BALTIMORE REGIONAL BURN CENTER
FY 1992-1993

# of Admissions	272	
Adults	203	74.63
Children	69	25.37
Average Age	yrs 31.18	
Average TBSA	15.38	
Average Length of Stay	days 14.28	
Inhalation Injury	41	15.07
Mortality	19	6.98
Mode of Transport		
Ambulance	222	81.62
Helicopter	44	16.18
Other	6	2.20
Type of Burns		
Flame – home	130	47.79 .8
Scald – home	82	30.14 .1
Flash	16.	5.88 .9
Electrical	16.	5.88 .9
Contact	10	3.67 .7
Chemical	8	2.94 .9
TENS	4	1.93 .9
Thermal	2	1.77 .8
	268	

INJURY BY COUNTY OF OCCURANCE

Baltimore City	131	48.16
Baltimore County	47	17.27
Anne Arundel	20	7.35
Harford	18	6.62
Pennsylvania	9	3.30
Delaware	7	2.57
Cecil	8	2.94
Howard	6	2.20
Washington County	4	1.47
Caroline	4	1.47
Carol	3	1.10
Somerset	1	.37
Worchester	1	.37
Fredrick	1	.37
Wicomico	1	.37
Dorchester	1	.37
Kent	1	.37
Prince George	1	.37
Queen Anne	1	.37
Talbot	1	.37
Allegany	1	.37
Washington D.C.	1	.37
Virginia	1	.37
Indiana	1	.37
West Virginia	1	.37
Saudi Arabia	1	.37

HOSPITAL REFERRALS

Baltimore County General	2
Bon Secour	2
Carlisle Hospital	1
Church Home	1
Eastern Shore Hospital Center	1
Fallston	3
Franklin Square	2
Harbor Hospital	1
Harford Memorial	2
Howard County General	1
Johns Hopkins Hospital	1
Kirk	1
Liberty Medical Center	1
Mercy	1
MIEMSS	1
Morgan County Memorial Hospital	1
North Arundel General	2
Penninsula General	1
Sinai	2
St. Joseph's	1
St. Agnes	3
Talbot Hospital	1
Union Memorial	1
University of Maryland	1
Washington County Hospital Center	2
York Hospital	3

Burn Center - 11/17/93

New building - they're taking it unit by unit
The Critical Care Units will not go first, the intermediate care unit will go first, cardiac care unit, us, the ICU, newborn is staying where it is, pediatrics is staying where it is.

Statistics - Annually 4.96% mortality which is a little bit better than the national average.
25% of admissions are children and of that 30% are due to abuse at home. Flame fires/house fires are the leading cause of injury in adults.

Average length of stay - patients staying a little less longer over 50-day type patients - that number is decreasing
the survival numbers are increasing
As an example, the patient from Saudi, who we just had a few months ago, she was refused by Japan and Germany because she was over 75% burned and their resources are not _____ to those with less than 75%. She was injured in a fire accident of some sort. About 24 years old.

This is the first year that we had a large number of patients from out of state. A lot from PA, occasionally from DE, DC, VA, WV, IN. I have had patients from Taiwan. Yes we are a regional center in terms of the US. We were also set up during Desert Storm to accept patients, but did not receive any. There were a

few burn patients sent to Brooke Army but they were not burned in fighting. We were set up to receive up to 20 patients in a 24-hour period, however we only have 20 beds, so we would have had to transfer some of our patients to ICU, etc.

Flame burns, scalds are usually home injuries.
Less than 1% of firefighters in MD are injured in the line of duty. That is not the same in other states, I think that says something for our safety record.

I have done 1 50-55 minute film for Balto. Co. Fire Dept.
I also do a 2-hour session routinely with fire depts.

The first thing we have people to look at
first, extinguish the flame - patient safe
the first thing to evaluate is airway
cardiac arrest takes precedence over your burn
major trauma (C-spine) will take precedence over burn
If you are coming here, we ask that you come through the ER because of the logistics, CT scan is on 1st floor, emergency x-ray is right there, its much easier for the emergency medicine to go to trauma and we will go down and start burn resuscitation.

The conditions of the injury:

- closed or open space
- type of burn - flames, scald, etc.
- circumstances of burn - pot on stove, smoking, house fire,

assault, deliberate assault on child.

Pre-existing conditions:

25-28 yr old - 75-80% burn - survival good, excellent chance at survival.

75-year old with diabetes, hypertension, two previous MIs, coronary bypass - 30% burn - not as good a chance of survival because of pre-existing disease.

Nature of burns - flame, house fire, when pan catches on fire on stove, put a lid on it, turn off stove or breadsticks catch fire in the oven, keep door closed and turn off oven. You've taken away its O_2 source.

Is the patient conscious and alert.---Initially, in the immediate burn phase he should be lucid, BP should be intact, he may have a tachycardia, normal with burn. Patient's BP should not be down initially. It will later when the patient starts to become shocking, but at the acute moment it should not be down.

In different kinds of burns there are different things that you look for. In an electrical, look for a blast-like injury, sometimes you are thrown. Muscle and skeletal injuries as well. You will also see cardiac arrhythmias in an electrical injury. You would not see that in a child who was dipped from their knees down, you wouldn't see a blast-like pattern, you wouldn't see cardiac arrhythmias.

Lightning injury - look for the fern-like pattern on lower

extremities.

If the patient is conscious when you get there, he probably will remain conscious. If the patient is unconscious from cardiac arrest you need to move rapidly.

That happened a few weeks ago at Howard Co. at the scene. Both patients were in cardiac arrest at the scene and both were resuscitated, the younger man regained conscious and lucidity in a few days the older man died. But he had a lot of burns.

The older man's arrest was managed like any other arrest.

The younger man has graft done on his leg, he's home and following him to clinic, no appreciable lucidity or memory loss.

EOA - never use

superglottic swelling - trachea swells, if you put an EOA in there is no room for swelling. Under no circumstances put an EOA in. Even if that is their training tool and it still exists on their ambulance.

Smoky fire

Soot in the sputum (not dirty tongue). Let patient cough up and spit. Patient has singed nasal hair.

Three things that make us nervous are stridor - listen to tracheal sounds, drooling - starting to swell and can't swallow, becoming increasing hoarse - voice scratchy.

Routinely get carbohemoglobin level when getting blood gases -

results in 3 -5 minutes.

If patient is in respiratory distress and there is no way to secure airway, we will direct them to the nearest hospital and have them call us in regards for future transfer. Our primary concern is for the patient. Yes, we are a specialty referral center, as much as you are, we like to think we can give the best burn care, but in reality we need a live patient to do that.

Chemical Burn

Flush profusely - especially eyes

Use nasal cannula, cut prongs, use some Ringers lactate and cover both eyes. We ask that you flush enroute.

It is not inconceivable that you may wash patient off with fog nozzle - water is best source. There are some things that require specialty care . Hydrofluoric acid burn - usually a chemical factory cleanser for graffiti off walls. You won't find under the kitchen sink. Calcium gluconate gel will stop that. Flush with water and Zephron or gel. The hydrofluoric acid will continue to _____ the cells until it reaches a calcium source.

We do take patients directly from the field, either by ambulance or by helicopter. Our staff meets them. If it is an issue of trauma as well, a combination of staff will be there to take the patient to the ER. We also take patients who drive from home.

We take patients with small burns - palm size. Our policy now is that they only stop to get paperwork in ER then go to burn center. We see our patients for follow-up.

Fluid Resuscitation

There are indications to definitely need fluids, not from the burn standpoint, unless you wish to give pain medication you don't need a line. If you wish to do fluid resuscitation you don't need a line before you get here. Fluid resuscitation is usually given for any 2nd or 3rd degree burn over 15 or 20%. AMA looks at 30% as a major burn. We look at 20%.

Fluid resuscitation is to give pain medication if more than an hour away or greater than 20% burn. We will not criticize you for not putting in a line. Give a little more leadway to children. If you get in trouble, call us.

How much morphine do you give? We don't use large doses of morphine. If you have a short ETA come on in. A prolonged ETA the patient should not hurt unnecessarily. Instead of shooting them at 10 right off the bat, patients absorbs and uses morphine very rapidly, give 3 IV, repeat by 3 mg in 10 min not to exceed 10. If you need more than 10 call us back, then we will go along you. Give small frequent doses instead of one large one. Don't want the patient so somnolent that you can't evaluate him. I don't want to have to worry that his somnolence is from occult head trauma.

Covering Wound

Sterile if you have it, clean if you don't. Often times a patient is total body burn. Sterile sheet on bottom and cover patient with sheet. Don't want contamination from bacteria. This patient will lose temperature because he doesn't have skin. Patient shivers, wrap in sterile sheet and put another blanket on top. If its July, cut off air conditioner. Keep IV fluids warm,

if not don't start. Don't give cold fluids.

Major concerns

Cardiac arrest

No EOA

Don't pull clothing away from wound if stuck, otherwise you will pull skin away, we will dampen and remove at Burn Center. In the field its very difficult to tell how severe the injury is.

Over estimation

We don't count first degree anymore. We only care about 2nd degree burn.

Burn Prevention Program - run in conjunction with the nurses and the Metropolitan firefighters chapter.

Burn Camp - 1st one on the East Coast. A week in the summertime for children who had a burn _____. Run by the nursing, occupational therapy, physical therapy, social work, child life specialist from pediatrics, nutritionist at the instigation of our PT dept. Burns are a very graphic, physical injury.

We use former burn survivors. Camp counselors are physical therapists, nurses, and former patients. We have a cosmetician, she herself was a former burn survivor.

Child life and school reentry program - we go into school before hand with the child.

We have both a social worker and clinical psychologist.

Baltimore Regional Plastics Reconstructive Center.

For the burn patient to do well he needs the entire burn team.

The burn team consists of: physicians, nurses, nurse practitioner, occupational therapist, physical therapist, respiratory therapist, nutritionist, social worker, psychologist, secretary, the volunteer who comes to visit, burn technicians, housekeeping, clinical research coordinator, burn foundation - which does a lot of funding, metropolitan firefighters chapter, they have Santa to bring toys for the children, donated TVs and VCRs and movies, donate equipment (portable suction unit, portable ventilator).

My official title is Burn Trauma Coordinator

We were developed in 1968.

Maryland Protocol for Field Management of Burn Patients

1. Eliminate source of burn
   a. Flame—Wet, smother, or remove smoldering clothing.
   b. Tar—Cool area until burning has stopped. Do not remove tar.
   c. Electrical—Remove from electrical source with nonconductive material.
   d. Chemical—Immediately wash area with copious amounts of water (for at least 10 to 20 minutes *prior* to transport). (Call engine company if necessary.)

2. Assess patient
   a. Airway (respiratory injury)—Look for singed nasal hairs, facial burns, soot in mouth, etc. (closed-space accident).
   b. Peform routine primary survey (be alert for associated trauma). Treat trauma as if burn did not exist. The use of MAST Trousers is appropriate when indicated for associated injuries.
   c. Obtain history (mechanism of injury and circumstances of injury).
   d. Determine depth and percent of body area burned ("rule of nines"—"rule of palm").

NOTE: If transfer to the Burn Center is desired, or if there is a question concerning treatment, contact Burn Center via EMS communications.

   e. Indications for transfer to Burn Center:
      (1) Second- and third-degree burns:
         (a) Greater than 10 percent in patients under 10 or over 50 years old.
         (b) Greater than 20 percent in other age groups.
         (c) Burns of the face, hands, feet, or perineum.
      (2) Electrical burns.
      (3) Chemical burns.

3. Treatment
   a. Remove all jewelry and clothing necessary to evaluate burn.
   b. Initiate fluid resuscitation.
      (1) Start an I.V. of Ringer's lactate in an unburned area; if this is not possible, obtain permission to start in an area of second-degree burn.
      (2) An I.V. is not necessary (but is optional) if the patient will arrive at the Burn Center within 1 hour *postinjury*.
   c. Wrap the patient in a clean, *dry* sheet.

NOTE: As an exception to the above, if the burn area is small (less than 9 percent), moist dressings for patient comfort are optional.

   d. After irrigation of chemical burns, cover with dry sheet.
   e. After initial cooling of tar, cover with dry dressings.
   f. For an inhalation injury, administer 100 percent oxygen per mask or nasal cannula.

4. Transport
   a. Maintain warm environment and continuously monitor vital signs.
   b. Utilize MSP helicopter if patient is more than 30 minutes from the Burn Center by ground.
   c. If patient has sustained an electrical injury, place patient on cardiac monitor and obtain consultation.

SPECIAL WARNINGS

1. Do not give patient with greater than 20 percent body surface area burns any fluid by mouth.
2. Do not give any medication intramuscularly, subcutaneously, or by mouth without consultation unless a cardiac emergency exists.
3. Do not place ice on *any* burn.

Management of Burns

Objective:

Assess and treat burns.

Prerequisite:

Airway maintenance
Aseptic technique
Burn recognition
Maryland burn treatment and referral protocol (see p. 2-54)
Shock management
Use of rule of nines/rule of palm

Equipment:

Blanket
Oxygen delivery system
Self-adherent gauze bandage (4 inch)
Sheet
Sterile burn dressing
Sterile water or 0.9 percent sodium chloride

Procedure:

1. Calm and reassure patient. Explain all procedures prior to performing them.
2. Remove patient from source of burn.
3. Determine degree of burns and percentage of body affected.
   a. Second- and third-degree burns include the following:
      (1) Burns covering greater than 10 percent of the body in patients under 10 or over 50 years old
      (2) Burns covering greater than 20 percent of the body in other age groups
      (3) Burns of the face, hands, feet, or perineum
   b. Electrical burns.
   c. Chemical burns.
4. Determine need for transport to specialty referral center.
5. Treat for shock and administer oxygen, 100 percent.

6. Carefully remove clothing from burned area and remove all jewelry. Do not remove debris which adheres to burn.
7. Loosely wrap the entire burn area with sterile burn dressing and secure with self-adherent gauze bandage. Large body surface areas may be covered with a sheet.
8. Wrap hands and feet loosely in sterile dressing.
9. Moistened dressings *may* be applied to less than 9 percent burns for comfort. Dry dressings *must* be applied to greater than 9 percent burns.
10. Treat for special conditions as follows.
    a. Facial and neck burns: These are an indication of a respiratory injury, which may cause edema. Airway maintenance will take priority over other burn treatment. Transport as soon as possible.
    b. Chemical burns: Irrigate with copious amounts of water. Shower or hose for 10-20 minutes continuously prior to transport.
    c. Semi-solid burns (tar, wax, grease): Flush with cool water until substance is cool. Do *not* remove the substance causing the burn.
    d. Electrical burns: Check for entrance and exit wound and bandage appropriately. Request cardiac monitoring of patient if available.
11. Treat for shock and continue to administer oxygen, 100 percent.
12. Do *not* apply ice, ointment, or any home remedy to the burn site.
13. Continue to reassure patient during transport and closely monitor vital signs.

BURN PROTOCOL

INTRODUCTION

The Regional Burn Center for the state of Maryland is located at the Francis Scott Key Medical Center in eastern Baltimore City. It consists of a 10-bed critical care unit for adult and pediatric burn patients, an 10-bed step-down unit for adults, and a pediatric step-down unit. The Baltimore Regional Burn Center admits 250 to 300 patients each year.

The Burn Center at Washington Hospital Center in the District of Columbia also participates in the Maryland Specialty Referral System. This burn center is composed of a 7-bed intensive care unit with an operating room and recovery room, a 13-bed rehabilitation/intermediate care unit, and the Skin Bank for Burn Injuries. Between 275 and 300 adult burn patients are admitted to this center each year. Pediatric burn patients are admitted to the burn unit at Children's National Medical Center.

The decision about where to transport a burned patient is based on location of the patient and location of available beds. Generally, burn patients in Region V (Southern Maryland), who are closer to Washington, DC, will be taken to Washington Hospital Center; patients in other parts of Maryland will be taken to the Baltimore Regional Burn Center. However, if beds are full in either of these centers, patients will be transported to the burn center with available bed space or to an appropriate trauma center in special situations.

INDICATIONS FOR TRANSPORT

1. Second- and third-degree burns
   a. Greater than 10% of total body surface area (TBSA) in patients younger than 10 years and older than 50 years
   b. Greater than 15% TBSA in patients between the ages of 10 and 50 years
   c. Of the face, hands, feet, or perineum
2. Electrical burns
3. Chemical burns
4. Burns complicated by smoke inhalation *
5. Burns complicated by single system trauma
6. Burns in patients with serious preexisting medical conditions

* Patients with carbon monoxide toxicity and no major burns should be considered for hyperbaric oxygen treatment at the R Adams Cowley Shock Trauma Clinical Center.

HOW TO INITIATE A TRANSPORT

Referring physician: call SYSCOM at 1-800-648-3001

Information needed by receiving center:

- Referring physician's name
- Referring hospital
- Location within the hospital
- Call back number

Patient information

- Name, age
- Respiratory status
- Mechanism of injury

logo
blue

thick black

gold blue
BALTIMORE REGIONAL BURN CENTER
Gold Black
Francis Scott Key Medical Center
4940 Eastern Avenue, Baltimore, MD 21224
410/550-0890

thin black

BURN UNIT
Washington Hospital Center
110 Irving Street, NW, Washington, DC 20010
202/877-7241

picture

thick black

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1. Second- and third-degree burns
    a. Greater than 10% of total body surface area (TBSA) in patients younger than 10 years and older than 50 years
    b. Greater than 15% TBSA in patients between the ages of 10 and 50 years
    c. Of the face, hands, feet, or perineum
2. Electrical burns
3. Chemical burns
4. Burns complicated by smoke inhalation *
5. Burns complicated by single system trauma
6. Burns in patients with serious preexisting medical conditions

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- Information needed by receiving center:
    - Referring physician's name
    - Referring hospital
    - Location within the hospital
    - Call back number
- Patient information
    - Name, age
    - Respiratory status
    - Mechanism of injury

Extent of injury
Treatment rendered

Based on the location of the patient and bed availability, SYSCOM will connect the physician with either the Baltimore Regional Burn Center or the Washington Hospital Center for consultation. When the patient has been accepted, the burn center will recommend the mode of transportation (air or ground) and whether or not a burn team is needed during transport. If the patient is transferred by helicopter, SYSCOM will make transportation arrangements. If the patient is transferred by ground, the referring hospital will make arrangements through its jurisdictional ambulance service.

STABILIZATION PROCEDURES AND PREPARATION FOR TRANSFER

1. History and Physical Examination
   - A. Patient information: name, address, birthdate, past medical history, medications, allergies
   - B. History of Injury
     1) Time of burn
     2) Cause of burn
     3) Potential for smoke inhalation (open or closed space)
     4) Potential for other injury
     5) Additional medical problems
   - C. Patient status
     1) Burn size (not including first degree burns) and estimated depth
     2) Location of burns
     3) Respiratory status
     4) Associated injury
     5) Treatment rendered
2. Respiratory System
   - A. Begin oxygen at 4 liters per minute.
   - B. Assess for possible smoke inhalation. *
     If patient has possible inhalation injury, administer oxygen by non-rebreathing mask at 10 liters per minute.

* Arterial blood gases (ABG's) and chest x-ray may initially be normal even in the presence of smoke inhalation.

     1) History of flame burn or closed space accident
     2) Confusion, restlessness, dizziness, lethargy, or unconsciousness
     3) Soot in sputum
     4) Hoarseness (may progress rapidly)
     5) Drooling, due to swelling of tongue
     6) Increased respiratory rate
     7) Difficult breathing, stridor (late signs)
   - C. If carbon monoxide poisoning is suspected:
     1) Draw blood for determination of carboxyhemoglobin level. DO NOT WAIT FOR RESULTS.
     2) Begin 100% humidified oxygen.
   - D. If airway obstruction or respiratory failure is suspected, insert endotracheal tube.
     1) DO NOT perform a tracheostomy unless it is absolutely

essential.

2) DO NOT transport a patient without an endotracheal tube if there is any possibility that the patient has smoke inhalation or will experience respiratory distress.

3. Cardiovascular System-Fluid resuscitation

A. Start on all patients with burns greater than 20% TBSA.

B. Begin IV therapy using Ringer's Lactate , through a large-bore catheter (at least 18 gauge in an adult), into the most reasonably accessible area remote from the burn. (If the usual venipuncture access areas are burned, do not hesitate to place the IV catheter through the burn.) Avoid starting a subclavian line, if the patient is to be transported by air.

C. Fluid calculation for initial 24-hour period, (Parkland Formula Fluid Resuscitation for patients with a 20 % or greater burn):

4cc x %TBSA x body weight in kilograms = ml of Ringer's lactate needed in first 24 hours

Administer infusion at rates that will deliver approximately: (calculated from time of the burn.)
1/2 of this volume given in first eight hours
1/4 of this volume given in second eight hours
1/4 of this volume given in third eight hours
* Note: Adjust rates according to item F (below)

D. Number each consecutive IV container in order of administration.

1) Number both container label and flow sheet.

E. Insert urinary catheter to measure hourly urine outputs for evaluation of fluid replacement.

F. Titrate IV fluid rate to maintain urine output between 30 and 50 ml/hr in an adult and between 0.5 and 1.0 ml/kg/hr in a child.
Boluses of fluid with the calculated Parkland formula may be used to check urinary output.

G. DO NOT administer diuretics, except to patients with very deep electrical burns, who may have myoglobinuria.
1) If myoglobinuria is present, administer 25 gm Mannitol mixed in 5% D/W
titrated to run over 1 hour.
2) Use sodium bicarbonate IV to treat severe metabolic acidosis.

H. If the patient is in shock, look for and treat associated trauma.

4. Gastrointestinal System

A. Insert a nasogastric tube in patients with 20% or greater burn, and in patients complaining of nausea or vomiting.
1) To minimize possibility of gastric distention, vomiting, and aspiration.

B. Insert a nasogastric tube in comatose patients only after intubation.

C. Keep patient NPO if the burn is 20% or greater.

5. Medications
   A. DO NOT administer analgesics until:
      1) Neurological and abdominal injuries have been ruled out
   B. Administer pain medication as needed.
      1) Use Morphine 2 - 15 mgs IV titrated for effectiveness. Initially administered q 1-2 hrs. PRN
   C. Analgesics may be given only intravenously!
      1) Intramuscular medications will be absorbed slowly and erratically.
      2) Multiple intramuscular doses may lead to overdose.
   D. Record all medications given.
6. Wound Management
   A. Remove jewelry.
   B. Remove chemicals with copious amounts of water or saline.
      1) Be sure to irrigate eyes that may have become in contact with chemicals.
   C. Remove any gross contaminants using sterile technique.
   D. Cover patient with Dry sterile or clean sheets.
   E. Keep patient warm! *
      1) Never put ice on burn wounds.
      2) Do not soak patients with cold or iced solutions.

* Burn patients can not control body temperature and must be kept warm to minimize shock.

   F. DO NOT apply topical agents if there are plans for immediate transfer. If transport is delayed for several hours, apply silvadine cream to burned areas.
   G. Elevate burned arms and legs higher than heart level. Head may be elevated 30 to 45 degrees if patient is not in shock and has no cervical spine injury.
   H. Evaluate for circulatory compromise in areas of circumferential third-degree burns.
      1) DO NOT perform escharotomies if transfer is imminent (within 6 hours of injury) and palpable pulses are obtainable.
      2) If chest burns restrict ventilation, even with intubation and mechanical assistance, escharotomies of the chest should be done ONLY after phone consultation with the burn center.
   I. Laboratory work *
      1) Complete blood count
      2) Serum electrolytes
      3) Arterial blood gases
      4) Carboxyhemoglobin, if indicated
      5) Serum glucose, osmolality, urea nitrogen, creatinine

* Do not delay transfer while awaiting laboratory results. These can be communicated by phone as they become available.

TRANSPORT PATIENT with:
1. Copy of medical record
   A. History of burn incident
   B. Treatment rendered (including medications and fluids given)
   C. Laboratory and xray results available

* DO NOT delay transport while awaiting results

2. Patent airway, adequate ventilation
3. Intravenous access and fluids started
   A. Mark IV containers

Although seldom necessary, the referring physician, in consultation with the Burn Center, may activate the burn transport team from the Baltimore Regional Burn Center. In this case, SYSCOM will arrange transport for the team to the referring hospital.

THE FRANCIS SCOTT KEY MEDICAL CENTER
a Johns Hopkins Health System member institution

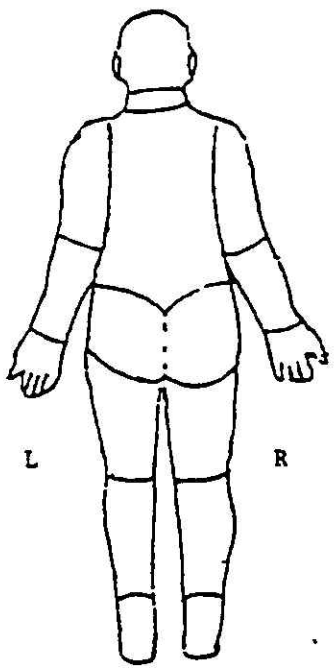
BALTIMORE REGIONAL BURN CENTER

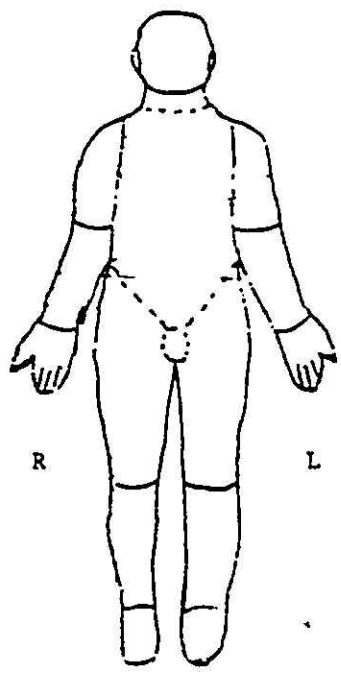
ADMISSION BURN EVALUATION SHEET

Date of Admission: _____ **Weight:** _____

AREA	PERCENT OF BURN					SEVERITY OF BURN		TOTAL PERCENT
	0-1 Year	1-4 Years	5-9 Years	10-15 Years	ADULT	2°	3°	
Head	19	17	13	10	7			
Neck	2	2	2	2	2			
Ant. Trunk	13	17	13	13	13			
Post. Trunk	13	13	13	13	13			
R. Buttock	2½	2½	2½	2½	2½			
L. Buttock	2½	2½	2½	2½	2½			
Genitalia	1	1	1	1	1			
R.U. Arm	4	4	4	4	4			
L.U. Arm	4	4	4	4	4			
R.L. Arm	3	3	3	3	3			
L.L. Arm	3	3	3	3	3			
R. Hand	2½	2½	2½	2½	2½			
L. Hand	2½	2½	2½	2½	2½			
R. Thigh	5½	6½	8½	8½	9½			
L. Thigh	5½	6½	8½	8½	9½			
R. Leg	5	5	5½	6	7			
L. Leg	5	5	5½	6	7			
R. Foot	3½	3½	3½	3½	3½			
L. Foot	3½	3½	3½	3½	3½			
				Total				

Code: Blue areas indicate 2°
Red areas indicate 3°





REV. 1/88
FSKMC # 6380-001

Plans for a four-bed pediatric burn unit and more intensive burn research at the Baltimore Regional Burn Center are closer to becoming a reality due to the efforts of the Baltimore City Firefighters and the Covenant Guild, Inc., who have pledged financial support for the two projects.

This summer the Covenant Guild pledged $25,000 over a two-year period to equip a four-bed pediatric burn unit with intensive-care equipment. To date, the Firefighters have already raised $6,000, with $4,000 donated for the purchase of a laminar flow hood, which provides a germ-free environment for the conduct of burn research.

According to Andrew Munster, M.D., Director of the Baltimore Regional Burn Center, approximately 60 children with major burns are treated each year by the Burn Center staff in the pediatrics department directly below the Burn Center. Plans for reconstructing a major portion of the pediatric intensive care unit as a self-contained four-bed pediatric burn

unit have been discussed during the past three years, but funds were unavailable to support the project. To emphasize the importance of the proposed project, Dr. Munster points out that the closest pediatric regional burn centers are currently located in Boston and Cincinnati. Guild president Marge Edelstein, who became aware of the need for a separate burn unit for children through her work at the Maryland Institute for Emergency Medical Services, foresees no problem in raising the $25,000 within the two-year period.

Expansion of services offered to burn patients is only one way the Baltimore Regional Burn Center is trying to improve burn care. Through the Center's research program directed by Richard Winchurch, Ph.D., efforts are being made to discover substances that will enhance the immunization response in burn patients and thus reduce mortality. Their efforts are furthered by the new piece of equipment, the laminar flow hood, recently donated by the Baltimore City Firefighters.

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In recognition of their support, the burn research center was dedicated to the Baltimore City Firefighters last May.

The contributions of the Firefighters are especially important because of the shortage of government and foundation funds for burn research. Dr. Munster notes that approximately $3.40 in federal funds is ~~being~~ allotted per patient for cancer research while approximately one cent per patient is allotted for burn research. Yet burns are considered the worst form of trauma that a patient can sustain.

Burns affect the skin, the body's largest organ, and disrupt many body systems. Patient survival depends primarily on the age and physical condition of the patient and the size of the burn wound and on the patient's ability to resist infection. Little can be done to dramatically affect either the patient's age or size of his wound; but the Burn Center's research staff hopes to be able to help burn patients combat infection more effectively.

4

Dr. Winchurch points out that a patient's immunization system or host-defense mechanism is depressed when he is severely burned. Despite advances in antibiotics during the past years, this situation has not improved significantly. Dr. Winchurch, assisted by ~~Bernard~~ Parnell Keeling, M.D., a burn research fellow, are working to discover substances that will enhance the body's immunization system. Lymphocytes from the blood of burn patients are cultured and stimulated with common antigens. (Lymphocytes are the body's defense against infection.) After the elicited response is measured, a different substance is introduced into the culture to see if the immunization response is enhanced. By using lymphocytes from the blood of burn patients, Drs. Winchurch and Keeling can obtain a more accurate idea of a patient's immunization capability without jeopardizing the patient. Absolute sterility is assured in the culture by the system of air circulation maintained in in the laminar flow hood. An alarm is sounded if the germ-free environment is not maintained.

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The burn research and the expansion of facilities being furthered by the contributions of the Firefighters and the Covenant Guild contribute to the ~~the~~ Baltimore Regional Burn Center's goal of giving every burn patient a better chance of living a productive life.

First-Responders Attend Burn Workshops

When I asked how badly burned I was, the ambulance attendant turned his eyes away.

I knew I was burned bad when the ambulance crew didn't want to touch me.

Such comments sometimes punctuate the stories of burn patients at Baltimore City Hospitals' Burn Clinic as they recall "how it happened" and their initial contact with rescue personnel. The burn patients share their stories at the request of first-responders who are participating in a workshop sponsored by the Division of Emergency Medical Services and the Baltimore Regional Burn Center.

According to Beth Helvig, Nurse Clinician at the Baltimore Regional Burn Center, first-responders--who usually see the patient only at the scene of the accident, rarely after the patient has recovered--often have "distressing images of burn patients." Patients, in turn, read the horror in their eyes and hear the despair in their voices. Lou Jordan, DEMS Paramedical Training Specialist, notes that most patients vividly remember how EMT's handled their injuries. In fact, the "attitudes of EMT's and the initial care they provide often set the pace for how the patient responds to further care in the hospital."

The burn workshops attempt to help first-responders to become better attuned to their feelings about burn patients; to improve assessment and treatment skills; and to offer an insight into the long-term help burn patients need in healing their bodies and reconstructing their lives.

During the burn workshops, there are lectures, films, and discussions on the initial care of the burn patient, the personal responses of workshop participants to burn patients they have handled, and the components and resources of Maryland's EMS system. This session is taught by Peggy Trimble, DEMS

Nurse Coordinator, and Lou Jordan. Participants spend the second day at the Baltimore Regional Burn Center, observing patients at various levels of treatment and therapy, including outpatients at the Burn Clinic. Improved burn assessment and stabilization skills are stressed, as well as recognition of special problems (for example, potential respiratory problems might be indicated by singed nasal hairs or voice changes in the patient). First-responders also practice assessing the degree and area of burns.

Because of an increase in burn accidents caused by explosions on campgrounds and boats--places not easily accessible to ambulance attendants--workshops for first responders are being offered initially to police patrolling Maryland's parks and waterways. The course will then be available to Medevac troopers and EMT's.

LOCAL FIREFIGHTERS RAISE FUNDS FOR BURN RESEARCH

Although the Baltimore Regional Burn Center has recently completed a major renovation of its facilities to improve burn care offered to patients in the surrounding four-state area, there is a shortage of funds for burn research to further improve treatment.

According to Andrew M. Munster, M.D., Director of the Burn Center, the lack of funds available for burn research is due partly to the fact that the importance of the burn problem has not yet been fully realized. "Consider that 2 million people in the United States are burned; about 100,000 get hospitalized; 20,000 die." More numbers are claimed by cancer and heart disease, but "the burn problem outweighs its numbers considerably. Many burn victims are children and many are men and women in their productive years." Of the 6,000 or so hospitals in the United States, however, only 90 have special services for burns and less than 20 qualify as burn centers.

The "burn problem" is further compounded by the neglect of the federal government to appropriate enough funds for research. "Compare the $3.40 per patient for cancer research to the one cent per patient for burn research."

In an effort to remedy this situation, the Baltimore City Firefighters (Locals 734 and 964) are conducting fundraising events on a continuing basis to benefit the research unit at the Burn Center. On June 21, they plan to present the first check to Dr. Munster.

Working toward their goal of raising $5,000 - $10,000 during a one-year period, they have scheduled events such as bull roasts, dances, and a golf tournament.

Charlie Williams (Local 734) and Gustave Calo (Local 964) are chairman of the fundraising efforts.

Firefighters form 'Bucket Brigade'

Burn center gets $10,000 check

By Robert Hilson Jr.

A $10,000 check was awarded yesterday to the Burn Center of the Baltimore City Hospital by the Baltimore Fire Fighters Association.

The money, awarded by Edward Heckrotte, association president, is to be used in part for buying medical equipment for the center, and for researching new methods to treat and cure burn victims.

"When we first started we first expected to raise around $5,000," Mr. Heckrotte said. "Last year we raised $5,000. This year the citizens of Baltimore reacted incredibly and we raised $10,000. Who knows, next year we expect to give a check of at least this size and probably more."

This year's project, known as "The Bucket Brigade", was an effort by the city firefighters to strengthen the facilities of the burn center.

With the theme of "Help splash the fires of human misery", firefighters on their own time led a two-day drive in April to collect funds to be donated to the burn center.

The firemen, holding buckets, stood in shopping areas and collected change, mostly nickels and dimes, from shoppers.

"We didn't publicize our efforts to raise the money, we had no idea we would raise anything close to $10,000," said firefighter Richard Coba, from Engine Co. 56.

"When we started we didn't ever have the buckets for the money. If it weren't for Gino's, Sherwin Williams and a few other companies, we couldn't of done anything."

The burn center is the primary facility of its kind in the state.

"We get patients from all over," says James Scheulen, physican's assistant at the center, "We treat about 240 patients here yearly. We are to burns what trauma is to shock."

Currently a staff of about 25 nurses and doctors man the facility, which is equipped to handle a maximum of 45 burn patients at a time.

8-year-old beat the odds

[Continued from Page D 1]

enough for her body to get rid of the infection on its own."

He believes that one of the reasons Dawn is alive is because Maryland has "a special place where children so desperately ill can get the same care as adults."

Thousands of young victims across the country become viral pneumonia victims each year.

The list of viral causes is long. Examples include influenza, coxsackie, chicken pox and measles.

In Dawn's case, the cause is unknown. One day she was a bubbly third-grader at Federal Hill elementary school.

CITY OF BALTIMORE

JOHNS HOPKINS UNIVERSITY
SCHOOL OF MEDICINE
Department of Surgery

BALTIMORE REGIONAL BURN CENTER
BALTIMORE CITY HOSPITALS
4940 EASTERN AVENUE • BALTIMORE, MD. 21224

396-8866
M. Nowlcheck

ANDREW M. MUNSTER, M.D., *Director*

April 21, 1978

Mrs. Jack Edelstein
President
Covenant Guild, Inc.
821 Painted Post Court
Baltimore, Maryland 21208

Dear Mrs. Edelstein:

I understand that there is a possibility that the Guild may be interested in supporting some activity at the Baltimore Regional Burn Center.

The needs for the adult section of the Center are pretty well taken care of by the City and by the State. The situation with burned children, however, is different. The burned children - about 60 a year - are taken care of by our staff on the pediatric floor, directly below the Burn Center, and there is no special facility for them. It has been our plan for two or three years now to reconstruct a portion of the pediatric intensive care unit as a four-bed designated pediatric burn unit. There have been no funds forthcoming for this plan.

The plan would involve a minimal amount of construction, the drawing up of some partitioning, electrical outlets, etc. and the equipping of four beds with intensive care equipment including monitors and similar items. The equipment for four beds would cost in the range of $20,000 to $25,000. If funding were forthcoming for this equipment, I have assurances from Mr. George Havercheck, Executive Director of Baltimore City Hospitals and Mr. Thomas Carroll, Director of Fiscal Management that the City would commit itself to the costs of construction of such a four-bed unit.

This letter, therefore, is to indicate our very great preliminary interest in your support. If the leadership of the Guild feel that this project is of possible interest to you, then I would be delighted to enter into more detailed discussions with you.

Thank you very much indeed.

Yours sincerely,

Andrew M. Munster, M.D.
Associate Professor of Surgery

AMM:arc
cc: Mr. Ron Kropp, John Neff, M.D.

CITY OF BALTIMORE

WILLIAM DONALD SCHAEFER, Mayor

DEPARTMENT OF HOSPITALS

4940 Eastern Avenue, Baltimore, Maryland 21224

June 5, 1978

Mrs. Jack Edelstein
President
Covenant Guild, Inc.
821 Painted Post Court
Baltimore, Maryland 21208

Dear Mrs. Edelstein:

A meeting took place today between Mr. Earl Mechtensimer, Deputy Director of Planning and Development, Mr. Thomas Carroll, Director of Fiscal Management, Dr. John Neff, Chief of Pediatrics, Dr. Dennis Headings, Staff Pediatrician and myself.

The group was enthusiastic about the pledge by your Guild of attempting to raise between $20,000 and $25,000 to equip a major Pediatric Burn Unit at City Hospitals. We understand that although an attempt would be made to raise these funds within a year, a second year may be needed to complete the project. An existing area on the pediatrics floor was designated tentatively as the site of the new unit.

I am sure you will understand that because this is a hospital, and because the hospital is part of the City of Baltimore, a major renovation like this has to go through the approval of a number of official planning and licensing boards. None of those present at today's meeting saw a great deal of difficulty about fulfilling the requirements of these various bodies, however, the stages of planning, inspection, and blueprint design will take some time. An estimate must be made of the fiscal commitment of the hospital for construction and other expenses not covered by your pledge.

By copy of this letter I am going to ask Mr. George Havercheck, the Executive Director of Baltimore City Hospitals, to be kind enough to take up this correspondence with your Guild and to keep you posted of the progress from now on. I will be very happy to continue to act as the medical liaison representative of the hospital to come and meet with your group when the time comes, and present plans, etc. Any official news from the hospital should come from the individual who has the authority to give you the facts as our plans progress.

We are very excited at the prospect of embarking on this joint venture with your organization.

Thank you very much.

Yours sincerely,

Andrew M. Munster, M.D.
Associate Professor of Surgery

AMM:arc

cc: Mr. George Havercheck, Mr. Earl Mechtensimer, Mr. Thomas Carroll, John Neff, M.D., Dennis Headings, M.D., C. T. Su, M.D.

CITY OF BALTIMORE

WILLIAM DONALD SCHAEFER, Mayor

DEPARTMENT OF HOSPITALS

4940 Eastern Avenue, Baltimore, Maryland 21224

July 31, 1978

Mrs. Jack Edelstein
President
Covenant Guild, Inc.
821 Painted Post Court
Baltimore, Maryland 21208

Dear Mrs. Edelstein:

This is to thank you and the Covenant Guild, Inc. for your interest in assisting Baltimore City Hospitals in developing a Pediatric Intensive Care Burn Unit separate from the Adult Regional Burn Center now operated by Andrew M. Munster, M.D.

It is the intent of our Surgical and Pediatric Departments to construct a self contained intensive care burn unit within the Department of Pediatrics in order to take advantage of specially trained pediatric nurses, the pediatric patient educational, physical therapy and recreational therapy programs and as the patient recovers, taking advantage of the benefits derived from patients associating with those closer to their own ages. The need is great. As you know, with the exception of the Baltimore City Hospitals the closest pediatric regional intensive burn centers are located in Boston, Massachusetts and Cincinati, Ohio.

Towards this goal of developing a Pediatric Intensive Care Burn Unit at the Baltimore City Hospitals, enclosed please find a schematic drawing and a construction/ equipment budget for your perusal and support. Although the total cost is seventy-one thousand five hundred dollars ($71,500) the Hospital could underwrite the labor portion of this budget thereby reducing the overall cost by sixteen thousand dollars ($16,000). Further, some of the monitoring and physical therapy equipment could be phased in over an extended length of time or secured from other grant sources thus reducing the total project cost at this time to approximately twenty-five thousand dollars ($25,000).

Thank you for your interest and concern for patient care at the Baltimore City Hospitals. If you have questions concerning this project, please call Earl C. Mechtensimer, Deputy Director for Planning and Development (396-9072).

Sincerely,

George Havercheck
Executive Director

/mkk

Enclosure

Budget

Pediatric Intensive Care Burn Unit
5th Floor
Baltimore City Hospitals
Baltimore, Maryland 21224

I. Construction:

(a)	Four beds plus nursing station	Materials	$16,000
		Labor	14,000
		Sub Total -	$30,000
(b)	Tubroom	Materials	$2,000
		Labor	$2,000
		Sub Total -	$4,000
		Total Construction	$34,000

II. Equipment:

(a)	Three Hewlett-Packard Monitors and wall brackets	$26,000
(b)	One portable appollo warmer	300
(c)	One Borj & Warmer tub-plinth & hoist with accessories	9,400
(d)	Three transducers	1,300
	Total Equipment	$37,500
	Grand Total	$71,500

DR. MUENSTER

Estimated 2 million people in US are burned. about 100,000 get hospitalized; 20,000 die

As health problem, doesn't seem as bad as cancer or heart disease; but burn victims are usually men and women in their productive years & children; so the "problem outweighs its numbers considerably." Problem is compounded by neglect of federal goverentmentto appropriate enough funds for research and treatment. Compare $3.40 per patient for cancer research to 1 cent per patient for burn research

Especially important problem in children; injury is #1 cause of death in children; burns considered in that category

6,000 hospitals in US; only 90 have special services for burns; lesss than 20 qualify as burn centers

burn treatment center is considered one not only having access to facilities for treatment of all injuries but actively involved in research

Expanded burn center opened doors Nov. 3, 1976

10 beds for adults, 5 for children for acute care; 15 beds for subacute care to be opened (these patients are now sent to other hospitals or home)

200-250 patients can be admitted; previously 100 patients

Those Treated:

all burns larger than 30% body surface on adults

all burns larger than 20% body surface on children

all burns of less percentage that involve crucial areas such as face, hands

special burns such as electrical and chemical burns

"Team concept is the main jjustification for the center"

Patient & family will probably have emotional , psycholoogical problems to cope with during the long healing process

Team: Doctors, nurses; physical & occupational therapists; psychologist, psychiatrist; teachers; medical social workers; rehabilitation guidance counselors; clergy.

Emphasis on team concept means that they're not considered as consultants to be called when needed but they start meeting with the patient during the first 48 hours and then come every day after that

For example, elderly lay with 20% burns resulting from smoking in bed

is admitted. Medical social worker is immediately on the spot.Becomes familiar with family situation and problems at home so that when patient is medically fit,she will be prepared economically & emotionally to go home

see patient history ← Entire team goes on rounds—all aspects of patient problems discussed e.g., vocational rehabilitation counselor may rpport that patient is being taught new skill for work or furthering existing skill; occupational therapist reports on splinting; psychiatrist reports on emtional problems

Most community hospitals can care for a burn patient in medical management but do not have the availability of ancilliary help aimed at getting patient back to normalcy

Team contributes on a day-to-day basis

Center handles small burns as a service to the community(e.g., woman with minor burns on legs treated as outpatient)

Average length of stay for major burn patient who survives is 2 months

STAFF; "We're very lucky to have these people on our staff"

Nurse clinician—Beth Helvig—MA—training in Dallas—concerned with inservice-teaching; every nurse who has satisfactory prior training still receives intensive orientation sessions; formal & on-the-job training is also given

Head Nurse

Fulltime occupational therapist—works with bed-ridden patients; concerned with early mobilization; splinting

Parttime physical therapist—takes over as patients become better · crafts & games

Physician's Assistant—Jim Shulan—contributes to patient care; takes expertise to EMTS and paramedics; assists physicians in areas where there are not enough physicians; presently concerned with outpatient burn treatmetn in the Emergency Departmetn at City Hospital concerned with quality of patient care and followup care

Microbiology Researcher—Mr. Opel—conducts environmental surveillance; separate from the hospital; has elaborate system of culturing organism; will be helpful in treating patients who develop an antibiotic resistance or if new organism appears

Research—laboratory—PH.D. —

main areas of interest: infection & host resistance; also investi gating new topical cream and new antibiotic;

Medical Social Worker & Occupational Therapist are developing means of measuring outcome of burn care(e.g., performance of patient in the community, income, psychological impact) Must find means of measuring & then improve results.

"Death and survival are not critical issues in burn care. Both are related to burn size and age. There is little that can be done to dramatically change this situation. But we can improve the result of burn care in those that survive." Can work to improve such things as burn patients' adaptability to community life (earning adaptability, social adaptability, etc.)

Almost 20% of patients require psychiatric care. Some arrive with burns resulting from alcohol abust, drug abuse; others need psychiatric help for problems resulting from burns—anxiety, depression, emotional problems

"It's almost impossible to describe what a severe burn does to the family. It turns it upside down for years. I see part of our job here as keeping the family supportive during the time of stress." Family is provided lodging; have frequent interviews; yet admits it's time-consuming. "If you're maintaining an 80% burn, you have little time to sit down and talk."

Burn Victims Aid Society—encourages patients to talk about common problems, especially after they leave hospital; chairman Fred Robinson works with Betsy Blades (medical social worker). Group about 4 yrs. old.

Baltimore City Firefighters Fundraising efforts

✓Transportation & admission policies formed in cooperation with EMS

✓Serves southern Pennsylvania, Md. side of DC, sometimes W. Va. & Dela.

Burn Clinic—part of burn service aspect

✓Center is full teaching affiliate of Hopkins Hospital: chief resident in plastic surgery; burn fellow; first year resident; intern; rotating affiliate resident from hospital other than Hopkins (1 per month)

Need about 14 more nurses for subacute area to open

Traditional turnover rate of nurses is high, but not at City

Nurses assigned to specific patients

CENTER CENSUS: 10
Pediatrics: 3
Burn Patients Elsewhere: 1
Admissions: 4
Transfers: 0
Discharges: 2

BURN ROUNDS
Thursday, March 3, 1977
3:00 P.M.
Burn Center - A6W

Name	History No.	Date of Adm.	Age	Date of Burn	% BSA	Dispostion	Type & Area of Burn
Van Hook, Charletha	69-75-26	1/16/77	23	1/16/77	17%	STSG to Feet 3/2	Mostly 3rd
Bland, Mable	37-20-42	1/21/77	49	?	8%	STSG 3/2	Lye
Jowanowitch, Frank	69-84-72	2/7/77	64	2/7/77	17%	TE 2/28 STSG 3/3	All FT
Barnes, Valetta	69-86-95	2/11/77	56	2/11/77	27%	AgSD	Gas Explosion
Ruth, Russell	64-02-12	2/11/77	30	2/11/77	25%	STSG 2/23 Exc & Deb. 3/3	Kerosene sniffing
Brooks, John	63-66-53	2/18/77	21	2/18/77	19%	Cerium	
Plutschak, Mark	69-85-53	2/8/77	18	2/8/77	5%	STSG 3/1	FT, bleach & lye
Bustard, Cara	69-94-18	2/28/76	14	2/28/76	12%	AgSD	2° alcohol flame
Pfetzing, Margo	69-93-65	2/26/77	52	2/25/77	33%	AgSD	Flame Burn, largely 3°
Rollins, Virginia	69-93-11	2/25/77	84	2/24/77	6%	AgSD	2° Hot Water Scald
PEDIATRICS A5C							
Anderson, Amy	69-71-94	1/9/77	6	1/9/77	67%	STSG arms 2/14	Almost all 3rd deg flame
Hobbs, Jeffrey	69-93-94	2/27/77	18mo	2/27/77	15%	AgSD	2° Hot water scald
Croy, Gabriel	69-28-83	2/19/77	4mos	2/19/77	11%	AgSD	Flame - FT
A3E							
Miller, Larry	69-87-29	2/12/77	20	2/12/77	7%	STSG 3/1	Gasoline