HAND TRAUMA PROTOCOL

The Hand Trauma Center at Union Memorial Hospital is a specialty referral center within Maryland's Emergency Medical Services System. Patients with severe trauma to extremities should be referred to this center to receive the optimum care available in the state.

INDICATIONS FOR REFERRAL

UPPER EXTREMITIES

* All amputations
* Degloving injuries
* Crushing injuries
* Devascularization

LOWER EXTREMITIES *

* Amputations of ankle and above
* Degloving injuries
* Massive crushing injuries
* Devascularization, but foot intact

CONTRAINDICATIONS

UPPER EXTREMITIES

* Major multi-system trauma
* Major trauma to head, chest or abdomen
* Unstable vital signs

LOWER EXTREMITIES

* Major multi-system trauma
* Major trauma to head, chest or abdomen
* Unstable vital signs
* Toe amputations, complete or incomplete

* NOTE: Lower extremity trauma - There are very few indications for reimplantation of any portion of the lower extremity due to risk to the patient as compared to the potential benefit, if successful. Amputations of the foot IN A CHILD are candidates for referral. Amputations above the level of the ankle are candidates for all others. When in doubt, request a "HAND TRAUMA CENTER CONSULTATION".

EMERGENCY CARE

1. Control bleeding, insure an adequate airway and administer oxygen (do not use a tourniquet).
2. Conduct a total patient assessment including vital signs.
3. Remove all jewlery from the injured limb.
4. Apply a dry sterile dressing, bandage and elevate the extremity. Do not attempt to wash, rinse, scrub or apply antiseptics.

(continued)

BACKGROUND INFORMATION

The concept of Regional Hand Trauma Centers for the treatment of upper extremity injuries was established during World War II in the nine Army Hand Centers under Dr. Sterling Bunnell. Dr. Raymond M. Curtis served as Assistant Chief of Hand Service with Dr. Bunnell in California during the war.

These Centers greatly influenced the overall care of the injured hand throughout the world and led to the establishment of such regional centers for hand trauma and re-implantation of amputated limbs and digits in several European and Asian countries, such as the Hand Centers in Sweden and the Reimplantation Centers in China.

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The need for quality care for hand trauma injuries can be readily understood when the magnitude of these emergencies is explored. In 1975, there were 69,899* work-related injuries in Maryland and approximately 25,499* involved the upper extremity. These figures are for industrial injuries only and do not take into consideration non-work injuries.

*Figures supplied by Division of Labor and Industry for the State of Maryland Research and Statistics.

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DR. RAYMOND M. CURTIS
CHIEF OF THE DIVISION OF HAND SURGERY
AT UNION MEMORIAL HOSPITAL

Raymond M. Curtis, M.D. is a graduate of New York University College of Medicine. He came to Union Memorial Hospital as an intern in 1939 and became the resident in surgery in 1943.

He entered the Army in 1944 and became Assistant Chief of the Hand Services at McCormack General Hospital and Letterman General Hospital in California. It was during this Army service that he came under the influence of Dr. Sterling Bunnell, the Consultant in Hand Surgery to the Surgeon General of the Army who was in charge of the nine Army Hand Centers.

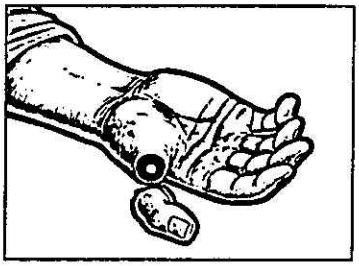
In 1947, Dr. Curtis returned to Baltimore and has practiced this subspecialty of surgery known as Hand Surgery since that time. He is Chief of the Division of Hand Surgery at Union Memorial Hospital and Consultant to the Surgeon General of the Army in Hand Surgery.

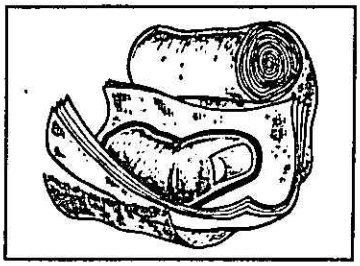
Dr. Curtis is also Associate Professor in Plastic and Orthopedic Surgery at the Johns Hopkins University School of Medicine.

RESCUE!

Hand Trauma: Emergency Care

The Hand Treatment Center at the Union Memorial Hospital is the [redacted] specialty referral center of the statewide Emergency Medical Services System. The communication/transportation protocol of a patient and/or his severed or nearly severed part is being prepared so that he may reach the Center within an hour after injury. Presently, the referring hospital or physician should call the Hand Treatment Center at the Union Memorial Hospital through the System Communications Center (SYSCOM) on the toll-free number (800-492-0610). Until a patient and his severed part(s) can be transported, the following procedures are recommended:





MEDEVAC CREW AND AMBULANCE ATTENDANTS

*Do not attempt to wash, rinse, scrub or apply antiseptic solution to wound.

*Apply dry sterile dressing, wrap in kling or kerlix bandage, apply pressure and elevate.

*Do not wash, rinse, scrub or apply antiseptic solution to the severed part. Wrap it in dry sterile gauze or towel, depending upon size, and place it in a container, preferably Styrofoam, containing coolant bags (or ice in a separate plastic bag).

*For a partial amputation, place severed part(s) in a functional position, apply dry sterile dressing, splint, and elevate. Apply coolant bags to the outside of the dressing.

*If possible, control bleeding with pressure. If a tourniquet is necessary, place close to the amputation site.

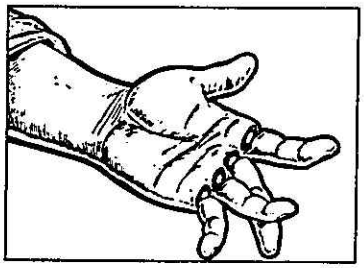
*THE AMPUTATED PART MUST NOT BE SUBMERGED IN ICE WATER. If the ice melts, replace with another bag of ice.

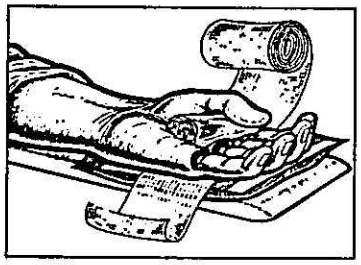
EMERGENCY ROOM

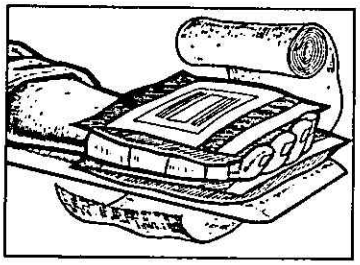
*Evaluate the patient's condition to ensure that he does not need to be resuscitated before transfer.

*The wound should be flushed with lactated ringers solution. DO NOT SCRUB OR APPLY ANTISEPTIC SOLUTION TO THE WOUND. Apply dry sterile dressing, wrap in kling or kerlix for pressure, and elevate.

*The amputated part should be flushed with lactated ringers. DO NOT SCRUB OR APPLY ANTISEPTIC SOLUTION TO THE AMPUTATED PART. Wrap it in dry sterile gauze or towel, depending upon size, and place in a plastic bag or plastic container. The part is then put in a container, preferably Styrofoam, and cooled by separate plastic bags containing ice.







*For a partial amputation, flush with lactated ringers, place part(s) in a functional position, apply dry sterile dressing, splint and elevate. Apply coolant bags to the outside of the dressing. DO NOT SCRUB OR APPLY ANTISEPTIC SOLUTION TO WOUND.

*If a patient's condition will not allow immediate transport, the amputated part(s) should be wrapped in a dry sterile towel, placed in a plastic container and kept under refrigeration at four degrees Centigrade, or kept cool in a Styrofoam container surrounded by separate plastic bags containing ice.

*Control bleeding with pressure. If a tourniquet is necessary, place close to the amputation site.

*Patient's medical record should accompany him, if possible.

NOTE: COOLING THE AREA OF THE INJURY AND THE SEVERED PART(S) IS THE MOST IMPORTANT ELEMENT IN TREATING AND PREPARING A PATIENT FOR TRANSPORT. MELTED ICE SHOULD ALWAYS BE RENEWED WHEN COMPLETELY MELTED. THE AMPUTATED PART MUST NEVER BE SUBMERGED IN ICE WATER.