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Book

Instructor's Guide For Casualty Simulation Kit
Device 11E10

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INSTRUCTOR'S GUIDE
FOR CASUALTY SIMULATION KIT
DEVICE 11E10

PREPARED FOR

ARMED FORCES INSTITUTE OF PATHOLOGY

THROUGH ARMY PARTICIPATION

IN

U. S. NAVAL TRAINING DEVICE CENTER
PORT WASHINGTON, NEW YORK

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Figure 1. Casualty in properly staged situation

CHAPTER I

CASUALTY SIMULATION IN DISASTER DEMONSTRATION

Many individuals of the civilian and military population have been made increasingly more aware of the need for teaching in self-aid or buddy care.

The Louisiana hurricane produced many casualties who needed immediate medical assistance. More recently the Alaskan earthquake and tidal wave and the midwest tornado, which had the potential for producing large numbers of casualties, has reinforced the awareness and desire of individuals for training in basic emergency medical care.

Major portions of the population will survive man-made or natural disaster only if they have been properly trained to care for themselves, their families, friends, or co-workers.

Realism in teaching individuals the fundamentals of self-aid is essential. Only through such planned realistic experiences can the individual be conditioned to function in a disaster. The use of make-up is one means of obtaining this realism. The techniques of creating casualties are comparatively simple, requiring only a limited background or experience in the application of make-up and a basic knowledge of the types of wounds incurred in a disaster.

Three factors are important in casualty simulation:

1. Staging—The surroundings within which the casualty may be found.
2. Acting—The ability of individuals to portray the symptoms of such a patient.
3. Make-up—The creation of simple or complex wounds which add realism to the situation.

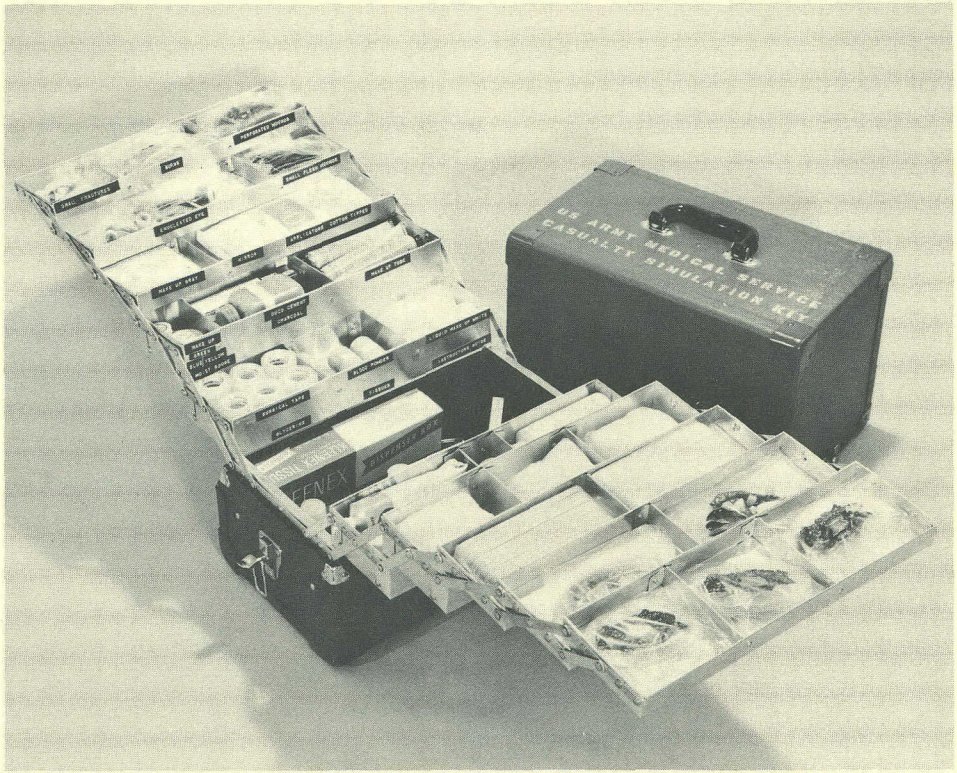


Figure 2. Casualty Simulation Kit, Device 11E10, showing a number of components

CHAPTER II

MATERIAL REQUIRED FOR CASUALTY SIMULATION

Item	Quantity
Tissue, facial, cellulose, white (FSN 8540-793-5425)	1
3M Minnesota Mining Transparent No-Ouch Surgical Tape (1″ wide, 5 yards per roll, 12 rolls per rack)	12 rolls
Gamophen—Liquid surgical soap (plastic bottle)	1
Hand cream (Hydrophilic Ointment)—1 lb. jar cold cream (FSN 6505-153-8703)	2
Applicators, cotton tipped (100 in package) (FSN 6515-303-8250)	1 pkg
Depressors, tongue, wood (100 in box) (FSN 6515-324-5500)	1 box
Foaming Capsules (bottle of 20 capsules)	1
Glycerine—(bottle, one-half filled)	1
Plastalene—two, 1 lb. white bars; one, 1 lb. dark bar	3
Cotton balls (1 paper bag full, approximately 150)	1
Duco Cement—(Tube)	1
Lubricant, surgical—4 oz. tube (FSN 6505-153-8809)	3
Petrolatum, white—1 lb. can (FSN 6505-133-8025)	1
Petrolatum, liquid, heavy—1 pt. can (FSN 6505-133-5980)	1
Charcoal, Powdered (½ lb)	1
Max Factor's Theatrical Liquid Make-up—White, 8 fl. oz. (bottle)	1
Max Factor's Theatrical Tube Make-up #4A, Spec. Cream	1
Max Factor's Theatrical Tube Make-up #4½, Cream	1
Max Factor's Theatrical Tube Make-up #6, Sallow	1
Max Factor's Theatrical Tube Make-up #7, Spanish	1
Max Factor's Theatrical Tube Make-up #8A, East Indian	1
Max Factor's Theatrical Tube Make-	

Item	Quantity
up #15, White	1
Max Factor's Theatrical Tube Make-up #17, Dark Negro	1
Max Factor's Theatrical Make-up, #2231B, Gray (Compact)	1
Max Factor's Theatrical Make-up, Moist Rouge #1 (Small tin)	2
Stein's Theatrical Make-up, #16, Yellow (Tin)	1
Max Factor's Theatrical Make-up, #17, Special Blue (Tin)	1
Stein's Theatrical Make-up, #19, Green (Tin)	1
Simulated Blood (Plastic vial) (normal)	3

Formula:

FD & C Red #1 Certified Food Color	10 grams
FD & C Red #2 Certified Food Color	10 grams
Powdered Caramel Coloring	1 gram
Methyl Cellulose	12 grams
Sodium Benzoate	4 grams

Dissolve in ½ gallon hot water. When completely dissolved add sufficient cold water to make one gallon.

Fragments:

Plaster of Paris, glass, chicken bones, and sticks for insertion into the wound.

Clothing which can be torn or soiled.

Additional Materials:

Such as sausage casings, theatrical hair, dirt, and other materials as desired.

WOUND MOULAGES

Small Flesh Stick-On Wound Moulage	30
Perforated Stick-On Wound Moulage	15
Small Fracture Stick-On Wound Moulage	10
Large Fracture Stick-On Wound Moulage	15
First, Second, and Third Degree Burns, Stick-On Wound Moulage	15
Open Wound of Head, Stick-On Wound Moulage	3
Enucleated Eye, Stick-On Wound Moulage	3
Chest Wound, Stick-On Wound Moulage	3
Jaw Wound, Stick-On Wound Moulage	3
Bladder Wound, Stick-On Wound Moulage	3

CHAPTER III

GENERAL INSTRUCTIONS

SELECTION OF CASUALTIES

Individuals selected as casualties should be of different age, varied body build, coloring, and other physical characteristics to increase the realism of the situation. They should have the ability to act out the signs and symptoms associated with their injuries. Usually, this will take some coaching on the part of the instructor. Individuals allergic to cosmetics and those with skin eruptions or abrasions should be omitted in casualty simulation.

SELECTION OF THE WOUND SITE

The selection of the wound site is considered to be of the utmost importance. The instructor must know the anatomical and physiological aspects of the body in order to portray different types of wounds and injuries accurately and realistically.

Selection of the wound site will usually indicate the severity of the injury. A wound of the head, chest, or abdomen is of greater significance than a wound of similar size in the hand or foot.

Excellent results can be obtained if flat smooth surfaces of the body are used. Some difficulty may be encountered if the wound site selected is on an extremely hairy area of the body or one that is being consciously or unconsciously moved by the casualty.

Extreme care must be exercised to insure the comfort and safety of the patient and to prevent any injury from embedded foreign bodies in the simulated wound.

BASIC FEATURES OF ALL CASUALTIES

Casualties will have the basic characteristics of disheveled hair, rumpled or dirty clothing, loosened collars, belts, and possibly torn and missing pieces of clothing. Nearly all individuals in accidents are usually in some state of shock, and simulated casualties should be made up accordingly.

Facial expressions should portray pain,

anxiety, fear, etc., in relation to the degree and type of injury.

One of the features of casualty simulation in structured make-up is to portray irregularity of bone and jagged tissue molded into the desired effect.

A comparatively clean skin area is fundamental to the creation of wounds. A very small amount of grease paint of the desired shade should be applied to the skin and blended into the surrounding areas. The use of excessive make-up should be avoided as this destroys the illusion being presented.

The palm of the hand may be used for mixing two colors to obtain the desired shade of grease paint. For multiple casualties a small square of solid plastic with a spatula may be used as a palette, thus allowing many individuals to work from a single kit.

CHAPTER IV

PREPARATION OF SPECIAL EFFECTS

BLOOD

In the make up of wounds it is necessary to simulate blood to give a realistic effect. Different types of blood are used depending on the type and severity of the wound. Coagulated blood is used within a wound to give depth. Normal blood is made for insertion into wounds for oozing and frank bleeding. Thin blood may be used on clothing to indicate extensive hemorrhage.

PREPARATION

Coagulated:

Blend together equal parts of petroleum jelly with red food coloring; add a drop or two of light blue and brown food coloring.

Normal:

Blend together liquid starch, 1 pint; red food coloring concentrate, 10 cc's; yellow food coloring, 3 cc's; blue food coloring concentrate, 1 drop.

The amount of coloring is approximate. It will depend upon the variety and concentration of the prepared food coloring used.

Formula Type (as contained in Kit):

FD & C Red #1 Certified food color	10 grams
FD & C Red #2 Certified food color	10 grams
Powdered caramel coloring	1 gram
Methyl cellulose	12 grams
Sodium benzoate	4 grams

Dissolve above contents in one-half gallon of hot water. When material is completely dissolved, add sufficient cold water to make one gallon.

Thin: Dilute the above formula with water.

PERSPIRATION

Individuals who have been subjected to trauma are usually in some degree of shock. Those casualties who are in shock break out in a sweat which is usually most predominant on the forehead, upper lip, chin, and neck. This condition can be simulated by using a glycerine and water preparation applied to the face and neck with an atomizer or dabs of cotton.

PREPARATION

Mix three parts of glycerine and one part of water.

FROTHING

Some injuries or trauma to the body cause an increased secretion of saliva. When tissue is damaged around the nasopharynx the saliva may be bloody or blood tinged, giving the casualty the appearance of "frothing" at the mouth. Capsules for this simulation may be prepared in advance.

Formula:

Gelatin capsules, size 00
Tartaric acid powder or cream of tartar, 1 oz.
Bicarbonate of soda, 1 oz.
Granulated sugar, 1½ oz.

The victim holds the capsule in his or her mouth and at the proper moment chews it, mixing the dry powder preparation with saliva. The saliva will then have a white, bubbly, frothy appearance. If a blood-stained effect is desired, add a small amount of red liquid food coloring to another capsule, and allow the casualty to chew the two capsules together at the proper time.

VOMITUS

The casualty in a real disaster may lose his stomach contents as a result of severe physical or psychological trauma.

One must be realistic and attempt to create the actual situation, although some potential patients may find repulsive the vomitus simulated for another casualty.

To simulate vomitus, a tablespoon of cooked oatmeal and water can be held in the mouth by the individual until the proper moment for vomiting. Crumbled graham crackers in a watery state may be utilized in the same manner. If desired, a small amount of yellow food coloring may be added to the mixture to represent bile.

ODOR

In many instances it is desirable to have a pungent odor near the patient. Some of the materials that can be used to give these odors and to make a more effective presentation are:

Scraps of burned material
Deteriorating pieces of bone
Soured milk
Partially burned charcoal briquets

Compounds of this nature may also be purchased, as for example smoke powder or liquid.

CHAPTER V

TECHNIQUES OF MAKE-UP

SHOCK

Shock is a condition resulting from interference with the circulation of blood in the body. This condition may be due to psychological or physiological reasons. In early shock the casualty is listless, and the skin is pale; but as the condition becomes more serious, severe shock will be accompanied by grayish skin color, sighing respirations, and unconsciousness. Perspiration increases until there is a marked reduction in body fluid. Casualty simulators must insure that the degree of shock parallels the extent of the injury.

PREPARATION:

1. To prepare the casualty a very thin layer of cold cream should be applied to the face, neck, ears, and other exposed parts.

2. A thin layer of liquid or grease paint slightly whiter than the normal skin of the individual is applied. The white grease paint must be blended into the entire area so that there are no lines of demarcation. Great care must be exercised to prevent presenting a

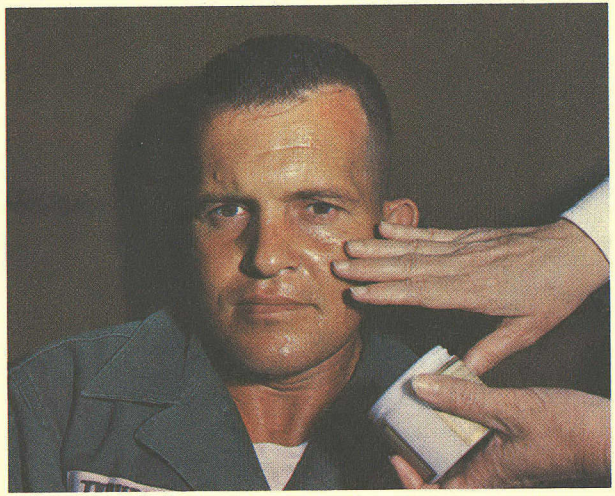


Figure 3. Application of cold cream to face, neck, and ears

"clown" effect by a heavy, thick white layer of grease paint.

3. A very slight amount of blue grease paint should be applied to the areas beneath the eyes, on the eyelids, lips, and lobes of the ears.

4. Depending on the degree of shock, the fingernails are given a bluish color with a blue grease paint.

Figure 4. White grease paint or liquid blended into entire area

Figure 5. Special blue make-up applied lightly beneath the eyes, to lips, and lobes of ears

5. Cover the exposed area of the body with a light layer of gray pancake powder.

6. To simulate perspiration spray on or apply with cotton the glycerine preparation to the forehead and upper lip.

BURNS

Burns are caused by several agents and result in the destruction of tissue.

The degree or depth of the burn determines the coloring one must apply to the selected area.

Material Required

Cold cream
Moist Rouge #1
Cleansing tissue
Lubricating jelly
Smokeless candle
Charcoal

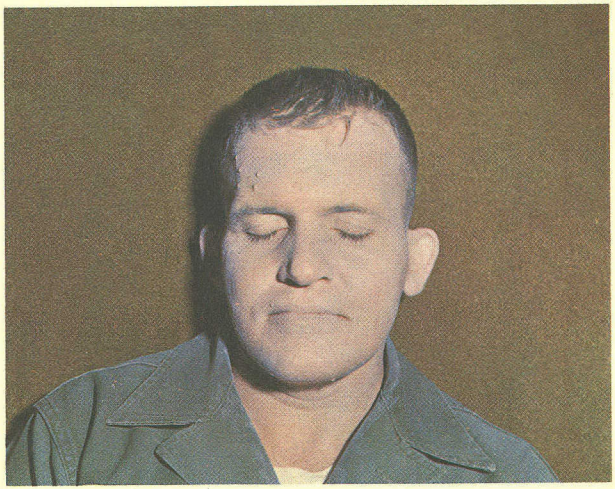


Figure 6. Appearance of a patient in shock; note drops of "perspiration"

FIRST DEGREE BURNS

1. Apply cold cream to the simulated burn area.
2. Using red grease paint or lipstick, shade to appear like sunburn (a very light red).

SECOND DEGREE BURNS

1. Apply cold cream to the area followed by red grease paint or lipstick.
2. Over the selected burn area place a single thickness of cleansing tissue.

Figure 7. A first degree burn can be indicated by using cold cream and red grease paint or lipstick

3. Place small dabs of household cement or lubricating jelly on the cleansing tissue, which covers the area of the body, to create blisters. When dry, the cement may be raised using an applicator to give the effect of blisters.

4. The tissue, with the exception of the area over the blisters, should be slightly wrinkled or have rough edges.

5. Further blisters may be added by dripping a smokeless candle over the area covered by the cleansing tissue.

Figure 8. A second degree burn showing blisters

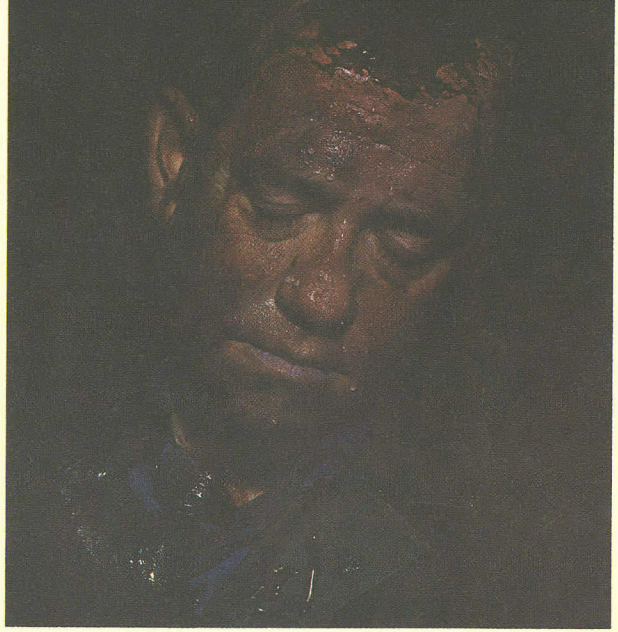


Figure 9. Blast injury with second degree burn to the face showing characteristic blisters

THIRD DEGREE BURNS

A third degree burn has the basic appearance of a second degree burn, but the extensive destruction of tissue has given the

area a charred appearance. The addition of charcoal powder to skin edges or in the center of the wound will give this charred appearance.

Consideration should be given to casualties with large and/or circumferential burns, to insure that the teaching is not limited to minor burns.

Figure 10. Third degree burns showing charred appearance and tissue destruction

WOUNDS

A wound is any disruption by injury of the normal structure in a specific anatomical site. Injury to tissue may cause mild to severe bleeding into the surrounding tissue. This is called a bruise or contused wound. If the tissue had been injured to the extent that a small or large amount of bleeding is evident, the wound may be an abrasion, lacerated, incised, or punctured wound. The amount of hemorrhage is dependent upon the location and nature of the wound associated with internal involvement.

Material Required

Plastalene
Cold cream
Cream-base flesh-tone make-up
Moist Rouge #1 make-up
Yellow #16 make-up
Special blue #17 make-up
Wooden applicator
Blood (3 types)
Charcoal powder or cigarette ashes

ABRASION

An abrasion is a wound in which the outer layers of skin have been scraped off or scratched. An abrasion results when a rough object is rubbed forcibly along the skin.

Material Required

Plastalene
Cream-base flesh-tone make-up
Moist Rouge #1
Charcoal
Toothbrush

Procedure

1. Mix a small amount of plastalene and flesh-tone cream-base make-up and apply to the selected wound site.
2. Draw applicator stick or toothbrush across the plastalene to show scratches or roughened area.
3. To the base make-up add a very light shade of red make-up.
4. A light coating of charcoal may be used around the wound edges to show contact with dirt.

BRUISE OR CONTUSED WOUND

A bruise or contused wound is caused by the impact from a blunt object, resulting in severe injury to tissue and smaller blood vessels. The skin is unbroken. The area is first red and swollen, then later has a dark blue-green or black discoloration.

Procedure

1. Apply a thin coat of cold cream to the bruised area.
2. Using the red and blue make-up and charcoal, dot lightly over the area.
3. With the tips of the fingers, blend these

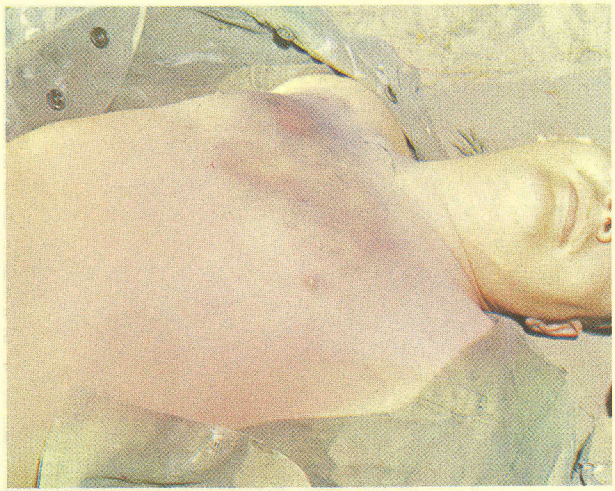


Figure 11. A contusion results when an area is struck with a blunt object, causing severe injury to tissue and small blood vessels

colors together until the area has an appearance of an early bruise. Add a very small amount of green make-up around the edges of the bruise.

4. To give the appearance of age to the bruise, use touches of yellow make-up.

To produce a satisfactory bruise and to achieve the desired effect, considerable practice is necessary.

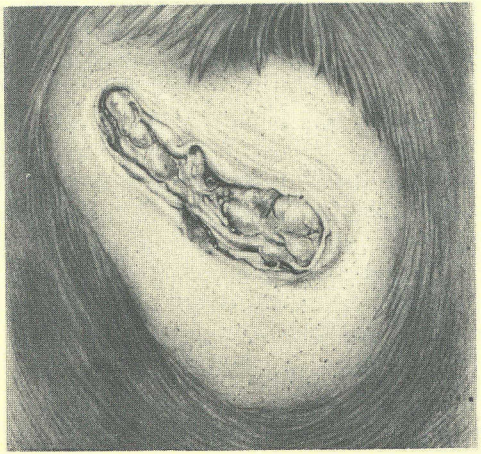


Figure 12. A lacerated wound is characterized by torn or jagged edges

LACERATED AND INCISED WOUNDS

A lacerated wound is a wound that is irregular or torn with jagged edges. An incised wound is a cut with smooth edges made by a sharp object such as a knife, broken glass, or bayonet. The placement of these wounds will determine the amount and kind of hemorrhage. The amount of shock will depend upon the site and position of the wound as well as the amount of blood lost.

Procedure

1. Blend a shade of flesh-colored make-up with a small amount of plastalene.

2. Apply the plastalene to the selected site. This should be thicker in the center where the incision or cut is to be made, and thinner near the edges.

3. Blend the edges well with the skin.

4. For an incised wound, make an incision into the thicker portion of the plastalene. The incision should extend down to but not into the skin surface. A lacerated wound can be made by carefully distorting the edges of the incised wound to make them as jagged as those found in torn flesh.

5. Into the base of the incision apply coagulated blood.

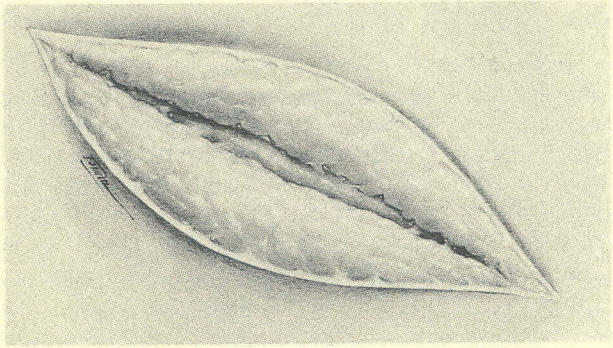
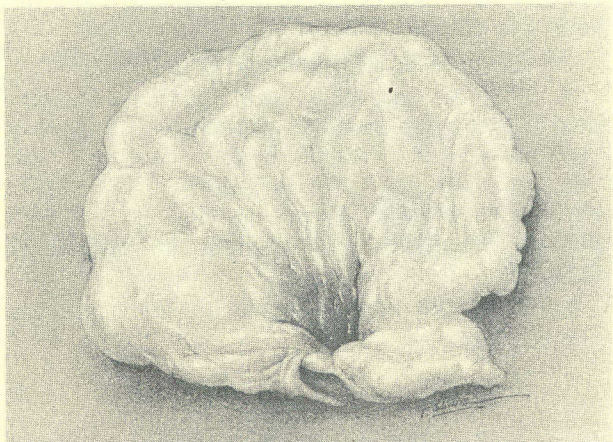


Figure 13. Incised wounds have smooth edges made by a sharp object such as a knife, broken glass, or a bayonet

Figure 14. A puncture wound



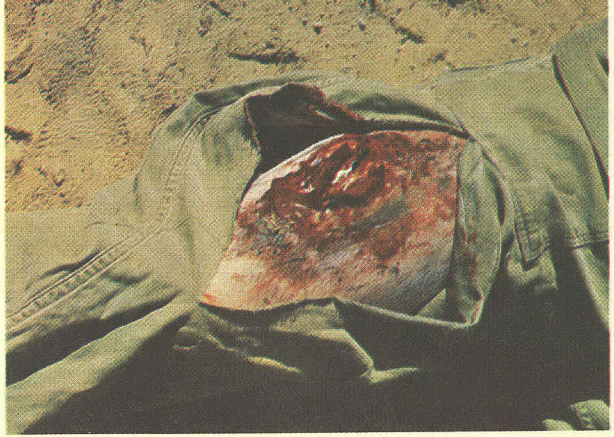


Figure 15. Simple wound of leg

6. Around the edges of the wound, mix with the blood a minute amount of charcoal powder to present a dirty appearance to the wound. Cigarette ashes may be used in lieu of charcoal.

7. Depending on the severity of the wound, apply some thin blood to the surrounding skin area and clothing.

PUNCTURE WOUND

A puncture wound is one made by a sharp or pointed object such as a nail. Even though the wounding object is removed the possibility of infection is great. As in all wounds, the

Figure 16. Simple wound of foot

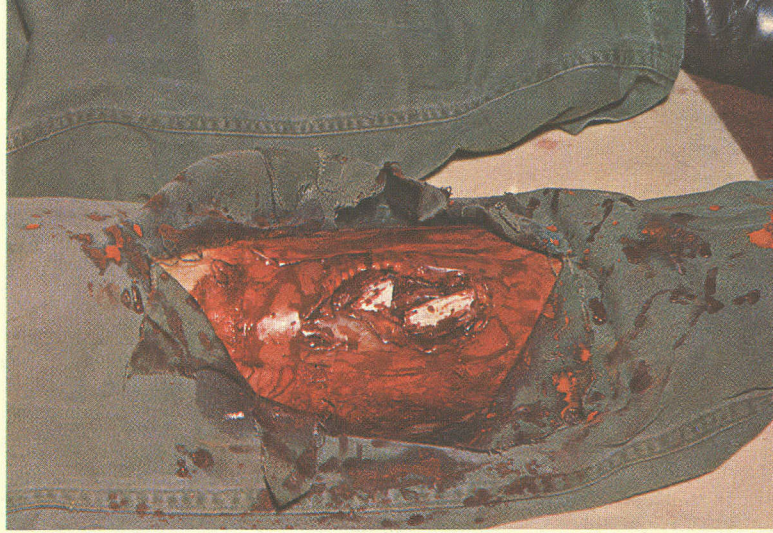


Figure 17. A fracture of the leg

site and depth determines the seriousness of the puncture wound. The diameter of the wound is small but swelling or edema indicates possible serious internal damage.

The puncture wound is made using the same procedure as for an incised wound but keeping the opening very small.

FRACTURES OR FOREIGN BODIES

A fracture is a break in the skin usually causing a distortion of the normal bone alignment. The ends of the broken bone and the force causing the fracture frequently produce considerable bruising and damage to the surrounding tissue. External wounds resulting in a break in the skin with protruding bones are known as compound fractures. Pain, swelling, loss of function are associated with simple and compound fractures. Mild shock is present except in instances where the fracture is compound or considerable tissue damage is present, then the shock is severe.

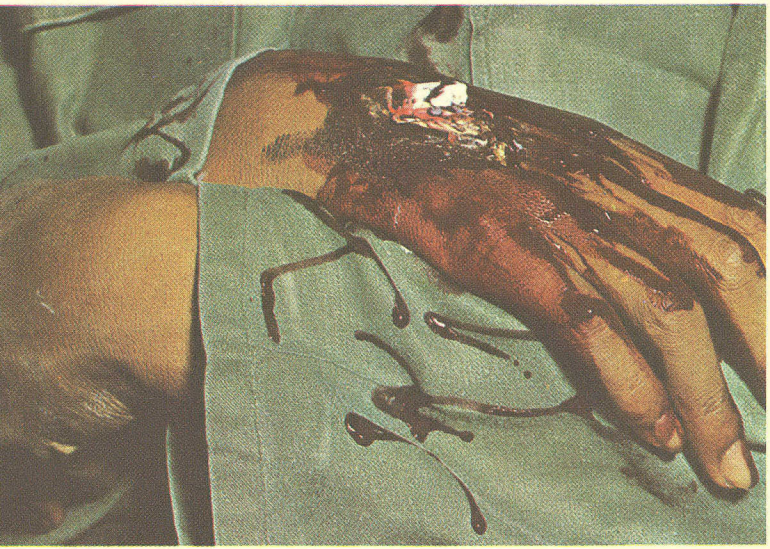


Figure 18. A fracture of the hand

Material Required

Plastalene
Cream-base skin-color make-up
Pieces of bone or plaster of Paris
Animal or chicken bones
Blood
Foreign bodies—glass, sticks, dirt, etc.

Figure 19. A foreign body thrust through the face

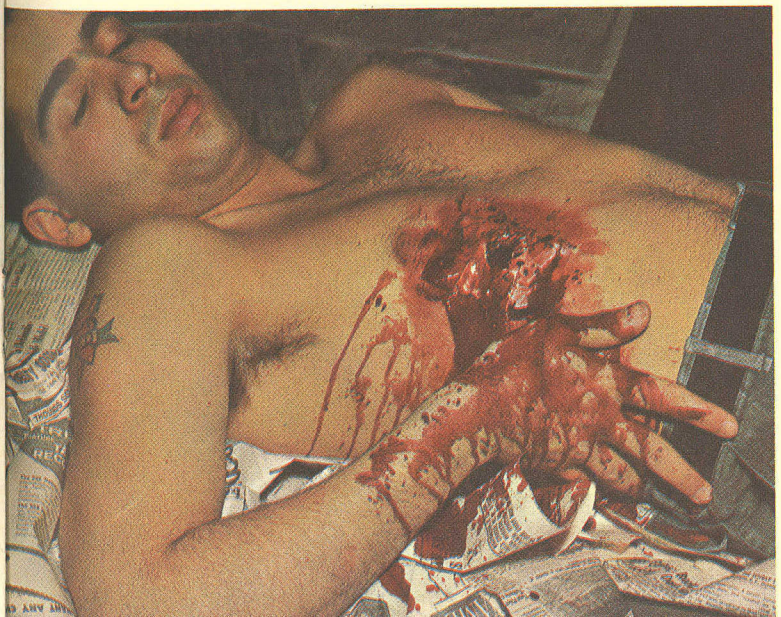
Procedure

1. Select the site for the fracture.
2. Mold a piece of plastalene and place on the selected site. The plastalene should be thicker toward the center than the sides.
3. Blend and smooth out the edges.
4. Make a regular incision into the plastalene.

5. Insert bone or foreign bodies into the incision.

6. The area around the fracture should show some bruising and swelling. This is done by applying red and blue make-up to the plastalene. Blend the red and blue make-up and use small amounts of charcoal around the edges to show dirt, etc.

Figure 20. A wound of the chest



7. Around the bone or foreign body, add coagulated blood.

8. Dirt should be applied to the skin and clothing surrounding the injury.

CHEST WOUND

A chest wound is an opening from the outside through the chest wall into the chest cavity. Many times the object will have penetrated the lung and chest cavity and left an exit wound. From the chest wound and nasopharynx, the casualty may have a bright red, frothy, sputtering-type hemorrhage. The patient usually experiences great distress in breathing and will move quite restlessly in his hunger for air. Casualties with chest injuries may be in mild to severe shock.

Material Required

Plastalene
Moist Rouge #1 make-up
Special blue #17 make-up
Blood—coagulated and normal
Liquid white make-up
Wooden applicator

Procedure

1. Use a piece of plastalene to cover the selected site and blend the edges onto the skin.

Figure 21. An intestinal evisceration or protruding bowel

2. Make a hole in the plastalene with a small round instrument and open out the edges of the wound with an applicator.

3. Apply a small amount of coagulated blood to the base of the wound to give the appearance of depth.

4. Inject thick liquid blood into the wound. Allow a small amount to run over the sides of the wound. Remember, usually only a small amount of bleeding is associated with wounds of the chest unless there is a massive destruction of tissue.

5. To give the appearance of splattering found in a "sucking wound," dip the fingers into blood and fleck the blood over the immediate area of the wound.

6. The casualty may have brought his hands involuntarily to the chest at the time of the injury. This will call for some traces of blood on the hands and chest.

7. Face, neck, ears, and fingernails should be given a light bluish color of make-up for severe shock.

INTESTINAL EVISCERATION OR PROTRUDING BOWEL

The intestine is a membranous tube that extends from the stomach to the anus. The

first 20 feet of the intestine is small in caliber but becomes larger in size the last five feet. When a wound has been made into the abdominal cavity, a portion of the bowel may protrude. The amount protruding will depend upon the size and depth of the wound.

Material Required

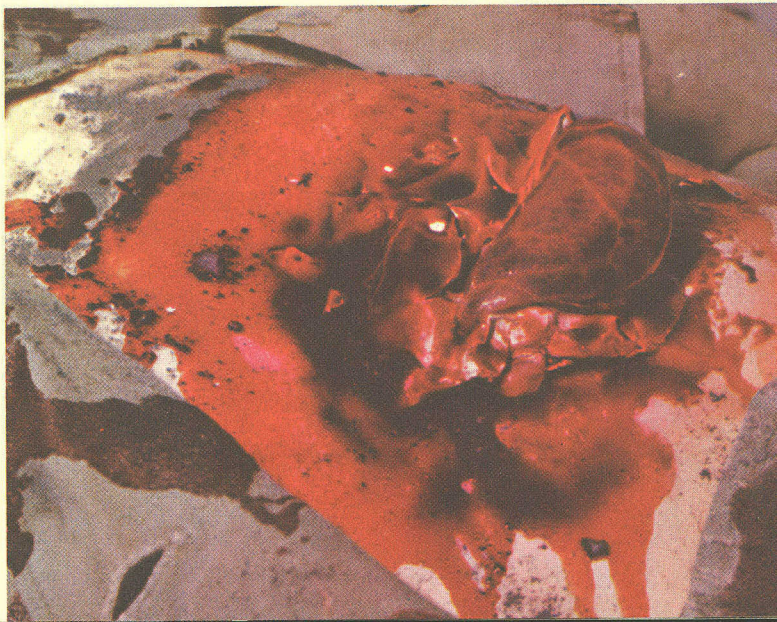
Those listed under wounds plus:

Sausage casing (4 to 6 inches)
String
Syringe (30 cc)
Petrolatum jelly

Procedure

1. Decide the nature of the wound and how it was acquired.
2. Select a person whose skin is fairly hairless and very firm.
3. Select a flat area in mid-abdomen if possible.
4. Select the proper basic make-up color for skin of the casualty and mix with plastalene.
5. Apply plastalene to the selected area and blend the edges with the skin. Difficulties may be encountered due to the continuous movement of the muscles in the area.
6. The plastalene should be thick enough in the center to make the incision and also thick enough to retain the strings of the sausage casing.
7. With the applicator make an irregular incision into the thicker portion of the plastalene.
8. Carefully distort the edges of the wound with the applicator.

Figure 22. Evisceration



9. Blend the skin-colored plastalene edges with the skin.

10. Apply coagulated blood to the floor and sides of the incision.

11. Cut a piece of sausage casing four to six inches in length. The length of each string should be about six inches. Tie off one end of the sausage casing. Loop the string, ready for tying, around the other end of the sausage casing. Using a 30 cc syringe, fill the casing with bloody liquid and air. The sausage casing should not be blown up too full as simulated intestines should look gelatinous and pliable. Close the free end of the sausage casing. The strings, after tying, should be three inches or more in length.

12. Secure the strings from the sausage casing beneath the basic plastalene, allowing the intestines to fall into place.

13. Place a small amount of petrolatum jelly on top of the casings to present the shiny glossy appearance of bowel.

14. Inject thin liquid blood beneath the intestines and allow it to overflow onto the abdomen.

15. The hands and clothing are likely to be bloody and dirty.

16. The casualty will be in severe shock.

Figure 23. A wound of the head

HEAD WOUNDS

Head wounds can be from a simple scalp wound to one which includes injury to the scalp, skull, brain, and sometimes exposure of the brain. Since the brain is adjacent to the eyes, ears, and nose, these organs may also be involved. Depending upon the area and the extent of the injury to the skull and brain, the area around the eye may be black and blue and swollen and there may be a bloody drainage from the ears and nose. Scalp wounds will bleed much more profusely than other wounds of similar size and depth.

In selecting individuals for this type of

Figure 24. A wound of the head

wound, consideration should be given to those who have an area on the head which is free of hair.

Material Required

Plastalene
Theatrical tube make-up #15, white
Dental adherent
Theatrical hair
Blood—coagulated and normal

Procedure

1. Mix a small amount of white grease paint with a quantity of dental adherent.
2. Add a slight amount of water until mixture becomes rubbery.
3. Apply a rather large piece of plastalene to the designated area of the head.
4. Make a wide incision into the basic plastalene wound area of the skull.
5. Insert the rubbery mixture of grease paint and dental adherent into the incision of the plastalene. Small pieces of white bone or chalk may also be inserted into the incision. (This gives the appearance of a compound comminuted fracture, exposing the brain tissue.)
6. The rubbery mixture should show through as gray matter but the surrounding area should have an application of coagulated blood. Then allow normal blood to run down

the face and side of the head. Scalp wounds usually bleed quite profusely.

7. Make up the casualty for shock.

EYE ENUCLEATION

In an enucleation, the eye as a whole is removed partially or fully from the socket.

It may be caused by a severe blow to the head or trauma to the eye. The casualty will be in severe shock.

Material Required

Sheep's, pig's, or artificial eye
Eye pads
Surgical tape
Plastalene
Blood—coagulated and normal
Cream-base skin-color make-up
Special blue #17 make-up

Procedure

1. Apply a thin coat of cold cream to the casualty's face, ear, and neck. Remove cold cream from area about the eye.

2. Place the eye pad over the closed eye and seal the eye pad with tape. (Care must be taken that the eye is not traumatized by any of the materials used.)

Figure 25. Enucleated eye

3. Using plastalene, cover the eye pad and surrounding area.

4. Place the artificial eye in the plastalene so that the eye hangs below the normal position or is embedded in the plastalene to indicate edema of adjacent tissue.

5. The face and brow will have the appearance of swelling from the application of plastalene. Apply make-up to the plastalene to resemble inflammation and bruising.

6. Make-up for shock should be applied to the chin, lips, ear lobes.

Figure 26. Wound of the face with enucleated eye

7. Add coagulated blood around the eye and on the plastalene.

8. Some charcoal added to the area will give the appearance of dirt and soot.

9. There should be some thin blood streaming down the face.

10. The casualty should have blood on his hands as if he had tried to locate the wound.

Figure 27. An eye pad in position over normal eye, showing surgical tape to hold the eye patch in place

Figure 28. A stick-on wound moulage or make-up is applied over an eye protected by a sealed eye patch covered with plastalene

Figure 29. Several layers of elastic bandage are wrapped around the head at the hairline to keep plastalene and blood from getting in the hair

Figure 30. The area around the artificial eye is built up with plastalene

Figure 31. A foreign body should be inserted in the plastalene near the eye

ENUCLEATION WITH HEAD INJURY

Material Required

Sheep's, pig's, or artificial eye
Eye pad
Surgical tape
Plastalene
Blood—coagulated and normal
Cream-base skin-color make-up
Special blue #17 make-up
Gauze
Elastic bandage

Procedure

1. Apply a thin coat of cold cream to the casualty's face, ear lobes, and neck. Remove from the area of the eye.

2. Place the eye pad over the closed eye and seal with tape to prevent any foreign objects from penetrating the eye.

3. Build up the socket of the eye with plastalene over the eye patch.

4. Place and secure the artificial eye over the plastalene.

5. Using elastic bandage, wrap several layers around and across the head to prevent the plastalene and blood from getting into the hair. Make sure the hair is adequately covered by the bandage.

6. Build up the area around the artificial eye with plastalene.

7. Unfold a square of gauze over the elastic bandage covering the head.

8. Above or to the left of the injured eye, attach a foreign object with plastalene.

9. Over the entire area (injured part of face and head) put coagulated blood.

Figure 32. Coagulated blood is applied over the gauze and plastalene

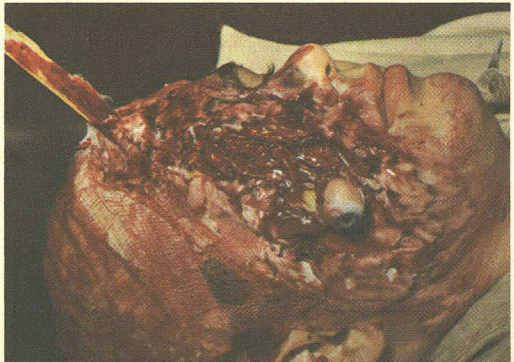


Figure 33. Charcoal or dirt is used to indicate dirt and debris in certain areas

Figure 34. Because eye and head wounds always cause severe shock, make-up for shock is added

Figure 35. The type and location of multiple wounds of the leg and buttock must be considered carefully

Figure 36. Emphysema, or swelling, should be shown in multiple wounds of the face, neck, and chest

10. Add charcoal to certain areas to indicate dirt or debris.

11. Casualties with eye and head wounds will be in severe shock.

MULTIPLE WOUNDS

In disaster situations, casualties usually have more than one type of wound. Every opportunity should be given to the learner to use judgment as to what, how, and in what order the injuries and injured should be treated.

Patients with multiple wounds are the most difficult to care for, and one must consider the total patient under such circumstances. It is a coordination of all previous learning experiences brought together in a single care plan.

It is the responsibility of the instructor to consider carefully the types and location of wounds so that the learner will gain confidence and experience, and will learn to practice with safety the principles of emergency medical care, which may be used in a real disaster.

Figure 37. Multiple wounds

AMPUTATIONS

An amputation is the loss of an appendage or extremity of the body. In disaster situations, appendages or extremities are amputated by missiles or other objects. Consequently, the tissue is traumatized and the stumps may have exposed nerves, bones, and blood vessels. The casualty may have considerable loss of blood and be in varying degrees of shock.

Material Required

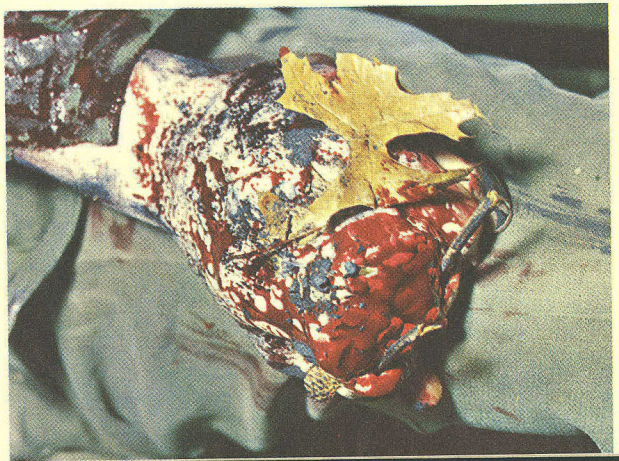
Gauze of desired width
Tape
Plastalene
Cream-base flesh-tone make-up
Moist Rouge #1 make-up
Blood—coagulated, normal, and thin
Charcoal powder
Bones

FINGER

Procedure

1. Select the finger or part of the finger to be amputated.

Figure 38. Amputation of the fingers can be shown by taping the fingers in a folded position and forming the stumps with plastalene and other materials



2. Bind the finger to the palm with gauze and tape to prevent motion. Check to make sure there is adequate circulation in the fingers. If desired, all fingers may be taped.

3. Mold the plastalene to cover the hand and fingers.

4. Chicken bones may be embedded in the plastalene to simulate protrusion of the ends of bone.

5. Apply skin- and red-colored make-up to the areas of the hand, blending carefully.

6. Using the applicator stick, carefully distort the plastalene to convey the appearance of jagged tissue.

7. Coagulated blood should be added to the stump. Generally amputations bleed freely. To the hand, add normal blood and allow it to run down the wrist and arm onto the clothing.

8. The degree of shock shown by the casualty will depend on the extremity amputated and the amount of blood lost.

Fingers can be simulated as amputated by wrapping the bent fingers in gauze and securing the gauze with tape. In wrapping, allow the gauze to extend beyond the bent fingers a few inches. The gauze is then clipped at right angles to the stump. Then steps 3, and 5 through 8 of the previous procedure should be followed.

Figure 39. Amputation of the arm at the shoulder can be shown by taping the arm to the body and building up the shoulder with plastalene and other substances

ARM

An amputation of the arm at the shoulder can be demonstrated by:

Procedure

1. Bend the arm at the elbow and bind the upper and lower arm to the body with ace bandages. Check to make sure the casualty is in a comfortable position and there is adequate circulation in the arm.
2. Mold the plastalene to cover the shoulder.
3. Steps 4 through 6 of the finger amputation procedure should be followed.
4. Allow torn jacket sleeve to hang loose.
5. Then add coagulated blood to the stump and clothing around the stump, and normal blood to the sleeve.

ELBOW

Procedure

1. Bend the arm at the elbow and bind it to the upper arm.
2. Mold the plastalene to the elbow.

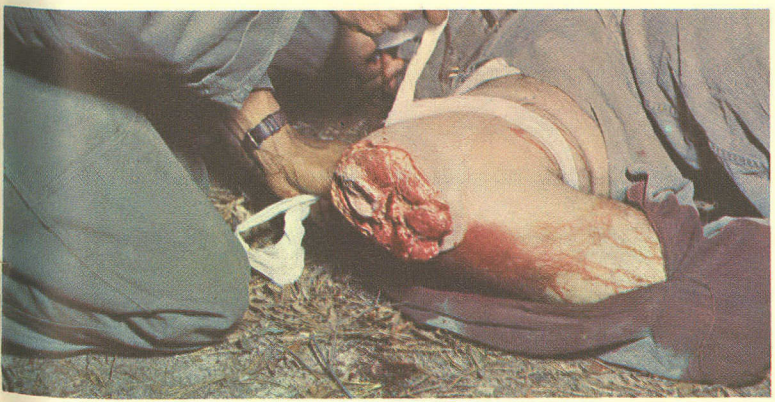


Figure 40. Before portraying amputation of a leg at the knee, the lower leg must be folded beneath the upper leg, and the ankle secured to the waist with bandage

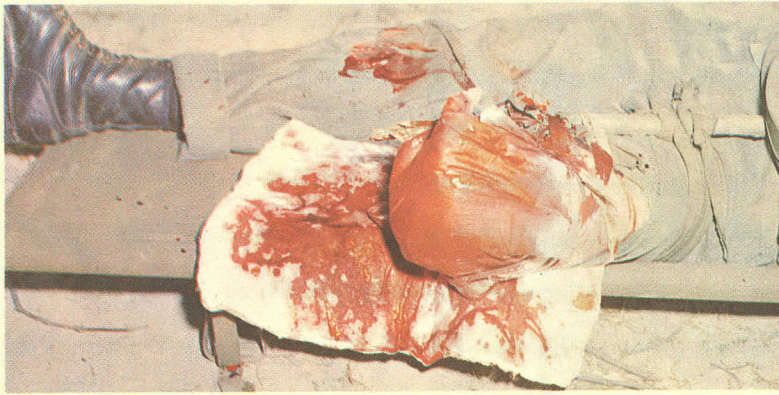


Figure 41. After securing the lower leg as shown in figure 40, the stump is molded on the knee with plastalene and other materials

3. Follow steps 3 through 5, listed under shoulder amputation.

LEG

Procedure

Disarticulation of the leg at the hip cannot be demonstrated, but amputations of the leg at the knee can easily be simulated as follows:

1. Bend the lower leg beneath the upper leg or secure it by a bandage around the ankle to the waist. The leg can also be concealed by placing the lower portion of the leg in a predug hole or through a slit in the stretcher.
2. Mold the plastalene to the knee.
3. Follow steps 3 and 5, listed under shoulder amputations.

CHAPTER VI

MOULAGES

Several wound moulages are contained in the casualty simulation kit. Use as follows:

1. Attach to the skin with tape extending over the edge of the moulage.

2. Build up the area around the moulage with plastalene. Smooth and blend until the moulage appears to be part of the skin.

3. Apply skin-colored grease make-up to the plastalene.

4. Area around the moulage should be given a reddened appearance by adding red make-up.

5. Depending on the severity of the wound, add coagulated, normal, or thin blood to the moulage, skin area, and clothing.

6. To give a touch of realism add charcoal and dirt to the surrounding areas and clothing. The addition of a small amount of lubricating jelly on the moulage gives the appearance of a fresh wound.

Figure 42. Small stick-on wound moulage

Figure 43. Perforated stick-on wound moulage

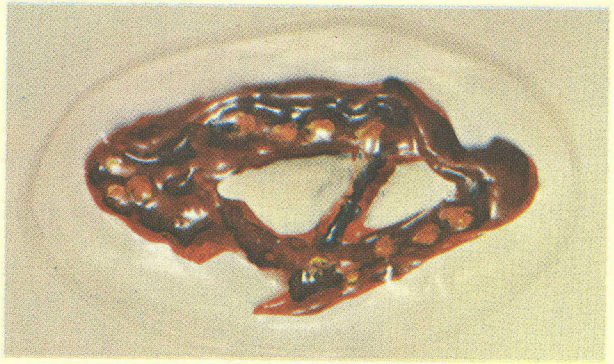


Figure 44. Small fracture stick-on wound moulage

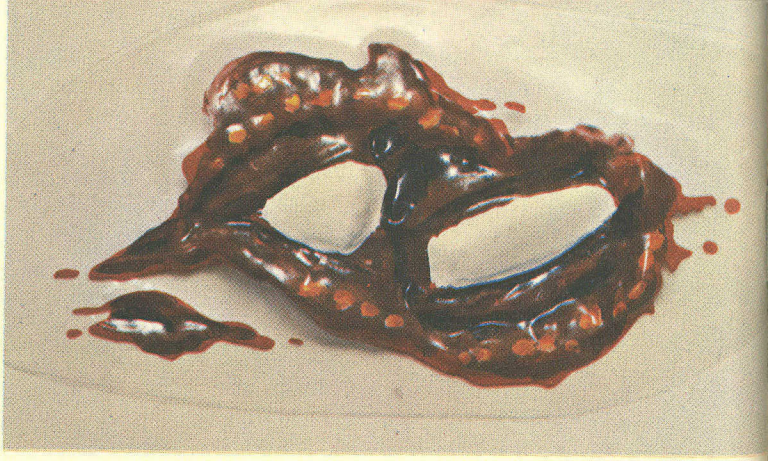


Figure 45. Large fracture stick-on wound moulage

Figure 46. First, second, and third degree burns, stick-on wound moulage

Figure 47. Open wound of head, stick-on wound moulage

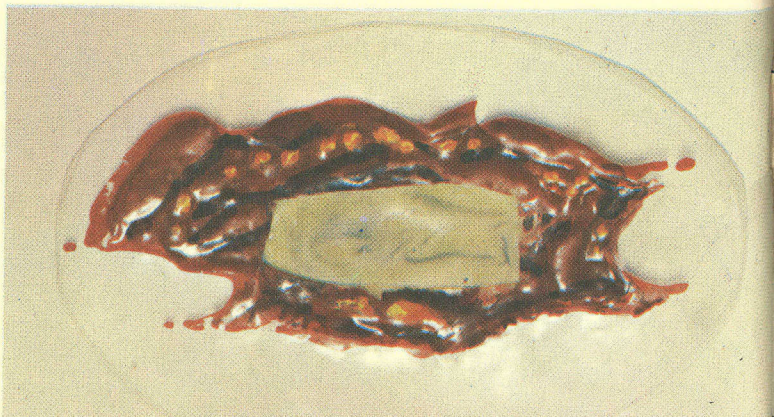


Figure 48. Enucleated eye, stick-on wound moulage

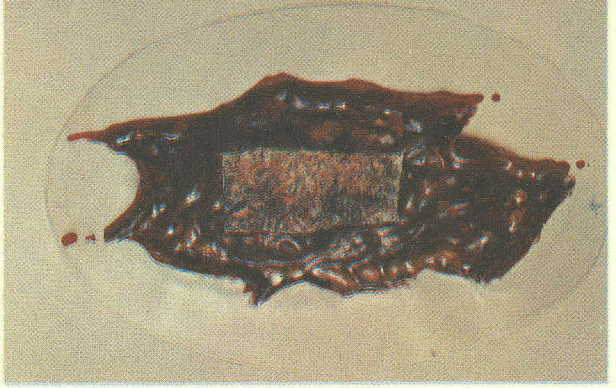


Figure 49. Chest wound, stick-on wound moulage

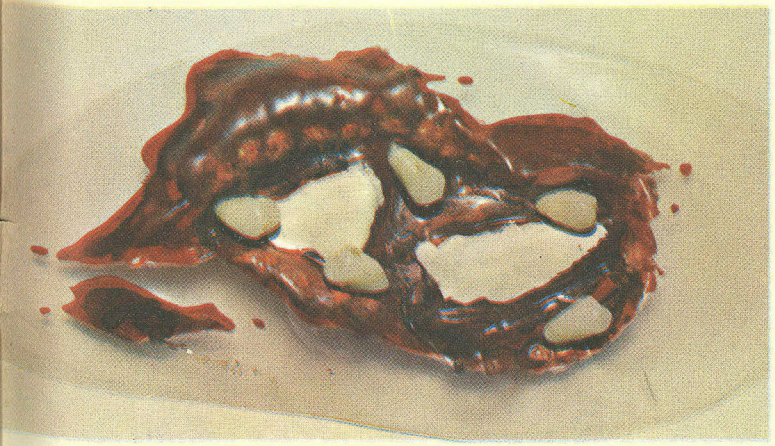


Figure 50. Jaw wound, stick-on wound moulage

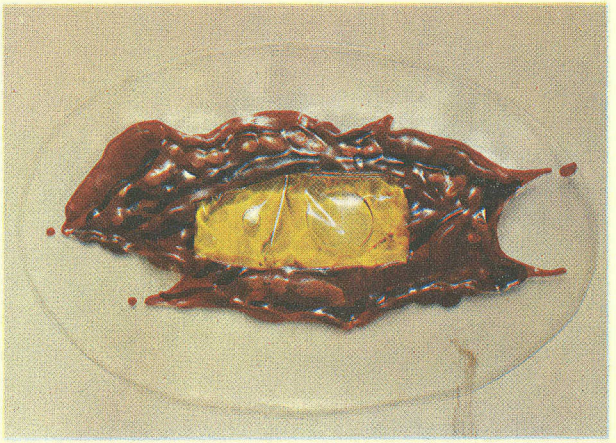


Figure 51. Bladder wound, stick-on wound moulage

CHAPTER VII

SUMMARY

Realistic casualty simulation requires a knowledge of basic anatomy and physiology. However, no specific rules apply to the techniques of make-up in simulating casualties. Individuals practicing these techniques should be allowed to demonstrate their ingenuity in the creation of specific effects. In addition to the make-up, the instructor must be certain to teach the casualty the type of symptoms he or she is to demonstrate, and the appropriate time the symptoms should be demonstrated.

Although a combination of psychological and physiological casualties may be present within a demonstration, a limited number of psychological casualties should be included to aid the trainee in the care of these patients.

As has been stated, application of make-up is only a portion of the total picture in simulating a disaster situation. The most difficult portion of the entire program may be the coordination of the make-up, staging effects, and acting, to portray the proper type "patients" at the appropriate time and to provide an effective practice in emergency medical care.

Casualty simulation is limited only by the lack of ingenuity and experience of the instructors and other individuals participating in the exercise.

Figure 52. A casualty