U. S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL
FORT SAM HOUSTON, TEXAS 78234

BLOOD DONOR OPERATIONS II

SUBCOURSE MD0868

EDITION 101

DEVELOPMENT

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WARNING: BE AWARE THAT YOU MAY BE TESTED OVER THIS MATERIAL WHEN YOU ARRIVE AT PHASE II

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CORRESPONDENCE COURSE OF THE
U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL

SUBCOURSE MD0868

BLOOD DONOR OPERATIONS I I

Quality, in all aspects of care and services, is the primary goal of blood centers and transfusion services. Over the years many discrete activities have been incorporated into standing operating procedures (SOPs) to ensure the quality of the final whole blood (WB) unit or component, such as quality control of reagents, staff competency testing and laboratory proficiency testing programs, procedures for equipment maintenance, and documentation of error and accident investigations. The blood banking and transfusion medicine community has evaluated this quality model of discrete activities and has determined that current quality standards require a more comprehensive, prospective, system-based model. This new model is quality assurance (QA).

Laboratory safety programs, intended to prevent workplace related morbidity and mortality, should be a primary goal of every employer/employee team. Prevention is a complex process involving, among other activities, the identification and removal of hazardous conditions or the nullification of the risks they pose. Effective communication and the provision and use of protective equipment are of primary significance. It may also be necessary to identify and change habitual behavior of individuals whose responsibilities place them at increased risk for injury or death.

Operational blood support remains a medical readiness issue for the Army. Military operations have shown that blood management and the practice of transfusion medicine face several limitations in the operations setting. The problem is characterized by a shortage of blood products, inadequate technology for testing and processing blood in the field, and short shelf-life blood products that cannot be effectively utilized or managed in the field medical environment. Despite these operational shortcomings, the requirement for blood and blood products on the modern battlefield remains a critical medical requirement.

Subcourse Components:

This subcourse consists of three lessons, a glossary of blood banking terms and definitions, six annexes, a bibliography, and an examination. The lessons are:

Lesson 1, Quality Program and Information Management

Lesson 2, Look-Back, Peer Review, and Safety.

Lesson 3, Theater Blood Operations and Blood Bank Operational Report.

Credit Awarded:

Upon successful completion of this subcourse, you will be awarded 8 credit hours. You must receive a score of 70 percent or higher on the examination in order to successfully complete this subcourse.

Lesson Materials Furnished:

Materials provided include this booklet, an examination answer sheet, and an envelope. Answer sheets are not provided for individual lessons in this subcourse because you are to grade your own lessons. Exercises and solutions for all lessons are contained in this booklet.

You must furnish a #2 pencil to be used in marking the examination answer sheet. You may keep the subcourse booklet.

Procedures for Subcourse Completion:

Complete the subcourse lesson by lesson. When you have completed all of the lessons to your satisfaction, complete the examination answer sheet and mail it to the AMEDD Center and School along with the Student Comment Sheet (if appropriate) in the envelope provided. *Be sure that your social security number is on all correspondence sent to the AMEDDC&S*. You will be notified by return mail of the examination results. Your grade on the examination will be your rating for the subcourse.

Study Suggestions:

Here are some suggestions that may be helpful to you in completing this subcourse:

- Read and study each lesson carefully.

- Complete the subcourse lesson by lesson. After completing each lesson, work the exercises at the end of the lesson.

- After completing each set of lesson exercises, compare your answers with the solutions. If you have answered an exercise incorrectly, reread the text material cited after the solution to determine why your response was not the correct one.

- As you successfully complete each lesson, go on to the next. When you have completed all of the lessons, complete the examination, marking your answers in this booklet. When You are satisfied that you have answered all of the examination items to the best of your ability, transfer your responses to the examination answer sheet. Use a #2 pencil to mark the examination answer sheet.

Student Comment Sheet:

Be sure to provide us with your suggestions and criticisms by filling out the Student Comment Sheet found at the back of this booklet, and returning it to us with your examination answer sheet. In this way, you will help us to improve the quality of this subcourse.

If you wish a personal reply to a question, please call or write your question on a separate letter (not the Student Comment Sheet). The letter can be sent with the examination answer sheet. Be sure to include your name, rank, social security number, mailing address, and subcourse number on your letter.

LESSON ASSIGNMENT

LESSON 1	Quality Program and Information Management
TEXT ASSIGNMENT	Paragraphs 1-1 through 1-8
LESSON OBJECTIVES	After completing this lesson, you should be able to:

1-1. Identify the primary goal of blood centers and transfusion services.

1-2. Define cGMP and identify requirements.

1-3. Identify regulations governing quality within blood establishments.

1-4. List responsibilities of QA unit.

1-5 List facility requirements.

1-6 Describe competency evaluations.

1-7. Identify equipment/record requirements.

1-8. Identify proficiency testing (PT) requirements.

1-9. Identify procedure manual (SOP) requirements.

1-10. Describe label control.

1-11. Identify error and accident report requirements.

1-12. Describe QA audits.

SUGGESTION After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 1

QUALITY PROGRAM AND INFORMATION MANAGEMENT

1-1. QUALITY ASSURANCE

Quality is the primary goal of blood centers and transfusion services. To ensure the quality of the blood products we transfuse, all critical steps in each of the procedures performed are described in standing operating procedures (SOPs). Current quality standards require a more comprehensive, prospective, system-based model than a description of each discrete activity. This new model is quality assurance (QA).

a. Whole blood and blood components are regulated both as drugs and biologics by the FDA.

b. Current good manufacturing practice regulations (cGMP) are FDA requirements for the drug industry, which includes the "manufacture" of blood. GMPs are not just FDA recommendations; they are legal requirements (see definition in glossary). Blood and blood products not manufactured according to cGMPs are considered to be adulterated.

c. The Clinical Laboratory Improvement Act (CLIA) or DOD's Clinical Laboratory Improvement Program (CLIP) specify additional regulations for laboratories to include blood banks and donor centers.

d. Each facility should develop a QA program, which includes a written plan that takes into account federal, state, and local regulations and professional standards and should include the systems and measures that will be used to ensure meeting these requirements and standards.

1-2. QA UNIT

a. The QA unit reports to senior management, e.g., the responsible officer.

b. The QA unit has the authority to stop a procedure or process that is not in compliance with a facility's procedures, manufacturer's instructions, or regulations; and to prevent the release of blood and blood components that violate regulations or that may be considered unsafe.

c. The QA unit may approve release of blood/ blood products that do not meet specifications, provided a documented review has been performed to establish that products are safe for transfusion.

d. Responsibilities.

(1) Review and approve SOPs and training plans.

(2) Review and approve validation and validation plans.

(3) Review and approve document control and record-keeping systems.

(4) Lot release, i.e., the review of all operations or manufacturing records and the decision whether to distribute, quarantine, or discard blood and blood components.

(5) Audit of operational or manufacturing functions.

(6) Review and approve reports of adverse reactions, errors and accidents, deviations, and customer complaints.

(7) Participate in a material review board, a group that reviews deviations in supplies received or in the blood manufacturing process and determine the suitability for use based on a documented decision-making process.

(8) Review and approve corrective action plans.

(9) Develop criteria for evaluating systems and identifying negative trends so that changes can be made before a situation worsens and products are affected.

(10) Perform surveillance of problems.

(11) Prepare yearly reports of findings, corrective and preventive actions.

(12) Review and approve vendors.

(13) Review and approve product specifications.

1-3. FACILITIES AND PERSONNEL

a. The cGMP regulations require adequate space and ventilation; sanitation and trash disposal; equipment for controlling air quality and pressure, humidity, and temperature; water systems; and toilet and handwashing facilities. The QA unit is responsible for ensuring that the facility meets requirements.

b. The cGMP regulations also requires that there be adequate personnel with the appropriate education, training, and experience to ensure competent performance of assigned duties. CLIA >88 establishes personnel qualifications and similar training requirements for laboratory staff. Personnel, including volunteers, must be trained and certified as competent to perform assigned duties before being allowed to work independently and must have regularly scheduled competency evaluations to ensure

appropriate skills are maintained and that procedures are followed. Competency assessments should be performed according to a formal plan that includes acceptable performance standards and remedial measures.

c. The QA unit should monitor the effectiveness of the training program and competency evaluation.

1-4. EQUIPMENT AND INFORMATION MANAGEMENT

a. **Vendor Approval and Product Certification**.

(1) QA unit is responsible for auditing vendors to ensure that equipment and supplies are manufactured according to cGMP.

(2) Manufacturer should provide document stating conditions under which the product was tested.

b. **Installation Qualification**.

(1) The manufacturer establishes protocol for installation that includes electrical, water, space, and temperature requirements. Components of the system include hardware, software, network, and user.

(2) Vendor installation must meet QA unit requirements for testing, documentation, and acceptance.

c. **Validation**. Validation involves establishing documented evidence that provides a high degree of assurance that a specific process consistently produces a product that meets its predetermined specifications.

(1) Validation plan must include all parts of the process, such as interfaces, data transfer software, modems, SOPs, and adjacent processes.

(2) QA unit should review and approve validation plan and results, and determine whether new or modified processes and equipment can be implemented based on these results.

d. **Calibration and Preventive Maintenance (PM)**. Calibration and PM should be performed on regular schedules and results should be within established acceptable range.

e. **Quality Control (QC)**. QC results are used to determine if critical control point practices are within the established range of acceptability.

f. **Proficiency Testing (PT)**. PT, such as a CAP survey, is a means for determining that test methods and equipment are working as expected and that staff are following procedures.

(1) Under CLIA or CLIP, ABO and Rh must be appropriately identified 100% of the time.

(2) PT requirements must be described in a written program and must be performed by all staff who perform the procedure, using both routine and back-up methods.

(3) QA unit review and monitors PT results, periodically evaluates the PT program, and approves corrective action plans taken when PT results are unacceptable.

g. **Documentation**. SOPs document critical steps performed in the manufacture and transfusion of blood and blood components. Processing records provide evidence that requirements have been met and that any deviations have been appropriately managed.

h. **Record Systems**. A written protocol for managing records is necessary to ensure that the required records are generated, reviewed for completeness and accuracy, approved, maintained in usable condition, retained for specified time periods, and organized for traceability and retrievability.

i. **Confidentiality**. Blood bank records must not be released or made available to unauthorized persons. Restricted access to computerized records must be ensured by an appropriately maintained computer access security system.

j. **Record Design**. Each form should have a title that explains its intended use and should include the name of the facility and address to distinguish it from other institutions. Including as much preprinted information as possible minimizes the number of manual entries needed.

k. **Media**. Records may be kept on paper, either printed or indelibly handwritten, or they may be retained entirely electronically, provided they can be easily retrieved for reference or review and adequate backup exists in case of system failure.

l. **Corrections**. If it is necessary to alter or correct any record, the reason for change should be noted and the date and the person responsible for the change must be identified. Do NOT use white-out or obliterate original. Draw one line through the error, correct, and initial. Personnel must also be able to correct or add information to records stored on each type of medium in use (microfilm, computer tape, etc.). Computer records should permit tracking of both original and corrected data to include the date and user ID of the person making the change.

m. **Record Storage**.

(1) Records must be stored in manner that protects them from damage and from accidental or unauthorized destruction or modification.

(2) Records may be microfilmed, microfiched, or digitized, but there must be a properly functioning viewer available on the premises. There must be documentation that the transformed records are true copies of the material they replace.

(3) Records must be properly indexed and organized. Stored records must be periodically inspected to assess the quality of the storage medium and the retrievability of the information stored on it.

(4) For records maintained in a computer, there must be a method of verifying accuracy of data entry. *Standards* require a system for display of data before final acceptance.

(5) Hardware and software security measures must prevent unintended deletion of data or access by unauthorized persons.

(6) A backup disk or tape should be maintained in the event of unexpected loss of information from the storage medium. An archival copy of the computer operating system and applications software should be stored off-site under appropriate conditions.

(7) There should be a COOP or continuous operations plan, in case the computer system goes down. The backup system should be validated to ensure it works properly.

(8) There must be a secure means of identifying changes or corrections made in the original records. The audit trail should identify the original data, the person(s) entering the data, and the modification, the changed data, and the date/time of change.

n. **Processing Records**.

(1) Each significant step and critical control point of a procedure must be recorded. Records must identify, for legal or investigational purposes, persons responsible for each significant process.

(2) Processing records must be created as performance occurs. AABB *Standards* requires that results of each test or critical step must be recorded as observations are made or as each step is performed. Interpretation, if separate from results, must be recorded upon completion of testing.

(3) A record must be maintained with inclusive dates of employment and signatures and identifying initials or identification codes of personnel authorized to sign, initial, or review reports and records.

o. **Statistical or Summary Reports**. QA programs use statistical records to identify problems and trends. A yearly report (FDA requirement), prepared by the QA unit, should use some type of statistical analysis to summarize the blood center's total operation. The report should be prepared according to a formal plan that includes information from and analysis of error and accident reports, adverse reaction reports, fatalities, product returns or recalls, QC records, and PT results. The yearly report should describe corrective and preventive actions already taken, with an analysis of their effectiveness and proposals for additional actions that may be needed.

p. **Record Retention**. AABB *Standards* requires that it be possible to trace any unit of blood or component from source to final disposition. Records must be organized in a manner whereby donors are positively identified with each of their donations and with every component prepared from each donation.

(1) Indefinite retention:

(a) Records of donors and donor blood.

1 Blood Donation Record (DD Form 572).

2 Information about units received from outside sources.

3 Identification of facilities that carry out any part of the manufacture of a unit.

4 Final disposition of each unit of blood or component.

5 Notification of permanent deferrals.

6 Records of prospective donors who have been indefinitely deferred for the protection of the potential recipient or placed on surveillance.

7 Notification to transfusing facility of previous receipt of units from donors subsequently found to be confirmed positive for HIV or HTLV or repeatedly reactive for HIV-1 Ag.

(b) Records of patients

1 Difficulty in blood typing, clinically significant antibodies, and adverse reactions to transfusion.

2 Notification to recipients of potential exposure to disease transmissible by blood.

3 Units transfused ((a)4 above).

(c) Reports and records: Names, signatures, and inclusive dates of employment of those authorized to sign or initial or review reports and records.

(2) Minimum 5 years retention:

(a) Records of donors and donor blood:

1 Donors' ABO and Rh.

2 Difficulty in blood typing.

3 Severe donor reactions.

4 Apheresis clinical record.

5 Records of blood component inspection prior to issue.

(b) Records of patients:

1 Patients' ABO and Rh.

2 Interpretation of compatibility testing.

3 Therapeutic procedures including phlebotomy, apheresis, and outpatient transfusion.

(c) Other records:

1 All superseded procedures, manuals and publications.

2 Temperatures of storage and results of inspection of blood and component units.

3 Control testing of components, reagents, and equipment and PT surveys.

(3) Temporary retention: records of prospective blood donors who have been temporarily deferred for the protection of the potential recipient shall be maintained for the required deferral period, including interpretations of prescreening or qualifying tests.

1-5. PROCEDURES MANUAL (SOP)

a. **Procedure Contents**.

(1) Must include computer entry directions, as well as incorporating the directions supplied by the manufacturers of the reagents and equipment in use. If the manufacturer's guidance is not followed, data that support deviations from that guidance must be on file. Licensed facilities must obtain approval from the FDA prior to implementing changes from manufacturer's instructions.

(2) Procedural details (reagent volumes, times and temperatures of incubation, etc.) in the written SOP must match exactly the details in the processing records.

(3) Relevant product labels.

(4) Examples of forms used to record test results and interpretations.

(5) Procedures for the review, maintenance, and disposition of records.

(6) Written or pictorial description of how to read, score, and record all test results and interpretations, when applicable.

(7) Directions for managing possible problems and criteria for consulting a supervisor.

b. **Validation of Procedure Process**. Before implementation, procedures should be tested for completeness, accuracy, conformance to regulations, and potential impact on other systems and should be reviewed and approved by the QA unit.

c. **Document Control**. There must be a master copy of each procedure and an index of all current procedures in addition to distributed working copies of each procedure. The number of procedures in circulation should be controlled to ensure that none are overlooked when changes are implemented. A procedure should include the date it was first written and dates of implementation and revision.

d. **Review and Revision**. AABB *Standards* requires a review of each procedure yearly. When manufacturer's instructions or regulations change, the SOP should be examined for conformance with requirements. When procedures are added to or replaced in the manual, the new instructions must be marked with the effective date. Regulatory agencies require a system to document that the laboratory director has approved SOPs and that all personnel are aware of and will comply with changes in the SOP manual.

e. **Archive**. Electronic media (magnetic tapes, optical disks or on-line computer data storage) are widely used for archiving documents. Pages removed from the SOP

manual should be marked with the date and the reason for removal. Obsolete computer software necessary to reconstruct or trace records must also be archived appropriately.

1-6. LABEL CONTROL AND LOT RELEASE

a. Label control procedures should include controls for the following functions: developing label specifications, approving vendors, receiving and quarantining labels, pending completion of acceptance checks, managing defective labels, controlling storage and inventory practice, issuing labels, and reconciling any discrepancies following unit labeling.

b. Process controls should be in place for each stage of the labeling process to ensure that only suitable units are available for labeling, that the blood is maintained at the appropriate temperature during the labeling process, and that the correct labels are applied.

c. Before blood can be made available for distribution, the completely labeled unit should be reviewed for accuracy, including a review of appropriate manufacturing records. A second person must verify the records and labels are complete and correct.

d. If a unit is relabeled, it must be subjected to the same controls and review as the initially labeled unit.

1-7. ERROR AND ACCIDENT REPORTS, ADVERSE EVENTS AND COMPLAINTS

a. cGMP regulations require an investigation (with documentation) if a specific manufacturing error could adversely affect patient safety or the purity, potency, safety, or effectiveness of blood or a component.

b. An error or variance document must be maintained.

c. Adverse patient and donor events must be documented.

d. Guidelines for identifying units implicated in posttransfusion disease should be established. Documented cases of posttransfusion hepatitis, HIV infection, and other viral diseases must be reported to the facility that collected the transfused unit(s).

e. QA unit should ensure that the root cause of an error rather than a symptom of the error, has been identified so that appropriate corrective measures can be taken.

f. FDA required reports:

(1) Fatalities related to blood transfusion or donation, must be reported promptly to CBER. A report should be made by telephone (301-594-1191) within one working day and a written report should be submitted within 7 days.

(2) If components positive for HIV-1 Ag, anti-HIV-1/2, -HCV, or HBsAg are transfused, patient follow-up must be long enough to determine whether infection has occurred.

(3) Licensed facilities must report errors and accidents that affect the safety, quality, identity, purity, or potency of products.

1-8. QUALITY ASSURANCE AUDITS

a. Audits by the QA unit should be conducted periodically, according to a predetermined schedule, to assess the effectiveness of QA system controls. QA audits usually focus on systems.

b. Focused audits are used to address specific problem areas.

c. Results should be documented and submitted to the responsible head and other management staff for review.

d. Self -Assessment Plan (SAP).

(1) List operations of blood establishment: divide and subdivide into systems, critical control points (areas that affect the safety and quality of blood if not performed correctly), and key elements (individual steps in each control point).

(2) Place relationships of different functions in an outline format or function tree.

(3) The DA has a template available for all Army facilities that each site tailors to its particular operation.

Continue with Exercises

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EXERCISES, LESSON 1

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space provided.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson, and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. _____ is the primary goal of blood centers.

2. Whole blood and blood components are regulated as both _____ and _____ by the FDA.

3. cGMP is the abbreviation for _____ _____ _____ _____.

4. T or F: cGMPs are only FDA recommendations, they have no legal ramifications.

5. The Clinical Laboratory Improvement Act of 1988 (CLIA >88) or DOD's _____ _____ _____ _____ (_____) specify additional regulations for laboratories.

6. One or more individuals designated by, and reporting directly to, top management with defined authority and responsibility to ensure that all quality assurance polices are carried out in operations is called the _____ _____..

7. The cGMP regulations require adequate space and _____; sanitation and trash disposal; equipment for controlling air quality and pressure, humidity and temperature; water systems; and _____ and _____ _____ facilities.

8. _____ ____ establishes personnel qualifications and similar training requirements for laboratory staff.

9. The ____ _____ should monitor the effectiveness of the training program and competency evaluation.

10. _____ is establishing documented evidence that provides a high degree of assurance that a specific process consistently produces a product that meets its predetermined specifications.

11. List 4 things that must be included in the validation plan.

12. Match the QA term and the statement describing the QA term listed below:

1. QC

2. PT

3. Record Design

4. Media

5. Calibration and PM

6. COOP

a. Should be performed on regular schedules and results should be within established acceptable range.

b. Results are used to determine if critical control point practices are within acceptable range.

c. Plan for when computer system is inoperable.

d. CAP surveys

e. Records may be kept on paper or entirely electronically, provided they can be easily retrieved.

f. Each form should have a title that explains its intended use and should include the name of the facility.

13. List donor and donor blood records that must be kept a minimum of 5 years.

14. T or F: SOPs need not include computer entry directions.

15. T or F: There must be a master copy of each procedure and an index of all current procedures in addition to distributed working copies of each procedure.

16. QA unit should ensure that the _____ _____ of an error, rather than a symptom of the error, has been identified so that appropriate corrective measures can be taken.

17. T or F: Focused audits focus on systems rather than specific problem areas.

18. _____ _____ _____ are areas that affect the safety and quality of blood if not performed correctly.

19. _____ _____ are individual steps in each control point.

20. T or F: Each Army facility must use the DA SAP template exactly as written.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON I

1. Quality (para 1-1)

2. drugs, biologics (para 1-1a)

3. current good manufacturing practice (para 1-1b)

4. F (para 1-1b)

5. Clinical Laboratory Improvement Program (CLIP) (para 1-1c)

6. QA unit (para 1-2)

7. ventilation, toilet, handwashing (para 1-3a)

8. CLIA >88 (para 1-3b)

9. QA unit (para 1-3c)

10. Validation (para 1-4c)

11. interfaces, data transfer software, modems, SOPs, and adjacent processes (para 1-4c(1))

12. 1. b (para 1-4)

    2. d

    3. f

    4. e

    5. a

    6. c

13. Donors ABO & Rh; Difficulty in blood typing; Severe donor reactions; Apheresis clinical records; and Records of blood component inspection prior to issue (para 1-4p(2)(a))

14. F (para 1-5a(1))

15. T (para 1-5c)

16. root cause (para 1-7e)

17. F (para 1-8b)

18. Critical control points (para 1-8d(1))

19. Key elements (para 1-8d(1))

20. F (para 1-8d(3))

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LESSON ASSIGNMENT

LESSON 2	Look-Back, Peer Review, and Safety
TEXT ASSIGNMENT	Paragraphs 2-1 through 2-9
LESSON OBJECTIVES	After completing this lesson, you should be able to:

2-1. Define look-back.

2-2. List personnel involved in DOD look-back program management.

2-3. Describe the Medical Advisory Committee (MAC).

2-4. Describe look-back program responsibilities.

2-5. Describe the look-back process.

2-6. Define peer review.

2-7. Describe JCAHO requirements for blood usage review.

2-8. Describe the organization and functions of the transfusion committee.

2-9. Discuss elements of a blood donor center and transfusion service biosafety program to include hazardous exposure risks and waste management.

2-10. Describe universal precautions.

SUGGESTION After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 2

LOOK-BACK, PEER REVIEW, AND SAFETY

Section I. LOOK-BACK

2-1. GENERAL

a. Identification of persons who have received seronegative or untested blood from a donor later found to be infected by HIV is referred to as "look-back." Because the interval between infected transfusion and onset of AIDS can be very long, recipients are usually unaware of their infection and may be infectious to others. To identify these individuals, blood centers must have procedures to notify recipients of previous donations from any donor later found to have a confirmed positive test for anti-HIV or a confirmed positive test for HIV-1 Ag.

b. The HIV testing of blood donors was implemented as follows:

(1) Anti-HIV-1: June 1985.

(2) Anti-HIV-1/2: May 1992.

(3) HIV-1 Ag: Mar 1996.

c. In January 1989, the Armed Services Blood Program Office (ASBPO) developed guidelines for HIV-1 look-back procedures for DOD. As there have been regulatory changes, ASBPO/DA have revised these HIV testing and look-back guidelines in response to requirements.

2-2. STRUCTURE OF THE DOD/DA LOOK-BACK PROGRAM

a. **Program Management**. It is recommended that personnel serving as directors of ASBPO, Joint Blood Program Offices (JBPOs) and Service Blood Program Offices (SBPOs); blood bank medical directors and members of an HIV medical advisory committee (MAC) serve as key personnel in the coordination of the military look-back program.

b. **Medical Advisory Committee**. In order to execute the respective service=s HIV look-back program, for each medical treatment facility, a medical advisory committee or equivalent should be established. This committee would be the focal point for the coordination of data retrieval, patient notification, testing, and counseling. The members for this committee should include:

(1) Preventive medicine officer.

(2) Infectious disease physician.

(3) Blood bank medical director.

(4) HIV coordinator.

(5) Blood bank officer.

c. **Program Responsibilities**.

(1) *ASBPO*. The ASBPO has overall responsibility for coordination of Armed Services look-back policies. Specific responsibilities include:

(a) Assist services in the development of HIV look-back programs which meet the requirements of the FDA and the AABB.

(b) Assist SBPOs in determining the locations, names, and addresses of civilian blood collection agencies to which, or in areas, HIV positive service members indicated they have donated.

(c) Transfer HIV look-back information from OCONUS civilian blood banks to appropriate JBPO, requesting a report of action taken.

(d) Transfer look-back requests from civilian facilities in CONUS to the appropriate service SBPO.

(2) *Joint Blood Program Office (JBPO)*. The JBPO has overall responsibility for the coordination of the look-back information which involves OCONUS civilian blood banks, through the appropriate Unified Command or U.S. State Department Channels, with an information copy to the ASBPO.

(3) *Civilian blood collection agencies*. Civilian blood collection agencies have been requested to report, to the ASBPO, needed information on all HIV positive donors who report having donated blood to military blood donor centers since 1977. They must also report donors who are military members that test positive for any infectious disease markers to the nearest MTF.

(4) *Service Blood Program Office (SBPO)*. Service blood program officers are responsible for the coordination of the Armed Services Blood Program policies for their respective services, including:

(a) Establishing a central database for all donors and recipient look-back requests received by their office and service specific MTFs. Ensure that all actions taken in the HIV donor and recipient look-back program are thoroughly documented and that the documentation is saved indefinitely.

(b) Communicating look-back requests and information according to the following:

1 For information dealing with donation, shipment, or recipient transfusion of blood and blood components within the same service, forward it directly to the MTF.

2 For information regarding any donation, shipment, or recipient transfusion of blood and blood components to another service, forward it to the SBPO for that service.

3 For information on donations, shipments, or recipient transfusions of blood and blood components to civilian blood banks, forward it to the ASBPO (for Army and Air Force) or to the appropriate civilian blood bank (for Navy).

4 For information regarding the donation, shipment, or recipient transfusion to OCONUS civilian facilities, forward it to the ASBPO.

(c) Ensuring that blood donor and recipient look-back programs are in place at all MTFs, and that transfusion services/donor centers meet the following standards:

1 Each military blood bank will operate a system which will allow rapid retrieval of information from 1977, or as far back as record retention will permit, on blood donors and transfusion recipients.

2 If any components were made from donations from individuals now HIV EIA repeatedly reactive, Western Blot indeterminate or positive, the following must be accomplished:

a Locate and destroy any in-date components and recovered plasma units in the in-house inventory.

b Through disposition, transfusion, and shipping documents, identify non in-date components and determine if the components expired and were destroyed, or if they were transfused in-house.

c If the components were shipped, notify the consignee and request a disposition, to include HIV testing results on transfused patients. If recovered plasma units were shipped, notify the consignee and request disposition.

d If the components were transfused in-house, locate and test the patient.

NOTE: Donations made 12 months prior to the most recent recorded HIV negative test on a donor do not require further investigation.

3 If any HIV positive individual has a history of a transfusion since 1977, identify the components and locate the donors for HIV testing. Transfusion made 12 months prior to the most recent recorded HIV negative test on the recipient do not require further investigation.

4 Three cryogenic vials of plasma are to be collected and frozen for blood donations from which components are to be frozen. This allows for future testing requirements. One vial is stored in a freezing box with the component, and two are stored in a freezer in the freezing facility or SBPO establishment repositories. When there is a need to perform a new test, only one of the latter vials will be thawed and refrozen. The second vial should be thawed and used only if a test is required which cannot be performed on thawed and refrozen samples.

(5) *Medical treatment facilities (MTFs)*.

(a) Counseling of HIV positive individuals.

1 MTFs are required to counsel HIV positive individuals, and to conduct a look-back program.

2 Donors who are repeatedly reactive (RR) for HIV EIA with a western Blot indeterminate or negative or unconfirmed RR for HIV-1 Ag must be notified and must be given the name and number of a medical point of contact for information about the significance of the test results. It is essential that these points of contact have appropriate information for use in counseling these individuals.

(b) HIV look-back program.

1 Establish an in-house data base for all donor and recipient look-back requests received. Ensure that all actions taken in conduct of an HIV donor and recipient look-back program are thoroughly documented and documentation is saved indefinitely.

2 Communicate look-back requests and information according to the following:

a For donations, shipments, or information dealing to a recipient of blood products from blood banks within the same service, forward this information directly to their own service SBPO.

b. For donation, shipment, or recipient transfusion to blood banks of another service, forward information to their own service SBPO.

c For donation, shipment, or recipient transfusion of blood and blood components to civilian blood banks, forward information to their own service SBPO.

d For donation, shipment, or recipient transfusion to CONUS and OCONUS civilian blood banks, forward information to their own service SBPO.

3 Ensure that blood donors and recipient look-back programs are in place and that they meet the following standards:

a Each blood bank will operate a system which will allow rapid retrieval of information from 1977, or as far back as record retention will permit, on blood donors and transfusion recipients.

b If any components were made from donations by individuals now HIV EIA repeatedly reactive, Western Blot indeterminate or positive or confirmed HIV-1 Ag positive, the following must be accomplished:

[1] Locate and destroy any in-date components in the in-house inventory. If any components were shipped and could be in-date, provide the information to the SBPO for notification of the consignee that the components were donated by a donor who is now HIV positive.

[2] Through disposition, transfusion, and shipping documents, identified outdated components and determined if the components were destroyed when they expired, if the components were shipped, or if the components were transfused in-house.

[3] If the components or recovered plasma units were shipped, provide the information, including addresses, to the SBPO for notification of the consignee and a disposition, to include HIV testing results on transfused patients.

[4] If the components were transfused in-house, locate and test the patient, if in your geographical area. For assistance in locating patients and for testing at other locations, provide the information to their SBPO.

NOTE: Donations made 12 months prior to the most recently recorded HIV negative test on a donor do not require further investigation.

c. If any HIV positive individual has a history of a transfusion since 1977, identify the components and locate the donors for HIV testing. Transfusion made 12 months prior to the most recently recorded HIV negative test on the recipient do not require further investigation.

2-3. THE LOOK-BACK PROCESS.

a. **Obtaining and Transmitting Donor or Recipient Information**.

(1) All information on donors and recipients used in the HIV look-back program must be treated with confidentiality. It is recommended that all information mailed or

transferred from one individual or location to another be marked as "Sensitive Medical Information."

(2) Donor information that should be obtained.

(a) Legal name (include the name which may have been used at the time of the donation, e.g., married name, maiden name, or alias).

(b) Social security number (SSN - include the number which may have been used at the time of the donation, e.g., donors' not the sponsor's).

(c) Sex.

(d) Date of birth (DOB).

(e) Current military status.

(f) Current address and phone number of work and home to include area code.

(g) Location of each donation, to include: military installation, or city and state; facility (shopping mall, high school, hospital), and type of collection site (permanent or mobile).

(h) Type of each donation (plasma, whole blood, platelets, etc.).

(I) Date for each donation.

(j) Date that the individual was assigned in the area of donation.

(k) Date of donor's first positive HIV test.

(l) Dates of all donor's negative HIV tests for the 12-month period prior to donation.

(m) Signed and witnessed authorization for release of information which will be used to obtain further donor related information required for completion of the look-back. Minimum information on release form must include the name and address of the MTF, the donor's signature and date, and the witness' signature and date. The medical personnel conducting the interview may witness the release form.

(3) Recipient information.

(a) Legal names of recipient (include the name which may have been used at the time of the transfusion).

(b) Social security number (include the number which may have been used at the time of the transfusion).

(c) Sex.

(d) Date of birth.

(e) Current military status.

(f) Current address and phone number, work and home, to include area code.

(g) The sponsor's name and SSN at the time of transfusion, if applicable.

(h) Names of hospitals for each transfusion (to include if they are military or a civilian hospitals), and the city and state where each is located.

(i) Dates or time for each transfusion or hospitalization.

(j) Date of recipient's first positive HIV test.

(k) Date(s) of all recipient's negative HIV tests.

(l) Signed and witnessed authorization for release of information which will be used to obtain further recipient related information required for completion of the look-back. Minimum information on release form must include the name and address of the MTF, the recipient's signature and date, and the witness' signature and date. The medical personnel conducting the interview may witness the release form.

b. **Initiation of a Look-Back**.

(1) HIV positive individuals may be identified through the force screening program, the blood donor screening process, preventive medicine contact investigations, separate look-back investigations, or upon clinical examination of signs and symptoms of AIDS. HIV positive individuals will be questioned concerning their blood donation and blood transfusion history since 1977.

(2) If HIV positive individuals give a history of blood donation or receiving a transfusion, all required information should be collected and a look-back process begun.

(3) When provided with the look-back history, the MTF will undertake a search of donor, transfusion, receipt, and disposition records. It must also provide information on the components prepared or received and the disposition of each component (shipped, transfused, further manufactured, and destroyed). For donations in which components were transfused, the names and social security numbers of the recipients

must be identified. Each recipient must be traced and tested. For recipients, the donor numbers must be identified and the donors traced and tested.

(4) In the event that a current blood donor test HIV EIA RR, Western Blot indeterminate or positive or confirmed HIV-1 Ag positive, the MTF will ensure that blood bank records are searched to determine if that donor had given to that blood bank in the past. Information on the disposition of any donations found through such a search will be provided to appropriate medical authorities for a follow up.

c. **Extent of the Look-Back Process.**

(1) A donor look-back must be performed on an HIV EIA repeatedly reactive, Western Blot indeterminate or positive individual, who has donated blood or plasma since 1977.

(a) The look-back will continue until all investigatable blood components have a known disposition or until efforts have been exhausted.

(b) The donor's HIV testing history, if any, may be located in the members health record or the Reportable Disease Database. Donations made twelve months prior to the most current negative HIV test do not require further investigation. As a precaution, in-date products from all donations should be destroyed.

(c) If a component was transfused, the recipient must be located and tested. Recipients transfused 12 months prior to the donor's most recent recorded negative HIV test do not require testing.

(d) Recipients should be tracked by using, at a minimum, DEERS, the military locator system, the services' reserve personnel system, and the St. Louis record repository. Local preventive medicine units/activities may use state agencies, if available.

(e) The recipient's HIV testing history, if any, may be located in his or her health record or the Reportable Disease Database. If the recipient tested HIV negative 12 months after receiving the donor's component, the recipient does not require testing.

(f) Recipients who are now non-beneficiaries but who were beneficiaries at the time the transfusion occurred (in a military facility) must be offered testing and initial counseling in a military facility. No other services may be offered until the recipient regains beneficiary status.

(2) Recipient look-back process starts when a recipient states that he/she received a transfusion of blood after 1977.

(a) The look-back will continue until all donors have been identified, located, and tested.

(b) The recipient's HIV history, if any, may be located in the member's health record or the Reportable Disease Database. Transfusions received 12 months prior to the most current negative HIV test do not require further investigation.

(c) Donors testing HIV negative 12 months prior to the donation in question do not require testing.

(d) Donors should be tracked by using, at a minimum, DEERS, the military locator system, the services' reserve personnel system, and the St. Louis record repository. Local preventive medicine units/activities may use state agencies, if available.

(e) The donor's HIV testing history, if any, may be located in the members health record or the Reportable Disease Database.

(f) Donors implicated in a recipient look-back who are not beneficiaries but who donated to the military blood program must be offered testing to ensure closure of the case. If the donor tests HIV positive, the donor must seek his or her own counseling and treatment.

(3) The product of look-backs.

(a) The look-back will continue until a known disposition has been determined or until efforts have been exhausted.

(b) If the product was transfused, the recipient must be located and tested.

(c) Recipients should be tracked the same way you would track donors.

(d) The recipient's HIV testing history, if any, may be located in his or her health record or the reportable Disease Database. If the recipient tested HIV negative six months after receiving the product, the recipient does not require testing.

(e) Recipients who are now non-beneficiaries but who were beneficiaries at the time the transfusion occurred in a military facility must be offered testing and initial counseling in a military facility. No other services may be offered until the recipient regains beneficiary status.

Section II. PEER REVIEW

2-4. GENERAL

a. Peer review is the process by which a selected group of physicians and other hospital staff members review services within a hospital using a set of predetermined criteria. The main goal of the peer review is the improvement of the hospital's quality of services.

b. The hospital transfusion committee performs the review of the hospital's transfusion practice. This committee establishes written criteria for analyzing justification for transfusion. The blood usage review is an accreditation requirement for a transfusion service. All transfusions are reviewed for documentation of appropriate blood product's use consistent with established written criteria. The findings and/or activities of the transfusion committee must be properly documented and reports forwarded to other hospital committee services, departments, and hospital staff.

c. Peer review of blood product transfusion practices is a requirement of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the Code of Federal Regulation for a hospital to qualify to received Medicare reimbursement (HCFA-Health Care Financing Administration), the College of American Pathologist (CAP), and the American Association of Blood Banks (AABB) as part of their inspection and accreditation process.

2-5. ORGANIZATION OF THE BLOOD USAGE REVIEW COMMITTEE (TRANSFUSION COMMITTEE)

a. The members of the transfusion committee and the chairman are, in most instances, appointed by the hospital commander and by recommendations received from the departments chief. Members to the committee should include personnel from the departments that have the requirement for blood products, such as: surgery, medicine, anesthesiology, obstetrics, and pediatrics. Others members may include a hospital administrator, nursing, medical records, transfusion services' medical director, and a blood bank representative.

b. The members of the transfusion committee should have some knowledge and experience in one or more aspects of transfusion therapy and blood banking.

2-6. JCAHO REQUIREMENTS

a. The transfusion committee must meet at least quarterly to review blood usage practices.

b. The blood usage review must include the following:

(1) The review of usage of all categories of blood products.

(2) The evaluation of all confirmed transfusion reactions.

(3) The development or approval of policies and procedures relating to the distribution, handling, use, and administration of blood products.

(4) The review of the adequacy of transfusion services to meet the needs of patients.

(5) The review of blood products ordering practices.

(6) Assess the actions taken and document improvement.

(7) Communicate relevant information to the Hospital Quality Assurance Program Committee.

2-7. FUNCTIONS OF THE TRANSFUSION COMMITTEE

a. Establish broad policies for blood transfusion therapy.

b. Develop criteria audits of transfusion practice.

c. Enhance quality of patient care through objective assessment of ongoing blood and blood component therapy.

d. Review and analyze the statistical reports of the transfusion services.

e. Audit blood use. Special emphasis must be given to the following:

(1) Blood products transfused.

(2) Adverse reactions to transfusions.

(3) The transmission of infectious diseases and other adverse effects of blood transfusion.

f. Review the findings of problem areas and evaluate their improvement.

g. Promote continuing education in transfusion practices for the hospital staff.

h. The assessment of the safety and adequacy of the blood supply.

i. Annual review of the written policies and procedures of the hospital transfusion services to ensure they conform with the standards set by the AABB and the FDA.

j. Submit reports to the hospital organization in charge of the overall quality assessment program. This includes recommendation for improvement or corrective actions when needed.

k. Review of areas such as the following:

(1) The proper administration of blood products.

(2) The indications for irradiated blood.

(3) The appropriate use of various blood administration devices such as filters, blood pumps, and intraoperative autologous transfusion devices.

(4) The monitoring of cell separators for intraoperative recovery and the collection of plasma or cells from patients undergoing plasmapheresis or cytapheresis procedures.

Section III. SAFETY

2-8. GENERAL

a. The primary goals of every laboratory safety program are to prevent injury, disability, and disease transmission and to provide a safe and healthy working environment. This includes:

(1) Identifying and removing of hazardous conditions or the reducing of the risks through communication and training and the use of personal protective equipment (PPE).

(2) Identifying and changing habitual behaviors in individuals who perform unsafe acts or who are at increased risk for injury.

NOTE: Enforcing good biosafety measures is difficult to accomplish because risk/dangerous elements (biohazardous material) often cannot be seen.

b. Awareness of biosafety issues has been significantly increased since the advent of AIDS and its transmission through blood or body fluids.

c. Federal regulatory agencies involved in the safety of health care workers.

(1) Food and Drug Administration (FDA).

(a) Establishes the Code of Federal Regulations (CFR).

(b) Enforces CFR standards to ensure safe work practices in laboratories and blood centers.

(c) Mandates adherence to current good manufacturing practices (cGMPs) in blood centers.

(2) Health and Human Services (HHS) Clinical Laboratory Improvement Act (CLIA) 1988.

(3) Occupational Safety and Health Administration (OSHA).

(4) Centers for Disease Control (CDC).

(5) Environmental Protection Agency (EPA).

(6) Department of Transportation (DOT).

(7) Nuclear Regulatory Commission (NRC).

d. Voluntary agencies.

(1) Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

(2) College of American Pathologists (CAP).

(3) National Committee on Clinical Laboratory Standards (NCCLS).

e. To meet federal and civilian regulatory and accrediting agency safety requirements, every medical laboratory should develop a comprehensive safety program that includes the following:

(1) Clean, well-lit, ventilated facilities with appropriate safety equipment for the level of complexity of testing.

(2) Written safety procedures that are followed by the staff and enforced by management.

(3) Identification of staff at risk and development of programs to educate and train those persons prior to exposure.

(4) A surveillance program that addresses confidentiality issues, which includes reporting, investigating, and documenting lab incidents and counseling of exposed persons.

2-9. BIOSAFETY IN THE LABORATORY

a. All laboratory personnel must be aware of the potential dangers of handling patient or biological reagents and must always treat them as potentially infectious.

b. Classification of work activity:

(1) All personnel positions within the laboratory should be categorized as to their potential for exposure to blood or body fluid specimen.

(2) Each category of workers should receive infection control training specific to his or her position as well as background information about the risks of exposure.

(3) Public Health Service biosafety levels:

(a) Level 1 - work that involves agents of no known or of minimal potential hazard to laboratory personnel and the environment.

(b) Level 2 - work that involves agents of moderate potential hazard to personnel and the environment.

(c) Level 3 - work that involves indigenous or exotic agents that may cause serious or potentially lethal disease as a result of exposure by inhalation.

(4) Most activities involving work with blood are in the level 2 category.

c. Biosafety level 2 precautions:

(1) No mouth pipetting is permitted.

(2) No eating, drinking, smoking or applying cosmetics or contact lenses in the work area.

(3) All food and drinks are stored separately outside the restricted area.

(4) Laboratory glassware is never used for food or drink.

(5) Personnel are instructed to avoid touching faces, ears, mouth, or nose with hands or other objects such as pencils and telephones.

(6) Waste should not be compacted and is decontaminated before disposal in leakproof containers.

(a) Waste is properly packaged in doubled, seamless, tear-resistant, orange or red bags.

(b) All infectious waste is placed inside a protective carton.

(c) The carton is labeled with biohazard symbol and is handled only by trained personnel throughout delivery to an incinerator or autoclave.

(d) All blood specimens are placed in well constructed containers with secured lids to prevent leaking during transport.

d. Recommended biosafety practices for laboratory personnel:

(1) *Universal precautions.* Universal blood and body fluids precautions recommended.

(a) All specimens are handled as potentially infectious.

(b) Safest approach.

(c) Easier to remember one set of guidelines.

(d) Should be practiced when working with donors/patients and handling samples.

(2) *Infection control training.* Infection control training should include:

(a) Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) transmission and the results of exposure to these diseases.

(b) Types of protective clothing available to include how and when to use protective clothing.

(3) *Biosafety training.* Biosafety training should include:

(a) Recognition, understanding, and handling biohazards.

(b) Understanding procedures and how they relate to their work.

(c) Location and proper use of personal protective equipment and clothing.

(d) Use of universal precautions.

(e) How to clean up potentially hazardous spills and how to report spills and possible exposure to infectious agents.

(f) Procedures to be used if exposed to blood or body fluid.

(4) *Protective clothing*.

(a) Long-sleeved laboratory coats or protective barrier gowns are to be worn by all staff performing tasks that may expose them to blood or body fluids.

(b) Fluid-resistant material.

(c) Protect all areas of exposed skin.

(d) Once contaminated with blood or body fluids, the barrier garment should be removed and replaced with a clean barrier garment.

(e) Should not be worn outside the work area to include administrative areas, rest rooms, break rooms, or visitor's areas.

(5) *Gloves*.

(a) Gloves or equivalent barriers should be used when tasks are likely to involve exposure to blood.

(b) The CDC recommendations for prevention of transmission of blood-borne pathogens include the following general guidelines for determining when gloves are necessary:

1 For any task where blood may be encountered when the healthcare worker has cuts, scratches, or other breaks in his/her skin.

2 In situations where the healthcare worker judges that hand contamination with blood may occur.

3 For performing finger and/or heel needle-sticks on infants and children.

4 When persons are receiving training in phlebotomy.

5 When handling any "open" blood container or specimen.

6 When cleaning up spills or handling waste materials.

7 When collecting or handling blood or samples from all patients, or from donors known to be infected with a blood-borne pathogen.

(c) Guidelines for the safe use of gloves include the following:

1 Change gloves immediately if they become torn, punctured, or contaminated, and after handling high risk samples or performing a physical examination.

2 Remove gloves by keeping outside surfaces only in contact with outside, and by turning the glove inside out as it is being removed from the hand.

3 Avoid touching unclean surfaces such as telephones, door knobs, or computer terminals with gloves.

4 Wash hands with soap after removing gloves.

5 Change gloves between patient contacts.

6 Do not wash or disinfect surgical or examination gloves for reuse.

(d) OSHA does not require that gloves be worn by the phlebotomist collecting healthy donor blood:

1 Unless the phlebotomist is in training.

2 Unless the phlebotomist has open cuts or breaks in the skin.

(e) Gloves must be available for those phlebotomists who desire to use gloves. If gloves are used, the guidelines outlined earlier should be followed.

(6) *Face shields and masks.*

(a) The face should be protected whenever the possibility of splashes, splatters, or aerosols of blood or body fluids exist.

(b) The purpose of the face shields and masks is to protect the eyes and mucous membranes of the nose and mouth.

(c) As an alternative to wearing facial protection, permanent shields can sometimes be attached to pieces of equipment to prevent splashing (e.g., splash barrier above dielectric tubing sealers or centrifuges).

(7) *Hand washing*.

(a) Hand washing is the most important action anyone can take to prevent the transmission of diseases (first line of defense in infection control).

(b) The blood-borne pathogens of concern generally do not penetrate intact skin.

(c) Hands should always be washed:

1 After contamination with blood or body fluids.

2 Whenever gloves are removed.

3 Any time hands become dirty.

4 Before leaving a potentially contaminated work area.

(d) After contact with any donor or patient.

(e) After using the restroom.

(8) *Eye wash*.

(a) Should be available in all areas where body fluids or reagents are used.

(b) Used any time irritants/ biohazards get into the eyes.

(9) *Decontamination*.

(a) All reusable equipment and surfaces that are contaminated with blood require daily disinfection.

(b) Routine wipe-downs are performed after each shift or on regular basis.

(c) Any time spills involving blood or body fluids occur they should be treated as potentially hazardous and cleaned up immediately.

(d) When spills do occur:

1 Leave area for 30 minutes if an aerosol has been created, and post warning signs if necessary.

2 If spill occurs in a centrifuge, turn it off immediately and leave lid closed for 30 minutes.

3 Wear appropriate protective clothing and gloves.

4 Totally absorb spill and remove any broken glass with brush and pan.

5 Clean with detergent.

6 Flood the area with 1:10 dilution of freshly made sodium hypochlorite (bleach) solution or another acceptable disinfectant.

7 Let the disinfectant stand for at least 20 minutes.

8 Wipe up the disinfectant.

9 Dispose all materials safely in accordance with biohazard guidelines.

(10) *Needle precautions*.

(a) Needles should not be recapped, bent, broken, or removed from syringes.

(b) Used needles and all other sharps will be disposed of in puncture-resistant biohazard containers.

(11) *Special precautions*.

(a) Some procedures are known to result in more frequent injury:

1 Using lancets for finger puncture.

2 Handling capillary tubes.

3 Crushing vials for arm disinfection.

4 Handling any uncapped needle.

5 Cleaning scissors.

(b) Find alternatives if possible, or provide extra training and protective devices to personnel.

(12) *Direct patient care*.

(a) Avoid direct contact with blood drawn from patients and practice universal precautions.

(b) Blood bank staff may be involved in dealing with patients:

1 Autologous blood collection.

2 Therapeutic (phlebotomy or hemapheresis).

3 Therapeutic plasma exchange.

4 Intraoperative or postoperative red cell salvage.

5 Bleeding or phlebotomy room.

(c) Avoid direct contact with blood.

(13) *Waste management.*

(a) Medical waste as defined by the Environmental Protection Agency (EPA).

1 Definition - Any solid waste (including semi-solids and liquids) generated in the diagnosis, treatment, or immunization of human beings or animals in related research or production or testing of biologicals.

2 EPA interprets infectious waste to include waste that probably contains pathogenic organisms.

3 Waste contaminated with blood or body fluids is considered potentially infectious.

4 HIV and HBV survive for prolonged periods at ambient temperature and are potentially infectious even after drying.

5 Reduce the volume of hazardous material to be handled to an absolute minimum.

(b) Essential precautions for handling infectious waste.

1 Identify infectious waste consistently; red or orange seamless plastic bags (doubled) are recommended; always use biohazard symbol.

2 Place in protective container to preserve integrity when storing or transporting.

3 Discard sharps only in rigid puncture-proof containers.

4 Put liquids only in leak-proof unbreakable containers.

5 Do not compact.

Continue with Exercises

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EXERCISES, LESSON 2

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space provided.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson, and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. Identification of persons who have received seronegative or untested blood from a donor later found to be infected is referred to as _____.

2. What year did donor centers start testing for anti-HIV-1?

3. Match the appropriate office with the look-back responsibilities listed below:

1. ASBPO

2. JPBO

3. Civilian BDC

4. SBPO

5. MTF/BSC

a. Retrieval of information on blood donors/ recipients at this military facility.

b. Overall responsibility for coordination of look-back information which involves OCONUS civilian BDCs.

c. Requested to report to ASBPO information on all HIV positive donors who report having donated blood at a military BDC.

d. Overall responsibility for coordination of US DOD look-back policies.

e. Establish a central database for all donors and recipients and look-back requests by their office and service specific MTFs.

4. Each military BDC should operate a system which will allow rapid retrieval of information from _____, or as far back as record retention will permit.

5. If components made from donations of individuals who are now HIV positive were shipped, what action should the BDC take?

6. For look-back purposes, units drawn _____ prior to the most recent recorded HIV negative test on the donor do not require further investigation.

7. How many cryogenic vials of plasma are to be collected and frozen for blood donations from which components are to be frozen?

8. List 8 of 13 donor information items required for a look-back:

9. What should a BDC do if a current donor is confirmed positive for HIV? (For look-back purposes)

10. What services do recipients receive who are now non-beneficiaries, but were beneficiaries at the time the transfusion occurred?

11. _____ _____ is the process by which a selected group of physicians and other hospital staff members review services within a hospital.

12. List 3 laboratory accreditation organizations that require peer review.

13. Members of the transfusion committee should include personnel from where?

14. How often must transfusion committee meet?

15. T or F: Transfusion committee sets guidelines for indications for irradiated blood.

16. The primary goal of a safety program is to _____injury, disability and _____transmission and to provide a safe and _____ working environment.

17. What is PPE?

18. How many Public Health Service biosafety levels are there?

19. List 3 of 4 listed Biosafety level 2 precautions (applies in BDC):

20. Handling all specimens as though they were highly infectious is known as _____ _____.

21. What type protective clothing should be worn when performing tasks that may expose workers to blood or body fluids?

22. What is the only exception to wearing gloves when drawing blood?

23. What is the purpose of face shields?

24. T or F: Hands do not need to be washed after removing gloves.

25. All reusable equipment and surfaces that are contaminated with blood require disinfection.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 2

1. look-back (para 2-1a)

2. 1985 (para 2-1b(1))

3. 1. d (para 2-2c)

   2. b

   3. c

   4. e

   5. a

4. 1977 (para 2-2c(4)(c)1)

5. Notify consignee and request a disposition, to include HIV testing results on transfusion patients. (para 2-2c(4)(c)2c)

6. 12 months (para 2-2c(4)(c)2d Note)

7. 3 (para 2-2c(4)(c)4)

8. Legal name, SSN, sex, DOB, current military status, current address and phone numbers, location of each donation, type of donation, date of donation, dates that the individual was assigned in the area of donation, dates of donors' first positive HIV test, dates of donors' negative HIV tests, signed and witnessed authorization for release of information. (para 2-3a(2))

9. Search records to see if the donor has donated at your BDC before. (para 2-3b(4))

10. Testing and initial counseling in a military facility (para 2-3c(3)(e))

11. Peer review (para 2-4a)

12. JCAHO, CAP, AABB (para 2-4c)

13. Departments that use blood products (para 2-5a)

14. At least quarterly (para 2-6a)

15. True (para 2-7k(2))

16. prevent, disease, healthy (para 2-8a)

17. Personal protective equipment (para 2-8a(1))

18. 3 (para 2-9b(3))

19. 1. No mouth pipetting

2. No eating, drinking, smoking, applying cosmetics or contact lenses in the work area

3. Waste should not be compacted

4. All blood specimens (units) are placed in well constructed containers with secured lids to prevent leaking. (para 2-9c)

20. universal precautions (para 2-9d(1))

21. Long-sleeved lab coats that are fluid resistant (para 2-9d(4)(a))

22. Not required when drawing healthy donors (para 2-9d(5)(d))

23. To protect the eyes and the mucous membranes of the nose and mouth (para 2-9d(6)(b))

24. F (para 2-9d(7)(c)2)

25. daily (para 2-9d(9)(a))

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LESSON ASSIGNMENT

LESSON 3	Theater Blood Operations and Blood Bank Operational Report
TEXT ASSIGNMENT	Paragraphs 3-1 through 3-11
LESSON OBJECTIVE	After completing this lesson, you should be able to:

3-1. List ASBP services in the TO.

3-2. Describe the ASBPO.

3-3. Describe theater blood management to include: SBPO, JBPO, AJBPO, TMMMC, and BBP.

3-4. Describe the HSS echelons of care and the blood capabilities at each echelon.

3-5. State blood products available at MASH, CSH, GH, and FH.

3-6. Describe theater blood support to include: BDC, ASWBPL, BTC/TBTC, BSU, BPD, and MTF/MTE.

3-7. List blood products available in the TO.

3-8. List shelf-life of blood products available in the TO.

3-9. List transport and storage temperatures of blood.

3-10. List blood transportation modes.

3-11. Describe the division blood program.

3-12. Describe BLDSHPREP and BLDREP.

3-13. Describe the DD Form 2555 (Blood Bank Operational Report).

SUGGESTION

After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 3

THEATER BLOOD OPERATIONS AND BLOOD BANK OPERATIONAL REPORT

Section I. THEATER BLOOD OPERATIONS

3-1. ARMED SERVICE BLOOD PROGRAM

a. Armed Service Blood Program (ASBP) provides transfusion products, when required, to members of the U.S. armed forces worldwide. Triservice cooperative efforts of the U.S. Army (USA), U.S. Navy (USN), and U.S. Air Force (USAF) enable blood and blood products to be collected, processed, and shipped to military medical treatment facilities (MTFs) throughout the world. Planning for effective management of blood and blood products is a continuing, dynamic process requiring a coordinated highly responsive system that extends from the battlefield to CONUS. The system will ensure viable blood products are available for transfusion when and where required. The Armed Service Blood Program is coordinated by the Armed Services Blood Program Office (ASBPO).

b. ASBP services in the Theater of Operations (TO) include:

(1) Receiving liquid blood and blood products from CONUS.

(2) Moving, storing, processing, and distributing prepositioned frozen blood products.

(3) Collecting and processing liquid blood on an emergency basis.

3-2. ARMED SERVICE BLOOD PROGRAM OFFICE (ASBPO)

a. ASBPO is a Joint Service program established in 1953.

b. ASBPO coordinates the provision of blood products throughout the Services to meet medical requirements during national emergencies, or for overseas military operations. It is under the policy guidance of Assistant Secretary of Defense (Health Affairs).

c. ASBPO is organized to coordinate and monitor the blood programs of the Army, Navy, USAF, and unified and specified commands. The ASBPO coordinates standardized policies and procedures for collection of blood and operation of the Services blood programs. The ASBPO performs as the DOD liaison with other federal, civilian, and allied agencies concerning blood-related matters.

d. Three positions:

(1) Director: Rotates among the three Services.

(2) Deputy Directors:

(a) Two positions selected from other two Services.

(b) Responsible for areas related to blood program operations and modernization.

(3) The individual Service components in support of ASBPO are responsible for the following:

(a) The Army maintains Operational Control (OPCON) of the ASBPO and provides funding, personnel, facilities, and supplies. If military blood requirements exceed capabilities, the Army provides funds for procurement of blood from civilian sources.

(b) The USAF designates the locations of the Armed Services Whole Blood Processing Laboratories (ASWBPLs) at Conus air terminals. The USAF also coordinates the tri-service staffing and the operational funding of ASWBPLs for the shipment of blood and blood products to locations OCONUS. Additionally, the USAF operates and staffs blood transshipment centers (BTCs), the initial receiving points for blood entering the Area of Operation (AO) at most major overseas military airfields.

e. Upon mobilization or during periods of increased blood needs for military operations, the ASBPO directs the Services to meet required quotas for blood or blood products to be shipped to designated ASWBPLs.

3-3. SERVICE BLOOD PROGRAM OFFICE (SBPO)

a. The USA, USN, and, the USAF maintain separate command blood programs to meet normal peacetime requirements. To meet ASBPO requirements, the Services direct expansion of their blood donor centers (BDCs).

b. Each unified command has a separate integrated system for providing blood products to the various service component MTFs. The unified command Joint Blood Program Office (JBPO) serves as the overall blood manager within each command. In support of unified command operation plans (OPLANs), ASBPO sets quotas for shipments of liquid and frozen blood products from CONUS ASWBPLs to the respective commands. Frozen blood products may be prepositioned in designated unified commands in sufficient quantity to support blood requirements during the initial days of an armed conflict.

3-4. THEATER BLOOD MANAGEMENT IN THE TO

a. The theater of operations (TO) is a geographical location that includes land, air, and sea-based operations necessary for accomplishment of the military objective and administration of the military operation. The TO is divided into three major regions, the Combat Zone (CZ), the Communication Zone (COMMZ), and the Zone of Interior (CONUS). Health service support (HSS) echelons of care provide integrated medical support throughout the TO.

b. The Health service support system is a single integrated system. It begins at the forward line of own troops (FLOT) and ends in CONUS. The system entails the effective medical regulation of sick, injured, and wounded patients in the shortest possible time to the medical treatment facilities (MTFs) or elements (MTE - USAF) that can provide the required treatment. All sick, injured, and wounded patients are regulated and evacuated without regard to lateral or rear boundaries. Health service support involves delineation of support responsibility by geographical area. The effectiveness of the system is measured by its ability to return soldiers to duty.

c. The Army's HSS system in a TO is organized into unit, division, corps, and echelons above corps (EAC) which extend throughout the theater (see figure 3-1).

(1) Echelon I (Unit).

(2) Echelon II (Division).

(3) Echelon III (Corps).

(4) Echelon IV (COMMZ).

(5) Echelon V (EAC).

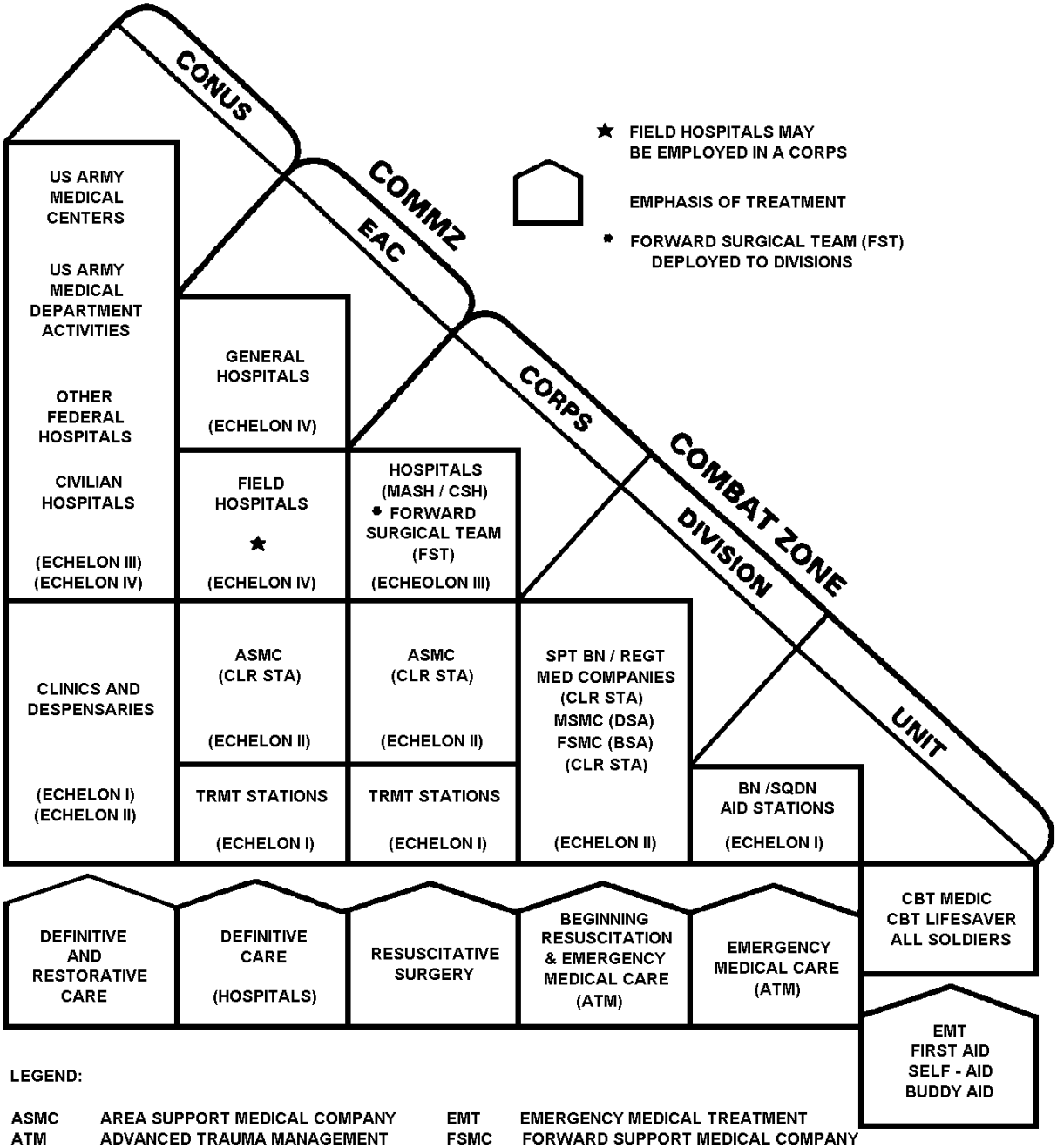
d. Available blood products (see table 3-1) and Theater Army blood capabilities by echelon of care (see table 3-1 and table 3-2).

(1) Echelon I - no blood products.

(2) Echelon II.

(a) Blood products: Group O RBCs.

(b) Methods of operation: Blood storage and transportation refrigerators (thermostabilizers) will be used to transport blood from the forward supply platoon (FSP) to Echelon II medical units. The FSP will be resupplied by the blood bank platoon at the medical battalion, logistics (forward) using iced blood boxes.



LEGEND:

ASMC	AREA SUPPORT MEDICAL COMPANY	EMT	EMERGENCY MEDICAL TREATMENT
ATM	ADVANCED TRAUMA MANAGEMENT	FSMC	FORWARD SUPPORT MEDICAL COMPANY
BN	BATTALION	FST	FORWARD SURGICAL TEAM
BSA	BATTALION SUPPORT AREA	MASH	MOBILE ARMY SURGICAL HOSPITAL
CBT	COMBAT	MED	MEDICAL
CLR STA	CLEARING STATION	MSMC	MAIN SUPPORT MEDICAL COMPANY
COMMZ	COMMUNICATION ZONE	REGT	REGIMENT
CSH	COMBAT SUPPORT HOSPITAL	SPT BN	SUPPORT BATTALION
DSA	DIVISION SUPPORT AREA	SQDN	SQUADRON
EAC	ECHELONS ABOVE CORPS	TRMT	TREATMENT

Figure 3-1. Health Service Support System

TABLE 3-1. BLOOD PRODUCTS (CLASS VIII B) AVAILABLE IN THEATER

PRODUCT	UNIT OF ISSUE	SHELF LIFE FOR STORAGE	ECHELON AVAILABILITY	DISTRIBUTION			
				O	A	B	AB
RBCs	APPROX 250 mL	42 DAYS (Adsol) 35 DAYS (CPDA-1)	IIE IIIE & IVE	100% 50%	----- 40%	----- 10%	----- -----
FROZEN / DEGLYC-EROLIZED RBCs	APPROX 250 mL	21 YEARS	IIIE & IVE	100%	-----	.-----	-----
FFP	APPROX 250 mL	1 YEAR	IIIE & IVE	-----	50%	25%	25%
PLATELET CONCENTRATE	APPROX 60 mL	5 DAYS	IIIE & IVE	50%	50%	-----	-----

LEGEND: APPROX = APPROXIMATELY E = ECHELON mL = MILLILITERS

TABLE 3-2. BLOOD TRANSFUSION PRACTICES BY ECHELON

ECHELON	BLOOD PRODUCT	ABO & Rh GROUP	TRANSFUSION SERVICE	STORAGE CAPACITY	BLOOD RESUPPLY
IE	NONE	-----	-----	-----	-----
IIE	RBCs	O Rh	NONE	50 UNITS PER MED FIELD REFRIGERATION	IIE DIVISION MEDICAL SUPPLY OFFICE (DMSO)
IIIE	RBCs	O, A, B Rh	ABO & Rh* MAJOR SIDE CROSSMATCH (IS)	480 UNITS LQ	IIIE BSU
	FROZEN PLASMA (FP)	A, B, AB Rh	NONE	20 UNITS	IIIE BSU
	PLATELET CONCENTRATE (AS NEEDED)	O, A Rh	NONE	5 UNITS	IIIE BSU
IVE	SAME AS IIIE	SAME AS IIIE	SAME AS IIIE	SAME AS IIIE	IVE BSU

* Capability to collect and perform the ABO and Rh group on 180 units of whole blood for extreme emergencies.

(c) Organization: Medical battalion, logistics (forward) personnel handle the distribution of blood to the division.

(d) Transportation: Division and corps transportation assets, as well as ground and aeromedical evacuation assets, will be used to transport blood.

(3) Echelon III and IV.

(a) Blood products.

1 Red blood cells: Liquid (ABO group specific) RBCs will be available at the CSH, FH, and GH. At the MASH, only liquid group O RBCs will be available.

2 Fresh frozen plasma (FFP): Available in limited quantities at the CSH, FH, and GH.

3 Platelets: From emergency blood draws.

(b) Methods of operation.

1 MASH: Blood bank capabilities are limited to:

a Storing 200 to 240 units of liquid Group O RBCs.

b Collecting and processing (ABO and Rh only) a limited number of units of whole blood on a emergency basis.

2 CSH, FH, and GH: Blood bank capabilities in these units will allow for:

a Storing liquid RBCs, FFP, and platelets.

b Performing immediate spin (IS) crossmatch procedures (no Ab screens).

c Thawing FFP for transfusion.

d Emergency collection of a limited number of units of whole blood and preparation of platelets.

e. Theater blood support is provided to U.S. military and, as directed, allied military and indigenous civilian medical facilities in the TO. Unified commands maintain individual blood programs to meet their individual requirements. Management of the blood program in the Unified Commands is provided by several organizational elements.

(1) *Joint Blood Program Office (JBPO).* JBPO is tri-service and is responsible for blood product management in a unified command.

(a) Enforces ASBP policies and maintains direct liaison with the ASBPO.

(b) Advises the unified command or theater surgeon on all matters pertaining to theater blood management.

(c) Manages the theater wartime blood distribution system.

(d) Provides managerial and technical oversight for all theater military blood activities.

(e) Establishes and coordinates the activities of the Area Joint Blood Program Offices as necessary.

(f) Current locations:

1 PACOM: Okinawa (USN).

2 EUCOM: Germany (USA).

(2) *Area Joint Blood Program Office (AJBPO)*. AJPBO is tri-service and established in an assigned geographic area to provide regional blood management in the theater of operations.

(a) Coordinates blood requirements of all MTF/MTE in the AO regardless of Service component.

(b) Implements unified command blood program policies in the AO.

(c) Coordinates blood distribution within the AO.

(d) Manages blood and blood products in BTCs and blood supply units (BSU) in the AO.

(e) Collateral mission to manage frozen blood in the blood product depots (BPD) in the AO.

(f) Requests blood and blood products from the JBPO when unable to meet local requirements with existing resources.

(g) Current locations:

1 PACOM: Korea, Japan, Alaska, Guam, Hawaii.

2 EUCOM: Germany, UK, Italy, Turkey.

3 ACOM: Iceland, Azores.

(3) *Theater Medical Material Management Center (TMMMC)*:

(a) Provides centralized, theater-level inventory management of Class VIII materiels to include blood.

(b) Located in COMMZ and under command and control of the Medical Command.

(c) The TMMMCs Blood Management Office manages Army blood and blood products and coordinates with the JBPO.

(d) Normally set up in a mature theater where blood management is based on resupply of blood and blood products from CONUS.

(e) The blood bank platoon (BBP) leader assigned to the medical logistics battalion (Rear) may serve as the Theater Army blood manager until the TMMMC is operational.

(f) When supporting a contingency force of a Corps or less, the TMMMC's function of theater blood management resides with the medical logistics battalion (Forward) BBP.

3-5. THEATER BLOOD SUPPORT

Armed Services blood distribution system (ASBDS) is a seamless, integrated, tri-service system that distributes blood and blood products from the CONUS-supporting base to the TO. The ASBDS consists of several organizational elements that have distinct functions (see figure 3-2).

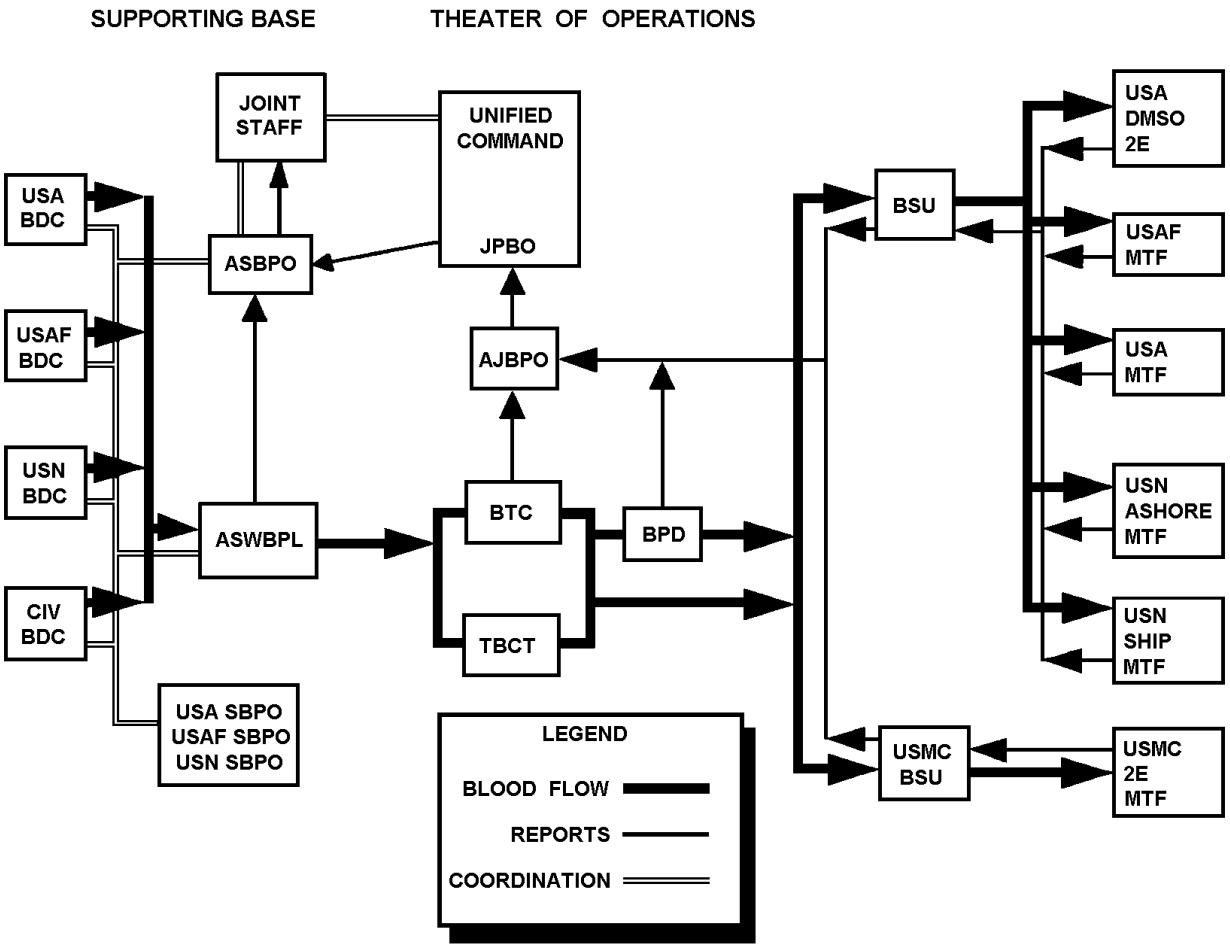


Figure 3-2. Armed Services blood distribution system.

a. **Blood Donor Centers (BDCs)**. BDCs collect, process, and provide blood products for local or wider use. They also train medical personnel in blood product preparation. The BDC is service staffed, Army, Navy, and Air Force (except the ASBBC, which is tri-service staffed and located at Ft Lewis, WA).

(1) Operations of each BDC is the responsibility of the military medical commander at the installation where the BDC is located. It is the commander's responsibility to ensure that:

(a) Proper medical care is given to all blood donors.

(b) Persons are deferred as donors who do not meet the requirements established by regulatory or accreditating agencies or who are disqualified for other reasons.

(c) Technical operation of the BDC is carried out by qualified personnel.

(2) It is the BDC's responsibility to:

(a) Follow their respective Service's standing operating procedures (SOPs).

(b) Operate in accordance with all regulatory agencies: FDA, AABB, CAP, and CLIP.

(c) Maintain and store all blood bank paper or electronic records indefinitely.

(d) Conduct look-back investigations when directed by the Service Blood Program Officer (SBPO). BDCs will notify the SBPO of any locally generated "look-back" investigations.

(e) Submit a quarterly DD Form 2555 (Blood Bank Operational Report) to the SBPO no later than the third week of the month.

(f) Deploy, utilize, and upgrade the Defense Blood Standard System (DBSS) computer.

(g) Route all responses to FDA, AABB, and inspector general inspections through the SBPO.

(3) SBPOs are responsible for designating specified BDCs to provide blood products to the ASWBPLs on a continuous basis to meet world-wide contingencies.

(4) Military medical commanders whose BDCs have been given blood quotas are responsible for meeting them in order to maintain medical readiness. Blood taskings for contingencies are a priority over requirements, including local blood needs.

b. **Armed Service Whole Blood Processing Laboratories (ASWBPL)**. ASWBPLs are CONUS-based facilities which provide intermediate storage, testing, and shipment of blood products as designated by the ASBPO.

(1) The Secretary of the Air Force, or designee, will establish ASWBPLs at air terminals located in CONUS. At least two ASWBPLs will be equipped and staffed for full time peacetime operation.

(2) The ASWBPLs coordinate the joint staffing by medical personnel of the Army, Navy, and Air Force.

(3) The ASWBPLs receive shipment authorization and technical and operational guidance from ASBPO.

(4) The ASWBPLs will fill blood requests as designated by the ASBPO. During peacetime operations, medical facilities may supplement their blood product needs from the ASWBPLs on as available basis according to their Service's policies.

(5) Blood products may be requisitioned from the ASWBPLs by the commanders of unified commands, joint task forces, or by the SBPOs.

(6) Blood products received by the ASWBPLs will be inspected and stored according to FDA and AABB requirements.

(7) Shipment conditions and inspection results will be recorded on the shipping document. The ASWBPLs will file one copy completed document and return one copy to the shipping facility. Significant errors will be brought to the attention of the appropriate SBPO.

(8) Liquid RBC units received by the ASWBPLs will be tested to verify the ABO blood groups and Rh types.

(9) The ASWBPLs will arrange shipment of blood products via military or commercial transportation.

(10) The ASWBPLs pack, ice, palletize, and ship blood from CONUS-based military or civilian BDCs to BTCs.

(11) The ASWBPLs store blood prior to shipment and for contingency purposes.

(12) Locations:

(a) McGuire AFB, NJ.

(b) Travis AFB, CA.

c. **Blood Transshipment Center (BTC)/ Transportable Blood Transshipment Center (TBTC)**. The BTC/TBTC is managed by the Air Force at primary airports in the TO and functions as an intermediate receiving, inspecting, re-icing, storing, and distributing facility for liquid and frozen blood products sent from the CONUS ASWBPLs, BPDs, or from another BTC, to the BSUs, another BTC, or MTFs when required. BTCs provide daily blood reports (BLDREPs) to their respective AJBPO or JBPO. The overall objective is to standardize BTC operations worldwide.

(1) The Secretary of the Air Force will establish BTCs at air terminals located outside the continental United States (OCONUS) upon request from the ASBPO or unified commanders.

(2) BTCs will be activated only during contingencies, emergencies, and exercises, and will be operational within 24 hours of an activation order by the theater JBPO. Each BTC will have the capability to simultaneously store two 436L pallets (240 boxes or 7200 units of liquid RBCs). Alternatively, the BTC may store one 463L pallet of liquid RBCs plus one 463L pallet of either frozen RBCs (1560 units) or FFP (1440 units).

(3) Upon receipt of a Blood Shipment Report (BLDSHIPREP) notifying the BTC of an inbound shipment, contact local transportation authority and coordinate blood pickup and transport from aerial port to the BTC.

(4) Advise the blood shipper by immediate message of blood receipt and any discrepancies.

(5) Review the accompanying shipment form. Depending on the next required re-icing time, the following should be accomplished:

(a) If re-icing is not required for another 24 hours to 48 hours, the liquid RBC boxes may be stored in the walk-in refrigerator, or non-refrigerated shelter area, without inspection.

(b) If re-icing is required within the next 24 hours, one of each of the 20 liquid red cell boxes should be inspected for proper temperature (1 to 10° C) and unit appearance and then all boxes either stored in walk-in refrigerator or re-iced immediately.

(6) Blood inspections should also involve ensuring liquid RBC units were not frozen (below 1E C) during shipment. Liquid blood below 1° C or above 10° C should be destroyed and records of destruction maintained.

(7) FFP and frozen red cells should be taken out of their boxes and stored in ultra low-temperature freezers (-80° C). Any left over dry ice should be collected in blood boxes, taped closed, and placed in walk-in refrigerators for later use in shipping.

(8) Liquid red cell units should be left in the insulated blood shipment containers and placed in the walk-in refrigerator at a temperature of 1 to 6° C. Stored in this manner, re-icing will not normally be required for up to 4 days. The refrigerator will have a tamper proof audible alarm system, a temperature recording system, and a remote alarm activation in a constantly manned area. A daily inspection procedure for manually checking and documenting temperatures will be accomplished.

(9) In the absence of a 24-hour temperature recording system, the following procedures can be used to detect unexpected thawing of frozen blood products.

(a) Fill a test tube half full of water and freeze.

(b) After freezing the water in the test tube, invert the test tube and place in a rack in the freezer.

(c) Inspect the test tube on a daily basis to ensure the water is still frozen.

(10) Liquid red cell units may also be stored in the insulated blood shipment container outside of the walk-in refrigerator when properly packaged with 14 pounds of wet, cubed ice. Stored in this manner, re-icing will not normally be required for up to 48 hours.

(11) Locations:

(a) PACOM: Korea, Japan, Alaska, Guam.

(b) EUCOM: Germany, United Kingdom, Italy, Turkey.

(c) ACOM: United Kingdom, Iceland, Azores, Puerto Rico.

(d) SOUTHCOM: Panama.

d. **Blood Supply Units (BSU)**. The BSU is a an intermediate supply point in the distribution of blood between the BTC and the requestors for blood products. The BSU can usually support a maximum of 12 MTFs depending on the situation. A BSU mission is to collect (emergency only), receive, store, process, and distribute blood products to its supported MTFs within a defined geographical area. The BSU should have the capability of storing up to 5 days of supply of blood products based on the usage rate of its supported MTFs. The Army BSU is primarily the Medical Logistics (MEDLOG) BBP. The Air Force BSU is primarily designated MTEs. The Navy BSU is primarily a naval hospital ship.

(1) Each Service's BSU reports to the AJBPO for blood support, technical, and operational guidance.

(2) The Army Blood Bank Platoon (BBP)/BSU is located in the Logistics Support Company of the MEDLOG Battalion (Forward and Rear). It:

(a) Receives, inspects, stores, and prepares blood and blood products for distribution to supported MTFs/MTEs in an assigned geographic area.

(b) Provides blood support for up to 12 MTFs/MTEs in the geographic region assigned by the AJBPO.

(c) Provides a 5-day supply of blood to supported MTFs/MTEs in its assigned geographic area.

(d) Conducts blood collection operations to provide platelets and packed RBCs on an emergency basis.

(e) Operates BPDs when required by the OPLAN.

(f) Has a capacity of 3600 units of liquid RBCs.

e. **Blood Product Depots (BPD)**. BPDs have been established in certain unified commands to provide storage for frozen RBCs and FFP. The unified commands will designate Service components to establish and operate BPD. The determination of the numbers and locations will be in coordination with the unified command JBPO, the Joint Staff, and the ASBPO. The blood products stored in the BPD are theater assets, under the control of the JBPO or the respective AJBPO. Because of the extremely limited mobility of the equipment involved and the difficulty in maintaining the low storage temperatures of the frozen products, BPDs operate as prepositioned, fixed facilities.

(1) The functions of the BPDs are to:

(a) Offset strategic shortages of blood products during the initial stages of an operation until the liquid RBC units can be shipped into the theater.

(b) Store frozen blood products for resupply of ships offshore.

(c) Prepare frozen blood products for distribution, either as frozen units (FFP or RBCs) or as deglycerolized RBC units.

(d) Issue blood and blood products to BSUs, as required.

(e) Serve collaterally as BSUs to store and arrange for the distribution of blood and blood products to MTFs.

(f) Provide daily BLDREPs (when operational) to their respective AJBPOs or JBPO.

(2) Component commands of the unified commands are responsible for ensuring that BPDs are maintained, funded, equipped, and supplied during peacetime operation.

(3) Each respective Service will identify, staff, and fund sufficient personnel to operate each BPD.

(4) Each Service will conduct annual training for personnel in deglycerolization and contingency operation of the BPD to ensure familiarity with administrative and operational procedures.

(5) Capacity: Varies on size of building and how equipped.

(6) Current locations:

(a) PACOM: Korea, Guam, Okinawa, Japan, and Hawaii.

(b) EUCOM: Italy.

f. **Medical Treatment Facility (MTF)**.

(1) Component operated.

(2) Functions: Inspects, stores, and transfuses blood.

(3) Each DEPMEDS hospital will have the capability to collect 180 units whole blood for extreme emergencies, to include platelets.

3-6. BLOOD AND BLOOD PRODUCTS

a. Blood and blood products available in TO:

(1) Liquid packed RBCs.

(2) Frozen RBCs.

(3) Deglycerolized packed RBCs .

(4) Fresh frozen plasma (FFP).

(5) Platelets.

b. Shelf-life:

(1) Liquid packed RBCs: 35 days (CPDA-1) or 42 days (Adsol).

(2) Frozen packed RBCs:

(a) Storage:

1 Peacetime: 10 years.

2 War stock: 21 years.

(b) Post- thaw and deglycerolized:

1 Peacetime: transfuse in 24 hrs.

2 Wartime: transfuse in 72 hrs.

(3) FFP:

(a) Storage: 1 year.

(b) Post-thaw: transfuse in 24 hrs.

(4) Platelets (random donor):

(a) 5-day storage at room temperature with constant agitation.

(b) 3-day storage at refrigerated temperatures (1-6° C) without agitation.

c. Storage capacity (liquid packed RBCs):

(1) Medical Company: RBCs - 50 Gp O.

(2) BTC/TBTC: 3600-7200 (50% Gp O, 40% Gp A, 10% Gp B).

(3) MEDLOG Battalion BBP/BSU: 3600 (50% Gp O, 40% Gp A, 10% Gp B) - minimum of 5-day supply (up to 3600 units).

(4) CSH, GH, and FH: 480 (50% Gp O, 40% Gp A, 10% Gp B) - minimum of 5-day supply.

(5) MASH: 200-240 Gp O - minimum of 3-day supply.

(6) Division Medical Supply Office (DMSO): 400 Gp O.

(7) Division Clearing Station/Medical Company: 50 Gp O.

d. Temperature:

(1) PRBCs: 1-10° C transport, 1-6° C storage.

(2) RBCs (frozen): $\leq$ -40° C transport, $\leq$ -65° C storage.

(3) FFP: $\leq$ -10° C transport, $\leq$ -18° C storage.

(4) Platelets: 20-24° C transport and storage.

e. Blood transportation:

(1) Collins box:

(a) 30 units of packed RBCs + 14 lbs wet cubed ice (total weight 45 lbs).

(b) 24 units FFP + 20 lbs coarse broken dry ice (total weight 49 lbs).

(2) Portable blood bank refrigerator (thermostabilizer):

(a) Maintains blood at 1-6° C.

(b) Uses external power source (battery/generator).

(c) Storage capacity - 50 units.

(3) Air:

(a) Helicopter: sling or internal load.

1 UH-1: 1200 units of blood.

2 UH-60: 4800 units of blood.

(b) Cargo transport (pallet).

(c) Parachute drops:

1 LAPES (Low Altitude Parachute Extraction) - 4800 units of blood.

2 CDS (Containerized Delivery System) - 1440 units of blood.

3 NEACDS (Naval Emergency Air Cargo Delivery System) - 1440 units of blood.

(d) Ground- corps or HSS assets.

3-7. DIVISION BLOOD PROGRAM

a. **Differences**. Blood management in the division differs from theater blood management.

(1) AJBPO and TMMMC normally do not directly manage blood at the division level and below.

(2) No blood planning factors or maximum blood usage rates are available for the division or below.

(3) USJMTF standardized BLDREP not normally used by the DMSO or other divisional medical units to request blood via the ASBP distribution system.

(4) Blood use in the division is expected to be minimal with the emphasis on resuscitation, stabilization, and movement to higher echelon hospitals, as required.

(5) Transportation of blood to the division will normally be pushed, while transportation of blood to Corps and EAC hospitals will normally be by backhaul or unit issue.

(6) In certain theaters of operation, the Division Surgeon, with the approval of the Corps or Theater Surgeon, has elected not to use blood at divisional medical companies and clearing stations.

b. **Division Blood Management**.

(1) The Division Surgeon, in conjunction with the Division Medical Operations Center (DMOC), coordinates blood management for the division.

(2) Availability of blood to the division is normally determined by the Corps Surgeon and the Corps Blood Program Manager (MEDLOG Battalion, Forward BBP Leader) or AJBPO.

c. **Blood Distribution System in the Division**.

(1) The Corps MEDLOG Battalion (Forward) BBP provides blood to the MEDLOG Battalion (Forward) FSP for shipment to the division.

(a) The FSP transports blood to the Division Medical Supply Office (DMSO) in blood storage and transportation refrigerators.

(b) The FSP issues only Gp O packed RBCs to the DMSO.

(2) The DMSO provides blood storage and coordinates distribution to divisional medical units.

(a) DMSO informs the Medical Materiel Branch, DMOC of the current availability of blood in the division.

(b) Transportation refrigerators allow the DMSO to provide blood as far forward as the forward support medical companies which have one refrigerator with a 50-unit storage capacity.

(c) The DMSO coordinates through the DMOC with the division Movement Control Office (MCO) to identify ground and air assets to transport blood shipments.

(d) Storage capacity: 400 units Gp O.

3-8. BLOOD PLANNING FACTORS

a. Blood planning factors are programmed in the Medical Planning Module (MPM) and subsequently used by unified command medical planners to generate daily blood requirements for the theater.

b. Blood planning factors are based on review of blood usage rates of previous wars fought by the U.S. and other countries and usage rates by patient condition in the Deployable Medical Systems (DEPMEDS) database.

c. Initial blood planning factors for the theater of operations:

(1) RBCs (liquid): 4 units per each wounded in action (WIA) and each non-battle injury (NBI) casualty admitted to a hospital.

(2). FFP: 0.08 units for each hospitalization WIA or NBI.

(3) Platelets: 0.04 units for each hospitalized WIA or NBI.

d. Estimated maximum blood usage:

(1) MASH (30 bed): 79 units/day.

(2) CSH: 113 units/day.

(3) FH: 8 units/day.

(4) GH: 130 units/day.

3-9. BLOOD REPORTING SYSTEM

a. **Blood Shipment Report (BLDSHPREP)**. U.S. Joint Message or Message Text Format (USJMTF) provides a standard message format that is used worldwide in the ASBP to report blood shipments (see Annexes A & B).

b. **Blood Report (BLDREP)**. Standardized written USJMTF format that is used to report blood inventories, request blood, and project blood requirements are shown in Annexes A & C).

(1) Message should be sent as **IMMEDIATE** because of short expiration dates of blood.

(2) All BLDREPs should be classified at the lowest level required to meet operational constraints **(UNCLASSIFIED)**, but the consolidated report from the JBPO TO ASBPO may be **CLASSIFIED.**

(3) Voice template is the alternate mode of communications (see Annexes D & E).

(4) Reporting times are predetermined for medical units in the ASBP distribution system (e.g., MTF to BSU by 0200Z daily, BTC/BPD/ BSU to AJBPO by 0400Z, AJBPO to JBPO by 0800Z, and JBPO to ASBPO by 1200Z daily).

Section II. BLOOD BANK OPERATIONAL REPORT (DD FORM 2555)

3-10. GENERAL

a. The Armed Services Blood Bank Operational Report (BOR - Figures 3-3 and 3-4) was developed by the military to provide standardized information for the ASBP. The report provides vital information that allows supervisors to make timely and logical decisions. The BOR is on DBSS, but as of this writing is not functional.

b. Each facility submits the BOR on a quarterly basis. The report is submitted to the respective SBPO electronically with an information copy to the JBPO if applicable. Each SBPO consolidates their respective facilities reports and sends the consolidated report to the ASBPO.

3-11. PROCEDURE FOR COMPLETION OF DD FORM 2555

a. **Identification**. Report Control Symbol: DD-HA(Q)1831.

(1) Item 1. Facility/Command: Official name and address of reporting facility/command.

(2) Item 2. UIC: Unit Identification Code.

(3) Item 3. Period of Report: Data from 2400 hours of the first day of the quarter to 2359 on the last day of the quarter (Jan-Mar, Apr-Jun, July-Sep, Oct-Dec). The report is due through command channels, to SBPO no later than the 21st day following the last day of the report period.

(a) From (YYMMDD): First date of the report period.

(b) To (YYMMDD): Last date of the reporting period.

b. **Section I - Whole Blood/RBCs.**

(1) Item 4. Beginning Inventory: Total number of units (whole blood and RBCs) on hand. The number on this block must be the same as Item 15 from the last submitted report. If a unit has been split (as in pedi-packs), it is still counted as a single unit.

(2) Item 5. Total Donations: Units collected by the reporting facility only. Include incomplete collections. Count the donations by donor category:

(a) Military: AD and Reserve/ NG.

(b) Dependent: Family members.

(c) Civilian: DOD civilians and family members.

(d) Autologous: Units collected from the donor to be transfused back to the donor if needed.

(e) Therapeutic: Blood collected by request of donor physician to treat a medical condition.

(f) Other: As defined locally.

(3) Item 6. Total Received from Government Sources: Total number of units received from other government facilities. Intra-facility transfers are not included (e.g., BDC to transfusion service). Do not add the number of deglycerolyzed RBCs in this block.

(4) Item 7. Total number received from Civilian Sources: Number of WB/RBC units received from civilian sources. Include the total, non-reimbursable cost of all WB/RBC units. Item 7d is applicable to facilities that have an agreement with the ARC for blood products (free of charge) in exchange for drawing donors on that post/region (used to be called the COMPASS program). For item 7f, record the dollar value for WB/RBCs received during the report period.

(5) Item 8. Quarterly Total: Number of units received. Add items 4, 5, 6, and 7. This number must match Item 16.

(6) Item 9. Number of WB/RBC units transfused. Any portion of a unit transfused counts as a transfusion. A split unit counts as only one transfusion.

(7) Item 10. Total Shipped to government sources: Break out by Service, VA, ASWBPL or ASBBC.

(8) Item 11. Total number of units sent to civilian facilities. Include total credits if applicable.

(9) Item 12. Outdated: Enter the total quantity of units that expired while in inventory. Do not include frozen, deglycerolized, washed, rejuvenated, partially transfused, autologous, therapeutic, or directed donation units.

(10) Item 13. Total number of units frozen. Item 13a refers to units frozen within 6 days of collection (not rejuvenated).

(11) Item 14. Other Dispositions: Includes units destroyed due to positive screening tests, contamination, over/underdraws, autologous, therapeutic, directed donations, etc.

(12) Item 15. Ending Inventory: Units on hand as of 2359 hours on the final day of the report period.

(13) Item 16. Quarterly Total: Total dispositions for report period. Add items 9-15. This number **must** match item 8.

c. **Section II - Other Components.**

(1) Items 17-29. Columns a through l must be completed for each component as applicable. Columns e and l **must** match.

(2) Item 20. Platelets are not currently frozen, so these items will be left blank.

(3) Item 24. Plasma (pheresis) includes both source plasma and therapeutic plasma collected by apheresis.

d. **Section III - Product Management Statistics.**

(1) Item 30. Total Donors Interviewed: Includes donors collected or deferred.

(2) Item 31. Total RBC/WB Crossmatches: Total number of SF 518s for RBC/WB crossmatched.

(3) Item 32. Total RBC/WB transfused: Calculated as total units transfused (item 9) plus deglycerolized RBCs transfused (item 18f), Washed RBCs transfused (item 27f), and Leukocyte-poor products transfused (item 28f). If using an electronic program, it will fill this number in for you.

(4) Item 33. Crossmatch: Transfusion Ratio: Divide item 31 by item 32. Express the result as a ratio to 1. Acceptable standard is $\leq$ 3:1.

(5) Items 34 - 36. Self explanatory.

(6) Item 37. RBC/WB Outdate rate: Calculated by dividing the number of units outdated (item 12) by the quarterly total received (item 8) and multiplied by 100 (expressed as a percentage).

e. **Section IV - Transfusion Complications.**

(1) Item 38. Number of transfusion reactions (be sure to enter number for correct type of transfusion reaction).

(2) Item 39. Requests to perform look-back for HIV or HTLV.

f. **Section V - Testing: Items 40-49.** Fill all applicable boxes. For column f, record the number of temporary (includes surveillance category donors) and permanent blood donor deferrals that result from each of the tests performed (Items 40-49). Record Western Blot (WB) positives in 40e.

g. **Section VI - Blood Products Accounts and Section Vii - Civilian Collections.** Complete all applicable boxes. Round numbers to whole numbers.

h. **Section VIII - Remarks and Authorization.** This section is to make any required comments or clarifying remarks.

Continue with Exercises

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ARMED SERVICES BLOOD PROGRAM

BLOOD BANK OPERATIONAL REPORT

REPORT CONTROL SYMBOL

1. FACILITY / COMMAND	2. UIC	3. PERIOD OF REPORT	
		a. FROM *(YYMMDD)*	b. TO *(YYMMDD)*

SECTION I - WHOLE BLOOD / RED BLOOD CELLS (RBCs)

RECEIPTS	Units	Total $	Total Units
4. BEGINNING INVENTORY			
5. TOTAL DONATIONS			
a. MILITARY			
b. DEPENDANT			
c. CIVILIAN			
d. AUTOLOG0US			
e. THERAPEUTIC			
f. DIRECTED			
g. OTHER			
6. TOTAL RECEIVED FROM GOVERNMENT SOURCES			
a. AIR FORCE			
b. ARMY			
c. NAVY			
d. ASWBPL			
e. ASBBC			
f. VA			
g. OTHER			
7. TOTAL RECEIVED FROM CIVILIAN SOURCES			
a. AABB			
b. ARC			
c. CCBC			
d. COMPASS			
e. OTHER			
f. TOTAL $			
8. QUARTERLY TOTAL			

DISPOSITIONS	Units	Total $	Total Units
9. TOTAL UNITS TRANSFUSED			
a. WHOLE BLOOD			
b. RED BLOOD CELLS			
c. AUTOLOGOUS			
d. DIRECTED			
10. TOTAL SHIPPED TO GOVERNMENT SOURCES			
a. AIR FORCE			
b. ARMY			
c. NAVY			
d. ASWBPL			
e. ASBBC			
f. VA			
g. OTHER			
11. TOTAL SHIPPED TO CIVILIAN SOURCES			
a. AABB			
b. ARC			
c. CCBC			
d. COMPASS			
e. OTHER			
f. TOTAL $			
12. OUTDATED			
13. TOTAL CONVERTED TO FROZEN RBCs			
a. FRESH			
b. REJUVENATED			
14. OTHER DISPOSITIONS			
a. HOMOLOGOUS			
b. AUTOLOGOUS			
c. DIRECTED			
d. OTHER			
15. ENDING INVENTORY			
16. QUARTERLY TOTAL			

SECTION II - OTHER COMPONENTS

	RECEIPTS						DISPOSITIONS							
	a. BEGIN-NING INVEN-TORY	b. UNITS PRE-PARED	c. REC'D FROM GOV'T	d. REC'D FROM CIVILIANS		e. QTRLY TOTAL	f. UNITS TRANS-FUSED	g. SHIPPED TO GOV'T	h. SHIPPED TO CIVILIAN		i. OUT-DATED	j. OTHER DISP	k. ENDING INVEN-TORY	l. QTRLY TOTAL
				Units	Total $				Units	Total $				
17. FROZEN RBCs														
18. DEGLYCEROLIZED RBCs														
19. PLATELET CONCENTRATE														
20. FROZEN PLATELETS														
21. WASHED PLATELETS														
22. FFP														
23. CRYO AHF														
24. PLASMA(PHERESIS)														
25. PLATELET(PHERESIS)														
26. GRANULOCY(PHERESIS)														
27. WASHED RBCs														
28. LEUKO-POOR PRODUCTS														
29. OTHER *(Specify)*														

DD Form 2555, APR 93

Figure 3-3. DD Form 2555, Blood Bank Operational Report (front side).

SECTION III - PRODUCT MANAGEMENT STATISTICS

30. TOTAL DONORS INTERVIEWED	
31. TOTAL RBC / WB CROSSMATCHES	
32. TOTAL RBC / WB TRANSFUSED	
33. CROSSMATCH: TRANSFUSION RATIO	:1
34. TOTAL # PATIENTS TRANSFUSED	
35. # TYPE AND SCREENS PERFORMED	
36. # TYPE AND SCREENS CONVERTED TO CROSSMATCHES	
37. RBC / WB OUTDATED RATE	%

SECTION IV - TRANSFUSION COMPLICATIONS

38. TOTAL NUMBER	
a. HEMOLYTIC	
b. FEBRILE/ALLERGIC	
c. POST-Tx HEP B	
d. POST-Tx HEP C	
e. POST-Tx HIV-1 POS.	
f. OTHER	

	HIV-1	HTLV-1
39. TOTAL LOOK BACK CASES		
a. LOCALLY INITIATED		
b. RECEIVED FROM GOVERNMENT		
c. RECEIVED FROM CIVILIAN		

SECTION V - TESTING

	a. UNITS TESTED	b. INITIALLY POSITIVE *(Screen Positive)*		c. REPEATABLY REACTIVE *(Repeat Pos.)*		d. CONFIRM PENDING	e. CONFIRM POSITIVE		f. DEFERRALS	
		#	%	#	%		#	%	Temp	Perm
40. HIV-1										
41. HBsAg										
42. STS										
43. HTLV-1										
44. ALT										
45. ANTI-HBc										
46. CMV										
47. HEPATITIS C										
48. OTHER *(Specify)*										
49. OTHER *(Specify)*										

SECTION VI - BLOOD PRODUCTS ACCOUNTS

	Recovered Plasma	Source Plasma	Blood Exchange Account Balance	
50. PLASMA SHIPPED	L	L	53. NATIONAL BLOOD EXCHANGE (AABB)	Units
51. VALUE / LITER	$ /L	$ /L	54. COMPASS (ARC)	Units
52. ACCOUNT BALANCE	$	$	55. OTHER	Units

SECTION VII - CIVILIAN COLLECTIONS

	Military	Civilian
56. TOTAL		
a. AABB		
b. ARC		
c. CCBC		
d. OTHER *(Specify)*		
e. OTHER *(Specify)*		

SECTION VIII - REMARKS AND AUTHORIZATION

57. REMARKS

58. PREPARER		59. COMMANDER *(Or Official Designee)*	
a. NAME *(Last, First, Middle Initial)*	b. GRADE	a. NAME *(Last, First, Middle Initial)*	b. GRADE
c. TITLE	d. TELEPHONE NO. *(Autovon)*	c. TITLE	d. TELEPHONE NO. *(Autovon)*
e. SIGNATURE	f. DATE SIGNED *(YYMMDD)*	e. SIGNATURE	f. DATE SIGNED *(YYMMDD)*

DD Form 2555 Reverse, APR 93

Figure 3-4. DD Form 2555, Blood Bank Operational Report (reverse side).

EXERCISES, LESSON 3

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space provided.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson, and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1-20. Write the meaning of each of the following abbreviations:

1. ASBPO:

2. ASWBPL:

3. TO:

4. OPLAN:

5. COMMZ:

6. HSS:

7. JBPO:

8. AJBPO:

9. TMMMC:

10. BDC:

11. BTC:

12. BSU:

13. BPD:

14. MTF:

15. DMSO:

16. DMOC:

17. WIA:

18. NBI:

19. USJMTF:

20. BLDREP:

21. Briefly describe the Armed Services Blood Distribution System:

22. List blood products available in the TO and their shelf-life:

23. List the HSS echelons and available blood products at each echelon:

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES

1. Armed Services Blood Program Office (para 3-2)
2. Armed Services Whole Blood Processing Laboratory (para 3-2d(3)(b))
3. Theater of Operations (para 3-1a)
4. Operation plan (para 3-3b)
5. Communication Zone (para 3-4a)
6. Health Service Support (para 3-4a)
7. Joint Blood Program Office (para 3-4e(1))
8. Area Joint Blood Program Office (para 3-4e(2))
9. Theater Medical Material Management Center (para 3-4e(3))
10. Blood Donor Center (para 3-5a)
11. Blood Transshipment Center (para 3-5c)
12. Blood Supply Units (para 3-5d)
13. Blood Product Depot (para 3-5e)
14. Medical Treatment Facility (para 3-1)
15. Division Medical Supply Office (para 3-6c(6))
16. Division Medical Operations Center (para 3-7b(1))
17. Wounded in action (para 3-8c(1))
18. Non-battle injury (para 3-8c(1))
19. U.S. Joint Message Text Format (para 3-9a)
20. Blood Report (para 3-9b)
21. Blood shipped from BDCs to the ASWBPL(s) to the BTC in the TO. From BTC to BPD/BSU to MTF/MTE. (Fig 3-2)
22. 1) RBCs: 35 days (CPDA-1) or 42 days (Adsol) (para 3-6b(1))

2) Frozen RBCs: 10 or 21 years (para 3-6b(2))

3) Deglycerolized RBCs: 24 or 72 hours (para 3-6b(2))

4) FFP: 1 yr (thawed - 24 hours) (para 3-6b(3))

5) Platelets: 5 days at room temp with constant agitation or 3 days in refrigerator. (para 3-6b(4))

23. Echelon Products (Table 3-1)

I	No blood products
II	Group O RBCs
III	ABO & Rh specific RBCS, FP, Platelets
IV	Same as above
V	Whole spectrum of blood products

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GLOSSARY

AABB: American Association of Blood Banks. It is a blood bank accrediting agency.

Acquired Immunodeficiency Syndrome (AIDS): The HIV virus infects monocytes and helper T cells producing a wide range of cellular immunologic defects.

Adsol: Anticoagulant (CPD plus additive solution).

Adulterated: Made inferior or impure.

Agglutination: The clumping together of red blood cells or any particulate matter resulting from interaction of antibody and its corresponding antigen.

Aggregate: A cluster or clump.

AJBPO: Area Joint Blood Program Office. Manages blood issues in a specific geographical area.

Albumin: The protein found in the highest concentration in human plasma. It is used as a diluent for blood typing antisera and potentiator solution in serologic testing to enhance antigen-antibody reactions.

Allo: Prefix indicating differences within a species. For example, an alloantibody is produced in one individual against the red cell antigens of another individual.

Allogeneic: Blood or blood products donated for transfusion to the general public.

Anamnestic Response: An accentuated antibody response following a secondary exposure to an antigen. Antibody levels from the initial exposure are not detectable in the patient's serum until the secondary exposure, when a rapid reissue in antibody titer is observed.

Anaphylaxis: An allergic hypersensitivity reaction of the body to a foreign protein or drug.

Anemia: A condition in which there is reduced O_2 delivery to the tissues. It may result from increased destruction of red cells, excessive blood loss, or decreased production of red cells.

Antibody (Ab): A protein substance developed in response to, and interacting specifically with, an antigen. In blood banking, it is found in serum, from either a commercial manufacturer or a patient. It is secreted by the plasma cells.

Antibody Screen: Testing the patient's serum with group O reagent red cells in an effort to detect atypical antibodies.

Anticoagulant: An agent that prevents or delays blood coagulation.

Antigen (Ag): A substance that is recognized by the body as being foreign, thus it can elicit an immune response. In blood banking, antigens are usually found on the blood cell membrane.

Antihemophilic Factor (AHF): Term that is sometimes used to describe cryoprecipitate as well as commercially prepared Factor VIII concentrates.

Antihuman Globulin Test : Test to ascertain the presence or absence of red cell coating by immunoglobulin (IgG) and/or complement. A positive result is agglutination. **DAT (direct)** detects *in vivo* cell sensitization and **IAT (indirect)** detects Ag-Ab reactions that occur *in vitro.*

Antihuman Globulin (AHG): An antibody prepared in rabbits or other suitable animals that is directed against human immunoglobulin and/or complement. It is used to perform the antihuman globulin or Coombs' test. The serum may be either polyspecific (anti-IgG and anti-complement) or monospecific (either anti-IgG or anti-complement).

AO: Area of Operations.

Apheresis: A method of blood collection in which whole blood is withdrawn, a desired component separated and retained, and the remainder of the blood returned to the donor.

AS-1: Anticoagulant Adsol (CPD plus additive solution) of Fenwal that has a shelf life of 42 days. Several BDCs within DOD were licensed for AS-1 in 1996.

AS-5: Anticoagulant Adsol (CPD plus additive solution) of Terumo that has a shelf life of 42 days. Several BDCs within DOD were licensed for AS-5 in 1996.

ASBP: Armed Services Blood Program directed by the ASBPO.

ASBPO: Armed Services Blood Program Office. A tri-Service staffed DOD field operating agency responsible for ensuring implementation and coordination of ASD(HA)-established blood program policies and management of blood resources.

ASD(HA): Assistant Secretary of Defense (Health Affairs).

Asymptomatic: Without symptoms.

ASWBPL: Armed Services Whole Blood Processing Laboratory. There are two: ASWBPL- East is at McGuire AFB, NJ and ASWBPL-West is at Travis AFB, CA. Ships blood from CONUS to TO.

Atypical Antibodies: Any antibody other than anti-A, anti-B, or anti-A,B (naturally occurring antibodies).

Auto-: Prefix indicating self.

Babesiosis: A disease caused by the intraerythrocytic parasite *Babesia microti*.

BBP: Blood Bank Platoon; part of a MEDLOG Bn.

BDC: Blood Donor Center. Service operated; collects and manufactures blood products.

BLDSHIPREP: Blood Shipment Report. Used to notify receiving facility of a blood shipment to include approximate arrival time and place, contents of shipment, tracking information and POC. Uses USJMTF standard format.

BLDREP: Blood Report. Due as of 2359Z everyday during a contingency operation from each level of the blood distribution system to document current inventory and future requirements. Uses USJMTF standard format.

Blood Establishment: Facilities which manufacture blood and blood products, includes blood collection and processing facilities as well as those facilities primarily involved in the transfusion of blood products.

Bombay: Individuals who possess normal A or B genes, but are unable to express them because they lack the gene necessary for production of H antigen, the required precursor for A and B. They often have a potent anti-H in their serum which reacts with all cells except other Bombays.

BPD: Blood Product Depot. Facilities that store frozen blood; may also serve as a BSU.

BSU: Blood Supply Unit.

BTC: Blood Transshipment Center. Located at an airhead and operated by the USAF; may receive and store up to 7200 units of blood (2 pallets).

Buffy Coat: The red cells settle to the bottom and, between the plasma and the red blood cells, there is a light-colored layer that contains mostly white blood cells, which is the buffy coat.

CAP: College of American Pathologists. It is a laboratory certifying agency.

CBER: Center for Biologics Evaluation and Research, the branch of the FDA that oversees blood manufacture and practices.

CCBC: Council of Community Blood Centers.

CGMP: Current Good Manufacturing Practices are the methods used in, and the facilities or controls used for, the manufacture, processing, packing, or holding of a drug (including, but not limited to, blood products) to ensure that such product meets the requirements of the Food, Drug and Cosmetic (FD&C) Act as to safety; and that it has the identity and strength, and meets the quality and purity characteristics that it purports or is represented to possess.

Chagas Disease: Disease endemic in South and Central America, which is caused by the protozoan parasite *Trypanosoma cruzi.*

Codabar: Bar code symbology currently in use to produce bar codes for blood product labels.

Code 128: Bar code symbology to be used with blood labels. Code 128 is replacing Codabar.

CMV: Cytomegalovirus. One of a group of species-specific herpes viruses.

Collins Box: DOD shipping container. Will maintain temperatures of 1 to 10° C for 30 units of RBCs, packed with 14 pounds of wet ice, for 48-72 hours.

COMMZ: Communications Zone of the battle field (echelon IV).

Compatibility Testing: All pretransfusion testing performed on a potential transfusion recipient and the appropriate donor blood. This testing is an attempt to ensure that the product will survive in the recipient and induce improvement in the patient's clinical condition. The crossmatch is between recipient's serum and donor's cells.

Complement: A series of proteins in the circulation that, when sequentially activated, causes disruption of cell membranes. Activation occurs via one of two pathways, and once activated, the components are involved in a great number of immune defense mechanisms including anaphylaxis, chemotaxis, and phagocytosis. Red cell antibodies that activate complement may be capable of causing hemolysis.

Component Therapy: Transfusion of specific components for treating a patient rather than whole blood. These components, such as red blood cells, platelets, and plasma, are separable by physical means, such as centrifugation.

CONUS: Continental US.

Cord Cells: Fetal cells obtained from the umbilical cord at birth**.**

CPD: Citrate phosphate dextrose is the anticoagulant preservative solution. It has been replaced by CPDA-1 in routine use. It has a shelf life of 21 days.

CPDA-1: Citrate phosphate dextrose adenine is the anticoagulant preservative solution most commonly used by DOD. It has a shelf life of 35 days.

Critical Control Point: Area that affects the safety and quality of blood if not performed correctly.

Crossmatch: Testing a patient and prospective donor for compatibility. Recipient serum is tested with donor cells.

Cryoprecipitate (CRYO): A concentrated source of coagulation factor VIII prepared from a single unit of donor blood. The product also contains fibrinogen, factor XIII and von Willebrand's factor.

Cryoprotectant: A substance that protects blood cells from damage caused by freezing and thawing. Glycerol and DMSO are examples.

CSH: Combat Support Hospital.

CUE: Confidential Unit Exclusion. A bar code or eye readable flag that the donor thinks their blood may not be safe for transfusion. A method for a donor to anonymously self-exclude.

Cytopheresis: A procedure utilizing a machine by which one can selectively remove a particular cell type normally found in peripheral blood of a patient or donor.

DA: Department of the Army.

DBSS: Defense Blood Standard System (computer system).

DD Form 572: Blood Donation Record.

DD Form 573: Shipping Inventory of Blood Products.

DDR: Donor Deferral Registry. An FDA required document, used to preclude drawing or using units from previously deferred donors.

Deglycerolization: Removal of glycerol from a unit of red cells after thawing. Required to return the cells to a normal osmolality.

DEPMEDS: Deployable Medical Systems. A modular hospital system. Portions may be deployed separately.

DOD: Department of Defense.

Donor: An individual who donates blood.

Dosage: A phenomenon where by an antibody reacts more strongly with a red cell carrying a double dose (homozygous) rather than a single dose (heterozygous) of an antigen, e.g. CC rather than Cc.

DMOC: Division Medical Operations Center.

DMSO: (1) Division Medical Supply Office: will store and distribute blood in the division area. (2) Dimethyl sulfoxide: a cryoprotectant.

EAC: Echelons above Corps.

EIA or ELISA: Enzyme-linked immunosorbent assay. The methodology most BDCs employ to test for infectious disease markers.

Endemic: A disease that occurs continuously in a particular population but has a low mortality; used in contrast to epidemic.

Enzyme: A substance capable of catalyzing a reaction. Proteins that induce chemical changes in other substances without being changed themselves.

EPA: Environmental Protection Agency.

FDA: Food and Drug Administration. Has jurisdiction over the blood industry.

FDA Form 483: Report document upon which citations for violations of FDA regulations, including GMP violations, are recorded.

Febrile Reaction: A transfusion reaction caused by leukoagglutinins that is characterized by fever of 1 C or 2 F or more.

FFP: Fresh Frozen Plasma. A frozen plasma product from a single donor that contains all clotting factors, especially the labile factors V and VIII. Useful for clotting factor deficiencies other than hemophilia A and hypofibrinogenemia.

FH: Field Hospital. A hospital located in the rear that is used to hold patients until they can be evacuated out.

Gamma Globulin: A protein found in plasma and known to be involved in immunity.

Glycerol: A cryoprotectant agent.

Glycerolization: Adding glycerol to a unit of red cells for the purpose of freezing.

Gonorrhea: A sexually transmitted disease that causes inflammation of the genital mucous membranes. Infection is caused by *Neisseria gonorrhea.*

Graft-versus-Host Disease (GVD): A disorder in which the grafted tissue (lymphocytes) attacks the host tissue.

HBcAg: Hepatitis B core Antigen, referring to the nucleocapsid of the virion.

HBeAg: Hepatitis B envelope Antigen, DNA polymerase of the nucleus of the virion.

HBsAg: Hepatitis B surface Antigen.

Hematocrit: The percentage of red cells in whole blood.

Hematoma: A swelling or mass of blood confined to an organ, tissue, or space and caused by a break in a blood vessel (may be due to phlebotomy).

Hemoglobin: The iron containing pigment of the red blood cells. Its function is to carry O_2 from the lungs to the tissues.

Hemolytic Disease of the Newborn (HDN): A disease characterized by anemia, jaundice, enlargement of the liver and spleen, and generalized edema (hydrops fetalis). Due to maternal IgG antibodies that cross the placenta and attack fetal red cells when there is a feto-maternal blood group incompatibility. Usually caused by ABO or Rh antibodies.

Hemophilia: An hereditary blood disease characterized by greatly prolonged coagulation times. There are 3 types, which are due to deficiencies of Factor VIII, IX, and XI.

Hemorrhage: Abnormal internal or external bleeding.

Hepatitis: Inflammation of the liver.

Hepatitis B Immune Globulin (HBIG): An immune serum given to individuals exposed to the hepatitis B serum (NOT given prophylactically).

HIV: Human Immunodeficiency Virus. The causative agent of AIDS.

HLA: Human Leukocyte Antigen.

HTLV: Human T-Cell Lymphotropic Virus.

HTR: Hemolytic Transfusion Reaction.

Icterus: A condition characterized by yellowish skin, eyes, mucous membranes, and body fluids caused by deposition of excess bilirubin.

Immunodeficiency: A decrease from the normal concentration of immunoglobulins in serum.

Incubation: ***In vitro*** combination of antigen and antibody under certain conditions of time and temperature to allow antigen-antibody complexes to occur.

Intraoperative salvage: A procedure to reclaim a patient's blood loss during an operation by reinfusion.

Intravascular: Within the blood vessel.

ISBT: International Society of Blood Transfusion.

In vitro: In a test tube.

In vivo: In the living body.

Jaundice: A condition characterized by yellowing of the skin and the whites of the eyes. One cause is excess hemolysis, which results in increased circulating bilirubin. Another cause is liver damage caused by hepatitis.

JBPO: Joint Blood Program Office. Manages blood at the unified command level.

Key Element: Individual step for each control point.

Leishmaniasis: Infection with a species of *Leishmania* affecting the skin, nasal cavities, and pharynx.

Low-Ionic-Strength Solution (LISS): A type of potentiating medium in use for serologic testing. Reducing the ionic affinity of the antigen for its corresponding antibody such that sensitivity can be increased and incubation time can be decreased. The solutions contain glycine and glucose in addition to saline.

Malaria: An acute and sometimes chronic infectious disease caused by the presence of parasites within red cells. The parasite is *Plasmodium*, which is introduced through bites of infected female *Anopheles* mosquitoes or through blood transfusion.

Manufacture: All steps in the manufacture and preparation of products and includes, but is not limited to, filling, testing, labeling, packaging and storage by the manufacturer.

MASH: Mobile Army Surgical Hospital.

MEDLOG Bn: Medical Logistics Battalion.

Mixed Field: A type of agglutination pattern in which there are numerous small clumps of cells amid a sea of free cells.

MSBOS: Maximum Surgical Blood Ordering Schedule. Specifies type and screen or number of units crossmatched for a particular procedure.

Mosaic: An antigen that is composed of several subunits, such as the D antigen. A mixture of characteristics that may result from a genetic crossing over or mutation.

MTF/MTE: Medical Treatment Facility (USA) / Medical Treatment Element (USAF).

Multiparous: Having borne more than one child.

Neonate: A newborn infant up to 6 weeks of age.

Neutralization: Inactivating an antibody by reacting it with an antigen against which it is directed. Methodology of HIV-1 Ag and HBsAg confirmation tests.

NIST (or NBS): National Institute of Standards and Technology (old title: National Bureau of Standards).

Nonresponder: An individual whose immune system does not respond well in antibody formation to antigenic stimulation.

OCONUS: Outside the continental U.S.

Panagglutinin: An antibody capable of agglutinating all red blood cells tested, including the patient's own cells.

Pancytopenia: A reduction in all cellular elements of the blood, including red cells, white cells, and platelets.

Panel: A large number of group O reagent red cells that are of known antigenic characterization and are used for antibody identification.

Phlebotomy: To take blood from a person.

Plasma: The liquid portion of whole blood containing water, electrolytes, glucose fats, proteins, and gases. Plasma contains all the clotting factors necessary for coagulation, but in an inactive form. Once coagulation occurs, the fluid is converted to serum.

Platelet: A round or oval disk, 2-4 microns in diameter, that is derived from the cytoplasm of the megakaryocyte, a large cell in the bone marrow. Platelets play an important role in blood coagulation, hemostasis, and blood thrombus formation. When a small vessel is injured, platelets adhere to each other and the edges of the injury and form a plug that covers the area and stops the loss of blood.

Platelet Concentrate (PC): Platelets prepared from a single unit of whole blood or plasma and suspended in a specific volume of the original plasma. Also known as random donor platelets.

Plateletpheresis: A procedure utilizing a machine by which one can selectively remove platelets from a donor or patient.

Polyclonal: Antibodies derived from more than one antibody-producing parent cell.

Polyspecific Coombs' Sera: A reagent that contains antihuman globulin sera against IgG immunoglobulin and C3d (complement).

Prophylaxis: Measures taken to prevent disease.

Prozone: Incomplete lattice formation resulting from an excess of antibody molecules relative to the number of antigen sites. This results in false-negative reactions.

Psoriasis: Chronic inflammatory skin disease characterized by formation of scaly red patches.

QA Unit: One or more individuals designated by, and reporting directly to, top management with defined authority and responsibility to ensure that all quality assurance policies are carried out in operations.

Rabies: An acute infectious disease of animals characterized by involvement of the central nervous system resulting in paralysis and finally death.

RBCs: Red Blood Cells.

Recipient: Refers to a patient who is receiving a transfusion of blood or a blood product.

Reverse Grouping: Testing a patient's serum with commercial or reagent A and B red cells to determine which ABO antibodies are present.

Rh Immune Globulin (RhIG): A concentrated, purified anti-D prepared from human serum, which is given to Rh_0 (D)-negative mothers after they have given birth to an Rh_0 (D)-positive baby or after abortion or miscarriage. It acts to prevent the mother from becoming immunized to any D-positive fetal cells that may have entered her circulation and thereby prevents formation of anti-D by the mother.

Rouleaux: Coinlike stacking of red blood cells in the presence of plasma expanders or abnormal plasma proteins.

Screening Cells: Group O reagent red cells that are used in antibody detection or screening tests.

Sensitization: A condition of being made sensitive to a specific substance (antigen) after the initial exposure to that substance. This results in memory cells that rapidly produce antibodies following a second exposure to the antigen. See Anamnestic Response.

Sepsis: Pathological state, usually febrile, resulting from the presence of microorganisms or their poisonous products in the blood stream.

SF Form 518: Medical Record - Blood or Blood Component Transfusion.

Shelf Life: The amount of time blood or blood products may be stored upon collection.

Single Donor Platelets: Platelets collected from a single donor by apheresis.

SOP: Standing Operating Procedures are detailed written and approved instructions for how a process is to be performed.

Storage Lesion: A loss of viability and function associated with certain biochemical changes that are initiated when blood is stored *in vitro.*

Stroma: The red cell membrane that is left after hemolysis has occurred.

STS: Serologic Test for Syphilis.

Syphilis: An infectious chronic venereal disease characterized by lesions and is caused by *Treponema palladium.*

Tachycardia: Abnormal rapidity of heart action, usually a heart rate over 100 beats per minute.

Tare Weight: Weight of an empty container.

TBTC: Transportable Blood Transshipment Center.

Tetany: A nervous affection characterized by intermittent spasms of the muscles of the extremities.

Titer: A measure of the strength of an antibody by testing its reactivity at increasing dilutions against the appropriate antigen.

TMMMC: Theater Medical Material Management Center. Provides centralized, theater-level inventory management of Class VIII materials to include blood. Primary mission for blood is to help transport throughout the theater.

TMO: Transportation Management Office.

TO: Theater of Operations.

Transfusion: The injection of blood or a blood component into the blood stream.

Transfusion Reaction: An adverse response to a transfusion.

Type and Screen: Testing a patient's blood for ABO group, Rh type, and atypical antibodies. The sample is then retained in the event the subsequent crossmatching is necessary.

Urticaria: A vascular reaction of the skin similar to hives.

USJMTF: U.S. Joint Message Text Format.

Vaccine: A suspension of infectious organisms or components of them that is given as a form of passive immunization to establish resistance to the infectious disease caused by that organism.

Validation: Establishing documented evidence that provides a high degree of assurance that a specific process consistently produces a product that meets its predetermined specifications and quality attributes.

Voice Template: Alternative format used for standard reports.

WAIHA: Warm Autoimmune Hemolytic Anemia.

Wharton's Jelly: A gelatinous intercellular substance consisting of primitive connective tissue of the umbilical cord.

WBC: White Blood Cell.

Xeno-: Prefix indicating differing species.

Zeta Potential: The difference in charge density between the inner and outer layers of the ionic cloud that surrounds red cells in an electrolyte solution.

ANNEX A

BLOOD REPORTING SYSTEM

BLOOD REPORT/SHIPMENT REPORT MENU

MANAGEMENT:	A	Joint Blood Program Office (JBPO)
	B	Area Joint Blood Program Office (AJBPO)
	C	Armed Services Whole Blood Processing Laboratory (ASWBPL)
	D	Blood Donor Center (BDC)
	E	Blood Products Depot (BPD)
	F	Blood Transshipment Center (BTC)
	G	Blood Supply Unit (BSU)
	H	Medical Treatment Element (MTE)
	I	Naval Vessel (NV)
PRODUCTS:	J	Red Blood Cells
	K	Whole Blood
	L	Frozen Red Blood Cells
	M	Fresh Frozen Plasma
	N	Frozen Platelets
	O	Cryoprecipitate
BLOOD GROUPS:	Q	Random Group and Type O,A,B
	R	Random Group and Type O,A
	S	Random Type O
	T	Random Type A
	U	Random Type B
	V	Random Type AB
TIME FRAME:	W	Required within 12 hours
	X	Required within 24 hours
	Y	Required within 48 hours
MISC:	Z	Not applicable or see remarks

ANNEX B

BLOOD SHIPMENT REPORT

Heading of message: from and to addresses, information copy addressee(s), message classification, operation name, report identification, date/time of message, references to other messages.

Line 1, ASOFDTG: Day-time-zone of blood shipment.

Line 2, REPUNIT: Reporting unit's name, designator code, activity brevity code and location.

Line 3, 1SHIPD: Blood product codes/number of units shipped/total number of units shipped.

Line 4, BLDSHIP: Blood shipment or air-bill control numbers/aircraft flight number/estimated time of arrival at destination.

Line 5, POC: Point of contact from shipping location (name, rank, phone number, location).

Line 6, CLOSTEXT: Additional closing comments such as when the blood will require icing.

Line 7, DECL: Message downgrading instructions.

BLOOD SHIPMENT REPORT EXAMPLE

FM: CDR USAMEDDAC FT CAMPBELL KY/HSLBB//
TO: ASWBPL MCGUIRE AFB NJ//
INFO: CDRUSAHSC FT SAM HOUSTON TX/HSCL-C//
UNCLAS
OPER/DESERT STORM//
MSGID/BLDSHIPRPT/FT CAMPBELL BDC/100122ZOCT92//
REF/A/CDRUSAHSC/090300ZOCT92/-/TOTAL//
ASOFDTG/100001ZOCT92//
REPUNIT/CMBC FT CAMPBELL KY//
1SHIPD
/BP/OPOS/ONEG/APOS/ANEG/BPOS/BNEG/ABPOS/ABNEG//TOTCTBP//
/J /160 /140 / 32 / 40 / 20 / 8/ 0 / 0 // 400 //
BLDSHIP/AB12134/DELTA732/101500ZOCT92/14//
POC/SMITH/CPT/DSN555-7782/-/FT CAMPBELL KY//
CLOSTEXT/BLOOD ICED 130001ZOCT92/CMBC SHIPMENT NO1//

ANNEX C

BLOOD REPORT

Heading of message: from and to addresses, information copy addressee(s), message classification, operation name, report identification, date/time of message, references to other messages.

Line 1, ASOFDTG: Day-time-zone of BLDREP.

Line 2, REPUNIT: Reporting unit's name, designator code, and activity brevity code.

Line 3, BLDINVT: Number and code of each blood product on hand at the end of the report period.

Line 4, BLDREQ: Number and code of each blood product requested and time frame needed.

Line 5, BLDEXP: Estimate of number of blood products to expire in next 7 days.

Line 6, BLDEST: Estimate of total number of blood products by group required for resupply in the next 7 days.

Line 7, CLOSTEXT OR RMKS: Additional information such as the number of units received, transfused, shipped, destroyed, and expired within the past 24 hours. Also, include any information that would have an impact on your blood mission such as loss of refrigeration/storage capability or shortage of typing sera.

Line 8, DECL: Message downgrading instructions.

BLOOD REPORT EXAMPLE

FM: CDR 18TH CSH
TO: CDR 32 MED LOG BN, BLD BANK PLT
INFO: 12 MED GRP
UNCLAS
OPER/DESERT STORM//
MSGID/BLDRPT/18CSH/1012221//
160150ZOCT93//
ASOFDTG/152359ZOCT93//
REPUNIT/18CSH/H//
BLDINVT/100JS/80JT/20JU/25MV//
BLDREQ/120JQX/25MVX//
BLDEXP/25JS/5JT//
BLDEST/1400JR//
CLOSTEXT/REC120JQ/TRANS60JS48JT12JU/REFRIGERATOR NEEDS REPAIR//

ANNEX D

BLDREP VOICE TEMPLATE

_____ This is _____ Blood Report over
Addressee Originator

Addressee answers: then Originator responds This is _____
Originator

Flash Immediate Priority Routine (underline and transmit the precedence of this message)
Top Secret Secret Confidential Unclassified (Underline and transmit the security classification of this message)

BLOOD REPORT

1.	**As**	_____	**(Day - time - zone of BLDREP)**
2.	**Unit**	_____	**(Reporting unit's name or designator code)**
3.	**Activity**	_____	**(Reporting unit's activity brevity code letter)**
4.	**Location**	_____	**(Unit location in Lat/Long, UTM or place name)**
5.	**Rendezvous**	_____	**(Naval vessels only: Projected location or place name for delivery of blood products)**
6.	**Arrival**	_____	**(Naval vessels ONLY: Estimated time for arrival (day, time, time zone, month, and year at the projected location)**
7.	**Status of**	_____	**(Name or designator code of the unit or activity reporting the status of blood supplies if other than message originator).**
8.	**Activity**	_____	**(Reporting unit's activity brevity code letter, if other than message originator)**
9.	**On Hand**	_____	**(Number and code of each blood product on hand)**
10.	**Needed**	_____	**(Number and code of each blood product required)**
11.	**Expiration**	_____	**(Estimate of total number of blood products by group and type to expire in the next 7 days)**
12.	**Resupply**	_____	**(Estimate of total number of blood products by group and type required for resupply in the next 7 days)**
13.	**Narrative**	_____	
14.	**Time**	_____	**(Message hour-minute-zone when required)**
15.	**Authentication**	_____	**(Message authentication IAW JTF protocol)**

OVER

ANNEX E

BLDSHIPREP VOICE TEMPLATE

_____ This is _____ Blood Shipment Report over
Addressee Originator

Addressee answers: then Originator responds This is _____
Originator

Flash Immediate Priority Routine (underline and transmit the precedence of this message)
Top Secret Secret Confidential Unclassified (Underline and transmit the security classification of this message)

BLOOD SHIPMENT REPORT

1.	**As**	_____	**(Day - time - zone of this report)**
2.	**Unit**	_____	**(Reporting unit's name or designator code)**
3.	**Activity**	_____	**(Location of unit's activity brevity code letter)**
4.	**Location**	_____	**(Location of reporting unit in Lat/Long, UTM place name (Naval vessels only(hospital ship): Projected location Lat/Long, Utm or place name for delivery of blood products)**
5.	**Rendezvous**	_____	**(Naval vessels only (hospital ship): Estimated time: day, time, time zone, month year, - arrival at the projected location)**
6.	**Arrival**	_____	
7.	**Products**	_____	**(Brevity code of blood products being shipped)**
8.	**O Positive**	_____	**(Number of units)**
9.	**O Negative**	_____	**(Number of units)**
10.	**A Positive**	_____	**(Number of units)**
11.	**A Negative**	_____	**(Number of units)**
12.	**B Positive**	_____	**(Number of units)**
13.	**B Negative**	_____	**(Number of units)**
14.	**AB Positive**	_____	**(Number of units)**
15.	**AB Negative**	_____	**(Number of units)**
16.	**Total**	_____	**(Total number of units of the blood product being shipped)**
17.	**Control**	_____	**(Air bill number or transportation control number - TCN)**
18.	**Mission**	_____	**(Airline and flight number or military air command MAC mission number assigned at the shipments origin)**
19.	**Arrival**	_____	**(Estimated time - day, time, time zone, month, year - of shipment arrival at destination)**
20.	**Boxes**	_____	**(Number of boxes in shipment)**
21.	**Contact**	_____	**(Name of shipper's point of contact)**
22.	**Phone**	_____	**(24-hours telephone number of shipper's point of contact)**
23.	**Narrative**	_____	
		_____	
24.	**Time**	_____	**(Message hour - minutes - zone when required)**
25.	**Authentication**	_____	

OVER

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Your comments about this subcourse are valuable and aid the writers in refining the subcourse and making it more usable. Please enter your comments in the space provided. ENCLOSE THIS FORM (OR A COPY) WITH YOUR ANSWER SHEET **ONLY** IF YOU HAVE COMMENTS ABOUT THIS SUBCOURSE..

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1. List any terms that were not defined properly.

2. List any errors.

paragraph	error	correction

3. List any suggestions you have to improve this subcourse.

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