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Memo

To: Jerry Raymond, Paul Jossen, Sal Dassaro
From: Dag Gonzalez, CMDSM
Date: November 5, 2001
Subject: Update on strategies for dealing with bio hazards in mail centers

You asked me to update our previous memo (1.4.3.1 10/24/01) to include some of the things we have learned since last week.

Sanitizing Mail and Material: Some of our customers have expressed concern about sanitizing material as it is being received in mail centers. This is not just for screening for material that has contaminants inside; it also includes protecting a facility from cross contaminated material that could cause an organization to disrupt or close down its facility. In the last week, those organizations concerned about cross-contamination seem to have the greatest sense of urgency, in part because they want to avoid the kinds of evacuations of facilities that have been reported in the press (and some that have not been reported). We have continued to look at several methods.

Ultraviolet Light - At this point, it seems as though UV treatment has two possible values: (1) as a surface treatment of items that might be contaminated; and (2) as a way to provide some measure of protection for the rooms where materials are handled.

For the first application, the equipment we have reviewed includes conveyor systems that can expose envelopes and packages to UV light in dosages that will effectively neutralize contaminants. These are available in table-top sizes and floor models, but their processes are somewhat time-consuming. They also require handling to expose both sides of an envelope, which could compromise the integrity of the process.

For the second application, there are UV lamps of the type used in HVAC systems that can help decontaminate air in the vicinity of mailing machines, openers, etc., or in enclosed, isolated areas set aside for screening items. The lamps can also be located near vents. We are told that these types of UV treatments can be combined with ways to circulate air toward the UV bulbs.

Hepa-type pre-filters combined with UV lamps will effectively capture the smallest particles likely to be encountered in a facility. Hepa filters are used extensively in microbiology labs (clean-rooms), hospitals and government facilities to sanitize the ambient air.

Ozone Saturation - We have been further exploring the use of an ozone generator to sanitize bulk material and control contamination that might not be caught in a more casual surface process. If it works, it would also address risks from contamination of the contents of items. Unlike UV, ozone will penetrate containers and envelopes and neutralize bacteria such as anthrax. It does not appear that this will be effective to sanitize an entire room. However, it might be able to be provided in the form of a cabinet or enclosure (of various sizes), which could be pressurized and treated. We have been speaking to an expert in the field who is currently performing lab studies using bacteria specimens similar to anthrax (*bacillus anthracis*) and ozone. Once the studies are complete, we will have information on the dosing requirements (ozone saturation, time & pressure) needed for a given

treatment area for use with white mail and packages. Eventually, they will be configuring devices consisting of stainless steel enclosures of several sizes (8'x7'x8' to 2' x 3', for example) with Teflon interiors, ozone or autoclave generators, air-tight doors, pre-programmed timers (for size enclosure and desired treatment effectiveness) and dosimeters. Ozone would have the benefit of being environmentally safe.

Autoclaving - Some people have told us they are looking into using pressurized moisture treatment to sanitize mail materials. We are looking into its effectiveness and practicality, but we understand that, under appropriate pressure, an autoclaving-type device might be able to sanitize items without "getting them wet". Because extreme heat would be the primary process for sanitizing mail, we are evaluating the flash-point (fire) potential for paper and plastic containers that might be part of the mail stream. Autoclaving systems will effectively kill anthrax bacteria and spores if heated above 250 degrees with sufficient pressure and time of exposure.

Laboratory-type handling devices - A few of our customers are using glove boxes (such as those used in laboratories) for handling suspicious items. We have no new information about their effectiveness or cost.

Off-Site Processing: We have spoken to quite a few organizations who are isolating incoming mail functions in a separate room or on a loading dock. A few are arranging for mobile offices or off-site facilities. We have also heard of mail operations that are arranging for an out-sourcing firm to pre-screen mail before delivering it, although we are not sure about the procedures being defined for this.

The biggest concern in setting up these facilities seems to be getting suitable work tables, sorters and carts quickly. They want furniture that is easy to clean. Some have continued to mention the desire to use work tables that are of a dark, one-color finish that will show powder and some potential contaminants, preferably with no cabinets or shelves underneath.

What is important is establishing the right procedures for handling items as they come into the facility and as they are returned to the "mail-stream" into an organization.

Centralized Mail Opening: Some organizations have suspended centralized mail opening. Others have started it.

One company told us they are having a suitably masked and gloved clerk open suspicious items with an X-acto knife. Others have started opening generic and screened items with milling openers. (One mail center manager told us he did not want to use a milling opener that transported material vertically and opened on the bottom, for obvious reasons. There are other types that transport envelopes horizontally and are very effective.) Again, some people are concerned about using a traditional "slitter" or hand-held stiletto opener, either of which can cut the contents of an envelope. Milling openers grind the envelopes open while protecting the contents, doing less to disturb potentially dangerous contents and reducing or eliminating the danger of paper cuts in handling the envelopes and contents

Automated Mail Extracting and Review: We understand that some organizations are looking at extraction workstations for the preliminary handling of items. Extractors allow an operator to sit at a desk and have each item of mail "presented" for visual inspection before handling. Some extractors can open one or more sides of envelopes and present their contents for handling. One advantage of this could be to eliminate the physical handling of anything that is suspicious, even during the rough sort process.

We have spoken to one manufacturer that is looking at fitting its extractors with filtered vacuum devices that can draw dust and contaminants down into the waste area of the work station and have a barrier between the mail material and the operator.

Cleaning the facility and work surfaces: As a precaution, some mail centers are cleaning their furniture, carts and machines daily. Some are using peroxide and bleach solutions; others are using special anti-bacterial solutions. Plastic and plastic-coated furniture and carts might be effected by these cleaning agents.

One of our customers told us he is having his mail center staff clean daily with a vacuum cleaner equipped with a Hepa filter (see above).

Emergency wash stations - It is common practice in the manufacturing industry to use full and eye wash stations to treat emergency spills. We have found manufacturers of these products that can incorporate germicide chemicals as part of the wash in case of possible biological contamination. We are told that that clothing should immediately be placed in a sealed plastic container. The employee would gain a measure of protection by immediately washing his or her body, neutralizing cutaneous contaminants.

Item Tracking: Some organizations that use accountable mail systems are looking at expanding the logging of items beyond overnight and courier deliveries to a broader class of mail. Systems that create an audit trail of handling from the point of entry to delivery in a facility can provide useful information and security. They also create a process for checking the recipient (or even the sender) of items.

A few people have told us they are considering accepting delivery of items only from known recipients, especially on messenger and courier deliveries. A few have told us they are refusing items from unidentified sources.

We will continue to give you updates as we get more information. If any of our customers need help with any of this, we can direct them to the right resources.



Summary Checklist 11/02/01

Mail Handling Procedures for Current Biological Threats and Protection of Staff

- Sanitizing mail and material**
 - Ultraviolet light**
 - surface treatment**
 - ambient contaminant treatment**
 - Ozone ionization generators**
 - Autoclave devices**
 - Laboratory-type handling devices**
- Off-site processing**
 - Off-site facilities (mobile offices)**
 - Isolated rooms**
- Tables and sorters**
- Special carts**
- Centralized and safe mail opening**
- Automated Mail Extracting and Review**
- Cleaning**
- Sort stations with UV devices**
- Shrink wrap**
- See-through envelopes**
- Tracking of items**
- Security**