Howard County Department of Fire and Rescue Services

SPECIAL ORDER

SPECIAL ORDER 2014.44

Transport of Infectious Disease Patients Under Investigation for Ebola

EMERGENCY SERVICES BUREAU

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Expiration Date:

1 **OVERVIEW**

2 With the annual occurrence of influenza season, and with the recent developments regarding the Ebola virus, we are all
3 reminded that the manner in which we approach infection control incidents is of the utmost importance. Many within the
4 Howard County Department of Fire and Rescue (DFRS), including the Office of the Medical Director, the ESB, and BOSH, are
5 remaining vigilant to emerging issues related to infection control. Of particular concern is the Ebola outbreak in western
6 Africa, and the subsequent cases that have occurred here in the United States. This policy and procedure outlines the
7 preparation, mobilization, and demobilization required for care and transport of suspected and known Ebola infectious disease
8 patients.

9 **DEFINTIONS**

10 - **Seasonal Flu -** Influenza is spread by cough, sneeze, or by common contact with virus-contaminated surfaces. PPE
11 includes face masks for droplet protection, unless aerosolized medication is given, then use of an N-95 mask is
12 indicated *(1)*.
13
14 - **Enterovirus D68 -** It spreads by cough, sneeze, or by common contact with virus-contaminated surfaces. PPE
15 includes face masks for droplet protection, unless aerosolized medication is given, then use of an N-95 mask is
16 indicated *(2, 3)*.
17
18 - **Ebola -** Ebola Viral Disease (EVD). Ebola is caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus*.
19 There are five identified Ebola virus species, four of which are known to cause disease in humans. Ebola is
20 transmitted by contact with blood or body fluids, including blood, urine, feces, sweat, vomit, of an infected and
21 symptomatic patient. The Ebola virus can remain active on contaminated surfaces for up to six days in optimal
22 conditions. The Ebola virus can be killed by using hospital grade disinfectants or 1:10 bleach. Current CDC
23 recommendations for health care provider PPE include gloves, a gown, eye protection, and either a facemask for
24 droplet protection or N95 face mask if respiratory procedures (intubation, nebulization) are performed *(5)*.
25
26 - **Standard (Routine) PPE -** Gloves, and a surgical mask and eye protection if advanced airway procedures are
27 instituted.
28
29 - **Respiratory Droplet PPE -** Standard (routine) PPE with the addition of a surgical mask to protect against respiratory
30 droplets and fluid splashes. When nebulizer treatments of advanced airway procedures are being performed, an N95
31 mask is sometimes indicated.
32
33 - **Person Under Investigation (PUI)** – A person who meets the CDC established criteria for EVD 1) symptoms and 2)
34 epidemiological risk factors. Symptoms include a fever (101.5 F, 38.6 C), severe headache, muscle pain, vomiting

35 diarrhea, abdominal pain, or unexplained bleeding. Epidemiological risk factors include travel within the past 21 days
36 to current Ebola outbreak countries (Liberia, Sierra Leone, or Guinea. Senegal and Nigeria remain on the World
37 Health Organization (WHO) list as well, however no new cases have been identified for over a month in either of
38 those two countries, and their status may soon be changing (9)), or exposure to body fluids of a known EVD patient
39 within the past 21 days (4).
40
41 - **Close Contact** - Close contact is defined as being within one meter of an EVD patient, or being within the patient's
42 care area or room for a prolonged period of time. Brief interactions such as walking by a person or moving past their
43 room do not constitute close contact *(4)*. The risk is considered "extremely low" after having close contact with a
44 person who is sick with Ebola unless there is unprotected direct contact with body fluids *(5)*.
45
46 - **Code 68 -** A DFRS radio code used to denote that the incident involves a patient that is believed to meet the
47 established Ebola Person Under Investigation (PUI) criteria, as established by the Centers of Disease Control and
48 Prevention.

49 ## GENERAL

50 The information contained in this procedure is intended to be consistent with the EMS and PSAP interim guidance given by the
51 Centers for Disease Control and Prevention for management of patients with known or suspected EVD *(5)*. In some cases, our
52 local implementation of infection control procedures will exceed those recommended by the CDC.
53
54 **PATIENT SCREENING:**
55 - The Howard County Public Safety Answering Point (Howard Communications) will begin to screen callers requesting
56 emergency services for (1) *possible Ebola symptoms* AND (2) *travel to Ebola outbreak countries within 21 days.*
57 - Possible symptoms include
58 - fever (101.5 F, 38.6 C)
59 - severe headache
60 - muscle pain
61 - vomiting diarrhea
62 - abdominal pain
63 - unexplained bleeding
64
65 - Current Ebola outbreak countries include (per the WHO)
66 - Liberia
67 - Sierra Leone
68 - Guinea
69 - Senegal (to be possibly removed from the list October 17)
70 - Nigeria (to be possibly removed from the list October 20)
71
72 - An incident involving a patient that has been identified as satisfying both inclusion criteria shall be considered a Code
73 68 incident.
74 - Howard Communications shall transmit an MDT message highlighting the known patient information, and shall notify
75 responding units by radio to check their MDTs for Code 68 information.
76
77

78 **RESPONSE:**

79 - When Howard Communications determines there is a patient that conforms to the Ebola PUI criteria, the incident
80 dispatch will include the following:
81   - EMS Transport unit
82   - Support piece
83   - MDO
84
85 - When a crew on the scene of an EMS incident, having already established close contact with the patient, then
86 determines that a patient meets the criteria for being an Ebola PUI:
87   - If life-saving interventions are indicated for the patient:
88   - If other care providers are on the scene:
89   - The initial care team should, in a professional and compassionate manner, explain to the
90   patient that additional precautions will need to be taken given the patient's situation, and
91   remove themselves from the patient room. This initial care team should then be
92   sequestered, ideally in a private area, and prepared for decontamination.
93   - A second care team should be formed, don the appropriate PPE, and provide the life-saving
94   patient care as quickly as possible.
95   - If other care providers are NOT on the scene:
96   - The initial care team shall don their appropriate PPE and provide life-saving treatment to
97   the best of their abilities. Once other care providers arrive on scene, they should remove
98   themselves from the patient room as above, being replaced by other providers in
99   appropriate PPE.
100
101   - If life-saving interventions are NOT required for the patient:
102   - The initial care team should, in a professional and compassionate manner, explain to the patient
103   that additional precautions will need to be taken given the patient's situation, that there will be a slight
104   delay to their care, and remove themselves from the patient room. This initial care team should then be
105   sequestered, ideally in a private area, and prepared for decontamination.
106   - A second care team should be formed, don the appropriate PPE, and provide patient care as quickly
107   as possible.
108
109   - Personnel from the initial care team who are contaminated (were in close contact without appropriate PPE)
110   will undergo decontamination as described in this policy.
111   - Once decontaminated, personnel will be medically assessed and treated. In certain cases, further
112   actions may be directed by the Howard County Health Officer and Health Department. Actions
113   taken will be in accordance with CDC recommendations and the best available scientific evidence.
114   In some cases, it is possible that some level of quarantine may be indicated.
115
116   - Notify Command or Howard Communications of a Code 68 situation.
117   - Limit the number of people having close contact with the patient as appropriate.
118   - Attempt to sequester family members or bystanders that have already been in close contact with the
119   patient.
120
121 - Incident Command
122   - Incident command shall be established for an incident involving an Ebola PUI.

123 - Once Ebola PUI criteria is confirmed by the EMS crew or MDO
124 - Command shall immediately request a BC response for purposes of command.
125 - Command shall ensure that Howard Communications is immediately aware of the Code 68
126 situation.
127 - If possible, establish direct communications with receiving hospital to ensure appropriate facilities
128 and resources are in place.
129 - Given the anticipated decontamination and additional resource needs, consider HCGH as a
130 receiving hospital if appropriate to patient care.
131 - Howard County General Hospital (410-718-2100).
132 - Request Special Operations to be dispatched to the receiving hospital for decontamination.
133 - Command shall ensure that EMRC is notified prior to the patient leaving the scene (410-706-0036).
134 - Command shall notify the Howard County Health Officer (Health Department) directly from the
135 scene, through Howard Communications, in the case of an Ebola PUI who is found obviously dead,
136 or in the case of potential family member exposure to an Ebola PUI.
137
138 **PROVIDER PPE:**
139 - Howard County DFRS has elected to provide the capacity to exceed the current minimum CDC recommendations for
140 PPE protection against EVD. PPE elements that exceed the current CDC recommendations are denoted with an
141 asterisk (*).
142 - All personnel that don PPE and experience intermediate or close contact with a known or suspected EVD patient shall
143 strictly adhere to the outlined PPE doffing and decontamination procedures.
144 - Intermediate contact is contact of a nature that does not meet the definition for "close contact" but where there is
145 concern for some level of contamination from a patient suspected or known to have EVD infection. Current CDC
146 guidance for this situation is that there is no risk of infection from an Ebola PUI unless close contact occurs.
147 - Standard (routine) PPE (gloves, and face mask if airway procedures performed), or some combination of the
148 following:
149 - Base layer exam gloves*
150 - N95 HEPA Mask*
151 - Eye protection*
152 - Impervious gown*
153 - Second layer exam gloves (optional)*
154 - Arm protection (may be part of gown) (optional)*
155 - Impervious hood (optional)*
156 - Impervious boot covers (optional)*
157 - Shoe covers (optional)*
158 - hair cover (optional)*
159 - Full face shield (optional)*
160
161 - For close contact with patient suspected or known to have EVD infection where "copious amounts of blood, other
162 body fluids, vomit, or feces" are NOT present in the environment *(6),* current CDC recommendations for health care
163 provider PPE include gloves, a gown, eye protection, and either a facemask for droplet protection or N95 face mask if
164 respiratory procedures (intubation, nebulization) are performed *(3).* However, for additional safety, DFRS is
165 instituting the following recommendations:
166 - Base layer exam gloves
167 - Second layer exam gloves*

168 - Tyvek suit*
169 - Rubber WMD boots*
170 - Eye protection
171 - Full face shield*
172 - N95 HEPA face mask*
173

174 • For resuscitation situations or during close contact with patients suspected or known to have EVD infection where
175 copious blood, vomit, feces, or body fluids are in the environment *(6)*, current CDC recommendations for health care
176 provider PPE include gloves, a gown, eye protection, and a N95 face mask *(3).* However, for additional safety, DFRS is
177 instituting the following recommendations:
178 - Base layer exam gloves
179 - Second layer exam gloves
180 - Tyvek suit*
181 - Rubber WMD boots*
182 - Eye protection
183 - Full face shield*
184 - N95 HEPA face mask
185

186 • HCDFRS is deploying several powered air purifying respirators (PAPRs) to EMS supervisor vehicles and to
187 decontamination team vehicles. While use of these devices further exceed the current CDC recommendations for
188 respiratory protection for possible Ebola patients, the devices are being made available for use at the discretion of the
189 incident commander. These devices utilize designated MSA masks and a belt-mounted powered filtration unit to
190 provide filtered air to the provider.
191 • Significant attention must be given to the PPE doffing process in order to prevent accidental contamination. See
192 Decontamination of Personnel section.
193

194 **PREPARATION OF EMS TRANSPORT UNIT PATIENT COMPARTMENT:**

195 • Consider use of a designated DFRS EMS transport unit that has been specially prepared for transport of contaminated
196 patients, if available, and if appropriate given the patient care and timing needs. While this is not necessary, it does
197 provide some advantages for patient isolation and unit decontamination.
198 • Stow any equipment that is not necessary in the patient compartment in compartments that have outside access only
199 or inside sealed compartments, particularly high-value electronic equipment (where decontamination may cause
200 damage) or equipment that would be difficult to decontaminate (e.g. with cloth parts or with irregular non-smooth
201 surfaces).
202 • Any items that need to remain in the patient compartment should be placed inside a sealed bag and protected as
203 much as possible.
204 • Turn on patient compartment exhaust fan.
205 • Keep cabinet doors closed unless supplies are needed. Once a cabinet has been opened, the entire interior must be
206 disinfected.
207 • Consider use of a disposable impervious blanket (if available) on the cot, underneath patient, and consider covering
208 patient and their clothing with either the same or an additional disposable impervious blanket.
209 • Be proactively prepared to contain potential body fluids.
210
211
212

213 **CREW CONFIGURATION:**

214 ● An ambulance operator, who shall not have close patient contact, shall be assigned to drive the ambulance to the
215 hospital.

216 ● No one having had close contact with the patient should drive or be seated in the front seats of the ambulance. All
217 care providers that establish *close contact* with the patient should remain in the patient compartment of the
218 ambulance, or be transported in the patient compartment of another ambulance. These areas can be completely
219 decontaminated.

220 ● There is no scientific grounds for there to be a risk of transmission to a person in the driver position. However,
221 ambulance drivers may choose to don PPE in accordance with the Intermediate contact guidelines within this policy.
222 In all cases, drivers should never sacrifice their field of vision or the ability to safely operate the vehicle. The risk
223 profile does not substantiate this decision.

224

225 **PATIENT CARE:**

226 ● Place a surgical mask on the patient if possible.

227 ● Have patient utilize alcohol-based hand cleaner if feasible.

228 ● All persons in the patient compartment shall be using appropriate PPE.

229 ● Potential limitation of procedures (6).

230 ○ Patients should be provided the care they need, and the procedures that are indicated.

231 ○ Limit use of needles and other sharps as much as possible.

232 ○ Aerosolized (nebulizer) treatments should be avoided.

233 ○ Non-essential (life saving) interventions, such as *elective* IVs or *elective* advanced airway procedures should
234 be deferred to the hospital setting when treatment indications are such that deferral of those procedures is
235 appropriate.

236 ○ Life-saving procedures that are indicated by protocol shall be instituted by providers using the appropriate
237 PPE.

238

239 **DECONTAMINATION OF PERSONNEL:**

240 ● An appropriate DFRS decontamination team shall be assembled at the receiving hospital to assist primary patient care
241 personnel in carefully following the recommended PPE doffing procedure.

242 ● Personnel should assure their issued WMD bags contain all required PPE components.

243 ● Adherence to proper PPE doffing procedures is critical (7). In general, work from clean to dirty. The following order is
244 recommended (7):

245 ○ Outer glove layer

246 ○ Hair protection (if used)

247 ○ Full face shield (if used)

248 ○ Eye protection

249 ○ Gown

250 ○ Arm covers (if used)

251 ○ Leg covers (if used)

252 ○ Shoe covers

253 ○ Respiratory protection

254 ○ Inner gloves

255 ○ Wash hands

256 ● If effective PPE has been in place, once PPE is effectively removed, the only decontamination typically required is
257 hand washing.

258 ● If effective PPE was not in place for a portion of the incident, and a provider was in close contact with an Ebola PUI,
259 decontamination measures for that provider will be commensurate with the level of contamination.
260 ○ Any known areas of contamination should be washed with soap and water (8). Do not use bleach or hospital
261 disinfectant on skin. An alcohol-based gel or foam can be used following washing with soap and water.
262 Shower as required.
263 ○ Clothing should be removed and placed in double red biohazardous waste bags.
264 ○ The bags shall be marked with the providers name, and placed in an overpack drum clearly labeled "FIRE
265 DEPARTMENT - QUARANTINED - DO NOT YET DESTROY".
266 ○ The overpack drum will be supplied by DFRS Special Operations, and placed in the HCGH decontamination
267 room. If the patient ends up not to have Ebola, the clothes could be released.
268 ○ Once decontaminated, a person cannot spread the virus unless they actually contract the virus (develop an
269 infection) and then begin to show symptoms. If infection occurs, symptoms can develop in 2 to 21 days from
270 exposure, with 8-10 days being typical.
271
272 **DECON OF APPARATUS AND EQUIPMENT:**
273 ● The CDC suggested procedure for decontamination of transport units can be found at
274 http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html *(8)*. Although this is listed for
275 hospitals, the principles and cleaning solutions remain the same.
276 ● Summary of suggested decontamination procedure.
277 ○ Don contact and droplet PPE.
278 ○ Carefully remove any plastic coverings used in efforts to reduce contamination and place in biohazard red
279 bags.
280 ○ Carefully bag any linens used in red biohazardous waste bags.
281 ○ All exposed surfaces must be decontaminated, including the interior of any cabinets or compartments
282 opened and any equipment that was present in the patient compartment area.
283 ○ Use an appropriate cleaning solution.
284 ▪ An Environmental Protection Agency (EPA) registered hospital disinfectant with the label claim for
285 disinfection of non-enveloped organisms (e.g. norovirus, rotavirus, adenovirus, poliovirus). If a
286 commercial disinfectant is used, follow the direction set forth by the manufacturer.
287 ▪ A freshly mixed 1:10 bleach to water solution, made by using 5-6% (household) bleach that is less
288 than one year old mixed with cold water in a spray bottle. This solution will remain effective as a
289 disinfectant for 24 hours, then discard.
290 ○ Clean up any visible body fluids.
291 ○ Spray all surfaces with misting of 1:10 bleach, allow to sit for at least 5 minutes and to completely dry
292 ○ Wipe remaining bleach solution as necessary.
293 ○ Wipe all surfaces with hospital disinfectant cloths. This provides a further level of decontamination.
294 ○ Double-bag any red biohazardous waste bags generated.
295 ○ If sharps were generated, seal sharps container and process as biohazardous medical waste.
296
297 ● Quarantine area and guidelines
298 ○ Equipment
299 ▪ Equipment shall be disinfected according to CDC guidelines.
300 ▪ Equipment that cannot be decontaminated shall be appropriately secured within double red
301 biohazardous waste bags or overpack drums in the decontamination area at the hospital. The
302 overpack drum shall be clearly labeled "FIRE DEPARTMENT - QUARANTINED - DO NOT YET

303 DESTROY". The overpack drum will be supplied by DFRS Special Operations, and placed in the HCGH
304 decontamination room. If the patient ends up not to have Ebola, the equipment could be released.
305 - Apparatus
306 - Apparatus and patient compartments shall be disinfected according to CDC guidelines.
307 - Apparatus that cannot be decontaminated shall be secured and appropriately marked by the
308 incident commander. Custody of the apparatus shall be maintained at all times until further
309 direction is received.
310
311 - Waste disposal guidelines
312 - HCGH will assist DFRS with biohazardous waste disposal.
313
314 - Hospital decontamination rooms/areas
315 - Medical waste shall be appropriately secured in double red biohazardous waste bags or overpack drums and
316 secured in designated decontamination areas. Notification to the charge nurse shall be made that waste is
317 present in the decontamination room.
318 - Verification that the Howard County General Hospital decontamination room is in a ready state shall be
319 made by an on-duty EMS supervisor on a daily basis.
320
321 **REPORTING PROCEDURE:**
322 - Personnel that are part of close contact treatment and transport teams for suspected or known EVD patients shall
323 document their position, function, and other aspects of the incident. This shall be done using the First Report of
324 Injury form with an attached memo if necessary. The provider shall confer with their direct supervisor and EMS
325 supervisor in creating the documentation. Within the documentation, at least the following shall be included:
326 - Provider's role for the incident.
327 - Approximate elapsed time in close contact with the patient.
328 - PPE utilized.
329 - If copious body fluids were present.
330 - Classify the situation as one of the following: a high-risk exposure, a low-risk exposure, or a significant
331 treatment event with intact PPE.
332
333 - There are three categories of exposure
334 - High Risk Exposure *(4)*
335 - Percutaneous (e.g. needle stick) or mucous membrane exposure to blood or body fluids of an EVD
336 patient.
337 - Direct skin contact with, or exposure to, blood or body fluids on an EVD patient without appropriate
338 PPE.
339 - Processing blood or body fluids of an EVD patient without appropriate PPE or standard bio safety
340 precautions.
341
342 - Low Risk Exposure *(4).*
343 - Having brief contact (e.g. shaking hands) with an EVD patient while not wearing appropriate PPE
344 - Having been in close contact with an EVD patient while not wearing appropriate PPE. Close contact
345 is defined as being within one meter of an EVD patient, or being within the patient's care area or
346 room for a prolonged period of time. Brief interactions such as walking by a person, or moving past
347 their room, do not constitute close contact.

348
349 - Significant Treatment Event with Intact PPE.
350 - Either of the above situations where appropriate PPE is believed to have been in place, and
351 appropriate decontamination and doffing procedures were adhered to. While this is not considered
352 an exposure, for tracking purposes this will document the event.
353
354 **EQUIPMENT AND SUPPLIES:**
355 - DFRS Personnel should assure that the following supplies are available in a non-contaminated area of the transport
356 unit:
357 - Bleach (5-6%, household)
358 - Assure the bleach is within six months of the manufacture date. For Clorox brand bleach, there is a
359 date code that can be decoded according to directions on their website
360 (https://www.clorox.com/dr-laundry/expiration-date/)
361 - Sprayer for bleach solution
362
363 **PROVIDER PERSONAL PREPARATION:**
364 - Providers should familiarize themselves with some of the many reputable resources regarding EVD and infectious
365 diseases (see References section). As with all things that can be dangerous to us while on-duty, learn about EVD and
366 infectious disease, and how the risks they present can be minimized.
367 - Ensure your issued infection control PPE is in ready condition.
368 - Ensure your assigned unit has adequate supplies of PPE and decontamination supplies.
369 - Ensure the contents of your issued WMD bag are in ready condition. It is a good idea to have a simple change of
370 clothes stowed in it. This is useful practice for a host of possibilities that might occur during a duty shift.
371 - Ensure the information contained in your personal communications devices is frequently backed up. If you choose to
372 carry your phone (or other belongings) on your person while on-duty, anticipate the potential need to have them be
373 quarantined or for them to be possibly damaged during decontamination.
374 - Plan for the possibility that you might be called upon to care for an Ebola PUI. Familiarize yourself with equipment
375 available to you to manage this situation.
376

377 ## REFERENCES

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411 **ATTACHMENTS**

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