

MULTNOMAH COUNTY OREGON

BOARD OF COUNTY COMMISSIONERS
ROOM 605, COUNTY COURTHOUSE
1021 S.W. FOURTH AVENUE
PORTLAND, OREGON 97204

GLADYS McCOY • Chair • 248-3308
PAULINE ANDERSON • District 1 • 248-5220
GRETCHEN KAFOURY • District 2 • 248-5219
RICK BAUMAN • District 3 • 248-5217
• District 4 • 248-5213
JANE McGARVIN • Clerk • 248-3277

AGENDA OF
MEETINGS OF THE MULTNOMAH COUNTY BOARD OF COMMISSIONERS
FOR THE WEEK OF
May 1 - 5, 1989

Tuesday, May 2, 1989 - 9:00 AM - Legislative Briefing . . Page 2
9:30 AM - Planning Items followed by
Informal Briefings

Tuesday, May 2, 1989 - 1:00 PM - Executive SessionPage 4
1:30 PM - Joint Emergency Policy Board/
Board of Commissioners Meeting
followed by Informal Briefing
and Informal Review of Formal
meeting May 4

Thursday, May 4, 1989 - 9:30 AM - Formal. Page 5

Tuesday, May 2, 1989 - 9:00 AM

Multnomah County Courthouse, Room 602

1. Legislative Briefing (if needed) - Fred Neal, Howard Klink
2. Informal Review of Bids and Requests for Proposals:
 - a) SE 242nd Drive
 - b) Developmental Disabilities Program/Earl Intervention Services
 - c) Administrative Services for Multnomah County's Medical, Vision and Dental Benefits Plans

FORMAL ACTION REQUIRED

3. In the matter of Decisions of the Planning Commission of April 10, 1989 for acceptance and implementation by Board Order:

- PR 2-89 Approve, requested change in the Centennial Community Plan, redesignating this property from Urban Medium Density Residential to Neighborhood Commercial; and
- ZC 2-89 Approve, subject to a condition, amendment of Sectional Zoning Map #400, changing the described property from MR-3, medium density residential district to NC, neighborhood commercial district, all for property at 14815 SE Division Street
- ZC 4-89 Approve amendment of Sectional Zoning Map #73 and #74, changing the described property from MUA-20, multiple use agricultural, to EFU-76, WRG, exclusive farm use, Willamette River Greenway, all for property located at 14730 NW Gillihan Road
- ZC 5-89 Deny requested amendment of Sectional Zoning Map #415, changing the described property from LR-10, Low Density Residential District, minimum lot size of 10,000 square feet, to LR-7, Low Density Residential District, minimum lot size of 7,000 square feet; and
- LD 6-89 Deny tentative plan for a Type III Land Division, all for property located at 4146 SE 141st Avenue

In the matter of the decisions of the Planning Commission of April 10, 1989, reported to the Board for acknowledgement by the Presiding Officer:

- CU 5-89 Approve, subject to conditions, conditional use request to add a boat lift and repair facility at Lucky Landing Moorage; and
- WRG 3-89 Approve requested WRG, Willamette River Greenway Permit, all for property located at 12900 NW Marina Way
- CU 4-89 Approve, subject to conditions, conditional use request to develop the subject property with a non-resource related single family residence, for property located at 46317 E Larch Mountain Road

INFORMAL BRIEFINGS

4. Briefing on progress by Assessment & Taxation in defining neighborhoods as part of the appraisal process for the 1989-90 tax roll - Janice Druian
5. Presentation of Youth Planning Document, which incorporates demographic trends, service gaps, services provided, and emerging issues for youth in Multnomah County - Duane Zussy, Michael Morrissey

PUBLIC TESTIMONY WILL NOT BE TAKEN AT INFORMAL MEETINGS

Tuesday, May 2, 1989 - 1:00 PM

Multnomah County Courthouse, Room 602

EXECUTIVE SESSION

Executive Session regarding pending litigation (allowed under ORS 192.660 (1)(h))

JOINT EMERGENCY MEDICAL SERVICES POLICY BOARD
AND
MULTNOMAH COUNTY BOARD OF COMMISSIONERS

1:30 PM (following Executive Session)

✓ EMS Public provider concept, financial implementation plan

Testimony shall be limited to five (5) minutes

The following will be heard at the conclusion of the Emergency Medical Services Hearing:

INFORMAL BRIEFING

Present findings in relation to a four year research project on Probation Management in Multnomah County which was funded by the Edna McConnell-Clark Foundation - John Angell, Todd Clear (Rutger's University)

Informal Review of Formal Agenda of May 4

PUBLIC TESTIMONY WILL NOT BE TAKEN ON INFORMAL BRIEFINGS

Thursday, May 4, 1989, 9:30 AM

Multnomah County Courthouse, Room 602

Formal Agenda

REGULAR AGENDA

BOARD OF COUNTY COMMISSIONERS

- R-1 In the matter of the appointment of Sharon Nesbit (Troutdale/Gresham), Dutch Holub (County Technical Staff), Marge Schmunk (Troutdale), and Robert C. Wiggin (Troutdale) to the Edgefield Task Force
- R-2 Proclamation in the matter of Proclaiming the week of May 7-13, 1989 Be Kind to Animals Week in Multnomah County

DEPARTMENT OF ENVIRONMENTAL SERVICES

- R-3 Resolution in the matter of Substituting Light Rail Transit in the I-205 Freeway (for bus lanes allowed when freeway was built) [Continued from April 20]

DEPARTMENT OF GENERAL SERVICES

- R-4 In the matter of ratification of an Intergovernmental Service Agreement with Washington County Juvenile Department and Multnomah County Information Services Division, for the providing of computer time for the Tri-County Juvenile Information System, for period January 1, 1989 to June 30, 1989

DEPARTMENT OF HUMAN SERVICES

- R-5 In the matter of ratification of an amendment to an Intergovernmental Agreement with Oregon Health Sciences University, to restate terms and conditions in the existing agreement to manage and authorize payment for involuntary hospitalization of patients diverted from Dammasch State Hospital, due to overcrowding, and allowing payment for emergency holds occurring on or after April 1, 1989
- R-6 In the matter of ratification of an Intergovernmental Agreement with Oregon Health Sciences University, to provide emergency hold services to patients in pre-commitment status, for period May 1, 1989 to June 30, 1990

DEPARTMENT OF JUSTICE SERVICES

- R-7 In the matter of ratification of an intergovernmental agreement with the U.S. Department of Agriculture, Forest Service, for the Sheriff's Office to enforce Federal/State laws and regulations in the National Forest, for period May 25, 1989 to September 4, 1989
- R-8 Notice of Intent from Office of Women's Transition Services to apply for federal grant (Office to Substance Abuse Prevention: Public Health Service) (\$182,480) for a project to coordinate services to substance abusing pregnant women

THE FOLLOWING WILL BE HEARD FOLLOWING THE FORMAL AGENDA

WORK SESSION

Approximately - 10:00 A.M.

1. Department of Justice Services Reorganization

Thursday Meetings of the Multnomah County Board of Commissioners are recorded and can be seen at the following times:

Thursday, 10:00 PM, Channel 11 for East and West side subscribers

Friday, 6:00 P.M., Channel 27 for Rogers Multnomah East subscribers

Saturday 12:00 PM, Channel 21 for East Portland and East County subscribers



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May 2, 1989

Mr. Duane Zussy, Director
Department of Human Services
426 SW Stark
Portland, OR

Dear Mr. Zussy:

Be it remembered, that at a meeting of the Board of County Commissioners held May 2, 1989, the following action was taken:

Public Hearing - EMS Public provider concept,)
financial implementation plan)

Dr. Gary Oxman, County Health Officer, said today's report is on the cost analysis of the public provider concept for Emergency Medical Services. He said the system would include ALS first response in County incorporated cities and enhance BLS first response served by Fire Protection Districts, and patient transport by ambulance owned and operated by Department of Human Services (911 patients only). Transport for non-emergency patients will continue to use private ambulance company service providers within the system. He added that the analysis was prepared with the assistance of County EMS, Personnel, Health, Budget, Human Services, and Health Officer Offices, and first responder agencies. He said he feels that the program can be accomplished, and that cost analyses are realistic and conservative. The goal of the analysis was to see what it would cost to provide the service, and whether the costs could be balanced by user fee revenue. He described the process used for determining costs and revenues. The document being considered is a first draft document and contains more information than that given the Board in April; but that there is more work to do before the final document is prepared.

Joe Acker, Emergency Medical Services Director, presented a slide presentation, discussed definitions, and explained relationships and comparisons between costs and user fee revenues; and described how data collection was obtained. Actual indirect costs are not clearly defined in this document, and figures given can change as systems changes. He added that assumptions were made based upon data received from various sources, therefore, cost

estimates and estimated revenues may be either undervalued or overvalued. He referred the Board to page 29 of the document for estimated revenue totals, and said the revenue summary sheet has not been distributed, but that he will have copies made for the Board.

Commissioner Bauman asked questions regarding totals for transport from pages 28 and 29.

Mr. Acker explained that the "8,000 other transport totals", and how determinations were made, and referred to page 6 - "estimated transport volume figures".

Dr. Oxman responded to Commissioner Bauman's questions regarding cost paybacks, and said that third party payments comprise a large bulk of assumed numbers for collection rates.

Tom Fronk, Health Division, said there is a double multiplier in effect on page 6. Some of the third party payers pay less than 100%, i.e., Medicare pays 77%, but the remainder can be collected from clients who will pay 60% of the balance, thus, 80% plus is collected on the account.

Commissioner Bauman discussed expected revenues from those patients who do not have health plans, and said one third of the transports will only pay a maximum of 60%.

Mr. Fronk said that those self paid no insurance categories will pay only 25%, but other third parties will pay 60%.

Commissioner Bauman referred to page 18 and said staff have reported costs were estimated high and revenue low, but that EMTs salaries were estimated at entry level wages.

Mr. Acker said Employee Relations performed a salary survey, and recommended salary levels from information obtained, but does not include local union salary schedules. County policy is that individuals will be hired at entry level unless an exception is approved by the Board. Proposed salary schedules are higher for paramedics now paid by present systems. He reported that paramedics who appeared at the Medical Advisory Board Meeting last week, were encouraged to appear today to testify before the Board; and that though the Medical Advisory Board raised several issues, no action was taken.

Discussion was held regarding how collection rates were determined for proposed estimates.

Commissioner Bauman referred to page 34, and asked for further clarification of fixed costs and how the calculations were made, but added that he feels that figures do not add up.

Mr. Acker responded to Commissioner Bauman's questions regarding fixed costs, and added that budget fixed costs and his total systems fixed costs were determined by different methods. He further clarified the processes for determining those costs.

Mr. Fronk further explained the processes used by he and Mr. Acker to determine budget and systems fixed costs.

Mr. Acker explained, in response to Commissioner Anderson's questions, the processes for determining cost splits for both BLS and ALS costs, and described how projections for each were made. He also discussed transport costs procedures followed by both Kaiser and Medicare, and added that criteria for projections were based upon the criteria included in approved RFPs.

Dr. Oxman said that the average ALS transport cost is \$520, and BLS \$268, but that it is expected that the County cost will be approximately \$412. However, this is a guesstimate, and data is incomplete at this point.

Commissioner Kafoury said she feels that it is important to factor in inflation costs for future projections of equipment and personnel costs.

Mr. Zussy discussed forecasting costs for the future, and added it would be important to hold costs at present levels for the next five years, but that people are concerned about the dramatic increases in medical care over the past few years which makes forecasting difficult.

At this time, Commissioner Bauman arrived.

Mr. Scott asked when projections would start tapering off.

Mr. Fronk explained that there probably will be an increase of \$500,000 in costs for the second year, but that in ten years it should drop off.

At this time, Commissioner Bauman left.

Christopher Thomas, attorney for AA Ambulance, said that he feels the data as presented is difficult to understand, and that figures are difficult to verify; and in addition some assumptions are incorrect.

At this time, Commissioner Bauman returned.

Mr. Thomas discussed collection rates, and said that neither Mr. Acker nor his office staff have requested data from AA Ambulance other than basic line data. He discussed discrepancies between insurance and personnel cost figures used in the RFP and this document; and said that he feels some personnel proposals are not realistic, nor are the proposed collection rates, which he discussed at length. He added that purchasing ambulances is not adequately addressed in the document, and said that he feels the document should be revised by someone more used to doing this type of accounting. He replied to Mr. Scott's questions that he could not provide specific detailed information, but that he would be willing to provide any information requested.

Ray Van Beek, Certified Public Accountant, testified that Buck Ambulance has developed costing models; and that he feels the proposed document is not well organized, and that it appears to have been prepared by someone with little financial knowledge. He feels there are many errors throughout the document, and that the projected revenue is overstated by \$2 million dollars. Also the projected 80% collection rate would be more realistic if figured at 60-65%. He further discussed projected revenue errors he feels are included in the document, paramedical salary levels, and collection rates; and said that he feels cost figures are not adequate, and that the County will find itself operating at a large deficit.

Mark Drake, CARE Ambulance, discussed maintenance and mileage costs, and stated he feels that 26¢ per mile will not be adequate, but that a cost of \$1.09 is more realistic. He also feels that the proposed document does not include costs for maintenance of ambulances, engine overhaul costs, repairs due to accidents, or ambulance replacement.

Mike Anderson, Kaiser Permanente representative, testified in opposition to the proposal, but said that he does approve the effort to develop an ambulance service plan. He feels that a regional system should be established in order to coordinate services, and supports an ALS/BLS ambulance franchise system by a competitive bid process. He replied to Mr. Scott's question, that public systems in San Francisco and Los Angeles California contract with Kaiser to provide ambulance services.

Commissioner Bauman presented a proposal for Board consideration, discussed options, said he feels a single medical authority is necessary in any system chosen; and added that he feels the cost of service should be determined by actual costs plus a reasonable return on investment (15%) divided by the number of transports made, and that enhanced services should not be added to basic services

unless a reasonable rate of return can be realized. Two major concerns are quality of care and reduced costs which he feels can be accomplished by modifying and utilizing present systems.

Mr. Anderson said his preference would be a competitive bid approach with a single provider as a first step, and that he also feels that approach should apply to a regional system. He feels that a better cost structure is provided by Commissioner Bauman's proposal, but that an ideal system would be a regional approach.

Commissioner Kafoury said that the Board has not considered a regional system, and that she feels that Washington and Clackamas counties would first have to be convinced before that approach could be considered.

Richard Lazar, attorney specializing in EMS litigation, discussed his concerns about assignment of services areas, and authorization of EMS Director to issue permits and assign service areas. His concern is that present providers would be grandfathered which he feels doesn't address new players in the system. Even though quality of care can be assured as long as there is monitoring of the system, it is not necessarily true that the County is the most efficient and cost effective provider. The question remains "Who is going to provide service, and what is the size of the service area?" Legal liability questions remain the same regardless of what system is chosen, and that those who might sue the County now, would probably do the same under Commissioner Bauman's proposal. He recommended a regional approach for the most cost effective system for quality of care.

Commissioner Bauman responded to Mr. Lazar's statement by saying that there are many costs involved in cost effectiveness, and listed legal and staff costs for the County's decision to go to another system.

Mr. Lazar suggested that the timeline for implementation of another system will not be shortened much by Commissioner Bauman's proposal, and commented that Judge Crookham's decision caused a lot of problems and left the County with authority to assign one provider to one ambulance area; and that, in his opinion, Multnomah County will prevail. However, he feels that under either proposal on appeal, implementation will probably be quicker than through a public provider proposal which is just starting. If the Legislature and the Appeals Courts resolve questions, the authority issue will disappear and the timeline for implementation will be shortened.

Dr. Oxman said that today's testimony will bring about further checking of data, and requested Board authority to proceed with implementation procedures for a public provider ambulance service.

Commissioner Kafoury said she feels that staff should bring more information to the Board before she is willing to ask for further proceedings on a public provider proposal.

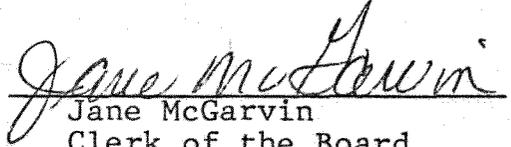
Bill Vandever, Commissioner Kafoury's staff, reported that staff is frustrated because they have not had an opportunity to review proposals.

Commissioner McCoy requested that Board staff meet with EMS staff to review and evaluate all proposals.

No other action was taken at this time on the above-entitled matter, other than Commissioner McCoy's request to staff.

Very truly yours,

BOARD OF COUNTY COMMISSIONERS

By 
Jane McGarvin
Clerk of the Board

jm
cc: Emergency Medical Services

①

Date 5/28/89

NAME Chris Thomas

ADDRESS Suite 400 2000 SW First
Street
Portland OR 97201
City Zip

I wish to speak on Agenda Item # EHS Proposal
Subject _____

____ FOR AGAINST

②

Date _____

NAME Ray Van Beek

ADDRESS 1221 SE Madison
Street
Portland OR 97214
City Zip

I wish to speak on Agenda Item # _____
Subject _____

____ FOR _____ AGAINST

③

Date _____

NAME Mark Drake

ADDRESS CARE Ambulance
Street
City Zip

I wish to speak on Agenda Item # _____
Subject _____

____ FOR _____ AGAINST

(4)

Date _____

NAME Mike Anderson

ADDRESS 3600 N Interstate

P. OR Street 97227
City Zip

I wish to speak on Agenda Item # _____

Subject _____

____ FOR AGAINST

Date _____

NAME Richard Lazar

ADDRESS _____

____ Street
____ City Zip

I wish to speak on Agenda Item # BALMUN

Subject Proposal

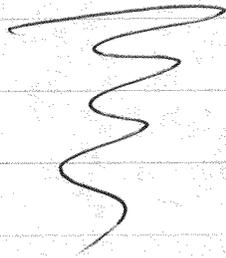
____ FOR _____ AGAINST

EMS - Information Log - 5/02/89

Recd	for mtg	Item	from
4/28/89	5-2	Public Provider Concept Financial Portion	EMS
4/4/89	4/4	EMS Medical Services Policy Board, April 4, 1989	"
5/1/89 ✓	5-2 ✓	Notice of EMS Meetings ^{4/28} 5/2 pg 5416 E/M/2 from Pub. Provider Concept - Financial "Special Considerations" (duplicate copy)	✓
5/2/89 ✓	5/2/89 ✓	Ordinance transmitted by EMS - Cost Breakdown	Bauman
✓	✓	Case Amb - Proposed Financial plan	Scopus Budget Case - Mark Orsola -

GMS

5/2/89





Emergency Medical Services

Multnomah County · City of Portland · Fairview · Gresham · Troutdale · Wood Village

MEMORANDUM

TO: Interested Parties

FROM: Emergency Medical Services Office *JA*

DATE: April 25, 1989

SUBJECT: Special Medical Advisory Board Meeting
EMS Policy Board and Board of County Commissioners Meeting

The Emergency Medical Services Policy Board will meet in a special meeting on 4/28/89 at the Oregon Medical Association to consider the financial implementation portion of a public provider plan. This meeting will begin at 10:00 a.m. and will be chaired by the Chairman of the Medical Advisory Board, John Schriver, MD.

The Board of County Commissioners and Emergency Medical Services Policy Board will meet again in a joint meeting on Tuesday, May 2 to consider the financial portion of the public provider implementation plan. This meeting will be chaired by EMS Policy Board and Multnomah County Commissioners Chair Gladys McCoy. This meeting will begin at approximately 1:30 p.m. in the 6th floor Board of County Commissioners room.

If you need further information or wish to provide written material for either of these meetings, please provide copies of the written material to the Emergency Medical Services Office and/or bring enough copies (40+) to each meeting so that there can be distribution to all interested parties.

cc: Medical Advisory Board Members
EMS Policy Board Members
Board of County Commissioners
Clerk of the Board
Sandra Duffy
Gary Oxman, MD
Portland Fire Bureau
Gresham Fire Department
Corbett Fire
Skyline Fire
Sauvie Island Fire

BOARD OF
COUNTY COMMISSIONERS
1989 MAY -1 AM 11:36
MULTNOMAH COUNTY
OREGON

[5426E/w]

Reed
4/4/89



Emergency Medical Services

Multnomah County · City of Portland · Fairview · Gresham · Troutdale · Wood Village

EMERGENCY MEDICAL SERVICES

POLICY BOARD

April 4, 1989

- I. Basic and Advanced Life Support Treatment Protocol Changes
- J. Acker

- II. Emergency Ambulance Service/EMS Public Provider Concepts Public Hearing*
- EMSPB and County Commissioners

- III. Direction to EMS Staff

* Verbal testimony limited to five minutes per participant. Written testimony accepted (30 copies of testimony must be provided).

IN THE MATTER OF A PROPOSAL TO)
RULES CONCERNING PROCEDURES AND)
PREHOSPITAL TREATMENT PROTOCOLS)
FOR THE VARIOUS TYPES OF EMERGENCIES)
TO WHICH LICENSEES RESPOND)

EMS 2-89
Legal Authority
Statement of Need
Principal Document Relied On

1. Citation of Legal Authority:

MCC 6.31.060 A (3) authorizes the Emergency Medical Services Policy Board to recommend rules establishing procedures and prehospital treatment protocols for the various types of emergencies to which licensees respond and provide care.

2. Need for Rule:

The current protocols do not recognize the current knowledge on certain treatment modems and patient care techniques or skills. Also, the state has adopted a portion of the pediatric care material which these rules propose. The proposed rules are recommended by the EMS Medical Advisory Board.

3. Documents:

Minutes of the Treatment Protocol Subcommittee meetings from May 1988 through March 1989.

Medical Advisory Board meeting minutes from May 1988 through March 1989.

Oregon Plan for Pediatric Emergency Care

Standards for Advanced Cardiac Life Support AHA

BEFORE THE EMERGENCY MEDICAL SERVICES POLICY BOARD

IN THE MATTER OF RECOMMENDATION)	ORDER RECOMMENDING
OF RULE CONCERNING ADVANCED LIFE)	ADOPTION OF ADVANCED AND BASIC
SUPPORT PROTOCOLS AND BASIC LIFE)	LIFE SUPPORT PROTOCOLS
SUPPORT PROTOCOLS)	

WHEREAS, the EMS Policy Board, pursuant to MCC 6.31.062, conducted public hearings on April 4, 1989 concerning certain proposed administrative rules; and

WHEREAS, these rules have been reviewed by the Medical Advisory Board and recommended for adoption; and

WHEREAS, said rules, as amended by the Board, have been found to be consistent with the purposes of MCC Chapter 6.31 and in the public interest (see Statement of Need attached as Exhibit "I" and incorporated herein by reference); and

WHEREAS, said rules are contained in Exhibit "A" and "B" as attached,

IT IS HEREBY RECOMMENDED to the Board of County Commissioners that the rules appearing in Exhibits A and B attached be adopted and take effect upon adoption.

DATED this _____ day of _____, 1989.

Presiding Officer

APPROVED AS TO FORM:

LAURENCE KRESSEL, COUNTY COUNSEL
FOR MULTNOMAH COUNTY OREGON

By _____
Sandra Duffy
Assistant County Counsel

PROTOCOL CHANGES OVERVIEW
4/4/89

The following is a listing of Protocol Changes to be considered by the EMSPB on April 4, 1989.

ALS Attachment A

1. Do not Resuscitate - Addition to Definitions -1.
2. Burns - Addition of Transport section.
3. Cardiac Arrest - Addition of E.T. Lidocaine dosage.
Repeated doses of Lidocaine changed from every 8 minutes to every 5 minutes to total dose of 3 mg/kg. G, page A 13 is added regarding Lidocaine after successful resuscitation.
4. Cardiac Dysrhythmias - Changes in reference to Lidocaine dosage levels.
5. Hypothermia - major revision of protocol which recognizes rewarming standards.
6. Near Drowning - removal of reference to Heimlich maneuver.
7. Poisons and Overdoses - references to activated charcoal included.
8. Seizures - rectal medication administration added for pediatric patients.
9. Suspected Spinal Injury - Dexamethasone is removed from drug therapy.
10. Albuterol - new protocol, replaces Alupent.
11. Diazepam - dosage for pediatric rectal administration added.
12. IV Solutions - revised to balanced salt solutions which consist of citrate and acetate buffers.
13. Lidocaine - bolus therapy changed from every 8 minutes to 5 minutes.
Page D22a, E., statement added: "This rule does NOT apply to patients in cardiac arrest."
14. Naloxone - removed statement under Precautions, B., concerning titrating the dose.
15. Medical Control of the Scene - procedure, 1., words "operated by a licensee of Multnomah County" added.
16. Transport by Fire Department ALS Rescues - this is a new protocol.
17. Intraosseous Infusion - new protocol.

BLS Attachment B

1. Death in the Field - new protocol
2. Near Drowning - removal of reference to Heimlich maneuver.
3. Suspected Spinal Injury - new protocol, replaces Spine Trauma.
4. Ipecac - new telephone number for Poison Control.
5. Naloxone - removed statement under Precautions, B., concerning titrating the dose. Administration; revised time intervals and number of repeats.

ATTACHMENT A

ADVANCED LIFE SUPPORT PROTOCOLS

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SODIUM BICARBONATE	D33
THIAMINE	D34
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INTRAOSSUEOUS INFUSION	P0 thru P0a
NEEDLE CRICOTHYROTOMY	P1 thru P2
TENSION PNEUMOTHORAX DECOMPRESSION	P3 thru P4
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DO NOT RESUSCITATE

Policy:

The goal is to provide comfort and emotional support with the highest quality medical care to patients in conformity with the highest ethical and medical standards. Unless a "DNR" order is issued and follows the protocol outlined, any patient who sustains a cardiopulmonary arrest will receive full cardiopulmonary resuscitation with the objective of restoring life.

Definitions:

1. A DNR (Do Not Resuscitate) Order is an order issued by a physician directing that in the event the patient suffers a cardiopulmonary arrest, (i.e. clinical death)* cardiopulmonary resuscitation will not be administered. Also see Transport of Chronically Ill Patient for the patient who is still breathing and has a pulse.
2. Resuscitation includes attempts to restore failed cardiac and/or ventilatory function by procedures such as endotracheal intubation, mechanical ventilation, closed chest massage, and defibrillation.

Protocol:

1. When the patient's family, friends, or nursing home personnel state that the patient is not to be resuscitated:
 - A. BLS protocols at the EMT-I level will be followed while attempts to determine if a written DNR order from the patient's physician is in the patient's medical file.
 - B. In the absence of written DNR order, call the attending physician or (if not quickly available) MRH physician for a verbal order.
 - C. The EMT must document the DNR order in the patient care report.
2. The following procedures should NOT be performed on a patient who is the subject of a confirmed DNR order and who is PULSELESS AND NONBREATHING:
 - A. CPR
 - B. Endotracheal intubation
 - C. Defibrillation
 - D. Assistance with respiratory efforts (i.e., "Bagging")
 - E. Oral/nasal airways
 - F. Suctioning
 - G. IV lines
 - H. Fluids
 - I. Medications, including oxygen
 - J. EKG monitoring

*Clinical death exists when a patient is pulseless and nonbreathing. Biological death has occurred when no CNS signs of life exist.

BURNS

SPECIFIC INFORMATION NEEDED:

- A. Time elapsed since burn.
- B. Was patient in a closed space with steam or smoke? For how long?
- C. Loss of consciousness.
- D. Accompanying explosion, toxic fumes.
- E. Prior cardiac or pulmonary disease.

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Extent of burns: Description of areas involved.
- C. Depth of burns: Superficial - erythema only.
 Significant - blistered or charred areas.
- D. Evidence of respiratory burns: Soot or erythema of mouth, singed nasal hairs, cough, hoarseness, respiratory distress.
- E. Associated trauma.

TREATMENT:

- A. Remove clothing which is smoldering or which is nonadherent to the patient.
- B. O₂, high flow, by non-rebreathing mask if there is possibility of respiratory burns, and in closed space burns.
- C. Remove rings, bracelets and other constricting items.
- D. If burn is moderate-to-severe, dress burns with dry, clean dressings or cover patient with burn sheet. For burns less than 20%, may apply wet dressings for comfort.
- E. Thermal Burns: If more than about 20% significant burn or if respiratory distress or hypotension exists:
 - 1. Start IV: Balanced salt solution, large bore, TKO or as % burn. Treat hypotension according to Shock Protocol.
 - 2. Monitor cardiac rhythm.

BURNS (Continued)

F. Electrical Burns:

1. Start IV: Balanced salt solution, large bore, TKO or as indicated by shock syndrome.
2. Monitor cardiac rhythm.
3. Apply sterile dressings to entry and exit burns.

G. Chemical Burns:

1. Flush contaminated skin and eyes with copious amounts of water. (see precautions)
2. Obtain and document vital signs, and transport.

H. Transport:

1. The following patients should be transported to a burn center:
 - a. Total burn which is 25% or more of body surface in an adult, 10-15% in a child.
 - b. Full thickness burn which is 10% or greater of body surface.
 - c. Burns with inhalation injuries, fractures, or in poor risk patients.

SPECIFIC PRECAUTIONS:

- A. Attempt to leave unbroken blisters intact.
- B. Suspect airway burns in any facial burns or burns received in closed space. Use conservative fluid resuscitation when burns are confined to head and neck until airway is properly controlled.
- C. Deaths in the first 24 hours after burn injury are due to either airway burns or fluid loss. Fluids are calculated on the basis of extent of significant burn. No further burn classification is possible or useful in an acute situation.
- D. Consider carbon monoxide poisoning in all closed space burns. If suspected, give O₂, high flow, through non-rebreathing mask.
- E. Consider MI in firefighters who are burned; child abuse in pediatric burns, suicide attempt as cause for burns.
- F. Avoid starting IVs in burned areas if possible.

BURNS (Continued)

- G. In a few instances, caution should be used with water flushing of chemical contaminants. In the case of lime (CaCO_3), brush off excess, then flush with copious amounts of water. Do not use water for phosphorus contamination.
- H. Consider morphine sulfate for severe incapacitating pain per drug protocol.
- I. Emphasis is placed on immediate transportation of the significantly burned patient. Do not delay transportation for the sake of fluid administration.

CARDIAC ARREST

SPECIFIC INFORMATION: DO NOT DELAY MANAGEMENT TO OBTAIN HISTORY:

- A. History: Preceding symptoms, onset, downtime (no CPR).
- B. Past History: Diseases, medications
- C. Surrounding evidence of drug ingestion, penetrating or blunt injury.
- D. Appropriateness of resuscitative efforts: In unexpected or unwitnessed cardiovascular collapse, proceed with protocol unless obvious signs of death are present (rigor, etc.). In all others, begin protocol, then request further information of family members. Medical Resource may also be of assistance. (See Death In The Field Protocol.)
- E. Once resuscitative efforts have been initiated, they should be continued until arrival at the receiving hospital, or until a joint decision has been made with Medical Resource or the attending physician, that resuscitation should cease. (See Death In The Field Protocol.)

SPECIFIC PHYSICAL FINDINGS:

- A. Determine presence of arrest.
 - 1. Unresponsive.
 - 2. Absent or terminal respirations.
 - 3. Absent pulses over major arteries.
- B. If signs of penetrating chest injury or major blunt trauma are present with cardiopulmonary arrest, patient's only chance for survival is immediate transport. Apply PASG suit and administer fluids per shock protocol while en route. Ventilate and transport rapidly to appropriate facility. CLOSED CHEST MASSAGE IS NOT INDICATED IN THESE CIRCUMSTANCES IF THIS MEANS A DELAY IN IMMEDIATE TRANSPORT. (See Death In The Field Protocol.)

TREATMENT OF CARDIAC ARREST:

- A. Initiate CPR: Follow American Heart Association Basic Life Support standards. (See Appendix A.)
- B. Check cardiac rhythm with "quick look" paddles. Do not diagnose cardiac arrest solely on the basis of a monitor reading. Consider no respirations and no palpable pulse.
- C. ARREST DYSRHYTHMIAS.

CARDIAC ARREST (continued)

1. Ventricular Fibrillation.

Ventricular fibrillation (and pulseless ventricular tachycardia.) This sequence was developed to treat a broad range of patients with ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT). Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. Flow of algorithm presumes that VF is continuing. CPR indicates cardiopulmonary resuscitation.

If for any reason this protocol cannot be followed in treatment order or drug amounts, MRH should be contacted.

Witnessed Arrest

Unwitnessed Arrest

Check Pulse-If No Pulse

Check Pulse-If No Pulse

Precordial Thump

Check Pulse-If No Pulse

CPR Until a Defibrillator is Available

Check Monitor for Rhythm - if VF or VT^a

Defibrillate, 200 Joules^b

Defibrillate, 200-300 Joules^b

Defibrillate with up to 360 Joules

CPR if No Pulse

Establish IV Access

Epinephrine, 1:10,000, 0.5-1.0 mg IV Push^c

Intubate If Possible^d

Defibrillate With up to 360 Joules^b

Lidocaine, 1 mg/kg IV Push (or 2 mg/kg E.T.)

Defibrillate With up to 360 Joules^b

Bretylium, 5 mg/kg IV Push^e

(Consider Bicarbonate)^f

Defibrillate With up to 360 Joules^b

Bretylium, 10 mg/kg IV Push*

Defibrillate With up to 360 Joules^b

Repeat Lidocaine or Bretylium

Defibrillate With up to 360 Joules^b

*Contact MRH if not done previously, or at any time if this protocol cannot be followed in order or in drug amounts.

CARDIAC ARREST (continued)

- a. Pulseless VT should be treated identically to VF.
- b. Check pulse rhythm after each shock. If VF recurs after transiently converting (rather than persists without ever converting), use whatever energy level has previously been successful for defibrillation.
- c. Epinephrine should be repeated every five minutes (1 mg per ET tube if no IV).
- d. Intubation is preferable. If it can be accomplished simultaneously with other techniques, then the earlier the better. However, defibrillation and epinephrine are more important initially if the patient can be ventilated without intubation.
- e. Some may prefer repeated doses of lidocaine, which may be given in 0.5-mg/kg boluses every five minutes to a total dose of 3 mg/kg.
- f. Value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for routine cardiac arrest sequence. Consideration of its use in a dose of 1 mEq/kg is appropriate at this point. Half of original dose may be repeated every ten minutes if it is used.
- g. After successful resuscitation, a continuous infusion of lidocaine should be initiated at 2-4 mg/min. Be cautious with the administration of lidocaine if:

Blood pressure is less than 90 systolic, OR
Heart rate is less than 50/min. OR
Periods of sinus arrest or any A-V block are present

After successful resuscitation, doses of lidocaine should be reduced by 50% in presence of decreased cardiac output (congestive heart failure, hypotension) hepatic dysfunction or age more than 70.

CARDIAC ARREST (continued)

2. Ventricular Tachycardia

No Pulse

Treat as VF

Pulse Present

Stable^a

Unstable^b

O₂

O₂

IV Access

IV Access
Contact MRH

Lidocaine 1 mg/kg

(Consider Sedation)^c

Prepare patient for transport

Cardiovert 50 Joules^d

Lidocaine, 0.5 mg/kg Every
5 min until VT Resolves, or
up to 3 mg/kg* while in
transport

Cardiovert 100 Joules

Cardiovert 200 Joules

Cardiovert With up to
360 Joules^d

If Recurrent, Add Lidocaine
and Cardiovert again starting
at energy level previously
successful; Then Bretylium

After conversion, an
infusion of lidocaine at
2-4 mg/min. should be
started.

After conversion, an
infusion of lidocaine at
2-4 mg/min. should be
started.

*Contact MRH if not done previously

- a. If patient becomes unstable (see footnote b for definition) at any time, move to "Unstable" arm of algorithm.
- b. Unstable indicates symptoms: hypotension (systolic blood pressure less than 90 mm Hg), chest pain, congestive heart failure, or unconsciousness.
- c. Sedation should be considered for all patients, including those defined in footnote b as unstable, except those who are hemodynamically unstable (e.g., hypotensive, in pulmonary edema, or unconscious).
- d. In the absence of hypotension, pulmonary edema, or unconsciousness, a precordial thump may be employed prior to cardioversion.

CARDIAC DYSRHYTHMIAS

SPECIFIC INFORMATION:

- A. Chief complaint, sudden or gradual onset.
- B. Related symptoms: dizziness, angina, syncope, s.o.b., palpitations.
- C. Medications.

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Signs of low cardiac output:
 - 1. Altered state of consciousness.
 - 2. Presence of shock syndrome.
- C. Signs of congestive failure.
- D. NOTE: DYSRHYTHMIAS MAY NOT REQUIRE TREATMENT IN THE FIELD IF THE PATIENT IS ASYMPTOMATIC (i.e., NO SIGN OF LOW CARDIAC OUTPUT.)

GENERAL APPROACH TO TREATMENT:

(For specific treatment see under appropriate rhythm disturbance.)

- A. O₂, position of greatest comfort.
- B. Monitor cardiac rhythm.
- C. Start IV: Large bore D5W, microdrip chamber, TKO rate.
- D. Identify rhythm as closely as possible. Contact Medical Resource Hospital for assistance as needed.

PVC's: 1. Premature Ventricular Complexes: Treat only in the setting of a suspected ischemic event.

LIDOCAINE PROTOCOL:

- a. Initial bolus: 1mg/kg over 1-2 min.
- b. Begin lidocaine drip at 2 mg/min.
- c. Repeat one-half of dose every 5 minutes until a maximum of 3 mg/kg is given. Increase lidocaine drip 1 mg/min after each repeat lidocaine bolus to maximum of 4 mg/min..
- d. All doses, including initial bolus, must be reduced by 50% in patients with congestive heart failure, shock, or hepatic disease, or who are over 70 years of age.

CARDIAC DYSRHYTHMIAS (continued)

2. If PVC's are associated with a bradydysrhythmia, see section on bradydysrhythmias.
- BRADY
1. Bradydysrhythmias (sinus bradycardia, ventricular escape rhythm, AV nodal block.)
 - A. Treatment may not be required if there are no signs of low output and blood pressure remains above 90 Torr and pulse rate is greater than 50.
 - B. ATROPINE - give 0.5 to 1.0 mg IV and repeat every 5 min. to a maximum of 2.0 mg as needed to maintain rate above 50 and blood pressure above 90 Torr.
 - C. Contact MRH if patient does not respond to Atropine.
 - D. ISOPROTERENOL - give cautiously if no response to atropine. Administer as drip of 2-10mcg/min to maintain a ventricular rate of 60-70.
 - E. Call MRH to notify of potential need for pacemaker insertion.

CARDIAC DYSRHYTHMIAS (continued)

SUPRAVENTRICULAR TACHYCARDIA

Paroxysmal supraventricular tachycardia (PSVT). These various dysrhythmias are often very difficult to differentiate. If the patient is perfusing well, no specific prehospital treatment is necessary. Transport with monitoring. Consider IV and O₂.*

If dysrhythmia is resulting in a hemodynamically unstable patient immediate cardioversion should be considered.

Hemodynamically
Unstable**
(consider sedation)

Hemodynamically
Stable

Synchronous
Cardioversion
75-100 Joules***

Vagal Maneuvers

Synchronous
Cardioversion
200 Joules

Synchronous
Cardioversion
360 Joules

Correct Underlying
Abnormalities

Pharmacological
Therapy (per MRH)
+ Cardioversion

If conversion occurs but PSVT recurs, repeated electrical cardioversion is not indicated.

* If rate is above 150, regardless of cause and in the setting of a suspected acute ischemic event, treatment early in the course may prevent impending cardiovascular collapse.

** Unconscious, pulmonary edema, shock syndrome, chest pain.

*** Before cardioversion of the conscious patient with poor perfusion, contact MRH.

HYPOTHERMIA

SPECIFIC INFORMATION NEEDED:

- A. Length of exposure?
- B. Define categories of accidental hypothermia by physical findings (patient will be categorized by lowest physiological variable):
 - Apnea - Put metal or glass slide under nostrils for 60 seconds.
 - Pulse - Palpate carotid pulse for 60 seconds.
 - EKG - Attach EKG leads and interpret rhythm.
 - LOC - Determine LOC by verbal and motor responsiveness.
- C. See Categories of Accidental Hypothermia (Specific Physical Findings) chart.

TREATMENT:

- A. Warm oxygen preferably.
- B. Monitor cardiac rhythm.
- C. IV fluids - warmed if possible
 - Type: Normal saline or Normosol recommended.
 - Recommended Rate: 10 cc's/kg bolus, then 5 cc's/kg thereafter.

SPECIFIC PRECAUTIONS:

- A. Handle alive patient gently - do not jostle.
- B. Do not force oral intubation.
 - Do not nasotracheally intubate.
 - Consider needle cricothyrotomy only if patient deteriorates AND jaw is frozen.
- C. Do chest compressions only if chest is compressible and patient has a disorganized rhythm.
- D. If terrain is difficult, evacuate patient first and treat second.
- E. Cardiopulmonary bypass offers rapid rewarming in profoundly cold patients who have cardiac failure (Category 1, 2, 3).
- F. Consider other protocols as appropriate (i.e. altered mental status).

HYPOTHERMIA (continued)

CATEGORIES OF ACCIDENTAL HYPOTHERMIA (SPECIFIC PHYSICAL FINDINGS)

1. <u>Frozen, Lifeless</u>	2. <u>Cold, Lifeless</u>	3. <u>Cold, Alive</u>	4. <u>Moderate Hypothermia</u>
If major trauma present, or head and trunk frozen, determine patient death in field. Apneic, pulseless,	If major trauma determine patient death in field. Apneic, pulseless, disorganized EKG rhythm,* unconscious	Respirations 12 No pulse palpable Organized EKG rhythm** Responsive to stimulus	Respirations 12 Pulses palpable Organized EKG rhythm** Responds to commands

Treatment:

Transport if risk to personnel is acceptable.	ACLS Protocols Warm O ₂ No nasotracheal tube Start IV via peripheral vein if possible	No CPR Warm O ₂ IVs if feasible EKG monitoring	Supportive care No CPR Warm O ₂ IVs if feasible EKG monitoring
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Antiarrhythmic:

None	Bretylium first drug of choice for V. fibrillation	Prophylactic Lidocaine if IV available (normal dose)	Prophylactic Lidocaine if IV available (normal dose)
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Consider pump rewarming:

Yes, maybe. No, if major trauma present.	Yes, probably. No, if major trauma present.	Yes, probably. No, if major trauma present.	No, unless deteriorating.
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* Disorganized EKG rhythm is incompatible with life. (Asystole or V. Fib)
** Organized EKG rhythm is compatible with life (EMD etc.)

NEAR DROWNING

SPECIFIC INFORMATION NEEDED:

- A. How long patient was submerged.
- B. Approximate temperature of water.
- C. Fresh or salt water.
- D. Associated trauma.
- E. Was this a SCUBA diving accident?

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Neurologic status: Note, record, and monitor mental status.
- C. Initial presence of crackles or other signs of pulmonary edema, respiratory distress, and any changes during transport.

TREATMENT:

- A. Clear upper airway.
- B. Assist ventilation as needed; if unsuccessful, patient may need intubation and positive pressure, suction, or relief of gastric distention.
- C. Stabilize neck prior to removing from water if any suggestion of neck injury.
- D. O₂, high flow.
- E. IV: Volume expander (balanced salt solution), TKO.
- F. Monitor cardiac rhythm.

SPECIFIC PRECAUTIONS:

- A. If patient is still in water, rescue by trained, equipped personnel only.
- B. Be prepared for vomiting.
- C. ALL NEAR-DROWNINGS SHOULD BE TRANSPORTED. Even if patients initially appear fine, they can deteriorate. Monitor closely. Pulmonary edema is likely.
- D. Hypothermia may be a problem. If suspected, refer to hypothermia protocol.
- E. It is a common error to underestimate injuries in near-drownings from jumping, MVAs, etc.

POISONS AND OVERDOSES (Cont'd.)

- a. Administer Naloxone 2 mg, slowly injected IV, IM, SC, SL, or ET, and observe for improved ventilations (may be repeated every 3-5 minutes up to 8 mg).
 - b. Thiamine, 100 mg IV if alcoholism is possible.
 - c. Administer dextrose 50%, 50 ml.
 - d. Monitor cardiac rhythm.
6. If overdose includes tricyclic anti-depressant:
- a. Hyperventilate if possible.
 - b. Treat hypotension, as indicated, with fluid challenge and PASG pants.
 - c. If life-threatening arrhythmias exist, administer 1 mEq/kg NA HCO₃, slow IV push, after consultation with Medical Resource Hospital.
7. If cholinergic poisoning (e.g., organophosphate poisoning) has occurred and patient is critical with "SLUD" symptoms, administer 1-2 mg atropine, slow IV per MRH order and repeat dosage every 5 minutes until secretions have substantially decreased.
8. Consider administration of ipecac or activated charcoal in conscious, alert patients, if the ingestion occurred within the past 6 hours, (30 ml ipecac in adult, 15 ml in child over 1 year). Follow with 2-3 glasses of H₂O and ambulate if possible. Note specific precautions.
9. If arrhythmias or conduction abnormalities present or persist after treatment, treat per arrhythmia protocol and contact MRH.
- a. Obtain and document vital signs during transport.

SPECIFIC PRECAUTIONS:

- A. Contact MRH before administering ipecac or activated charcoal.
- B. Do not induce vomiting in patients who:
 1. Have ingested strong acid, strong base, iodides, silver nitrate, strychnine, phenothiazines, hydrocarbons, or camphor.
 2. Are unconscious, obtunded, seizing, or have no gag reflex.

POISONS AND OVERDOSES (Cont'd.)

3. Are in the third trimester of pregnancy.
 4. In general, tricyclics, short acting sedatives, and beta blockers should not be ipecaced in the field.
- C. Some hydrocarbon ingestions may benefit from emesis, contact Medical Resource on all hydrocarbon ingestions.
- D. Do not try to neutralize acids with strong alkalis. Do not try to neutralize alkalis with acids.
- E. Inhalation poisoning is particularly dangerous to rescuers. Recognize an environment with continuing contamination and extricate rapidly by properly trained and equipped personnel.
- F. Ipecac may take up to 30 minutes to work. Be prepared to manage airway.
- G. Activated charcoal may be ineffective in ingestions such as mineral acids, alkalies, petroleum products, or cyanide.
- H. SLUDS - salivation, lacrimation, urination, defecation, sweating.

SEIZURES

SPECIFIC INFORMATION NEEDED:

- A. Seizure history: Onset, time interval, previous seizures, type of seizure. Consider febrile seizures in children.
- B. Medical history: Medications and compliance, head trauma, diabetes, headaches, drugs, alcohol, pregnancy.

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Seizure activity.
- C. Level of consciousness.
- D. Head and oral trauma.
- E. Incontinence. (Urinary or fecal.)
- F. Focal neurologic signs.
- G. Headache.

TREATMENT:

- A. Airway: Insure patency - nasopharyngeal airways useful.
NOTE: Do not FORCE anything between the teeth. Do not use esophageal obturator airway.
- B. O₂ as needed.
- C. Suction as needed.
- D. If patient is seizing upon arrival or has prolonged (more than 2") or repetitive seizures:
 - 1. Start IV: TKO or as directed.
 - 2. Draw one red top tube
 - 3. Dextrose 50%, 50 ml IV into secure vein, if history not obtainable. Give thiamine 100 mg IV before giving glucose if alcoholism is suspected. Consider naloxone 2 mg, slowly, to a maximum of 8 mg.
 - 4. Contact Medical Resource Hospital if further intervention is necessary.

SEIZURES (Cont'd.)

5. Administer diazepam by MRH order, (Valium) 5-10 mg (not to exceed 0.3 mg/kg) slowly IV, for continued grand mal seizure activity. Pediatric dose 2-5 mgm, slowly (0.1 mg/kg). If unable to administer pediatric dose intravenously, consider rectal administration .5mgm/kgm.
- E. Lateral recumbent position for transport.
- F. Monitor cardiac rhythm.
- G. Obtain and document vitals.
- H. Document patient's level of consciousness at time of transport.

SPECIFIC PRECAUTIONS:

- A. Move hazardous material away from patient. Restrain the patient only if needed to prevent injury. Protect patient's head.
- B. Trauma to tongue is unlikely to cause serious problems. Trauma to teeth may. Attempts to force an airway into the patient's mouth can completely obstruct his airway.
- C. Seizures in patients over the age of 50 are frequently caused by arrhythmias.
- D. Medical personnel are often called to assist epileptics who seize in public. If patient clears completely, is taking his medications, has his own physician and is experiencing his usual frequency of seizures, transport may be unnecessary. Document patient's mental status and have patient sign a refusal form.
- E. Don't forget to check for a pulse once a seizure terminates. Seizure activity may be the first sign of cerebral hypoxia from cardiac arrest!
- F. Focal motor seizures are generally not treated in the pre-hospital setting.

SUSPECTED SPINAL INJURY

SPECIFIC INFORMATION NEEDED:

- A. Violent mechanism of injury (witness, scene, situation).
- B. High energy transfer (ejection, helmet damage, starred windshield, etc.)

SPECIFIC PHYSICAL FINDINGS:

- A. Significant injury above the clavicles.
- B. Significant multiple trauma.
- C. Prior or present altered mental status.
- D. Paralysis, weakness, numbness, or tingling with violent mechanism of injury or high energy transfer.
- E. Pain of the spine with or without movement.
- F. Point tenderness, deformity, or guarding of the spine.

TREATMENT:

The following treatment will be used when any or all of the above Specific Physical Findings are present, or when in the EMT's best judgment the patient needs spinal support.

- A. Temporarily immobilize cervical spine with rigid extrication collar and continuous manual in-line support. Immobilize thoracic and lumbosacral spine to long spine board, when possible, and/or other appropriate device as patient condition allows (KED, orthopedic, etc.). Secure head and cervical spine to long spine board using dense, soft, support material on both sides of the head, and tape. Patient's entire body will be securely immobilized by straps affixed directly to the long board. During this procedure the patient should be moved as little as possible, and always as a unit.
- B. Oxygen as indicated.
- C. I.V. per shock protocol, if appropriate.

SPECIFIC PRECAUTIONS:

- A. Vomiting should be expected in head injury patients. Therefore, patient should be securely strapped to long board to enable board and patient to be turned as a unit. EMT should be aware that additional help may be necessary during transport to turn patient and manage airway while maintaining C-spine integrity.
- B. Chin straps that could compromise the airway should be removed as the patient is immobilized to the long board. (Leg straps which may compromise C-spine immobilization should also be removed.)

SUSPECTED SPINAL INJURY, cont.

- C. Most patients require 1 to 1 1/2 inches of firm padding behind the head to assume standard neutral anatomic position.
- D. In the severely traumatized patient requiring immediate life saving intervention and rapid transport, rigid C-collar, continuous manual in-line support during rapid extrication onto a long spine board and transport should be substituted for more time consuming methods.
- E. Airway problems, respiratory difficulty, and shock are common in the traumatized patient. Alternate techniques for performing airway procedures should be used in spinal injury patients. To maintain proper control of the C-spine, endotracheal intubation with in-line stabilization must be performed by two EMTs.
- F. If any immobilization techniques cause an increase in pain or neurologic deficit, the patient should be immobilized in position found or position of greatest comfort.
- G. Geriatric patients (over 55) should cause a higher index of suspicion for the EMT due to physiologic aging changes; the EMTs' awareness of the need to provide for C-spine immobilization should be more acute in these patients.

ALBUTEROL (VENTOLIN)^R

PHARMACOLOGY AND ACTIONS:

Albuterol sulfate (ventolin)^R is a potent, relatively selective beta₂-adrenergic bronchodilator. The pharmacologic effects are at least in part attributable to stimulation through beta-adrenergic receptors of intracellular adenylyl cyclase which catalyzes the conversion of ATP to cyclic-AMP. Increased cyclic-AMP levels are associated with relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially mast cells.

The onset of improvement in pulmonary function is within 2 to 15 minutes after the initiation of treatment and the duration of action is from 4-6 hours.

As a beta₂ agonist, albuterol induces bronchial dilation, but has occasional beta₁ overlap with clinically significant cardiac effects. Clinically significant arrhythmias may occur especially in patients with underlying cardiovascular disorders such as coronary insufficiency and hypertension.

INDICATIONS:

- A. Bronchial asthma and reversible bronchial spasm that occur with chronic pulmonary disease.

PRECAUTIONS:

- A. The patient's rhythm should be observed for arrhythmias. Stop treatment if:
 1. Pulse increases by 20 BPM
 2. Frequent pvc's develop
 3. Any tachyarrhythmias other than sinus tachycardia appear.
- B. Paradoxical bronchospasm may occur with excessive administration.
- C. Albuterol is contraindicated in pregnancy.

ADMINISTRATION:

- A. The usual dosage for adults and children 12 years and older is 2.5 mg of albuterol administered three to four times daily by nebulization.
- B. Albuterol sulfate solution for inhalation comes premixed in 3 ml unit dose containing total 2.5 mg at a concentration of 0.83 mg/ml. Refrigeration is not necessary with this medication.

DIAZEPAM (VALIUM (R))

PHARMACOLOGY AND ACTIONS:

Diazepam acts as a tranquilizer, an anticonvulsant and a skeletal muscle relaxant.

INDICATIONS:

- A. Status epilepticus. In the field, this is any seizure which has lasted longer than 10 minutes, or two consecutive seizures without regaining consciousness. Do not give unless patient is actively seizing.
- B. May be given prior to cardioversion. Contact MRH.

PRECAUTIONS:

- A. Since diazepam can cause respiratory depression and/or hypotension, the patient must be monitored closely. Very rarely cardiac arrest may occur.
- B. For the above reasons, diazepam should not be given without a good IV line in place and a bag valve mask ready.

ADMINISTRATION:

- A. Adult: 5-10 mg slow IV push (each 5 mg over at least one minute).
- B. Pediatric: 2-5 mg slow IV push (0.1 mg/kg).

SIDE EFFECTS AND SPECIAL NOTES:

- A. Common side effects include drowsiness, dizziness, fatigue and ataxia. Paradoxical excitement or stimulation sometimes occurs.
- B. Should not be mixed with other agents or diluted with intravenous solutions. Turn off IV flow while administering, and give through the near end of IV tubing.
- C. Most likely to produce respiratory depression in patients who have taken other depressant drugs, especially alcohol and barbiturates, or when given rapidly.
- D. Consider rectal administration .5 mgm/kg (if unable to administer IV) in seizing children. Contact MRH.

IV SOLUTIONS

BALANCED SALT SOLUTIONS (BSS):

PHARMACOLOGY:

These are solutions which consist of balanced electrolytes in water. These solutions contain sodium chloride, sodium acetate, sodium gluconate, potassium chloride, and magnesium chloride hexahydrate. They provide water and electrolytes for replacement of acute extracellular fluid losses and they do not disturb the normal electrolyte balance since the electrolyte composition and tonicity approach that of normal plasma. They do not contain calcium and will not lead to precipitation when mixed with blood or prehospital medications.

INDICATIONS:

A balanced salt solution is indicated for replacement of fluid volume losses such as in trauma, burns, dehydration, or shock.

PRECAUTIONS:

Balanced salt solutions should be used with caution in patients with renal impairment (hyperkalemia), cardiac and respiratory disorders (fluid overload), or extremes of age.

SPECIAL NOTES:

- A. Only solutions that consist of citrate and acetate buffers and are 100% compatible to two currently available solutions Normosol-R and Plasmalyte-A are acceptable.
- B. Where IVs are used to maintain venous access, a heparin lock may be substituted.
- C. Since BSS are compatible with all prehospital medications, including blood products, they offer more than LR as a trauma resuscitation fluid.
- D. In patients in which fluid overload is a problem, BSS may be used with a microdrip, and this microdrip may be used to administer prehospital medications.

LIDOCAINE (XYLOCAINE (R))

PHARMACOLOGY AND ACTIONS:

- A. Depresses automaticity of Purkinje fibers; therefore, raises stimulation threshold in the ventricular muscle fibers (makes ventricles less likely to fibrillate).
- B. Little antiarrhythmic effect at subtoxic levels on atrial muscle.
- C. CNS stimulation: tremor, restlessness and clonic convulsions followed by depression and respiratory failure at higher doses.
- D. Cardiovascular effect: decreased conduction rate and force of contraction, mainly at toxic levels.
- E. The effect of a single bolus on the heart disappears in 10-20 minutes due to redistribution in the body. Metabolic half-life is about 2 hours and, therefore, toxicity develops with repeated doses.

INDICATIONS:

- A. PVC's in suspected ischemic event.
- B. Prophylaxis: used to prevent ventricular arrhythmias in patients suspected of having an MI.
- C. Stable ventricular tachycardia or recurrent ventricular tachycardia if clinical condition is not rapidly deteriorating.
- D. Recurrent ventricular fibrillation.
- E. Following successful defibrillation or cardioversion from ventricular tachycardia.

PRECAUTIONS:

- A. Use with extreme caution in presence of advanced AV block unless artificial pacemaker is in place.
- B. In atrial fibrillation or flutter, quinidine-like effect may cause alarming ventricular acceleration.
- C. Lidocaine is generally not recommended for treatment of supra-ventricular arrhythmias.

LIDOCAINE (XYLOCAINE (R)) (Cont'd)

- D. Diazepam (R) should be available to treat convulsions if they occur.
- E. Relatively contra-indicated with heart rate less than 50.

ADMINISTRATION:

The protocol for Lidocaine administration will depend upon the clinical setting in which it is used:

- A. Cardiac Arrest: Ventricular Fibrillation or Pulseless Ventricular Tachycardia:
 - 1. Lidocaine bolus 1mg/kg load then .5 mg/kg every 5 minutes * to total dose of 3mg/kg.
 - 2. Only bolus therapy should be used in the cardiac arrest setting (should the arrest be followed by successful resuscitation, a continuous infusion should be initiated at 2-4mg.min).
- B. Ventricular Tachycardia with pulse:
 - 1. Lidocaine bolus 1mg/kg load, then .5 mg/kg every 5 minutes * to total dose of 3mg/kg.
 - 2. An infusion of 2-4 mg/min should be started.
- C. Ventricular Ectopy (PVC):
 - 1. Lidocaine 1mg/kg load then .5 mg/kg every 5 minutes to total dose of 3/mg/kg.
 - 2. An infusion of 2mg/min should be started. This drip should be increased by 1mg/min after each bolus to a total of 4mg/min.

* PLEASE NOTE: These times vary from ACLS guidelines. For Ventricular Fibrillation, Pulseless Ventricular Tachycardia, and Ventricular Tachycardia with pulse, ACLS recommends Lidocaine every 8 minutes.

LIDOCAINE (XYLOCAINE (R)) (Cont'd)

- D. Primary prophylaxis against ventricular fibrillation: (to be considered in the context of suspected acute myocardial infarction).
1. Lidocaine bolus 1mg/kg load, then .5 mg/kg every 5 minutes to total dose of 2mg/kg.
 2. An infusion of 2mg/min should be started.
- E. All Lidocaine doses (including loading doses) should be reduced by 50% in presence of decreased cardiac output (congestive heart failure, hypotension), hepatic dysfunction, or age more than 70. This rule does NOT apply to patients in cardiac arrest.

NALOXONE (NARCAN (R))

PHARMACOLOGY AND ACTIONS:

Narcan (R) is a narcotic antagonist which competitively binds to narcotic sites but which exhibits almost no pharmacologic activity of its own. Duration of action: 1-4 hours.

INDICATIONS:

- A. Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs either ingested, injected or administered in the course of treatment. Narcotic drugs include morphine, Demerol (R), heroin, Dilaudid (R), Percodan (R), codeine, Lomotil (R), propoxyphene (Darvon (R)), pentazocine (Talwin (R)).
- B. Diagnostically in coma of unknown etiology to rule out (or reverse) narcotic depression.

PRECAUTIONS:

- A. In patients physically dependent on narcotics, frank and occasionally violent withdrawal symptoms may be precipitated.
- B. Be prepared to restrain the patient. May become violent as the Narcan (R) reverses the narcotic effect.

ADMINISTRATION:

2.0 mg slowly injected IV, IM, SQ, SL., or by ET tube. If no response is observed, this dose may be repeated at 3-5 min intervals up to four times in patients suspected of having narcotic overdose. IV administration is preferred.

SIDE EFFECTS AND SPECIAL NOTES:

- A. This drug is remarkably safe and free from side effects. Do not hesitate to use it if indicated.
- B. The duration of some narcotics is longer than Narcan (R) and the patient must be monitored closely. Repeated doses of Narcan (R) may be required. Patients who have received this drug must be transported to the hospital because coma may reoccur when Narcan (R) wears off.
- C. May need large doses to reverse propoxyphene (Darvon (R)) overdose.

MEDICAL CONTROL OF THE SCENE

Purpose: The purpose of this protocol is to describe who is in charge of patient care at the scene of a medical emergency.

Procedure:

1. The first arriving EMT-4 on an ALS unit operated by a licensee of Multnomah County will assume responsibility for directing overall patient care.
2. The responsibilities of the EMT-4 directing overall patient care include:
 - A. Assuring that treatment, operations, and communications follow the proper protocols established by rule under Multnomah County Code Chapter 6.31 when treating and transporting victims of medical emergencies.
 - B. Avoiding direct patient care activities.
This EMT-4 must watch over the entire patient care scene activities and be sure that the patient care activities are being accomplished in a rapid, efficient, appropriate, and timely manner. If there are only two (2) EMT-4s at the scene, this EMT must do those patient care activities (e.g., start IV) which will allow him/her to watch over the whole scene easily.
 - C. Directing other EMT's to establish airway management, start IV's, etc.
 - D. Establishing the appropriate time to be spent at the scene for doing patient care according to the protocol for "Time at the Scene."
 - E. Determining when transportation of the patient is to occur.
 - F. Performing medical coordination with all agencies and personnel.
3. The EMT-4 directing overall patient care will be held responsible and accountable for patient care activities performed at the scene, and he/she will be so identified on all patient care reports.
4. The first arriving EMT-4 will turn over patient care to the transporting EMTs, if they are not the same, if and when it is determined that transport is imminent. Continued patient care will then become the responsibility of the transporting unit. Such transfer of responsibility will be carried out at a time which is most appropriate to patient care.
5. Any disputes about patient care should be referred immediately to and resolved by the Medical Resource Hospital Physician.
6. Scene care may be transferred to a Flight Nurse for air transportation.
7. Care may also be transferred to a Physician at the scene (see protocol for "Medical Professional at the Scene").

TRANSPORT BY FIRE DEPARTMENT ALS RESCUES

Purpose: The purpose of this procedure is to define those occasions when transportation of patients by fire department ALS licensed rescues may be appropriate.*

Procedure:

1. It may be appropriate for a fire department ALS rescue to transport a patient when waiting for an incoming transporting ALS ambulance will delay patient transport by five or more minutes,** and the patient, after assessment, exhibits one or more of the following conditions:
 - A. Existing airway obstruction or respiratory failure with inability to secure an adequate airway and ventilation in the field.
 - B. Severe uncontrollable bleeding or existing circulatory failure with inability to achieve hemodynamic stability.
 - C. Abnormal delivery (such as breech, shoulder).
2. In all cases, fire department rescues will transport the patient to the closest appropriate hospital, code 3, with the highest certified EMT providing patient care during transport.
3. In addition to those instances above, it is appropriate for a fire department ALS rescue to transport a patient when a physician (MD, DO) on scene orders transport by the ALS rescue.
4. For situations not covered by the above criteria, particularly in trauma cases, in which immediate transport is in the patient's best interest, Medical Resource Hospital should be contacted for consultation and approval.

* Fire department ALS rescues are licensed to Oregon State Division of Health EMS standards. Personnel standards are at least one EMT III and one EMT I.

** As determined through the EMS dispatcher.

INTRAOSSIOUS INFUSION

DEFINITION: An alternative technique for establishing IV access in pediatric patients in whom peripheral IV access is difficult and time consuming.

INDICATIONS:

- A. Intraosseous infusion is indicated in emergency situations when life-saving fluids or drugs should be administered and IV cannulation is either too difficult or time consuming to perform.
- B. In the prehospital setting, intraosseous infusion is normally considered in a child three years of age or less, in cardiac arrest or shock with a decreased level of consciousness, with an inability to establish peripheral IV access.
- C. This procedure should not delay transport time, and airway management should be the therapeutic priority in all these cases.

PROCEDURE:

The procedure for initiating intraosseous infusion includes:

A. Equipment:

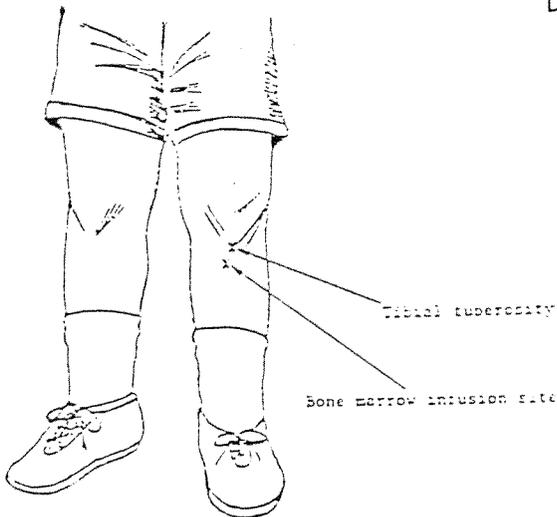
1. Approved bone marrow type needles 16 and 18 gauge size.
2. Betadine swabs
3. Two 5cc syringes
4. Flush solution
5. Sterile gauze pads
6. Tape

B. Site Selection:

The proximal tibia is the site of choice. Avoid using a leg which has been traumatized or infected.

C. Site Preparation:

Palpate the landmarks and note the entry point which is the anteromedial flat surface 1-3 cm below the tibial tuberosity. Then prep the surface with betadine and dry with a sterile gauze pad.



D. Insert Needle:

Insert at the proximal tibial site, directing the needle caudally (toward the foot, away from the knee joint in order to avoid damaging the growth plate). The needle should penetrate the skin and subcutaneous tissue and be pushed through the cortex of the bone using rotation (avoid rocking the needle!), until a "pop" or loss of resistance is felt. Placement in the marrow should then be confirmed by:

- D. 1. Firm fixation of the needle, and either:
2. Removal of the stylet with free aspiration of marrow/blood (which should be saved for type and cross), or
3. Infusion of 2-3cc of sterile solution, palpating for extravasation or noting significant resistance. If extravasation should occur, further attempts at the site and extremity should be avoided.
- E. Start Infusion:
Although gravity drainage may suffice, pressurized infusions (blood pump or syringe and stopcock) may be needed during resuscitation.

PRECAUTIONS

- A. Potential complications of bone marrow infusion include osteomyelitis, growth plate injury, and extravasation of fluid with compression of popliteal vessels or the tibial nerve.
- B. In all critical cases, the airway and breathing should be established first, since many drugs can be given via the endotracheal route (naloxone, atropine, epinephrine, and lidocaine).
- C. Two attempts, one in each tibia should be the maximum number of attempts.
- D. General contraindications for intraosseous infusion include cellulitis or infected burns at the site of insertion and fractures of the bones proximal to the insertion site.

NOTE

- A. All prehospital ALS personnel must be inserviced and approved by their supervising physician prior to performing this procedure.
- B. A written report of all intraosseous procedures must be made to the Board of Medical Examiners and Multnomah County EMS.
- C. This procedure is approved on a provisional basis pending careful review of cases to determine the need for and efficacy of intraosseous infusions.

ATTACHMENT B

DEATH IN THE FIELD

Withholding Resuscitative Efforts:

- A. Determining death in the field without initiating resuscitative efforts should be considered under the following conditions:
 - 1. Patient qualifies as a "DNR" patient (see DNR Protocol)
 - 2. A pulseless, non-breathing patient in a multiple casualty incident where the resources of the system are required for the stabilization of living patients.
 - 3. Decapitation
 - 4. Rigor Mortis in a warm environment
 - 5. Decomposition.
 - 6. Skin discoloration in dependent body parts

Determining Death in Cardiac Arrest:

- A. The victim of a medical (non-traumatic) cardiac arrest should not be determined to be dead on the scene unless:
 - 1. The patient meets criteria for withholding resuscitative efforts (A.1-6), or;
 - 2. The patient has been shown to be unresponsive to appropriate advanced cardiac resuscitative measures.
- B. Traumatic Arrest
 - 1. In addition to the conditions listed under Withholding Resuscitative Efforts, a victim of trauma should not be determined to be dead at the scene unless:
 - a. The patient is a victim of Blunt Trauma and has no vital signs in the field (pulseless, non-breathing, with fixed and dilated pupils).

Documentation:

- A. All B.L.S. care provided should be documented with procedure and time.
- B. All conversations with physicians or MRR should be fully documented with physician's name, time, and instructions.

Precautions:

- A. All hypothermic patients, victims of electrocution, lightning, and drowning should have resuscitative efforts begun and transported to the hospital.

NEAR DROWNING

SPECIFIC INFORMATION NEEDED:

- A. How long was patient submerged?
- B. Approximate temperature of water.
- C. Fresh or salt water?
- D. Was this a SCUBA diving accident?

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Neurologic status: Monitor level of consciousness on a continuing basis.
- D. Initial presence of rales or other signs of pulmonary edema, respiratory distress, and any changes.

TREATMENT:

- A. Clear upper airway.
- B. Assist ventilations as needed.
- C. Stabilize cervical spine prior to removing from water if any suspicion of neck injury.
- D. O₂, high flow (10-15 L/min.), regardless of condition.
- E. Positional drainage of lungs. FOR SALT WATER VICTIMS ONLY.
- F. If certified as EMT-2, start IV: balanced salt solution, TKO, or as needed.
- G. Call for ALS back-up.
- H. Document.

SPECIFIC PRECAUTIONS:

- A. Be prepared for vomiting.
- B. ALL NEAR-DROWNINGS SHOULD BE TRANSPORTED. Call for ALS back-up even if patients initially appear fine, they can deteriorate. Monitor closely. Pulmonary edema is likely.
- C. Hypothermia may be a problem. Remove clothes and obtain patient's temperature.
- D. It is a common error to underestimate injuries in near-drownings from jumping, MVAs, etc.

SUSPECTED SPINAL INJURY

SPECIFIC INFORMATION NEEDED:

- A. Violent mechanism of injury (witness, scene, situation).
- B. High energy transfer (ejection, helmet damage, starred windshield, etc.)

SPECIFIC PHYSICAL FINDINGS:

- A. Significant injury above the clavicles.
- B. Significant multiple trauma.
- C. Prior or present altered mental status.
- D. Paralysis, weakness, numbness, or tingling with violent mechanism of injury or high energy transfer.
- E. Pain of the spine with or without movement.
- F. Point tenderness, deformity, or guarding of the spine.

TREATMENT:

The following treatment will be used when any or all of the above Specific Physical Findings are present, or when in the EMT's best judgment the patient needs spinal support.

- A. Temporarily immobilize cervical spine with rigid extrication collar and continuous manual in-line support. Immobilize thoracic and lumbosacral spine to long spine board, when possible, and/or other appropriate device as patient condition allows (KED, orthopedic, etc.). Secure head and cervical spine to long spine board, when possible, using dense, soft, support material on both sides of the head, and tape. Patient's entire body will be securely immobilized by straps affixed directly to the long board. During this procedure the patient should be moved as little as possible, and always as a unit.
- B. Oxygen as indicated.
- C. I.V. per shock protocol, if appropriate.

SPECIFIC PRECAUTIONS:

- A. Vomiting should be expected in head injury patients. Therefore, patient should be securely strapped to long board to enable board and patient to be turned as a unit. EMT should be aware that additional help may be necessary during transport to turn patient and manage airway while maintaining C-spine integrity.
- B. Chin straps that could compromise the airway should be removed as the patient is immobilized to the long board. (Leg straps which may compromise C-spine immobilization should also be removed.)

SUSPECTED SPINAL INJURY, cont.

- C. Most patients require 1 to 1 1/2 inches of firm padding behind the head to assume standard neutral anatomic position.
- D. In the severely traumatized patient requiring immediate life saving intervention and rapid transport, rigid C-collar, continuous manual in-line support during rapid extrication onto a long spine board and transport should be substituted for more time consuming methods.
- E. Airway problems, respiratory difficulty, and shock are common in the traumatized patient. Alternate techniques for performing airway procedures should be used in spinal injury patients. To maintain proper control of the C-spine, endotracheal intubation with in-line stabilization must be performed by two EMTs.
- F. If any immobilization techniques cause an increase in pain or neurologic deficit, the patient should be immobilized in position found or position of greatest comfort.
- G. Geriatric patients (over 55) should cause a higher index of suspicion for the EMT due to physiologic aging changes; the EMTs' awareness of the need to provide for C-spine immobilization should be more acute in these patients.

IPECAC

PHARMACOLOGY AND ACTIONS:

Ipecac alkaloids act both locally on the gastric mucosa and centrally on the chemoreceptor trigger zone to induce vomiting. Usually effective within 20-30 minutes.

INDICATIONS:

To induce vomiting for patients who have ingested poisons or drugs (other than strong acids, alkali, hydrocarbons, phenothiazines, tricyclics, and short-acting sedatives).

PRECAUTIONS:

- A. Ipecac should NOT be given to patients who are unconscious or who have a rapidly diminishing level of consciousness.
- B. Should NOT be given to patients who are seizing.
- C. Ipecac should not be used to induce vomiting in the field in patients who have ingested acids, alkalis (lye), silver nitrate, iodides, strychnine or hydrocarbons.
- D. Ipecac syrup should not be confused with Ipecac fluid extract. The latter is very concentrated and has caused death.

ADMINISTRATION:

- A. Contact POISON CONTROL (279-7799) prior to administration of Ipecac.
- B. Adult: 30 ml p.o.
- C. Pediatric (over 1 year): 15 ml p.o.

SIDE EFFECTS AND SPECIAL NOTES:

- A. The emetic action is improved if fluids are given orally just before or after the Ipecac (2-3 glasses of water in adults).
- B. Emetic action may be enhanced by ambulation.
- C. The gag reflex may be an unreliable indicator of whether or not someone will be able to protect his/her airway in the event of emesis. Additionally, testing for a gag reflex in a patient with depressed level of consciousness may actually cause aspiration. USE CAUTION.
- D. Always stand by with suction. Patient should be in lateral decubitus position, or sitting.
- E. May not be successful in phenothiazine overdose due to strong antiemetic action.
- F. Check expiration date of Ipecac before administering.

NALOXONE (NARCAN (R))

PHARMACOLOGY AND ACTIONS:

Narcan (R) is a narcotic antagonist which competitively binds to narcotic sites but which exhibits almost no pharmacologic activity of its own. Duration of action: 1-4 hours.

INDICATIONS:

- A. Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs either ingested, injected or administered in the course of treatment. Narcotic drugs include morphine, Demerol (R), heroin, Dilaudid (R), Percodan (R), codeine, Lomotil (R), propoxyphene (Darvon (R)), pentazocine (Talwin (R)).
- B. Diagnostically in coma of unknown etiology to rule out (or reverse) narcotic depression.

PRECAUTIONS:

- A. In patients physically dependent on narcotics, frank and occasionally violent withdrawal symptoms may be precipitated.
- B. Be prepared to restrain the patient. May become violent as the Narcan (R) reverses the narcotic effect.

ADMINISTRATION:

0.8 mg (2 ml) injected IV, IM, SQ, SL., 2 mg by ET tube. If no response is observed, this dose may be repeated at 3-5 minute intervals up to four times in patients suspected of having narcotic overdose. IV administration is preferred.

SIDE EFFECTS AND SPECIAL NOTES:

- A. This drug is remarkably safe and free from side effects. Do not hesitate to use it if indicated.
- B. The duration of some narcotics is longer than Narcan (R) and the patient must be monitored closely. Repeated doses of Narcan (R) may be required. Patients who have received this drug must be transported to the hospital because coma may reoccur when Narcan (R) wears off.
- C. May need large doses to reverse propoxyphene (Darvon (R)) overdose.



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Rec'd ~~4/28/89~~
for ~~5/2/89 mtg~~

Emergency Medical Services

Multnomah County · City of Portland · Fairview · Gresham · Troutdale · Wood Village

EMERGENCY MEDICAL SERVICES

POLICY BOARD

April 4, 1989

- I. Basic and Advanced Life Support Treatment Protocol Changes
- J. Acker

- II. Emergency Ambulance Service/EMS Public Provider Concepts Public Hearing*
- EMSPB and County Commissioners

- III. Direction to EMS Staff

* Verbal testimony limited to five minutes per participant. Written testimony accepted (30 copies of testimony must be provided).

Health Division
Department of Human Services

[5299E m] 426 S.W. Stark Street — 8th Floor · Portland, Oregon 97204 · 248-3674

IN THE MATTER OF A PROPOSAL TO)
RULES CONCERNING PROCEDURES AND)
PREHOSPITAL TREATMENT PROTOCOLS)
FOR THE VARIOUS TYPES OF EMERGENCIES)
TO WHICH LICENSEES RESPOND)

EMS 2-89
Legal Authority
Statement of Need
Principal Document Relied On

1. Citation of Legal Authority:

MCC 6.31.060 A (3) authorizes the Emergency Medical Services Policy Board to recommend rules establishing procedures and prehospital treatment protocols for the various types of emergencies to which licensees respond and provide care.

2. Need for Rule:

The current protocols do not recognize the current knowledge on certain treatment modems and patient care techniques or skills. Also, the state has adopted a portion of the pediatric care material which these rules propose. The proposed rules are recommended by the EMS Medical Advisory Board.

3. Documents:

Minutes of the Treatment Protocol Subcommittee meetings from May 1988 through March 1989.

Medical Advisory Board meeting minutes from May 1988 through March 1989.

Oregon Plan for Pediatric Emergency Care

Standards for Advanced Cardiac Life Support AHA

BEFORE THE EMERGENCY MEDICAL SERVICES POLICY BOARD

IN THE MATTER OF RECOMMENDATION)	ORDER RECOMMENDING
OF RULE CONCERNING ADVANCED LIFE)	ADOPTION OF ADVANCED AND BASIC
SUPPORT PROTOCOLS AND BASIC LIFE)	LIFE SUPPORT PROTOCOLS
SUPPORT PROTOCOLS)	

WHEREAS, the EMS Policy Board, pursuant to MCC 6.31.062, conducted public hearings on April 4, 1989 concerning certain proposed administrative rules; and

WHEREAS, these rules have been reviewed by the Medical Advisory Board and recommended for adoption; and

WHEREAS, said rules, as amended by the Board, have been found to be consistent with the purposes of MCC Chapter 6.31 and in the public interest (see Statement of Need attached as Exhibit "I" and incorporated herein by reference); and

WHEREAS, said rules are contained in Exhibit "A" and "B" as attached,

IT IS HEREBY RECOMMENDED to the Board of County Commissioners that the rules appearing in Exhibits A and B attached be adopted and take effect upon adoption.

DATED this _____ day of _____, 1989.

Presiding Officer

APPROVED AS TO FORM:

LAURENCE KRESSEL, COUNTY COUNSEL
FOR MULTNOMAH COUNTY OREGON

By _____
Sandra Duffy
Assistant County Counsel

PROTOCOL CHANGES OVERVIEW

4/4/89

The following is a listing of Protocol Changes to be considered by the EMSPB on April 4, 1989.

ALS Attachment A

1. Do not Resuscitate - Addition to Definitions -1.
2. Burns - Addition of Transport section.
3. Cardiac Arrest - Addition of E.T. Lidocaine dosage.
Repeated doses of Lidocaine changed from every 8 minutes to every 5 minutes to total dose of 3 mg/kg. G, page A 13 is added regarding Lidocaine after successful resuscitation.
4. Cardiac Dysrhythmias - Changes in reference to Lidocaine dosage levels.
5. Hypothermia - major revision of protocol which recognizes rewarming standards.
6. Near Drowning - removal of reference to Heimlich maneuver.
7. Poisons and Overdoses - references to activated charcoal included.
8. Seizures - rectal medication administration added for pediatric patients.
9. Suspected Spinal Injury - Dexamethasone is removed from drug therapy.
10. Albuterol - new protocol, replaces Alupent.
11. Diazepam - dosage for pediatric rectal administration added.
12. IV Solutions - revised to balanced salt solutions which consist of citrate and acetate buffers.
13. Lidocaine - bolus therapy changed from every 8 minutes to 5 minutes.
Page D22a, E., statement added: "This rule does NOT apply to patients in cardiac arrest."
14. Naloxone - removed statement under Precautions, B., concerning titrating the dose.
15. Medical Control of the Scene - procedure, 1., words "operated by a licensee of Multnomah County" added.
16. Transport by Fire Department ALS Rescues - this is a new protocol.
17. Intraosseous Infusion - new protocol.

BLS Attachment B

1. Death in the Field - new protocol
2. Near Drowning - removal of reference to Heimlich maneuver.
3. Suspected Spinal Injury - new protocol, replaces Spine Trauma.
4. Ipecac - new telephone number for Poison Control.
5. Naloxone - removed statement under Precautions, B., concerning titrating the dose. Administration; revised time intervals and number of repeats.

ATTACHMENT A

ADVANCED LIFE SUPPORT PROTOCOLS

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INTER-HOSPITAL PATIENT TRANSFER	T8 thru T10

DO NOT RESUSCITATE

Policy:

The goal is to provide comfort and emotional support with the highest quality medical care to patients in conformity with the highest ethical and medical standards. Unless a "DNR" order is issued and follows the protocol outlined, any patient who sustains a cardiopulmonary arrest will receive full cardiopulmonary resuscitation with the objective of restoring life.

Definitions:

1. A DNR (Do Not Resuscitate) Order is an order issued by a physician directing that in the event the patient suffers a cardiopulmonary arrest, (i.e. clinical death)* cardiopulmonary resuscitation will not be administered. Also see Transport of Chronically Ill Patient for the patient who is still breathing and has a pulse.
2. Resuscitation includes attempts to restore failed cardiac and/or ventilatory function by procedures such as endotracheal intubation, mechanical ventilation, closed chest massage, and defibrillation.

Protocol:

1. When the patient's family, friends, or nursing home personnel state that the patient is not to be resuscitated:
 - A. BLS protocols at the EMT-I level will be followed while attempts to determine if a written DNR order from the patient's physician is in the patient's medical file.
 - B. In the absence of written DNR order, call the attending physician or (if not quickly available) MRH physician for a verbal order.
 - C. The EMT must document the DNR order in the patient care report.
2. The following procedures should NOT be performed on a patient who is the subject of a confirmed DNR order and who is PULSELESS AND NONBREATHING:
 - A. CPR
 - B. Endotracheal intubation
 - C. Defibrillation
 - D. Assistance with respiratory efforts (i.e., "Bagging")
 - E. Oral/nasal airways
 - F. Suctioning
 - G. IV lines
 - H. Fluids
 - I. Medications, including oxygen
 - J. EKG monitoring

*Clinical death exists when a patient is pulseless and nonbreathing. Biological death has occurred when no CNS signs of life exist.

BURNS

SPECIFIC INFORMATION NEEDED:

- A. Time elapsed since burn.
- B. Was patient in a closed space with steam or smoke? For how long?
- C. Loss of consciousness.
- D. Accompanying explosion, toxic fumes.
- E. Prior cardiac or pulmonary disease.

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Extent of burns: Description of areas involved.
- C. Depth of burns: Superficial - erythema only.
 Significant - blistered or charred areas.
- D. Evidence of respiratory burns: Soot or erythema of mouth, singed nasal hairs, cough, hoarseness, respiratory distress.
- E. Associated trauma.

TREATMENT:

- A. Remove clothing which is smoldering or which is nonadherent to the patient.
- B. O₂, high flow, by non-rebreathing mask if there is possibility of respiratory burns, and in closed space burns.
- C. Remove rings, bracelets and other constricting items.
- D. If burn is moderate-to-severe, dress burns with dry, clean dressings or cover patient with burn sheet. For burns less than 20%, may apply wet dressings for comfort.
- E. Thermal Burns: If more than about 20% significant burn or if respiratory distress or hypotension exists:
 - 1. Start IV: Balanced salt solution, large bore, TKO or as % burn. Treat hypotension according to Shock Protocol.
 - 2. Monitor cardiac rhythm.

BURNS (Continued)

F. Electrical Burns:

1. Start IV: Balanced salt solution, large bore, TKO or as indicated by shock syndrome.
2. Monitor cardiac rhythm.
3. Apply sterile dressings to entry and exit burns.

G. Chemical Burns:

1. Flush contaminated skin and eyes with copious amounts of water. (see precautions)
2. Obtain and document vital signs, and transport.

H. Transport:

1. The following patients should be transported to a burn center:
 - a. Total burn which is 25% or more of body surface in an adult, 10-15% in a child.
 - b. Full thickness burn which is 10% or greater of body surface.
 - c. Burns with inhalation injuries, fractures, or in poor risk patients.

SPECIFIC PRECAUTIONS:

- A. Attempt to leave unbroken blisters intact.
- B. Suspect airway burns in any facial burns or burns received in closed space. Use conservative fluid resuscitation when burns are confined to head and neck until airway is properly controlled.
- C. Deaths in the first 24 hours after burn injury are due to either airway burns or fluid loss. Fluids are calculated on the basis of extent of significant burn. No further burn classification is possible or useful in an acute situation.
- D. Consider carbon monoxide poisoning in all closed space burns. If suspected, give O₂, high flow, through non-rebreathing mask.
- E. Consider MI in firefighters who are burned; child abuse in pediatric burns, suicide attempt as cause for burns.
- F. Avoid starting IVs in burned areas if possible.

BURNS (Continued)

- G. In a few instances, caution should be used with water flushing of chemical contaminants. In the case of lime (CaCO_3), brush off excess, then flush with copious amounts of water. Do not use water for phosphorus contamination.
- H. Consider morphine sulfate for severe incapacitating pain per drug protocol.
- I. Emphasis is placed on immediate transportation of the significantly burned patient. Do not delay transportation for the sake of fluid administration.

CARDIAC ARREST

SPECIFIC INFORMATION: DO NOT DELAY MANAGEMENT TO OBTAIN HISTORY:

- A. History: Preceding symptoms, onset, downtime (no CPR).
- B. Past History: Diseases, medications
- C. Surrounding evidence of drug ingestion, penetrating or blunt injury.
- D. Appropriateness of resuscitative efforts: In unexpected or unwitnessed cardiovascular collapse, proceed with protocol unless obvious signs of death are present (rigor, etc.). In all others, begin protocol, then request further information of family members. Medical Resource may also be of assistance. (See Death In The Field Protocol.)
- E. Once resuscitative efforts have been initiated, they should be continued until arrival at the receiving hospital, or until a joint decision has been made with Medical Resource or the attending physician, that resuscitation should cease. (See Death In The Field Protocol.)

SPECIFIC PHYSICAL FINDINGS:

- A. Determine presence of arrest.
 - 1. Unresponsive.
 - 2. Absent or terminal respirations.
 - 3. Absent pulses over major arteries.
- B. If signs of penetrating chest injury or major blunt trauma are present with cardiopulmonary arrest, patient's only chance for survival is immediate transport. Apply PASG suit and administer fluids per shock protocol while en route. Ventilate and transport rapidly to appropriate facility. CLOSED CHEST MASSAGE IS NOT INDICATED IN THESE CIRCUMSTANCES IF THIS MEANS A DELAY IN IMMEDIATE TRANSPORT. (See Death In The Field Protocol.)

TREATMENT OF CARDIAC ARREST:

- A. Initiate CPR: Follow American Heart Association Basic Life Support standards. (See Appendix A.)
- B. Check cardiac rhythm with "quick look" paddles. Do not diagnose cardiac arrest solely on the basis of a monitor reading. Consider no respirations and no palpable pulse.
- C. ARREST DYSRHYTHMIAS.

CARDIAC ARREST (continued)

1. Ventricular Fibrillation.

Ventricular fibrillation (and pulseless ventricular tachycardia.) This sequence was developed to treat a broad range of patients with ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT). Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. Flow of algorithm presumes that VF is continuing. CPR indicates cardiopulmonary resuscitation.

If for any reason this protocol cannot be followed in treatment order or drug amounts, MRH should be contacted.

Witnessed Arrest

Unwitnessed Arrest

Check Pulse-If No Pulse

Check Pulse-If No Pulse

Precordial Thump

Check Pulse-If No Pulse

CPR Until a Defibrillator is Available

Check Monitor for Rhythm - if VF or VT^a

Defibrillate, 200 Joules^b

Defibrillate, 200-300 Joules^b

Defibrillate with up to 360 Joules

CPR if No Pulse

Establish IV Access

Epinephrine, 1:10,000, 0.5-1.0 mg IV Push^c

Intubate If Possible^d

Defibrillate With up to 360 Joules^b

Lidocaine, 1 mg/kg IV Push (or 2 mg/kg E.T.)

Defibrillate With up to 360 Joules^b

Bretylium, 5 mg/kg IV Push^e

(Consider Bicarbonate)^f

Defibrillate With up to 360 Joules^b

Bretylium, 10 mg/kg IV Push*

Defibrillate With up to 360 Joules^b

Repeat Lidocaine or Bretylium

Defibrillate With up to 360 Joules^b

*Contact MRH if not done previously, or at any time if this protocol cannot be followed in order or in drug amounts.

CARDIAC ARREST (continued)

- a. Pulseless VT should be treated identically to VF.
- b. Check pulse rhythm after each shock. If VF recurs after transiently converting (rather than persists without ever converting), use whatever energy level has previously been successful for defibrillation.
- c. Epinephrine should be repeated every five minutes (1 mg per ET tube if no IV).
- d. Intubation is preferable. If it can be accomplished simultaneously with other techniques, then the earlier the better. However, defibrillation and epinephrine are more important initially if the patient can be ventilated without intubation.
- e. Some may prefer repeated doses of lidocaine, which may be given in 0.5-mg/kg boluses every five minutes to a total dose of 3 mg/kg.
- f. Value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for routine cardiac arrest sequence. Consideration of its use in a dose of 1 mEq/kg is appropriate at this point. Half of original dose may be repeated every ten minutes if it is used.
- g. After successful resuscitation, a continuous infusion of lidocaine should be initiated at 2-4 mg/min. Be cautious with the administration of lidocaine if:

Blood pressure is less than 90 systolic, OR
Heart rate is less than 50/min. OR
Periods of sinus arrest or any A-V block are present

After successful resuscitation, doses of lidocaine should be reduced by 50% in presence of decreased cardiac output (congestive heart failure, hypotension) hepatic dysfunction or age more than 70.

CARDIAC ARREST (continued)

2. Ventricular Tachycardia

No Pulse

Treat as VF

Pulse Present

Stable^a

Unstable^b

O₂

O₂

IV Access

IV Access
Contact MRH

Lidocaine 1 mg/kg

(Consider Sedation)^c

Cardiovert 50 Joules^d

Prepare patient for transport

Lidocaine, 0.5 mg/kg Every
5 min until VT Resolves, or
up to 3 mg/kg* while in
transport

Cardiovert 100 Joules

Cardiovert 200 Joules

Cardiovert With up to
360 Joules^d

If Recurrent, Add Lidocaine
and Cardiovert again starting
at energy level previously
successful; Then Bretylium

After conversion, an
infusion of lidocaine at
2-4 mg/min. should be
started.

After conversion, an
infusion of lidocaine at
2-4 mg/min. should be
started.

*Contact MRH if not done previously

- a. If patient becomes unstable (see footnote b for definition) at any time, move to "Unstable" arm of algorithm.
- b. Unstable indicates symptoms: hypotension (systolic blood pressure less than 90 mm Hg), chest pain, congestive heart failure, or unconsciousness.
- c. Sedation should be considered for all patients, including those defined in footnote b as unstable, except those who are hemodynamically unstable (e.g., hypotensive, in pulmonary edema, or unconscious).
- d. In the absence of hypotension, pulmonary edema, or unconsciousness, a precordial thump may be employed prior to cardioversion.

CARDIAC DYSRHYTHMIAS

SPECIFIC INFORMATION:

- A. Chief complaint, sudden or gradual onset.
- B. Related symptoms: dizziness, angina, syncope, s.o.b., palpitations.
- C. Medications.

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Signs of low cardiac output:
 - 1. Altered state of consciousness.
 - 2. Presence of shock syndrome.
- C. Signs of congestive failure.
- D. NOTE: DYSRHYTHMIAS MAY NOT REQUIRE TREATMENT IN THE FIELD IF THE PATIENT IS ASYMPTOMATIC (i.e., NO SIGN OF LOW CARDIAC OUTPUT.)

GENERAL APPROACH TO TREATMENT:

(For specific treatment see under appropriate rhythm disturbance.)

- A. O₂, position of greatest comfort.
- B. Monitor cardiac rhythm.
- C. Start IV: Large bore D5W, microdrip chamber, TKO rate.
- D. Identify rhythm as closely as possible. Contact Medical Resource Hospital for assistance as needed.

PVC's: 1. Premature Ventricular Complexes: Treat only in the setting of a suspected ischemic event.

LIDOCAINE PROTOCOL:

- a. Initial bolus: 1mg/kg over 1-2 min.
- b. Begin lidocaine drip at 2 mg/min.
- c. Repeat one-half of dose every 5 minutes until a maximum of 3 mg/kg is given. Increase lidocaine drip 1 mg/min after each repeat lidocaine bolus to maximum of 4 mg/min..
- d. All doses, including initial bolus, must be reduced by 50% in patients with congestive heart failure, shock, or hepatic disease, or who are over 70 years of age.

CARDIAC DYSRHYTHMIAS (continued)

2. If PVC's are associated with a bradydysrhythmia, see section on bradydysrhythmias.
- BRADY
1. Bradydysrhythmias (sinus bradycardia, ventricular escape rhythm, AV nodal block.)
 - A. Treatment may not be required if there are no signs of low output and blood pressure remains above 90 Torr and pulse rate is greater than 50.
 - B. ATROPINE - give 0.5 to 1.0 mg IV and repeat every 5 min. to a maximum of 2.0 mg as needed to maintain rate above 50 and blood pressure above 90 Torr.
 - C. Contact MRH if patient does not respond to Atropine.
 - D. ISOPROTERENOL - give cautiously if no response to atropine. Administer as drip of 2-10mcg/min to maintain a ventricular rate of 60-70.
 - E. Call MRH to notify of potential need for pacemaker insertion.

CARDIAC DYSRHYTHMIAS (continued)

SUPRAVENTRICULAR TACHYCARDIA

Paroxysmal supraventricular tachycardia (PSVT). These various dysrhythmias are often very difficult to differentiate. If the patient is perfusing well, no specific prehospital treatment is necessary. Transport with monitoring. Consider IV and O₂.*

If dysrhythmia is resulting in a hemodynamically unstable patient immediate cardioversion should be considered.

Hemodynamically
Unstable**
(consider sedation)

Hemodynamically
Stable

Synchronous
Cardioversion
75-100 Joules***

Vagal Maneuvers

Synchronous
Cardioversion
200 Joules

Synchronous
Cardioversion
360 Joules

Correct Underlying
Abnormalities

Pharmacological
Therapy (per MRH)
+ Cardioversion

If conversion occurs but PSVT recurs, repeated electrical cardioversion is not indicated.

* If rate is above 150, regardless of cause and in the setting of a suspected acute ischemic event, treatment early in the course may prevent impending cardiovascular collapse.

** Unconscious, pulmonary edema, shock syndrome, chest pain.

*** Before cardioversion of the conscious patient with poor perfusion, contact MRH.

HYPOTHERMIA

SPECIFIC INFORMATION NEEDED:

- A. Length of exposure?
- B. Define categories of accidental hypothermia by physical findings (patient will be categorized by lowest physiological variable):
 - Apnea - Put metal or glass slide under nostrils for 60 seconds.
 - Pulse - Palpate carotid pulse for 60 seconds.
 - EKG - Attach EKG leads and interpret rhythm.
 - LOC - Determine LOC by verbal and motor responsiveness.
- C. See Categories of Accidental Hypothermia (Specific Physical Findings) chart.

TREATMENT:

- A. Warm oxygen preferably.
- B. Monitor cardiac rhythm.
- C. IV fluids - warmed if possible
 - Type: Normal saline or Normosol recommended.
 - Recommended Rate: 10 cc's/kg bolus, then 5 cc's/kg thereafter.

SPECIFIC PRECAUTIONS:

- A. Handle alive patient gently - do not jostle.
- B. Do not force oral intubation.
 - Do not nasotracheally intubate.
 - Consider needle cricothyrotomy only if patient deteriorates AND jaw is frozen.
- C. Do chest compressions only if chest is compressible and patient has a disorganized rhythm.
- D. If terrain is difficult, evacuate patient first and treat second.
- E. Cardiopulmonary bypass offers rapid rewarming in profoundly cold patients who have cardiac failure (Category 1, 2, 3).
- F. Consider other protocols as appropriate (i.e. altered mental status).

HYPOTHERMIA (continued)

CATEGORIES OF ACCIDENTAL HYPOTHERMIA (SPECIFIC PHYSICAL FINDINGS)

1. <u>Frozen, Lifeless</u>	2. <u>Cold, Lifeless</u>	3. <u>Cold, Alive</u>	4. <u>Moderate Hypothermia</u>
If major trauma present, or head and trunk frozen, determine patient death in field. Apneic, pulseless,	If major trauma determine patient death in field. Apneic, pulseless, disorganized EKG rhythm,* unconscious	Respirations 12 No pulse palpable Organized EKG rhythm** Responsive to stimulus	Respirations 12 Pulses palpable Organized EKG rhythm** Responds to commands

Treatment:

Transport if risk to personnel is acceptable.	ACLS Protocols Warm O ₂ No nasotracheal tube Start IV via peripheral vein if possible	No CPR Warm O ₂ IVs if feasible EKG monitoring	Supportive care No CPR Warm O ₂ IVs if feasible EKG monitoring
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Antiarrhythmic:

None	Bretylium first drug of choice for V. fibrillation	Prophylactic Lidocaine if IV available (normal dose)	Prophylactic Lidocaine if IV available (normal dose)
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Consider pump rewarming:

Yes, maybe. No, if major trauma present.	Yes, probably. No, if major trauma present.	Yes, probably. No, if major trauma present.	No, unless deteriorating.
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* Disorganized EKG rhythm is incompatible with life. (Asystole or V. Fib)
** Organized EKG rhythm is compatible with life (EMD etc.)

NEAR DROWNING

SPECIFIC INFORMATION NEEDED:

- A. How long patient was submerged.
- B. Approximate temperature of water.
- C. Fresh or salt water.
- D. Associated trauma.
- E. Was this a SCUBA diving accident?

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Neurologic status: Note, record, and monitor mental status.
- C. Initial presence of crackles or other signs of pulmonary edema, respiratory distress, and any changes during transport.

TREATMENT:

- A. Clear upper airway.
- B. Assist ventilation as needed; if unsuccessful, patient may need intubation and positive pressure, suction, or relief of gastric distention.
- C. Stabilize neck prior to removing from water if any suggestion of neck injury.
- D. O₂, high flow.
- E. IV: Volume expander (balanced salt solution), TKO.
- F. Monitor cardiac rhythm.

SPECIFIC PRECAUTIONS:

- A. If patient is still in water, rescue by trained, equipped personnel only.
- B. Be prepared for vomiting.
- C. ALL NEAR-DROWNINGS SHOULD BE TRANSPORTED. Even if patients initially appear fine, they can deteriorate. Monitor closely. Pulmonary edema is likely.
- D. Hypothermia may be a problem. If suspected, refer to hypothermia protocol.
- E. It is a common error to underestimate injuries in near-drownings from jumping, MVAs, etc.

POISONS AND OVERDOSES (Cont'd.)

- a. Administer Naloxone 2 mg, slowly injected IV, IM, SC, SL, or ET, and observe for improved ventilations (may be repeated every 3-5 minutes up to 8 mg).
 - b. Thiamine, 100 mg IV if alcoholism is possible.
 - c. Administer dextrose 50%, 50 ml.
 - d. Monitor cardiac rhythm.
6. If overdose includes tricyclic anti-depressant:
- a. Hyperventilate if possible.
 - b. Treat hypotension, as indicated, with fluid challenge and PASG pants.
 - c. If life-threatening arrhythmias exist, administer 1 mEq/kg NA HCO₃, slow IV push, after consultation with Medical Resource Hospital.
7. If cholinergic poisoning (e.g., organophosphate poisoning) has occurred and patient is critical with "SLUD" symptoms, administer 1-2 mg atropine, slow IV per MRH order and repeat dosage every 5 minutes until secretions have substantially decreased.
8. Consider administration of ipecac or activated charcoal in conscious, alert patients, if the ingestion occurred within the past 6 hours, (30 ml ipecac in adult, 15 ml in child over 1 year). Follow with 2-3 glasses of H₂O and ambulate if possible. Note specific precautions.
9. If arrhythmias or conduction abnormalities present or persist after treatment, treat per arrhythmia protocol and contact MRH.
- a. Obtain and document vital signs during transport.

SPECIFIC PRECAUTIONS:

- A. Contact MRH before administering ipecac or activated charcoal.
- B. Do not induce vomiting in patients who:
 1. Have ingested strong acid, strong base, iodides, silver nitrate, strychnine, phenothiazines, hydrocarbons, or camphor.
 2. Are unconscious, obtunded, seizing, or have no gag reflex.

POISONS AND OVERDOSES (Cont'd.)

3. Are in the third trimester of pregnancy.
 4. In general, tricyclics, short acting sedatives, and beta blockers should not be ipecaced in the field.
- C. Some hydrocarbon ingestions may benefit from emesis, contact Medical Resource on all hydrocarbon ingestions.
- D. Do not try to neutralize acids with strong alkalis. Do not try to neutralize alkalis with acids.
- E. Inhalation poisoning is particularly dangerous to rescuers. Recognize an environment with continuing contamination and extricate rapidly by properly trained and equipped personnel.
- F. Ipecac may take up to 30 minutes to work. Be prepared to manage airway.
- G. Activated charcoal may be ineffective in ingestions such as mineral acids, alkalies, petroleum products, or cyanide.
- H. SLUDS - salivation, lacrimation, urination, defecation, sweating.

SEIZURES

SPECIFIC INFORMATION NEEDED:

- A. Seizure history: Onset, time interval, previous seizures, type of seizure. Consider febrile seizures in children.
- B. Medical history: Medications and compliance, head trauma, diabetes, headaches, drugs, alcohol, pregnancy.

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Seizure activity.
- C. Level of consciousness.
- D. Head and oral trauma.
- E. Incontinence. (Urinary or fecal.)
- F. Focal neurologic signs.
- G. Headache.

TREATMENT:

- A. Airway: Insure patency - nasopharyngeal airways useful.
NOTE: Do not FORCE anything between the teeth. Do not use esophageal obturator airway.
- B. O₂ as needed.
- C. Suction as needed.
- D. If patient is seizing upon arrival or has prolonged (more than 2") or repetitive seizures:
 - 1. Start IV: TKO or as directed.
 - 2. Draw one red top tube
 - 3. Dextrose 50%, 50 ml IV into secure vein, if history not obtainable. Give thiamine 100 mg IV before giving glucose if alcoholism is suspected. Consider naloxone 2 mg, slowly, to a maximum of 8 mg.
 - 4. Contact Medical Resource Hospital if further intervention is necessary.

SEIZURES (Cont'd.)

5. Administer diazepam by MRH order, (Valium) 5-10 mg (not to exceed 0.3 mg/kg) slowly IV, for continued grand mal seizure activity. Pediatric dose 2-5 mgm, slowly (0.1 mg/kg). If unable to administer pediatric dose intravenously, consider rectal administration .5mgm/kgm.
- E. Lateral recumbent position for transport.
- F. Monitor cardiac rhythm.
- G. Obtain and document vitals.
- H. Document patient's level of consciousness at time of transport.

SPECIFIC PRECAUTIONS:

- A. Move hazardous material away from patient. Restrain the patient only if needed to prevent injury. Protect patient's head.
- B. Trauma to tongue is unlikely to cause serious problems. Trauma to teeth may. Attempts to force an airway into the patient's mouth can completely obstruct his airway.
- C. Seizures in patients over the age of 50 are frequently caused by arrhythmias.
- D. Medical personnel are often called to assist epileptics who seize in public. If patient clears completely, is taking his medications, has his own physician and is experiencing his usual frequency of seizures, transport may be unnecessary. Document patient's mental status and have patient sign a refusal form.
- E. Don't forget to check for a pulse once a seizure terminates. Seizure activity may be the first sign of cerebral hypoxia from cardiac arrest!
- F. Focal motor seizures are generally not treated in the pre-hospital setting.

SUSPECTED SPINAL INJURY

SPECIFIC INFORMATION NEEDED:

- A. Violent mechanism of injury (witness, scene, situation).
- B. High energy transfer (ejection, helmet damage, starred windshield, etc.)

SPECIFIC PHYSICAL FINDINGS:

- A. Significant injury above the clavicles.
- B. Significant multiple trauma.
- C. Prior or present altered mental status.
- D. Paralysis, weakness, numbness, or tingling with violent mechanism of injury or high energy transfer.
- E. Pain of the spine with or without movement.
- F. Point tenderness, deformity, or guarding of the spine.

TREATMENT:

The following treatment will be used when any or all of the above Specific Physical Findings are present, or when in the EMT's best judgment the patient needs spinal support.

- A. Temporarily immobilize cervical spine with rigid extrication collar and continuous manual in-line support. Immobilize thoracic and lumbosacral spine to long spine board, when possible, and/or other appropriate device as patient condition allows (KED, orthopedic, etc.). Secure head and cervical spine to long spine board using dense, soft, support material on both sides of the head, and tape. Patient's entire body will be securely immobilized by straps affixed directly to the long board. During this procedure the patient should be moved as little as possible, and always as a unit.
- B. Oxygen as indicated.
- C. I.V. per shock protocol, if appropriate.

SPECIFIC PRECAUTIONS:

- A. Vomiting should be expected in head injury patients. Therefore, patient should be securely strapped to long board to enable board and patient to be turned as a unit. EMT should be aware that additional help may be necessary during transport to turn patient and manage airway while maintaining C-spine integrity.
- B. Chin straps that could compromise the airway should be removed as the patient is immobilized to the long board. (Leg straps which may compromise C-spine immobilization should also be removed.)

SUSPECTED SPINAL INJURY, cont.

- C. Most patients require 1 to 1 1/2 inches of firm padding behind the head to assume standard neutral anatomic position.
- D. In the severely traumatized patient requiring immediate life saving intervention and rapid transport, rigid C-collar, continuous manual in-line support during rapid extrication onto a long spine board and transport should be substituted for more time consuming methods.
- E. Airway problems, respiratory difficulty, and shock are common in the traumatized patient. Alternate techniques for performing airway procedures should be used in spinal injury patients. To maintain proper control of the C-spine, endotracheal intubation with in-line stabilization must be performed by two EMTs.
- F. If any immobilization techniques cause an increase in pain or neurologic deficit, the patient should be immobilized in position found or position of greatest comfort.
- G. Geriatric patients (over 55) should cause a higher index of suspicion for the EMT due to physiologic aging changes; the EMTs' awareness of the need to provide for C-spine immobilization should be more acute in these patients.

ALBUTEROL (VENTOLIN)^R

PHARMACOLOGY AND ACTIONS:

Albuterol sulfate (ventolin)^r is a potent, relatively selective beta₂-adrenergic bronchodilator. The pharmacologic effects are at least in part attributable to stimulation through beta-adrenergic receptors of intracellular adenylyl cyclase which catalyzes the conversion of ATP to cyclic-AMP. Increased cyclic-AMP levels are associated with relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially mast cells.

The onset of improvement in pulmonary function is within 2 to 15 minutes after the initiation of treatment and the duration of action is from 4-6 hours.

As a beta₂ agonist, albuterol induces bronchial dilation, but has occasional beta₁ overlap with clinically significant cardiac effects. Clinically significant arrhythmias may occur especially in patients with underlying cardiovascular disorders such as coronary insufficiency and hypertension.

INDICATIONS:

- A. Bronchial asthma and reversible bronchial spasm that occur with chronic pulmonary disease.

PRECAUTIONS:

- A. The patient's rhythm should be observed for arrhythmias. Stop treatment if:
 - 1. Pulse increases by 20 BPM
 - 2. Frequent pvc's develop
 - 3. Any tachyarrhythmias other than sinus tachycardia appear.
- B. Paradoxical bronchospasm may occur with excessive administration.
- C. Albuterol is contraindicated in pregnancy.

ADMINISTRATION:

- A. The usual dosage for adults and children 12 years and older is 2.5 mg of albuterol administered three to four times daily by nebulization.
- B. Albuterol sulfate solution for inhalation comes premixed in 3 ml unit dose containing total 2.5 mg at a concentration of 0.83 mg/ml. Refrigeration is not necessary with this medication.

DIAZEPAM (VALIUM (R))

PHARMACOLOGY AND ACTIONS:

Diazepam acts as a tranquilizer, an anticonvulsant and a skeletal muscle relaxant.

INDICATIONS:

- A. Status epilepticus. In the field, this is any seizure which has lasted longer than 10 minutes, or two consecutive seizures without regaining consciousness. Do not give unless patient is actively seizing.
- B. May be given prior to cardioversion. Contact MRH.

PRECAUTIONS:

- A. Since diazepam can cause respiratory depression and/or hypotension, the patient must be monitored closely. Very rarely cardiac arrest may occur.
- B. For the above reasons, diazepam should not be given without a good IV line in place and a bag valve mask ready.

ADMINISTRATION:

- A. Adult: 5-10 mg slow IV push (each 5 mg over at least one minute).
- B. Pediatric: 2-5 mg slow IV push (0.1 mg/kg).

SIDE EFFECTS AND SPECIAL NOTES:

- A. Common side effects include drowsiness, dizziness, fatigue and ataxia. Paradoxical excitement or stimulation sometimes occurs.
- B. Should not be mixed with other agents or diluted with intravenous solutions. Turn off IV flow while administering, and give through the near end of IV tubing.
- C. Most likely to produce respiratory depression in patients who have taken other depressant drugs, especially alcohol and barbiturates, or when given rapidly.
- D. Consider rectal administration .5 mgm/kg (if unable to administer IV) in seizing children. Contact MRH.

IV SOLUTIONS

BALANCED SALT SOLUTIONS (BSS):

PHARMACOLOGY:

These are solutions which consist of balanced electrolytes in water. These solutions contain sodium chloride, sodium acetate, sodium gluconate, potassium chloride, and magnesium chloride hexahydrate. They provide water and electrolytes for replacement of acute extracellular fluid losses and they do not disturb the normal electrolyte balance since the electrolyte composition and tonicity approach that of normal plasma. They do not contain calcium and will not lead to precipitation when mixed with blood or prehospital medications.

INDICATIONS:

A balanced salt solution is indicated for replacement of fluid volume losses such as in trauma, burns, dehydration, or shock.

PRECAUTIONS:

Balanced salt solutions should be used with caution in patients with renal impairment (hyperkalemia), cardiac and respiratory disorders (fluid overload), or extremes of age.

SPECIAL NOTES:

- A. Only solutions that consist of citrate and acetate buffers and are 100% compatible to two currently available solutions Normosol-R and Plasmalyte-A are acceptable.
- B. Where IVs are used to maintain venous access, a heparin lock may be substituted.
- C. Since BSS are compatible with all prehospital medications, including blood products, they offer more than LR as a trauma resuscitation fluid.
- D. In patients in which fluid overload is a problem, BSS may be used with a microdrip, and this microdrip may be used to administer prehospital medications.

LIDOCAINE (XYLOCAINE (R))

PHARMACOLOGY AND ACTIONS:

- A. Depresses automaticity of Purkinje fibers; therefore, raises stimulation threshold in the ventricular muscle fibers (makes ventricles less likely to fibrillate).
- B. Little antiarrhythmic effect at subtoxic levels on atrial muscle.
- C. CNS stimulation: tremor, restlessness and clonic convulsions followed by depression and respiratory failure at higher doses.
- D. Cardiovascular effect: decreased conduction rate and force of contraction, mainly at toxic levels.
- E. The effect of a single bolus on the heart disappears in 10-20 minutes due to redistribution in the body. Metabolic half-life is about 2 hours and, therefore, toxicity develops with repeated doses.

INDICATIONS:

- A. PVC's in suspected ischemic event.
- B. Prophylaxis: used to prevent ventricular arrhythmias in patients suspected of having an MI.
- C. Stable ventricular tachycardia or recurrent ventricular tachycardia if clinical condition is not rapidly deteriorating.
- D. Recurrent ventricular fibrillation.
- E. Following successful defibrillation or cardioversion from ventricular tachycardia.

PRECAUTIONS:

- A. Use with extreme caution in presence of advanced AV block unless artificial pacemaker is in place.
- B. In atrial fibrillation or flutter, quinidine-like effect may cause alarming ventricular acceleration.
- C. Lidocaine is generally not recommended for treatment of supra-ventricular arrhythmias.

LIDOCAINE (XYLOCAINE (R)) (Cont'd)

- D. Diazepam (R) should be available to treat convulsions if they occur.
- E. Relatively contra-indicated with heart rate less than 50.

ADMINISTRATION:

The protocol for Lidocaine administration will depend upon the clinical setting in which it is used:

- A. Cardiac Arrest: Ventricular Fibrillation or Pulseless Ventricular Tachycardia:
 - 1. Lidocaine bolus 1mg/kg load then .5 mg/kg every 5 minutes * to total dose of 3mg/kg.
 - 2. Only bolus therapy should be used in the cardiac arrest setting (should the arrest be followed by successful resuscitation, a continuous infusion should be initiated at 2-4mg.min).
- B. Ventricular Tachycardia with pulse:
 - 1. Lidocaine bolus 1mg/kg load, then .5 mg/kg every 5 minutes * to total dose of 3mg/kg.
 - 2. An infusion of 2-4 mg/min should be started.
- C. Ventricular Ectopy (PVC):
 - 1. Lidocaine 1mg/kg load then .5 mg/kg every 5 minutes to total dose of 3/mg/kg.
 - 2. An infusion of 2mg/min should be started. This drip should be increased by 1mg/min after each bolus to a total of 4mg/min.

* PLEASE NOTE: These times vary from ACLS guidelines. For Ventricular Fibrillation, Pulseless Ventricular Tachycardia, and Ventricular Tachycardia with pulse, ACLS recommends Lidocaine every 8 minutes.

LIDOCAINE (XYLOCAINE (R)) (Cont'd)

- D. Primary prophylaxis against ventricular fibrillation: (to be considered in the context of suspected acute myocardial infarction).
1. Lidocaine bolus 1mg/kg load, then .5 mg/kg every 5 minutes to total dose of 2mg/kg.
 2. An infusion of 2mg/min should be started.
- E. All Lidocaine doses (including loading doses) should be reduced by 50% in presence of decreased cardiac output (congestive heart failure, hypotension), hepatic dysfunction, or age more than 70. This rule does NOT apply to patients in cardiac arrest.

NALOXONE (NARCAN (R))

PHARMACOLOGY AND ACTIONS:

Narcan (R) is a narcotic antagonist which competitively binds to narcotic sites but which exhibits almost no pharmacologic activity of its own. Duration of action: 1-4 hours.

INDICATIONS:

- A. Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs either ingested, injected or administered in the course of treatment. Narcotic drugs include morphine, Demerol (R), heroin, Dilaudid (R), Percodan (R), codeine, Lomotil (R), propoxyphene (Darvon (R)), pentazocine (Talwin (R)).
- B. Diagnostically in coma of unknown etiology to rule out (or reverse) narcotic depression.

PRECAUTIONS:

- A. In patients physically dependent on narcotics, frank and occasionally violent withdrawal symptoms may be precipitated.
- B. Be prepared to restrain the patient. May become violent as the Narcan (R) reverses the narcotic effect.

ADMINISTRATION:

2.0 mg slowly injected IV, IM, SQ, SL., or by ET tube. If no response is observed, this dose may be repeated at 3-5 min intervals up to four times in patients suspected of having narcotic overdose. IV administration is preferred.

SIDE EFFECTS AND SPECIAL NOTES:

- A. This drug is remarkably safe and free from side effects. Do not hesitate to use it if indicated.
- B. The duration of some narcotics is longer than Narcan (R) and the patient must be monitored closely. Repeated doses of Narcan (R) may be required. Patients who have received this drug must be transported to the hospital because coma may reoccur when Narcan (R) wears off.
- C. May need large doses to reverse propoxyphene (Darvon (R)) overdose.

MEDICAL CONTROL OF THE SCENE

Purpose: The purpose of this protocol is to describe who is in charge of patient care at the scene of a medical emergency.

Procedure:

1. The first arriving EMT-4 on an ALS unit operated by a licensee of Multnomah County will assume responsibility for directing overall patient care.
2. The responsibilities of the EMT-4 directing overall patient care include:
 - A. Assuring that treatment, operations, and communications follow the proper protocols established by rule under Multnomah County Code Chapter 6.31 when treating and transporting victims of medical emergencies.
 - B. Avoiding direct patient care activities.
This EMT-4 must watch over the entire patient care scene activities and be sure that the patient care activities are being accomplished in a rapid, efficient, appropriate, and timely manner. If there are only two (2) EMT-4s at the scene, this EMT must do those patient care activities (e.g., start IV) which will allow him/her to watch over the whole scene easily.
 - C. Directing other EMT's to establish airway management, start IV's, etc.
 - D. Establishing the appropriate time to be spent at the scene for doing patient care according to the protocol for "Time at the Scene."
 - E. Determining when transportation of the patient is to occur.
 - F. Performing medical coordination with all agencies and personnel.
3. The EMT-4 directing overall patient care will be held responsible and accountable for patient care activities performed at the scene, and he/she will be so identified on all patient care reports.
4. The first arriving EMT-4 will turn over patient care to the transporting EMTs, if they are not the same, if and when it is determined that transport is imminent. Continued patient care will then become the responsibility of the transporting unit. Such transfer of responsibility will be carried out at a time which is most appropriate to patient care.
5. Any disputes about patient care should be referred immediately to and resolved by the Medical Resource Hospital Physician.
6. Scene care may be transferred to a Flight Nurse for air transportation.
7. Care may also be transferred to a Physician at the scene (see protocol for "Medical Professional at the Scene").

TRANSPORT BY FIRE DEPARTMENT ALS RESCUES

Purpose: The purpose of this procedure is to define those occasions when transportation of patients by fire department ALS licensed rescues may be appropriate.*

Procedure:

1. It may be appropriate for a fire department ALS rescue to transport a patient when waiting for an incoming transporting ALS ambulance will delay patient transport by five or more minutes,** and the patient, after assessment, exhibits one or more of the following conditions:
 - A. Existing airway obstruction or respiratory failure with inability to secure an adequate airway and ventilation in the field.
 - B. Severe uncontrollable bleeding or existing circulatory failure with inability to achieve hemodynamic stability.
 - C. Abnormal delivery (such as breech, shoulder).
2. In all cases, fire department rescues will transport the patient to the closest appropriate hospital, code 3, with the highest certified EMT providing patient care during transport.
3. In addition to those instances above, it is appropriate for a fire department ALS rescue to transport a patient when a physician (MD, DO) on scene orders transport by the ALS rescue.
4. For situations not covered by the above criteria, particularly in trauma cases, in which immediate transport is in the patient's best interest, Medical Resource Hospital should be contacted for consultation and approval.

* Fire department ALS rescues are licensed to Oregon State Division of Health EMS standards. Personnel standards are at least one EMT III and one EMT I.

** As determined through the EMS dispatcher.

INTRAOSSIOUS INFUSION

DEFINITION: An alternative technique for establishing IV access in pediatric patients in whom peripheral IV access is difficult and time consuming.

INDICATIONS:

- A. Intraosseous infusion is indicated in emergency situations when life-saving fluids or drugs should be administered and IV cannulation is either too difficult or time consuming to perform.
- B. In the prehospital setting, intraosseous infusion is normally considered in a child three years of age or less, in cardiac arrest or shock with a decreased level of consciousness, with an inability to establish peripheral IV access.
- C. This procedure should not delay transport time, and airway management should be the therapeutic priority in all these cases.

PROCEDURE:

The procedure for initiating intraosseous infusion includes:

A. Equipment:

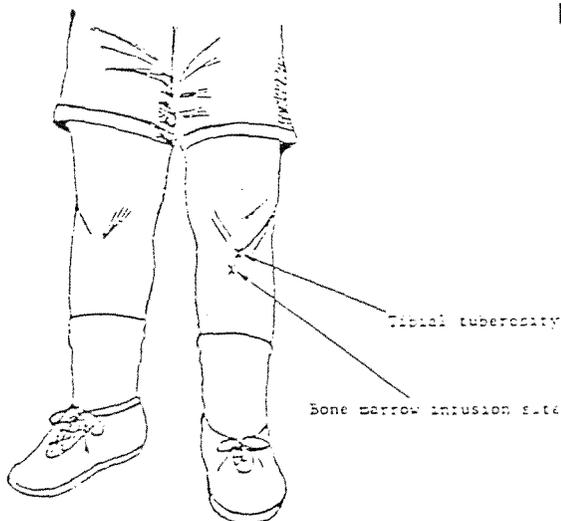
1. Approved bone marrow type needles 16 and 18 gauge size.
2. Betadine swabs
3. Two 5cc syringes
4. Flush solution
5. Sterile gauze pads
6. Tape

B. Site Selection:

The proximal tibia is the site of choice. Avoid using a leg which has been traumatized or infected.

C. Site Preparation:

Palpate the landmarks and note the entry point which is the anteromedial flat surface 1-3 cm below the tibial tuberosity. Then prep the surface with betadine and dry with a sterile gauze pad.



D. Insert Needle:

Insert at the proximal tibial site, directing the needle caudally (toward the foot, away from the knee joint in order to avoid damaging the growth plate). The needle should penetrate the skin and subcutaneous tissue and be pushed through the cortex of the bone using rotation (avoid rocking the needle!), until a "pop" or loss of resistance is felt. Placement in the marrow should then be confirmed by:

- D. 1. Firm fixation of the needle, and either:
 - 2. Removal of the stylet with free aspiration of marrow/blood (which should be saved for type and cross), or
 - 3. Infusion of 2-3cc of sterile solution, palpating for extravasation or noting significant resistance. If extravasation should occur, further attempts at the site and extremity should be avoided.

- E. Start Infusion:
Although gravity drainage may suffice, pressurized infusions (blood pump or syringe and stopcock) may be needed during resuscitation.

PRECAUTIONS

- A. Potential complications of bone marrow infusion include osteomyelitis, growth plate injury, and extravasation of fluid with compression of popliteal vessels or the tibial nerve.

- B. In all critical cases, the airway and breathing should be established first, since many drugs can be given via the endotracheal route (naloxone, atropine, epinephrine, and lidocaine).

- C. Two attempts, one in each tibia should be the maximum number of attempts.

- D. General contraindications for intraosseous infusion include cellulitis or infected burns at the site of insertion and fractures of the bones proximal to the insertion site.

NOTE

- A. All prehospital ALS personnel must be inserviced and approved by their supervising physician prior to performing this procedure.

- B. A written report of all intraosseous procedures must be made to the Board of Medical Examiners and Multnomah County EMS.

- C. This procedure is approved on a provisional basis pending careful review of cases to determine the need for and efficacy of intraosseous infusions.

ATTACHMENT B

DEATH IN THE FIELD

Withholding Resuscitative Efforts:

- A. Determining death in the field without initiating resuscitative efforts should be considered under the following conditions:
 - 1. Patient qualifies as a "DNR" patient (see DNR Protocol)
 - 2. A pulseless, non-breathing patient in a multiple casualty incident where the resources of the system are required for the stabilization of living patients.
 - 3. Decapitation
 - 4. Rigor Mortis in a warm environment
 - 5. Decomposition.
 - 6. Skin discoloration in dependent body parts

Determining Death in Cardiac Arrest:

- A. The victim of a medical (non-traumatic) cardiac arrest should not be determined to be dead on the scene unless:
 - 1. The patient meets criteria for withholding resuscitative efforts (A.1-6), or;
 - 2. The patient has been shown to be unresponsive to appropriate advanced cardiac resuscitative measures.
- B. Traumatic Arrest
 - 1. In addition to the conditions listed under Withholding Resuscitative Efforts, a victim of trauma should not be determined to be dead at the scene unless:
 - a. The patient is a victim of Blunt Trauma and has no vital signs in the field (pulseless, non-breathing, with fixed and dilated pupils).

Documentation:

- A. All B.L.S. care provided should be documented with procedure and time.
- B. All conversations with physicians or MRH should be fully documented with physician's name, time, and instructions.

Precautions:

- A. All hypothermic patients, victims of electrocution, lightning, and drowning should have resuscitative efforts begun and transported to the hospital.

NEAR DROWNING

SPECIFIC INFORMATION NEEDED:

- A. How long was patient submerged?
- B. Approximate temperature of water.
- C. Fresh or salt water?
- D. Was this a SCUBA diving accident?

SPECIFIC PHYSICAL FINDINGS:

- A. Vital signs.
- B. Neurologic status: Monitor level of consciousness on a continuing basis.
- D. Initial presence of rales or other signs of pulmonary edema, respiratory distress, and any changes.

TREATMENT:

- A. Clear upper airway.
- B. Assist ventilations as needed.
- C. Stabilize cervical spine prior to removing from water if any suspicion of neck injury.
- D. O₂, high flow (10-15 L/min.), regardless of condition.
- E. Positional drainage of lungs. FOR SALT WATER VICTIMS ONLY.
- F. If certified as EMT-2, start IV: balanced salt solution, TKO, or as needed.
- G. Call for ALS back-up.
- H. Document.

SPECIFIC PRECAUTIONS:

- A. Be prepared for vomiting.
- B. ALL NEAR-DROWNINGS SHOULD BE TRANSPORTED. Call for ALS back-up even if patients initially appear fine, they can deteriorate. Monitor closely. Pulmonary edema is likely.
- C. Hypothermia may be a problem. Remove clothes and obtain patient's temperature.
- D. It is a common error to underestimate injuries in near-drownings from jumping, MVAs, etc.

SUSPECTED SPINAL INJURY

SPECIFIC INFORMATION NEEDED:

- A. Violent mechanism of injury (witness, scene, situation).
- B. High energy transfer (ejection, helmet damage, starred windshield, etc.)

SPECIFIC PHYSICAL FINDINGS:

- A. Significant injury above the clavicles.
- B. Significant multiple trauma.
- C. Prior or present altered mental status.
- D. Paralysis, weakness, numbness, or tingling with violent mechanism of injury or high energy transfer.
- E. Pain of the spine with or without movement.
- F. Point tenderness, deformity, or guarding of the spine.

TREATMENT:

The following treatment will be used when any or all of the above Specific Physical Findings are present, or when in the EMT's best judgment the patient needs spinal support.

- A. Temporarily immobilize cervical spine with rigid extrication collar and continuous manual in-line support. Immobilize thoracic and lumbosacral spine to long spine board, when possible, and/or other appropriate device as patient condition allows (KED, orthopedic, etc.). Secure head and cervical spine to long spine board, when possible, using dense, soft, support material on both sides of the head, and tape. Patient's entire body will be securely immobilized by straps affixed directly to the long board. During this procedure the patient should be moved as little as possible, and always as a unit.
- B. Oxygen as indicated.
- C. I.V. per shock protocol, if appropriate.

SPECIFIC PRECAUTIONS:

- A. Vomiting should be expected in head injury patients. Therefore, patient should be securely strapped to long board to enable board and patient to be turned as a unit. EMT should be aware that additional help may be necessary during transport to turn patient and manage airway while maintaining C-spine integrity.
- B. Chin straps that could compromise the airway should be removed as the patient is immobilized to the long board. (Leg straps which may compromise C-spine immobilization should also be removed.)

SUSPECTED SPINAL INJURY, cont.

- C. Most patients require 1 to 1 1/2 inches of firm padding behind the head to assume standard neutral anatomic position.
- D. In the severely traumatized patient requiring immediate life saving intervention and rapid transport, rigid C-collar, continuous manual in-line support during rapid extrication onto a long spine board and transport should be substituted for more time consuming methods.
- E. Airway problems, respiratory difficulty, and shock are common in the traumatized patient. Alternate techniques for performing airway procedures should be used in spinal injury patients. To maintain proper control of the C-spine, endotracheal intubation with in-line stabilization must be performed by two EMTs.
- F. If any immobilization techniques cause an increase in pain or neurologic deficit, the patient should be immobilized in position found or position of greatest comfort.
- G. Geriatric patients (over 55) should cause a higher index of suspicion for the EMT due to physiologic aging changes; the EMTs' awareness of the need to provide for C-spine immobilization should be more acute in these patients.

IPECAC

PHARMACOLOGY AND ACTIONS:

Ipecac alkaloids act both locally on the gastric mucosa and centrally on the chemoreceptor trigger zone to induce vomiting. Usually effective within 20-30 minutes.

INDICATIONS:

To induce vomiting for patients who have ingested poisons or drugs (other than strong acids, alkali, hydrocarbons, phenothiazines, tricyclics, and short-acting sedatives).

PRECAUTIONS:

- A. Ipecac should NOT be given to patients who are unconscious or who have a rapidly diminishing level of consciousness.
- B. Should NOT be given to patients who are seizing.
- C. Ipecac should not be used to induce vomiting in the field in patients who have ingested acids, alkalis (lye), silver nitrate, iodides, strychnine or hydrocarbons.
- D. Ipecac syrup should not be confused with Ipecac fluid extract. The latter is very concentrated and has caused death.

ADMINISTRATION:

- A. Contact POISON CONTROL (279-7799) prior to administration of Ipecac.
- B. Adult: 30 ml p.o.
- C. Pediatric (over 1 year): 15 ml p.o.

SIDE EFFECTS AND SPECIAL NOTES:

- A. The emetic action is improved if fluids are given orally just before or after the Ipecac (2-3 glasses of water in adults).
- B. Emetic action may be enhanced by ambulation.
- C. The gag reflex may be an unreliable indicator of whether or not someone will be able to protect his/her airway in the event of emesis. Additionally, testing for a gag reflex in a patient with depressed level of consciousness may actually cause aspiration. USE CAUTION.
- D. Always stand by with suction. Patient should be in lateral decubitus position, or sitting.
- E. May not be successful in phenothiazine overdose due to strong antiemetic action.
- F. Check expiration date of Ipecac before administering.

NALOXONE (NARCAN (R))

PHARMACOLOGY AND ACTIONS:

Narcan (R) is a narcotic antagonist which competitively binds to narcotic sites but which exhibits almost no pharmacologic activity of its own.
Duration of action: 1-4 hours.

INDICATIONS:

- A. Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs either ingested, injected or administered in the course of treatment. Narcotic drugs include morphine, Demerol (R), heroin, Dilaudid (R), Percodan (R), codeine, Lomotil (R), propoxyphene (Darvon (R)), pentazocine (Talwin (R)).
- B. Diagnostically in coma of unknown etiology to rule out (or reverse) narcotic depression.

PRECAUTIONS:

- A. In patients physically dependent on narcotics, frank and occasionally violent withdrawal symptoms may be precipitated.
- B. Be prepared to restrain the patient. May become violent as the Narcan (R) reverses the narcotic effect.

ADMINISTRATION:

0.8 mg (2 ml) injected IV, IM, SQ, SL., 2 mg by ET tube. If no response is observed, this dose may be repeated at 3-5 minute intervals up to four times in patients suspected of having narcotic overdose. IV administration is preferred.

SIDE EFFECTS AND SPECIAL NOTES:

- A. This drug is remarkably safe and free from side effects. Do not hesitate to use it if indicated.
- B. The duration of some narcotics is longer than Narcan (R) and the patient must be monitored closely. Repeated doses of Narcan (R) may be required. Patients who have received this drug must be transported to the hospital because coma may reoccur when Narcan (R) wears off.
- C. May need large doses to reverse propoxyphene (Darvon (R)) overdose.



Recd 4/28/89
for 5/2/mty.

Jane McGarvin
for Barbara Jones

Emergency Medical Services

Multnomah County · City of Portland · Fairview · Gresham · Troutdale · Wood Village

EMERGENCY AMBULANCE SERVICE

PUBLIC PROVIDER CONCEPT

IMPLEMENTATION PLAN

FINANCIAL PORTION

Prepared at the request of the
EMS Policy Board and the
Board of County Commissioners

1989 APR 23 AM 9:47
COUNTY COMMISSIONERS' OFFICE
MULTNOMAH COUNTY
OREGON

4-27-89

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Special Considerations

System Cost as used in the goal/revenue/cost statements means the cost to be funded by user fees.

Revenue from system is revenue generated from user fees and licensing fees.

Replacement revenues are dollars which are currently received from general fund for functions which under the public provider concept will be user fee supported. The dollars in replacement revenues will be returned to the general fund of the cities and county.

The costs for purchase of all goods is based upon a single purchase price unless the item is already available on a county, city, or state multiple purchase price list.

This public provider concept uses funds from user fees to support a substantial portion of the program which is currently supported by general fund revenues. The total is \$1,772,004 and is broken out as follows:

Yearly costs of Concept system which are not currently funded by user fees:

GOAL NUMBER:

#1 Dispatch	\$ 69,487
#2 ALS/enhanced BLS first responder	\$1,109,981
#3 EMS Administration	\$ 99,281
CHIERS	\$ 265,650
#4 Medical Direction Operations	\$ 81,332
#5 Quality Assurance	\$ 70,671
#6 Public Education	\$ 48,754
#7 Public Accountability	\$ 9,706
#8 Private Coordination	<u>\$ 17,142</u>
Total	\$1,772,004

In addition, no mileage charges are part of this system change. Mileage is currently about a \$30 average add-on charge to each bill.

Goal:

1. Dispatch:

Provide an integrated, coordinated EMS dispatch system through 911 dispatch supported by public funds (911 telephone tax and general fund revenues).

Financial Statement:

As a new cost, the current cost of the EMS Communications Coordinator is added. Also, an Automatic Vehicle Locator is included at a cost of \$140,000 with a payout of ten years for an annual cost of \$32,889. This cost also includes training time for BOEC operators. The maintenance agreement is estimated to cost \$1,500 per year. The cost to finance the AVL is \$21,100, based on a ten year payout.

EMS Communications Coordinator - 80% \$29,625

\$69,487 system cost \$ 0 revenue from system \$39,887 replacement revenue
for cities/county

Goal:

2. First Response:

Provide a full advanced life support first responder capability at each fire station in the cities and in areas protected by the cities, and an enhanced basic life support first response in other areas of the county.

Financial Statement:

The cost for this goal in Year 1 is \$1,109,981, Year 2 \$1,164,033, Year 3 \$1,269,637, Year 4 \$1,077,567, Year 5 \$1,015,898.

There is no revenue from the system which is expected to be generated from this goal.

The costing breakdown with regard to each fire organization is attached as Attachment 2.

\$1,109,981 system cost \$ _____ 0 revenue from system \$ Unknown replacement revenue for cities/county

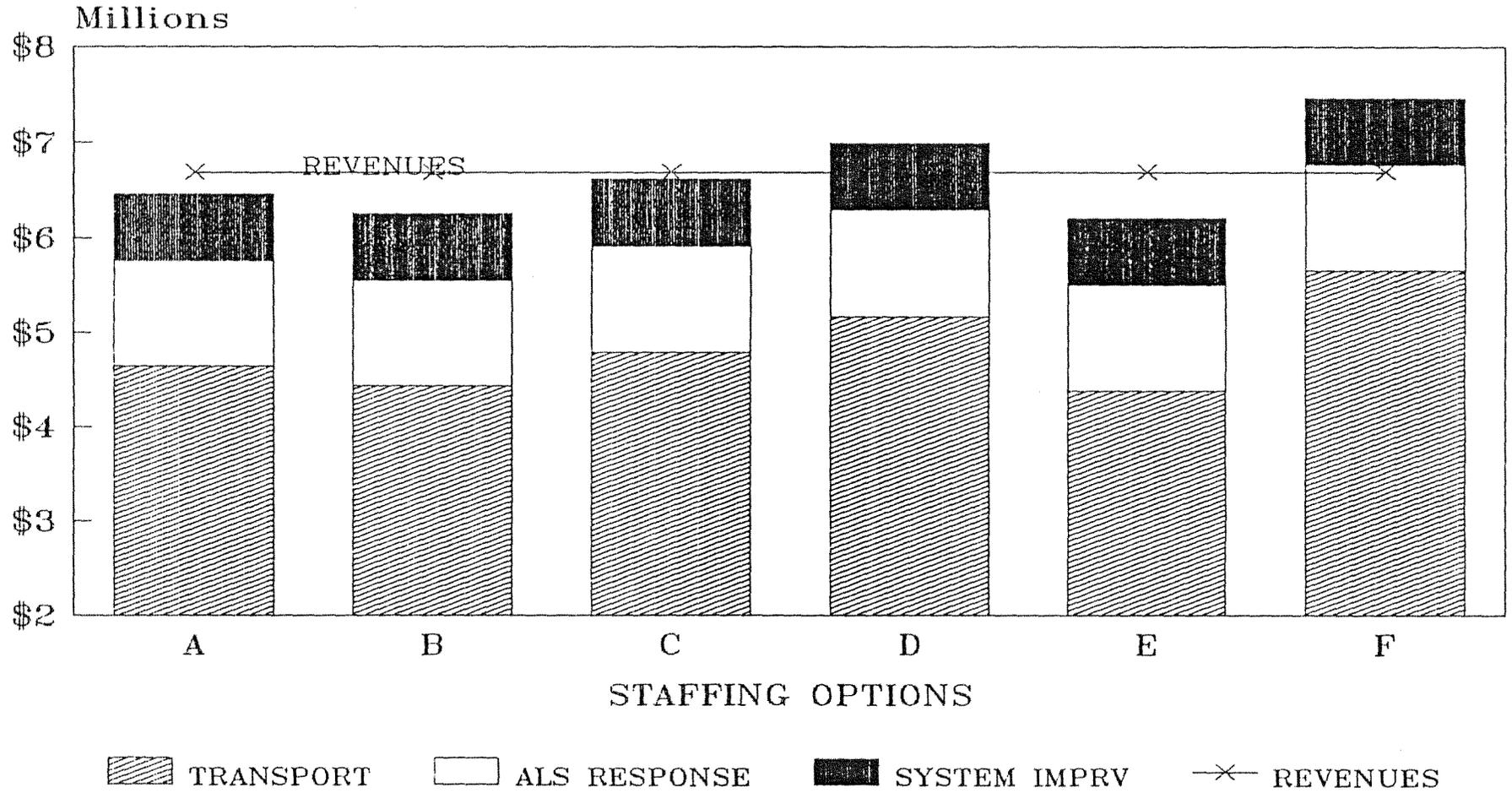
Revenue figures are detailed below and are the product of input from numerous sources. The Health Division Finance Manager and Finance Operations Manager provided the collection estimates where unknown by other reporting organizations.

Estimated Vol Inflator 1990: 101.00%
 Assumes ALS Rate = 412.75 BLS Rate = 213.90

Source	ALS	BLS
Medicare	77%	77%
Medicaid	75%	75%
Kaiser	100%	100%
Blue Cross	60%	60%
Other Third-Party	60%	60%
Corrections	100%	100%
Health Screening, GA, REEP	80%	80%
Self-Pay, No Insurance	25%	25%
Motor Vehicle	100%	100%
Workers' Compensation	100%	100%
Veterans Administration	100%	100%
Self-Pay After Insurance	60%	60%

AMBULANCE COST STUDY

COST VS. REVENUE, VARIOUS OPTIONS



Goal:

4. Medical Direction:

Provide for Medical Direction of the Emergency Medical Services system through a process which uses physicians, nurses and paramedics (Medical Advisory Board) to provide guidance to a single physician supervisor who is responsible for medical direction for all advanced life support and enhanced basic life support in the county.

Financial Statement:

Monies will be expended in the form of a contract for a single physician supervisor, Medical Advisory Board costs, contract with OHSU for on-line medical direction, and the administrative costs for development of off-line medical direction protocols.

\$10,000	OHSU contract	
\$ 2,000	MAB costs	
\$59,500	Physician Supervisor	- 70%
\$ 4,251	Associate EMS Director	- 10%
\$ 5,580	EMS Director	- 10%

<u>\$81,331</u> system cost	\$ _____ 0 revenue from system	<u>\$21,831</u> replacement revenue for cities/county
-----------------------------	--------------------------------	--

Goal:

5. Quality Assurance (QA):

Provide QA to the EMS system in a publicly accountable forum which involves the medical community and assures a process for EMS system improvement and processing of system complaints.

Financial Statement:

The costs of this goal is partially included in the cost of first response and in the cost of emergency care and transport. In addition administrative costs are associated with this goal. The administrative costs consider a portion of the Physician Supervisor, Associate EMS Director, and EMS Director's costs.

This goal is expected to produce no revenue.

\$25,500	Physician Supervisor	- 30%
\$34,010	Associate EMS Director	- 80%
\$11,160	EMS Director	- 20%

<u>\$70,760</u> system cost	\$_____0 revenue from system	<u>\$45,170</u> replacement revenue for county and cities
-----------------------------	------------------------------	--

Goal:

6. Public Education:

Provide public education to acquaint the public with the proper use of the EMS system.

Financial Statement:

The cost for this goal is \$41,754.

The goal is expected to produce no revenue.

\$41,754	Health Educator
\$ 5,000	Supplies
\$ 2,000	Ancillary

<u>\$48,754</u> system cost	\$_____0 revenue from system	\$_____0 replacement revenue for cities/county
-----------------------------	------------------------------	---

Goal:

7. Public Accountability:

Provide through boards and board membership for; public, medical community, an EMS system participant input into decision making for the EMS system with ultimate authority to approve system change resting with the BCC.

Financial Statement:

The partial cost for this goal is included in the emergency care and transport goal. In addition a portion of the Associate Director's and Director's costs and other administrative costs are incurred by this goal.

\$2,125	Associate EMS Director - 5%
\$5,580	EMS Director -10%
\$2,000	Ancillary expense (printing mailings, meeting announcements)

\$9,706 system cost \$ 0 revenue from system \$8,706 replacement revenue

Goal:

8. Provide for a coordinated privately operated non-emergency ambulance system which is freely competitive.

Financial Statement:

Most cost for this goal is already provided in the emergency care and transport goal. In addition a portion of the Associate EMS Director, Communication Coordinator, EMS Director's costs and other costs are incurred.

This goal is expected to produce no revenues.

\$2,125	Associate EMS Director	- 5%
\$7,406	Communications Coordinator	- 20%
\$2,790	EMS Director	- 5%
\$2,000	Hearings Officer Contract	
\$2,821	OAI	- 10%

\$17,142 system cost \$ 1,935 revenue from system \$17,142 replacement revenue

Attachment 1

Communications

Automatic Vehicle Locator

Advanced Control Technologies Price Quote

Communications

The Automatic Vehicle Locator.

\$140,000

Cost is from Advanced Control Technology and includes all hardware, software, and integration into the current BOEC computer system. The cost also includes training of the BOEC/EMS dispatch personnel.

Attachment 2

First Response

Details

ALS/BLS Enhanced Costs

Defibrillator Costs

Defibrillator Maintenance

Physio Control Quote Letter

Portland Radio Quote List

ALS/BLS ENHANCED COSTS

Enhanced First Responder Costs RFPD (Corbett, Sauvie Island, Skyline)

3 automatic defibrillators @ \$5,650 divided by 5 years =	\$3,390
Supplies (1,000/RFPD) yearly	\$3,000
Training costs are a portion of goals #4 and #3	
Total cost	<u>\$6,390/year</u>

ALS first response costs (Portland Fire Bureau, Gresham Fire Department):

	YR	1	2	3	4	5
Training		382,022	383,582	385,214	124,274	72,950
Recertification Time		50,360	75,021	99,864	124,883	125,589
Premium Pay		127,584	196,484	265,568	334,620	334,899
Overtime for QA		31,200	31,200	31,200	31,200	31,200
Administrative Costs		128,180	128,180	128,180	128,180	128,180
Vehicle Replacement/Maint.		42,675	42,675	42,675	42,675	42,675
Start Up Supplies		28,000	28,000	28,000	28,000	28,000
Defibrillators		66,180	66,180	66,180	57,180	45,180
Defibrillator Maintenance		20,500	20,500	20,500	20,500	20,500
Soft Goods/Disposables		92,500	92,500	92,500	92,500	92,500
UHF Radios - 25		30,040	0	0	0	0
Indirect Costs		104,350	93,321	103,366	87,165	87,835
Total		1,103,591	1,157,643	1,263,247	1,071,177	1,009,508

The total cost for enhanced BLS and ALS first response is:

YR 1	\$1,103,591
YR 2	\$1,157,643
YR 3	\$1,263,247
YR 4	\$1,071,177
YR 5	\$1,009,508

These costs were arrived at by estimating supplies for enhanced BLS and by using costs provided by PFB/GFD. The defibrillator cost is provided by Physio-Control and the radio's cost is derived from Attachment 2, p. 1, the Portland bid list.

COUNTY EMS PROVIDER PROPOSAL
 FIRE BUREAU COST PROJECTION (5-YEAR) - ASSUMES CONSTANT DOLLAR

	Total					Portland Only				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Personnel										
Premium Pay	124,824	193,100	261,536	329,892	329,892	89,160	148,600	208,040	267,480	267,480
Training:										
Tuition	57,500	57,500	57,500	12,500	12,500	50,000	50,000	50,000	10,000	10,000
Shift Replacement	278,070	278,070	278,070	60,450	60,450	241,800	241,800	241,800	48,360	48,360
Recertification	40,622	62,868	85,114	107,359	107,359	29,016	48,360	67,704	87,048	87,048
for Quality Assurance	31,200	31,200	31,200	31,200	31,200	21,200	21,200	21,200	21,200	21,200
Administrative Costs										
Deputy Chief @ 30%	18,895	18,895	18,895	18,895	18,895	18,895	18,895	18,895	18,895	18,895
EMS Coordinator @ 60%	39,291	39,291	39,291	39,291	39,291	15,716	15,716	15,716	15,716	15,716
In-House Training-1 person	40,124	40,124	40,124	40,124	40,124	40,124	40,124	40,124	40,124	40,124
Secretary Clerk II	29,870	29,870	29,870	29,870	29,870	29,870	29,870	29,870	29,870	29,870
Rescues:										
On-line replacement	21,690	21,690	21,690	21,690	21,690	14,460	14,460	14,460	14,460	14,460
Reserve replacement	3,615	3,615	3,615	3,615	3,615	3,615	3,615	3,615	3,615	3,615
Repair & Maintenance	8,100	8,100	8,100	8,100	8,100	5,400	5,400	5,400	5,400	5,400
Fuel	9,000	9,000	9,000	9,000	9,000	6,000	6,000	6,000	6,000	6,000
start-up supplies (drugs, etc.)	140,000	-0-	-0-	-0-	-0-	120,000	-0-	-0-	-0-	-0-
Subtotal	842,801	793,323	884,005	711,986	711,986	565,256	644,040	722,824	568,168	568,168
Admin. OH @ 10%	84,280	79,332	88,401	71,199	71,199	56,526	64,404	72,282	56,817	56,817
(Risk, City Attorney)										
TOTAL	927,081	872,655	972,401	783,185	783,185	621,782	708,444	795,106	624,985	624,985

EXISTING COSTS

	<u>Total</u>	<u>Portland</u>	<u>Dist. 10</u>
1. <u>Reimbursed by County:</u>			
Premium Pay	124,824	89,160	35,664
Training (@ 2/year)			---
Tuition	5,000	5,000	---
Shift Replacement	24,180	24,180	11,606
Recert. Replacement	40,622	29,016	5,000
OT for Quality Assurance	15,600	10,600	
Administrative Costs:			-0-
Deputy Chief @ 30%	18,895	18,895	23,575
EMS Coordinator @ 60%	39,291	15,716	---
Training Personnel (1 position)	40,124	40,124	12,930
Rescues (all costs - 3 on line, 1 reserve)	42,405	29,475	
	\$ 350,941	\$ 262,166	\$ 88,775
2. <u>Not Reimbursed - but saved from current budget:</u>			
County EMS Contract	83,767*	83,767*	---
Physician Advisor Contract (Clackamas 3,000)	43,500	28,500	15,000
Lifepak Monitor Replacement	18,000	9,000	9,000
Lifepak Repair & Maintenance	4,750	4,750	---
Rescues no longer needed	36,790	36,790	---
Medical supplies	63,800	38,425	25,375
	\$ 250,607	201,232	49,375
Total Savings/Reimbursed	\$ 601,548	\$ 463,398	\$ 138,150

*Not from Fire Bureau budget; special appropriation

COUNTY EMS PROVIDER PROPOSAL

ESTIMATED COST REIMBURSEMENT

(in constant dollars)

	<u>Total</u>	<u>New</u>	<u>Existing</u>
Year 1	\$ 927,081	\$ 576,140	\$ 350,941
Year 2	872,655	521,714	350,941
Year 3	972,401	621,460	350,941
Year 4	783,185	432,244	350,941
Year 5	783,185	432,244	350,941

Defibrillator Cost

PFB/GFD ALS/Enhanced BLS Defibrillator Cost Formula

Five-year life expectancy of equipment:

Automatic and battery charger	\$5,650
Phase-in of monitor attachment/seven each year	3,000/ea
Physio-Control - Life Pak 5	6,750/ea
Initial purchase 25 automatic and nine full ALS capable defibrillators	

Defibrillators are considered to be worth no more than \$1,000 after five years.

Defibrillator Maintenance

The cost for maintenance of an automatic defibrillator is: \$420/unit/year

The cost for maintenance of a full-use defibrillator is: \$500/unit/year

Maintenance quotes are by Arno Pantalone based upon Life Pack model modified 200s and Life Pack 5s.

Maintenance includes the testing of defibrillators to assure the correct amount of wattage is delivered to the patient.

Care and Transport

Cost Areas

Staffing

Cost of Ambulance Vehicle

Ambulance Maintenance

Wholegoods/Reusable Costs

Drug Cost

Radio Cost

Central Operations Center Cost

ALS Ambulance Cost

Funding

Revenue Areas

Transport Volume

Paid Transports

Revenue Sheet Breakouts

Staffing

EMT-4 (paramedic) salary range	\$20,567	--	\$23,824
Fringe cost:	\$ 8,551		
EMS Field Coordinator salary range	\$29,712	--	\$38,643
Fringe cost:	\$11,415		
Training Coordinator salary range	\$29,712	--	\$38,643
Fringe cost:	\$11,415		

For purposes of projection these figures have all been increased by 4.5% anticipating this amount for the 89/90 cost-of-living increase.

Eight FTE are used for "twenty-four hour shift" staffed ambulances to allow for sick leave, etc. (six actually needed).

Ten FTE are used for "eight-hour shift" staffed ambulances to allow for sick leave, etc. (eight actually needed).

These figures, including salary range and FTEs were provided by Multnomah County Personnel. A salary survey as well as a review of national published salary and staffing patterns were used to arrive at these staffing conclusions.

Uniform allowances are also provided for each FTE.

Cost of Ambulance Vehicle

Price Quotes from Two Companies:

	Northwest Emergency Equipment	Medical Vehicle Sales
Type 1	\$49,847.00	\$46,450.00
Remount	8,000.00	6,500.00
New Chassis	18,000.00	

Old chassis estimated value @ 3 years
78,000 miles - \$6,000.00

Average initial cost - \$47,968
Average remount cost - 7,250

Ambulance cost (9-year life expectancy on box,
chassis change @ three years) \$9,607/year

Initial cost - \$47,968 + two chassis - \$36,000
+ two remount charges \$14,500
minus two chassis resales \$12,000, divided by
life expectancy 9 years equals yearly cost - \$9,607.

Ambulance Maintenance

Ambulance maintenance will be performed by the Multnomah County Department of General Services. The costs are those costs which they have derived based on experience with similar vehicles and similar levels of service. In addition, increased maintenance is provided specifically in the areas of electrical system, transmissions, and tires. The maintenance schedule is greater than that of the manufacturer's recommended severe maintenance schedules.

The costs are based upon 26,000 miles per year per vehicle and are inclusive of all maintenance and fuel costs. Fuel cost is figured at today's market price for diesel fuel through a card lock system.

The cost per mile is \$.27. In addition, non-ambulance but motor pool costs consider the procurement and utilization of three administrative vehicles, one small cube-type van, and two utility-type vehicles. These vehicles will be used for the distribution of supplies and for the field coordinators as well as EMS operations administrative staff. The cost considers initial procurement of vehicle from the state bid list, replacement cost on \$.20 mile operating cost. The Multnomah County Department of General Services provided these cost figures.

The average mileage of an ambulance used to determine maintenance costs was arrived at by taking the average of at least two front line ALS ambulances from each licensee and averaging this amount. That amount was then reduced by 30% based upon 30% of the mileage being nonemergency (private) calls.

The average using this methodology was 26,000 miles/year

Wholegoods - Reusable Costs

Bag/Valve/Mask: ¹	
Infant ¹	\$182.00
Child ¹	192.00
Adult ¹	182.00
NU-Trake ¹	99.50
Portable Suction ¹	395.00
PASG-Adult ¹	445.00
PASG-Child ¹	388.00
K.E.D. ¹	119.00
Long Spine Board ¹	82.00
Sager Splint	245.00
Stretcher Chair ²	383.00
Scoop Stretcher ²	265.00
Portable O ₂ Demand Valve ²	344.00
C-Collars (each size) ²	18.00
Ambulance Blanket ²	19.50
Kits (box) ²	53.50
BP Cuff (adult) ²	27.50
BP Cuff (child) ²	29.50
Crowbar (36) ²	9.50
Pinch Point Bar (51) ²	39.90
Leather Gauntlet ²	15.00
Laryngoscope Set ³	344.00

- ¹ Armstrong Medical Catalog #113, March 1989
² AERO Life Support Catalog #12 (most current)
³ Dyna-Med Catalog #1012 (most current)

Radio

The radio is a Motorola Sentor.

Cost for one radio complete with front control, rear control,
rear headset. \$ 2,871

This cost figure was provided by Multnomah County Department
of General Services.

Central Operations Center Cost (space)/Ambulance Placement Cost

Yearly cost: \$18,000

The following figures were supplied by county Property Management.

The space consists of adequate room for inside secured parking of reserve ambulances, storage of supplies, office space for field operations staff, administrative staff, and classroom/meeting room space.

Rate: .30 to .40 sq. ft./mon. - \$6 yd.

Ambulance Placement Cost: \$ 300/mo.
"Eight-hour staffing" pattern ambulances will not incur placing costs. Each twenty-four hour staffing pattern ambulance will incur an estimated cost of \$300 per month.

All hospitals in Multnomah County were sent a letter requesting their participation, by allowing space for ambulance parking and a room for the paramedics. The following hospitals have responded affirmatively to the request:

Woodland Park. Yes to participate - no cost.
Holiday Park. Noncommitted.
Good Samaritan interested. Need more information.
Portland Adventist interested. Need more information.
Providence interested. Need more information.
OHSU interested. Need more information.

It is also anticipated that several Multnomah County health clinics will be used for ambulance placement.

Due to the short time line and other considerations, many hospitals did not reply.

New System Cost

ALS Ambulance cost:

24-hour staffing personnel (1 shift per day) \$234,718

8 FTE (positions) wages	\$20,567
(9.43 x 4.59 = 9.85/hr 89-90)	
Fringe	\$ 8,551
Uniform allowance	<u>\$ 125</u>

Unit hour cost (personnel) \$_____

Unit hour cost (ambulance) \$9,607

8-hour staffing personnel (3 shifts per day) \$293,398

10 FTE (positions) wages	\$20,567
(9.43 x 4.59 = 9.85/hr 89-90)	
Fringe	\$ 8,551
Uniform allowance	<u>\$ 125</u>

Unit hour cost (personnel) \$140

Type 1 KKK1822B Ambulance Ambulance Cost \$ 9,607

Ford Diesel 1-ton with remountable box, replacement of chassis each three years, and box serves through three remounts before replacement. Initial cost is \$47,968. Chassis is replaced each three years. Maintenance cost \$7,020.

Defibrillator Equipment cost \$ 1,350/year

Defibrillator cost is \$1,350/year with a life expectancy of five years and an annual maintenance cost of \$500. The initial cost is \$6,750. This assumes no "used" defibrillators bought from existing licenses. Maintenance cost is \$500/year.

New System Cost (cont'd):

Other Equipment: \$ 5,657

Other hardware equipment is listed and considered to have a five-year life expectancy:

Stretcher chair (383.20 ./· 5)	\$ 77
Stretcher FW (1400 ./· 5)	\$ 280
Scoop stretcher (265 ./· 5)	\$ 53
Spine boards (3) (246 ./· 5)	\$ 50
KED (119 ./· 5)	\$ 24
Portable O ₂ (344 ./· 5)	\$ 69
Bag valve mask (adult) (182 ./· 5)	\$ 37
Bag valve mask (child) (192 ./· 5)	\$ 39
Bag valve mask (infant) (182 ./· 5)	\$ 37
Portable suction (395 ./· 5)	\$ 79
Traction splint (245 ./· 5)	\$ 49
Pneumatic anti-shock garment (adult) (445 ./· 5)	\$ 89
Pneumatic anti-shock garment (child) (388 ./· 5)	\$ 78
Miscellaneous (1000 ./· 5)	<u>\$ 250</u>
Total (5786 ./· 5)	\$1,157

Software/disposable and other non-drug items	\$2,500/year
Drugs	\$2,000/year
Communications	<u>\$ 652</u>

This considers a VHF 2-channel 40-watt mobile with 2 control heads and encoder capability Frequencies of 155.340 mhz and the other to be arranged. UHF radios are provided as part of dispatch costs. The maintenance of the VHF radio is to be performed by the county radio shop at a cost of \$78/year. A five-year life of the radio is expected. The initial cost of the radio is \$2,871.

Ambulance placement cost:	24/hr ./· 3600/yr
	8/hr ./· 0/yr

Ambulance cost 24-hour staffing pattern	<u>\$262,482</u>
Ambulance cost 8-hour staffing pattern	<u>\$317,406</u>

CHIERS

The present Hooper Outreach cost is \$200,000. \$179,000 is supported by alcohol and drug funds. The cost for a second CHIERS van is \$244,650 for eight hours of service.

New System Cost (cont'd):

Backup/reserve ambulances:	\$ 36,256
Ratio of 3 to 1 (9,067 x 4 ambulances)	

FUNDING FOR THE SYSTEM

There are at least two available options for system funding. The two options are:

Option 1:

The funding for vehicles and major medical equipment will be provided through a lease/purchase process. It is anticipated that the cost of money for this situation will be 8.45%. This may be adjusted up or down and can be arranged in an arrears payment mode for the first three to six months of operation. In addition, the equipment can be leased for a 3-5 year period of time with no residual.

The initial operating capital needed to support the operation for the first 3-4 months with little or no income will be gained through a qualified issue anticipatory note. This will be an interest-only yearly note of tax exempt status with no placement costs associated. It is anticipated that the interest cost on this money would be approximately 7% adjusted up or down at the time of system start-up. These funds will be available through placement of the note by one of many public system funding agencies.

Option 2:

The Multnomah County general fund or the general fund borrowing process will be used for initial operating expenses and purchase of capital goods.

The cost of the funds for general operating dollars will cost approximately 8.25 percent and the dollars for capital goods about 8.45 percent.

In addition, a contingency fund of \$350,000 is created and a transfer of \$500,000 from the program to the existing county self-insurance fund will be established and maintained under other funding options.

Transport Volume
1988

<u>Period (4 weeks each)</u>	Transport		
	(1)	(2)*	(3)**
1	1700	*12	*3
2	1726	*20	*3
3	1720	*25	*5
4	1765	*36	*3
5	1798	*31	*2
6	1694	*20	*4
7	1897	*33	*4
8	1808	*31	*5
9	1955	*31	*1
10	1773	*41	*4
11	2000	*35	*7
12	1952	*34	*7
13	<u>1855</u>	<u>*27</u>	<u>*7</u>
Total Transports	23643	376	60 = <u>24079</u>
Total Patients	23643 + 752 + 180 = <u>24575</u>		

* - Two patients transported

** - Three or more patients transported

These figures are provided from data generated by BOEC/EMS dispatch.

Paid Transports (88)

Medicare paid BLS transports:	5,164*
ALS transports:	3,325*

Numbers received from Aetna (Medicaair Fiscal Agent) based upon the portion of Clackamas County served by Buck Medical services. However, the Clackamas volumes were factored out by adjusting populations over sixty-five years of age and county population.

Kaiser paid BLS transports:	768
ALS transports:	3,177

Based upon numbers received from Kaiser's Contracts Office, but adjusted for a full twelve months because Kaiser only provided 1-1-88 through 11-30-88.

Medicaid paid BLS transports:	1,562*
ALS transports:	84

Medicaid BLS/ALS billing criteria is very strict concerning ALS procedures which must be performed before ALS fees are paid. Information supplied by AFS state of Oregon.

Veterans Administration paid ALS transports:	284
--	-----

Number received from Veterans Administration Hospital.

Blue Cross paid BLS transports	246*
ALS transports	986

Numbers received from Blue Cross based upon 1988. The number received was for claims processed, not necessarily paid (1,540). This number was adjusted by reducing the number processed by twenty percent to 1,232 to reflect number paid. This number was then adjusted by eighty percent ALS and twenty percent BLS.

Traffic Accident Auto Insurance transports BLS:	279
ALS:	1,116

These volumes were arrived at using dispatches to and transport from traffic accidents. This number for 1988 was 3,101. The figure was then adjusted by using a trauma hospital's experience of reimbursement from auto insurance $3,101 \times .45 = 1,395$. This number was given an arbitrary adjustment of eighty percent ALS billing and twenty percent BLS billing based upon one review of billings and the anticipated billing criteria. \$1,116/ALS and \$279/BLS.

*Deemed medically necessary. These third-party payors do not differentiate between 9-1-1 and non-9-1-1 originated calls/transportations.

The following methodology was used with payors to provide collection rates:

Medicare 77% of known payor's numbers at 100% of rate and the remaining 23% into the self-pay after insurance category.

Medicaid 75% of known payor numbers at 100% of rate and the remaining 25% written off.

Kaiser 100% of known payor numbers at 100% of rate.

Blue Cross 60% of known payor numbers at 100% of rate (due to \$200 deductible) and the remaining 40% into the self-pay with insurance category.

Corrections Health 100% of known payor numbers at 100% of the rate.

HealthSource 80% of known payor numbers at 100% of the rate.

Traffic accident auto insurance known payor numbers at 100% of the rate.

Self-pay after insurance 75% of number (inclusions from above categories, plus an arbitrary volume which was arrived after reviewing random billings) at 100% of rate and 25% write-off.

Self-pay no insurance 25% of the number of remaining transports in the system which are not included in any category above at 100% of the rate and 75% write-off.

These figures do not include a sliding-fee schedule which the county will implement.

Administrative Cost (Ambulance Operations)

Operations:

.55 FTE EMS Director salary and fringe	\$ 31,692
Uniform allowance	\$ 125
1 FTE EMS Training Coordinator salary and fringe (salary 29712, fringe 11,415)	\$ 41,109
Uniform allowance	\$ 125
4 FTE EMS Ambulance Field Coordinator salary and fringe (salary 29712 x 4 FTE, fringe 11,415)	\$165,008
Uniform allowance	\$ 600
1 FTE OAIII salary and fringe	\$ 29,589
2.40 FTE OAI salary and fringe	\$ 67,568
3 FTE Billing Clerks	\$ 75,241
.30 FTE Finance Operations Supervisor	\$ 11,317
Space rental	\$ 18,000
Printing	\$ 4,500
Repairs and maintenance	\$ 2,250
Postage	\$ 35,500
Supplies	\$ 60,500
Education and training	\$ 12,000
Travel	\$ 3,000
Telephone	\$ 6,000
Motor Pool 3 vehicles	\$ 26,528
Professional services (taxi)	\$ 7,000
Automated billing system	\$ 7,250
Lost investment income to general fund	\$ 67,500
Insurance	\$500,000
Building management	\$ 2,700
Contingency	\$350,000
Indirect cost	Range of \$321,000 to \$394,000 dependent upon system cost.

System Cost

Fixed (independent of number of ambulances used):

Goal #1, Dispatch		\$ 69,487
Goal #2, First Response		\$1,109,981
Goal #3, Care & Transport: CHIERS	\$ 265,650	
Administration/Billing	1,846,102	
Reserve Ambulances (4)	36,256	
Goal #4, Medical Direction		\$ 81,332
Goal #5, Quality Assurance		\$ 70,761
Goal #6, Public Education		\$ 48,754
Goal #7, Public Accountability		\$ 9,706
Goal #8, Private Coordinator		\$ 17,142
	Total Fixed Cost	<u>\$3,555,171</u>

Variable Costs:

System A -		
Eight "24-hour staffed" ambulances	\$2,099,856	
Three and one-third "eight hour staffed"		
ambulances \$317,406 x 3.33	Total System Cost	<u>\$6,463,111</u>
Unit hours 99,148		
System B -		
Four "24-hour staffed" ambulances	\$1,049,928	
\$262,482 x 4		
Six "8-hour staffed" ambulances		
\$317,406 x 6	Total System Cost	<u>\$6,257,584</u>
Unit hours 78,840		

System Cost (cont'd):

System C -

Three "24-hour staffed" ambulances
\$262,482 x 3

Eight "eight hour staffed" ambulances
\$317,406 x 8
Unit hours 96,360

Total System Cost \$6,615,037

System D -

Two "24-hour staffed" ambulances
\$262,482 x 2

Ten "eight hour staffed" ambulances
\$317,406 x 10
Unit hours 79,000

Total System Cost \$6,991,506

System E -

Eleven "24-hour staffed" ambulances
\$317,406 x 11
Unit hours 96,360

Total System Cost \$6,208,575

System F -

Eleven "24-hour staffed" ambulances
\$262,482 x 11

Four "eight hour staffed" ambulances
\$262,482 x 4
Unit hours 131,400

Total System Cost \$7,473,187

BOARD OF
COUNTY COMMISSIONERS

1989 MAY -1 AM 11:36

MULTNOMAH COUNTY
OREGON

Checked bel



Emergency Medical Services



Multnomah County · City of Portland · Fairview · Gresham · Troutdale · Wood Village

From the Desk of

Roy R. Kallas, Office of the Director

*This page was left
out of some of the
Public Provider Concept
pages. Please add in
if not in your copy.*

Special Considerations

System Cost as used in the goal/revenue/cost statements means the cost to be funded by user fees.

Revenue from system is revenue generated from user fees and licensing fees.

Replacement revenues are dollars which are currently received from general fund for functions which under the public provider concept will be user fee supported. The dollars in replacement revenues will be returned to the general fund of the cities and county.

The costs for purchase of all goods is based upon a single purchase price unless the item is already available on a county, city, or state multiple purchase price list.

This public provider concept uses funds from user fees to support a substantial portion of the program which is currently supported by general fund revenues. The total is \$1,772,004 and is broken out as follows:

Yearly costs of Concept system which are not currently funded by user fees:

GOAL NUMBER:

#1 Dispatch	\$ 69,487
#2 ALS/enhanced BLS first responder	\$1,109,981
#3 EMS Administration	\$ 99,281
CHIERS	\$ 265,650
#4 Medical Direction Operations	\$ 81,332
#5 Quality Assurance	\$ 70,671
#6 Public Education	\$ 48,754
#7 Public Accountability	\$ 9,706
#8 Private Coordination	<u>\$ 17,142</u>
Total	\$1,772,004

In addition, no mileage charges are part of this system change. Mileage is currently about a \$30 average add-on charge to each bill.

May 1, 1989

TO: BCC and Board Staff
FR: Commissioner Rick Bauman
RE: EMS PUC-style Regulation Proposal

submitted
5/2/89 - Bauman
BOARD OF
COUNTY COMMISSIONERS
MULTNOMAH COUNTY
OREGON
89 MAY -2 AM 8:44

Attached is a draft ordinance that could be used to implement rate and quality regulation of ambulances in Multnomah County.

This proposal is based on ordinances and rules used in Sacramento and Stockton, California. Both of those systems have been operating under these rules for a number of years and both have been successful. The Stockton model is being used by other cities which are looking for a rate regulation model.

I have listed below some of the concerns listed by the original Rate Task Force and tried to show how this proposal would respond.

Finally, I believe this to be a viable alternative to the other systems we are considering and litigating at this time.

FINDINGS BY THE ORIGINAL RATE TASK FORCE

1. Multnomah County has ALS rates in excess of other geographically similar areas.

Regardless of the accuracy of finding #1, the proposal will employ proven methods of cost accounting to ensure that users will pay a fair cost for ambulance services. No taxpayer dollars will be needed.

2. The current system is inefficient with an excess of ambulances and personnel.

The EMS Director will have the authority to limit the number of ambulances to a point where the number of ambulances equals those needed to provide timely response without undue cost.

3. The EMS administrative structure provides no rate accountability in a publicly imposed model.

The EMS Director will have the authority to set rates based on a reasonable rate of return on investment. Maximum rates for ALS and BLS calls will be set for each of the Ambulance Service Areas.

4. The current system duplicates resources to provide ALS functions.

The proposal establishes a single medical supervisor and will reduce the number of ambulances in the system. The proposal will not consolidate features such as billing and dispatch, but there will be the incentive for the providers to consolidate those services.

5. The current EMS system is user funded and delivers care to all who require it, irrespective of ability to pay. A limited number of users and third-party payors pay for the entire system.

As with all systems under consideration, this will be a user/third party funded system. All calls will continue to receive a response.

6. No current mechanism for determining assignments to ASAs.

The EMS Director will determine and assign ASAs based on the public interest and other provisions.

7. Stretcher cars are unregulated but impact the entire system's costs.

Non-emergent cars could be regulated under this proposal.

8. Little public input into the design of the system.

Public hearings would be held during the final design stages, prior to implementation and at least yearly after implementation.

9. Rates for both ALS and BLS should be considered.

See #1 above.

SECTION BY SECTION BREAKDOWN

- A1) Purpose. Fair, safe and adequate ambulance care.
- A2) Director. The EMS Director is the designated administrator for EMS policy, rate setting, and other regulation.
- B1) Permits required. All operators must hold a license to operate provided by the Director. This should include both service and vehicles.
- B3) Application for Permit. A complete financial and operations evaluation of an ambulance operator, including a CPA audited financial statement are required.
- B4) Investigation. The Director is authorized to look further into the application.
- B5) Issuance. Only if the public interest is benefitted.
- B6,7,8) Denial. Notice, appeal and finality.
- B10) Allows present companies to apply for a permit.
- C1) Fees. Fees paid by the providers finance regulation.
- D1) Personnel. EMT standards. Additional certificate is required to be issued by the Physician Supervisor.
- D3) Identification. Badges issued by the Physician Supervisor are required for each EMT.
- E2) Vehicle Inspection. The Director may inspect at will.
- F) Suspension/Revocation. Maintain present process.
- G2,3) Ambulance Service Areas. The Director may determine the area boundaries. Appeals are decided by the Board of County Commissioners.
- G4) Ambulance Service Areas Criteria. Items to be considered in setting ASAs are geography, population, hospital location, response times and economics.
- H1) Permit Renewal. Nothing guarantees continued existence of any ambulance company.
- H4) Financial Responsibility. Requires continued financial oversight.
- H5) Facilities. The Director must approve all stations and may inspect.

H6) Unauthorized Responses. Companies must cooperate with unauthorized response inspections.

H7) Regulations. Regulations must be approved by the EMS Policy Board and Medical Advisory Board.

I1,2) Rates. The Director may or may not approve rates submitted by the providers. (Some interest in allowing the Director to set a rate as well and allowing a third party to determine appropriate rate.) Appropriate rates are based on a reasonable return on investment.

I3) Rate Appeals. The Board of County Commissioners hears rate setting appeals.

J) Insurance Requirements. General insurability provisions, including protecting the county under provider policies.

K) Physician Supervisor. Establishes one physician to supervise all EMTs in the system, coordinate protocols and procedures and discipline personnel.

DRAFT

EMERGENCY MEDICAL SERVICES Ordinance (Rate/Quality Regulation Model)

A. PURPOSE and ADMINISTRATION

Section 1. Purpose. The purposes of this code are to:

(1) Enact formal policies and regulations for licensing and regulating the operation of ambulances;

(2) Protect the public by assuring that ambulances operate safely;

(3) Protect the public from unsafe and unsanitary operation of ambulances;

(4) Allow for adequate emergency ambulance service and non-emergency ambulance service in all areas of Multnomah County; and

(5) Allow for the orderly and lawful operation of a local emergency medical services system.

Section 2. Director. The County Emergency Medical Services Director is charged with the responsibility of administering the regulations imposed by this Ordinance and exercising the authority conferred thereby. Such authority shall include the power and duty to issue ambulance operator permits, promulgate and enforce administrative regulations, enter into contracts, and otherwise perform the duties and exercise the authorities conferred herein.

B. PERMITS

Section 1. Required. No person (either as owner, agent or otherwise) shall furnish, operate, conduct, maintain or otherwise engage in or advertise, offer or profess to engage in ambulance service unless the person holds (and is entitled to hold) a currently valid ambulance operator's permit. No permit is required for the delivery of persons picked up outside the County boundaries that transport into the County.

Section 2. Application - Forms. Each application for an ambulance operator's permit shall be made upon forms prescribed by the Director.

Section 3. Application - Required Data.

(a) Each applicant who desires an ambulance operator's permit shall submit the following data:

(1) The names and addresses of the applicant, registered owner, partner, officer, director and controlling shareholder;

(2) The applicant's training and experience in the transportation and care of patients;

(3) The name under which the applicant has engaged, does, or proposes to engage in ambulance service;

(4) A financial statement for the previous fiscal year, prepared by a certified public accountant;

(5) A description of each ambulance including: the make, model, year of manufacture, vehicle identification number; current state license number; the length of time the vehicle has been in use; and the color scheme, insignia, name monogram and other distinguishing characteristics of the vehicle;

(6) A statement that the applicant owns or has under his control, in good mechanical condition, required equipment to consistently provide quality ambulance service in the area for which he is applying, and that the applicant owns or has access to suitable facilities for maintaining his or her equipment in a clean and sanitary condition.

(7) A description of the company's program for maintenance of the vehicles.

(8) A description of the number and type, frequency and private line codes of the vehicles' radios.

(9) A description of the locations from which ambulance services will be offered, noting the hours of operation.

(10) A list, amended as required during the year for any personnel changes, giving the name and a description of the training for each ambulance attendant and driver and a copy of each certificate or license issued by the State or County establishing qualifications of such personnel in the ambulance.

(11) A description of the company's training and orientation programs for attendants, dispatchers and drivers.

(12) Statement of the legal history of the applicant, including criminal and civil judgments;

(13) Evidence of insurance coverage under Section J.

(b) Emergency Service. Each applicant who desires an Emergency Ambulance Service Permit shall, in addition to the information required in paragraph (a) above, show:

(1) The ability of the applicant to provide emergency ambulance service within established response times for the emergency response area applied for, twenty-four hours per day, seven days per week, year round;

(2) All service charges and rate structure of the company;

(3) (a) the number of ambulances to be deployed on each shift; and

(b) the emergency response zone; and

(c) the provisions for continuing education of the advanced life support personnel.

(4) An affirmation that the applicant possesses and maintains currently valid Oregon licenses for each vehicle listed in the application, and submit a copy of the license issued by the State;

(5) The applicant may be required to submit such other information as the Director deems necessary for determination of compliance with this division.

Section 4. Application - Investigation. Upon receipt of a completed application and the required fee, the Director shall make or cause to be made such investigation to determine if:

(a) The applicant meets the requirements of this section and of other applicable laws, ordinances, and regulations; and

(b) The radio in each vehicle is installed, is in good working order, and is integrated with the existing medical communications systems.

Section 5. Application - Issuance. Within ninety (90) days of receipt of an application, the Director shall make a determination of (1) whether the applicant meets all requirements of this division, and (2) whether the public health, safety, and welfare require the granting of a permit.

In making such determination, the Director shall consider, among other things:

(a) the demand and necessity for ambulance service, and the adequacy of existing service(s), and

(b) whether the applicant is able to provide the requested service; and

(c) whether the applicant has knowingly made a false statement of fact in such application; and

(d) whether the applicant has knowingly failed to disclose facts pertinent to the application; and

(e) whether the applicant was previously a holder of a permit issued under this ordinance which has been revoked or not renewed based on the provisions of this section.

Section 6. Application - Denial. If it is determined that the applicant does not meet all requirements within this section, then the Director shall deny the application and notify the applicant in writing within ninety (90) days of the receipt of the application. The notice shall contain the reasons for denial.

Section 7. Appeal From Denial of Issuance. Whenever the Director denies an application for a permit, the applicant may request a hearing on the denial at which the applicant will have the burden of proof. The appeal will be made to the Board of County Commissioners and a hearing scheduled within sixty (60) days of the applicant's written request for hearing. When the Director issues an emergency ambulance service permit the existing service within the response zone may file an appeal with the Board. A hearing on the request shall be scheduled within sixty (60) days of the written request for an appeal.

Section 8. Decisions: Finality. The decision of the Director rendered pursuant to this Ordinance shall be final, unless appealed to the Board within 30 (thirty) days after such decision is rendered in writing, and notice of the same is given to the applicant by certified mail.

Section 9. Term. Permits shall be continued upon payment of the annual renewal fee unless earlier suspended, revoked or terminated for cause.

Section 10. Application - Existing Ambulance Service. Within sixty (60) days of the effective date of this ordinance, the ambulance companies that have been continuously providing ambulance services for a minimum of 180 days prior to the effective date of this ordinance may apply for and obtain a County Ambulance Operator's Permit and Emergency Ambulance Service Permit. The Director shall issue or deny a permit to each existing company within sixty (60) days of receipt of an application for such a permit, based on their ability to meet the requirements as set forth in this ordinance. The fee for the initial license for existing companies shall be the fee set for new applicants.

Section 11. Application - Change of Data. The applicant and permittee shall report to the Director any change in the data required in Section 3 within ten (10) days of the effective date of the change, except that any change in the data required in Section 3 (a)(1) and (a)(4) shall be reported immediately.

Section 12. Application - Transfer of Permits. No permit shall be transferred to another person except upon prior approval of the Director. Application for transfer of any ambulance operator's permit shall be subject to the same terms, conditions, and requirements as if the application were for an original permit.

Section 13. Renewal of Permit. Applicants for renewal of an ambulance operator's permit under this ordinance shall annually file with the Director an application in writing, on a form furnished by the Director, which shall include information required in Section 3. The application for renewal shall be accompanied by a renewal fee.

C. FEES

Section 1. Fees. Each permit holder shall pay to the County in each year such fees as the Board finds and determines to be necessary, with the amount of all other ambulance service permit fees paid or payable to the County by all permit holders in the current calendar year, to defray the costs of performing the duties imposed by law upon the EMS Director. The Board shall set the fees by resolution. The fees shall not exceed the reasonable costs of administering and enforcing this ordinance as determined by the Board.

D. PERSONNEL STANDARDS

Section 1. Driver and Attendants.

(a) Any ambulance attendant or driver employed by a permittee shall be at least eighteen (18) years of age; shall be trained and competent in the proper use of all emergency ambulance equipment; shall hold current certification as an EMT IV; and shall demonstrate compliance with all applicable State and County law and regulations.

(b) Every ambulance driver and attendant utilized by a permittee shall hold a certificate from the Director indicating compliance with the requirements of this section. A temporary certificate may be issued, pending confirmation of all personnel requirements.

(c) Applications or such certificate shall be in the form required by the Medical Advisor and shall be accompanied by the fee established by resolution of the Board.

(d) Certificate may be denied, suspended or revoked by the Director if he or she finds, after an informal hearing, that the applicant does not comply with the requirements of this section.

(e) All applicants for ambulance driver/attendant certification must undergo a complete criminal history record check prior to issuance of a permanent certificate.

(f) The certificate shall remain in effect for no more than two (2) years, with an expiration date to correspond to the applicant's EMT IV certificate.

Section 2. Uniform and Appearance. Each person providing ambulance service subject to permit under this ordinance shall staff each ambulance with appropriate personnel who shall wear clean uniforms, be neat and comply with the requirements of this section.

Section 3. Identification. Each person providing ambulance service subject to permit under this section shall wear while on duty an identification badge issued by the Medical Advisor that is clearly visible to the public. The badge shall identify the training and certification status of the attendant or driver. The badge shall be turned back to the Medical Advisor in the event of changes of information on the badge.

Section 4. Response. The driver and attendant responding to emergency calls shall be based at the ambulance provider's station within the zone of response on a twenty-four (24) hour basis.

E. VEHICLE COMPLIANCE

Section 1. Required. Every emergency ambulance shall carry a valid State permit authorizing the use of the vehicles as an ambulance.

Section 2. Inspection. The ambulance provider shall allow the Director or designee to inspect, on a preannounced or unannounced basis all ambulances used to provide ambulance service. The inspections should be held, whenever possible, during normal business hours. The purpose of such inspections may include, but shall not be limited to, determination of:

- (1) the ambulance is properly maintained and equipped for the provision of ambulance service;
- (2) the description of the ambulance, required by B. PERMITS is accurate;
- (3) the ambulance contains radios that are in good working order and are compatible with the Bureau of Emergency Communications system.

F. PERMIT SUSPENSION OR REVOCATION

G. EMERGENCY RESPONSE

Section 1. General Requirements. When responding to an emergency call or operating "Code 3", the ambulance driver shall comply with all orders and directions given by BOEC.

Section 2. Emergency Response Zones. The Director is hereby authorized to divide the County into service areas for the provision of emergency ambulance services, each service area to be known as an Emergency Response Zone. The Zones shall be described on a map which is maintained in the office of the Director, and is available for public inspection during regular business hours. Notwithstanding any provision to the contrary, those Emergency Response Zones established by the Director in advance of the date of enactment of this Chapter shall remain in full force and effect until hereafter amended or revised.

Section 3. Modification of Emergency Response Zones. Subject to peremptory amendment by this Board at any time following a public hearing notice of which is given, the Director shall be authorized to amend, revise, create, abolish or otherwise the boundaries of Emergency Response Zones.

Annually, the public shall be informed of its right to inspect the then current Emergency Response Zone Map, and the Director shall invite public comment thereon. The Director, upon receipt of public comment may hold a public hearing on amendments to the Emergency Response Zones. The Director shall make a determination respecting affirmance or modification of the Emergency Response Zones within thirty (30) days after the hearing. The Director's decision shall be appealable to the Board in the same manner and in accordance with the same procedures as are applicable to rate determinations under (I. RATES).

Section 4. Criteria for Emergency Response Zones. Emergency Response Zones shall be defined in a manner which best promotes the provision of emergency ambulance services, and in formulating such Zones, such factors as the following shall be considered: the geographical area to be served in relation to the public street system, the distribution of population, the proximity of hospitals and other health care centers, minimally necessary response time, and the economics of ambulance services.

Section 5. Preparation of Zone Lists. The Director shall prepare and keep up to date the emergency response zone lists. The Director shall include on the list for each emergency response zone the ambulance service provider who has possession of a valid emergency ambulance service permit with the County as well as the ambulance service providers who will provide back-up emergency ambulance service for that zone.

H. MISCELLANEOUS

Section 1. Renewal of Permits. Renewal of an ambulance operator's permit shall require conformance with all requirements of this ordinance as upon issuance of an initial permit. Nothing in this ordinance shall be construed as requiring the granting of a permit upon expiration of a previous permit, and the burden of proof respecting compliance with all the requirements for a period and of entitlement of a permit shall remain at all times with the applicant for renewal.

Section 2. Advertising. No ambulance service permittee under this division shall announce, advertise, offer, or in any way claim that it provides emergency ambulance service unless it possesses a current, valid permit for the emergency response zone where it is claiming to provide such service.

Section 3. Liability Insurance. The Board of County Commissioners shall set by resolution the liability insurance requirements for permittees.

Section 4. Financial Responsibility.

(1) An ambulance provider shall annually submit, within ninety (90) days of the close of each business year, a financial statement of its business activities, prepared by a certified public accountant. Renewal of a permit is contingent upon submission of a financial statement within the proper time frames.

(2) An ambulance provider shall provide the permit officer with information in reference to any pending action or unpaid judgments or liens against the provider, and the notice of the transactions or acts giving rise to said judgments or liens. The ambulance provider shall notify the permit officer in writing of said actions within one (1) week of the notification from the levying agency. The reported information will be reviewed by the permit officer who will make a determination regarding the effect this information will have on the agency's ability to provide continuous service in accordance with B. PERMITS Section (b)(1).

Section 5. Facilities.

(1) Each ambulance provider shall establish a separate ambulance station within each zone within which said ambulance be located to provide the minimum response time, considering traffic, street patterns, and other ambulance station locations. All such locations shall be approved by the Director, shall comply with all applicable zoning and building regulations, and shall be maintained in safe and sanitary conditions.

(2) Each ambulance station shall be adequate to house all drivers and attendants required for said ambulances.

(3) The permit officer shall cause to be made an inspection of the facilities, equipment and methods of operation of each permittee.

Section 6. Unauthorized Response. No ambulance service permittee under this Ordinance shall cause or allow its ambulances to respond to a location without first receiving a specific request for such service at that location by BOEC. Ambulance service permittees shall cooperate with the Director, or designee, in any investigation of possible violations of this section and shall make all dispatch records available for inspection and copying at reasonable times at the permittee's regular place of business.

Section 7. Regulation. The Director shall make necessary and reasonable rules and regulations covering ambulance service operation, ambulance transport equipment, and ambulance personnel for the effective and reasonable administration of this division. Prior to adoption, regulations shall be submitted to the Medical Advisory Board and Emergency Medical Services Policy Review Board for their approval.

I. RATES

Section 1. Rates set by Director. The Director shall set the maximum rates for Advanced Life Support and Basic Life Support, including rates for services and supplies incidental thereto that permittees may charge for providing service under this Ordinance.

Section 2. Rate Setting Process. Approval of rates shall be given on an annual basis following a public hearing conducted by the Director. The rates reviewed shall be those proposed by permittees and the proposal shall be submitted, together with such accompanying material, data and information as may be required by the Director. The decision of the Director shall be to approve, approve in part, or disapprove proposed rates, and said decision shall be based upon the reasonable costs of providing the service in relation to a reasonable rate of return on investment.

Section 3. Appeal. A decision by the Director under this I. RATES section may be appealed to the Board of County Commissioners by an affected permittee or any member of the public who may be served by the permittee by filing a written notice of appeal with the Director's office not later than fifteen days following the date announced prior to the conclusion of the public hearing where the decision is announced. Any such appeal shall include a written statement of the reasons therefor and basis upon which the Director's decision is challenged. The Board shall conduct a hearing on the appeal and the appellant shall carry the burden of proof.

J. INSURANCE REQUIREMENTS

Section 1. Terms. The permittee shall obtain and keep in force during the term of said permit, comprehensive automobile liability insurance and professional liability insurance issued by a company authorized to do business in Oregon, insuring the owner against loss by reason of injury or damage that may result in persons or property from negligent operation or defective construction of such ambulance, or from violation of this Ordinance or any other law of the State or the United States. Said comprehensive automobile liability policy shall be in the sum of not less than \$500,000 for combined single limit bodily injury and property damage. Said professional liability insurance shall be in the sum of not less than \$1,000,000 combined single limit bodily injury and property damage.

Section 2. Additional Insured. Permittee shall maintain an insurance policy which contains an endorsement naming the County and in which the permittee provides service as an additional insured for general liability.

Section 3. Hold Harmless. The provider shall indemnify, defend and hold harmless the County, its officers, agents and employees from all claims, demands or liability arising out of or encountered in connection with this agreement or performance under it, whether such claims, demands, or liability for injuries occurring after performance under this permit as well as during performance of this permit.

Section 4. Worker's Compensation. All employees of the permittee must be covered by an Worker's Compensation Insurance Policy.

Section 5. Notice of Cancellation. Insurance policies shall contain a provision requiring a thirty (30) day notice to be given to the Permit Officer prior to cancellation, modification or reduction in limits.

Section 6. Evidence of Insurance. Before a permit is issued and during the term of the permit, a Certificate of Insurance indicating compliance with all insurance requirements shall be filed with the Director.

K. MEDICAL ADVISOR .

Section 1. Single Medical Director. There is established a single medical advisor with authority over all county permittees. Medical advisor has authority to:

- (a) Establish protocols;
- (b) Enforce implementation of protocols;
- (c) Discipline individual EMTs for repeated violations of established protocols;
- (d) Determine additional rules and procedures that ensure the coordinated, consistent application of emergency medical service in Multnomah County.

Simpson -
5/2/89

Planning and Budget Division
T. Simpson
01-May-89

EMERGENCY AMBULANCE SERVICE

EXPENDITURES	Option A	Option B	Option C	Option D	Option E	Option F
Integrated EMS System	69,487	69,487	69,487	69,487	69,487	69,487
ALS First Response/BLS Enhanced	1,132,040	1,132,040	1,132,040	1,132,040	1,132,040	1,132,040
Emergency Care and Transport	3,397,544	3,212,837	3,548,870	3,903,707	3,168,288	4,359,737
Medical Direction	81,332	81,332	81,332	81,332	81,332	81,332
Quality Assurance	70,671	70,671	70,671	70,671	70,671	70,671
Public Education	48,754	48,754	48,754	48,754	48,754	48,754
Public Accountability	9,706	9,706	9,706	9,706	9,706	9,706
Administration of Transport System	1,294,636	1,294,636	1,294,636	1,294,636	1,294,636	1,294,636
Private System	17,953	17,953	17,953	17,953	17,953	17,953
Indirect	330,867	320,167	341,586	363,218	315,707	388,869
Total	6,452,992	6,257,584	6,615,037	6,991,506	6,208,575	7,473,187

REVENUES	Option A	Option B	Option C	Option D	Option E	Option F
ALS	4,948,067	4,948,067	4,948,067	4,948,067	4,948,067	4,948,067
BLS	1,732,458	1,732,458	1,732,458	1,732,458	1,732,458	1,732,458
Total	6,680,525	6,680,525	6,680,525	6,680,525	6,680,525	6,680,525

NET	227,533	422,941	65,488	(310,981)	471,950	(792,662)
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5/2/89

May 2, 1989

Honorable Gladys McCoy
Multnomah County Chair
Room 134, County Courthouse
1021 S.W. Fourth Avenue
Portland, OR 97204

RE: PROPOSED FINANCIAL PLAN FOR PUBLIC AMBULANCE PROVIDER

Dear Madam Chair:

Care received the proposed financial plan for the Public Ambulance Service on Thursday, April 27th and has not had the opportunity to do an extensive review of all aspects of the plan.

Care Ambulance has been in the ambulance business over seventeen years and is intimately familiar with the cost and revenues associated with ambulance service.

Care would like this opportunity to make a few general comments about the financial plan as proposed.

Comments on Revenue Projections

The predicted collection rate of 80% of gross billings is extremely high for any ambulance service. A 70% collection rate is excellent with a 65% rate considered good. With the County having no practical billing experience, a collection rate of 60% for the first year of operations would be more probable. At a collection rate of 60%, the revenue would be \$5,010,393.60 compared to the 80% or \$6,680,525.00 using a gross billing amount of \$8,350,656.20.

Care's Billing Office Staff reviewed the financial projections in Attachment 3, pages 12, 13 and on page M/6 regarding reimbursement rates for Third Party Payors, and found the following areas of concern. From the table on page M/6 the following discrepancies are noted:

Welfare reimburses at a maximum rate of \$62.42, not \$412.75 for ALS or \$213.90 for BLS as reported. The Medicaid projections on page 12 and 13 Attachment 3 are

Honorable Madam Chair
May 2, 1989
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in error as welfare pays only 15% of the proposed ALS rate.

Kaiser rejects 15-20% of all patient bills and does pay 100% of all bills submitted as listed on page M/6.

Veterans pays only about 1% of non-contract ALS patient calls. Since Care has the VA contract, there are more ALS calls that are listed the VA pays. The table on M/6 lists 100% reimbursement from VA and that is in error.

Workman's compensation must approve of submitted claims before reimbursement. Workman's compensation rejects approximately 5% of all claims submitted as non-injury related.

Motor vehicle are listed as a 100% reimbursement. This is inaccurate, as hospitals can put a lien on the fund and exhaust all reimbursement benefits. This leaves the ambulance service with no reimbursement from the MVA fund.

A more detailed summary can be provided on request. It would be nice if Mr. Acker would visit our office so that Care could help him make a more complete and accurate projection of revenues.

It is clear that with the inaccuracies of the reimbursement agencies coupled with a lower collection rate the revenues will be approximately two million dollars less than what Mr. Acker has predicted.

Comments on Cost Projections

On any budget projection, it is prudent to estimate revenues low and cost high. The opposite has been done in Mr. Acker's report. The cost figures are low and sometimes absent with revenue projections estimated high.

Whenever an ambulance company projects cost, the first bit of information to obtain is a system status plan (SSP) that indicates how many ambulances and personnel will be required to operate the system.

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Mr. Acker prepared six operating scenarios, A through F, that show the number of ambulances and personnel necessary to operate the system. Mr. Acker's projections are not related to any SSP.

The figures listed on pages 16 and 17 of Attachment 3 do not add up. There are cost discrepancies of two hundred thousand plus dollars.

To illustrate that point, I guide your attention to page 16 Attachment 3. In the middle of the page there is a figure of \$3,555,171.00 that indicates the "total fixed cost."

Under "variable costs" there is six operating budgets for the six operating scenarios A through F.

The total operating cost plus the total fixed cost should equal total system cost; they do not.

Attachment 1 of this report shows the true deficit/surplus from the figures on pages 16 and 17 Attachment 3 of Acker's report.

Those figures show four of the six scenarios in a deficit.

The salary listed of \$20,567.00 for Paramedics is \$1,713.92 a month. That figure is low and should be a minimum of \$8,150.00. That \$150.00 increase would add \$180,000.00 a year to the budget for 100 Paramedics.

The utilization of three Billing Clerks is too low. A number of nine to twelve would be more accurate, which is a \$150,000.00 to \$225,000.00 increase in the budget.

An automated billing system will cost \$100,000.00 to \$150,000.00 dollars, not \$7,250.00 as listed under Administrative cost.

Under supplies, the medications and soft goods listed are \$4,500.00 a year. A more accurate figure is \$73,000.00 per unit, times 11.3 units in scenario A would be \$824,900.00 the first year. In addition, all reserve ambulances should be completely stocked at a

Honorable Madam Chair
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cost of \$20,000.00 per unit. Four back-up units would cost \$80,000.00.

The list goes on and on, but it is plain that the costs are severely underestimated in this proposal.

Again, Mr. Acker is welcome to come over to Care and we will be happy to assist him preparing an accurate cost projection report.

Conclusion

Care Ambulance is ready to assist the County in improving patient care to the citizens of Multnomah County in a cost effective manner.

The proposed budget of 4.27.89 for a Public Ambulance Service is inaccurate and incomplete. The proposed budget needs to be more specific and precise in order to make a genuine decision as to its feasibility.

Respectfully submitted,



Mark Drake
Operations Manager
Bid Procurement Director
CARE/TVA AMBULANCE

Attachment

cc: Multnomah County Commissioners
Jill S. Gelineau

MD/jl

Attachment 1

System (1)	Acker's Surplus/Deficit (2)	Difference (3)	Total Deficit/Surplus (4)
A	\$217,414.00	\$248,877.90	(\$ 31,463.90)
B	422,941.00	251,951.00	170,990.00
C	65,488.00	266,828.00	(201,370.00)
D	(310,981.00)	262,689.00	(573,670.00)
E	471,930.00	233,898.00	238,032.00
F	(792,682.00)	19,214.00	(811,896.00)

(1) System is the operating system listed on pages 16 and 17 of Attachment 3, and page M/5 under Goal 3.

(2) Is Acker's projected surplus and deficit on page M/5.

(3) Is the difference between the total system cost as listed on pages 16 and 17 A-3, and the actual difference obtained by adding the "total operating cost" and the "total fixed cost."

(4) The total deficit/surplus is computed by subtracting column 3 from column 2.