

into the burned tissues.

Plasma and blood albumin help fight the shock. But severely burned patients need whole blood as well. As one doctor puts it, burned patients "seem to burn up transfused blood."

An A-bomb victim needs even more blood because the radiation from the bomb damages the blood-forming organs in his body. This makes him worse prey, also, to germs not only in the burn or other wounds but to those in the air.

Because the burn patient loses the fluid part of the blood, this also must be replaced, as must salt and other minerals and vitamins. So plasma, albumin, whole blood and salt solutions are given by vein and as soon as he can drink and swallow, fluids of all kinds are "forced."

Proteins for Patients

Steaks and their equivalent in good protein are a "must" in the diet of the burn patient. A protein ration of at least 125 grams per day is advised. That is four ounces or more, and the four ounces means protein, not just meat. It would take at least a pound of sirloin steak, weighed without the bone, to furnish the four ounces of protein.

Because of the vast amounts of blood that would be needed to save victims of an atomic attack, scientists are vigorously pushing research on blood substitutes. More correctly, these should be called plasma substitutes, because so far no one knows of any real substitute for whole blood. Of the plasma substitutes, useful for fighting shock and therefore important, dextran seems at present to hold most promise. This is a Swedish product developed during World War II, a by-product of sugar manufacture.

Being pushed also, under the American Red Cross national blood program, is research into ways of keeping whole blood or red blood cells longer. At present, three weeks is the limit of the useful life of red blood cells and therefore of whole blood that has been drawn from the body. Any material extension of this time limit would make possible stockpiling of blood on a larger scale for use in case of large scale catastrophes.

Burns are expected to make up anywhere from one-fifth to one-half the casualties in such an attack.

Estimates based on the Japanese experience may be too high. With any warning of the attack, large numbers of people should be able to find shelter from the heat flash accompanying the bomb burst. If fire-fighting plans now being made are carried out, it should be possible to reduce the number of burn casualties still further, because many of these were caused by uncontrolled fires after the atom bombings in Japan.

Several thousand severe burn casualties, however, can be expected in any community that is atom bombed. It is to care for these as well as for the victims with serious



HEAD BANDAGE—A shirt, old sheet or handkerchief makes an open face bandage to keep the air from a facial burn or scald.



HAND BANDAGE—Place a dressing over the wounded area; then secure as shown above.



LEG BANDAGE—Start diagonally, take the longer lower end firmly around the ankle once, then spiral up the leg and tie the ends.

bleeding, broken bones and torn and mangled flesh, that 20,000,000 lay persons must be trained in first aid.

Some of you, through your local civil defense organizations, may be called to take special training for work on a burn team. But everyone can learn the simple, immediate first aid treatment for burns, whether caused by atom bombs or an upset pot of boiling liquid on the kitchen stove.

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MEDICINE

The How of First Aid to Burns

The first thing to remember about a burn, no matter how severe or slight, or what the cause, is to keep it from getting infected. In other words, keep germs out, just as you are careful to keep germs out of an open cut or other wound.

You might think that a burn would be sterile, all the germs killed by the heat that seared the flesh. Hospital experience, however, shows that this is not the case.

If you can get the patient to a doctor, hospital or burn station quickly, you do not need to put anything on the burn. Watch to see that clothing does not brush against it, that no one coughs, sneezes or, in the case of children, weeps into or onto the burn.

In case of an atom bomb attack, and often in other cases of burn injuries, it may not be possible to get the victim to medical aid very quickly. In such a case, put a sterile dressing on the burn to cover it and protect it both from the air and from germs.

The sterile dressing will help ease the pain. Any covering over a burn helps to stop the pain—but do not use just any covering. At Hiroshima people put rice flour, raw ground potato and cucumber juice on burns. This, says Dr. Everett Idris Evans, burn authority at Richmond, Va., “undoubtedly accounted for the widespread subsequent infection,” even though these substances apparently did relieve pain.

If you have no sterile dressings at hand, use the very cleanest cloth you have. Ironing the cloth or heating it in an oven will make it more nearly sterile and germ-free. Be careful when you put the dressing on and bandage it in place to avoid touching the burn or coughing or sneezing near it.

MEDICINE

Mumps Vaccine Available

➤ A VACCINE against mumps will soon be available commercially. Two pharmaceutical manufacturing companies, Eli Lilly and Company of Indianapolis and Lederle Laboratories, Pearl River, N. Y., have been licensed by the National Institutes of Health in Washington to produce mumps vaccines. The Lederle product is now on the market.

Credit for making the first mumps vaccine in history has been given to Dr. Karl Habel of the U. S. National Institutes of Health. He first attacked the mumps problem in 1940, when Army, Navy and Public Health authorities were expecting large scale mumps outbreaks in military training camps such as occurred during World War I. Dr. Habel succeeded in getting the mumps virus to grow on chick embryos. Following this he prepared a vaccine on a laboratory scale. Unpublished results of success in trials with this vaccine in 1946 have led to development of the vaccines by the manufacturing houses.

At Lederle Laboratories, Dr. Victor Cabasso worked out development of the Lederle product under the direction of Dr. Herald R. Cox.

The vaccine is expected to be used chiefly in schools, camps and other institutions when outbreaks of mumps threaten. It probably will not be advised at present for

Nurses and doctors in hospitals wear face masks, you know, when dressing a burn to keep germs from their breath getting into the burn.

If the first sterile dressing does not relieve the pain, put another one on top of the first, without disturbing the first one. The second one very likely will stop the pain.

You can reassure a burn victim who complains of the pain by telling him that the painful burns are not the serious ones. This is because in serious burns, the nerve endings are destroyed and the patient does not feel any pain. Do not, however, tell this to the burn victim if he does not complain of pain.

Many people have a tube or jar of medicated burn ointment in the home medicine chest or first aid kit. Tannic acid was once widely used by doctors to treat burns and ointments containing it were widely sold. Later, doctors found that tannic acid was not good medicine for burns and now they do not advise it. Some burn ointments have medicines in them to relieve the pain. Most authorities now, however, advise that if you do use an ointment, you use a bland petrolatum ointment or jelly, such as Vaseline petroleum jelly.

Shock, the third thing the first aider must be prepared to handle in burn cases, is a subject for a lesson in itself, particularly since shock is something to consider in any major injury.

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BIOLOGY

Virus Breeding May Be Weapon Against Disease

➤ RESULTS of virus breeding, which might become a new weapon in the fight against diseases such as influenza and poliomyelitis, were reported by Dr. Frank M. Burnet, director of the Walter and Eliza Hall Institute, Melbourne, Australia, at the New York Academy of Sciences in New York.

“Of high practical importance,” said Dr. Burnet was the discovery that the peculiar characteristics of one strain or type of influenza virus might under certain controlled conditions be acquired by another type of ‘flu virus.

In his laboratory he was able to transfer the characteristic of turning to nerve tissue, which is a characteristic of the polio virus, to another type which so far has developed no tendency to turn toward nerve tissue.

Although at present virus breeding is a research matter, a possible future application might be development of vaccines for preventing diseases such as influenza.

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PHYSICS

Radiation Indicator Made 50 Times More Effective

➤ THE radiation indicator developed at the University of California at Los Angeles has been made “at least 50 times more effective” than the first model, it was reported.

To get this great increase, the alcohol preservative in the chloroform used in the indicator was removed, Dr. George V. Taplin of the University's staff announced. Dr. Taplin, who works on the University's Atomic Energy Project, first revealed the new radiation indicator last February.

The indicator is small, efficient and cheap, and can be made up in the shape of a cigarette lighter or a fountain pen. It contains chloroform and a purple dye. When struck by X-rays or gamma rays, the purple dye turns yellow.

“By removing the alcohol preservative in the chloroform, the production of hydrochloric acid is increased,” said Dr. Taplin, “thus making it at least 50 times more effective than previous models.”

The new device is called a “dosimeter” because it measures the “doses” of radiation that a person might receive when working near radioactive material or when he entered an atom-blasted area.

Dr. Taplin believes it will be valuable in three ways:

(1) As a general personnel monitoring badge.

(2) As an emergency personnel monitoring device for those engaged in rescue work.

(3) As a strategically-placed area monitoring device.

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