air Respirator (SAR) or airline respirator that supply breathable air through an airline attached to a compressor, or airtanks. Another type perhaps more familiar because firefighters use them is the Self-Contained Breathing Apparatus (SCBA); this type supply breathable air from a tank carried on the worker's back.

Only a NIOSH-certified respirator should be selected and used, according to the OSHA standard. The National Institute for Occupational Safety and Health (NIOSH) tests and approve respirators. An approved respirator is one that has the NIOSH logo (with a NIOSH TC number) on it or on APR filters, cartridges/ canisters). The NIOSH Certified Equipment List can be accessed at https://www2a.cdc.gov/drds/cel/cel_form_code.asp.

The Respiratory Protection Program

Written operating procedures for the selection and use of respirators must be established by the employer. Respirator selection should be based on the nature and extent (levels in the work area) of the hazard.

Medical Evaluations

In order to assign respirators, employers must provide a medical evaluation to determine an employee's ability to use a respirator before any employee is required to wear a respirator. The employer has to contact a physician or licensed health care professional (referred by OSHA as the PLHCP) who will conduct the medical evaluation. A PLHCP must determine that there is no medical condition that would make it unsafe for an employee to wear the assigned respirator(s). [The PLHCP should be made familiar with conditions and hazards (temperature/ humidity extremes e.g.) at the worksite, and if workers must wear additional protective clothing or equipment.]

The PLHCP must use the OSHA mandatory questionnaire to obtain medical information. The PLHCP may require more thorough medical examination (tests or diagnostic procedures e.g.,) if information obtained on the questionnaire indicates the need.

Additional medical evaluations may arise if the PLHCP (or the program administrator of the Respiratory Protection Program) is informed by the worker about medical symptoms connected to respirator use, or observations made during fit testing and subsequent program evaluation indicates a need for employee reevaluation.

FIT Testing

A worker must be fit tested on the type of respirator they will wear to assure that it will protect against the associated hazards. Fit testing must be performed before the employee is required to wear the respirator in the workplace. And, the PLHCP medical evaluation of that employee must be prior to fit-testing. Why is fit testing important?

APR respirators are effective if they channel air the user inhales through the appropriate filter, and cartridge/canister that capture toxins. To do this most effectively, the mask itself must fit tightly under the chin and around the face and or head, and the straps must be firmly and correctly fitted around the head. (This is why beards are prohibited when wearing tight-fitting respirators.) If the fit is not snug, toxins (and with biological threats, the microorganisms) can leak into the mask along the sides or under the chin and will not be captured by the filter, canister/cartridge. And this defeats the protective purpose of wearing the respirator in the first place.

Fit testing is not a simple process but requires technical training, experience and expertise. Why? Any respirator is rated as to how well they protect the worker; each has an assigned protection factor (APR) that indicates how well that respirator (or class of respirators) protects the user. In addition, there are workplace exposures which automatically require a respirator that is more protective (has a higher assigned protection factor).

Fit testing involves a set of OSHA approved protocols that involves evaluating the fit of a respirator on that individual and involves using certain test agents or calibration equipment systems in a test chamber as well as applying fit factors correctly. It cannot be done on-line or from a distance. It is very much a hands on procedure that takes some time as usually many different respirator models may have to be evaluated for the tested worker.

- Fit testing must repeated at least annually.
- Fit testing may be conducted whenever changes occur that could affect the proper fit of the respirator.

Some facilities have experienced fit testers on staff. Others will need to reach out. An employer can contact the following for direction: local occupational health and safety professional programs; the local OSHA office compliance assistance officer for direction; and national industrial hygiene and professional organizations such as the American Industrial Hygiene Association (AIHA.org), American Society of Safety Professionals ASSP.org,

Program Administrator

Employers must designate an administrator to run the entire respirator program. This person must be knowledgeable on a wide range of responsibilities:

- What OSHA requires of a Respiratory Protection Program.
- Training of employees on the respiratory hazards to which they are exposed, and training on the elements of the respiratory protection program that impact their use of respirators.
- Procedures for selecting respirators for use in the workplace.
- Medical evaluations of employees required to use respirators.
- Fit testing procedures for tight-fitting respirators.
- Procedures for proper use of respirators in routine and reasonably anticipated scenarios.
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators.
- Procedures for respirator change schedules.
- Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere supplying respirators.
- Program evaluation of the respiratory protection program.

Some Selected Critical Elements of the OSHA Respiratory standard

Workers must be instructed in the proper use and limitations of their respirator(s).

A program for the care and maintenance of respirators should include:

- inspection for defects or malfunction
- cleaning and disinfecting
- repair
- storage

Respirators should be inspected before and after each use. Inspection should include checking for any leakage, for the tightness of the connections, for the condition of the straps, headbands, valves, connecting tubes and filters cartridges/canisters. (With air supplied systems: condition of the tank, lines, connections, regulators, alarms, etc.)

A respirator's seal on the face should be checked each time it is used. This is called a seal check and should not be confused with a fit test which is the process that determines right respirator for use by each worker

Respirators that are used for emergencies should be automatically inspected at least monthly.

Respirators should be regularly cleaned and disinfected; if used by more than one worker, or in emergencies, after each use.

Work areas must be monitored to make sure that levels of the specific toxin that the respirator is used for have not risen beyond the respirator's capacity.

A respiratory protection program should be evaluated to see if its working. The administrator should check to see if respirators are being used correctly, and if there are any changes in the work environment that call for an upgrade.

(This is a basic review; we recommend you consult the OSHA website (www.osha.gov for more details.)

Rhode Island Committee on Occupational Safety and Health (RICOSH) is a non-profit resource center for occupational and environmental health and safety.
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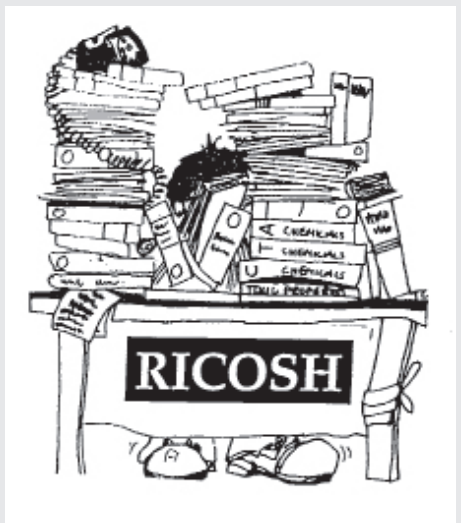
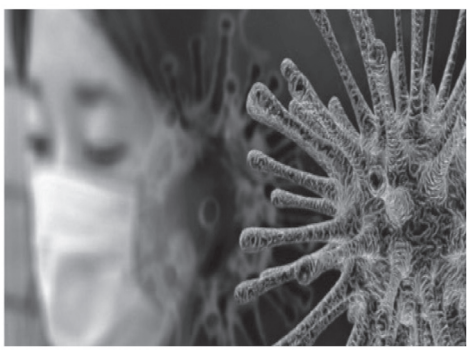


Inside this Issue

2-4 Hour Digitally Delivered No-cost Training: Protecting Yourself from COVID-19 and Other Infectious Diseases

TNEC Health and Safety Training



The New England Consortium, based at UMass Lowell, offers a 2-hour awareness training in protecting yourself from COVID-19 and other infectious diseases. TNEC is a worker health and safety training program funded by the National Institute of Environmental Health Sciences, and since 1987 has delivered training to workers in New England in hazardous materials and emergency response, disaster preparedness, infectious disease preparedness, and general workplace health and safety. This no-cost training is delivered virtually with live instructors.

This course is designed to:
- Prepare workers and communities for COVID-19 and other infectious diseases;
- Provide knowledge and practical experience in infection control guidelines and procedures for all workers in jobs with potential exposure to Coronavirus.

This course covers:
- Specific virus types and how they spread;
- Best practices for preventing exposure to Coronavirus, including proper decontamination;
- Proper selection and use of personal protective equipment (PPE), including respiratory protection;
- Responding quickly to a potential emergency outbreak.

This COVID-19 Awareness Training
will be offered every
Tuesday and Thursday
10am to 12am

UMASS LOWELL

For more information contact:
David Coffey at TNEC
DavidCoffey@uml.edu
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Climate Project- *continued from page 2*

sources.

Over the last few years coalitions of transit advocates have proposed several planks that in the short term and in the long term promote alternative funding sources for public transportation to reduce GHG emissions:

- Require developers to emphasize and fund transit-oriented development and pedestrian mobility in all new development projects in the design phase and embed such requirements in the contractual and bid process.
- Establish congestion pricing plan in central metro areas to reduce gridlock, GHG emissions and air pollutants and raise money for various transit, biking and enhanced walking infrastructures;
- Expand and enhance transit subsidizing projects like the ECO pass and the UPASS where business and universities provide free or subsidized passes to ride RIPTA.
- Encourage large institutions, especially those that are tax exempt and large businesses to adopt bus routes as a community service by funding some operational costs, distributing and posting schedules, notifying employees, customers, clients, etc. This is similar to programs which encourage private firms to adopt a stretch of highway.
- Prioritize the search for alternative funding for public transit—which currently depends on the gas tax. Establish various Greenhouse Gas Emission [GHG] or Vehicle Miles Traveled (VMT) taxes on electric vehicles and on gig economy transport (UBER eg.).

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