DEXTRAN
the plasma substitute

now makes preventative shock treatment normal medical procedure.

by E. Gardiner Neal

JIM NELSON was the last of the bus crash victims to be carried, unconscious, into the small country hospital. His only discernible injury appeared to be a crushed leg, but he was dying; not from the injury itself, but from profound shock. His face was ashen; his body cold. "Pulse 150," intoned the doctor, "blood pressure unobtainable." Within seconds a colorless liquid was being injected into Jim's arm. Almost at once he began to stir and moan, and long before the infusion was completed, he was fully conscious, his pulse slowed and full, his blood pressure restored to a safe level. Dextran, man-made substitute for plasma, had saved another life.

Doctors have long known that shock of itself, and not necessarily the injuries it accompanies, is a great killer. In shock, the liquid portion of the blood seeps out through the veins, causing collapse of the circulatory system. The patient's life depends on the immediate restoration of the blood volume and blood pressure. This is the function of both plasma and dextran, medically termed a plasma volume expander. Neither is a substitute for whole blood which must be used in cases involving excessive bleeding, for only whole blood can replace lost or damaged red blood cells.

In Jim's case, infusion with dextran enabled him to wait safely for the hour it took to type his blood and cross-match it with the whole blood to be procured.

Jim was one of thousands to benefit from a hospital's foresightedness in stocking dextran when it became commercially available over a year ago. Small hospitals, because of the cost and refrigeration problems, can carry on hand only limited supplies of plasma and whole blood, inadequate to handle an emergency such as a bus crash. In a disaster causing many casualties hospitals often have found their blood supplies exhausted. To have had available the plasma volume expander at times like these, has meant the difference between life and death for many.

But dextran, the sugar-derived synthetic, is not merely a substitute for unobtainable plasma. Those doctors most familiar with its use, express the hope that it will soon replace human plasma in the treatment of shock.

DR. HARRY BOWMAN of St. Luke's hospital in Bethlehem, Pa. states: "After years of trial, there is no doubt in my mind that dextran is vastly superior to plasma. First, it is cheaper than the human substance, costing only about $7.00 a pint, while plasma costs *somebody* $25.00 a pint to process. Second, it poses no storage problem, keeping indefinitely at room temperature, which means that every hospital and doctor can keep on hand a quantity sufficient for any emergency. Third, it is stored in bottles in liquid form, instantly ready for use which plasma, stored frozen, is not."

The plasma volume expander has already taken its place in many doctors' offices. One physician cites an experience which took place two days after he had placed the product on his emergency shelf.

A small boy was knocked off his bicycle by a speeding motorist, and badly hurt. He was carried across the street to the doctor's office and immediately injected with dextran. According to the doctor, "The boy rallied at once and was able to make the trip to the hospital, where he underwent the necessary surgery. In my opinion he owes his life to the emergency shock treatment I was able to give him in my office." This doctor adds that the relatively low cost of dextran makes it possible to use it far more freely than plasma has ever been used.

But although the inexpensiveness and convenience of the expander makes it desirable, it is the product's absolute *safety* which, in the opinion of many doctors, makes its replacement of human plasma imperative.

"Dextran is completely sterile and therefore wholly safe to use in great quantity," says a New York anesthesiologist, "which plasma most certainly is not." The doctor refers to the discovery that contaminated human plasma is directly responsible for the virulent liver ailment known as serum hepatitis, which claims the lives of one out of every five of its victims. No known method of processing pooled human plasma has been able to control the transmission of the deadly hepatitis virus.

Enormous quantities of plasma have been used in our hospitals since World War II, when its effectiveness in preventing and allaying shock was recognized. While extensive use of plasma has saved countless lives, it has caused an alarming increase in serum hepatitis, which from a rare disease, has lately catapaulted into a public health problem, claiming over 30,000 victims a year.

Until recently this fact has placed our doctors in a serious quandary: whether to deprive numerous patients of the tremendous benefits of plasma or risk losing six out of every hundred infused, from hepatitis. Today, this unhappy choice is no longer necessary. Your

doctor can now give you all the benefits of plasma without any of its risks; for dextran, after intensive experimentation and several years of routine use in government hospitals, is now available in unlimited supply.

Mayo Clinic's Dr. John Lundy, who has made exhaustive studies of the expander, reports that although dextran is not a substitute for whole blood, it has mysteriously succeeded where even whole blood has failed.

"I am satisfied," he states, "that in the last year I have saved at least six lives with dextran where even considerable quantities of whole blood proved ineffective. The patients continued to lose ground, the situation became desperate, and the period of survival was estimated to be a matter of three or four hours. Administration of a six per cent solution of dextran re-established blood pressure and permitted the patient to recover."

MANY DOCTORS have noticed the unique faculty of dextran for attracting fluids. Physicians on the staff of a New York hospital cite the case of a badly burned patient, whose kidneys had ceased to function. He responded neither to plasma nor whole blood, but within a few hours after receiving dextran, the kidneys were functioning normally. The dextran had drawn fluid back into circulation, reactivating the kidneys.

Not confined solely to its clinical usage, dextran is playing a large part in the vitally important conservation of whole blood. Far less blood is needed when used alternately with dextran. Human plasma, obviously wasteful of blood, requires one full pint to produce only one-half pint of plasma.

The always-short supply of whole blood has been jeopardized in an unexpected way. When it became apparent that approximately six out of every hundred plasma-injected patients developed serum hepatitis, Dr. Carl Moore of St. Louis, publicly urged all surgeons to refrain from the indiscriminate use of plasma because of the danger of hepatitis infection. Unwilling to sacrifice their patients' well-being, a growing number of doctors began to use *whole* blood instead of plasma, as a precautionary measure against shock while many surgeons demanded whole blood for every operation, no matter how routine.

Obviously a widespread practice so extravagant of whole blood could create a dangerous blood shortage, but dextran has averted the threat. Over 300,000 pints were supplied our hospitals last year, thus cutting down ten per cent on the total use of whole blood considerably more, some reporting that where 10,000 pints of blood were formerly used each year, they last year used only 5,000 pints plus 5,000 pints of dextran. This is in line with reports from numerous surgeons

who state that in operations where dextran is used, equally good results are obtained from one bottle of blood rather than two.

CURIOUSLY ENOUGH, dextran is actually the result of our government's search, launched during the Korean War, for a plasma substitute which could be manufactured in unlimited quantity for stockpiling in case of a national emergency. Judged by the National Research Council in Washington, D. C. to be eminently satisfactory, and superior to all other plasma volume expanders tested, dextran is now the only such product being manufactured under government contract for this purpose. Although originally conceived as an emergency remedy only, its enormous potentialities for general, peace-time use were quickly recognized by the doctors assigned to test the expander. Experience appears to have confirmed their judgment.

As in all things medical, there is some difference of opinion. Obviously dextran and plasma do not contain the same materials—a fact which disturbs some doctors; for dextran is made from sugar dextrose, and although it appears to provide nourishment for the body, it does not contribute to the building up of new body proteins as does plasma, which is the liquid portion of human blood without its cellular effects. However the Director of Anesthesiology of a large hospital, comments; "The really important thing, regardless of what materials each substance contains, is the indisputable fact that the plasma volume expander has either the same, or in some cases, a *better* effect than human plasma."

The majority of medical men tend to agree with Drs. R. J. Ward and J. E. Mathwig of Seattle, who, after extensive testing, state that dextran is the "agent of choice for initial treatment of the shocked patient, and may be used either as a temporary measure until cross-matching (for whole blood) can be carried out, or as the only infusion required."

According to doctors all over the United States who have used dextran, its cheapness, safety and easy availability are making it possible for more people than ever before in history to receive the benefits of preventive shock treatment, not as something special, but as a normal part of everyday medical procedure.

This means that not only will lives continue to be saved, but the average patient, under non-emergency conditions, can make faster and better recoveries from routine operations, uncomplicated childbirth, accidents and burns.

As an eminent hematologist puts it, "Perhaps most gratifying of all, is the fact that we can be absolutely sure that a life saved today by dextran, won't be lost a few months later from serum hepatitis."

AMERICANA

TWO WOMEN were arrested in Passaic, New Jersey, for gabbing away while driving their cars side by side down a street.

DONALD DROWN is the country club swimming instructor in Wheaton, Md.

SCORES of women have written to the US Weather Bureau asking that next year's hurricanes be named after them.

AND as if they didn't have enough trouble with snowstorms, in Oswego, NY, a second-grade class who were building an interplanetary vehicle ran into difficulties, with the boys protesting that "the girls want to put up curtains in our spaceship."

TOM COLLINS has just been appointed to the New Jersey State Liquor Board.

DING DONG is a town in Bell County, Texas.

A DUNCAN, Oklahoma, reporter, stopping people on the street to see how many could name at least one of the first ten Amendments to the Constitution, was told by one woman: "I really wouldn't know. I just moved to Duncan."

DURING the Christmas rush in Milwaukee, Dectective Rabbitt arrested a shoplifter named Warren Easter.

WHEN a Brockton, Mass., postman hollered through the door of a residence, "Got a letter with some postage due", the lady of the house shouted back, "Bring it back tomorrow. I can't open the door today—it's the parakeet's day out of the cage."

MISS JANICE ONION is a secretary at the Washington Restaurant Assn.

OTIS ELEVATOR CO.'s main office in Washington, D. C., is in a one-story building.

OAKLAND, California, police came across a hobo who was carrying an electric blanket in his bundle.

A CHICAGO garage is offering a 15 per cent reduction in parking fees for cars less than 14 feet long.