NETEC COVID-19 Webinar Series:

Challenges, Strategies, and Lessons Learned: COVID-19 in EMS
Welcome

Ted Cieslak, MD, MPH
Welcome: Ted Cieslak, MD, MPH

Challenges, Strategies, and Lessons Learned: COVID-19 in EMS: Alex Isakov, MD, MPH, FACEP, FAEMS

NETEC Resources: Ted Cieslak, MD, MPH

Questions and Answers with NETEC
Welcome

National Emerging Special Pathogens Training and Education Center

Mission Statement

To increase the capability of the United States public health and health care systems to safely and effectively manage individuals with suspected and confirmed special pathogens

For more information

Please visit us at www.netec.org
or email us at info@netec.org
NETEC Overview

**Assessment**

Empower hospitals to gauge their readiness using
Self-Assessment

Measure facility and healthcare worker readiness using
Metrics

Provide direct feedback to hospitals via
On-Site Assessment

**Education**

Provide self-paced education through
Online Trainings

Deliver didactic and hands-on simulation training via
In-Person Courses

COVID-19 focused Webinars

**Technical Assistance**

Onsite & Remote Guidance

Compile

Online Repository of tools and resources

Develop customizable
Exercise Templates based on the HSEEP model

Provide
Emergency On-Call Mobilization

**Research Network**

Online Repository
Built for rapid implementation of clinical research protocols

Develop Policies, Procedures and Data Capture Tools to facilitate research

Create infrastructure for a Specimen Biorepository

Cross-Cutting, Supportive Activities
Challenges, Strategies, and Lessons Learned: COVID-19 in EMS

Alex Isakov, MD, MPH, FACEP, FAEMS
EMS and COVID-19

Keeping you Safe

Standard and Transmission Based Precautions
Hand washing
Gloves
Mask, eye protection, face shield, gown
Cleaning and Disinfection
  - Patient-care equipment
  - Environmental
  - Linen
Sharps management
Occupational health
<table>
<thead>
<tr>
<th>Transmission Based Precautions</th>
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<tbody>
<tr>
<td><strong>CONTACT</strong></td>
</tr>
<tr>
<td>Gown, dedicated medical equipment, private room</td>
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<tr>
<td><strong>DROPLET</strong></td>
</tr>
<tr>
<td>Mask patient, mask provider, 6-foot stand off distance</td>
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<tr>
<td><strong>AIRBORNE</strong></td>
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<tr>
<td>Mask patient, N-95 respirator for provider, airborne isolation room</td>
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</table>
Viral respiratory illness caused by a novel coronavirus

First reported in Wuhan City, China in December 2019

Declared a pandemic on March 12, 2020

Over 8.1 million cases and over 440,000 deaths – 6/17/2020

Image Credit: NIAID-RML - This scanning electron microscope image shows SARS-CoV-2 (orange)—also known as 2019-nCoV, the virus that causes COVID-19—isolated from a patient in the U.S., emerging from the surface of cells (gray) cultured in the lab
Transmission through contact with infectious respiratory secretions

Asymptomatic shedding
- Percent infections asymptomatic estimated to be 20-50% (ASPR & CDC)
- “Current Best Estimate” = 35% asymptomatic

Incubation period
- 2-14 days (typically 5 days)

Image Credit: NIAID - This scanning transmission electron micrograph of SARS-CoV-2 virus particles, isolated from a patient
80% of the cases are considered mild

• “Current best estimate” of CFR from CDC:
  • 0-49 years: 0.05%
  • 50-64 years: 0.2%
  • 65+ years: 1.3%
  • Overall: 0.4%

Currently observed in the US - 5.5% CFR
COVID-19

Underlying medical problems associated with increased risk of severe disease

Patients may progress to more serious illness in the second week of infection
COVID-19

Treatment – per NIH panel

- Supportive care
- Investigational antiviral agent remdesivir for hospitalized patients with severe COVID-19
- Panel recommends against the use of chloroquine or hydroxychloroquine except in a clinical trial

Vaccine

<table>
<thead>
<tr>
<th>Phase</th>
<th>Preclinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Approval</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>125+</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>0</td>
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</table>

Vaccines not yet in human trials
Vaccines testing safety and dosage
Vaccines in expanded safety trials
Vaccines in large-scale efficacy tests
Vaccines approved for use

Graphic: NYT
EMS and COVID-19

Identify, Isolate and Inform: Identify

Risk assessment:

What Is the likelihood that this patient has COVID-19

- Signs and symptoms
- Exposure history

EMD screening and field screening
Identify, Isolate and Inform: Identify

EMD screening and action:

**MEDICAL DIRECTOR's SPECIAL PROTOCOL 36 INSTRUCTIONS**

Request To Move Patient to Entry:
“Given this COVID-19 outbreak, we would like to minimize all exposures while facilitating care to our patients. Is it possible to safely move the patient close to the entryway of the residence/business where our medics can further evaluate?”

IF YES: “Thank you for your assistance. Where should our medics meet the patient? Add CAD note.

IF NO: “We understand. We will need someone to meet the medic and direct the medic to the patient, our personnel will be wearing protective equipment during their assessment to minimize risk.”

**EVERY CALL Eff. 04/17**

Protocol 36 Contact Question:
“Has the patient come in contact with anyone who has been diagnosed with COVID-19 (Coronavirus) in the past 14 days?”

CAD Shortcuts: YCOVID = Yes / NCCOVID = No / UCOVID = Unknown

**EVERY P36 CALL**

Protocol 36 Special PDI:
“Place a face / surgical mask on the patient if available.”

Graphic Credit - Grady EMS
Identify, Isolate and Inform: Identify

EMS and COVID-19

Signs and symptoms - CDC

- Fever or chills (less than half have fever at the time of presentation)
- Shortness of breath or difficulty breathing
- Cough
- New loss of taste or smell

- Fatigue
- Headache
- Sore throat
- Diarrhea

- Muscle or body aches
- Congestion or runny nose
- Nausea or vomiting
EMS and COVID-19

Identify, Isolate and Inform: Isolate

- 6-foot stand-off distance
- Mask the patient for source control
- Limit the number of HCWs making patient contact to the minimum required to safely manage the patient
- Restrict contact with patient unless in appropriate PPE

Precautions

Standard + Contact + Airborne + Eye protection
<table>
<thead>
<tr>
<th>Inform</th>
<th>Other responders about the need to implement infection prevention procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inform</td>
<td>Staff at receiving facility</td>
</tr>
<tr>
<td>Inform</td>
<td>Supervisor/medical director/local public health agency, as directed by local protocol</td>
</tr>
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</table>
EMS and COVID-19

EMS Biosafety Transport

Development and implementation of:

- ✓ Environmental controls
- ✓ Administrative policies
- ✓ Work practices
- ✓ Safety equipment

*Education, training, competencies*

To prevent transmission of biological agents to workers, other persons and the environment
EMS and COVID-19

EMS Biosafety Transport

Environmental Controls
• Separate driver compartment from patient compartment
• Air on high without recirc – exhaust fan on high

Policies and procedures
• Limit exposure of personnel
• Keep driver compartment sterile – driver wears N95 respirator
• No family members in ambulance except with minors – mask the family member
• Mask the patient for source control
• Modified clinical guidelines

Safety equipment
• PPE (driver and those attending the patient)
• Exhaust filters on BVM or ventilator
What About The Use Of Isopods?
Mission Recovery

Cleaning and disinfection of ambulance
- Wear appropriate PPE when cleaning and disinfecting the ambulance
- Keep doors open, and ventilation systems turned on
- Clean visibly soiled surfaces
- Use EPA registered, hospital grade disinfectants
  - Examine claims against pathogens
  - Examine contact time

Waste management – standard SOP – red bag
EMS and COVID-19

Post-mission Health Awareness

Healthcare personnel should be alert for fever or respiratory symptoms for one incubation cycle.

If symptoms develop, self-isolate and notify supervisors or public health per protocol to arrange for an evaluation.

Mental health and wellness

Patient test results?
Clinical Considerations

Provide quality patient care

- Balance needs of patient with the safety of the care team and the public
- Mask patient - source control
- Limit aerosol producing procedures
  - Nebs, BVM, CPAP, BiPAP, suction, intubation, CPR
- Airway management
- Proning
- Cardiac Arrest
- Termination of resuscitation guidelines – no ROSC?
Case series – 7 patients transported prone – 6 by helicopter

- FiO2 100% with median PEEP 16 (range 14-20)
- Weight range 58-131 kg
- Median transport time 36 minutes
- No deaths or major incidents

Operations

- Medical control consult on each transport
- Brief trial to ensure patient can tolerate
- All transported in CMV mode
- All with sedation and NMB
Observations and Outcomes

Observations

- Nasal pressure ulceration
- Facial and periorbital edema
- Secretions draining from ETT

Outcomes

- No deaths, no episodes of hypotension, no ETT or line dislodgement
- 2 patients required frequent change of CO2 capnography lines

Cardiac arrest

- Effectiveness of prone CPR not known
- Recommended to avoid dislodgement of airway and equipment disconnection
- Hands in standard position over the T7/10 vertebral bodies

PREHOSPITAL EMERGENCY CARE 2016;20:643-647

10.1161/CIRCULATIONAHA.120.047463
Coronavirus Impact

Cardiac Arrest

Month (2020)

Rate (%)
Coronavirus Impact

Cardiac Arrest

Month (2020)

Rate (%)

- Bystander CPR (home/residence only)
- Bystander CPR (public location only)
EMS and COVID-19 – CARDIAC ARREST

Edelson et al.: Interim Guidance for Life Support for COVID-19

- Appropriate PPE
- Limit number of responders
- Consider mechanical CPR devices
- DL vs VL vs SGA
- Use of HEPA exhaust filters and minimize circuit disconnects
- Consider likelihood of resuscitation against risk to rescuers
- Lay rescuers
  - Should perform at least hands-only CPR
  - Face mask or cloth covering the mouth and nose of the rescuer and/or victim
  - Use AED
- If ROSC has not been achieved after appropriate efforts in the field, consider not transporting
  - Low likelihood of survival
  - Additional exposure to prehospital and hospital providers

10.1161/CIRCULATIONAHA.120.047463
EMS and COVID-19

EMS/Hospital Interface

- Patient hand-off
  - EMS/hospital coordination

- Ongoing aerosol producing procedures
  - Non-invasive ventilation
  - CPR

- Medical control and local termination of resuscitation guidelines
EMS and COVID-19

Optimize PPE Supply

N95 respirator
- Extended Use and Limited Reuse (5 times)
- Alternative respirators
- Aerosol producing procedures

Eye protection
- Goggles, face shield
- Disinfection and reuse

Gown conservation
- Laundered gowns
- Reserve for close contact
- Reserve for aerosol producing procedures

Limit number of providers making contact
EMS and COVID-19

Summary

- Provide good supportive care for the patient
- Protect healthcare personnel (EMS+hospital)
- Protect members of the community
<table>
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<tr>
<th>Resources</th>
<th>Description</th>
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| [CDC](https://www.cdc.gov) | Centers for Disease Control and Prevention (CDC) 24/7: Saving Lives, Protecting People™  
Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for 2019-nCoV in the United States |
| [EMS Infectious Disease Playbook](https://asprtracie.hhs.gov) | ASPRTRACIE.HHS/GOV |
| [NETEC eLearning Center](https://courses.netec.org) | EMS Biosafety Transport Courses  
Awareness, Operator and Technician |
| [ems.gov](https://www.ems.gov) | COVID-19 Resources for EMS |
NETEC Resources

Ted Cieslak, MD, MPH
NETEC is Here to Help

NETEC will continue to build resources, develop online education, and deliver technical training to meet the needs of our partners.

Ask for help!

Send questions to info@netec.org - they will be answered by NETEC SMEs

Submit a Technical Assistance request at NETEC.org
Questions and Answers