



NATIONAL WILDFIRE COORDINATING GROUP

Infectious Diseases Guidelines For Wildland Fire Incident Management Teams

Overview

By the very nature of wildland fire responses, personnel will come in contact with sick people; a certain proportion of those sick people will have contagious diseases. The close, overlapping living conditions of an Incident Command Post (ICP) lends itself to rapid spreading of contagious microorganisms, as witnessed by the common outbreaks of “camp crud”. Outbreaks also have a history of spreading from incident to incident as people are reassigned, posing additional challenges for Incident Management Teams (IMT).

The 2009 outbreak of Norovirus on the Red Rock Fire in Nevada was caused by a virus which caused gastroenteritis in fire personnel. The Center for Disease Control (CDC) defines viral gastroenteritis as an inflammation of the stomach and small and large intestines that can be caused by a variety of viruses that result in vomiting or diarrhea. Viral gastroenteritis is most commonly referred to as the "stomach flu," although it is not caused by the influenza viruses.

The main symptoms of viral gastroenteritis are watery diarrhea and vomiting although affected persons may also experience headaches, fever, and abdominal cramps ("stomach ache"). In general, the symptoms begin 1 to 2 days following infection, and may last anywhere from 1 to 10 days, depending on which virus causes the illness. Viral gastroenteritis is contagious and is spread through close contact with infected persons (for example, by sharing food, water, or eating utensils). Individuals may also become infected by eating or drinking contaminated foods or beverages.

To understand the principles of prevention, it is important to understand how diseases are spread. Infectious diseases are caused by microorganisms—usually bacteria or viruses, but sometimes fungi and parasites. They spread from person to person by several specific mechanisms:

- **Direct contact** with the infected person—that is, by casual or intimate touching.
- **Indirect contact** touching a contaminated surface with an open cut or sore on your hand.
- **Inhalation** of infected droplets, such as those released into the surroundings when a person coughs or sneezes.
- **Puncture** by a contaminated needle or other sharp instrument.
- **Transfusion** of contaminated blood products.
- **Vectorborne.** A vector is a vehicle that transmits infection from a reservoir to a host. For example, a mosquito infected with West Nile virus that bites a susceptible person may transmit the disease.

Pre-planning is very important for dealing with infectious diseases and pre-planning the need for appropriate personal protective equipment (PPE). The National Fire Equipment System (NFES) is adding two contagious disease barrier kits to the NFES inventory for use on incidents. The barrier kits are:

- The NFES 1660 – Individual Contagious Disease Barrier Kit is designed for Medical Unit’s to have on-hand in order to assist in the treatment of potential contagious individuals.
- The NFES 1675 – Multi-Person Contagious Disease Barrier Kit was developed to provide protection for up to 10 people.

Special note: Incident medical unit leaders will need to determine the minimum initial stocking levels of these kits for their incident based on the incident’s staffing levels and other perceived risk factors.

Special Considerations

Planning a medical incident within an incident may be appropriate for the following reasons: the local health system may not be able to handle the influx of a large number of sick people, transporting infected people back to their home or other off-site facilities may be restricted due to quarantine, infected people may not be allowed to use public transportation and may not be well enough to drive long distances until they recover. Other factors may complicate the situation for IMTs such as: IMT members charged with the support of the responders may become infected, ICP facilities may be quarantined and/or require special disinfection, the incident continues to require staffing, and the event may require creating other “clean” facilities with non-affected staff personnel.¹

The following guidelines were developed from fire medical lessons learned during the 2009 outbreak of Norovirus on the Red Rock Fire in Nevada. These steps are recommended if an infectious disease is suspected during a wildland fire response.

Initial Reports and Suspicions

In the event that an IMT is confronted with an infectious disease outbreak, the following initial steps are recommended.

1. Record all symptoms and the times of successive visits to incident medical units by afflicted personnel.
2. If there is a “rush” of patients with symptoms resembling dehydration, determine where those individuals are located and if they have been in common areas. If the patients are from different functions across the incident and are experiencing similar symptoms, evaluate and eliminate the possibility of the individuals becoming dehydrated due to strenuous activity rather than a viral infection.

¹ Flu Incident Within Incident-Joe Wood DPIC-CIIMT 4

3. Immediately notify the Incident Commander, Incident Safety Officer, Logistics Chief, Finance Section Chief, and Incident Public Information Officer if an outbreak of an unknown nature is suspected.
4. Notify the Agency Administrator of the possibility of an outbreak and provide them with your best estimate of the situation. Ensure the Agency Administrator makes the proper contacts within his or her notification protocols. Isolation or quarantining an area may be advised.
5. When an infectious disease outbreak is suspected, after documenting the number of patients and common signs and symptoms, notify the local public health department and request assistance. Contact information for public health agencies can be obtained from state EMS offices. (Attachment 1) An outbreak of viral gastroenteritis should be suspected when two or more individuals have vomiting, diarrhea, stomach cramps, and headaches within one to two days of each other. (Special Note: The Red Rock case was within hours of each other, with multiple victims experiencing symptoms within three hours of each other).
6. Direct media questions and reactions to the outbreak to the incident information officer.
7. Infection control measures should not be delayed pending definitive diagnosis.

When the Event Turns into a Confirmed Outbreak

The following recommendations are suggested for IMTs when fire personnel illnesses have been confirmed as an infectious disease outbreak.

1. Coordinate with the Agency Administrator on who will have the authority to demobilize and/or isolate the incident.
2. Develop or use a pre-prepared communication strategy and assign responsibilities for dissemination of information. Maintain a high level of timely and accurate information flow. Coordinate with the host unit as to how the information flow will be handled and who will serve as the point-of-contact.
3. Initiate controls for elimination or reduction of cross infection. This may require isolation of infected individuals. Be prepared to provide separate feeding, sanitation, showering, and sleeping facilities away from the uninfected population at ICP or spike camps. Isolate areas where a vomiting or diarrhea incident has occurred by 25 feet. Absorb or remove the material as possible, then clean the affected areas with detergent and hot water **PRIOR** to disinfecting. Dispose of all used cleaning materials in plastic waste bags-**identify them as such.**

Disinfect using the recommended cleaning agent of chlorine solution (1 part bleach per 10 parts water). Dispose of gloves, masks, and other contaminated items in plastic waste bags. Personnel involved in cleaning must wear the appropriate PPE and their wash hands thoroughly using soap and water and dry them thoroughly.

Remove all “community” ice chests, coolers, or other common items available to the general population. Have one controlled point for distribution of cold liquids and supplementary food items.

4. The Medical Unit Leader (MEDL) will contact the Compensations Claims Unit Leader (COMP) or the FSC if a COMP is not available to ensure the appropriate workers compensation paperwork is completed if the employee chooses to file paperwork. The MEDL and COMP will follow standard operating procedures for arranging transportation from the incident to the medical facility and return. The COMP or FSC will determine the appropriate methodology for payment; workers compensation or Agency Provided Medical Care. Any arrangements to isolate the individuals will be handled through a resource order if necessary until the individual can be transported home or return to duty.

5. The servicing local dispatch and Geographic Area Coordination Center (GACC) should be advised of the situation, and the adjustments made for demobilizations, reassignments, or holds associated with the IMTs. Infectious diseases such as Norovirus can remain virulent and active in a “recovered” patient for up to 72 hours. The incubation period from exposure to overt symptoms can be up to 12 hours. This may affect how IMTs release crews and personnel into the workforce pool, as well as the team itself.

6. Incident medical units should consider implementing these guidelines specific to the outbreak. Guidelines should include, but are not limited to;

- Request assistance from medical unit personnel to help evaluate if outside help may be needed from local or regional medical services.
- Coordination with local public health authorities may become necessary.
- Plan on overstaffing the medical unit as the disease runs its course.
- Provide respiratory and hand protection for all staff involved and wash regularly.
- Limit the medical unit staff from going between affected and unaffected areas.
- Clean patient-occupied areas with the same solution mentioned above.
- Wash the handles and sink areas of wash basins frequently. If possible, avoid touching these areas when in use to prevent cross-contamination.

7. Isolate and contain all contaminated sleeping bags, clothing, tents, etc. that may become soiled through the course of the individual’s distress. Determine which items are the individual’s personal items versus incident issued and separate accordingly. Collection of these items should be performed with the person wearing the appropriate PPE for handling. Place the items in bags and tag the bags with information that they have been exposed to a contagious disease.

The incident medical unit or supply unit leader should communicate with the servicing cache and inform them of the situation. The servicing cache will provide any additional instructions or assistance. A Cache Demob Specialist should be assigned to the incident to facilitate the proper handling of all items for return to the cache.

The cache issued items can be cleaned through their refurbishing process. Cache personnel will make a determination upon inspection if the items are not able to be refurbished and they will dispose of those items.

The medical unit leader should contact the local health department for the standards on cleaning personal items at the home unit if needed.

8. Work with public health officials to determine any additional control measures. Public health officials may exercise authority in further management of the incident.

9. Be prepared to deal with the National Contract Mobile Food Service providers and shower contractors. Notify them of the potential for stop work orders, creation of separate facilities for infected and non-infected personnel and requests for cooperation from public health officials.

The food unit leader and facilities unit leader will be key contacts during this process. Food and water samples will most likely be requested, as well as, food unit inspection records, temperature logs, etc. Be prepared to share the Mobile Food Service contract requirements with the public health officials, explaining procedures and contract stipulations put in place to assure quality and controls.

Recommended Steps for Managing the Outbreak

The following steps are recommended for containment and control:

1. The separation of infected personnel may be complex, depending on how soon the problem is identified and measures put into effect. There will need to be a separate isolation area set up away from the general population and managed until the infection has run its course. Affected personnel will need to be monitored by appropriate medical staff that do not cross back to assist with the general population. Public health resources may be able to assist with this planning.

For example, Norovirus, the average time it takes from the first exposure to when signs of distress are noticeable is approximately 12 hours and recovery time may be 12 to 24 hours, depending on the physical condition of the individual. The virus may be communicable for up to 72 hours after the individual shows no additional signs of distress. People assigned to the incident should be kept from work during the 72-hour period.

2. Destroy any exposed food, food that may have been contaminated, and any food handled by an infected individual. This may be difficult to monitor, as the food handlers may have been exposed before any symptoms are seen.

3. Furlough any food handlers with the gastro intestinal symptoms for at least 72 hours after the symptoms stop.

4. Using appropriate PPE, clean and disinfect any hard surfaces (table tops, chairs, etc.) immediately upon suspecting the viral outbreak. This includes common eating areas-the caterer's facilities, as well as the kitchen unit itself.

Clean door handles, toilet facilities, showers, communication equipment and other contact surfaces that infected personnel would handle.

5. Provide cleaning and disinfecting supplies, appropriate PPE and directions for contaminated vehicles, equipment, and tools to all crews who have experienced infection. The recommended cleaning agent is chlorine solution (1 part bleach per 10 parts water) to be sprayed on all affected surfaces and air dried. Liquid bleach products should be used, as they meet public health department specifications.

6. Expect to logistically support all individuals who are in recovery until they show no further signs or symptoms. This may vary between individuals anywhere from 24 to 72 hours. Assistance from public health officials may be requested in determining release times. A person in recovery may still have the ability to infect others. This may cause issues or problems with release or reassignment - even the replacement of an IMT. Work with the servicing GACC and Agency Administrator on how to deal with the unavailability of infected resources.

7. Rigorous sanitary and personal hygiene practices are important to keeping the spread of the infectious disease to a minimum. Insist that adequate hand washing and sanitation facilities are available in both general population and isolation areas. Emphasize that proper hand washing and cleaning up after one's self is stressed to all incident personnel. There is no guarantee that the individual introducing an infectious disease into a population is aware of their status as a carrier. No amount of emphasis on personal hygiene can be too much.²

Summary

Prevention and rapid intervention for handling infectious diseases will help ensure that incident medical episodes are contained and controlled. As stated earlier, pre-planning is critical. Contacting the appropriate state EMS office will provide the necessary information for that state's reporting requirements. Working with state and local agencies usually opens the channels

² Norovirus Protocols-Mike Whalen, ICT2-Whalen Great Basin T-2 IMT

for receiving the resources needed to manage infectious disease events occurring on wildland fire incidents.

The Risk Management Committee's Incident Emergency Medical Task Group has added a Fire Medicine Lessons Learned section to their web page to promote information exchange between incident fire medical personnel. The website is located at:

<http://www.nwcg.gov/branches/pre/rmc/iemtg/index.html#>

Attachment 1

State EMS Office Contact List

	Phone	Fax		Phone	Fax
Alabama	334-206-5383	334-206-5260	Montana	406-444-3895	406-444-1814
Alaska	907-465-3027	907-465-4101	Nebraska	402-471-2158	402-471-0169
Arizona	602-364-3150	602-364-3568	Nevada	775-687-7590	775-687-7595
Arkansas	501-661-2262	501-280-4901	New Hampshire	1-800-735-2964	603-271-4567
California	916-322-4336	916-322-8765	New Jersey	609-633-7777	609-633-7954
Colorado	303-692-2980	303-691-7720	New Mexico	505-476-8200	505-476-8201
Connecticut	860-509-8000	860-509-7987	New York	518-402-0996	518-402-0985
Delaware	302-744-5400	302-744-5429	North Carolina	919-855-3935	919-733-7021
District of Columbia	202-671-4222	202-671-0707	North Dakota	701-328-2388	701-328-1890
Florida	850-245-4440	850-488-9408	Ohio	614-466-9447	614-995-7012
Georgia	404-679-0547	404-679-0526	Oklahoma	405-271-4027	405-271-4240
Hawaii	808-733-9210	808-733-8332	Oregon	971-673-0520	971-673-1299
Idaho	208-334-4000	208-334-4015	Pennsylvania	717-787-8740	717-772-0910
Illinois	217-785-2080	217-524-0966	Rhode Island	401-222-2401	401-222-3352
Indiana	317-232-3986	317-232-3895	South Carolina	803-545-4204	803-545-4989
Iowa	800-728-3367	515-281-0488	South Dakota	605-773-4031	605-773-6631
Kansas	785-296-7296	785-296-6212	Tennessee	615-741-2584	615-741-4217
Kentucky	866-97KBEMS	859-256-3128	Texas	512-834-6700	512-834-6736

Louisiana	225-763-5700	225-763-5702	Utah	801-538-6435	801-273-4162
Maine	207-626-3860	207-287-6251	Vermont	802-863-7310	802-863-7577
Maryland	410-706-5074	410-706-4768	Virginia	804-864-7600	804-864-7580
Massachusetts	617-753-7300	617-753-7320	Washington	360-236-2828	360-236-2829
Michigan	517-241-3024	517-241-9458	West Virginia	304-558-3956	304-558-8379
Minnesota	651-201-2800	651-201-2812	Wisconsin	608-266-1568	608-261-6392
Mississippi	601-576-7380	601-576-7373	Wyoming	307-777-7955	307-777-5639
Missouri	573-751-6356	573-751-6348			