

DISASTER OPERATIONS HANDBOOK

**COORDINATING THE NATION'S BLOOD SUPPLY
DURING DISASTERS AND BIOLOGICAL EVENTS**



Advancing Transfusion and
Cellular Therapies Worldwide

v.2.0

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1 INTRODUCTION

1.1 PURPOSE OF DISASTER OPERATIONS HANDBOOK

The purpose of this handbook is to help blood centers, hospital blood banks, and transfusion services in the United States prepare for and respond to domestic disasters and acts of terrorism affecting the blood supply; however, the content can be adapted for use in other countries. The handbook is intended to facilitate coordination in a disaster among these facilities; national blood organizations; and federal, state, and local government officials to

- Determine the medical need for blood.
- Facilitate transportation of blood from one facility to another.
- Communicate a common message to the national blood community and the public about the status of the blood supply in the disaster-affected area and the nation.

1.2 BACKGROUND

Following the events of September 11, 2001, the blood community recognized the need to evaluate its actions in response to the tragedy and develop recommendations for future domestic disasters and acts of terrorism. In December 2001, the AABB convened a task force of representatives from various blood banking organizations, blood collector and hospital suppliers, and government agencies to address these concerns.

The *Disaster Operations Handbook* was prepared by the AABB Interorganizational Task Force on Domestic Disasters and Acts of Terrorism (task force), whose members are as follows:

- AABB
- Advanced Medical Technology Association (AdvaMed)
- America's Blood Centers (ABC)
- American Association of Tissue Banks (AATB)
- American Hospital Association (AHA)
- American Red Cross (ARC)
- Blood Centers of America (BCA)
- College of American Pathologists (CAP)
- National Marrow Donor Program (NMDP)
- Plasma Protein Therapeutics Association (PPTA)

The following government agencies have appointed representative liaisons to the task force:

- Armed Services Blood Program (ASBP)
- Centers for Disease Control and Prevention (CDC)
- Department of Health and Human Services (HHS)
- Food and Drug Administration (FDA)
- Health Resources and Services Administration (HRSA)

The first version of the *Disaster Operations Handbook* in February 2003 was distributed to blood collectors and transfusion facilities nationwide. Since then, the task force has responded to several disaster-related events, including the sustained northeastern power outage in August 2003, as well as several hurricanes and major storms. The task force also participated in Top Officials (Topoff) federal exercises and preplanning efforts for several national-security-level events (e.g., Super Bowl, Democratic and Republican conventions, presidential inauguration, and the State of the Union Address). Following each of these events, the task force conducted after-action reviews to identify lessons learned and improve preparedness and response strategies. AABB also cataloged the lessons learned from several facilities that have been affected by disaster-related events since 2003 (e.g., fire and flood damage). The combined learning points from all these events have been integrated into this second edition of the *Disaster Operations Handbook*, and event-specific addendums have been created to help facilities prepare for and respond to specific kinds of events.

The second edition of the handbook was prepared by a subgroup of the task force that includes the following members:

- Jamie Blietz, MBA, CAE
- Bill FitzGerald, LTC, USA (Ret)
- Glenn Ramsey, MD
- Ruth Sylvester, LTC, USAF (Ret), MS, MT (ASCP) SBB
- Wendy Trivisonno

The task force has not identified any scenarios in which the immediate need for blood or blood components would be beyond the capabilities of the blood community. The single greatest risk of domestic disasters and acts of terrorism is not lack of supply but disruption of the blood distribution system.

Previous domestic disasters have led to five overarching lessons:

1. The need to ensure that facilities maintain inventories to be prepared for disasters at all times in all locations. (A seven-day supply of the combined inventory of both blood collectors and hospitals is recommended.)
2. The need to control collections in excess of actual need in response to a disaster.
3. The need for a clear and consistent message to the blood community, donors, and the public regarding the status of the blood supply (both locally and nationally) during a disaster.
4. The need for continuous disaster planning, including participation in disaster drills and close coordination with local, state, and federal response agencies.
5. The need for overall inventory management within the United States, including a unified approach to communication among blood facilities and transportation of blood and blood components during a disaster.

1.3 HANDBOOK ORGANIZATION

The primary focus of the handbook is to outline steps to be taken by **blood centers and hospitals that collect allogeneic blood**.^{*} For these institutions (**affected blood collectors**), the handbook includes detailed subsections:

Section 1. Introduction

Section 2. Preparation Strategies—steps to take to be prepared for a disaster

Section 3. Activation/Event Occurs—steps to take in event of disaster

Section 4. Education and Training—guidance for staff training and drills

Section 5. Quick Reference Materials

Section 6. Incident-Specific Disaster Preparation Checklists

Section 7. Disaster Operations Handbook—Hospital Supplement

^{*}Hospital transfusion services should refer to the “Disaster Operations Handbook—Hospital Supplement”

Web site references: All Web site addresses in the handbook were verified as of 9/30/08.

1.4 DEFINITION OF A “DISASTER”

Unless otherwise stated, the word *disaster* refers to any domestic disaster or act of terrorism that

- Suddenly requires a much larger amount of blood than usual
OR
- Temporarily restricts or eliminates a blood collector's ability to collect, test, process, and distribute blood
OR
- Temporarily restricts or prevents the local population from donating blood, or restricts or prevents the use of the available inventory of blood products and thus requires immediate replacement or resupply of the region's blood inventory from another region
OR
- Creates a sudden influx of donors, requiring accelerated drawing of blood to meet an emergent need elsewhere.

1.5 DISASTER RESPONSE PLANNING ASSUMPTIONS

The task force made the following assumptions with regard to meeting immediate medical needs following a disaster.

Responses to disasters occur in phases. The following blood products are the most likely to be needed in each of the following phase of a disaster:

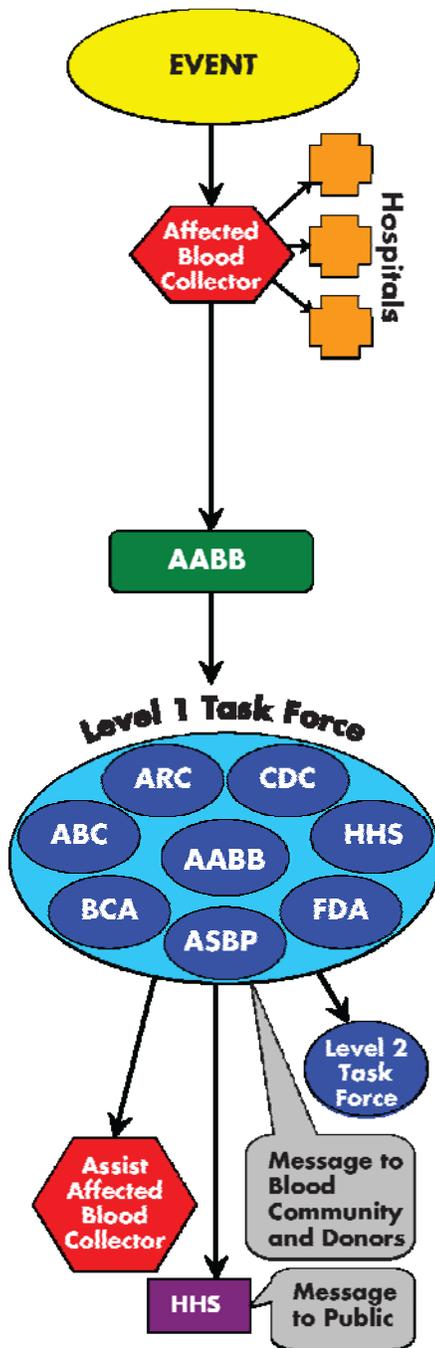
- First 24 hours: Type O red blood cells (RBCs)
- 1–10 days: RBCs (all ABO/Rh types) and platelets (PLTs)
- 11–30 days: RBCs, PLTs, and (for radiologic incidents) stem cells and bone marrow

General assumptions:

- All disasters are inherently local.
- Immediate shipment of required blood products will be from blood collector(s) with access to the most rapid means of transportation to the affected blood collector.
- The task force will reassess the needs at 24 hours after the event (and daily as needed) and may alter the strategy for meeting blood needs, depending on the circumstances.

1.6 OVERVIEW OF RESPONSE PLAN

The response plan is centered on the blood collector (BC) in the affected area acting as a main conduit for information and communication. The affected blood collector's role is to assess the local medical need for blood and to communicate this need to the task force via AABB. The task force will then consider the national response and recommend an action strategy including, but not limited to, the shipment of blood to the affected blood collector, and the coordination and dissemination of a message to the national blood community and donors.



RESPONSE PLAN FLOW CHART

Step 1. Affected Blood Collector (BC) Assesses Medical Need for Blood

- ✓ Contact local hospital customers and emergency services to determine impact of event, including:
 - Nature of emergency (e.g., disaster, terrorism)
 - Number of current and expected hospital admissions
 - Types of expected injuries
 - Potential effect on local donor base
- ✓ Gather information on local blood inventory levels from both BC and hospital customers.
- ✓ Calculate the medical need for blood for a nonbiological event based on three units of type O RBCs per current and expected hospital admissions resulting from the event (see Event Assessment Form).

Step 2. Affected BC Contacts AABB (ideally within 1 hour of event)

- ✓ Contact AABB (use redundant communication channels in order listed below):
 1. Land line: (800) 458-9388
 2. Cell phone: (240) 994-6700
 3. E-mail: nbe@aabb.org
 4. Text message: (240) 994-6700
 5. Satellite phone: (254) 377-3726
- ✓ Report medical need and local blood inventories.

Step 3. Interorganizational Task Force (TF) Conference Call

- ✓ AABB convenes a conference call with Level 1 TF members (Level 2 TF members included if necessary—see page 42 for a list of Level 1 and Level 2 TF member organizations).
- ✓ TF determines national strategy and coordination efforts, including:
 1. Message to blood community/donors
 2. Transportation and coordination of blood to affected BC
 3. Next steps until event is resolved
- ✓ AABB communicates decisions to Level 2 TF members.

Step 4. Implementation of Task Force Recommendations

- ✓ TF representatives communicate recommendations to their respective constituencies.
- ✓ TF distributes unified message to blood community and donors (e.g., joint press releases).
- ✓ TF coordinates message to the public with Department of Health and Human Services (HHS).

2 PREPARATION STRATEGIES

2.1 CONTINUITY OF OPERATIONS PLAN (COOP)

A COOP is an organization's overarching plan to ensure continued operation of essential functions in the event of an emergency or disaster. A COOP should be developed so it is independent of the event and covers the range of emergencies that are most likely or of such significant potential impact that they merit inclusion (see 2.2 Risk Assessment). Below is a list of essential functions to consider in a COOP. Hospital-based blood banks and transfusion services may be part of the overall hospital or laboratory COOP; however, the plan should be reviewed to ensure that issues specific to blood and transfusion are sufficiently covered.

Essential Elements of a COOP:

- ✓ Identify essential processes and functions required for continued operations.
- ✓ Develop decision trees for implementation of the COOP.
- ✓ Consider alternative facility options.
- ✓ Establish safety and security plans for staff facilities and fleet vehicles.
- ✓ Identify and ensure protection and survivability of vital records and databases.
- ✓ Review insurance coverage and ensure adequacy for potential risks.
- ✓ Establish minimum cash reserves necessary to continue operations for 90 days.
- ✓ Develop an emergency communications plan.
- ✓ Establish chain of command and order of succession for decision-making authority.
- ✓ Develop a plan to handle media issues.
- ✓ Identify spokespersons and train them in risk and emergency communications.
- ✓ Plan to maintain supplies and logistical support for operations.
- ✓ Evaluate utility needs and develop contracts or memorandums of agreement to ensure replenishment and restoration of essential utilities.
- ✓ Review information technology systems and develop redundancies to ensure that vital systems and their supporting subsystems remain operational during an emergency.
- ✓ Identify staffing issues, including essential personnel and key contacts necessary to carry out essential functions, as well as human resource considerations of employee compensation and benefits during and after the disaster.
- ✓ Develop procedures for transitioning back to normal operations.
- ✓ Identify and maintain key contact lists.

2.2 RISK ASSESSMENT

The cornerstone of an effective disaster plan is a thorough risk assessment of all known hazards that might affect the organization, including the probability of occurrence and impact. INTERNAL hazards include events such as flooding from a plumbing rupture, hazardous spills, or a fire. EXTERNAL hazards include events such as hurricanes, earthquakes, terrorism, and industrial accidents, such as a chemical cloud plume. All these hazards have the potential to interrupt organizational operations and need to be identified and reviewed annually. The following is a sample risk assessment tool to help identify and rank potential hazards. Hazards with a higher total score should be included in the disaster planning process.

Risk Assessment Chart (with sample data)

Type of Disaster	Probability of Occurrence	Human Impact	Property Impact	Business Impact	Recovery Resources Needed	Total Score
	High Low 5←---→ 1	High Low 5←---→ 1	High Low 5←---→ 1	High Low 5←---→ 1	High Low 5←---→ 1	
External Hazards						
<i>Pandemic influenza</i>	5	5	1	5	5	21
<i>Earthquake</i>	3	3	4	4	4	18
<i>Hurricane</i>	1	1	1	2	2	7
Internal Hazards						
<i>Flooding</i>	4	1	4	3	2	14
<i>Workplace violence</i>	2	5	2	4	1	14

2.3 COMMUNICATION STRATEGIES

To prepare to respond to a disaster, blood collectors should develop an emergency communications plan (ECP) to ensure that they will be able to effectively communicate with both *internal* and *external* key parties during an emergency. At a minimum, the ECP should contain the following elements.

Emergency Communications Plan (ECP)

- Determine chain of command with clearly defined lines of authority, decision-making, and communication responsibilities for staff. For major events, an organization should consider establishing an emergency operations center (EOC) to facilitate the coordination of response and recovery efforts.
- Establish and maintain key contacts internally (e.g., organizational departments) and externally (e.g., vendors, hospitals, service providers), and update records annually. At a minimum, key contact information should include
 - Name
 - Organization/department
 - Address
 - Contact function
 - Main phone number
 - Emergency (24-hour) phone number
 - Cell phone number
 - Any additional “backdoor” phone numbers
 - E-mail address
 - Text messaging address
 - Fax number
- Make key contact list available to essential staff in both electronic (e.g., personal digital assistant) and print (e.g., laminated card) formats.
- Define triggers to activate the ECP and create procedures for staff to deploy the plan (i.e., whom to contact, when and how to contact, and what information to exchange).
- Define triggers to return to normal operations.
- Develop a process to test the ECP annually.

Whom to Contact: Organization Staff, Essential Personnel, Key Departments, and Senior Leadership

- Establish a method to quickly notify organization staff of an emergency (e.g., e-mail, loudspeaker, alarm system, phone tree, text message).
- Develop a procedure to communicate with essential employees during an emergency and determine how the lines of communication will flow during the event.
- Develop a procedure to communicate with key departments (e.g., donor recruitment, blood collection, mobile operations, testing, and hospital distribution) on operational needs following an emergency.
- Develop a procedure to communicate with senior organizational leadership (e.g., board members) on facility operational status.

Whom to Contact: Blood Collector to Hospital Transfusion Service

- BC should identify appropriate key contacts at the hospital(s) it serves to determine the complete medical need in an event.
- BC will need to know the current and potential disaster-related hospital admissions as well as the Type O RBC inventory during an event (see Appendix 6.5, Event Assessment Form).
- BC should implement redundant lines of communication with hospital customers to ensure that communication can be established and maintained during an event.

Whom to Contact: Blood Collector* to Task Force

Ideally, BC should be prepared to contact the task force within 1 hour of an event. Before contacting the task force, BC should have as much of the following information as possible available:

- Number of current and expected disaster-related hospital admissions (see Appendix 6.5, Event Assessment Form)
- Types of expected injuries
- Current inventory levels of Type O RBCs
- Contact person and best means of communication with that person

BC should contact the task force, via AABB, at:

- Land line: (800) 458-9388
- Cell phone: (240) 994-6700
- E-mail: nbe@aabb.org
- Text message: (240) 994-6700
- Satellite phone: (254) 377-3726

*If a blood collector is located in a state with a statewide response plan (e.g., California Blood Bank Society), the coordinating entity (e.g., command center) may act as liaison for the affected BC. Arrangements for contact with a centralized statewide response system must be in place before a disaster. Please contact the task force at the number above and provide contact information and details of the response system.

Whom to Contact: Blood Collector to Local Emergency Response Agencies

BC should be prepared to contact the local emergency response agencies (Web sites provided below). BC should establish ongoing relationships with these agencies and determine what information will be exchanged during and after an emergency.

- State and local emergency management agencies
 - www.fema.gov/about/contact/statedr.shtm
 - www.disasterhelp.gov/local-resources.shtm
- State and local public health agencies
 - www.statepublichealth.org
 - www.naccho.org
- State blood and hospital associations
 - www.aabb.org/Content/About_Blood/Links/links.htm
 - www.aha.org/aha/resource_center/links.jsp#2
- Community-based disaster organizations
 - www.redcross.org
 - www.nvoad.org
 - www.salvationarmyusa.org/usn/www_usn.nsf

Whom to Contact: Vendors and Service Providers

BC should be prepared to contact vendors, service providers, and group purchasing organizations for supply or service needs. For critical supplies or services, BC should consider establishing predefined triggers and action plans.

Whom to Contact: Local Media

During high-profile events, BC should be prepared to contact local media and provide updates on its operational status and needs. Media messages should be coordinated with the AABB Disaster Task Force to ensure that donors and the public receive a clear and consistent message regarding the nation's blood supply.

Modes of Communication

BC should identify, prioritize, and develop procedures for using redundant modes of communication during a disaster. The procedures should include methods for establishing and maintaining communication with the internal and external key contacts (e.g., what mode to use given the scope of the event). Communication modes and procedures should be tested on a routine basis to ensure operability.

Below is a list of standard modes of communication in a suggested order of use. Each mode has its advantages but also may have limitations in a particular scenario. Blood collectors should carefully evaluate each mode to determine what combination of redundancies works best for their facility.

Voice Communication

- Land line phones
- Wireless (cell) phones
- Two-way radios (primarily for local use)
- Voice Over Internet Protocol (VOIP) phones
- Satellite phones
- Amateur radio
- Word of mouth (e.g., BC sends messengers to hospitals to exchange information on blood supply status and needs)

Electronic Communication

- E-mail through a local area network (i.e., direct connection to Internet)
- E-mail through a wireless connection (e.g., Blackberry, Treo)
- Text messaging
- Web site (i.e., posting or receiving information through a Web site)
- Fax

2.4 TRANSPORTATION OPTIONS

Each blood collector should establish and maintain a local contact with shipping companies. (Use the Transportation Options Grid in Appendix 6.4 to manage this information.) The information should be verified and updated every six months. When blood needs to be transported to an affected area, the task force recommends the following transportation option hierarchy:

Commercial Air Cargo Carriers

Carrier (type of service)	Phone	Web
AirNet Express (same day)	(888) 888-8463	www.airnet.com
DHL (overnight)	(800) 225-5345	www.dhl-usa.com
Federal Express (overnight)	(800) 463-3339	www.fedex.com
Quick International (same day)	(800) 733-7899	www.quickintl.com
United Parcel Service (overnight)	(800) 742-5877	www.ups.com

Air Charity Network (ACN)

ACN, formerly known as Angel Flight America, is a nationwide volunteer pilots' network that has agreed to work with the task force and the blood community to transport blood and blood products in times of emergency. Contact your regional ACN affiliate (below) to establish a communication procedure for emergencies. If you are unsure about which ACN affiliate serves your area, contact ACN national headquarters at (877) 621-7177 or on the Web at www.aircharitynetwork.org.

ACN Affiliates	Phone	Web
National HQ	(877) 621-7177	www.aircharitynetwork.org
Angel Flight Northeast	(800) 549-9980	www.angelflightne.org
Angel Flight Mid-Atlantic	(800) 296-3797	www.angelflightmidatlantic.org
Angel Flight Southeast	(800) 352-4256	www.angelflightse.org
Mercy Flight Southeast	(888) 744-8263	www.mercyflightse.org
Airlift Hope (mid-South)	(800) 325-8908	www.airlifthope.org
Angel Flight Central	(800) 474-9464	www.angelflightcentral.org
Angel Flight South Central	(800) 989-2602	www.angelflightsc.org
Angel Flight West	(888) 426-2643	www.angelflight.org

Ground Carriers

Ground carriers can be used to deliver blood to the affected area. They will be essential if air assets are unavailable (e.g., if the Federal Aviation Administration restricts airspace). Several ground carriers have priority nonstop services. Contact local and regional carriers and establish a process for ground transportation in an emergency.

Carrier	Phone	Web	Comments
FedEx Custom Critical	(866) 274-6117	http://customcritical.fedex.com	
AirNet Systems Inc. (same day)	(888) 888-8463	www.airnet.com	
Messenger Courier Association of the Americas	(202) 785-3298	www.mcaa.com	Web site has a courier locator by airport code or zip code
United Parcel Service Express Critical	(800) 714-8779	www.ups.com/content/us/en/freight/expedite.htm	

Local Police and Other Emergency Service Vehicles

Local emergency services may be needed to transport blood through affected areas to hospitals. BC should establish and maintain collaborative relationships with local law enforcement and emergency service organizations. This transportation option should be considered a backup option, as these vehicles may be unavailable during a major disaster. Consider the following critical issues when establishing these relationships:

- ✓ Educate local authorities about blood
 - Critical lifesaving nature of blood
 - High priority to get blood from BC to hospitals (or from airport to BC/hospitals)
 - Perishable nature of blood
 - Temperature issues related to transporting blood—containers are validated for 24–48 hours from the time they are packed and shipped, and must be delivered before temperatures fall outside required levels
 - Storage capacity issues—if refrigeration capacity is limited, blood may have to be transported to multiple locations for storage
- ✓ Hazardous substance issues—blood collected for transfusion and donor samples for testing blood are not considered biohazards.
- ✓ BC should consider having company logos on all vehicles and may want to have magnetized signs to use on extra vehicles as needed.
- ✓ BC should plan to help essential staff get to and from the facility if roads/infrastructure are damaged or fuel is unavailable.
- ✓ Facilities should have backup plans for storage in case of sustained power outages (i.e., agreements with other blood facilities to store products, use of hospital storage capacity, commercial refrigeration, or mobile refrigeration with generator backup and fuel).

2.5 COORDINATION WITH GOVERNMENT AUTHORITIES AND EMERGENCY MANAGEMENT AGENCIES

The blood collector should identify the local and state government authorities and emergency organizations to contact in the event of a disaster. BC should be listed on local emergency response plans supporting hospital and health care organizations.

Working with State, Local, Tribal, and Territory Emergency Management Agencies (EMAs)

- ✓ Establish and maintain relationships with state, local, tribal, and territory emergency management and public health agencies.
 - State and local EMA Web sites
 - www.fema.gov/about/contact/statedr.shtm (also listed in Appendix 6.2)
 - www.disasterhelp.gov/local-resources.shtm
 - State and local public health agency Web sites
 - www.statepublichealth.org
 - www.naccho.org
 - State blood and hospital associations
 - www.aabb.org/Content/About_Blood/Links/links.htm
 - www.aha.org/aha/resource_center/links.jsp#2
- ✓ Conduct informational briefings for state and local EMAs on your BC's mission, capabilities, and anticipated support requirements during a disaster.
- ✓ Establish BC as a critical health entity (blood supplier) within emergency response system, and ask to be included in appropriate planning sessions and state and local emergency preparedness exercises.
- ✓ Request that BC be placed on priority restoration lists for power, water, fuel, and communication.
- ✓ Locate the critical staging areas that emergency response organizations will use—these locations can be used as delivery points for blood and supplies.
- ✓ Request that local authorities provide identification badges so your essential personnel can travel to/from work and deliver blood products (if local authorities issue such badges).

Working with Federal EMAs

Under the United States National Response Framework, the AABB Interorganizational Task Force on Domestic Disaster and Acts of Terrorism plays a critical role in coordinating national response efforts related to blood. The national response system for blood is outlined in this handbook, and facilities are encouraged to integrate the specific steps for obtaining national support into their local disaster plans. The Web site addresses for the National Response Framework and the task force plan are below:

- National Response Framework: www.fema.gov/emergency/nrf/mainindex.htm
Note: The specific references for blood are contained under Emergency Support Function #8-Public Health and Medical Services Annex (ESF #8-6)
- AABB Task Force Response Plan: www.aabb.org/Content/Programs_and_Services/Disaster_Response/

Coordination strategies with EMAs should include the following activities:

Hospital Admissions Estimation

- ✓ Establish a relationship with the entity or entities responsible for estimating the number of hospital admissions (e.g., survivors who need hospital care) expected from an event.
- ✓ Identify expected types of injuries.
- ✓ Use these figures to cross-check those collected from the hospital customers on the Event Assessment Form (Appendix 6.5).
- ✓ Establish redundant lines of communication with the entity to ensure that contact can be maintained throughout an event.

Transportation Coordination

- ✓ Establish relationships with state and local law enforcement agencies, as their assistance may be needed to transport (or allow BC to transport) blood to hospitals in affected areas.
- ✓ Educate local authorities on blood issues, including lifesaving nature, packaging and storage requirements (e.g., temperature), and hazardous materials issues (e.g., units of blood are not biohazardous).
- ✓ Acquire signage (e.g., magnetic signs) for BC vehicles that local law enforcement will recognize and approve for clearance into affected areas.
- ✓ Establish alternative transportation means/routes for critical BC personnel who may need to report for duty in an affected area.

Critical Services Restoration

- ✓ Contact local public utilities and ask them to place BC on priority service (e.g., telephone, electricity, fuel (unleaded and diesel), and water restoration lists) as an emergency services provider.

Emergency Supplies Distribution

- ✓ Establish shelter-in-place plans that include food for three days, water, first aid supplies, cots and blankets, flashlights, and battery-powered radios.
- ✓ Establish relationship and operational procedures with emergency organizations responsible for distributing essential supplies such as food, water, and shelter supplies (e.g., blankets). These supplies may be needed for staff or donors during a disaster.

2.6 VENDOR MANAGEMENT/SUPPLY CHAIN STRATEGIES/ ALTERNATIVE FACILITIES

Blood collectors should be able to rapidly identify needed supplies, key sources of material, methods of transportation, and alternative facilities in the event of a disaster or act of terrorism. Many facilities use a “just in time” inventory and supply system. Such a system may not be adequate in a disaster, especially if increased numbers of donors will be drawn or if supply chains are interrupted for extended periods (e.g., commercial flight disruptions).

Blood collectors should develop a comprehensive list of critical supplies and the vendors that supply them, along with a basic risk assessment for each supplier/vendor. For instance, if a primary vendor is located in a disaster-prone area, BC may want to increase stocks of a certain supply or secure a secondary supplier. During some events, such as a pandemic influenza outbreak, supplies may be constrained both nationally and internationally—this should be factored into the planning process. Below are preparation checklists for vendor and facility management needs that should be addressed before a disaster occurs.

Note: For additional planning checklists for pandemic influenza, go to the AABB Web site at www.aabb.org/Content/Programs_and_Services/Disaster_Response/.

Needed Supplies

- ✓ Prepare a list of critical products, services, and supplies related to collection, testing, processing, distribution (controlled-temperature transport), and storage of blood products.
- ✓ Determine the necessary inventory of each item (i.e., number or days of supply).
- ✓ Conduct a risk analysis of critical supplies on the basis of the kinds of disaster-related events that threaten BC (e.g., hurricane, fire, earthquake) and reassess minimum inventory requirements (e.g., increase minimum levels during hurricane season).
- ✓ Determine additional space requirements and storage conditions; contract or lease additional space if necessary.

Source of Supplies

- ✓ Prepare a list of vendors and contact information for each product, service, and supply.
- ✓ Survey vendors to determine their inventory methods, product reserves, and the replenishment intervals (i.e., how long it takes to get inventory to the BC).
- ✓ Survey vendors about their contingency plans if a disaster were to affect their facility (e.g., the main manufacturing plant is quarantined because of a biological event).

Notify Suppliers

- ✓ Develop a process and checklist for notifying vendors immediately after an event that has damaged a facility, damaged supplies (e.g., fire damage), or threatens to disrupt delivery of supplies (e.g., road infrastructure damage).

Alternative Facilities

- ✓ Alternative facilities that can be used to continue various critical operations should be identified and tested on a routine basis. BC should consider the equipment, supplies, information technology (IT) support, and so on that will be needed at the site, and the site should be located outside the potential impact areas of hazards identified in the risk assessment.
- ✓ In addition to alternative facilities, BCs should develop contracts or memorandums of understanding (MOUs) for critical services such as blood testing, crossmatching, storage, IT restoration, as administrative functions.

Transportation

- ✓ Develop a transportation contingency plan with the vendor(s) in case normal transportation routes are disrupted or inoperable for sustained periods (e.g., bridge collapse, air space restricted).

2.7 WORKING WITH LOCAL UTILITIES TO RESTORE SERVICES

A key component of being prepared for a disaster is making sure that essential utilities will be functional as soon as possible after a disaster occurs. BC should conduct a careful risk analysis of all major systems and supporting systems to ensure that the organization can remain operational and communicate with the outside world during an emergency. It is critical that **blood collectors ensure that they are on priority restoration lists for telecommunications, power, fuel, and water supply.**

Telecommunications (Land Line, Cell, Internet)

During an emergency, certain entities are entitled to priority service for having their phone lines restored.

- ✓ BC should contact its local and long distance provider(s) and explain that it is a critical health entity that needs to be placed on the priority list for restoration of service when phone lines have been disrupted. It's important to obtain some kind of verification that BC is on the priority restoration list and to verify this status annually.
- ✓ BC should contact its wireless provider to discuss contingency plans if cellular service is interrupted or overloaded during an emergency. In certain circumstances, the provider may be able to reroute cellular traffic (e.g., register your cell phone to an alternative cell tower) to restore service. BC should investigate the use of text messaging during an emergency—these messages typically can be sent and received even if the cellular voice system is overloaded.
- ✓ BC should contact its Internet service provider to discuss contingency plans if Internet services are interrupted. BC should conduct a careful analysis of all systems that rely on Internet connectivity to determine which applications would be affected by an outage. BC should implement appropriate redundancies to ensure that critical systems remain online.
- ✓ BC should have backdoor numbers for all telecommunication providers to ensure direct contact during an emergency. In addition to restoration, BC should discuss options for receiving priority calling service if lines are overloaded (e.g., the phone company can reroute priority calls during an emergency).
- ✓ BC should consider participating in the Government Emergency Telecommunications Service (GETS) and Wireless Priority Service (WPS) programs. These federally directed programs provide emergency access and priority processing in local, long distance, and cellular networks during an emergency. For more information, visit the GETS Web site at www.gets.ncs.gov and the WPS Web site at <http://wps.ncs.gov>.

Power

In preparation for power outages, BC should trace all electrical systems and subsystems to determine the affects of both temporary and sustained power outages on critical systems. Major systems to investigate include those required for collection, testing, processing, and storage of blood and components, as well as information and telecommunication systems; water; heating, ventilation, and air conditioning (HVAC); security system; lights; and essential employee workstations. General points to consider are below:

- ✓ Determine the rules in the local community regarding priority status for return of power.
- ✓ Check with the local power company as to its procedures for deeming an entity top priority for restoration of power in the event of an outage (Note: the power company may direct BC to a city/local government.)
- ✓ Trace all systems linked to the facility's emergency power supply (e.g., generator) to ensure that all critical systems can be powered for at least 7–10 days without outside assistance. Note: in addition to primary systems, make sure alternate power supply can run systems critical to employee health and safety (i.e., HVAC, toilets, water, and waste removal).
- ✓ Review fuel sources for emergency generators to ensure that fuel can be pumped to the generator without main electrical power (i.e., fuel pumps and switches should not rely on main power supply that may be interrupted).
- ✓ Ensure that all alternate power source switches and connections are compatible with alternate systems (e.g., external connections must be compatible with generator if a service provider is utilized).
- ✓ Ensure that generator and all supporting switches are located at a height above any potential flooding areas (e.g., elevate generator and switches to top of building).
- ✓ Ensure that generator is properly protected from rain and wind (hurricane-force wind and rain can seep inside generator casing if not properly protected).
- ✓ Consider developing agreements with vendors to provide backup sources of power (e.g., mobile generator). Note: make sure switches and connectors for facility buildings are compatible.
- ✓ Maintain “backdoor” numbers to local power company and alternate power supplies to ensure contact can be established during an emergency.
- ✓ Test alternate power system on an annual basis and maintain a schedule for maintenance and upgrades as necessary.

Fuel

Obtaining fuel during and after a disaster is critical to ensuring that BC remains operational and that staff are able to get to the facility and transport blood products to hospitals. A thorough analysis should be conducted to identify all of the critical systems that rely on fuel (e.g., diesel, unleaded gasoline, propane, and natural gas). In addition to critical systems at the facility (e.g., generator), careful consideration should be given to essential staff vehicles as well as BC's blood collection and transportation vehicles.

- ✓ Calculate the fuel need for essential staff to commute to and from work for at least 3–5 days without assistance from routine fuel sources (e.g., local service station).
- ✓ Calculate the fuel need for BC collection and delivery vehicles for at least 3–5 days without assistance from routine fuel sources (e.g., local service station).
- ✓ Calculate the fuel needed to run the facility alternate power sources (e.g., generators) for at least 3–5 days.
- ✓ With the above calculations, determine the total amount and type of fuel needed and investigate alternate fuel sources to fulfill these needs for a period of 3–5 days without assistance.
- ✓ Alternate fuel sources to consider include: agreements with fuel providers to keep fuel at desired levels, installation of on-site fuel tanks capable of delivering required amount and type of fuel. Note: ensure that all fuel pumps have redundant power sources to operate the pumping mechanisms.
- ✓ Consider a policy for essential staff to maintain minimum levels of fuel in personal vehicles at all times (e.g., half a tank).
- ✓ Develop contingency plans to shuttle staff to and from work if personal vehicles are not allowed due to damaged infrastructure (make sure the fuel calculations include the amount needed for the shuttle service).
- ✓ During extreme fuel shortages, consider the need to provide security for BC and staff vehicles as well as BC fuel depots to prevent theft.

Water

Water is critical to several systems required to maintain BC operations. A thorough analysis of all systems relying on water should be conducted to ensure that the facility can conduct collections, processing, testing, storage, and delivery of blood products to hospitals.

- ✓ In addition to major systems (e.g., testing), BC should give careful attention to subsystems needed for the health and safety of staff, including HVAC, water for toilets, wastewater removal, and drinking water for hydration.
- ✓ Determine the mechanisms used by local and regional water providers to deliver water to BC. In many cases, the delivery methods rely on electric pumps that may be inoperable during a power outage. BC should discuss contingency plans with local and regional water providers and consider installing on-site gravity feed water sources (e.g., water towers) if providers are unable to ensure service.
- ✓ BC should get on priority restoration lists with local and regional water providers and maintain “backdoor” numbers to ensure BC is able to communicate with providers during an emergency.

2.8 MANAGING DONORS, VOLUNTEERS, AND CROWDS

To prepare for potential crowds, blood collectors should develop a “donor surge plan” that considers the following issues.

Planning for Collections

- ✓ Develop a process to evaluate collections and the need to alter collection schedules/location disrupted by the disaster (e.g., flooding, wildfire).
- ✓ Prepare a system for identifying the donors you want to draw versus those who should return later.
- ✓ Consider the need to draw only group O positive, O negative, and other Rh-negative donors.
- ✓ Consider implementing a system to draw only samples for ABO/Rh testing from other prospective new donors.
- ✓ Anticipate the need to collect specific components such as plasma, apheresis platelets, and hematopoietic stem cells.
- ✓ Develop the capability to assess donor availability and recruit donors by geographic area (e.g., zip code) in case of regional disruptions.

Donor/Crowd Control

- ✓ Determine the maximum number of donors you can handle—consider need, supply, staff, time, and lab capacity.
- ✓ Locate facilities for mass collections in case the primary collection site is not sufficient or operational.
- ✓ Arrange for additional site(s) that allow for large-scale access (parking, mass transit, restrooms, and water).
- ✓ Develop a plan for crowd control—consider waiting lines, emergency vehicle access, and safety and security measures for donors and staff.

Volunteers

- ✓ Plan how you will prioritize and assign volunteer tasks.
- ✓ Appoint a contact person to work with volunteers.
- ✓ Consider regulatory issues (e.g., unless they are already trained, volunteers should be assigned only nonregulated tasks).
- ✓ Prepare lists of volunteers who may be available for an emergency, including those with specialized skills (e.g., retired staff, transportation, amateur radio).
- ✓ Consider offering blood donors the opportunity to volunteer for needed tasks.
- ✓ Prepare a strategy to deal with volunteers who are not needed.
- ✓ Develop training materials.
- ✓ Plan how you will identify volunteers for security purposes.

2.9 WORKING WITH THE MEDIA

If a natural disaster or act of terrorism occurs, BC will need to inform the general public about its medical needs relating to blood. To communicate these needs to its current donor base and potential new donors, BC should contact print and broadcast reporters (if reporters are not already calling BC) to provide them with an accurate, concise message. However, before talking to the media, BC should speak with the task force to ensure that a consistent message is being delivered. To reach the task force media representative, call (800) 458-9388.

Whenever possible, BC should coordinate its media messages with those of the task force. It is usually best for BC to handle inquiries from local media, while forwarding inquiries from national media outlets (*New York Times*, AP, NBC's *Today Show*, etc.) to the task force media representative.

In preparation for a potential disaster, BC should

- Update media lists (TV, newspapers, radio stations, wire services) on an ongoing basis.
- Decide who will be the spokesperson(s) and ensure that they receive media training.
- Draft as many templated press materials (bios, fact sheets, etc.) as possible ahead of time (see Appendix 6.3, Boilerplate Press Releases).
- Consider preparing “message maps” to standardize messaging. Message maps are risk communication tools that make complex information easier to understand (e.g., each primary message has three supporting messages that provide context).
- Be prepared to provide media with contact information for the task force.
- Share and, whenever possible, coordinate all media messages with the task force.

2.10 SAFETY AND SECURITY CONCERNS

The blood collector should take steps to ensure the safety and security of staff, volunteers, and donors both onsite and during mobile operations (e.g., transporting blood to affected hospitals).

Security

- ✓ Permanent security identification (e.g., photo ID) should be issued to all staff.
- ✓ Temporary security identification should be prepared for issue to anyone who needs access to the BC facility, such as volunteers, donors, and vendors.
- ✓ BC may elect to use professional security guards to help manage crowds or to secure the facility during a crisis.
- ✓ BC should secure fuel supplies, fleet vehicles, and any other materials that might be targets for theft during a sustained disaster-related event.
- ✓ BC should have contingency agreements in place with security firms to guard BC property and equipment that has been damaged in a disaster (e.g., fire).

Physical Safety

- ✓ BC should prepare the following procedures for staff to implement during an event:
 - Evacuation plans: Evacuation routes for the BC facility, the local area, and mobile sites should be established in case staff, volunteers, and donors must be evacuated quickly.
 - Emergency shifts: An emergency staff schedule should be prepared that balances tasks and staff resources, with the goal of controlling fatigue (fatigue can lead to errors and compromise safety).
 - Emergency shelter: Areas within the facilities should be designated for sheltering in place during tornados or industrial accidents.
 - Emergency contacts: A directory of staff emergency contact information (e.g., home phone and cell numbers) should be established and maintained.
 - Managing donors: A plan for a potential influx of donors should be prepared, with safety issues (e.g., crowd control) as a primary concern.

Emergency Supplies

- ✓ BC should establish and maintain a depot of emergency supplies at the facility (e.g., flashlights, batteries, water). For a comprehensive list of emergency supplies, go to the FEMA Web site at www.fema.gov/plan/prepare/supplykit.shtm.
- ✓ Mobile vans and BC vehicles should be equipped with mobile emergency kits. For an emergency car kit, go to the FEMA Web site listed above.

2.11 HUMAN RESOURCES

The most important resource of any organization is its people. During a disaster, it can be difficult to balance the needs of staff tending to their own families with ensuring the continuity of operations at the BC facility. The following are human resource considerations in preparing for an emergency.

Essential Employees

- ✓ BC should clearly define the roles of essential employees during a disaster and add the specific requirements to job descriptions, performance objectives, and compensation. BC should select staff for these roles who will be available during the response or recovery period (e.g., those who live near BC).
- ✓ BC should consider which departments may be needed during various types of events (e.g., quality assurance personnel to assess damage to systems/processes and restore operations after a fire).
- ✓ BC should encourage and assist essential employees in developing a family support plan to ensure that their needs are met while they are on duty (e.g., care for children or elderly family members).
- ✓ BC should arrange alternative transportation for essential employees, as routine routes may not be available (e.g., because of fuel shortages or road damage).
- ✓ BC should provide sufficient food, water, HVAC, and restroom facilities for essential employees while they are on duty and make sleeping arrangements if they are unable to return home after their shift.
- ✓ BC should consider compensation issues for nonessential staff (i.e., payment for time when they are not able to work).
- ✓ Essential staff should be required to carry a copy of the emergency procedures and contact information at all times (i.e., a small handbook).

Communication with Staff and Board of Directors

- ✓ BC should plan for a communications blackout following a major disaster. Routine communication channels (i.e., land lines and cell phone) will fail or be overloaded, so BC should consider the following strategies to keep staff and board members informed:
 - Use BC's voicemail greeting to convey the status of the facility and tell staff and donors what to do.
 - Use local radio and TV stations to broadcast messages to staff and donors on facility status (e.g., when the facility will reopen).
 - Use a private Web site hosted outside the affected area where staff can get information on the facility and post information on their whereabouts (i.e., a place for staff to check in). The Web site should also contain contact information and emergency procedures.
 - Use text messaging to notify staff about the status of the facility. Emergency broadcast text messaging services can be purchased from many companies.

Communication with Staff and Board of Directors (continued)

- Use external e-mail accounts (e.g., yahoo.com) if the facility's e-mail servers are offline.
- Communicate with staff and board of directors regarding who is in charge of what during the emergency. The schedule should provide for backup personnel in case people are not available due to the nature of the event (e.g., disaster cuts off communication with the main person assigned to a job).
- Issue every staff member a laminated card with the critical contact information for these strategies (e.g., private Web site address, emergency phone numbers, external e-mail account).
- If restoration of services is extensive, develop a process to communicate with staff, board members, the public, and donor groups about progress.

Other Human Resource Issues

- ✓ BC should hold routine evacuation and response drills to ensure that staff members know where to go and what to do in a disaster (e.g., fire, flood).
- ✓ BC senior leadership should emphasize employee and donor safety during and after an event (i.e., people should not take risks to save equipment, supplies, or products).
- ✓ BC should have a process to monitor the air quality in a facility that has been affected by a disaster that reduces air quality (e.g., fire or explosion).
- ✓ BC should identify resources and programs to help staff deal with the emotional toll of a disaster (e.g., stress, loss of property).
- ✓ BC should maintain adequate financial reserves to operate for weeks/months following a catastrophic disaster and should develop a compensation plan for employees who may not be able to report for work because of personal loss or because the facility is closed during recovery efforts.
- ✓ BC should develop a restoration contingency plan that prioritizes which facilities should be restored first (e.g., hospital services, consultation/reference lab, donor testing).

2.12 INFORMATION SYSTEMS AND RECORDS MANAGEMENT

BC should conduct a risk assessment of all information and records management systems to identify areas that need redundancy. The following issues should be considered.

Information Systems

- ✓ Develop a list of all critical IT systems, including operational elements such as network path, storage, security, end user accessibility, and power and cooling requirements.
- ✓ Identify IT vendors and service providers needed to maintain operations during and after a disaster. BC should obtain redundant contact information for these providers.
- ✓ Conduct a risk analysis of the uninterruptible power supply (UPS) needs for information systems and add redundancy where needed.
- ✓ Consider climate-controlled rooms for information systems that have redundant power supplies (e.g., air conditioning linked to backup power).
- ✓ Trace all network paths that rely either fully or partially on the Internet and assess redundancy needs (i.e., in case a main backbone of the Internet is disrupted).
- ✓ Trace all phone systems that rely on VOIP technologies and develop redundancies for voice communication during a power or Internet disruption (i.e., maintain an analog phone service).
- ✓ Identify information systems that should be replicated on servers outside the area (i.e., have critical data hosted in another state with easy access).
- ✓ If BC uses an IT disaster recovery (DR) service, determine the DR service's capacity to deal with a widespread disaster and how services will be prioritized in various emergency scenarios.
- ✓ Identify organizational job functions that can be performed offsite and create lists of these functions, including type of function, time requirements (full time or part time), IT requirements, and how IT support will be provided.
- ✓ For employees who will be required to work offsite during a disaster, BC should determine if they have a secure remote Internet connection and whether BC's networks will be able to support the remote users.
- ✓ For a sudden increase in remote users, BC should consider negotiating special temporary remote use software licenses (e.g., Citrix).
- ✓ In a widespread disaster, the Food and Drug Administration (FDA) may change certain rules regarding, for example, donor eligibility. BC should determine the temporary effect of these changes on its computer systems and standard operating procedures, and how the organization will revert to normal operational rules when the emergency is over.
- ✓ Consider any regulatory issues connected with using alternative IT sites or developing emergency procedures for IT redundancy.

Records Management

- ✓ BC should develop a list of critical records that must be secured to withstand any potential hazard. Record areas to consider include
 - Blood product and donor records
 - Financial records (payroll, general ledger, accounts receivable/payable, etc.)
 - Bank accounts, checks, and insurance policies (BC may need to keep blank checks available for expenses during an emergency.)
 - Corporation legal records (articles of incorporation, licenses, strategic plans, etc.)
 - Research records
- ✓ BC should store records in areas with minimal exposure to common disasters (e.g., third floor of a building in a flood-prone area).
- ✓ BC should consider digitizing critical records in case paper copies are destroyed (e.g., in a fire or flood).

2.13 INSURANCE AND CASH RESERVES

Insurance Issues

BC should conduct a thorough risk analysis to ensure that it has adequate insurance coverage—including property, liability, and business interruption—to enable it to maintain continuity of operations during and after a disaster. The following are insurance issues to consider:

- Calculate the true replacement value of machinery and supplies.
- Calculate the true cost of rebuilding facilities that have been damaged or destroyed.
- Calculate the true cost of business interruption (i.e., loss of revenues, expenses).
- Develop a process to inform insurers and board members when quick decisions need to be made that affect coverage or use of insurance following an emergency (e.g., need for funds to begin mold abatement efforts after a flood).
- Develop a process to maintain an excellent relationship with insurers (i.e., regular meetings).

Cash Reserves

It is critical to have access to cash following a disaster to maintain the business until normal operations can be resumed. A cash reserve policy should be established and reviewed annually to ensure that amounts are adequate given the hazards identified in the risk assessment (e.g., fire, hurricane, flooding). In many cases, the cash reserve will equal several months of operational expenses.

In addition to cash reserves, BC should consider establishing access to cash during emergencies through Small Business Administration loans, conventional loans, and lines of credit.

BC should establish a procedure for accessing emergency funds, including redundant decision-making and signing authorities. Primary authorities (i.e., board members) may not be easily accessible following a disaster, and some decisions may need to be made quickly (e.g., mold abatement services following a flood or smoke damage removal services after a fire).

2.14 REGULATORY CONCERNS

The availability of blood may be the primary concern in a disaster, but the safety of the blood supply is also paramount. Adherence to FDA regulations is crucial. It is important to follow current good manufacturing practice regulations and AABB standards. Any regulatory exemptions will be made on a case-by-case basis by medical need only. In a disaster, the task force will be in touch with the FDA and will convey to the blood community any changes in regular FDA policy.

The task force recommends the following actions as part of the planning process for disasters:

- ✓ Ensure that policies and procedures for emergency and exceptional release are in place that can be applied if absolutely necessary to meet immediate needs. Such policies are best developed before a disaster occurs.
- ✓ Alternative/backup procedures should be in place in the event of a computer outage, especially procedures for labeling blood and blood products and for donor deferral roster checks. Exercise and audit these procedures.
- ✓ Establish contracts and agreements with backup testing facilities for use when the primary testing facility is not available. Only facilities that routinely test allogeneic blood should be used as backups. Notify the FDA of all backup testing facilities.
- ✓ All regulated functions should be performed by properly trained and competency-assessed staff. In planning for disasters, consider establishing a cadre of personnel who can be used in an emergency. Identify trained people who have transferred to another area or position.
- ✓ Consider establishing a list of former employees and volunteers who can be contacted in an emergency.
- ✓ Create and maintain a current list of personnel capabilities. This list can be used in the event of a personnel shortage to identify people with the needed capabilities.
- ✓ Establish a just-in-time refresher training and competency program for personnel previously trained in regulated functions.

FDA Web site Resources

FDA Office of Crisis Management:

www.fda.gov/oc/ocm

Exceptions and alternatives to standard procedures are covered in 21 CFR 640.120. For examples of exceptions that have been granted, go to

www.fda.gov/cber/blood/exceptions.htm.

Transfusion services (nonregistered) could collect blood in an emergency situation:

www.fda.gov/ora/compliance_ref/cpg/cpgbio/cpg230-110.html

Emergency interstate shipment of unlicensed products:

www.fda.gov/ora/compliance_ref/cpg/cpgbio/cpg220-100.html

The FDA could permit emergency use of unapproved medications, which could become a donor deferral issue:

www.fda.gov/oc/guidance/emergencyuse.html

Radiation contamination:

www.fda.gov/bbs/topics/news/2005/NEW01157.html

Drugs already approved:

www.fda.gov/cder/drugprepare/default.htm

3 ACTIVATION/EVENT OCCURS

3.1 STEP-BY-STEP RESPONSE PROCESS

The response plan is centered on the blood collector in the affected area (affected blood collector) acting as a main conduit for information and communication. The affected BC's role is to assess the immediate and short-term need for blood using the Event Assessment Form (Appendix 6.5) and communicate this need to the Interorganizational Task Force through AABB. The task force will then consider the national response and recommend an action strategy, including but not limited to the shipment of blood to the affected BC and the coordination and dissemination of a message to the blood community and donors.

Step 1. Affected Blood Collector Assesses Medical Need for Blood

- ✓ Contact local hospitals and emergency services to determine
 - Nature of event (e.g., natural disaster, act of terrorism)
 - Current and expected hospital admissions by facility
 - Types of expected injuries
 - Current blood inventory levels of type O RBC by facility

Hospital Admissions Expected (Disaster-Related Only)

Total Current Hospital Admissions:	_____
Total Potential for Expected Hospital Admissions:	(+) _____
Total Hospital Admissions Expected:	(A) = <input type="text"/>

Type O (both + and -) RBC available

Total Type O RBC at Hospitals and Blood Collector:	_____
Total Type O RBC Needed for Non-Disaster-Related Need:	(-) _____
Total Type O RBC Available:	(B) = <input type="text"/>

Calculate the total number of units needed from the task force

Total Hospital Admissions Expected	<i>Multiply (A) by 3</i>	Total Type O RBC Needed	Total Type O RBC Available	Total Type O RBC Needed from TF
_____ (A)	x 3* units =	_____ (-) minus	_____ (B)	= _____

↑
↑

*Sources for unit estimate:

1. Department of Defense: www.dtic.mil/whs/directives/corres/pdf/648004p.pdf
2. Schmidt PN. Blood and disaster—supply and demand. *N Engl J Med* 2002; 346:617–20.
3. Shinar E. Magen David Adom Blood Services. Presentation at Advisory Committee on Blood Safety and Availability, Jan. 28–29, 2004. Available at <http://www.hhs.gov/bloodsafety/presentations/MagenDavidAdomBloodServices.pdf>

Step 2. Activate Emergency Communications Plan (ECP)

Activate ECP (outlined in Section 2.3) and communicate with the following internal and external parties (depending on the severity of the event):

- Organization staff, essential personnel, key departments, and senior leadership
- Hospital transfusion service customers
- AABB Task Force (see below)
- Local emergency response organizations
- Vendors and service providers
- Local media (media messages should be coordinated with the AABB Task Force to ensure that donors and the public receive a clear and consistent message regarding the nation's blood supply)

Step 2.1. Affected Blood Collector Contacts AABB (ideally within 1 hour of event)

Use the following hierarchy to contact AABB. For instance, if landline phones are busy or not functioning, try the cell phone numbers.

Note: AABB representatives monitor breaking news and will attempt to contact facilities in the affected areas to establish a communication link.

Hierarchy of Communication with AABB

<i>Level 1:</i>	<i>Landline Phone Numbers</i> (800) 458-9388 (main 800 number) (800) 458-9387 (auxiliary 800 number) (800) 544-5192 (auxiliary 800 number)
<i>Level 2:</i>	<i>Cell Phone Numbers</i> (240) 994-6700 (main cellular number) (240) 994-6701 (auxiliary cellular number) (240) 994-6702 (auxiliary cellular number) (240) 994-6703 (auxiliary cellular number)
<i>Level 3:</i>	<i>E-mail</i> nbe@aabb.org
<i>Level 4:</i>	<i>Text Message Number</i> (240) 994-6700
<i>Level 5:</i>	<i>Satellite Phone Number</i> (254) 337-3726

Step 3. Interorganizational Task Force Conference Call

- ✓ AABB will convene a conference call with Level 1 task force representatives. Depending on the nature of the event, a contact person from the affected blood collector may be asked to participate in the call. If Level 2 task force representatives need to participate in the conference call, they will be notified. Dial-in instructions will be communicated by AABB staff to the task force representatives via phone or e-mail.

Level 1 TF Reps.	Level 2 TF Reps.
AABB	AATB
ABC	AdvaMed
ARC	AHA
ASBP	CAP
BCA	HRSA
CDC	NMDP
FDA	PPTA
HHS	

- ✓ Task force determines national strategy and coordination efforts, including
 - Constructing message to blood community and donors
 - Coordinating broad public message in conjunction with HHS
 - Transporting and coordinating needed blood to the affected area
 - Determining next steps until event has been resolved
 - Communicating recommendations to Level 2 task force members if they are not on the conference call

Step 4. Implementation of Task Force Recommendations

- ✓ Task force will communicate the recommendations to the affected BC and will remain in regular contact with BC until the event has been resolved.
- ✓ Task force representatives will communicate the task force recommendations to their respective constituencies.
- ✓ A unified message (e.g., press releases) regarding the event status and task force recommendations will be disseminated to the blood community and donors via each constituency channel (for example, ABC, BCA, and AABB will communicate the recommendations to their respective members).
- ✓ Task force will work with HHS to develop a broad message to be delivered to the public at large if needed.

3.2 TRANSPORTATION OF BLOOD TO AFFECTED AREA

If the task force determines that the affected BC needs blood delivered, the blood collector(s) with access to the most rapid means of transportation will be contacted to ship blood to the affected BC.

- ✓ A representative of the task force (e.g., ARC, ABC, BCA, AABB) will contact the blood collector(s) with access to the most rapid means of transportation to the affected BC and facilitate a shipment of blood to the affected BC.

Note: In some cases, because of disaster-related effects on local infrastructure (e.g., highways closed), the BC closest to the affected BC may not have the most rapid means of transporting blood.

- ✓ The BC responsible for shipping the blood should use the hierarchy of transportation options in Section 2.4, Transportation Options.
- ✓ Before the shipment, the task force representative will confirm the delivery point with the affected BC. In some cases, the initial delivery point will be an alternative airport or a staging area for other emergency supplies being delivered to the affected area.
- ✓ The affected BC is responsible for picking up the shipment at the prearranged location discussed with the task force representative. The BC may need to use local law enforcement authorities or emergency service personnel to pick up the shipment and deliver it to hospitals.
- ✓ Storage capacity at the affected BC and hospitals should be considered. Blood may need to be delivered to multiple locations if storage is an issue.
- ✓ BC may need to use local law enforcement to escort and protect BC vehicles and personnel.

3.3 COORDINATE WITH GOVERNMENT AUTHORITIES AND EMAS

The blood collector should coordinate activities with state, local, tribal, and territory emergency management agencies. BC should be listed on local emergency response plans supporting hospital and health care organizations.

Contact Appropriate State, Local, Tribal, and Territory EMAs

- ✓ See Appendix 6.2 for a list of emergency management offices by state, or refer to the Web sites listed below:
 - State and local emergency management agency Web sites
 - www.fema.gov/about/contact/statedr.shtm
 - www.dhs.gov/xprepresp/resources/editorial_0306.shtm
 - State and local public health agency Web sites
 - www.statepublichealth.org
 - www.naccho.org
 - State blood and hospital associations
 - www.aabb.org/Content/About_Blood/Links/links.htm
 - www.aha.org/aha/resource_center/links.jsp#2
- ✓ Establish BC as a critical entity (blood supplier) and ask to be included in health-related emergency response discussions/decisions (e.g., where patients are being sent).
- ✓ Locate the critical staging areas that will be used by emergency response organizations, as these locations can be used as delivery points for blood and supplies. It may be advisable to send a BC staff member who is familiar with blood shipment to the staging area.
- ✓ Identify areas/routes that should be avoided because of the incident.

Coordination strategies with EMAs should include the following activities:

Estimate Hospital Admissions

- ✓ Contact the entity or entities responsible for estimating the number of hospital admissions (e.g., survivors needing hospital care) expected from the event.
- ✓ Determine the expected type of injuries.
- ✓ Use these figures to cross-check those collected from the hospital customers on the Event Assessment Form (Appendix 6.5).
- ✓ Establish redundant lines of communication with the entity to ensure that contact can be made throughout the crisis.

Coordinate Transportation

- ✓ Contact state and local law enforcement agencies, as their assistance may be needed to transport (or allow BC to transport) blood to hospitals in affected areas.
- ✓ Apply signage (e.g., magnetic signs) to all BC vehicles so local law enforcement will recognize and approve them for clearance into affected areas.
- ✓ Establish alternative transportation means/routes for critical BC personnel who may need to report for duty in an affected area.
- ✓ BC may need to use local law enforcement to escort and protect BC vehicles and personnel.

Restore Critical Services

- ✓ Contact local public utilities (e.g., telephone and electricity) and ask for BC to be placed on priority service restoration lists as an emergency services provider.

Distribute Emergency Supplies

- ✓ Contact emergency organizations responsible for distributing essential supplies such as food, water, and shelter supplies (e.g., blankets). These supplies may be needed for staff or donors during a disaster.

3.4 VENDOR MANAGEMENT/SUPPLY CHAIN STRATEGIES/ ALTERNATIVE FACILITIES

Blood collectors should be able to rapidly identify needed supplies, key sources of material, and methods of transportation.

Needed Supplies

- ✓ Review list of critical products, services, and supplies related to collection, processing, controlled-temperature transport, and storage.
- ✓ Determine inventory on hand.
- ✓ Determine need for additional inventory based on estimated medical need for transfused blood and availability of blood from outside sources.
- ✓ Do NOT request large volumes of supplies unless a large donor volume is highly probable.

Source of Supplies

- ✓ Work with established vendors and current distributors to obtain additional supplies.

Note: Distributors and manufacturers will be coordinating with the task force and will evaluate and prioritize demand on a national level if necessary.

Transportation

- ✓ Activate previously devised contingency plans with manufacturers and distributors.
- ✓ Notify vendors of interruptions to the normal transportation methods, such as local clearances or transportation barriers.

Note: Manufacturers and distributors will advise if there are delays in shipment of products.

Alternative Facilities

- ✓ Contact alternative facilities that can be used to continue various critical operations (e.g., blood testing, crossmatching, storage, IT and administration functions). Consider what equipment, supplies, IT support, and so on will be needed at the alternative site, and make sure it is located outside the potential impact areas of hazards identified in the risk assessment.

Note: The decision to use an alternative site should be communicated to key parties (staff, board members, vendors, and suppliers, etc.).

3.5 REGULATORY CONCERNS

The availability of blood is the primary concern in a disaster, but the safety of the blood supply is also paramount. Adherence to FDA regulations is crucial. It is important to follow current good manufacturing practice regulations and AABB standards. Any regulatory exemptions will be made on a case-by-case basis by medical need only. The task force will be in touch with the FDA and will convey to the blood community any changes in regular FDA policy.

The task force recommends the following during a disaster:

- ✓ Ensure that units of blood released for transfusion are fully tested, including testing for infectious disease. Internal blood center procedures for emergency and exceptional release may be applied if absolutely necessary to meet immediate needs.
- ✓ Assess primary testing capabilities. Activate alternative testing location contracts if necessary.
- ✓ Perform all regulated functions using trained staff. Use volunteers for nonregulated functions only.
- ✓ Ship blood and blood products in accordance with current licensure status. Unlicensed registered allogeneic collection facilities may ship blood only within the state. Contact the FDA to inquire about waivers to allow interstate shipment provided the product is appropriately labeled.
- ✓ Contact vendors regarding the availability of replacement reagents/supplies. If supplies are inadequate, blood collectors may wish to contact the FDA, vendors, and suppliers regarding expedited release of reagents. The task force can assist in such circumstances.
- ✓ Assess the impact of the event on the existing blood supply. Contact the task force for assistance in this evaluation if necessary.
- ✓ Assess the impact of the event on the facility and its equipment.
- ✓ Assess the impact of the event on existing supplies and reagents. Contact the vendors/manufacturers for guidance on effects the event may have on stocks (e.g., fire or power outage at facility).
- ✓ Assess the impact of the event on the donor population that has been exposed. Contact the task force and the FDA to discuss options and strategy for donor deferral.
- ✓ Monitor the FDA Web site and communications from the task force to keep up to date on emergency guidance.
- ✓ Document decisions regarding blood supply, process changes, facilities, and supplies for potential FDA notification/inspection at the end of the disaster.

3.6 MANAGING DONORS, VOLUNTEERS, AND CROWDS

Once a disaster has occurred, blood collectors should activate surge strategies to manage donors and volunteers. BC should discourage donors from appearing en masse until the medical need has been assessed; however, BC should be prepared to control significant crowds.

Collect from Donors According to Predetermined “Donor Surge” Plan

- ✓ Activate donor surge plan (see Section 2.8) and use predetermined strategies to manage large numbers of donors who appear at the BC’s main collection points. *Note: Donors may also go to hospitals served by the BC; plan for this possibility.*
- ✓ Consider these issues:
 - Determine medical need for blood.
 - Determine maximum collection limits (consider staffing, collection, testing, storage, etc.).
 - Identify priority blood products to collect.
 - Decide what to do with extra donors (e.g., draw samples from new donors, schedule future appointments).
 - Decide what to do with scheduled blood drives and mobile operations that are under way.
 - Disseminate messages telling donors how they can help immediately and in the future.
 - Consider the need to update contact information for donors displaced by the event.

Donor/Crowd Control

- ✓ Maintain frequent communication with waiting donors.
- ✓ Enforce limits on the number of donors staff can handle.
- ✓ Consider shutting down mobile collection sites to focus on certain large or fixed sites.
- ✓ If the primary collection site is not sufficient or operational, locate facilities for mass collections.
- ✓ Set up triage tables where donors can be screened for ABO group, medical questions can be answered, and pledges can be obtained.
- ✓ Allow plenty of parking.
- ✓ Set a time to shut down...the lines may be endless.

Staff/Volunteers

- ✓ Take steps to prevent staff and volunteer burnout.
- ✓ Ensure that sufficient water, food, HVAC, and restroom facilities are available.
- ✓ Issue temporary security identification to volunteers.
- ✓ Assign predetermined, nonregulated tasks to volunteers.
- ✓ Identify the assigned contact person for volunteers.
- ✓ Train volunteers on their exact responsibilities.
- ✓ Track volunteers by getting their names, phone numbers, and training status.
- ✓ Maintain records of each volunteer's responsibilities.

3.7 COORDINATING THE MESSAGE TO BLOOD COLLECTORS AND THE PUBLIC

- ✓ Task force will evaluate the situation and determine the appropriate message to be conveyed to the public.
- ✓ Task force will convey the message to the affected BC and other task force members.
- ✓ Task force representatives will distribute the message to their constituents.
- ✓ If necessary, HHS will help disseminate the message to the public at large.

3.8 WORKING WITH THE MEDIA

When a disaster has occurred, it is imperative to inform the general public about blood supply needs. Experience shows that many people will want to do all they can to help. To manage the donation process in an efficient and orderly manner, the affected BC must communicate its needs.

Before talking to the press, the BC should communicate with the task force to ensure that a consistent message is being delivered. To reach the task force media representative, call (800) 458-9388.

Whenever possible, the BC should coordinate its media messages with those of the task force. It is usually best for the BC to handle inquiries from local media while forwarding inquiries from national media outlets (*New York Times*, AP, NBC's *Today Show*, etc.) to the task force media representative.

- ✓ The head of the affected BC will determine the message to be relayed to the media.
 - That leader should be in touch with the AABB Task Force to determine medical need.

- ✓ The affected BC will draft a press release indicating how members of the community should respond in terms of giving blood. The following are key questions to ask during the disaster:
 - Do you have enough blood to treat people wounded in this disaster? If so, draft a press release encouraging the public to contact your facility to schedule an appointment in the next 30 days. (This is your opportunity to secure donations in the near future, when you might otherwise experience a drop-off.)
 - Do you need donations now? If so, contact the task force to determine if blood can be shipped to your BC. If the task force cannot arrange a shipment, draft a press release requesting the public to contact your facility to schedule an appointment to donate in the next few days.
 - See Appendix 6.3 for sample press releases.

- ✓ Confirm the media spokesperson.
- ✓ Distribute the press release.
 - Forward a copy to the task force, via the AABB (e-mail: publicrelations@aabb.org).

- ✓ Contact members of the media if they are not already calling the BC.
- ✓ If you need additional assistance, call the AABB's public relations department at (301) 215-6526.

3.9 SAFETY AND SECURITY CONCERNS

The affected BC should take steps to ensure the safety and security of staff, volunteers, and donors both onsite and during mobile operations (e.g., transporting blood to affected hospitals).

- ✓ If the disaster has directly affected the BC, conduct an assessment of damage to people, property, supply, and infrastructure, and report to the task force.
- ✓ BC should respond to any evacuation orders from local authorities—the safety of staff and donors is paramount.
- ✓ BC should issue security identification to staff, volunteers, donors, and vendors to help protect against intruders.
- ✓ BC may need to get help from local law enforcement authorities to secure the facility and ensure safety for staff, volunteers, and donors.

3.10 FACILITY EVACUATION AND SHUTDOWN PROCEDURES

If the BC must be fully evacuated and shut down, scalable procedures should be used to ensure that staff, donors, and volunteers have adequate notification and egress routes. The BC should consider the impact of shutting down on the facility, supplies, and products. Issues to consider include these:

- Activate evacuation procedures and ensure that all staff, donors, volunteers, and other personnel (e.g., maintenance crews) on the premises are fully notified of the need to evacuate.
- Notify customers, vendors, and service providers that the BC has been evacuated and keep these groups updated on facility status.
- Consider the need to secure the evacuated facilities with law enforcement or security firms.
- Consider the need to secure any special equipment (e.g., irradiators).
- Consider the impact on the facility, supplies, and products (both stored and in process) if utilities are shut down; for example,
 - IT and phone systems
 - HVAC and temperature controls
 - Security systems
 - Timed systems such as door locks, lights, and sprinklers
- Consider the impacts when utilities are reactivated.

4 EDUCATION AND TRAINING

The following education and training materials were developed by the California Blood Bank Society Emergency Preparedness Committee.

4.1 RECOMMENDED TRAINING AND ASSIGNMENT SHEET

Working with the Disaster Operations Handbook

Background

The Interorganizational Task Force (TF) has developed a handbook of strategies and approaches to domestic disasters and acts of terrorism to ensure that blood collection and distribution efforts run smoothly and are managed properly, and that the public receives clear and consistent messages regarding the status of America's blood supply.

Assignment

Blood collectors are encouraged to use a train-the-trainer model in which selected persons are trained and are then assigned to train staff at the departmental level. Training should be conducted for each employee upon hire and at least annually thereafter. Trainers are encouraged to review key elements of the *Disaster Operations Handbook* and link them with their organization's internal disaster plan. Acting as a facilitator, the trainer should guide trainees through group tabletop exercises in which key elements of the handbook and the local disaster plan are applied to mock disaster scenarios. The exercises should be followed by a written knowledge assessment to ensure competency and to evaluate the course. The organization should schedule annual refresher training for all staff, along with quarterly or semiannual disaster drills that include resource-sharing groups.

Required Materials

- TF *Disaster Operations Handbook*
- State emergency response plan (as applicable)
- Blood collector's emergency response plan
- Disaster scenarios specific to disaster type, the BC, and the state
- Knowledge assessment (developed by individual BC)

Learning Objectives

On completion of training, trainees will be able to

- Relate the key elements of the TF *Disaster Operations Handbook* to their organization's emergency response plan.
- Apply the handbook guidelines to a disaster response scenario, assess the medical need for blood, and report that need to the task force.
- Train staff at the departmental level to use the *Disaster Operations Handbook* in conjunction with the blood center's emergency response plan.

4.2 RECOMMENDED TRAINING PLAN AND ASSIGNMENT SHEET

Working with the Disaster Operations Handbook

Competency Standards

Verify that the trainee is able to

- Apply *Disaster Operations Handbook* guidelines to a given situation using the blood center’s emergency response plan.
- Use the *Disaster Operations Handbook* decision tree to calculate the medical need for blood.
- Report appropriate medical need information to the task force via AABB for assessment and appropriate resource commitment.

Training Guidance

The trainer should use adult learning techniques that include a combination of visual, auditory, and hands-on input, followed by critical knowledge application (see sample training map below). For example, the trainer should explain key elements of the *Disaster Operations Handbook* and relate them to state and local blood collector disaster response plans, then facilitate the group exercise. Finally, the trainer should budget time for questions and answers, and for administration of the knowledge assessment. When training has been completed at all levels in the organization, management should schedule an appropriate disaster drill. Training materials should be reviewed annually and presentation varied to keep the training interesting.

Sample Training Map

Task	Strategy	Media
Apply TF <i>Disaster Operations Handbook</i> guidelines to a given situation using the blood center’s emergency response plan.	Lecture, discussion, facilitated practice exercises: <ul style="list-style-type: none"> • Divide participants into groups of three to five and ask each group to choose a spokesperson. • Provide a different disaster scenario to each group and ask them to apply the key elements they have learned to the situation. • Ask each group to calculate the medical need using the disaster operations formula. • Ask the spokesperson from each group to report and critique the exercise. • Allow for questions and answers. • Administer the knowledge assessment. 	PowerPoint presentation, lecture note handouts, critical application exercise, and knowledge assessment

5 QUICK REFERENCE MATERIALS

5.1 CHECKLIST SUMMARY

Preparation Checklist

Done ✓	Task	Start Date	Projected Completion Date	Staff Initial
	Continuity of Operations Plan (2.1)			
	Identify essential processes and functions required for continued operations (see 2.1–2.13).			
	Develop decision trees for implementation of the COOP.			
	Develop procedures for transitioning back to normal operations once the emergency has passed.			
	Risk Assessment (2.2)			
	Develop a risk assessment chart and make a list of potential hazards that may impact your facility.			
	Communication Strategies (2.3)			
	Develop an emergency communication plan (ECP).			
	Develop triggers to activate the ECP, procedures to follow during the emergency, and plans for returning to normal operations when the emergency is over.			
	Establish a chain of command and order of succession for decision-making authority.			
	Establish and maintain a list of key contacts (internal and external) in electronic and print formats, and ensure that the list is readily available.			

Done ✓	Task	Start Date	Projected Completion Date	Staff Initial
	Develop a procedure to quickly contact key groups of people during an emergency, including <ul style="list-style-type: none"> • Organization staff, essential personnel, key departments, and senior leadership • Hospital customers • AABB Disaster Task Force • Local emergency response agencies • Vendors and service providers • Local media 			
	Identify modes of communication and establish communication redundancies with key groups.			
	Work with hospital customer(s) to determine best way to collect information on disaster-related hospital admissions and type O RBC inventories during an event.			
	Develop a process to test the ECP annually.			
	Transportation Options (2.4)			
	Establish contact with shippers (use Appendix 6.4).			
	Establish collaborative relationships with local emergency services and law enforcement for potential transportation needs.			
	Conduct educational briefing on blood transportation issues for local emergency services and law enforcement.			
	Consider having logo painted on BC vehicles or using magnetic signs.			
	Coordination with Government Authorities and Emergency Management Agencies (EMAs) (2.5)			
	Establish redundant lines of communication with EMA offices and command centers.			
	Conduct routine informational briefings for EMAs on how the blood supply functions and identify coordination needs during various emergencies.			
	Locate potential staging areas to be used by EMAs during an event.			
	Establish a relationship with the entity responsible for estimating the number of disaster-related hospital admissions.			

Done ✓	Task	Start Date	Projected Completion Date	Staff Initial
	Vendor/Supply Chain Issues (2.6)			
	Prepare a list of vendors and critical supplies that may be needed during a disaster and determine the necessary inventory of each item (i.e., number or days of supply).			
	Conduct a risk analysis of critical supplies that would be needed for different types of disasters and reassess minimum inventory requirements.			
	Contact vendors to determine their contingency plans and capability to provide supplies during various types of disasters.			
	Identify alternative facilities that can be used to continue various critical operations.			
	Develop a transportation contingency plan with vendors.			
	Utilities and Service Restoration (2.7)			
	Contact local and long distance providers and establish BC as a priority health-care entity.			
	Contact cellular provider and discuss contingency options if cellular service is disrupted.			
	Contact local power company and establish BC as a priority health-care entity.			
	Ensure that all critical systems are linked to the facility's emergency power supply.			
	Develop a procedure to routinely test emergency generators.			
	Review fuel needs and determine adequate levels for emergency power supplies, facility vehicles, and staff transportation.			
	Identify alternative sources of fuel (both diesel and unleaded) that would be readily accessible during a disaster or power outage.			
	Review critical operations that rely on a water source and trace water delivery systems to these functions (e.g., identify those that rely on electric pumps).			
	Contact local and regional water provider and establish BC as a priority health-care facility.			
	Managing Donors and Volunteers (2.8)			
	Develop a donor surge plan.			
	Prepare a system for identifying donors the BC wants to draw (e.g., type O and Rh negative) versus those who should return later.			
	Determine the maximum capacity for donors at BC—consider supplies, staff, and need.			
	Establish a relationship with large facilities (e.g., convention center) that can be used for mass collections.			

Done ✓	Task	Start Date	Projected Completion Date	Staff Initial
	Prepare a system to deal with a potential influx of volunteers—consider training, regulatory, and security issues.			
	Working with the Media (2.9)			
	Devise procedures for contacting the AABB Disaster Task Force to disseminate coordinated messages about the need for blood and donors.			
	Establish a contact list for local media (e.g., TV, newspaper, radio stations).			
	Choose a spokesperson and backup spokesperson, and ensure that they receive media training.			
	Prepare and customize boilerplate press releases (Appendix 6.3) for potential events.			
	Safety and Security (2.10)			
	Devise and implement a security identification scheme (e.g., photo ID) for employees, donors, volunteers, and vendors.			
	Prepare a local evacuation plan in the event that staff/donors/volunteers must be quickly evacuated from the BC facility.			
	Prepare an emergency staff work schedule that can be implemented in a disaster—consider minimal staff scenarios (e.g., hurricane evacuation) and maximum staff scenarios (e.g., mass collections).			
	Prepare emergency supply kits for the BC facility and BC vehicles (e.g., bloodmobiles).			
	Human Resources (2.11)			
	Identify and define the roles of essential employees who are required to work during a disaster.			
	Conduct routine evacuation drills.			
	Information Systems/Records Management (2.12)			
	Develop a list of critical IT systems and related requirements (e.g., power and cooling).			
	Identify critical IT vendors and service providers and determine contingency plans during a disaster.			
	Conduct an analysis of uninterruptible power supply (UPS) redundancies for IT systems.			
	Trace all IT and telephone systems that rely on the Internet and determine redundancies if the Internet is disrupted.			
	Identify and ensure protection and survivability of vital records and databases.			
	Locate records in least exposed areas and consider digitizing critical records as a redundancy.			

Done ✓	Task	Start Date	Projected Completion Date	Staff Initial
	Insurance and Cash Reserves (2.13)			
	Review insurance coverage and ensure adequacy for potential risks.			
	Establish minimum cash reserves necessary to continue operations for 90 days.			
	Regulatory Issues (2.14)			
	Develop a list of regulatory issues that may surface during a disaster.			
	Develop a process to consult regulatory/quality control personnel during and after an emergency that affects any aspect of normal operations (e.g., after a fire or flood).			
	Step-by-Step Response Process (3.1)			
	Step 1			
	Prepare a procedure for collecting the following information:			
	1. Total current disaster-related hospital admissions			
	2. Total disaster-related hospital admissions expected			
	3. Total type O RBC inventory at hospitals and BC			
	4. Total type O RBC inventory at hospitals that is needed for nondisaster-related transfusions			
	Step 2			
	Prepare a procedure to activate BC's emergency communications plan (ECP).			
	Prepare a procedure to contact the AABB Disaster Task Force (ideally within 1 hour of the event).			
	Step 3			
	Choose a staff member (plus a backup person) to act as liaison with the task force and participate in task force conference calls.			
	Education and Training (4.1)			
	Integrate the key handbook recommendations into any existing disaster/emergency plans.* The most important instruction is to contact the task force via the AABB during an event.			
	Identify key staff to be involved in training and implementation of the handbook recommendations—consider night and weekend staff as well.			
	Use the Recommended Training and Assignment Sheet (4.1) to devise a training and assessment program for key staff.			

** If your facility does not have a plan, consider using the FEMA Emergency Management Guide for Business and Industry as a starting point. The guide can be found on the FEMA Web site at*

*www.fema.gov/business/guide/
index.shtm.*

5.2 CRITICAL CONTACT INFORMATION

Use the following grid as a guide to organize and store emergency contact numbers.

Organization	Phone Number	Contact Person	Last Updated
AABB Task Force	Land line: (800) 458-9388 Cell phone: (240) 994-6700 E-mail: nbe@aabb.org Text message: (240) 994-6700 Satellite phone: (254) 377-3726		
Hospital customers			
Local emergency management agencies Police Fire Ambulance service Public health			
State emergency management or FEMA office			
Entity responsible for assessing disaster-related hospital admissions			
Critical suppliers/vendors			
Local phone company priority restoration			
Long-distance company priority restoration			
Local power company priority restoration			
Local water supply company priority restoratio			
Local fuel suppliers (diesel and unleaded)			
Local media contacts			

6 APPENDIXES

6.1 GLOSSARY OF TERMS

Term	Definition
Affected blood collectors	Blood centers and hospitals that collect allogeneic blood and that are directly affected by an event
Amateur radio	Amateur (ham) radio that can be used to contact amateur radio network established to assist in communication efforts during an emergency
Current hospital admissions	Disaster-related patients actually admitted to a hospital
Disaster	<p>Includes any domestic disaster or act of terrorism that suddenly requires a much larger amount of blood than usual;</p> <p>OR</p> <p>Temporarily restricts or eliminates a blood collector’s ability to collect, test, process, and distribute blood;</p> <p>OR</p> <p>Temporarily restricts or prevents the local population from donating blood or restricts or prevents the use of the available inventory of blood products, requiring immediate replacement or resupply of the region’s blood inventory from another region;</p> <p>OR</p> <p>Creates a sudden influx of donors, requiring accelerated drawing of blood to meet an emergent need elsewhere</p>
Expected hospital admissions	The potential for live disaster-related victims to be admitted to a hospital
Interorganizational Task Force	A task force of representatives from various blood banking organizations, blood collector and hospital suppliers, and government agencies
Immediate medical need	The estimated amount of type O blood needed by the affected facility for disaster-related transfusion purposes within the first 24 hours of an event
Non-disaster-related need	The estimated amount of blood needed for nondisaster operations/transfusions
Transfusion services	Facilities that do not collect allogeneic blood

6.2 EMERGENCY MANAGEMENT OFFICES BY STATE

(source www.fema.gov/about/contact/statedr.shtm)

State	Agency	Phone	Web
AL	Alabama Emergency Management Agency 5898 County Road 41 P.O. Drawer 2160 Clanton, AL 35046-2160	(205) 280-2200 (205) 280-2495 FAX	www.ema.alabama.gov
AK	Alaska Division of Homeland Security & Emergency Management P.O. Box 5750 Fort Richardson, AK 99505-5750	(907) 428-7000 (907) 428-7009 FAX	www.ak-prepared.com
AR	Arkansas Dept of Emergency Management Bldg. # 9501 North Little Rock, AR 72199-9600	(501) 683-6700 (501) 683-7890 FAX	www.adem.arkansas.gov
AS	American Samoa Territorial Emergency Management Coordinating Office (TEMCO) P.O. Box 1086 Pago Pago, American Samoa 96799	(011) (684) 699-6415 (011) (684) 699-6414 FAX	http://americansamoa.gov/departments/offices/temco.htm
AZ	Arizona Division of Emergency and Military Affairs 5636 East McDowell Road Phoenix, AZ 85008	(602) 244-0504 (800) 411-2336	www.azdema.gov
CA	California Governor's Office of Emergency Services 3650 Schriever Avenue Mather, CA 95655-4203	(916) 845-8510 (916) 845-8511 FAX	www.oes.ca.gov
CNMI	CNMI Emergency Management Office Office of the Governor Commonwealth of the Northern Mariana Islands P.O. Box 10007 Saipan, Mariana Islands 96950	(670) 322-9529 (670) 322-7743 FAX	www.cnmiemo.gov.mp
CO	Colorado Division of Emergency Management 9195 East Mineral Ave Centennial, CO 80112	(720) 852-6600 (720) 852-6750 FAX	www.dola.state.co.us/dem/index.html
CT	Connecticut Department of Emergency Management and Homeland Security 25 Sigourney Street (6th Floor) Hartford, CT 06106	(860) 566-3180 (860) 247-0664 FAX	www.ct.gov/demhs
DE	Delaware Emergency Management Agency 165 Brick Store Landing Road Smyrna, DE 19977	(302) 659-3362 (302) 659-6855 FAX	http://dema.delaware.gov

State	Agency	Phone	Web
DC	District of Columbia Homeland Security and Emergency Management Agency 2720 Martin Luther King, Jr. Avenue, SE Washington, DC 20032	(202) 727-6161 (202) 673-2290 FAX	dcema.dc.gov
FL	Florida Division of Emergency Management 2555 Shumard Oak Boulevard Tallahassee, FL 32399-2100	(850) 413-9969 (850) 488-1016 FAX	www.floridadisaster.org
GA	Georgia Emergency Management Agency P.O. Box 18055 Atlanta, GA 30316-0055	(404) 635-7000 (404) 635-7205 FAX	www.State.ga.us/gema
GU	Guam Homeland Security/Office of Civil Defense 221B Chalan Palasyo Agana Heights, Guam 96910	(671) 475-9600 (671) 477-3727 FAX	www.guamhs.org
HI	Hawaii State Civil Defense 3949 Diamond Head Road Honolulu, HI 96816-4495	(808) 734-4246 (808) 733-4287 FAX	www.scd.state.hi.us
ID	Idaho Bureau of Homeland Security 4040 Guard Street, Building 600 Boise, ID 83705-5004	(208) 422-3040 (208) 422-3044 FAX	www.bhs.idaho.gov
IL	Illinois Emergency Management Agency 2200 S. Dirksen Pkwy Springfield, IL 62703	(217) 782-2700 (217) 524-7967 FAX	www.state.il.us/iem
IN	Indiana Department of Homeland Security Indiana Government Center South 302 West Washington Street Room E-208 Indianapolis, IN 46204-2767	(317) 232-3986 (317) 232-3895 FAX	www.in.gov/dhs
IA	Iowa Homeland Security and Emergency Management Division 7105 N.W. 70th Avenue (Bldg W-4) Johnston, IA 50131	(515) 725-3231 (515) 725-3260 FAX	www.iowahomelandsecurity.org
KS	Kansas Division of Emergency Management 2800 S.W. Topeka Boulevard Topeka, KS 66611-1287	(785) 274-1409 (785) 274-1426 FAX	www.accesskansas.kdem
KY	Kentucky Emergency Management EOC Building 100 Minuteman Parkway, Building 100 Frankfort, KY 40601-6168	(502) 607-1600 (502) 607-1614 FAX	www.kyem.ky.gov
LA	Louisiana Office of Homeland Security and Emergency Preparedness 7667 Independence Boulevard Baton Rouge, LA 70806	(225) 925-7500 (225) 925-7501 FAX	www.ohsep.louisiana.gov

State	Agency	Phone	Web
MA	Massachusetts Emergency Management Agency 400 Worcester Road Framingham, MA 01702-5399	(508) 820-2000 (508) 820-2030 FAX	www.state.ma.us/mema
MD	Maryland Emergency Management Agency Camp Fretterd Military Reservation 5401 Rue Saint Lo Drive Reistertown, MD 21136	(410) 517-3600 Toll-free (877) 636-2872 (410) 517-4610 FAX	www.mema.state.md.us
ME	Maine Emergency Management Agency 45 Commerce Drive, Suite # 2 Augusta, ME 04333-0072	(207) 624-4400 (207) 287-3180 FAX	www.state.me.us/mema
MI	Michigan Emergency Management and Homeland Security Division Michigan State Police 4000 Collins Road Lansing, MI 48910	(517) 336-6198 (517) 333-4987 FAX	www.michigan.gov/emd
MIC	National Disaster Control Officer Federated States of Micronesia P.O. Box PS-53 Kolonia, Pohnpei-Micronesia 96941	(011) (691) 320-8815 (011) (691) 320-2885 FAX	
MN	Minnesota Homeland Security and Emergency Division 444 Cedar Street, Suite 223 St. Paul, MN 55101-6223	(651) 201-7400 (651) 296-0459 FAX	www.hsem.state.mn.us
MS	Mississippi Emergency Management Agency P.O. Box 4501 Pearl, MS 39288-5644	(601) 933-6362 Toll-free (800) 442-6362 (601) 933-6800 FAX	www.msema.org
MO	Missouri Emergency Management Agency P.O. Box 16 2302 Militia Drive Jefferson City, MO 65101	(573) 526-9100 (573) 634-7966 FAX	www.sema.dps.mo.gov
MT	Montana Disaster and Emergency Services Division 1900 Williams Street Helena, MT 59604-4789	(406) 841-3911 (406) 444-3965 FAX	http://dma.mt.gov/des
NE	Nebraska Emergency Management Agency 1300 Military Road Lincoln, NE 68508-1090	(402) 471-7421 (402) 471-7433 FAX	www.nema.ne.gov

State	Agency	Phone	Web
NV	Nevada Division of Emergency Management 2478 Fairview Drive Carson City, NV 89701	(775) 687-0300 (775) 687-0322 FAX	www.dem.state.nv.us
NH	New Hampshire Office of Homeland Security and Emergency Management State Office Park South 33 Hazen Drive Concord, NH 03305	(603) 271-2231 (603) 223-3609 FAX	www.nh.gov/safety/divisions/bem
NJ	New Jersey Office of Emergency Management P.O. Box 7068 West Trenton, NJ 08628-0068	(609) 538-6050 (M-F) (609) 882-2000 EXT 6311 (24/7) (609) 538-0345 FAX	www.state.nj.us/njoem
NM	New Mexico Department of Homeland Security and Emergency Management 13 Bataan Boulevard Santa Fe, NM 87504	(505) 476-9600 (505) 476-9635 Emergency (505) 476-9695 FAX	http://nmdhsem.org
NY	New York State Emergency Management Office 1220 Washington Avenue Building 22, Suite 101 Albany, NY 12226-2251	(518) 292-2275 (518) 322-4978 FAX	www.nysemo.state.ny.us
NC	North Carolina Division of Emergency Management 4713 Mail Service Center Raleigh, NC 27699-4713	(919) 733-3867 (919) 733-5406 FAX	www.ncem.org
ND	North Dakota Department of Emergency Services P.O. Box 5511 Bismarck, ND 58506-5511	(701) 328-8100 (701) 328-8181 FAX	www.nd.gov/des
OH	Ohio Emergency Management Agency 2855 W. Dublin-Granville Road Columbus, OH 43235-2206	(614) 889-7150 (614) 889-7183 FAX	www.ema.ohio.gov
OK	Oklahoma Department of Emergency Management 2401 N. Lincoln Boulevard, Suite C51 Oklahoma City, OK 73105	(405) 521-2481 (405) 521-4053 FAX	www.odcem.state.ok.us
OR	Oregon Emergency Management Department of State Police PO Box 14370 Salem, OR 97309-5062	(503) 378-2911 (503) 373-7833 FAX	www.oregon.gov/OMD/OEM

State	Agency	Phone	Web
PA	Pennsylvania Emergency Management Agency 2605 Interstate Drive Harrisburg, PA 17110-9364	(717) 651-2007 (717) 651-2040 FAX	www.pema.state.pa.us
PR	Puerto Rico Emergency Management Agency P.O. Box 966597 San Juan, Puerto Rico 00906-6597	(787) 724-0124 (787) 725-4244 FAX	
RI	Rhode Island Emergency Management Agency 645 New London Avenue Cranston, RI 02920-3003	(401) 946-9996 (401) 944-1891 FAX	www.riema.ri.gov
RM	National Disaster Management Office Office of the Chief Secretary P.O. Box 15 Majuro, Republic of the Marshall Islands 96960-0015	(011)(692) 625-5181 (011)(692) 625-6896 FAX	
RP	Palau NEMO Coordinator Office of the President P.O. Box 100 Koror, Republic of Palau 96940	(011)(680) 488-2422 (011)(680) 488-3312	
SC	South Carolina Emergency Management Division 2779 Fish Hatchery Road West Columbia, SC 29172	(803) 737-8500 (803) 737-8570 FAX	www.scemd.org
SD	South Dakota Division of Emergency Management 118 West Capitol Avenue Pierre, SD 57501	(605) 773-3178 (605) 773-3018 FAX	www.state.sd.us/dps
TN	Tennessee Emergency Management Agency 3041 Sidco Drive Nashville, TN 37204-1502	(615) 741-0001 (615) 242-9635 FAX	www.tnema.org
TX	Texas Division of Emergency Management 5805 North Lamar Boulevard Austin, TX 78752	(512) 424-2138 (512) 424-2444 FAX	www.txdps.state.tx.us/dem
UT	Utah Division of Homeland Security 1110 State Office Building Salt Lake City, UT 84114	(801) 538-3400 (801) 538-3770 FAX	www.des.utah.gov
VA	Virginia Department of Emergency Management 10501 Trade Court Richmond, VA 23236-3713	(804) 897-6500 (804) 897-6506 FAX	www.vdem.state.va.us

State	Agency	Phone	Web
VI	Virgin Islands Territorial Emergency Management 2-C Contnat, A-Q Building Virgin Islands 00820	(340) 774-2244 (340) 774-1491	
VT	Vermont Emergency Management Agency Department of Public Safety Waterbury State Complex 103 South Main Street Waterbury, VT 05671-2101	(802) 244-8721 (802) 244-8655 FAX	www.dps.state.vt.us/vem
WA	State of Washington Emergency Management Division Building 20, M/S: TA-20 Camp Murray, WA 98430-5122	(253) 512-7000 (253) 512-7200 FAX	www.emd.wa.gov
WV	West Virginia Division of Homeland Security and Emergency Management Building 1, Room EB-80 1900 Kanawha Boulevard, East Charleston, WV 25305-0360	(304) 558-5380 (304) 344-4538 FAX	www.wvdhsem.gov
WI	Wisconsin Emergency Management 2400 Wright Street P.O. Box 7865 Madison, WI 53707-7865	(608) 242-3232 (608) 242-3247 FAX	http://emergencymanagement.wi.gov
WY	Wyoming Office of Homeland Security 122 W. 25th Street Cheyenne, WY 82002	(307) 777-4663 (307) 635-6017 FAX	http://wyohomelandsecurity.state.wy.us

6.3 BOILERPLATE PRESS RELEASES

6.3.1 Immediate Statement Press Release

FOR IMMEDIATE RELEASE

CONTACT: Name

MONTH XX, YEAR

Phone: (XXX) XXX-XXXX

[Insert Name of Organization]

or

Name of the AABB's Public Relations Director

AABB

(301) 215-6557 or (301) 215-6526

publicrelations@aabb.org

***[Insert Name of Organization] WORKING
WITH THE INTERORGANIZATIONAL TASK FORCE ON DOMESTIC DISASTERS AND
ACTS OF TERRORISM TO DETERMINE LOCAL BLOOD SUPPLY NEEDS***

Information to Be Disseminated to Media Shortly

CITY, STATE - [Insert Name of Organization] is currently working with the AABB Interorganizational Task Force on Domestic Disasters and Acts of Terrorism to ascertain blood supply needs resulting from [explosion, bombing, fire, etc.] in CITY, STATE.

Additional information will be forthcoming.

***About the Interorganizational Task Force on
Domestic Disasters and Acts of Terrorism***

The task force was formed in January 2002 to make certain that blood collection efforts in response to domestic disasters and acts of terrorism run smoothly and are managed properly, with the public receiving clear and consistent messages regarding the status of America's blood supply. It is composed of representatives from various blood services and associations, government agencies, and commercial entities who work together to ensure that facilities maintain safe and adequate inventories at all times in preparation for disasters, and that they have a mechanism in place to assess the need for collections and/or transportation of blood should a disaster occur.

– more –

AABB is the designated coordinating entity for the Interorganizational Task Force on Domestic Disasters and Acts of Terrorism. In addition to the AABB, members include America's Blood Centers (ABC), American Red Cross (ARC), Blood Centers of America (BCA), Advanced Medical Technology Association (AdvaMed), American Association of Tissue Banks (AATB), American Hospital Association (AHA), College of American Pathologists (CAP), National Marrow Donor Program (NMDP), and the Plasma Protein Therapeutics Association (PPTA). The following government agencies have appointed representative liaisons to the task force: Armed Services Blood Program (ASBP), Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS), Food and Drug Administration (FDA), and the Health Resources and Services Administration (HRSA). Dale Malloy, president and chief executive officer of the Blood Alliance, serves as chairman of the task force.

In an emergency situation, AABB immediately convenes a meeting of task force representatives. Local blood centers are responsible for ascertaining medical need based on casualty estimates using predetermined formulas, assessing available local supply, and communicating that information to the task force.

In a disaster, the first priorities of the task force are to

- Verify and communicate to the blood community the medical need for blood;
- Identify sites with excess blood inventory;
- Determine the need, if any, for blood shipments and the logistics of such shipments; and
- Develop public messages and facilitate the discussion of donor issues.

About [Name of Organization Sending This Release]

[Insert one paragraph with descriptive information about the organization that is distributing this press release.]

###

6.3.2 Adequate Blood Supply Press Release

FOR IMMEDIATE RELEASE

MONTH XX, YEAR

CONTACT: Name

(XXX) XXX-XXXX

[Insert Name of Organization]

or

Name of the AABB's Public Relations Director

AABB

(301) 215-6557 or (301) 215-6526

publicrelations@aabb.org

***DISASTER TASK FORCE DETERMINES THAT CURRENT U.S. BLOOD SUPPLY
IS ADEQUATE TO HANDLE DEMANDS RESULTING FROM
[EXPLOSION, BOMBING, FIRE...] in CITY, STATE***

Future Appointments Are Encouraged to Maintain Supply

CITY, STATE - The AABB Interorganizational Task Force on Domestic Disasters and Acts of Terrorism has determined that current blood supplies and inventory levels are meeting hospital needs resulting from [explosion, bombing, fire, etc.] in CITY, STATE. The task force recommends that people who would like to help call their local blood banks to schedule an appointment for the coming weeks and months. The task force continues to monitor the situation and will provide an update if blood needs change.

“The blood banking and transfusion community has taken an inventory of the U.S. blood supply and ascertained that local blood banks located in and around [city/state of domestic disaster or act of terrorism] have enough blood to meet medical need,” said Dale Malloy, chairman of the Interorganizational Task Force. “The task force appreciates that the public wishes to help, and the best way to do so is to schedule an appointment with your local blood center or hospital.”

The task force encourages donors and potential donors to make giving blood a regular part of their lives. Those interested in donating blood may contact the following organizations to find a local blood collection site and to schedule an appointment:

AABB: www.aabb.org; (866) FROM-YOU [(866) 376-6968]

America's Blood Centers: www.americasblood.org; (888) USBLOOD [(888) 872-5663]

American Red Cross: www.givelife.org; (800) GIVE-LIFE [(800) 448-3543]

Armed Services Blood Program: www.militaryblood.dod.mil; (703) 681-8024

– more –

***About the Interorganizational Task Force on
Domestic Disasters and Acts of Terrorism***

The task force was formed in January 2002 to make certain that blood collection efforts in response to domestic disasters and acts of terrorism run smoothly and are managed properly, with the public receiving clear and consistent messages regarding the status of America's blood supply. It is composed of representatives from various blood services and associations, government agencies, and commercial entities who work together to ensure that facilities maintain safe and adequate inventories at all times in preparation for disasters, and that they have a mechanism in place to assess the need for collections and/or transportation of blood should a disaster occur.

AABB is the designated coordinating entity for the Interorganizational Task Force on Domestic Disasters and Acts of Terrorism. In addition to the AABB, members include America's Blood Centers (ABC), American Red Cross (ARC), Blood Centers of America (BCA), Advanced Medical Technology Association (AdvaMed), American Association of Tissue Banks (AATB), American Hospital Association (AHA), College of American Pathologists (CAP), National Marrow Donor Program (NMDP), and the Plasma Protein Therapeutics Association (PPTA). The following government agencies have appointed representative liaisons to the task force: Armed Services Blood Program (ASBP), Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS), Food and Drug Administration (FDA), and the Health Resources and Services Administration (HRSA). Dale Malloy, president and chief executive officer of the Blood Alliance, serves as chairman of the task force.

In an emergency situation, AABB immediately convenes a meeting of task force representatives. Local blood centers are responsible for ascertaining medical need based on casualty estimates using predetermined formulas, assessing available local supply, and communicating that information to the task force.

In a disaster, the first priorities of the task force are to

- Verify and communicate to the blood community the medical need for blood;
- Identify sites with excess blood inventory;
- Determine the need, if any, for blood shipments and the logistics of such shipments; and
- Develop public messages and facilitate the discussion of donor issues.

About [Name of Organization Sending This Release]

[Insert one paragraph with descriptive information about the organization that is distributing this press release.]

###

6.3.3 Blood Donations Needed Press Release

FOR IMMEDIATE RELEASE

MONTH XX, YEAR

CONTACT: Name

(XXX) XXX-XXXX

[Insert Name of Organization]

or

Name of the AABB's Public Relations Director

AABB

(301) 215-6557 or (301) 215-6526

publicrelations@aabb.org

***BLOOD DONATIONS NEEDED [in Particular Area of the Country] AS
[EXPLOSION, BOMBING, FIRE...] CAUSES EXTENSIVE INJURIES***

***Task Force Urges Public [or Particular Area of the Country] to
Contact Local Blood Banks and Give Blood***

CITY, STATE - The AABB Interorganizational Task Force on Domestic Disasters and Acts of Terrorism is encouraging citizens to respond to national appeals for blood in the wake of the recent [explosion, bombing, fire, etc....] in CITY, STATE. The task force recommends that individuals interested in responding to this national crisis contact their local blood collection facilities before going out to donate. Those interested in donating blood may contact the following organizations to find a local blood collection site and schedule an appointment:

AABB: www.aabb.org; (866) FROM-YOU [(866) 376-6968]

America's Blood Centers: www.americasblood.org; (888) USBLOOD [(888) 872-5663]

American Red Cross: www.givelife.org; (800) GIVE-LIFE [(800) 448-3543]

Armed Services Blood Program: www.militaryblood.dod.mil; (703) 681-8024

"We have ascertained that the medical need for blood as a result of the [explosion, bombing, fire...] is great, and the current supply in and around [Particular Area of the Country] is low," said Dale Malloy, chairman of the Interorganizational Task Force. "To replenish the blood supply in [Particular Area of the Country] and to ensure that we have adequate blood inventories on our shelves every day in all locations across the country, we recommend that citizens who want to donate contact their local blood collector and schedule an appointment in the near future."

Currently, the Interorganizational Task Force is working to find alternative means of shipping blood into [City, State] and other areas as necessary.

The need for blood will be ongoing, especially over the next few weeks, as disaster victims require additional care, as deferred elective surgeries are rescheduled, and for any further emergencies. The task force encourages donors and potential donors to make giving blood a regular part of their lives.

– more –

***About the Interorganizational Task Force on
Domestic Disasters and Acts of Terrorism***

The task force was formed in January 2002 to make certain that blood collection efforts in response to domestic disasters and acts of terrorism run smoothly and are managed properly, with the public receiving clear and consistent messages regarding the status of America's blood supply. It is composed of representatives from various blood services and associations, government agencies, and commercial entities who work together to ensure that facilities maintain safe and adequate inventories at all times in preparation for disasters, and that they have a mechanism in place to assess the need for collections and/or transportation of blood should a disaster occur.

AABB is the designated coordinating entity for the Interorganizational Task Force on Domestic Disasters and Acts of Terrorism. In addition to the AABB, members include America's Blood Centers (ABC), American Red Cross (ARC), Blood Centers of America (BCA), Advanced Medical Technology Association (AdvaMed), American Association of Tissue Banks (AATB), American Hospital Association (AHA), College of American Pathologists (CAP), National Marrow Donor Program (NMDP), and the Plasma Protein Therapeutics Association (PPTA). The following government agencies have appointed representative liaisons to the task force: Armed Services Blood Program (ASBP), Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS), Food and Drug Administration (FDA), and the Health Resources and Services Administration (HRSA). Dale Malloy, president and chief executive officer of the Blood Alliance, serves as chairman of the task force.

In an emergency situation, AABB immediately convenes a meeting of task force representatives. Local blood centers are responsible for ascertaining medical need based on casualty estimates using predetermined formulas, assessing available local supply, and communicating that information to the task force.

In a disaster, the first priorities of the task force are to

- Verify and communicate to the blood community the medical need for blood;
- Identify sites with excess blood inventory;
- Determine the need, if any, for blood shipments and the logistics of such shipments; and
- Develop public messages and facilitate the discussion of donor issues.

About [Name of Organization Sending This Release]

[Insert one paragraph with descriptive information about the organization that is distributing this press release.]

###

6.4 TRANSPORTATION OPTIONS GRID

Manage the contact information for shipping companies on the following grids:

Commercial Airline Carriers

Carrier	Account #	Contact Person	Phone	E-mail/Web	Last Update

Ground Carriers

Carrier	Account #	Contact Person	Phone	E-mail/Web	Last Update

Air Charity Network (ACN) Affiliate

Regional ACN Contact Person(s):

Regional ACN Contact Phone #(s):

Last Update:

6.5 EVENT ASSESSMENT FORM

The affected blood collector area is to contact hospital customers and emergency services, complete the following form, and be ready to report the results to the task force.

- 1) Type of event

Contact person _____ Phone # _____

Natural disaster (e.g., hurricane, flood, earthquake)

Act of terrorism (e.g., explosion, firearms)

Biological act of terrorism

Nuclear/radiological event

Describe biological or radiological agent, if known _____

- 2) Potential effects on medical infrastructure and donor base

List any potential effects from the event on the medical infrastructure and impacts on local donors (e.g., damage to hospital or BC, donor deferrals due to biological agent, transportation, utilities, etc.) _____

- 3) Fill out the following grid in regard to the specific event for each hospital. The blood collector should include one entry for itself, listing the number of units of type O RBC (both + and -) that are available for distribution.

(Note: Hospital admissions should include disaster-related figures only.)

Hospital Customer Name	Number of Current Admissions at Hospital	Potential for Expected Admissions at Hospital	Number of Type O RBC Units on Shelf	Nondisaster-Related Need for Type O RBC
Totals				

Total the columns and transfer the figures to the Step-by-Step Response Process in Section 3.1 to calculate the amount of units needed from the task force.

6.6 SPECIFIC DISASTER EVENTS

Natural Hazards

- Hurricane (tropical cyclone)
- Severe windstorm (tornado)
- Winter storm
- Wildfire
- Earthquake
- Flood
- Tsunami

Man-Made Hazards

- Industrial accident (fire, building collapse, hazardous material spill)
- Chemical event
- Biological event
- Radiological event
- Nuclear event
- Explosive event

Other Hazards

- Pandemic influenza
- Wide-area power outage
- Workplace violence

Resources

www.fema.gov/plan/index.shtm

www.fema.gov/areyouready/getting_informed.shtm

NATURAL HAZARDS

HURRICANE (TROPICAL CYCLONE)

Description of Event/Hazard

Hurricanes are severe storms that are routinely predictable in path and force several hours or days before they make landfall. Early warning systems allow citizens and municipalities to make preparations and to either evacuate or take shelter before the storm arrives.

Potential Impact on the Blood Supply

Depending on the projected path and force of the hurricane, local efforts to prepare may have a negative effect on blood collections in the days before and right after the storm. In addition to the potential loss of blood collections, there may be a slight decrease in elective surgeries shortly before and after the storm, followed by a spike in such surgeries once hospitals in the region resume full operations.

Blood collectors should make special preparations to ensure that operations can be quickly resumed following a hurricane and that redundant communication channels exist with hospital customers (i.e., to contact each other as soon as the storm has passed).

Preparation Checklist

If facilities are located in high storm impact areas (i.e., flood prone), consider relocating critical operations to less exposed areas to mitigate the overall risks from hurricanes.
To prevent impacts from flooding, consider locating critical operations on higher floors in the building.
Develop a process to track potential storms and scale preparation efforts to the predicted strength and magnitude of the storm (i.e., consider preparation and response triggers for tropical storms vs. major hurricanes). <i>Note:</i> Although current meteorological tracking and alert systems are relatively accurate, storms have been known to quickly gain strength before landfall and shift from projected paths. Facility planners should focus on the “cone of uncertainty” in addition to projected paths.
Develop a process to distribute blood products to hospital customers before the hurricane (after assessing storage capacity at hospitals).
Ensure that power redundancies (i.e., generators) are in place, and have a procedure to test the system at predetermined intervals. Consider the effects of intense rainfall and flooding on emergency generators—locate generators and associated switches above flood levels and protect generators from high winds, including vertical and horizontal rain paths. If mobile generators are being considered, make sure the building has compatible connections and wiring.
Ensure that the facility fleet and essential employees have access to unleaded gasoline before and after the hurricane (e.g., secure contract with fuel provider).
Develop a process to protect and secure the mobile fleet and delivery vehicles (e.g., disperse fleet to prevent loss).
Develop a procedure to evacuate and close the blood center facilities before the hurricane arrives (consider the following items): <ul style="list-style-type: none"> • Ensure that all automated computer systems are adjusted for facility closure (e.g., that security systems do not automatically unlock doors as they would for normal business hours). • Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility. • Consider use of law enforcement or private security firms to secure evacuated facilities. • Consider the need to secure any special equipment (e.g., irradiators). • Consider the impact of evacuation and utility interruptions on facility, supplies, and blood products (both stored and in process). Areas to consider include IT, storage systems, HVAC, security systems, monitoring systems, and any timed systems, such as door locks, lights, and sprinklers.
Develop a communication plan to notify staff, donors, customer, and vendors about the status of the facility before and after the hurricane. Consider using the facility’s voicemail greeting, local media, and Web sites as communication channels. <i>Note:</i> If any critical operations have been relocated, make sure to notify customers and vendors to reroute supplies and materials.
Develop a procedure to communicate with all hospital customers shortly after the hurricane has passed to assess needs.
Determine strong mobile collection points after the storm has passed (i.e., unaffected areas where people can congregate).
Participate in community-wide emergency/disaster exercises.

Response Checklist

Activate emergency relocation procedures if the blood center's main facility is inoperable.
Contact hospital customers after the storm to assess operational status (i.e., damage from the storm) and blood product needs.
Contact the AABB Disaster Task Force and provide an assessment of the impact of the storm on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).
Notify staff, donors, and vendors of the facility's status and establish a process to routinely update these groups until full operational status is restored.
Assess fuel supplies for emergency generators and notify fuel vendors if necessary.
Assess fuel supplies for unleaded gasoline for organizational and staff vehicles and contact alternative suppliers if necessary.
If needed, activate essential employee staffing. Ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours.
<i>Note:</i> A family assistance plan may be needed to support these employees (e.g., child care and or adult care for elderly parents).

Additional Resources

Centers for Disease Control and Prevention (CDC) hurricane preparedness:

www.bt.cdc.gov/disasters/hurricanes/readiness.asp

Federal Emergency Management Agency (FEMA) hurricane preparedness:

www.fema.gov/hazard/hurricane/index.shtm

The Joint Commission: Preventing adverse events caused by emergency electrical power system failures:

www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_37.htm

National Oceanic and Atmospheric Administration (NOAA) National Hurricane Center:

www.nhc.noaa.gov

NOAA All Hazards Watch:

www.noaawatch.gov

SEVERE WINDSTORM (TORNADO)

Description of Event/Hazard

Tornadoes and severe winds can cause significant, even catastrophic damage. A tornado is spawned from severe thunderstorms. It appears as a rotating, funnel-shaped cloud that extends down from a thunderstorm to the ground, with whirling winds that can reach 300 miles per hour. The path of destruction from a tornado can be more than a mile wide and 50 miles long. Tornadoes and severe windstorms generally strike quickly, often with little or no warning. Every state has some risk of tornadoes, although some areas are more prone to tornadoes than others.

Potential Impact on the Blood Supply

Tornadoes and severe windstorms pose a risk to blood facilities directly and to other medical structures in their path. Blood may be needed to treat casualties, which may number from a few to scores. Blood collection schedules may be disrupted, depending on the severity of the tornado and the size of the destruction path.

Preparation Checklist

Know whether your center is in a tornado or severe wind area.
Designate tornado shelters in all facilities.
Train staff in what to do in case of a tornado, both in the facility and while on mobile collections.
Have a method to monitor severe weather alerts.
Exercise tornado plans periodically throughout the year.
Create an emergency preparedness kit that includes flashlights, batteries, and a first aid kit.
Have a method to ensure that you will have power to sustain essential operations such as blood storage.
Establish a redundant data system to prevent the loss of essential information and records.
Develop a communication plan to alert mobile operations about threatening weather.
Establish alternative facility plans for blood product storage and operations in case of facility damage.
Participate in community-wide emergency/disaster exercises.

Response Checklist

Assess the facility for damage and the impact on the local area. Contact mobile operations that were under way.
Contact hospital customers to assess operational status (i.e., damage from the storm) and blood product needs.
Contact the AABB Disaster Task Force and provide an assessment of the impact from the storm on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).
If the facility is damaged, notify staff, donors, and vendors, and establish a process to routinely update these groups until full operational status is restored.
Assess the power supply.
Assess fuel supplies for emergency generators and notify fuel vendors if necessary.
If the facility is damaged: <ul style="list-style-type: none"> • Determine the extent of damage and whether the building can still be used for operations. • Implement alternative facility plans.

Additional Resources

FEMA disaster information:

www.fema.gov/hazard/tornado/index.shtm

FEMA mapping information program to determine risk of hazards:

<https://hazards.fema.gov>

NOAA:

www.nssl.noaa.gov/edu/safety/tornadoguide.html

WINTER STORM

Description of Event/Hazard

Winter storms can be categorized as blizzards or ice storms. Blizzards are storms with extremely low temperatures and winds of 35 mph or more, with snow falling that reduces visibility to less than ¼ mile for 3 hours. Freezing rainstorms are one of the most dangerous types of winter storm. They typically occur when a layer of warm air hovers over a region, but the ambient temperature is near 0°C and the ground temperature is below freezing. An ice storm can paralyze a region—driving becomes hazardous, telephone and power lines are damaged, and crops may be ruined. Winter storms are usually predictable by several hours or days, which allows time to prepare facilities and vehicles.

Potential Impact on the Blood Supply

Depending on the duration of the storm, local efforts to prepare may have a negative effect on blood collections in the days before and after the storm. In addition to the potential loss of blood collections, there may be a slight decrease in elective surgeries shortly before and after the storm, followed by a spike in such surgeries once hospitals in the region resume full operations.

Blood collectors should make special preparations to ensure that operations can be quickly resumed following a winter storm and that redundant communication channels exist with hospital customers (i.e., to contact each other as soon as the storm has passed).

Preparation Checklist

<p>Develop a communication plan to notify staff, donors, customers, and vendors about the status of the facility before and after the storm. Consider using the facility's voicemail greeting, local media, and Web sites as communication channels.</p> <p><i>Note:</i> If any critical operations have been relocated, be sure to notify customers and vendors to reroute supplies and materials.</p>
<p>Develop plans that consider the loss of public utilities during and after the storm.</p>
<p>Develop a process to distribute blood products to hospital customers before to the storm in case roads become inaccessible (assess storage capacity at hospitals).</p>
<p>Ensure that power redundancies (i.e., generators) are in place and have a procedure to test the system at predetermined intervals. Consider the effects of considerable snowfall and ice on emergency generators. If mobile generators are being considered, make sure building has compatible connections and wiring.</p>
<p>Ensure that facility fleet and essential employees have access to unleaded gasoline before and after the storm (e.g., a secure contract with fuel provider).</p>
<p>Develop a process to protect and secure the mobile fleet and delivery vehicles, including antifreeze, windshield wiper fluid, emergency flares, ice scrapers, battery-powered or hand-cranked radios, tire chains, road salt, etc.</p>
<p>Develop a procedure to close the blood center facilities before the storm arrives (consider the following):</p>

- Ensure that all automated computer systems are adjusted for facility closure (e.g., that security systems do not automatically unlock doors as they would for normal business hours).
- Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility.
- Consider using law enforcement or private security firms to secure evacuated facilities.
- Consider the need to secure any special equipment (i.e., irradiators).

Develop a procedure to communicate with all hospital customers during and after the storm to assess needs.

Determine strong mobile collection points after the storm has passed.

Develop a process to protect facilities against a winter/ice storm, including insulating water lines that run along outer walls and acquiring equipment for snow removal or contracting with reputable provider.

Have at least one of the following on hand in case of a power failure: battery-powered or hand-cranked radio (for listening to local emergency instructions) or NOAA weather radio receiver (www.weather.gov/nwr/nwrrcvr.htm).

Participate in community-wide emergency/disaster exercises.

Response Checklist

Contact the AABB Disaster Task Force and provide an assessment of the impact from the storm on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).

Notify staff, donors, and vendors of the facility status and establish a process to routinely update these groups until full operational status is restored.

Assess fuel supplies for emergency generators and notify fuel vendors if necessary.

Assess fuel supplies for unleaded gasoline for organizational and staff vehicles, and contact alternate suppliers if necessary.

If needed, activate essential employee staffing and ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours.

Note: A family assistance plan may be needed to support these employees (e.g., child care and adult care for elderly parents).

Additional Resources

CDC winter storm preparedness:

www.bt.cdc.gov/disasters/winter/factsheet.asp

The Joint Commission: Preventing adverse events caused by emergency electrical power system failures:

www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_37.htm

NOAA All Hazards Watch:

www.noaawatch.gov

Occupational Safety and Health Administration (OSHA) emergency preparedness and response:

www.osha.gov/SLTC/emergencypreparedness/guides/winterstorms.html

WILDFIRE

Description of Event/Hazard

Dry forests and intense weather conditions continue to threaten our nation. The threat of fires for people living near wildland areas or using recreational facilities in wilderness areas is real. Dry conditions at various times of the year and in various parts of the United States greatly increase the potential for wildfires. Advance planning and knowing how to protect buildings in these areas can lessen the devastation.

Potential Impact on the Blood Supply

A wildfire can have devastating effects—in California in 2007, more than a million people were displaced from their homes and businesses. Blood usage has historically not been significant during wildfires, but preparation is key. If the facility is affected by a wildfire, the blood supply will be quarantined until its safety, purity, and potency can be determined. A common response of the public after a disaster is to donate blood, so it is important to prepare for a donor surge.

Preparation Checklist

Mitigate the risk of fires through facility design, such as appropriate fire suppression systems, fire extinguishers, and the maintenance of a safe, clean environment.
Ensure that staff and facilities are protected from smoke damage by supplying face masks for staff if they have to be outside and turning HVAC systems to recirculate instead of using outdoor air.
Train staff in emergency fire procedures.
Consider a mobile relocation procedure to protect the fleet and enable collections to be made in unaffected areas.
Ensure that the facility fleet and essential employees have access to fuel before and during a wildfire/evacuation.
Develop a procedure to evacuate and close the blood center facilities if directed by local emergency management authorities or the blood center's management. Consider the following: <ul style="list-style-type: none"> • Ensure that all automated computer systems are adjusted for facility closure. • Notify all shift employees and contractors about the status of the facility. • Consider the use of law enforcement to secure evacuated facilities. • Consider the need to secure any special equipment and to notify local management authorities and state and federal regulatory agencies.
Consider the impact of evacuation and utility interruptions on the facility, supplies, and blood products (both stored and in process). Areas to consider are IT, storage systems, HVAC, security systems, monitoring systems, and any timed systems such as refrigerators/freezers, door locks, lights, and sprinklers.

Develop a family support plan template to help staff and volunteers develop their own family emergency support plans.

Participate in community-wide emergency/disaster exercises.

Response Checklist

Contact the AABB Disaster Task Force and provide an assessment of the impact from the wildfire on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).

Activate emergency relocation procedures if the main BC facility is evacuated.

Notify staff, donors, volunteers, hospitals and vendors of facility status and establish a process to routinely update these groups.

Request travel authorizations for blood center staff and volunteers.

If needed, activate essential employee staffing and ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours. *Note:* A family assistance plan may be needed to support these employees (e.g., child care and adult care for elderly parents).

Additional Resources

FEMA:

www.fema.gov/hazard/fire/index.shtm

The Joint Commission: Standing Together—An Emergency Plan Guide for America's Communities, 2005:

www.jointcommission.org/PublicPolicy.ep_guide.htm

OSHA emergency preparedness and response:

www.osha.gov/SLTC/emergency preparedness

EARTHQUAKE

Description of Event/Hazard

An earthquake is a sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the earth's surface. This shaking can cause buildings and bridges to collapse and disrupt gas, electric, and phone service. Earthquakes can trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves. Ground movement during an earthquake is seldom the direct cause of death or injury; most earthquake-related injuries result from collapsing walls, flying glass, and falling objects.

Potential Impact on the Blood Supply

The impact on the blood supply could be directly affected by the severity of the earthquake. Blood usage may not be initially significant, but the event could significantly hamper collection activities if a large area is deemed uninhabitable. Hospitals may temporarily suspend elective surgeries, followed by a spike in such surgeries once operations are back to normal.

Blood collectors should make special preparations to ensure that operations can be quickly resumed following an earthquake and that redundant communication channels exist with hospital customers (i.e., to contact each other as soon as the event is over).

Preparation Checklist

<p>Develop a communication plan to notify staff, donors, customers, and vendors about the status of the facility after the earthquake. Consider using the facility's voicemail greeting, local media, and Web sites as communication channels.</p> <p><i>Note:</i> If any critical operations have been relocated, make sure to notify customers and vendors to reroute supplies and materials.</p>
<p>Develop plans that consider the loss of public utilities after the earthquake.</p>
<p>Develop a plan for staff to follow during an earthquake and identify safe places in the facility. A safe place could be under a sturdy table or desk, or against an interior wall away from windows and bookcases.</p>
<p>Ensure power that redundancies (i.e., generators) are in place and have a procedure to test the system at predetermined intervals. If mobile generators are being considered, make sure the building has compatible connections and wiring.</p>
<p>Be on the lookout for fires, as they are the most common earthquake-related hazards. Fires can be caused by broken gas lines and damaged electrical lines.</p>
<p>Develop an emergency notification protocol with staff who are operating a blood drive outside the facility and with distribution personnel who deliver blood products to hospitals.</p>
<p>Develop an emergency notification protocol with local emergency management agencies.</p>
<p>Develop a procedure to communicate with all hospital customers after the earthquake is over to assess needs.</p>
<p>Develop a procedure to evacuate and close the blood center facilities if directed to do so by local</p>

emergency management authorities or the blood center's management. Consider the following:

- Ensure that all automated computer systems are adjusted for facility closure (e.g., security systems do not automatically unlock doors for normal business hours).
- Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility.
- Consider using law enforcement or private security firms to secure evacuated facilities.
- Consider the need to secure any special equipment (i.e., irradiators) and to notify local management authorities and state and federal regulatory agencies.
- Consider the impact of evacuation and utility interruptions on the facility, supplies, and blood products (both stored and in process). Areas to consider include IT, storage systems, HVAC, security systems, monitoring systems, and any timed systems, such as refrigerators/freezers, door locks, lights, and sprinklers.

Develop a plan for an alternative blood center operations site (management team), along with the required staff and volunteers and the required resources to ensure contact with customers, vendors, and local emergency authorities until you can reoccupy the blood center.

Try to have access to at least one of the following in case of a power failure: battery-operated or hand-cranked radio (for listening to local emergency instructions) or NOAA weather radio receiver (www.nws.gov/nwr).

Participate in community-wide emergency/disaster exercises.

Response Checklist

Contact the AABB Disaster Task Force and provide an assessment of the impact from the earthquake on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information contained in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).

Notify staff, donors, and vendors of the facility's status and establish a process to routinely update these groups until full operational status is restored.

Assess fuel supplies for emergency generators and notify fuel vendors if necessary.

Assess fuel supplies for unleaded gasoline for organizational and staff vehicles and contact alternative suppliers if necessary.

Activate emergency relocation procedures if the blood center's main facility is evacuated.

Contact hospital customers after the earthquake to assess their operational status and blood product needs.

Activate essential employee staffing (if needed) and ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours.

Activate the family assistance plan to support essential employees (e.g., child care and adult care for elderly parents).

Additional Resources

CDC earthquake preparedness:

www.bt.cdc.gov/disasters/earthquakes/prepared.asp

OSHA emergency preparedness and response:

www.osha.gov/SLTC/emergencypreparedness/guides/earthquakes.html

FLOOD

Description of Event/Hazard

Floods are a common hazard in the United States. Flood effects can be local (affecting a neighborhood or community) or very large (affecting entire river basins and multiple states). All floods are not alike. Some develop slowly, sometimes over a period of days. But flash floods can develop in just a few minutes and without any rain in the area of the flood. A flash flood often has a dangerous wall of roaring water that carries rocks, mud, and other debris, and can sweep away most things in its path. Overland flooding occurs outside a defined river or stream, such as when a levee is breached. Flooding can also occur when a dam breaks, producing effects similar to those of flash floods.

Be aware of flood hazards no matter where you live, but especially if you live in a low-lying area, near water, or downstream from a dam. Even very small streams, gullies, creeks, and culverts; dry streambeds; and low ground that appears harmless in dry weather can flood. Every state is at risk from this hazard.

Potential Impact on the Blood Supply

If you are in an area where flooding is expected, the impact may be small, but (as we know from what happened in New Orleans in 2005) it can also be devastating. The blood supply may suffer little or no impact unless the BC or its hospitals are flooded. Hospitals may suspend elective surgeries until the event has passed, followed by a spike in such surgeries when operations are back to normal. As with hurricanes, facilities located near impact areas may experience flooding and loss of power and other utilities. Citizens may decide to donate blood to help the victims, which may result in a donor surge.

Preparation Checklist

If a facility is located in an area that has the potential to flood, develop a procedure to quickly evacuate staff, donors, and other contractors on site to a safe location. If the facility is to be closed, consider the impact of evacuation and utility interruptions on the facility, supplies, and blood products (both stored and in process). Areas to consider include IT, storage systems, monitoring systems, and any timed systems such as door locks, lights, and sprinklers.

Ensure that all automated computer systems are adjusted for facility closure (e.g., that security systems do not automatically unlock doors during normal business hours).
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Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility.

Consider using law enforcement or private security firms to secure evacuated facilities.
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Consider the need to secure any special equipment (i.e., irradiators).
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Ensure that power redundancies (i.e., generators) are in place, and have a procedure to test the system at predetermined intervals. Consider the effects of flooding on emergency generators (i.e., locate generators and associated switches above potential flood levels). If mobile generators are being considered, make sure building has compatible connections and wiring.
To prevent impacts from flooding, consider locating critical operations in higher floors in the building.
Facilities located in areas at risk for a flood should consider relocating critical operations to less exposed areas to mitigate the overall risk from floods.
Develop a donor surge plan to manage the potential influx of donors at blood center collection sites and local hospitals.
Develop a procedure to communicate with all hospital customers after a flood to assess needs.
Establish a redundant data system to prevent the loss of essential information.
Plan for alternative facility storage of the blood supply in case of facility loss (e.g., through MOAs with hospitals).
Develop alternative facility plans for operations in case of facility damage
Participate in community-wide emergency/disaster exercises.

Response Checklist

If the facility is flooded, execute emergency evacuation procedures to ensure the safety of staff.
Assess the impact on blood facility and hospitals.
Contact hospitals for estimates of injuries and status of blood supply.
Contact the AABB Disaster Task Force and provide an assessment of the impact from the flood on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).
If the facility is damaged, notify staff, donors, and vendors, and establish a process to routinely update these groups until full operational status is restored.
Prepare for public desire to donate in response to the disaster. Contact media outlets as soon as you know the status of the blood supply to encourage donors to make appointments.

Additional Resources

FEMA, Are You Ready?:
www.fema.gov/areyouready/flood.shtm
 NOAA All Hazards Watch:
www.noaawatch.gov

TSUNAMI

Description of Event/Hazard

A tsunami (tidal wave) is a series of waves created by the sudden displacement of a large body of water as a result of an earthquake, volcanic eruption, massive landslide, meteors, etc. The waves can be small or huge, and can travel several thousand miles across open water. Most notable in recent times were the tsunamis triggered by a massive earthquake off the island of Sumatra on December 26, 2004. These tsunamis caused extensive damage and loss of life throughout the Indian Ocean region and as far away as the African coast.

Although early warning systems are in place in many tsunami areas, citizens may receive little or no warning before a tsunami hits (e.g., if it occurs in the middle of the night).

Potential Impact on the Blood Supply

Given the unexpected nature and potential damage from a tsunami, the impact on the blood supply is similar to that of an earthquake and hurricane combined. Traumatic injuries may occur in coastline areas, resulting in an acute need for trauma-related transfusions. As with hurricanes, facilities located near impact areas may experience flooding and loss of power and other utilities. Hospitals may suspend elective surgeries, followed by a spike in such surgeries once operations have returned to normal. Because of the tragic nature and magnitude of a tsunami, many citizens may decide to donate blood, resulting in a donor surge.

Preparation Checklist

Facilities located in coastal areas that are at risk for a tsunami should consider relocating critical operations to less exposed areas to mitigate the overall risk.
To prevent impacts from flooding, consider locating critical operations in higher floors of the building.
Develop an early warning system to notify staff, donors, and other contractors at the facility of a potential tsunami.
If the facility is located in the potential path of a tsunami, develop a procedure to quickly evacuate staff, donors, and other contractors to a safe location. If facility is to be closed, consider the impact of evacuation and utility interruptions on the facility, supplies, and blood products (both stored and in process). Areas to consider include IT, storage systems, HVAC, security systems, monitoring systems, and any timed systems such as door locks, lights, and sprinklers. <ul style="list-style-type: none"> • Ensure that all automated computer systems are adjusted for facility closure (e.g., that security systems do not automatically unlock doors during normal business hours). • Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility. • Consider using law enforcement or private security firms to secure evacuated facilities. • Consider the need to secure any special equipment (i.e., irradiators).

Ensure that power redundancies (i.e., generators) are in place and have a procedure to test the system at predetermined intervals. Consider the effects of flooding on emergency generators (i.e., locate generators and associated switches above potential flood levels). If mobile generators are being considered, make sure building has compatible connections and wiring.
Ensure that facility fleet and essential employees have access to unleaded gasoline before and after the tsunami (e.g., secure contract with a fuel provider).
Develop a donor surge plan to manage the potential influx of donors at blood center collection sites and local hospitals.
Develop a communication plan to notify staff, donors, customer, and vendors about the status of the facility before (if possible) and after the tsunami. Consider using the facility's voicemail greeting, local media, and Web sites for communication channels. <i>Note:</i> If any critical operations have been relocated, notify customers and vendors to reroute supplies and materials.
Develop a procedure to communicate with all hospital customers as soon as possible after the tsunami to assess needs.
Countries with significant exposure to tsunamis should consider developing supply agreements with neighboring countries to provide support in the event of a massive tsunami with extensive and sustained impact.
Participate in community-wide emergency/disaster exercises.

Response Checklist

Activate emergency relocation procedures if the blood center's main facility is rendered inoperable by the tsunami.
Contact hospital customers after the tsunami warnings have expired to assess operational status (i.e., damage from the waves) and blood product needs for victims.
Contact the AABB Disaster Task Force and provide an assessment of the impact from the tsunami on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power; whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).
Notify staff, donors, and vendors of the facility's status and establish a process to routinely update these groups until full operational status is restored.
Assess fuel supplies for emergency generators and notify fuel vendors if necessary.
Assess fuel supplies for unleaded gasoline for organizational and staff vehicles and contact alternative suppliers if necessary.
Activate essential employee staffing (if needed) and ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours. <i>Note:</i> A family assistance plan may be needed to support these employees (e.g., child care and adult care for elderly parents).
Activate a donor surge plan to manage the potential influx of citizens wanting to donate at blood collection sites and local hospitals.

Additional Resources

CDC tsunami preparedness:

www.bt.cdc.gov/disasters/tsunamis

FEMA tsunami preparedness:

www.fema.gov/hazard/tsunami/index.shtm

The Joint Commission: Preventing adverse events caused by emergency electrical power system failures:

www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_37.htm

NOAA TsunamiReady:

www.tsunamiready.noaa.gov

NOAA All Hazards Watch:

www.noaawatch.gov

MAN-MADE HAZARDS

INDUSTRIAL ACCIDENT

Description of Event/Hazard

The category *industrial accident* covers any number of unexpected events, such as a fire; collapse of buildings; roads, or bridges; or explosions [explosions are covered separately below]. An industrial accident can result in large-scale destruction and anywhere from a few to numerous injuries, as in the 2007 bridge collapse in Minneapolis.

Potential Impact on the Blood Supply

If the industrial accident involves the blood center (such as a fire), the blood supply should be quarantined until its safety, purity, and potency can be determined. Accidents that do not directly involve the blood center may or may not require blood support, depending on the nature and number of injuries. Historically, this type of disaster generally requires 300 units or less of blood products. The public often responds by donating blood out of a desire to help.

Preparation Checklist

Mitigate the risk of fires and other accidents to infrastructure through facility design, such as appropriate fire suppression systems, fire extinguishers, and maintenance of a safe, clean environment.
Train staff in emergency procedures for fire and other events.
Establish emergency communication plans with supplied hospitals.
Establish a redundant data system to prevent loss of essential information.
Plan for alternative storage of the blood supply in the event of facility loss (e.g., through MOAs with hospitals).
Develop alternative facility plans for operations in the event of facility damage.
Participate in community-wide emergency/disaster exercises.

Response Checklist

If the BC facility is involved, execute emergency evacuation procedures or shelter in place as directed by the local emergency management agency to ensure the safety of staff.

Assess the impact on the blood facility; if it is intact, continue operations.

Contact hospitals for estimates of injuries and status of the blood supply.

Contact the AABB Disaster Task Force and provide an assessment of the impact from the accident on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).

If the facility is damaged, notify staff, donors, and vendors of the facility's status and establish a process to routinely update these groups until full operational status is restored.

Prepare for the public's desire to donate blood in response to the disaster. Contact media outlets as soon as you know the status of the blood supply to encourage donors to make appointments.

Additional Resource

FEMA disaster planning:

www.fema.gov/hazard/fire/index.shtm

CHEMICAL EVENT

Description of Event/Hazard

Chemical incidents may be the result of an industrial accident (e.g., chemical manufacturing plant accident, rupture of a storage tank, train derailment); a deliberate action by terrorists; or the accidental combining of household products. In some cases, early warning systems allow citizens and municipalities to evacuate or take shelter before the chemical spill/cloud/plume arrives.

Potential Impact on the Blood Supply

Most chemical events do not increase the immediate demand for blood products, although “blood agents” or nitrogen mustard compounds may have complications requiring blood product support later.

Depending on the type of chemical, the projected path, and the wind speed, the blood center may have little time to react. Blood center occupants may be directed by local authorities to shelter in place until the chemical cloud/plume dissipates. Blood collections at the blood center may be lost, and transport of blood collected at local blood drives may be adversely affected.

Some militarized and industrial chemicals may require specific decontamination of buildings and vehicles and the administration of antidotes to people in the affected areas.

Blood collectors should be prepared to minimize the negative impact of a chemical incident, ensure the reestablishment of operations, and protect staff, donors, and volunteers.

Preparation Checklist

If the facility is located in an industrial manufacturing area where toxic chemicals are used or near railway tracks, train or long-haul truck depots, highways, or chemical storage tanks, it should consider relocating critical operations to less exposed areas to mitigate the overall risk from chemical accidents.

Develop an emergency notification protocol with local emergency management agencies, chemical facilities, and transportation companies.

Develop an emergency notification protocol with staff who are operating a blood drive outside the facility and with distribution personnel who deliver blood products to hospitals.

Develop plans that consider the loss of public utilities during a shelter-in-place situation. Access to backup generators located outside the facility may not be advisable.
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Develop a procedure to evacuate and close the blood center if directed by local emergency management authorities or the blood center's management. Consider the following:

- Ensure that all automated computer systems are adjusted for facility closure (e.g., security systems do not automatically unlock doors during normal business hours).
- Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility.
- Consider use of law enforcement or private security firms to secure evacuated facilities.
- Consider the need to secure any special equipment (i.e., irradiators) and to notify local management authorities and state and federal regulatory agencies.
- Consider the impact of evacuation and utility interruptions on the facility, supplies, and blood products (both stored and in process). Areas to consider include IT, storage systems, HVAC, security systems, monitoring systems, and any timed systems such as refrigerators/freezers, door locks, lights, and sprinklers.

Develop a communications plan to notify staff, donors, customers, and vendors about the status of the facility after the chemical incident. Consider using the facility's voicemail greeting, local media, and Web sites for communication channels. *Note:* If any critical operations have been relocated, notify customers and vendors to reroute supplies and materials.

Develop a plan for an alternative blood center operations site (management team), the required staff and volunteers, and the required resources to ensure contact with your customers, vendors, and local emergency authorities until you are permitted to reoccupy the blood center.

Develop a family support plan template to help staff and volunteers develop their own family emergency plans.

Develop a family assistance plan to support essential employees (e.g., child care and adult care for elderly parents).

Participate in community-wide emergency/disaster exercises.

Response Checklist

Activate emergency relocation procedures if the blood center's main facility is evacuated.

Contact hospital customers after the chemical incident to assess their operational status and blood product needs.

Contact the AABB Disaster Task Force and provide an assessment of the impact from the chemical incident on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).

Notify staff, volunteers, donors, hospitals, and vendors of the facility's status and establish a process to routinely update these groups until full operational status is restored.

Activate essential employee staffing (if needed) and ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours.

Activate the family assistance plan to support essential employees (e.g., child care and adult care for elderly parents).

Additional Resources

CDC, Emergency Preparedness and Response—Chemical Emergencies:

www.bt.cdc.gov/chemical

DHS Ready America—Chemical Threat:

www.ready.gov/america/beinformed/chemical.html

DHS, Fact Sheet: TOPOFF 3 Background, Chemical Agents:

www.dhs.gov/xnews/releases/press_release_0644.shtm

Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention:

<http://yosemite.epa.gov/oswer/CeppoEHS.nsf/content/BackGround>

FEMA, Chemical Attacks:

www.fema.gov/hazard/terrorism/chem/index.shtm

HHS, Chemical Agents and Hazardous Materials:

www.hhs.gov/disasters/emergency/manmadedisasters/chemical

Jane's Chem-Bio Handbook, 3rd Edition (United States):

<http://catalog.janes.com/catalog/public/html/publicsafety.html>

The Joint Commission, Standing Together—An Emergency Plan Guide for America's Communities, 2005:

www.jointcommission.org/PublicPolicy/ep_guide.htm

OSHA emergency preparedness and response:

www.osha.gov/SLTC/emergencypreparedness/chemical_sub.html

BIOLOGICAL EVENT

Description of Event/Hazard

A biological or bioterrorism attack is the deliberate release of viruses, bacteria, or other germs (agents) to cause illness or death in people, animals, or plants. These agents are typically found in nature, but they can be modified to increase their ability to cause disease, make them resistant to current medicines, or increase their ability to spread into the environment.

Potential Impact on the Blood Supply

The use of a biological agent poses the greatest threat to the collection of blood products. In recent years, the world has experienced the sarin gas attack in Japan and the multiple anthrax incidents in the United States, and the effects of those attacks, including use of prophylaxes, public fear, and long-term decontamination of facilities. Depending on the type of agent involved in the event, the blood center may face infectivity issues for staff, volunteers, and donors; contamination of facilities and vehicles; and deferral of donors.

Local authorities may direct the blood center to implement its shelter-in-place plan or evacuate, depending on the biological agent. Because of the various incubation periods of different agents, the blood center may be required to conduct an aggressive call-back of donors who develop symptoms after a blood donation.

Mandated quarantine measures or self-initiated actions by the population could result in loss of blood donations. Mandated quarantine measures or travel restrictions may prevent or hinder blood center employees' ability to travel to work and collection sites, and may affect access to the supply chain for critical supplies, equipment, and fuel.

Preparation Checklist

Develop emergency notification protocols with local emergency management agencies, hospitals, suppliers/vendors, and sponsors.
Develop emergency notification protocols with staff who are operating a blood drive outside the facility and with distribution personnel who deliver blood products to hospitals.
Develop protocols with local emergency management agencies to provide unrestricted travel of blood center staff and volunteers to work (at the center and at collection sites) and to hospitals.
Coordinate with local emergency management agencies to include staff, volunteers, and committed blood and platelet donors to receive prophylaxis along with first responders.

Develop a procedure to evacuate and close the blood center if directed to do so by local emergency management authorities or the blood center's management. Consider the following:

- Ensure that all automated computer systems are adjusted for facility closure (e.g., systems do not automatically unlock doors during normal business hours).
- Notify second and third shift employees and contractors (e.g., cleaning services) about the status of the facility.
- Consider using law enforcement or private security firms to secure evacuated facilities.
- Consider the need to secure any special equipment (i.e., irradiators) and to notify local management authorities and state and federal regulatory agencies.
- Consider the impact of evacuation and utility interruptions on the facility, supplies, and blood products (both stored and in process). Areas to consider include IT, storage systems, HVAC, security systems, monitoring systems, and any timed systems such as refrigerators/freezers, door locks, lights, and sprinklers.

Develop a communication plan to notify staff, donors, customers, and vendors about the status of the facility. Consider using the facility's voicemail greeting, local media, and Web sites as communication channels. *Note:* If any critical operations have been relocated, be sure to notify customers and vendors to reroute supplies and materials.

Develop a plan for an alternative blood center operations site (management team), the required staff and volunteers, and the required resources to ensure contact with your customers, vendors, and local emergency authorities until reoccupation of the blood center is permitted.

Develop a family support plan template to help staff and volunteers develop their own family emergency plans.

Develop a family assistance plan to support essential employees (e.g., child care and adult care for elderly parents).

Participate in community-wide emergency/disaster exercises.

Response Checklist

Activate emergency relocation procedures if the blood center's main facility is evacuated.
Contact hospital customers after the biological/bioterrorism incident to assess their operational status and blood product needs.
Contact the AABB Disaster Task Force and provide an assessment of the impact from the biological incident on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).
Notify staff, volunteers, donors, hospitals, and vendors of the facility's status and establish a process to routinely update these groups until full operational status is restored.
Activate essential employee staffing (if needed) and ensure that sufficient food, water, HVAC, and bathroom facilities are available for them during work hours.
Activate the family assistance plan to support essential employee (e.g., child care and adult care for elderly parents).
Request travel authorizations for blood center staff and volunteers.
Advise local emergency management agencies about the negative impact that quarantines and restrictions on public gatherings will have on blood collection activities and resupply of critical supplies and equipment.

Additional Resources

CDC, Emergency Preparedness and Response—Bioterrorism Overview:

www.bt.cdc.gov/bioterrorism/overview.asp

DHS, Fact Sheet: TOPOFF 3 Background, Biological Agents:

www.dhs.gov/xnews/releases/press_release_0642.shtm

DHS, Ready America—Biological Threat:

www.ready.gov/america/beinformed/biological.html

FEMA, Biological Attacks:

www.fema.gov/hazard/terrorism/bio/index.shtm

HHS, Bioterrorism and Diseases:

www.hhs.gov/disasters/emergency/manmadedisasters/bioterrorism/index.html

Jane's Chem-Bio Handbook, 3rd Edition (United States):

<http://catalog.janes.com/catalog/public/html/publicsafety.html>

The Joint Commission, Standing Together—An Emergency Plan Guide for America's Communities, 2005:

www.jointcommission.org/PublicPolicy/ep_guide.htm

OSHA, Emergency Preparedness and Response:

www.osha.gov/SLTC/emergencypreparedness/biological_sub.html

RADIOLOGICAL EVENT

Description of Event/Hazard

A radiological event is an accidental or terroristic dispersal of radioactive material. Accidental radioactive contamination could occur in a workplace, during transport of radioactive material, or from a nuclear reactor. Concerns have emerged about the potential for terrorists to acquire and disperse radioactive material, possibly by detonating a conventional but contaminated explosive device—a “dirty bomb.” Each radioisotope has a different spectrum of biological effects, depending on its amount, half-life (environmental and internal persistence), and particles emitted (penetrating distance). For several radioisotopes, certain medications are FDA-approved or recommended for blocking uptake or promoting excretion, such as potassium iodide to block thyroid iodine-131 uptake after a nuclear reactor accident. (See Nuclear Event section.)

In blood banks, cesium-137 (Cs-137) in blood irradiators could become problematic in the event of a catastrophic barrier breach or acquisition by terrorists. The Nuclear Regulatory Commission has issued orders for maintaining Cs-137 security. In case of exposure, Cs-137 has an FDA-approved antidote, Prussian blue (Radiogardase®, Heyltech Corp., Katy, TX), which accelerates excretion when given orally.

Potential Impact on the Blood Supply

Radiation toxicity includes suppression of hematopoiesis, and victims may need RBC, platelet, and granulocyte transfusions. Highly exposed persons (3–10 Gy) may be considered for hematopoietic stem cell transplantation, requiring HLA typing, donor matching, stem cell collection, and transfusion support after transplant. For a large-scale event, the National Marrow Donor Program (NMDP) coordinates the Radiation Injury Treatment Network (RITN) of designated NMDP members. The RITN has guidelines for patient assessment and treatment, which include irradiated and leukoreduced cellular blood components for radiation victims.

Where radiation is widely dispersed, blood collections would be curtailed if the public (staff and donors) were advised to shelter in place for a period of time during assessment and early radioisotope decay. Blood donors may need extra screening or laboratory testing (blood lymphocyte count) concerning whether they have taken antiradiation medication or have evidence of radiation exposure by symptoms (e.g., vomiting).

Preparation Checklist

Radioisotope irradiator users: Maintain staff training and security.
--

Assess local area for radiological risk threats (e.g., <10 miles from nuclear reactor).
Know whether local medical facilities are in the RITN.
Determine how to obtain large numbers of complete blood counts with differential (lymphocyte counts) for blood donors, including supplies (e.g., specimen tubes). Consider how to deal with test-seeking behavior from worried public.
Plan for facility closure in case of contamination (see Chemical and Biological Event sections), including provisions for fallout shelter.
Plan how to irradiate large quantities of leukoreduced blood components, with consideration of shortened RBC storage time.
Participate in community-wide emergency/disaster exercises.

Response Checklist

Monitor emergency information for radiation dispersal areas and evacuations.
Review isotope-specific safety, toxicity, and treatment information with staff.
Consider whether to establish an inventory of irradiated leukoreduced blood components and whether to increase inventory for victims transported from other areas for local treatment (RITN).
Institute extra donor screening measures as needed to assess for radiation exposure and antiradiation medications.

Additional Resources

Article in *Blood: Journal of the American Society of Hematology*: Weinstock DM, Case C, Bader JL, et al. Radiological and Nuclear Events, Contingency Planning for Hematologist/Oncologists. *Blood* 2008; 111:5440–5. (Available at <http://bloodjournal.hematologylibrary.org>)

CDC

Radiation emergency information for clinicians and hospitals:
<http://emergency.cdc.gov/radiation/clinicians.asp>
 Sheltering in place during a radiological emergency:
<http://emergency.cdc.gov/radiation/shelter.asp>

HHS

Radiation event medical management:
www.remm.nlm.gov/index.html
 Exposure—diagnose/manage acute radiation syndrome:
www.remm.nlm.gov/exposureonly.htm
 Dose estimator for exposure:
www.remm.nlm.gov/ars_wbd.htm
 Use of blood products:
www.remm.nlm.gov/bloodtransfusion.htm
 Managing internal contamination:
www.remm.nlm.gov/int_contamination.htm#isotopestable

Prussian blue (Radiogardase):
www.remm.nlm.gov/prussianblue.htm
Strategic National Stockpile:
www.remm.nlm.gov/sns.htm#agents

FDA

Counterterrorism:
www.fda.gov/oc/opacom/hottopics/bioterrorism.html
Emergency use authorization of medical products:
www.fda.gov/oc/guidance/emergencyuse.html

Nuclear Regulatory Commission (NRC)

Cesium-137 irradiator security orders. See:
USNRC. Security Orders. Holders of material licenses authorized to possess radioactive material quantities of concern:
www.nrc.gov/reading-rm/doc-collections/enforcement/security/#8
RITN: www.nmdp.org/ritn/index.htm

NUCLEAR EVENT

Description of Event/Hazard

A nuclear explosion combines large-scale blast damage with dispersal of radioactive material. Catastrophic structural damage and fires occur in the central blast zone. An associated electromagnetic pulse from the nuclear reaction may interrupt or burn out electrical equipment in the power grid, computers, cars, and airplanes. The device size, blast elevation, and associated weather and wind affect the area of damage and fallout. Outside the area of massive destruction, the health-care system would attempt to cope with widespread survivor trauma, burns, and radiation exposure.

Potential Impact on the Blood Supply

Unlike conventional mass-casualty events, large numbers of trauma patients over a wide area could consume available blood components to the maximum capacity of functioning hospitals. In the aftermath, patients with severe radiation toxicity would have compromised hematopoiesis and would need bone marrow transplantation (see Radiological Event). National coordination of supply and demand for blood components and hematopoietic progenitor cell units would be required as part of the overall emergency response. Such an event elsewhere in the world would generate demand for matched stem cell donations from U.S. sources.

Preparation Checklist

See Radiological Event.
See Sustained Wide-Area Power Outage.
Identify hospitals with burn centers that may need support.
Participate in community-wide emergency/disaster exercises.

Response Checklist

See Radiological Event.
See Sustained Wide-Area Power Outage.
Monitor national emergency recommendations for general response and health system response.
Track development of radiation fallout plumes with regard to affected operations and transportation.
Look for guidance from the FDA with regard to potential variances from standard blood and tissue (stem cell) manufacturing practices in a national emergency.

Additional Resources

(Also see Additional Resources under Radiological Event.)

CDC

Radiation emergencies:

<http://emergency.cdc.gov/radiation/>

Frequently asked questions about a nuclear blast:

<http://emergency.cdc.gov/radiation/nuclearfaq.asp>

FEMA

Nuclear blast:

www.fema.gov/hazard/terrorism/nuclear/index.shtm

EPA

Radiation protection/emergency preparedness and response:

www.epa.gov/radiation/

Oak Ridge Institute for Science and Education, Radiation Emergency Assistance Center Training Site

Basics of radiation:

<http://orise.orau.gov/reacts/guide/define.htm>

Hospital triage in the first 24 hours after a nuclear or radiological disaster:

<http://orise.orau.gov/reacts/files/triage.pdf>

World Health Organization (WHO), Ionizing Radiation Programme

Health protection guidance in the event of a nuclear explosion:

www.who.int/ionizing_radiation/en/WHORAD_InfoSheet_Nuclear_weapons21Feb.pdf

EXPLOSIVE EVENT

Description of Event/Hazard

An explosive event is a large blast from an accidental industrial, military, or flammable-material source, or from an intentional terrorist or criminal bomb. Traumatic injuries result from the blast force in the immediate vicinity or from collateral structural or fire damage. If the explosion is from high-energy weapons-grade material, nearby victims are subjected to supersonic pressure forces, causing injuries to eyes, ears, lungs, and hollow viscera. “Blast lung” may require ventilator support, and air embolisms may need hyperbaric oxygen therapy. In a large-scale event, some victims may be brought by civilians to the nearest hospital, which may not be a trauma center.

Potential Impact on the Blood Supply

Immediate mortality may be high, and some survivors would require resuscitation and surgery, with associated transfusion support. Local inventories of blood components would need assessment for adequacy and augmentation. Surges of blood donors have occurred after such events, and coordinated public announcements about the blood supply are helpful to strike the appropriate balance between supply and demand.

Preparation Checklist

Identify local hospitals with specialized pulmonary, hyperbaric oxygen, or burn facilities that may need support.
Maintain current contact information with the local emergency response network.
Plan for a surge in blood component collections.
Participate in community-wide emergency/disaster exercises.

Response Checklist

Contact local emergency response network for information and support as needed, such as blood transport to involved hospitals.
Estimate casualties from local information and predictive models (see CDC reference below) and extrapolate blood needs.
Coordinate blood component needs among hospitals, local blood centers, and the AABB Disaster Task Force.
Disseminate coordinated public information about whether blood donations are needed.
Activate surge capacity for blood collections if necessary.
Monitor hospital blood supply and demand to determine how long extra collections are needed.

Additional Resources

CDC

Mass casualty event preparedness and response:

<http://emergency.cdc.gov/masscasualties/>

Mass casualty information for health-care professionals:

<http://emergency.cdc.gov/masscasualties/essentialspro.asp>

Surge capacity in terrorist bombings:

<http://emergency.cdc.gov/masscasualties/surgecapacity.asp>

Mass casualties predictor:

<http://emergency.cdc.gov/masscasualties/predictor.asp>

Predicting casualty severity and hospital capacity:

<http://emergency.cdc.gov/masscasualties/capacity.asp>

OTHER HAZARDS

PANDEMIC INFLUENZA

Description of Event/Hazard

A pandemic is a disease outbreak that spans the globe. A flu pandemic occurs when a new influenza virus emerges, people have little or no immunity to it, it is easily spread from person to person, and there is no vaccine. It generally causes serious illness and can sweep across the country and around the world in a very short time, especially in today's global travel environment.

There have been three flu pandemics in the past 100 years. The most severe was in 1918—it killed tens of millions of people worldwide. Current projections of a pandemic estimate 1 billion deaths worldwide, including more than 200,000 in the United States. The CDC estimates 734,000 hospitalizations in this kind of pandemic. Absenteeism could affect 25 percent to 40 percent of the workforce. A pandemic wave is estimated to last 8–17 weeks in an area, and as many as three waves might occur, with seemingly normal interwave periods of 3–9 months.

More than in any other kind of disaster, planning and executing a response are essential.

Potential Impact on the Blood Supply

The impact of a pandemic flu on the blood supply is a topic of much discussion. No one can predict the next pandemic flu, either in timing or impact. Generally accepted planning estimates call for a reduction in the need for RBCs by as much as 25 percent, referencing the 2003 Toronto experience with severe acute respiratory syndrome (SARS). It is believed that the requirements for platelets will remain unchanged, as chemotherapy patients will continue to need platelet support. The impact on frozen products is of less concern because of the extended shelf life of these products. Even if the demand for some blood products declines, significant blood shortages (especially for platelets) may occur because of a shortage of healthy donors.

Preparation Checklist

Establish a pandemic flu planning group and ensure senior management support of its activities.
Tap available resources on pandemic flu planning.
Determine assumptions to use in your facility's plan and estimate the impact of a pandemic flu on your blood requirements, staffing, and donors.
Create a pandemic flu plan that encompasses the entire operation, including but not limited to staffing, supplies and suppliers, donor recruiting strategies, modifications to infection control procedures at collection centers and main facilities, teleworking, human resource policies, and blood distribution.
Train staff on the prevention of seasonal flu (e.g., hand washing and covering coughs) and encourage them to get annual flu shots.
Train staff on the differences between seasonal flu and pandemic flu, and on the facility's pandemic flu plan.
Ensure an adequate and redundant information system that can support plans for staff to work remotely.
Create a communication plan to distribute information to staff and donors on the status of operations.
Monitor the status of potential and expanding pandemic flu threats.
Inform donors about your pandemic flu preparations and how to prevent seasonal flu (washing hands, covering coughs, getting a flu shot). Inform donors about the need to continue to give during a pandemic, especially after they have recovered if they have become infected.
Ensure that essential personnel will have access to vaccines and antivirals as soon as they are available.
Consider antiviral prophylaxis for committed donors, especially platelet donors.
Coordinate pandemic flu supply plans with vendors. Consider requiring corporate pandemic flu planning by your suppliers.
Test your pandemic flu plan through participation in tabletop exercises.

Response Checklist

Increase collections as indications of pandemic flu increase. Maximize stocks of frozen products.
Begin to stockpile blood products, reagents, and supplies, as well as spare parts for instruments.
Implement your pandemic flu plan.
Keep staff and donors informed of the status of operations.
Coordinate with local public health agencies to ensure that blood collection is exempted from any bans on public gathering.
Use the media to educate the public on the need for healthy donors.

Additional Resources

The AABB Interorganizational Task Force on Pandemic Influenza and the Blood Supply has developed background information and detailed planning checklists to help blood centers, hospital blood banks, and transfusion services prepare for pandemic influenza. These documents, which are updated as the state of knowledge regarding pandemics evolves, are available on the AABB Web site at www.aabb.org/Content/Programs_and_Services/Disaster_Response/disastercontact.htm.

U.S. government pandemic flu website:
www.pandemicflu.gov

CDC:
www.cdc.gov/flu/pandemic/

Local public health agencies

WIDE-AREA POWER OUTAGE

Description of Event/Hazard

A wide-area power outage is a sudden loss of all power supply spread over a large geographic area. Such an outage struck the northeastern United States and southern Canada on August 14, 2003. The blackout shut down two nuclear plants, halted air traffic into airports in the affected areas, and left approximately 50 million people in the dark. Power did not begin to be restored to New York City until late on August 15, and the outage lasted until August 19. A similar blackout had occurred in the same corridor—from Toronto to New York City—on November 9, 1965, and on July 14, 1977, a lightning strike left New York City in the dark. On several occasions in the western United States, the power supply has been affected by sagging power lines and unusually high demand during heat waves.

Potential Impact on the Blood Supply

Wide-area power outages jeopardize the storage of blood. Backup generators will operate only until available fuel supplies are exhausted. Fuel resupply may be jeopardized because power is needed to pump fuel and a wide-area outage will create higher demand for fuel.

Blood collection will also be interrupted, which can have an impact 5–7 days later when existing supplies of platelets are exhausted and replacements have not been collected.

Preparation Checklist

Obtain a redundant power supply, such as an emergency generators.
Establish fuel resupply contracts and agreements.
Ensure that local emergency planning agencies are aware of the blood center's need for fuel for generator use.
Establish redundant information systems; consider locating a redundant system in a different geographic area.
Develop a communication plan to inform the staff of the status of operations
Develop communication plans with supported hospitals. Consider alternative communication mechanisms to establish contact with hospitals if the primary mode is lost.
Set up redundant mechanisms to ensure that ultracold storage is maintained, such as a liquid nitrogen backup system.
Participate in community-wide emergency/disaster exercises.

Response Checklist

Determine the extent of the power outage and estimates for return of power.
Communicate status to staff, including those who are out on mobile collections.
Contact hospitals to determine their status and storage capabilities.
Contact fuel suppliers regarding the need for resupply if necessary.
Contact the AABB Disaster Task Force and provide an assessment of the impact from the power outage on the blood center facility and hospital customers, as well as any blood supply needs. In addition to the information in the Event Assessment Form, the task force will want to know the operational status of the blood center and its hospital customers, including whether they are using generator power, whether they have sufficient fuel to operate in the coming days, and any support requirements (communications equipment, transportation, or security).
Consider the need for alternative storage requirements if the power interruption is extended.

Additional Resources

CDC:

<http://emergency.cdc.gov/disasters/poweroutage/>

WORKPLACE VIOLENCE

Description of Event/Hazard

Workplace violence is any physical assault, including unwanted touching or any other offensive physical contact; threatening behavior; or verbal abuse. The workplace is any location, permanent or temporary, where an employee performs work or work-related activities. Workplace facilities include lunchrooms, restrooms, break rooms, vehicles used for work, and parking facilities.

Potential Impact on the Blood Supply

Workplace violence contributes to employee injuries, stress, increased sick days, reduced morale, lost wages, and higher health-care costs. A blood center that experiences an incident of workplace violence may expect to have poor employee attendance immediately following the incident, unwanted scrutiny by the local press, and an increase in donor no-shows and appointment cancellations. Additionally, the blood center may lose sponsors of donor drives and general community support because of misperceptions formed as a result of the incident. Potential employees may decide not to work at that facility.

Preparation Checklist

The blood center should conduct periodic training on workplace violence and how to reduce any contributory factors.
Establish employee assistance programs that provide employee counseling and support.
Develop and conduct workplace violence awareness training for blood center management.
Reach out to local mental health agencies and social services agencies for management and employee awareness training programs.
Develop a procedure to notify employees and donors that an act of workplace violence is occurring/has occurred: <ul style="list-style-type: none"> • Consider evacuating the facility or establishing safe rooms. • Coordinate with local law enforcement agencies or security providers regarding procedures that should be initiated. • Provide mental health or grief counselors.
Develop a communication plan to notify staff, family members, donors, customers, and vendors about the event and the potential impact on the blood center's operations and the welfare of employees.
Develop a procedure to conduct operations from an alternative worksite, if necessary.
Participate in community-wide emergency/disaster exercises.

Response Checklist

Initiate “safe room” or evacuation procedures, depending on the situation and the potential threat to the welfare of staff, donors, and visitors.

Notify law enforcement agencies.

Notify employees and donors about the incident, and provide guidance about whether they should go to an alternative facility.

Activate emergency relocation procedures if the blood center’s operations are curtailed.

Contact the AABB Disaster Task Force and provide an assessment of the impact from the incident on the blood center facility and hospital customers, and any blood supply needs.

Notify staff, donors, and vendors of the facility’s status, and establish a process to routinely update these groups until full operational status is restored.

Be prepared to request mental health counselors for staff, family members, and others affected by the incident.

Additional Resource

OSHA:

<http://osha.gov/SLTC/workplaceviolence/index.html>

**DISASTER
OPERATIONS HANDBOOK—
HOSPITAL SUPPLEMENT**

**COORDINATING THE NATION'S BLOOD SUPPLY
DURING DISASTERS AND BIOLOGICAL EVENTS**

DISASTER OPERATIONS HANDBOOK— HOSPITAL SUPPLEMENT CONTENTS

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7.1 INTRODUCTION

7.1.1 PURPOSE OF OPERATIONS HANDBOOK

The purpose of this handbook is to help blood centers, hospital blood banks, and transfusion services in the United States prepare for and respond to domestic disasters and acts of terrorism that affect the blood supply; however, the content of the handbook can be adapted for use in other countries. The handbook is intended to facilitate coordination in the event of a disaster among blood centers, hospital blood banks, and transfusion services; national blood organizations; and federal, state, and local government officials to

- Determine the medical need for blood.
- Facilitate the transportation of blood from one facility to another.
- Communicate a common message to the national blood community and the public about the status of the blood supply in the disaster-affected area and the nation.

This Hospital Supplement to the Operations Handbook addresses the hospital's role in ensuring that blood for transfusion will be available. It does not address internal hospital transfusion policies that will be needed in the event of a disaster except to establish that blood products provided by supporting blood centers immediately following an event will most likely be type O Red Blood Cells.

7.1.2 HANDBOOK ORGANIZATION

The primary purpose of this supplement is to list the steps a hospital transfusion service should take regarding blood supply issues in a disaster. The supplement also addresses hospitals that collect only autologous units. Hospitals that collect allogeneic units should consult the complete Interorganizational Task Force *Disaster Operations Handbook*, which contains more detailed information about a variety of practical and logistical issues that blood collectors should address in preparing and implementing a disaster response plan (e.g., communications, transportation, managing donors and volunteers). This Hospital Supplement to the *Disaster Operations Handbook* does not address aspects of disaster planning such as utilities, because the hospital's own disaster plan would address them on a broader scale. Hospital transfusion services should consult their hospital disaster plans for guidance.

Readers can access the complete *Disaster Operations Handbook* on the AABB Web site at www.aabb.org/Content/Programs_and_Services/Disaster_Response/.

7.1.3 BACKGROUND

Following the events of September 11, 2001, the blood community recognized the need to evaluate its actions in response to the tragedy and develop recommendations for future domestic disasters and acts of terrorism. In December 2001, the AABB convened a task force of representatives from various blood banking organizations, blood collector and hospital suppliers, and government agencies to address these concerns.

The *Disaster Operations Handbook* was prepared by the AABB Interorganizational Task Force on Domestic Disasters and Acts of Terrorism, whose members are as follows:

- AABB
- Advanced Medical Technology Association (AdvaMed)
- America's Blood Centers (ABC)
- American Association of Tissue Banks (AATB)
- American Hospital Association (AHA)
- American Red Cross (ARC)
- Blood Centers of America (BCA)
- College of American Pathologists (CAP)
- National Marrow Donor Program (NMDP)
- Plasma Protein Therapeutics Association (PPTA)

The following government agencies have appointed representative liaisons to the task force:

- Armed Services Blood Program (ASBP)
- Centers for Disease Control and Prevention (CDC)
- Department of Health and Human Services (HHS)

- Food and Drug Administration (FDA)
- Health Resources and Services Administration (HRSA)

The task force has not identified any scenarios in which the immediate need for blood or blood components would be beyond the capabilities of the blood community. The single greatest risk of domestic disasters and acts of terrorism is not lack of supply but disruption of the blood distribution system.

Previous domestic disasters have led to five overarching lessons

1. The need to ensure that facilities maintain inventories to be prepared for disasters at all times in all locations. (A 7-day supply of the combined inventory of both blood collectors and hospitals is recommended.)
2. The need to control collections in excess of actual need in response to a disaster.
3. The need for a clear and consistent message to the blood community, donors, and the public regarding the status of the blood supply (both locally and nationally) during a disaster.
4. The need for continuous disaster planning, including participation in disaster drills and close coordination with local, state, and federal response agencies.
5. The need for overall inventory management within the United States, including a unified approach to communication among blood facilities and transportation of blood and blood components during a disaster.

7.1.4 DEFINITION OF A “DISASTER”

Unless otherwise stated, the word *disaster* refers to any domestic disaster or act of terrorism that

- Suddenly requires a much larger amount of blood than usual
OR
- Temporarily restricts or eliminates a blood collector’s ability to collect, test, process, and distribute blood
OR
- Temporarily restricts or prevents the local population from donating blood or restricts or prevents the use of the available inventory of blood products and thus requires immediate replacement or resupply of the region’s blood inventory from another region
OR
- Creates a sudden influx of donors, requiring accelerated drawing of blood to meet an emergent need elsewhere.

7.1.5 DISASTER RESPONSE PLANNING ASSUMPTIONS

The task force made the following assumptions with regard to meeting immediate medical needs following a disaster:

Responses to disasters occur in phases. The following blood products are the most likely to be

needed in each of the following phase of a disaster.

- First 24 hours: Type O Red Blood Cells (RBCs)
- 1–10 days: RBCs (all ABO/Rh types) and platelets (PLTs)
- 11–30 days: RBCs, PLTs, and (for radiologic incidents) stem cells and bone marrow

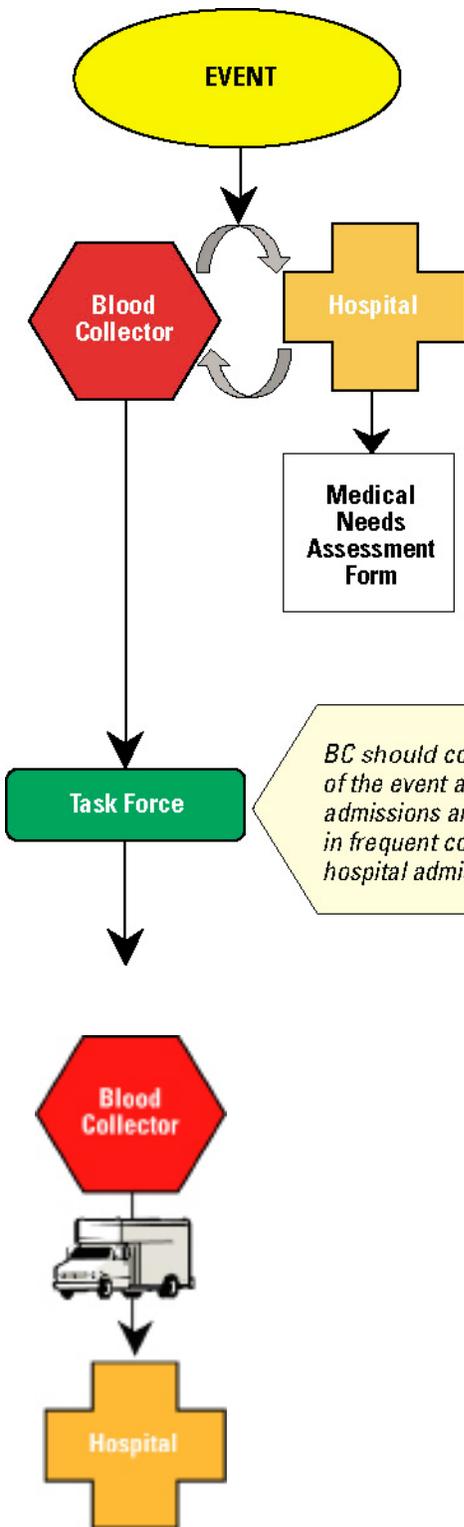
General assumptions:

- All disasters are inherently local.
- Immediate shipment of required blood products will be from blood collector(s) with access to the most rapid means of transportation to the affected blood collector.
- The task force will reassess the needs at 24 hours after the event (and daily as needed) and may alter the strategy for meeting blood needs, depending on the circumstances.

7.2 ACTIVATION/EVENT OCCURS

7.2.1 OVERVIEW OF HOSPITAL RESPONSE IN DETERMINING MEDICAL NEED FOR BLOOD

In a disaster, hospitals should collaborate with the blood collector(s) in the affected area (affected blood collector). The hospital will determine the immediate (i.e., within the first 24 hours) and short-term medical need for blood and communicate that information to the affected blood collector. The affected blood collector will act as the main conduit for information and communication to the Interorganizational Task Force via AABB. The task force will consider the national response and recommend an action strategy including, but not limited to, the shipment of blood to the affected blood collector and the coordination and dissemination of a message to the blood community and donors. Hospitals should coordinate all messages about the need for blood with the affected blood collector.



Step 1. Affected Blood Collector Assesses Medical Need for Blood

- ✓ Affected blood collector (BC) contacts local hospital customers and emergency services to determine impact of event, including
 - Nature of emergency (e.g., disaster, terrorism)
 - Number of current and expected hospital admissions
 - Types of expected injuries
 - Current blood inventory levels of type O RBC
- ✓ If blood is needed immediately, the affected BC will distribute blood from its inventories to the hospital.
- ✓ Hospital completes Hospital Medical Needs Assessment and communicates results to blood collector.*

**If hospital is supplied by more than one blood collector, it reports information to the primary supplier (to prevent duplicative results).*

BC should contact the Interorganizational Task Force within 1 hour of the event and report information on current and expected hospital admissions and current Type O RBC inventory levels. BC will remain in frequent contact with TF and report any updates to the hospital admission and blood inventory numbers.

Step 2. TF Coordinates Transport of Blood to Hospital

If task force (TF) determines that there is need for blood in excess of what is available to the affected BC,

- ✓ TF will coordinate the immediate shipment from blood collector(s) with access to the most rapid means of transportation to the affected BC.
- ✓ Hospital and affected BC should collaborate on receipt of blood shipment from task force. Issues to consider include
 - Points of delivery/emergency staging areas
 - Disruption of normal transportation routes/methods
 - Security/identification issues for drivers

Step 3. Hospital Continues to Communicate with Affected Blood Collector

- ✓ Establish regular times for communicating with BC until event has been resolved.

Step 1. Affected Blood Collector Assesses Medical Need for Blood

- ✓ The affected blood collector will contact local hospitals and emergency services to determine
 - The nature of the emergency (e.g., natural disaster, act of terrorism)
 - Current and expected hospital admissions
 - Types of expected injuries
 - Current blood inventory levels of type O RBC
- ✓ The hospital will complete the Hospital Medical Needs Assessment by filling in the totals in the following chart.
- ✓ If you are a hospital supplied by more than one BC, report this information to the primary supplier. It is important not to provide duplicate information to multiple blood collectors.

Hospital Medical Needs Assessment

Hospital Admissions Expected (Disaster-Related Only)

Total Current Hospital Admissions:	_____
Total Potential for Expected Hospital Admissions:	(+) _____
Total Hospital Admissions Expected:	(A) = <input style="width: 100px;" type="text"/>

Type O (both + and -) RBC Available

Total Type O RBC At Hospitals:	_____
Total Type O RBC Needed for Non-Disaster-Related Need:	(-) _____
Total of Type O RBC Available:	(B) = <input style="width: 100px;" type="text"/>

Calculate the total number of units needed from the Task Force

Total Hospital Admissions Expected	<i>Multiply (A) by 3</i>	x 3* units =	Total Type O RBC Needed	(-) minus	Total Type O RBC Available	=	Total Type O RBC Needed from TF
_____			_____		_____		_____
(A)					(B)		

Step 2. TF Coordinates Transport of Blood to Hospital

To allow for efficient transport and receipt of blood, the hospital should

- ✓ Be in contact with blood collector to arrange for transportation of blood to hospital.
- ✓ Activate previously devised contingency plans with blood collector.
- ✓ Notify blood collector of interruptions to the normal transportation methods, such as local clearances or transportation barriers.

Step 3. Hospital Continues to Communicate with Affected Blood Collector

- ✓ Hospital continues to communicate with the affected blood collector(s), updating the collector(s) about any changes in medical need for blood as soon as possible.

7.2.2 REGULATORY CONCERNS

The availability of blood may be the primary concern in a disaster, but the safety of the blood supply is also paramount. Adherence to Food and Drug Administration (FDA) regulations is crucial. It is important to follow current good manufacturing practice regulations and AABB standards. Any regulatory exemptions will be made on a case-by-case basis by medical need only. The task force will be in touch with the FDA and will convey to the blood community any changes in regular FDA policy.

The task force recommends the following during a disaster:

- Ensure that units of blood released for transfusion are fully tested, including testing for infectious disease. Blood center procedures for emergency and exceptional release may be applied if absolutely necessary to meet immediate needs.
- Perform all regulated functions using trained staff. Volunteers should be used for nonregulated functions only.
- Contact vendors regarding the availability of replacement reagents/supplies. If supplies are inadequate, blood collectors may wish to contact the FDA, vendors, and suppliers regarding expedited release of reagents. The task force can assist in such circumstances.
- Assess the impact of the event on the existing blood supply. Contact the task force for assistance in this evaluation if necessary.
- Assess the impact of the event on existing supplies and reagents. Contact vendors/manufacturers for guidance on effects the event may have had on stocks (fire or power outage at the facility).
- Monitor the FDA and AABB Web sites to stay up to date on emergency guidance.

7.2.3 WORKING WITH THE MEDIA

When a disaster has occurred, it is imperative to inform the general public about blood supply needs. Experience shows that many people will want to do all they can to help. Hospital transfusion services should coordinate messages about blood needs with the blood collector. The hospital may wish to

refer media inquiries to the blood collector or contact the blood collector for the appropriate message to convey.

7.3 GLOSSARY OF TERMS

Term	Definition
Affected blood collectors	Blood centers and hospitals that collect allogeneic blood and that are directly affected by an event
Amateur radio	Amateur (ham) radio that can be used to contact amateur radio network established to assist communication efforts during an emergency
Current hospital admissions	Disaster-related patients actually admitted to a hospital
Disaster	<p>Includes any domestic disaster or act or terrorism that Suddenly requires a much larger amount of blood than usual</p> <p>OR</p> <p>Temporarily restricts or eliminates a blood collector's ability to collect, test, process, and distribute blood</p> <p>OR</p> <p>Temporarily restricts or prevents the local population from donating blood or restricts or prevents the use of the available inventory of blood products, requiring immediate replacement or resupply of the region's blood inventory from another region</p> <p>OR</p> <p>Creates a sudden influx of donors, requiring accelerated drawing of blood to meet an emergent need elsewhere</p>
Expected hospital admissions	The potential for live disaster-related victims to be admitted to a hospital
Interorganizational Task Force	A task force of representatives from various blood banking organizations, blood collector and hospital suppliers, and government agencies
Immediate medical need	The estimated amount of Type O blood needed by the affected facility for disaster-related transfusion purposes within the first 24 hours of an event
Nondisaster-related need	The estimated amount of blood needed for continued nondisaster operations/transfusions
Transfusion services	Facilities that do not collect allogeneic blood