



Outbreak Preparedness and Response: The Essentials

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EXECUTIVE SUMMARY ☰

In any disaster or other crisis, how you react depends largely on how well prepared you are. Over the years, ECRI has witnessed a number of catastrophic events—such as outbreaks of severe acute respiratory syndrome (SARS) and Ebola—and has learned lessons that are pertinent for dealing for current crises such as the COVID-19 coronavirus outbreak that is happening now, in early 2020. While no two emergencies are the same, we can gain vital insights from previous events.

In a crisis, normal processes must often be modified to ensure that the best possible care is provided while ensuring the safety of patients and personnel despite limited resources. We have collected many ECRI publications that include preparation checklists, patient handling checklists, equipment lists, lists of alternative suppliers, recommendations for patient care equipment such as ventilators, and recommendations for infection control.

In keeping with its mission to advance effective, evidence-based healthcare globally, ECRI is making this compendium of resources freely available to the public—no membership or other payment is required to access it.

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COVID-19: INTERIM GUIDANCE FROM CDC

The U.S. Centers for Disease Control and Prevention (CDC) has issued [Interim Infection Prevention and Control Recommendations](#) to address the COVID-19 coronavirus outbreak. CDC specifies that its "cautious approach will be refined and updated as more information becomes available and as response needs change in the United States."

LESSONS FROM SARS

Like the current (early 2020) COVID-19 outbreak, the 2003 epidemic of severe acute respiratory syndrome (SARS) was a public health crisis worldwide, causing hundreds of deaths. Dealing with that outbreak provided vital lessons in how hospitals should protect against, and cope with, disasters involving airborne pathogens.

Preparation Is the Best Protection

Learn what part the healthcare facility, its surrounding community, clinicians, and facilities and clinical engineering staff can play in preparing for an outbreak.

Protecting against Infectious Disease Transmission during Equipment Maintenance

This article provides guidance for clinical engineering, respiratory therapy, and other personnel involved in maintaining potentially SARS-exposed equipment.

Mechanical Ventilation of SARS Patients

ECRI recommends that breathing-circuit filters be incorporated in the exhalation limb of any ventilator used on a patient with SARS, since the virus can be carried by droplets that exit from the limb. In this article, we review the issues behind our recommendations and describe steps hospitals can take to prevent any adverse effects on ventilation.

Selecting Respiratory Protection for Equipment Servicers and Other Hospital Personnel

This article addresses the advantages and limitations of the N95 respirator for respiratory protection against infectious diseases and offers recommendations for further protection.

LESSONS FROM EBOLA

In 2014 and 2015, an outbreak of the Ebola virus spread from Guinea to seven more countries, killing over 10,000 people. ECRI's Ebola-related publications at that time placed a heavy emphasis on preparedness.

Ebola Preparedness Survey: Results and Commentary

Here are responses to our survey asking hospitals to assess the status of their Ebola preparedness planning. Find out what challenges facilities have encountered in selecting equipment that might be needed to treat an Ebola patient.

Webinar: Ebola: Medical Device and Personal Protective Equipment Preparedness

With so much for hospitals to manage related to Ebola preparedness, efforts to manage the details of technology may get lost in the shuffle. This 90-minute interactive webinar, which took place in December 2014, gave an overview of Ebola equipment preparedness.

Checklist: Equipment-Related Preparedness for Ebola

If your hospital has to treat patients with Ebola, there are a host of equipment-related issues to address to keep your staff and patients safe. Here's a look at the most important ones.

EQUIPMENT NEEDS

In any disease outbreak or other public health crisis, a key need is for equipment to defend staff and patients against infections and to help affected individuals breathe. Here are resources that help explain which devices to use and provide alternative sources for such equipment in times of shortage.

Respiratory Equipment

Automatic Gas-Powered Resuscitators: What Is Their Role in Mass Critical Care?

Although automatic gas-powered resuscitators may seem like a wise choice for ventilating patients in mass critical care scenarios, ECRI recommends against stockpiling the devices for this purpose. Find out why in our Evaluation.

Evaluation: Portable/Transport Ventilators

Today's portable ventilators often have advanced features rivaling full-size units. But sometimes a simpler design is better. This article will help you find a model that meets your needs.

MaxAir CAPR System (Syntech International) for Preventing Infectious Agent Transmission

The MaxAir CAPR (Controlled Air-Purifying Respirator) System is a loose-fit, powered air-purifying respirator (PAPR) intended to be worn (e.g., by healthcare workers) to prevent transmission of infectious agents (e.g., anthrax, bacterial meningitis, influenza, tuberculosis) to patients or medical staff.

Alternative Suppliers

As the number of patients diagnosed with COVID-19 rises rapidly, hospitals in the hardest-hit areas of China are looking for alternate suppliers of certain personal protective equipment (PPE), such as goggles, masks, and gowns. Although it was mandated after the SARS outbreak in 2012 that facilities have adequate supplies of items such as these on hand for an infectious outbreak, in reality there seems to be a shortage.

The following are comprehensive directories of go-to sources to supplement the usual suppliers.

Alternate Supplier List: Personal Protective Equipment—Organized by equipment type: respirators, shoe covers, masks, etc.

Emergency Preparedness Device List—Organized according to ECRI's Universal Medical Device Nomenclature System (UMDNS) device terms.

CLEANING AND DISINFECTION

Disinfectant Concentrations and Contact Times for EPA's List of Products Effective against Novel Coronavirus SARS-CoV-2, the Cause of COVID-19

This table lists disinfectant concentrations and contact times for EPA's List N, which covers antimicrobial products effective against novel coronavirus SARS-CoV-2. This will help you ensure you're using an effective disinfectant at a sufficient concentration and contact time to kill SARS-CoV-2, the cause of COVID-19.

IT CONCERNS

Management Checklist for Teleworking Surge During COVID-19 Response (may not display properly in Internet Explorer)

A checklist and related resources from the Healthcare and Public Health Sector Coordinating Council intended to ensure that bandwidth and cybersecurity needs are met during a teleworking surge resulting from wide-scale public emergencies such as COVID-19.

OTHER ECRI EMERGENCY PREPAREDNESS RESOURCES

Coronavirus Outbreak Preparedness Center

A collection of infection control and outbreak preparedness resources for hospitals and healthcare providers.

Emergency Preparedness: Planning and Mitigation

Emergency preparedness includes planning, preparation, mitigation, response, and recovery. This guidance article discusses planning and mitigation. Organizations should take an all-hazards approach to planning for facility- and community-based natural and human-made disasters. Participation in annual community-based drill exercises is mandatory.

RELEVANT ESSENTIALS PAGES FOR ECRI MEMBERS

The following resources are available to ECRI members and provide Evaluations and Guidance on respiratory care and infection control. They are just two of many Essentials pages linking to a vast array of ECRI product Evaluations, safety guidance, and purchasing advice. Members of certain ECRI programs have access to all of our Essentials pages and the content they provide.

Infection Reduction Technologies: The Essentials

This is a collection of resources on devices and systems designed to reduce healthcare-associated infections, including product Evaluations and ratings, purchasing guidance, and safety information.

Ventilators: The Essentials

This is a collection of resources on ventilators, including product Evaluations and ratings, selection and purchasing guidance, safety information, and help in understanding the technology.

TOPICS AND METADATA

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[Equipment and Facility Planning](#)

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[Physician Preference Items](#)

Caresetting

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Risk Manager

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