Guidance

Recommendation for the Protection of Postal Mail Carrier Workers Delivering Antibiotics Door-to-Door Following an Anthrax Attack

Background and Assumptions:
In the event of a large-scale bioterrorism (BT) attack which has overwhelmed the ability of public health personnel to respond, postal workers would be asked to volunteer to deliver antibiotics along their normal mail routes. While these auxiliary duties would not present risks equivalent to a first responder, they would involve some risks necessitating a specific program for protection.

This scenario assumes that there will be a 24-36 hour delay between the attack occurrence and public health recognition leading to a request for assistance delivering medication to the public. During this time period, it is expected that outdoor airborne levels may reduce dramatically from their original levels due to prevailing meteorological conditions and from spores and/or infectious materials settling out. This scenario assumes that the potential for mail carrier exposure upon re-entering the area will be related to the potential for secondary re-aerosolization. The critical time window needed for distribution of medication will likely occur prior to the full characterization of the level and extent of environmental contamination. Thus, the risk of traveling through the affected community and entering buildings may be largely unknown but will likely be low based on existing information about the risks from secondary aerosolization. This scenario also assumes that regular appropriate emergency response models will be implemented (e.g. use of an Incident Command System) in accordance with and adherence to applicable OSHA regulations and guidelines. As with responses to any terrorism event, all available case-specific information should be taken into account as appropriate to tailor implementation of plans. Effective protection of mail carriers delivering antibiotics under this scenario will require a program involving protective equipment (PPE), as well as disease prevention interventions such as antimicrobial prophylaxis and active immunization. These various approaches are best thought of as complementary to each other. Post-exposure prophylaxis adds an additional layer of protection against breaches in protection provided by PPE.

In the following sections, preliminary recommendations are given for use of personal protective equipment, along with antimicrobial prophylaxis and vaccination. Preceding each recommendation is reference for published CDC guidelines that apply.

1. Personal Protective Equipment for Use by Postal Employees Delivering Antibiotics Door-to-Door Following an Anthrax Attack

Relevant existing guidelines: Interim Recommendations for the Selection and Use of Protective Clothing and Respirators Against Biological Agents
(http://www.bt.cdc.gov/documentsapp/Anthrax/Protective/10242001Protect.asp)

Continued from previous page

Existing CDC guidelines recommend personal protective equipment for first responders and public health investigators responding to BT events. Because these groups may need to enter contaminated areas immediately after recognition of a BT release event, higher levels of respiratory protection and protective clothing are recommended. CDC does not recommend that mail carriers perform initial response entries into contaminated locations within the first 24 hours unless they have first responder training and appropriate personal protective equipment. (CDC does note that depending on the timing of a BT attack, some mail carriers whose primary duty station is within the zone of impact could receive their highest exposure during the initial release, along with other members of the public).

When using respiratory protection, the type of respirator is selected on the basis of the hazard and its airborne concentration. Because biological weapons are particles, they should not penetrate the materials of properly assembled and fitted respirators. The available information on exposures related to secondary re-aerosolization suggests that exposures will be low. Existing recommendations for protecting workers from biological hazards (non-BT events) require the use of half-mask or full facepiece air-purifying respirators with particulate filter efficiencies ranging from N95 (for hazards such as pulmonary tuberculosis) to P100 (for hazards such as hantavirus) as a minimum level of protection. CDC recommends, at a minimum, that N95 respirators should be used and that an appropriate respiratory protection program according to the OSHA Respiratory Protection Standard (29CFR1910.134) be established. This will ensure that volunteer workers receive medical clearance for wearing a respirator and that a respirator fit-test is done to ensure a proper face seal. Without fit testing, persons unknowingly may have poor face seals, allowing aerosols to leak around the mask and be inhaled.

Entry by Postal Mail Carriers is anticipated to occur no earlier than 24 hours after an event. In that time, it is expected that the initial aerosol exposure will be significantly reduced since most of the spores will have settled or have been cleared by meteorological conditions. This factor also will reduce agent contact with exposed areas of skin or outer surfaces of clothing and associated risks (i.e., cutaneous disease, inhalation disease from re-aerosolization from contaminated person surfaces, and the transport of significant quantities of the agent to other locations). Therefore, personal protective equipment in the form of disposable clothes should not be necessary as long as volunteers receive basic training on hygiene and personal decontamination measures to use following the completion of their duties and provisions are in place for these measures. Pre-planned arrangements for decontamination or discard of potentially contaminated clothes (and respirators) will provide an additional measure to ensure against inadvertent home contamination related to possible secondary aerosols. An extra set of clothing or other disposable options is needed as a replacement for clothing and/or uniforms left for decontamination and/or discard. See Meehan et al. (2004) for additional information on the potential for transporting contamination off-site and suggested decontamination approaches.

Continued from previous page

Recommendation for Personal Protective Equipment:

Personal protective equipment is recommended to reduce the risk of inhalation anthrax for postal workers delivering antibiotics door-to-door after 24 hours have passed from the initial BT event release. At a minimum, an N95 respirator should be used. The respirators need to be administered through an established respiratory protection program which includes medical clearance, proper fit-testing and training.

2. Post-exposure Antimicrobial Prophylaxis to Prevent Anthrax among Postal Employees Delivering Antibiotics Door-to-Door Following an Anthrax Attack

Relevant existing guidelines: Decontamination/Cleanup Workers Responding to an Intentional Distribution of *Bacillus anthracis.*
(http://www.bt.cdc.gov/agent/anthrax/exposure/cleanupprophylaxis.asp)

Mail carriers performing auxiliary distribution of antibiotics should themselves be in a program to receive this medication by analogy with existing procedures for decontamination/cleanup employees working in environments known to be contaminated with *Bacillus anthracis* spores. Despite use of appropriate PPE and procedures, however, there will remain a potential for breaches of protection and contamination of the workers. Furthermore, there is potential that such a breach or contamination will not be recognized at the time of occurrence. Finally, while it may be appropriate to conduct medical surveillance of cleanup workers for epidemiologic monitoring of the effectiveness of the protective measures, monitoring may not be reliable enough or timely enough to rely on for clinical decisions regarding the need for antimicrobial prophylaxis on an individual basis.

CDC recommends that mail carriers receive post-exposure antimicrobial prophylaxis, using standard regimens starting in conjunction with or prior to the time of first entry into a contaminated location and continuing for 60 days after final opportunity for exposure.

The current recommended regimens (for adults) are as follows:

ciprofloxacin, 500 mg by mouth every 12 hours
or
doxycycline, 100 mg by mouth every 12 hours

[NOTE that both drugs are considered equally effective for prophylaxis --the listing sequence is not meant to show a preference for one over the other. However, there may be individual-specific factors that may dictate a preferred drug for an individual employee (see below); to the extent possible, these should be identified in advance.]

These antibiotic regimen recommendations may be modified as additional information becomes available.

A medical protocol should be developed to implement prophylaxis, and this program should be under the supervision of an experienced physician. At a minimum, the protocol should include

Continued from previous page

the following components: there should be a pre-deployment assessment, including ascertainment of history of drug allergies, current medication that might interact adversely with the selected prophylactic antimicrobial, presence of any medical conditions that might contraindicate use of the selected antimicrobial, and education regarding potential side effects and how to report symptoms or problems. In addition, worker training (mentioned in section 1) should address recognition of potential breaches in protection and anthrax and its symptoms, emphasizing the need for prompt reporting of both breaches and symptoms. Provision should also be made for periodic re-assessment of workers receiving prophylaxis; this assessment should include both monitoring for evidence of side effects of medications and epidemiologic surveillance for evidence of exposures. There are no available data to guide selection of an appropriate interval for re-assessments, so as an interim guidance this should be left to the professional judgment of the supervising physician. If workers develop adverse side effects during prophylaxis, alternative prophylactic antimicrobial therapies may be available and warranted.

Recommendations for Post-Exposure Antibiotic Prophylaxis:

The recommendation for antibiotic prophylaxis for postal workers should be the same as the published recommendations for cleanup/decontamination workers.

3. Use of Vaccination to Protect Postal Employees Delivering Antibiotics Door-to-Door Following an Anthrax Attack

Relevant existing guidelines: Centers for Disease Control and Prevention. Use of anthrax vaccine in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2000; 49 (RR-15):1-20.

Notice to Readers: Use of Anthrax Vaccine in Response to Terrorism: Supplemental Recommendations of the Advisory Committee on Immunization Practices. (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5145a4.htm)

In December 2000, the Advisory Committee on Immunization Practices (ACIP) released its recommendations for using anthrax vaccine in the United States. Because of subsequent terrorist attacks involving the intentional exposure of U.S. civilians to *Bacillus anthracis* spores and concerns that the current anthrax vaccine supply is limited, ACIP developed supplemental recommendations on using anthrax vaccine in response to terrorism. These recommendations supplement the previous ACIP statement in three areas: use of anthrax vaccine for pre-exposure vaccination in the U.S. civilian population, the prevention of anthrax by postexposure prophylaxis (PEP), and recommendations for additional research related to using antimicrobial agents and anthrax vaccine for preventing anthrax.

Use of Anthrax Vaccine for Pre-exposure Vaccination

In December 2001, ACIP reaffirmed that pre-exposure use of anthrax vaccine should be based on a quantifiable risk for exposure. ACIP recommended that groups at risk for repeated exposures to *B. anthracis* spores should be given priority for pre-exposure

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vaccination. Groups at risk for repeated exposure include laboratory personnel handling environmental specimens (especially powders) and performing confirmatory testing for *B. anthracis* in the U.S. Laboratory Response Network (LRN) for Bioterrorism Level B laboratories or above, **workers who will be making repeated entries into known *B. anthracis*-spore--contaminated areas after a terrorist attack**, and workers in other settings in which repeated exposure to aerosolized *B. anthracis* spores might occur.

Consistent with these recommendations, assuming that the supply of anthrax vaccine is large enough to accommodate the particular terrorist scenario, mail carriers could be offered pre-exposure anthrax vaccine on a priority basis along with other critical responders.

Use of Anthrax Vaccine for Post-exposure Prophylaxis

The Advisory Committee on Immunization Practices (ACIP) and the John Hopkins Working Group on Civilian Biodefense concluded that based on available data, the best means for prevention of inhalation anthrax is prolonged antibiotic therapy in conjunction with anthrax vaccination. In addition, the 2002 Institute of Medicine (IOM) report on anthrax vaccine safety and efficacy also concluded that based on limited animal studies, anthrax vaccine administered in combination with antibiotics following exposure to *B. anthracis* spores may help in preventing the development of inhalational anthrax. Therefore, if supplies of anthrax vaccine are sufficient, CDC recommends that mail carriers receive 60 days of post exposure antibiotics **and** enroll in a program to receive 3 doses of post-exposure anthrax vaccine. The currently available anthrax vaccine (BioThrax™, formerly known as AVA) is not licensed for post-exposure prophylaxis for prevention of inhalational anthrax or for use in a 3-dose regimen; therefore, this program will be conducted under an Investigational New Drug (IND) application.

Recommendation for Vaccination:

Postal workers will be asked to make repeated entries into areas presumed to be contaminated with anthrax spores. As a supplement to barrier precautions and post-exposure antimicrobial prophylaxis, mail handlers could be offered anthrax vaccine on a priority basis along with other critical responders – assuming that the supply of vaccine is large enough to accommodate the particular terrorist scenario.

REFERENCE

P. Meehan et. al. 2004 Responding to Detection of Aerosolized Bacillus Anthracis by Autonomous Detection Systems in the Workplace. MMWR. June 4, 2004 Vol 53, No. RR-7 (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5307a1.htm)

For more information, visit www.bt.cdc.gov/agent/anthrax, or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Espanol), or (866) 874-2646 (TTY).

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