Emergency Distribution of Pharmaceuticals

About the Print Version

This print version of the module includes all the substantive content from each screen, except for the directions for the interactive graphics. It does not include the Check Your Understanding exercises and the final quiz. The toolkit, which is referenced throughout the module, is available online.

Welcome to Emergency Distribution of Pharmaceuticals

Most people, when they think about medicine or medical supplies, imagine individual people following the advice of a doctor who has made a diagnosis and selected an appropriate treatment. Most of the time, this system works very well. But what happens when a large number of people need medication? This is the question we will answer over the course of this module.

There are many circumstances that could require rapid distribution of medical supplies to treat and prevent disease. An act of terrorism, large-scale natural disaster, or disease outbreak all might require distribution of large quantities of medications, vaccines, and other medical supplies to treat or prevent disease among the affected population. Large-scale distribution of medications, vaccines, and other medical supplies (known collectively as pharmaceuticals), is called *mass dispensing of pharmaceuticals*.

This module will provide you with an overview on the principles of mass dispensing. It will describe the kinds of situations that require mass dispensing, and take you through a set of steps for planning and conducting mass dispensing of pharmaceuticals. It will describe the positions that need to be filled in a mass dispensing clinic, who performs them, as well as the other components of a coordinated community response.

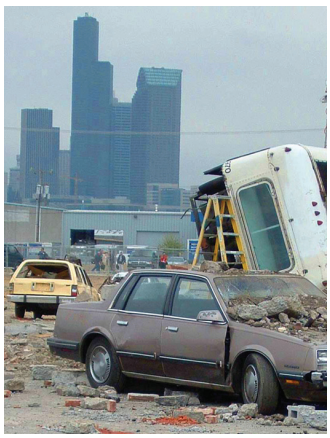
You will also learn about various initiatives related to mass dispensing of pharmaceuticals.

Types of Threats

Disasters and other public health emergencies have occurred throughout history. These events can pose many risks to public health, including the spread of disease, injuries, death, and psychological and social consequences. In addition, after the terrorist attacks in 2001, the threat of terrorism has become an area of increased concern in the United States.

Threats to public health can be divided into three broad categories:

- Human-induced
- Natural disasters



- Emerging infectious disease outbreaks

If you would like more information about these and other threats, the Centers for Disease Control and Prevention (CDC) has created an index of Agents, Diseases, and Other Threats.

www.bt.cdc.gov

Human-Induced Events

Most human-induced events fit into one of the following four categories.

Bioterrorism

Bioterrorism refers to the use of micro-organisms or toxins derived from living plants or animals (this is the "bio" part of the word) to intentionally produce death, disease, and disruption of societal activities (terrorism). There are many biological agents that could be used for this purpose, including the agents that cause anthrax, plague, and tularemia.

The agent that causes anthrax, *Bacillus anthracis,* has already been used to attack a portion of the population in the United States. In September and October of 2001, powder containing anthrax spores was included in letters sent through the U.S. Postal Service to media outlets and two U.S. senators. Once the release of anthrax was confirmed, mass dispensing centers were created to distribute prophylactic antibiotics to people potentially exposed to the anthrax spores. Unfortunately, twenty-two people contracted anthrax, and five of them died. (For more information on this mass dispensing effort, please see An Ounce of Prevention Is a Ton of Work: Mass Antibiotic Prophylaxis for Anthrax, New York City, 2001.)

www.cdc.gov/ncidod/EID/vol9no6/03-0118.htm

CDC has designated **critical agents** with potential for use as biological weapons and grouped them according to level of concern[1]. Several factors determine the classification of these agents, including whether a specific agent has been used or developed previously as a biological weapon, how easy it is to disperse, whether it has the ability to cause significant death or disease, and how infectious it is.

[1]Rotz et al., Emerging Infect Dis 2002;8(2):225–230

Chemical Emergencies

Chemical emergencies can be either intentional or unintentional. An accident or equipment malfunction can cause widespread chemical exposures. In December 1984, thousands of people in Bhopal, India, were killed and tens of thousands were injured when a pesticide plant unintentionally released toxic gasses.

An intentional chemical attack occurred in Tokyo, Japan, in 1995. In this incident, sarin gas was released on Tokyo's mass transit system, killing 12 people and injuring thousands.

There are many chemicals that are considered possible terrorism agents. Categories of chemical agents that are considered threats include:

- Nerve agents (such as sarin)
- Blister agents (such as mustard)

- Respiratory agents (such as chlorine or phosgene)

The U.S. has distributed chemical antidotes to be used in the event of a release of a nerve agent, such as sarin.

More information about chemical emergencies can be found at the Agency for Toxic Substances and Disease Registry (ATSDR) Web site. ATSDR is a federal public health agency of the U.S. Department of Health and Human Services that works "to prevent harmful exposures and diseases related to toxic substances."

www.atsdr.cdc.gov

Radiation Emergencies

A radiation emergency can also be deliberate or accidental. Depending on the event, exposure can range from small to large doses of radiation, leading to contamination or adverse health effects. Examples of events that could cause a radiation emergency include a nuclear power plant accident or a terrorist event such as a "dirty bomb." (A dirty bomb is a conventional explosive device designed to spread radioactive material as it explodes.)

Bombs and Explosions

Again, this type of emergency can be the result of a deliberate action or human error. Bombs and explosions can cause mass casualties, inflicting life-threatening injuries to many people at once.

Natural Disasters

Many different types of natural disasters pose a risk to public health. The specific threat largely depends in part on geographical location. Threats include: earthquakes, extreme heat, floods, hurricanes, landslides and mudslides, power outages, tornadoes, tsunamis, volcanoes, wildfires, and winter weather.

For example, shortly after Hurricane Katrina moved through Mississippi, the State of Mississippi requested and received pharmaceuticals and other medical supplies from the federal Strategic National Stockpile. The hurricane had caused widespread damage to state health facilities, and the supplies were needed to care for Mississippi residents. (For more information on Mississippi's use of SNS assets during Hurricane Katrina, please see Mississippi Goes Green: The State's SNS Response to Katrina.)

www.astho.org/pubs/MSKatrinaResponse-Final.pdf

Disease Outbreaks

In addition to infectious agents used in bioterrorism, naturally occurring emerging infectious diseases are a threat. Severe Acute Respiratory Syndrome (SARS) is one example of a communicable disease that has posed challenges to public health. Currently, scientists around the world are particularly concerned that an existing influenza virus will mutate and result in a new influenza virus (called a *novel* virus). The novel virus could then cause pandemic influenza.

Meningitis is an example of a naturally occurring infectious disease that can cause severe illness. In 1995, a meningitis outbreak among teenagers and

children in Mankato, Minnesota resulted in the death of one child, and caused widespread community panic. One of first actions taken by health officials was a mass vaccination of 3300 junior high and high school students against the disease. After another case of meningitis occurred, students were treated with prophylactic antibiotics, and family members of students at the school where the outbreak originated were vaccinated. Three weeks later, two more cases of meningitis were diagnosed. State health officials took the unusual step of vaccinating all Mankato residents under the age of 30, which amounted to 30,000 people vaccinated. This final mass dispensing effort ended the outbreak. (For more information on about this outbreak and the public health response, please see Swift Response by Minnesota Public Health Laboratory Curtails Stubborn Meningitis Outbreak.)

www.aphl.org/media/inside_phl/Pages/minnesota_meningitis_outbreak.aspx

Additional Pharmaceutical Resources Are Likely to Be Needed

In the event of a public health emergency, communities must be able to deliver medicines, vaccines, and other medical supplies to the people who have been injured, exposed, or are at-risk. Communities must do this quickly to achieve significant health benefits.

Most communities are not currently prepared to provide preventative measures (prophylaxis) or treatment to large numbers of people. One reason, among many other limitations, is that a mass distribution of medication would likely deplete available stores of essential drugs and medical supplies. As a result, various resources and programs are available to help local communities with emergencies requiring mass distribution of pharmaceuticals. We cover these resources and programs in more detail later in the module.

Preventing Disease Through Mass Dispensing

In some cases, mass dispensing is used to treat people who have already been injured or become ill. In other cases, a defined community of people receives prophylactic (preventative) drugs or vaccines over a specific period of time because there is reason to believe that they have been exposed to a biological agent (virus or bacteria) that might cause disease. This is called **mass prophylaxis**. For example, a bioterrorism incident involving the release of *Bacillus anthracis* spores would require mass prophylaxis with appropriate antibiotics within a short period of time to prevent anthrax.

Preparation and Response

In most communities, many different people and organizations are involved in preparedness activities, but they all share a goal of strengthening the community's ability to manage disasters and other public health threats. Effective preparedness requires public health, legal, political, emergency services, law enforcement, and social organizations to work together both to minimize the impact of hazards on communities and to coordinate an effective response.

Disaster Preparation

Local and state public health departments have developed plans for emergency distribution of pharmaceuticals as a result of funding provided by the Centers for Disease Control and Prevention in response to various initiatives, including Homeland Security Presidential Directive 8 and the National Response Framework. These state and local plans are usually part of a more comprehensive bioterrorism response plan or what is called an "all-hazards" response plan for a given community.

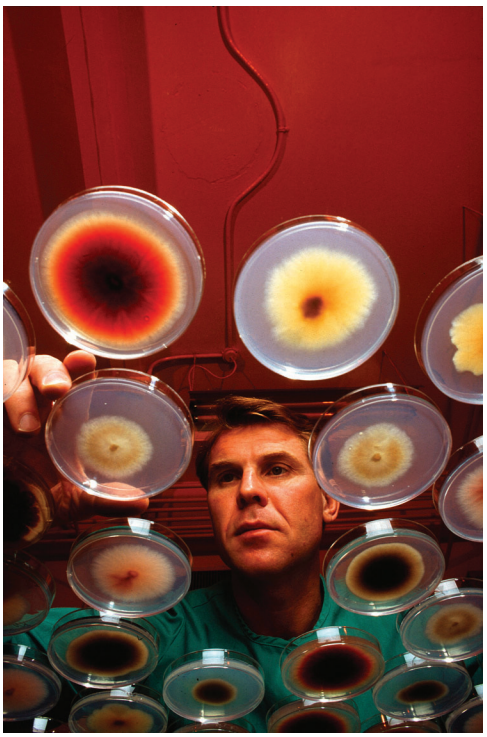
Because no one knows when large quantities of medications or supplies will be required, communities must be ready to quickly implement mass dispensing. To develop a plan for a mass dispensing event, most communities follow a version of these steps:

1. **Establish a planning group** and integrate the group into existing emergency management structures.
2. **Develop a plan** that addresses all hazards and, if appropriate, specific hazards. The plan must be integrated into the existing local hazard plan.
3. The planning group must **identify their community's vulnerability** to various hazards and threats.
4. The planning group must **identify and communicate with those community partners**, including local agencies and organizations, who are likely to interact with, or be affected by, mass dispensing activities.

The planning group must include provisions for training, exercises, and drills to ensure that the plan can be carried out effectively.

Responding to an Emergency

Good planning is essential, but what else needs to happen when a community responds to an emergency?



Response

There are five basic steps involved in responding to an emergency that requires mass dispensing of medicine and supplies.

1. Identify the problem and needs.
2. Assess local resources.
3. Request assistance, if needed.
4. Receive medical assets (often from a stockpile).
5. Dispense pharmaceuticals.

We will discuss each of these steps in detail.

Step One: Identify the Problem

Some adverse events, such as major natural disasters or explosions, are obvious when they occur. Sometimes the threat is harder to

detect. Detecting the release of a biological or chemical agent poses challenges for those involved in emergency preparedness and response. An effective public health response to a bioterrorist attack or other disease outbreak hinges on the ability to recognize the outbreak.

Local public health officers look at various criteria to determine if additional medications, vaccines, or medical supplies are needed to address a public health situation. Events that might require additional resources include:

- Unusual cases of disease or a cluster of unusual cases are reported to the local or state public health departments. These reports can come from public health surveillance or from health care facilities. Sometimes, it takes only one report of certain rare diseases, (for example, respiratory anthrax or smallpox) to raise substantial alarm.
- A suspected bioterrorism attack occurs that appears to require the potentially exposed population to be rapidly treated with prophylactic medications.
- A natural disease outbreak (for example, pandemic influenza) requires the hospitalization of large numbers of patients who need therapeutic antibiotics or supportive care.
- A chemical terrorism event affects large numbers of patients who require acute antidote therapy.Click to see a list of epidemiologic clues that a chemical release has occured.
- Some other event (for example, an earthquake or a bridge collapse) happens that requires the hospitalization or treatment of large numbers of casualties, requiring a level of medical supplies that may exceed local hospital system capabilities.

Public health departments can learn about these types of events through different routes. They could use a process called passive surveillance, in which clinicians report certain diseases or events to public health departments. Information could also come from detection of specific microbes in the environment, such as anthrax spores. Finally, an event might be detected through syndromic surveillance, a process in which software programs assess existing medical and pharmaceutical databases to identify unusual clusters of suspicious symptoms.

A preliminary epidemiological investigation by local health officials will generally take place if any of the clues suggest that an unusual disease outbreak is underway in a community. A potential outbreak will likely be further investigated with notification or involvement of state health officials and CDC. If terrorism seems likely and no natural cause for the event is found, law enforcement will become involved.

Please see the NWCPHP module: Introduction to Public Health Surveillance for more information on methods of surveillance in public health.

Epidemiologic Clues That May Suggest a Chemical Agent Release (Based on a report from CDC.)

- An unusual increase in the number of patients seeking care for potentially chemical-release-related illnesses
- Unexplained deaths among young or healthy people
- Patients smell unusual to those around them (patients emit unexplained odors)
- Clusters of illness in people who have common characteristics, such as drinking from the same source
- Rapid onset of symptoms after an exposure to a potentially contaminated item
- Unexplained death of plants, fish, or animals
- Clinical signs and symptoms suggesting a disease commonly associated with a known chemical exposure

Step Two: Assess Local Resources

Once public health officials have determined that an event is occurring that requires emergency distribution of pharmaceuticals, the next step is to rapidly assess available local resources. Most communities do not have sufficient resources available to effectively and independently respond to a large-scale public health emergency. In the event of such an emergency, it is likely that communities will run out of essential drugs and medical supplies.

Assessing existing pharmaceutical and other medical resources within a specific community for a specific problem or threat involves determining:

- The nature of the threat(s) the community is trying to counter
- The medicines and supplies necessary to deal with those threats
- The quantity and location of the medicines and other needed supplies
- Projected number of casualties and needs of the affected population
- The capacity of the health care system, including hospital capacity

Step Three: Request Assistance

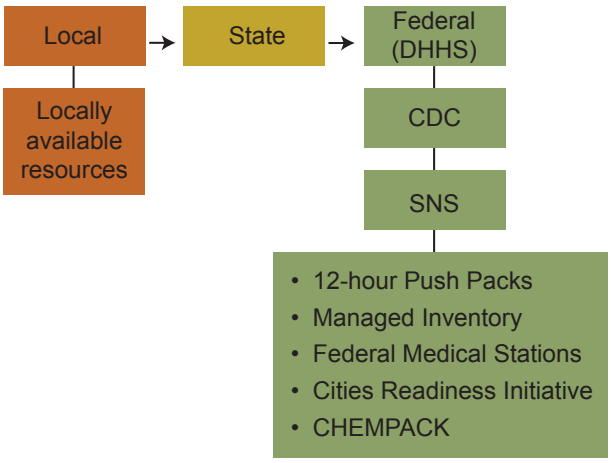
If, after assessing local resources, a public health emergency or potential emergency is determined likely or certain to overwhelm local, regional, or state resources, the process of requesting federal assistance is initiated. The local health officer in the affected community has authorization to request additional resources from the state governor or designated representative through a process coordinated by the appropriate emergency operations center (EOC) and emergency management officials.

Once the state official has received a request for assistance, the governor or designated representative can request assistance from the federal government to counter the public health threat. The procedures to do this are defined in local and state plans. This whole process, from the local to the federal level, can occur very quickly.

At the federal level, CDC works with other federal and state officials to quickly evaluate the governor's request by assessing:

1. The actual or potential threat
2. The local resources and plans in place for dealing with the threat

If the Secretary of the Department of Health and Human Services (DHHS) or a designated representative concurs that local resources will be insufficient, federal assets are deployed.



Stockpiled Assets are Deployed

We've said that federal assets are deployed. What are the stockpiled resources and programs available to assist with public health emergencies? They include:

- Strategic National Stockpile (SNS)
- CHEMPACK
- Hospital Preparedness Program
- Local or regional pharmaceutical caches, including the Metropolitan Medical Response System (MMRS)

We will talk about each of these resources in detail.

Strategic National Stockpile

The Strategic National Stockpile (SNS) is a federally owned repository of antibiotics, chemical antidotes, antitoxins, life-support medications, intravenous administration supplies, airway maintenance supplies, and medical/surgical items. It is managed by CDC, and is a resource that can be mobilized and deployed to any community within the United States and its territories.

The SNS consists of three main elements:

- 12-hour Push Packages
- Managed Inventory
- Federal Medical Stations

There are two other important programs that fall under the umbrella of the SNS: the Cities Readiness Initiative (CRI) and the CHEMPACK Program. In addition, the SNS has access to vaccines and antitoxins distributed by the CDC. Finally, the SNS includes a Technical Assistance and Response Unit (TARU) that accompanies the SNS deployment to assist with logistics and other support.

Strategic National Stockpile Elements

12-hour Push Packages

"12-hour" refers to the fact that these packages can be delivered to a designated location within 12 hours following approval of the federal request to deploy SNS resources. These packages consist of preconfigured caches containing pharmaceuticals, antidotes, and medical supplies. (Push package contents have changed over time and continue to change in response to new research and knowledge regarding the most effective supplies.) They are stored in secure locations around the country.

A single 12-hour Push Package contains over 50 tons of pharmaceuticals, chemical antidotes, equipment, and other medical supplies, including some 300,000 10-day courses of antibiotics, particularly doxycycline (used to treat or prevent anthrax and other bacterial infections). The entire contents of a 12-hour push package fills 130 cargo containers.

The medical material that makes up the 12-hour Push Packages is rotated to ensure that it remains current.

The Managed Inventory

The Managed Inventory (MI) component of the SNS is owned by the federal government and managed by specific pharmaceutical vendors or manufacturers under contract with the SNS program. It represents 90 to 95% of the SNS inventory. If the specific threat is known or it is determined that additional supplies are needed to augment a 12-hour Push Package, supplies from the MI will be sent to where they are needed. For example, antibiotics from the MI were sent to Florida for mass dispensing in autumn 2001 when it was determined that *Bacillus anthracis* was the causative agent for illnesses in people who worked for the same media company.

Federal Medical Stations

The most recent component of the SNS is the Federal Medical Station (FMS). An FMS is a cache of medical supplies (including pharmaceuticals) and equipment that can be used to set up a temporary, non-acute, medical care facility in a community. Each FMS has beds, supplies, and drugs to treat 250 persons for up to three days. The deployment of an FMS is accompanied by a technical team from the SNS program to provide set-up assistance. Federal Medical Stations may be staffed by Disaster Medical Assistance Teams (DMATs), the Public Health Service Commissioned Corps, state or locally organized Medical Reserve Corps (MRC) or other volunteers.

The need for FMS type of support was evident during the response to the Gulf Hurricanes in 2005. In this case, multiple FMS-type assets were created and sent into the Gulf area within days of Hurricane Katrina. At present, Federal Medical Stations are designed for inpatient, non-acute treatment, or to establish a quarantine facility.

www.hhs.gov/aspr/opeo/ndms/teams/dmat.html

www.usphs.gov/aboutus/questions.aspx#whatis

www.citizencorps.gov/programs/medical.shtm

Cities Readiness Initiative

The Cities Readiness Initiative (CRI) is a CDC-funded program that falls under the SNS. It is designed to provide direct assistance to large metropolitan areas across the country, including Seattle, WA, Portland, OR, and, more recently, Anchorage, AK, and Boise, ID. CRI cities and metropolitan areas are selected based on population, geographical location, and potential vulnerability to a bioterrorism threat. The CRI assists state and local planners in the development of large-scale mass dispensing plans and procedures. The agencies responsible and the planning processes vary from state to state. However, the goal is the same: each of the CRI jurisdictions is working to develop the capability to dispense antibiotic prophylaxis to their entire urban population within 48 hours of the decision to do so.

CHEMPACK

The CHEMPACK program **forward-deploys** chemical antidotes. This means that the medications are stored in the cities and regions where they are likely to be used. Forward deployment is necessary because **chemical antidotes** need to be distributed very quickly, and the chemical antidotes maintained in 12-hour Push Packages would not arrive in time to save lives.

CHEMPACK is owned by the CDC-sponsored SNS program but is actually a local or regional asset. It consists of containers filled with nerve agent antidotes stored in locations throughout the U.S. and its territories. Each nerve agent antidote container has stocks to treat approximately 1,000 patients.

The CHEMPACK program is:

- Federally owned to maintain the assets in the Shelf-Life Extension Program (SLEP)
- Maintained locally and readily available to EMS and hospital emergency departments
- Remotely monitored for environment and security by the SNS program
- Managed differently in different cities (for example, in some cities, the fire department is the managing organization, for others it is the health department)

Hospital Preparedness Program

The Hospital Preparedness Program (HPP) is funded and managed by the Assistant Secretary of Preparedness (ASPR), in the U.S. Department of Health and Human Services. The HPP helps hospitals and healthcare facilities prepare and respond to public health emergencies, both natural and those caused by bioterrorism.

The program was created in 2002 under the managment of the Health and Human Resources Adminstration (HRSA) and focused on responding to bioterrorism. One program priority area under HRSA was to establish regional systems or caches that ensured a sufficient supply of pharmaceuticals, particularly doxycycline, to provide prophylaxis for three days to hospital personnel (medical and other staff), hospital-based emergency first responders, and their families for an anthrax or other disease outbreak. Later, the Pandemic and All Hazards Preparedness Act of 2006 transferred the program from HRSA to the Assistant Secretary for Preparedness and Response (ASPR). As of 2007, the HPP provides funding for several public health preparedness priorities, one of which can be pharmaceutical caches, depending on priorities set by the individual agency.

Local Pharmaceutical Caches

Another example of a pharmaceutical cache, one which is primarily focused on first responders, is the system of local caches established through the Metropolitan Medical Response System (MMRS) Program. The MMRS is a program designed to help heavily populated jurisdictions develop or enhance

existing emergency preparedness systems to effectively respond to a public health crisis. The program focuses particularly on preparedness for weapons of mass destruction (WMD) events.

These community caches of pharmaceuticals and other essential medical supplies could be located within federal installations (for example, Veterans Affairs medical centers, military installations), local health departments (for example, antiviral stockpiles), and regional pharmaceutical wholesalers. Since each of these entities focuses primarily on a subset of the community, it is important for emergency response planners to involve these kinds of partners in overall preparedness and response efforts, including logistical, supply and resupply planning for mass dispensing.

Step Four: Receive Stockpile Assets

After requesting emergency pharmaceuticals, communities must be prepared to receive, store, and manage them. For materials from the SNS, this is done at one or more Receiving, Storage, and Staging centers (RSS), typically established and operated by a state health department.

One of the responsibilities of the RSS is to organize (stage) the supplies for delivery to dispensing sites and to treatment centers, such as hospitals.

Step Five: Dispense Pharmaceuticals

As we discussed earlier in this module, mass dispensing occurs after a decision has been made to provide medications to large numbers of the public—either for disease prophylaxis or to treat people who are exhibiting symptoms. In order to be effective, mass prophylaxis must medicate the affected population quickly enough to prevent the disease. For example, the release of a biological agent such as the bacterium that causes anthrax would require the rapid distribution of prophylactic antibiotics for those potentially exposed. Distribution of antibiotics would need to begin within 48 hours of the decision to provide mass prophylaxis.

Planning for mass dispensing involves several elements:

- Determining roles, responsibilities, and policies
- Selecting sites where mass dispensing will occur
- Designing and setting up the site
- Staffing
- Communicating information to and educating the public
- Coordinating with other plans

What Are Medication Centers or Points of Dispensing?

One approach for achieving mass distribution of pharmaceuticals involves the establishment of community-based points of dispensing (PODs), also known as medication centers.

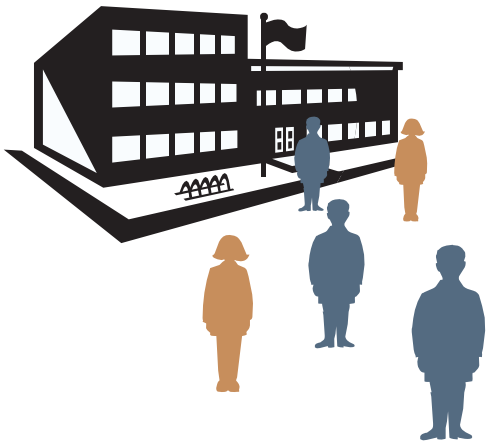
The process of creating a medication center starts long before an event occurs that requires it. Local and state plans for mass dispensing specify the number and location of dispensing sites or medication centers. Appropriate facilities such as schools and community centers are often chosen by planners as medication center locations. Public health practitioners and volunteers are trained to staff the center in the event of an emergency. When an event occurs, the medication center strives to operate efficiently to mass dispense antibiotics, other medications, and/or vaccines.

Types of PODs

There are two general types of PODs: pull and push. The most widely-used type of POD is the pull POD (people come to the medication center), so that is the type we will discuss in more detail later in this module.

The push approach involves bringing medicine directly to people who are homebound or in nursing care or assisted living. Some communities are also planning for pushing medicine to select communities through the U.S. Postal Service or directly to large employer groups.

Push POD: In some cases the POD goes to the affected population members. If the medications or vaccinations are taken to the citizens' location, this is called a "push POD." A push POD might be planned for a nursing home or in an instance where there is a large concentration of the affected population in one place such as a large urban housing project.



Pull POD: In some cases, people travel to a specific location to receive medication. When people travel to a POD, it is called a "pull POD." A pull POD would be effective in a situation where most people have cars or there is good public transportation.

Real-Life Mass Dispensing

Quite a bit of practical information exists about mass dispensing, much of it taken from POD exercises and previous instances of mass dispensing in response to an actual event. For instance, many communities have held SNS dispensing exercises using community-based PODs.

As we mentioned earlier, antibiotics were distributed in response to the anthrax attacks that occurred in the fall of 2001. During this event:

- 22 people developed anthrax, five of whom died
- 30,000 people were advised to start antibiotics immediately, and provided with an initial 10-day supply
- 10,000 people were recommended to take a full 60-day course of antibiotic prophylaxis

There have been many reported drills and exercises of PODs, including local

ones. Please see the Toolkit for references.

Phases of Mass Dispensing

These phases occur after a threat has been identified and the decision has been made to distribute medication. It is important to note that we don't cover the disassembly of the POD, that is, the process of returning operations to normal. That process is outside the scope of this module, but it is a time-consuming task, which should be considered in the initial stages of planning a POD.

Phase 1: Notify/Recall Staff

In Phase 1, public health personnel notify and recall all staff needed for mass dispensing, including volunteers from the Medical Reserve Corps (MRC) and Community Emergency Response Teams (CERTS), if they exist in the community. POD workers are assigned a specific emergency response functional role, specifying to whom they report and who, if anyone, reports to them.

Phase 2: Prophylaxis of Staff and Others in Critical Infrastructure

In Phase 2, medications or vaccinations are provided to first responders. If POD workers need prophylaxis or vaccinations to work safely in the POD, they will also receive them during this phase. Some plans call for including families of first responders and POD workers in this first group for some emergencies. Early, rapid prophylaxis of this group and their families will ensure their availability as a resource for dispensing program efforts.

Phase 3: Set Up All the Necessary PODs

POD sites should be pre-identified and inspected, with their selection based on a number of criteria, including:

- Ample sites and sizes to accommodate large numbers of people
- Central locations known to the general public
- Adequate parking and accessibility by public transportation
- Adequate bathrooms, water, electricity
- Loading area for the receipt of supplies
- Security

Possible POD sites include schools, churches, and community centers, as well as traditional medical facilities.

Phase 4: Notification of Public

In Phase 4, public health personnel notify the public of POD openings. If there is more than one POD site, it is best to make a simultaneous announcement of all POD openings to avoid the sudden overloading of one particular site. The

goals of this phase include informing, educating, and mobilizing the public, along with providing notification of where to get medications or vaccines.

Introducing Jane: A Fictional Case Study

We're going to follow Jane, a public health nurse, as she participates in a mass dispensing clinic. Jane's day-to-day job involves educating the public about vaccination, but she has also been trained to work in a mass dispensing clinic, if the need arises.

On Saturday, December 8, it is determined that someone has released aerosolized anthrax spores at a shopping mall in Jane's city. Prompt antibiotic prophylaxis of the affected population is crucial to prevent anthrax.

A message is widely distributed to the media that directs anyone who was at the mall to report to one of several mass dispensing clinics for prophylactic antibiotics. The clinics will open December 9.

Jane has been called to an emergency meeting on the morning of December 9, just before the clinics open.

POD Management: Incident Command System

The National Incident Management System (NIMS) framework is used to organize and manage a POD. Specifically, the Incident Command System (ICS) within NIMS is used to define responsibilities and reporting channels. ICS is a standardized emergency management system for command, control, and coordination of an organization's emergency response activities. It is a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure and terminology.

Featured below is an example of an ICS Structure for a POD. This animation outlines the ICS structure. The number of employees/volunteers in each category is dependent on the anticipated volume of patients, and the expected duration of operation. Ideally, every position in the ICS should have a Job Action Card describing the roles and responsibilities associated with that position. This facilitates just-in-time training. It's also worth noting that most positions within a POD will not require specific medical skills.

When you are finished with the animation, please scroll down to read how Jane, the public health worker in our fictional case study, learned about ICS in her city. Jane's story will continue throughout the next section of this module. Her story is designed to demonstrate how the mass dispensing process might work during an actual event.

> *Earlier in the year, Jane attended an all day training session where she and her coworkers learned about her city's POD plans and procedures, how the ICS functions, and job roles and responsibilities in a POD.*
>
> *Because she is a nurse and regularly gives vaccinations, she expects to be dispensing medications in any future mass dispensing event. Positions she thinks she might be called upon to fill are dispensing lead, express dispenser, or dispensing support.*

Site Layout Is Important

The POD site must be organized so that people seeking medication can move through it smoothly and efficiently. This graphic shows an example of a POD layout.

Possible POD sites in Jane's city were chosen months in advance of today's clinics. Jane will be working in a clinic set up at Spring Glen Elementary School. The school is designed for efficient flow of students, and it will function very well as a mass dispensing clinic. There is plenty of parking, and patients can enter through the front door of the school, which is clearly marked. The site is also wheelchair accessible.

Step One: Fill Out Form

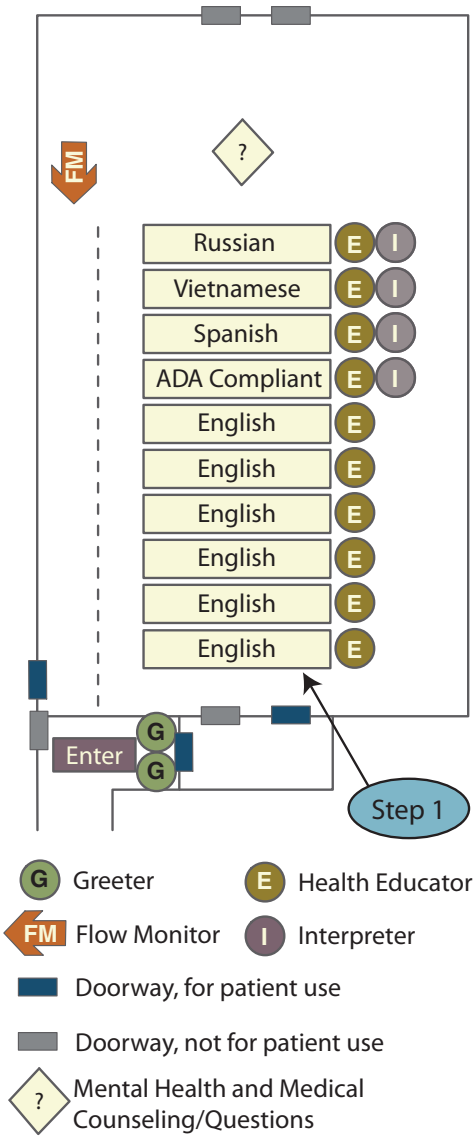
At this step, each head of household is instructed to complete a check-in form for themselves and each individual for whom they are picking up medication. In order to ensure that each member of the public receives the correct drug or vaccine in the right strength, it is important to obtain essential information. This process is facilitated by using a form that is short and simple to complete. For example, this form has been designed for use by Public Health - Seattle and King County.

It is also important to note that vulnerable populations need extra support to be prepared. Language barriers and disabilities in these populations need to be anticipated and planned for during all steps in the mass dispensing patient flow process. Vulnerable populations include those who are unable or unwilling to fully use preparedness, response and recovery services or follow emergency instructions.

Patients have lined up into the parking lot before the POD opens its doors. The POD staff are nervous, but organized. Staff are wearing colored vests to indicate their roles. Area leads wear easily visible red vests. When everything is ready, staff open the doors, and the patients file in.

Jane is working at Step One of the POD process. She serves as one of several educators. As people fill out their check-in forms, the educators answer questions and provide assistance to patients completing the check in form.

Patients are filling out forms at several tables in the front hall of the school. There are interpreters for languages spoken in the city, including American Sign Language, and people trained to help patients with disabilities.



Step Two: Staff Review Form

Qualified POD staff review the patient's check-in form and then direct each patient according to the following categories:

- No complications—Healthy patients proceed to express dispensing.
- Complicated—Complications include pre-existing illnesses, allergies, pregnancy, and other conditions. Children also fall into this category. These patients are assessed and directed to medical dispensing where they will receive more involved counseling.
- Acutely ill—If patients who are already showing signs of the illness arrive at a POD, they may be transported to treatment centers or treated onsite, depending on the circumstances.

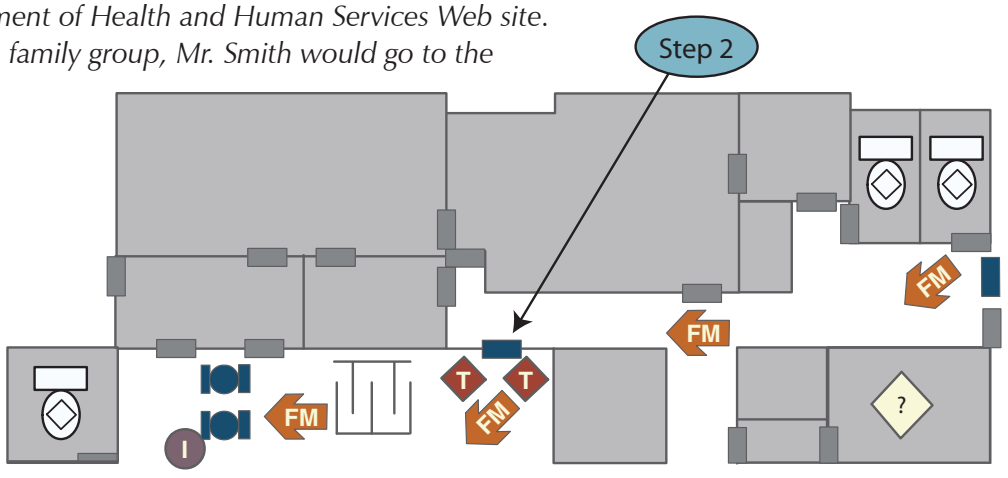
Sometimes staff at a POD will color code patient check-in forms to facilitate a more efficient patient flow. For example:

- Green—Patients who need the express adult standard dosage.
- Blue—Patients who need pediatric suspensions.
- Orange—Patients who need dosage adjustments due to contraindication or other medical condition, patients who need additional counseling with a pharmacist, and those patients with disabilities or special communication/interpreting needs.

As midday approaches, Jane sees her neighbors, Mr. and Ms. Smith, enter the front doors of the POD. She doesn't have much time to talk, but she helps them fill out their check-in forms. She notes that although Mr. Smith has no contraindications, Ms. Smith is pregnant.

The Smiths enter the gymnasium, which contains the triage area (where patients are divided into groups based on the information on their forms), as well as the medication dispensing stations. The triage staff sort patients based on algorithms similar to this sample algorithm from the Missouri Department of Health and Human Services Web site.

If the Smiths were not a family group, Mr. Smith would go to the express dispensing line and Ms. Smith would go to the line for people with contraindications. However, families are not usually separated at a POD, so Mr. and Ms. Smith are both sent to the line for people with contraindications.

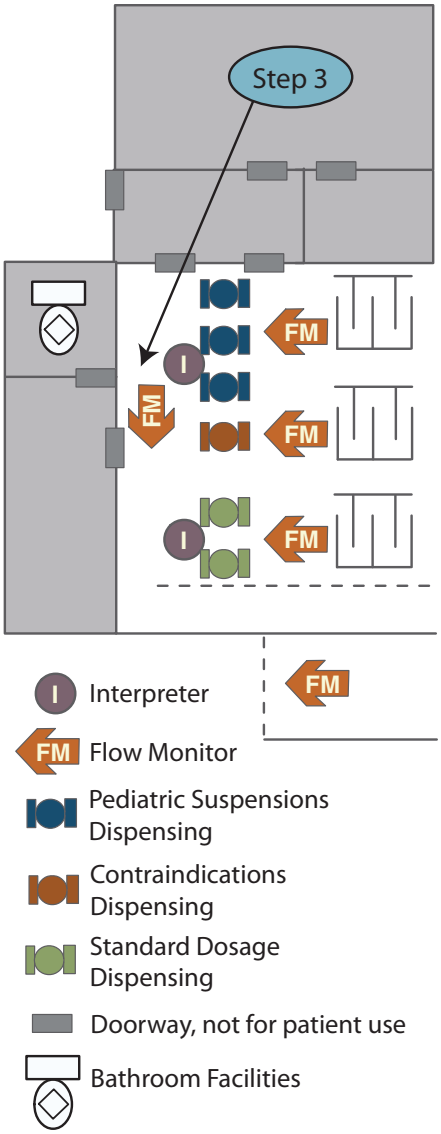


Step Three: Pick Up Medicine

At this step, pharmacists, pharmacy technicians, or other qualified health-care professionals review the health information form and dispense the appropriate medications for each individual listed on the form. Verbal and written instructions as well as drug information fact sheets are provided to patients.

This step is straightforward for Mr. Smith. He receives a ten-day supply of the antibiotic doxycycline. Ms. Smith talks to a pharmacist at the medical station for people with contraindications. She learns that doxycycline is not the drug of first choice for pregnant women, because it can sometimes cause tooth and bone problems in the fetus. Instead, she is given a ten-day supply of the antibiotic ciprofloxacin.

Both of the Smiths receive verbal and written instructions that explain how to take the specific antibiotic received and list the symptoms that might indicate a reaction to the drugs. They are also counseled on the importance of continuing the antibiotics for the full course, unless directed to stop by a medical professional.



Step Four: Turn In Form and Exit

At this step, patients turn in their check-in forms to POD staff. While the check-in forms are primarily used as part of the health screening and dispensing process, the data on the form may be entered and used for epidemiological surveillance and accountability purposes, with confidentiality and privacy protected as provided by law.

Printed materials regarding the event or the biological agent and the medication or vaccine that was dispensed are also available for patients at this step. These materials may include:

- Patient information sheets with health information regarding the event and the biological agent and drug information
- Prescription labels
- Instructions on where to obtain follow-up information and other support

All medications and vaccines can have adverse effects. People who receive medications from a POD are told to contact their health care providers if they experience symptoms that could indicate a problem with the medication or vaccine. This is important, both because medication problems can be serious, and because some people who experience a problem will stop taking the medicine, which can be dangerous.

In late 2001, a study was conducted to assess adverse events associated with providing antibiotic prophylaxis to postal employees in the Northeast who may have been exposed to anthrax. Of those who took ciprofloxacin, 19% reported severe nausea, vomiting, diarrhea, abdominal pain, or other troubling symptoms. Of the patients that took ciprofloxacin, 8% reported that they had discontinued

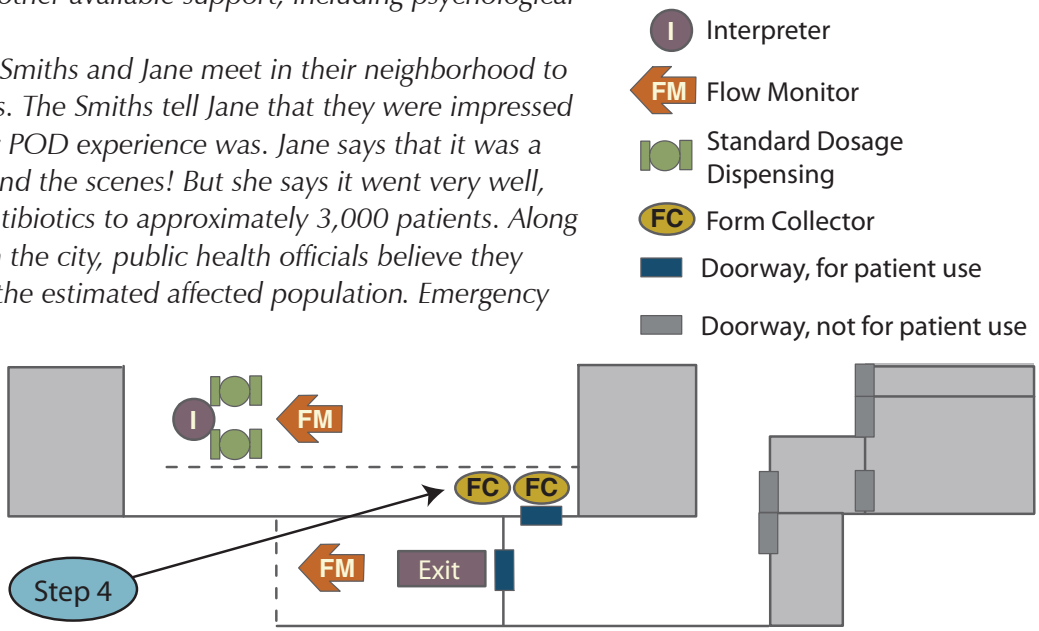
it. Reasons given for discontinuing the medication included adverse side effects, fear of adverse side effects, and deciding that the medication was not needed.[2]

[2]CDC, Morbidity and Mortality Weekly Report 2001; 50(47):1051–4.

This incident points out an additional issue that must be taken into account while planning the mass dispensing process. Not only do the medication or supplies need to be dispensed, but POD staff need to be trained to ensure that each affected person knows why they are being given the medication and what is at stake. By looking at the results of previous exercises and mass dispensing events, it is clear that some patients will choose not to take the medication or receive the vaccination. These patients need to be counseled on symptoms that could indicate disease and what to do if those symptoms occur.

Mr. and Ms. Smith receive several pieces of paperwork as they check out. One patient information sheet describes the event that occurred and the dangers of aerosolized anthrax. Another form lists resources for follow-up care and other available support, including psychological support.

Later in the day, the Smiths and Jane meet in their neighborhood to discuss the day's events. The Smiths tell Jane that they were impressed by how organized their POD experience was. Jane says that it was a little more harried behind the scenes! But she says it went very well, and they distributed antibiotics to approximately 3,000 patients. Along with the other PODs in the city, public health officials believe they reached close to all of the estimated affected population. Emergency rooms and other health providers in the area will be on alert for the symptoms of inhalation anthrax, ready to treat patients who did not attend the POD or who declined antibiotics.



Summary

in this module, we've discussed the mass dispensing of medications in response to an emergency or disaster. You have learned about the resources available, the ways in which local communities request and access these resources, and how the medications are dispensed. You've also followed Jane and her neighbors through the aftermath of an imagined terrorist attack.