

UNITED STATES CIVIL DEFENSE

Mortuary Services in Civil Defense

TM-11-12 (Technical Manual)



FEDERAL CIVIL DEFENSE ADMINISTRATION

Mortuary Services in Civil Defense, TM-11-12, is one in a series of technical manuals prepared by the Federal Civil Defense Administration. These manuals provide technical and specialized information in particular fields of civil defense. This publication provides a planning guide for mortuary services in civil defense.

Identification and disposal of the dead, including collection and safeguarding of their personal effects, are essential responsibilities of civil defense authorities. In natural disasters, facilities available in every city can usually take care of the dead. Following an enemy attack with modern nuclear weapons, however, particularly in densely populated areas, existing facilities could not handle the large number of casualties.

The first tasks of civilian survivors of an enemy attack, of course, will be care of the injured and homeless, fire fighting, rescue, and restoration of utilities and other normal services. Radiological personnel will determine when it is safe to go into areas of destruction. Rescue and first aid teams will then go in to remove the injured. After everything possible is first done for the living, attention will be given the dead.

To plan and organize for the disposal of the bodies of millions of civilians killed in an enemy nuclear attack is a grim business, even for those trained and accustomed to the work of mortuaries. The individual care we traditionally bestow on our deceased will not be physically possible when the dead must be counted in the thousands. However, FCDA, with the assistance of its Religious Advisory Committee, is planning for suitable memorial services for the dead in areas devastated by enemy attack.

The skill, training, and experience of funeral directors and members of allied professions will be vitally needed by civil defense forces. Most funeral directors and their staffs are trained in first aid. Nearly all morticians operate one or more ambulances. They can render valuable service in caring for the injured and saving as many lives as possible before turning their attention to the dead.

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CIVIL DEFENSE MORTUARY SERVICES

The Problem

1.1 For legal, religious, and health reasons, identification and disposal of the dead, including the collection and safeguarding of their personal effects, are essential parts of civil defense. Planning and supervising these operations are responsibilities of local civil defense health services. In natural disasters, facilities available in every city can usually take care of the dead. Following enemy attack, however, particularly in densely populated areas, existing facilities could not handle the large number of dead.

1.2 Considering the development of nuclear and thermonuclear weapons during the last few years, the detonation of this type of weapon in a densely populated area may result in such a large number of people killed immediately or dead within a few hours that temporary suspension of some laws and customs governing disposition of the dead will be necessary. Disposal of bodies as nearly as possible in accordance with normal customs and religious rites will be a major contribution to morale, but such methods may be impossible. Embalming, use of caskets, lying in state, and individual religious ceremonies may have to be omitted.

1.3 The major tasks of the survivors of an enemy attack will be care of the injured and homeless, fire fighting and other defense measures, restoration of utilities, and other normal services. Only an absolute minimum of manpower will be available for identification and disposal of the dead. Since usual preservative methods, such as refrigeration or embalming, may be impossible, provision should be made for disposal of bodies, if not immediately, at least within 2 to 7 days, depending upon their condition when found, and the climate.

1.4 Civil defense mortuary services will be responsible for proper identification of the dead for the information of relatives and friends; establishment of legal proof of death; removal of bodies from public view; preparation of an official record of death; provision for religious rites and services as circumstances permit; and final disposal of the bodies so that they will not be an esthetic, psychological, or public health hazard. In civil defense planning, it is important to retain as many identification and recording procedures as possible to reduce future problems for survivors.

Identification of the Dead

NATURAL DISASTERS

1.5 Tentative identification of unknown dead is usually made by:

- (a) Personal data found on the body.
- (b) Matching general physical characteristics, including fingerprinting if feasible, against descriptions of missing persons.
- (c) Matching location where body was found with probable location of persons reported missing following the disaster.
- (d) Recognition of personal effects by relatives or friends.

1.6 Final legal identification is usually based upon the tentative identification combined with one or more of the following:

- (a) Recognition of the remains by relatives or friends, if possible.
- (b) Checking the unknown's teeth against the dental records of the person he is believed to be.
- (c) Special anatomical and medical studies from data obtained by autopsy and medical records, such as X-rays and clinical histories.

NUCLEAR BOMB DISASTERS

1.7 Those killed at some distance from ground zero probably will have been identified by survivors in the same area and their names entered on emergency medical tags for use in mortuary records. Furthermore, these individuals could also be later legally proved dead by the direct testimony of surviving witnesses. Nearer ground zero, there will be less likelihood that the bodies will be identified or identifiable; therefore, the percentage of unidentified dead may be expected to be greater in nonresidential areas and in areas where more are killed.

1.8 Final legal identification by personal recognition will not be possible because of the large number of dead, wide dispersal of the population after a disaster, and lack of necessary space, time, and labor. Ten thousand unidentified bodies would require over 5.5 acres of space (250,000 square feet) for adequate display. A person would walk 5 miles between the rows of bodies before all were seen and for each 25,000 identifiable bodies probably 10,000 would be unrecognizable because of disfigurement by injury or fire.

GENERAL PLAN OF MORTUARY SERVICES OPERATIONS IN DISASTERS

2.1 For the first few hours after a nuclear bomb disaster, there will be little time for attention to the dead. Later on, after the injured have been cared for and are beginning to be moved out of the devastated area, work with the dead may start. In case of a high degree of radioactive contamination, precautions are advisable to protect mortuary service personnel. Advice concerning these precautions will be the responsibility of the radiological defense service.

2.2 If the operating procedures are followed, as outlined in FCDA Publication TM-11-3, *Organization and Operation of Civil Defense Casualty Services*, Part III, *Medical Records for Casualties*, many of the bodies will already have had fastened to them an emergency medical tag by a first aid worker. The tag will have a large X marked across the face of it, indicating the person was dead when found. There will be badly maimed or burned bodies which, since they were obviously dead, will probably not have been tagged. The bodies of those killed in outlying residential areas or under circumstances where families and friends were available for identification probably will have been moved and some effort will have been made to prepare them for burial.

2.3 Simultaneously, there will have been a number of deaths of injured casualties in first aid stations and hospitals. Available information for identification of these casualties should be recorded on the original emergency medical tag (figs. 1 and 2) which is again attached to the body. All medical installations should allocate space for the storage of bodies until mortuary services are able to take care of them.

2.4 Following an enemy attack, all dead bodies will be handled by the emergency mortuary services. The bodies of people dead from natural causes during the disaster period should be tagged with the name and address of the deceased and name and address of the next-of-kin, if available, in the same manner as for disaster victims when brought to the attention of any civil defense authority.

2.5 After necessary transportation is furnished the living, civil defense transportation services will assign vehicles and drivers to previously designated rendezvous points where they will pick up mortuary assistants and a supply of mortuary wraps. A collection team of two mortuary assistants with a vehicle and driver comprises a collection

unit. The vehicles assigned should be closed or covered trucks, if available, but ordinary flat bed, stake, or dump trucks may have to be used. Ambulances, hearses, and panel-body trucks ordinarily used by funeral directors probably will have been requisitioned for the use of living casualties.

2.6 Because of the probable magnitude of a nuclear bomb disaster, the lack of usual facilities for preservation, and the shortage of specially trained manpower, it will be necessary to depart from the usual methods of identification. Only a few minutes per body will be available for complete processing. Personal effects should be kept with the body until removed by the identification teams who will segregate

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EMERGENCY MEDICAL TAG		Serial No.
Name and Home Address of Casualty		
Sex:	Age:	
Location when injured (Describe Exact Location)		
Found at (Describe Exact Location)		
Tagged: Date _____ Hour _____		
Type of Injury and Treatment (By First-Aid Worker)		
Name of F. A. Worker		
Diagnosis and Treatment at First-Aid Station		
Sedation	Dose:	Hour:
Morphine	Dose:	Hour:
Disposition	Date:	Hour:
Symbol of Station	Signature - M. D.	
(Binding Portion)		

FIGURE 1.—Face of emergency medical tag.

and store them. The disaster load will require that bodies be removed in groups with as many bodies as possible to a vehicle. Each body should be wrapped together with its personal effects in an individual mortuary wrap to prevent loss or intermingling of personal effects. If the personal effects include identification cards, or tags, letters or other items of similar nature, tentative identification can be made by the collection team and should be entered on the emergency medical tag.

2.7 The body should be transported to a previously designated mortuary area as close as practicable to the burial area to be used. Here the mortuary wraps should be opened by identification teams,

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SUPPLEMENTAL RECORD	
(Binding portion)	

FIGURE 2.—Back of emergency medical tag.

and basic data and personal effects collected for storage. Personal effects and basic descriptive data such as sex, approximate height, weight, and age, color of hair and eyes, and any unusual physical features such as amputation, old scars, etc., will be recorded. (See figure 3—Index and information card—mortuary services.) This recorded information will assist in the later identification of the dead not previously identified.

2.8 After the identification team has rewrapped the body and provided it with a permanent tag, the body should be picked up by an interment team, carried to a burial area, and placed in its grave. An interment team consists of two men assisted by a driver and truck from transportation services. See figure 4.

Form approved.
Budget Bureau No. 97-R031.

1. Last name		First name		Middle name		2. Mortuary tag No.	
3. Address (street, city, State)							
5. Date of birth		6. Age		7. Sex <input type="checkbox"/> Male <input type="checkbox"/> Female		8. Race	
Day Mo. Yr.							
14. Next of kin		9. Religion		10. Height Feet — Inches		11. Weight Lbs.	
15. Source of admission		Name		Address		16. Date deceased delivered to mortuary	
17. Identified by: (Check as many as appropriate: If (E) is checked, fill in name, address, and relationship) (A) <input type="checkbox"/> E. M. tag (B) <input type="checkbox"/> First aid station (C) <input type="checkbox"/> Hospital (D) <input type="checkbox"/> ID card tag (E) <input type="checkbox"/> Person		Name		Address		Relationship to deceased	
18. Personal effects: (A) List of personal effects:		Name		Address		Relationship to deceased	
(B) Examined by:		Name (signature)		Date			
(C) Stored at:		Name of location		Address			
19. Disposition of deceased:		Name of cemetery		Plot No.		Row No. Grave No.	
20. Name of examiner of deceased:		Name		Address			
21. Mortuary house or area		Name		Address (street, city)		State	

FIGURE 3.—Index and information card—mortuary services. (8" x 5" blue)

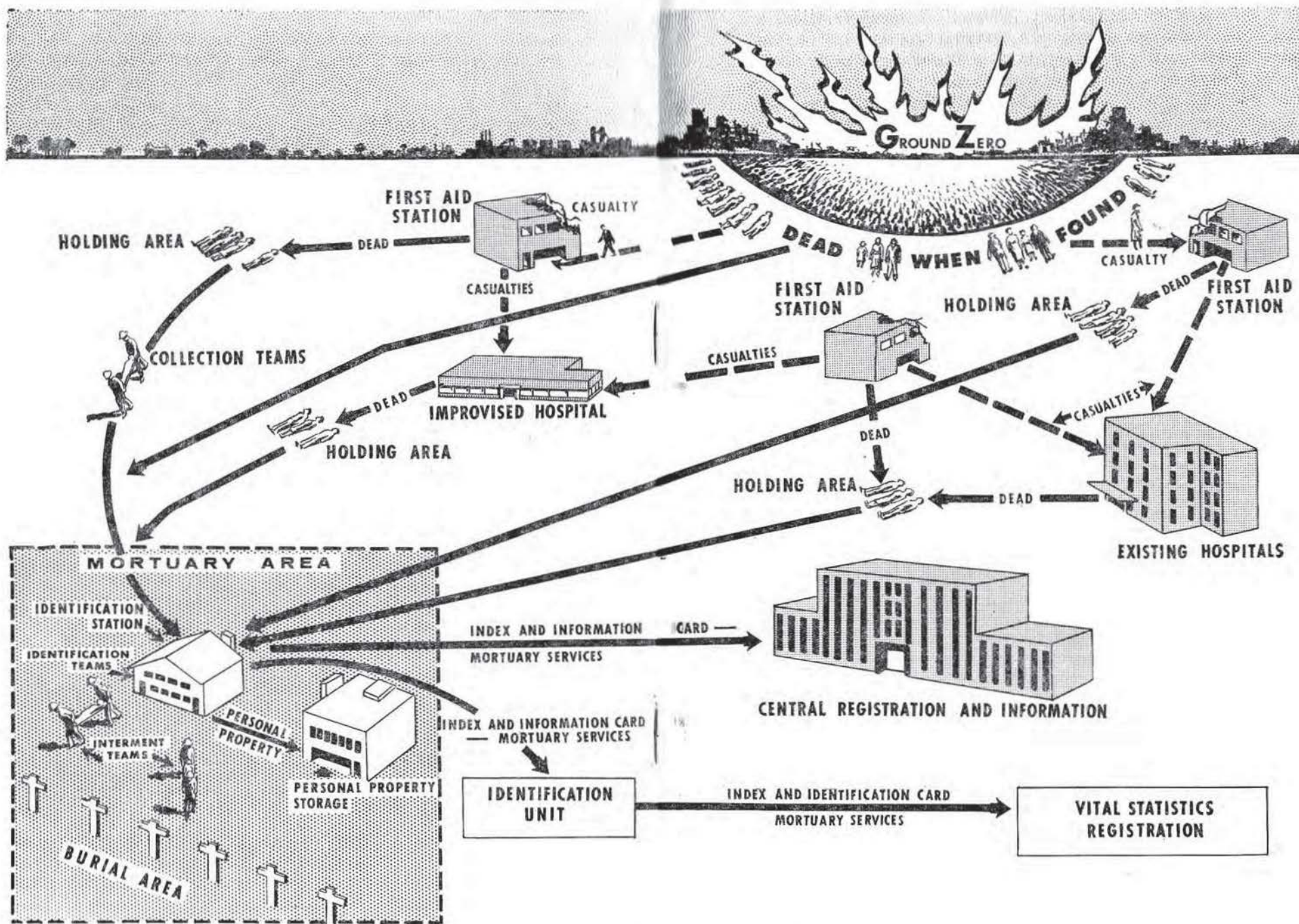


FIGURE 4.—Mortuary services flow chart.

of civil defense mortuary services. Committee members concerned officially with rules and regulations covering the issuance of death certificates and burial permits should recommend any changes needed to clarify these for use under civil defense disaster conditions. Legal formalities, such as inquests, should be simplified, or dispensed with to expedite disposition of human remains. It probably will be necessary to recommend changes in existing laws to city councils and State legislatures to deal practically with disaster conditions. Early adoption of needed legislation should be actively supported by the advisory committee and the civil defense organization.

Civil Defense Mortuary Services

3.3 Civil defense mortuary services will assume full responsibility for organization, training, and operation. The operational unit should consist of a central staff and a mortuary area staff as outlined below:

CENTRAL STAFF

3.4 The following should be appointed:

(a) *Director, Emergency Mortuary Services.*—The coroner or local medical examiner, or someone designated by him, should be appointed as director, emergency mortuary services. He should be given full authority under civil defense emergency regulations to carry out the duties of his office and in addition should have received the legal delegation necessary to comply with local laws about the unknown dead.

(b) *Deputy Directors, Emergency Mortuary Services.*—One deputy director and an alternate should be designated for each mortuary area. These men must be legally appointed representatives of the director and empowered to act for him. One or more of the deputy directors should be designated as alternates for the director.

(c) *Chief Collection Officer and Deputies.*—There should be a chief collection officer and one deputy collection officer and an alternate for each mortuary area. A deputy should be designated as an alternate for the chief collection officer. They should work closely with the local civil defense transportation services. The collection officer is responsible for collecting the remains and transporting them to mortuary areas. He should understand, and include in the training of his subordinates, the importance of collecting pertinent evidence and all personal effects at the point where the body is originally taken up.

(d) *Chief Identification Officer and Deputies.*—The chief of the identification bureau of the local police, medical examiner's, or coroner's office, or his designee, should be appointed to this job. He should be trained and experienced in the practice of identification. He should designate deputy identification officers and alternates for each mortuary area with one of these as his alternate.

(e) *Chief Interment Officer and Deputies.*—The chief interment officer may be an engineer or other person experienced in land use and

utilization of trenching and filling equipment. He should have one or more deputies depending upon the extent and number of mortuary areas. He should closely integrate planning and operations with the local civil defense engineering services as heavy equipment must come from that service.

(f) *Chief Property Officer.*—He usually can be recruited from the police property clerk's office and should be a qualified and bonded employee. He should designate deputy property clerks for each mortuary area and an alternate for himself.

(g) *The Chief Records Officer.*—He should be the head of the vital statistics division of the local health department or his designee. He should be assigned legal responsibility for all mortuary records and should designate and train a deputy for each mortuary area and an alternate for himself.

(h) *A Chief Chaplain.*—He, together with a chaplain for each mortuary area, should be selected from the principal denominations of the locality and recommended for appointment by the local clergy. It may be practical to rotate the office of chief chaplain among the various denominations or to have a small clerical committee in place of a chief chaplain.

OPERATION AREAS SELECTION

3.5 Mortuary and burial areas selected should have space to accommodate about 25 percent more than the maximum expected number of bodies. Alternate sites should be designated in case some areas are not available at the time of the disaster.

(a) Emergency mortuary areas within which the identification teams will carry out their duties should be located in advance, preferably away from densely populated or industrialized areas, but as near as possible to the sites designated as final burial places. Areas selected should be correlated to the population of the whole area, its geography, the expected casualty load, and the transportation facilities which may be expected to be available. All available public buildings and enclosures such as schoolyards probably will be needed for housing and medical care of the living. Although some shelter and screening from the public view are desirable, those considerations should not outweigh the more practical ones of transportation and availability to burial sites.

(b) In the selection of burial sites, efforts should be made wherever possible to use existing cemeteries or land set aside for them. Where religious consideration is a factor in selection of burial sites, the appropriate clergy should be consulted. Cemetery association members of the advisory committee will be able to furnish data on available sites and desirable geographical features, such as types of soil, drainage, etc. A method of rapid, mechanical grave digging and filling will be needed for the large number of graves required. Most large

cemeteries have mechanical equipment for digging and back-filling graves. Local cemetery officials should be asked to inventory their equipment and manpower and indicate their needs to the mortuary services. The mortuary services should inform the local civil defense engineering services whether additional equipment will be required. Before depending on the assignment by engineering services of bulldozers and other heavy mechanical equipment, the mortuary services should consider that there probably will be a much greater need for this equipment in restoring facilities for the living, such as those for water, sewage, and clearing of streets. If conditions permit, mechanically dug continuous trenches offer the best solution to the burial problem. If the machines available are capable only of digging narrow trenches, bodies can be placed head to foot instead of side by side.

OPERATIONS

3.6 The mortuary services should draw up a standard plan for operations. (A suggested procedure will be found in chapter 2.) The committee should consider providing required materials and equipment.

RELIGIOUS CONSIDERATIONS

3.7 Every attempt should be made to provide religious rites fulfilling the requirements of the various denominations as far as civil defense emergency conditions will permit. The clergymen of all denominations in a community should be informed of the problem of determining the religion of unidentified casualties. The advice of the clergymen should be requested and their suggestions followed whenever possible.

INTEGRATION

3.8 The mortuary services should integrate its plans with those of the State and Federal Governments and arrange for exchange of personnel, mutual aid, and mobile support.

RECRUITMENT

3.9 The mortuary services should recruit the necessary operational personnel. Medical personnel cannot be spared from their duties to the living. Only a small number of trained city morgue personnel will be available. Funeral directors and embalmers are the logical source of mortuary personnel. Organizations and associations of embalmers and funeral directors can provide personnel, qualified by training and experience, to cope with the situation. At the present time, there are about 75,000 such persons in the United States, most of whom will be available for civil defense duty and who can be reached through local, State, and regional organizations. They can be easily and quickly trained in disaster mortuary service methods including identification procedures. They should be emotionally stable persons able through experience to carry out the distasteful task of collecting

and examining thousands of bodies, recording basic descriptive data, collecting personal effects, and providing orderly burial. The bulk of the volunteer workers in mortuary services will have to be recruited from this source. Mortuary services are likely to be the least attractive of the civil defense operations to the volunteer worker.

Mortuary Area Staff

3.10 In addition to the central staff, as outlined above, each mortuary area will also have a number of each of three types of mortuary teams:

(a) *Collection Teams*.—Two men each, responsible for collecting remains and transporting them to designated mortuary areas, using vehicles and drivers furnished by transportation services.

(b) *Identification Teams*.—Three men each, trained to obtain and record basic data quickly and to preserve personal effects.

(c) *Interment Teams*.—Two men each, assisted by a driver and truck from transportation services, responsible for placing bodies in graves in an orderly manner so that specific graves may be easily located even at a much later date. The advisory committee should be consulted on the need for members of the clergy to accompany interment teams.

TRAINING

General Considerations

4.1 All mortuary service personnel should receive general orientation in civil defense problems with emphasis on the special problems of the mortuary services. Following this indoctrination, the various types of teams should receive special training, principally practice exercises. Identification teams will need more training than other groups. This will be the responsibility of the mortuary services identification officer and his deputies.

Basic Mortuary Services Training

4.2 A suggested training outline is given below for all personnel.

(a) The basic civil defense problem:

A talk with slides and charts should present a quick review of ABC weapons with the effects of each. Illustrate with a map of the local area, pointing out sections that will have heavy population concentrations during the day and sections with heavy concentrations during the night. Discuss probable number and location of casualties to be expected at different times, different ground zeros, and with various types and sizes of weapons. Indicate areas suitable for disposal of bodies and transportation facilities to be expected under civil defense disaster conditions.

(b) Emergency mortuary services operations:

Part I. A talk.—General condition of terrain following a civil defense disaster. Operation of medical services in relation to mortuary services (emergency medical tag, first aid station logs, hospital logs); the mortuary wrap, its value and use.

Part II. A short talk with slides and charts.—The general problem of identifying unknown dead. Legal considerations in identification. Identification methods normally used. Basic identification data which can be quickly collected from very large numbers of unknown. (Personal effects and their value.) Collection and storage of personal effects.

Part III. Talk with questions and discussion.—Mortuary records, emergency medical tags, identification and information cards, the 3-part medical mortuary tag, multiple burials, excavating, placing bodies, burial records, filling and marking graves; religious considerations (given by chaplain or chaplain group).

Special Training Program for Identification Teams

Demonstrations should be conducted in the city morgue or a convenient mortuary and should cover the following:

(a) Basic physical data—significance and usefulness:

- (1) Approximate weight and height.
- (2) Approximate age.
- (3) Anatomical descriptions.
- (4) Scars and amputations.
- (5) Dentures.

(b) Fingerprints—usefulness and limitations in civil defense.

(c) Clothing:

- (1) Types and materials.
- (2) Location of pockets.
- (3) Marks (including manufacturers'), sizes, laundry, and cleaners.

(d) Methods of handling and moving bodies.

(e) Practicable demonstration of use of index and information cards.

(f) The 3-part mortuary tag.

(g) Personal effects:

- (1) General considerations.
- (2) Informational value of papers.
- (3) Jewelry.
- (4) Dentures.
- (5) Problems of storage.
- (6) Use of personal effects bag.
- (7) Personal effects data sheets and use of card sorting methods.

REFERENCES

Part I. Selected FCDA Publications

The following Federal Civil Defense Administration publications can be obtained from local civil defense organizations or purchased from the Superintendent of Documents, Washington 25, D. C., at nominal cost:

Technical Manuals

1. *Blood and Blood Derivatives Program*, Pub. TM-11-5, Rev. 1953.
2. *Civil Defense Against Biological Warfare*, Pub. TM-11-10, 1953.
3. *Emergency Medical Treatment*, Pub. TM-11-8, 1952.
4. *Organization and Operation of Civil Defense Casualty Services—Part I, The First-Aid System*, Pub. TM-11-1, 1953.
5. *Organization and Operation of Civil Defense Casualty Services—Part III, Medical Records for Casualties*, Pub. TM-11-3, 1952.
6. *Radiological Decontamination in Civil Defense*, Pub. TM-11-6, Rev. 1955.
7. *The Dentist in Civil Defense*, Pub. TM-11-9, Rev. 1954.
8. *The Nurse in Civil Defense*, Pub. TM-11-7, Rev. 1954.
9. *The Veterinarian in Civil Defense*, Pub. TM-11-11, 1955.

Technical Bulletins

1. *Biological Warfare Against Public Water Supplies*, Pub. TB-11-18, April 1955.
2. *Civil Defense Household First-Aid Kit* (Revision), Pub. TB-11-12, Rev. Feb. 1954.
3. *Development Status of Personal Dosimeters*, Pub. TB-11-4, April 1952.
4. *Emergency Blood Transfusion*, Pub. TB-11-5, Nov. 1952.
5. *Emergency Blood Grouping Laboratory Techniques*, Pub. TB-11-6, Nov. 1952.
6. *Emergency Exposures to Nuclear Radiation*, Pub. TB-11-1, 1952.
7. *Emergency Measurements of Radioactivity in Food and Water*, Pub. TB-11-9, Dec. 1952.
8. *Fallout and the Winds*, Pub. TB-11-21, Radiological Defense Series, Rev. Feb. 1956.
9. *Minimum Potable Water Supply Requirements in Civil Defense Emergencies*, Pub. TB-11-16, Aug. 1954.
10. *Permissible Emergency Levels of Radioactivity in Water and Food*, Pub. TB-11-8, Dec. 1952.
11. *Personal Dosimeters for Radiological Defense*, Pub. TB-11-2, April 1952.

12. *Phosphate Glass Dosimetry*, Pub. TB-11-15, July 1954.
13. *Protection Against Fallout Radiation*, Pub. TB-11-19, Radiological Defense Series, Sept. 1955.
14. *Radiological Instruments for Civil Defense*, Pub. TB-11-20, Radiological Defense Series, Sept. 1955.
15. *Responsibilities for Production and Distribution of Potable Water During Disaster*, Pub. TB-11-10, May 1953.
16. *Revised Instructions for Shipping Blood*, Pub. TB-11-14, July 1954.
17. *The FCDA Clinical Laboratory Assembly*, Pub. TB-11-13, July 1954.
18. *The Most Promising Personal Dosimeters for Civil Defense Use*, Pub. TB-11-3, April 1952.
19. *Use of the Tourniquet in Controlling Hemorrhage*, Pub. TB-11-11, Rev. Aug. 1953.

Other FCDA Publications

1. *Before Disaster Strikes—What the Farmer Should Know About Biological Warfare*, Pub. H-11-2, Rev. 1956.
2. *Before Disaster Strikes—What To Do Now About Emergency Sanitation at Home*, Pub. H-11-1, Rev. 1956.
3. *Health Services and Special Weapons Defense*, Pub. AG-11-1, Rev. 1952.
4. *Home Protection Exercises*, Rev. 1956.
5. *Needed . . . Home Nursing for Civil Defense*, Pub. PG-11-1, 1955.
6. *Venipuncture and Intravenous Procedures*, Pub. IG-11-1, 1954.

Part II. Other Publications

These publications are usually available from the issuing agency, and in the case of Federal material, from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

1. *An Outline of a Tentative Guide Covering Sanitation Aspects of Mass Evacuation*, Department of Health, Education, and Welfare, Public Health Service, June 30, 1955.
2. *Civil Defense Information for Food and Drug Officials*, Food and Drug Administration, June 1955.
3. *Control of Communicable Diseases in Man*—Published by the American Public Health Association. (Reprinted by FCDA)
4. *Effects of Atomic Weapons*, Prepared for and in cooperation with the U. S. Department of Defense and the U. S. Atomic Energy Commission.
5. *Handbook of Atomic Weapons for Medical Officers*—No. 8-11, Nav Med P-1330, AFM 160-11.
6. *Medical Aspects of Civil Defense*, Series of Special Articles Reprinted from the Journal of the American Medical Association.
7. *Nursing in Disaster*, National League for Nursing.

8. *Principles of Disaster Planning for Hospitals*, American Hospital Association, 1956.
9. *Psychological First Aid in Community Disasters*, American Psychiatric Association, 1954.
10. *Sanitary Engineering Problems in Disaster*, by Gordon E. McCallum, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.