

**DISASTER
OPERATIONS HANDBOOK—
HOSPITAL SUPPLEMENT**

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

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1 INTRODUCTION

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.

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/.

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.

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

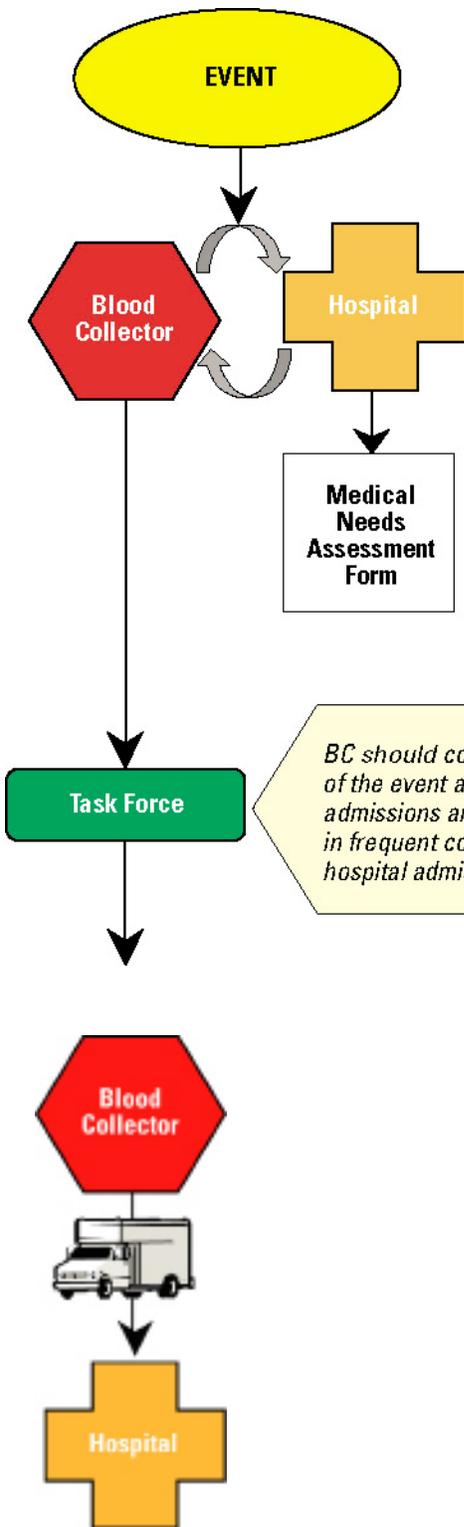
General assumptions:

- 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.

2 ACTIVATION/EVENT OCCURS

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>	Total Type O RBC Needed	(-) minus	Total Type O RBC Available	Total Type O RBC Needed from TF
_____	x 3* units =	_____		_____	= _____
(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.

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.

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.

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