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# SOMEBODY CALL AN AMBULANCE!

## Emergency Service

It was a busy southside intersection. A car, moving at high speed, had just smashed into a pole, jamming the steering wheel into the driver's chest. His head had cracked the windshield. Glass was scattered about in the darkness.

The first bystanders ran up, yanked the fellow out and laid him at the roadside. A crowd gathered. The first policeman on the scene called via walkie-talkie for the rescue unit to step on it. His voice quavered as he advised his sergeant that it looked like a fatality.

A siren's wail seemed far away, inching closer. . . someone ran up with a first aid kit and tried to dress the worst cuts. The victim gasped for breath, was sweating and appeared to be in shock. Some passersby turned away at the sight. "Oh, God, look at him. . . look at that car, will ya. . ."

The white-coated ambulance crew arrived and pushed through the crowd with a first aid kit, a bag-mask resuscitator and a small oxygen bottle. One crewman checked the pulse and respiration, then searched for other injuries. He found broken bones in the skull (and suspected brain damage), a broken arm, a damaged knee. His teammate squeezed the bag mask, forcing oxygen into the man's lungs to ease breathing while the other attendant bandaged cuts. An inflatable splint was used to immobilize the injured arm, another splint to protect the leg. Out came a stretcher, little more than a metal frame that came apart. It was slipped under the victim, linked back together, and lifted with a minimum of jostling.

In the ambulance, the crew worked to restore the patient's air passage. Suction was used to clear blood coagulating in his throat. A plastic airway was inserted to keep the unconscious man from swallowing his tongue. Then the oxygen mask went on. With the bleeding under control, they rechecked the vital signs. The prognosis was not good. The man was failing. A

## In Metro

policeman drove the ambulance toward the hospital so both attendants could stay with the patient and make the necessary arrangements at the hospital emergency room. They were not heading for the nearest hospital, but to one the crewmen knew had specialists on duty around the clock. "I'm coming in with a 25-year-old male, about 180 pounds, slim. He has head lacerations, a skull fracture, a pneumothorax from chest injuries, fractured arm and fractured knee. Blood pressure 80 over 60, pulse 110. He's in shock, under oxygen. Be ready for us."

At the hospital, the crew, aided by orderlies, immediately rolled the man into the shock room. The crew stayed until he was examined and transferred to hospital breathing devices. The doctor on duty already had alerted a resident specialist to stand by. The patient, from the time the emergency team had arrived at the accident until he was in a neurosurgeon's care, had been in competent hands.

The scene above, though dramatically well-handled, is typical to most rescue service efforts in metro. It would not have progressed so smoothly a few years ago. Much thought, money and training has gone into emergency care within the last few years, as awareness of the importance of this service has increased. Yet, there are still problems hampering metro and similar areas across the country from providing a superior system for handling health emergencies, whether the crisis is a routine broken arm or the horrible complexities of a plane crash or similar mass casualty disaster.

Ambulance crews are the firstline fighters against two of the nation's biggest killers - accidents and heart disease. Nationally, 50,000 persons a year die in traffic accidents; another 50,000 in other accidents; and a quarter of a million die of heart problems before reaching a hospital.

In metro these figures translate into 117 traffic deaths - which is

less than expected, since Hampton Roads has about a quarter of the state's population. Statewide, there were more than 1,200 motor vehicle deaths. From heart disease, there were 3,500 deaths, the largest single killer in Virginia.

### Emergency Medical Care System

Metro is served by more than 60 ambulances operated by 28 different groups coordinated by seven dispatchers. There are 17 hospitals, most with emergency rooms. Fire departments, police, and in some cases, the military, are involved in the emergency care system, too. Most of the individual elements of the emergency system in the port area are well-organized. Most have adequate equipment. Most have adequate training. But. . . there is still no real coordination of the system on a regional basis. There is no radio communication between health facilities and other sections of the emergency system. That is being remedied, but at present only in Norfolk can ambulance medics talk directly to the emergency rooms.

A few years ago no one paid much attention to the emergency system, particularly the quality of it. For example, most states, Virginia included, had set no standards for the men and women, volunteer or professional, who handled patients on ambulances. In contrast, the beautician or barber has to pass written and practical tests to earn a license. An ambulance attendant's card was issued on the basis of the rescue squad captain or operator's statement that the person had qualified in required standard and advanced first aid courses. It was virtually the only requirement.

Health professionals cite the lack of a clear national health policy as one reason that emergency care - or any kind of health care - remains uncoordinated in comparison with some European or Canadian counterparts. Lack of a national policy means problems all the way down the line, according

public  
Drug  
access

hospital  
category

conc.  
hospital

SD  
admission

quality  
care at  
scene

to Dr. Robert Wise, Norfolk public health officer. If states do not set policies, then regions cannot coordinate their needs because they lack authority; and localities often do not have the funds for the services that local leaders clearly see are needed.

But metro has finally started its own effort at regional coordination of its emergency medical system, partly financed by a \$30,000 Federal grant. The area is covered by Planning Districts 20 and 22, which include the southside from Southhampton County east to Virginia Beach, plus the two counties of Virginia's Eastern Shore. The peninsula may be added later, or the planning district there may be the basis of a similar coordinating council. Metro needs a joint effort on both sides of Hampton Roads.

"We've started from the bottom," explained Robert L. Smith, who has been active for 20 years in Virginia Beach rescue squads. From his post as assistant Civil Defense director in Norfolk, he has established a limited radio system linking ambulances and hospitals in that city.

A retired Navy medical administrator, Cdr. Harry Bleh, was named regional coordinator of emergency medical services in November, and is still acquainting himself with the region's resources and needs as articulated by the interested groups who helped form the council. "There's a real enthusiasm in the health care system for this," said Ed Holmes, assistant administrator of Norfolk General Hospital. "I've seen it among doctors, rescue squads, civil defense and regional planners. From opinions I've heard, we've got a good system in Tidewater, but it is not fully coordinated. This is the purpose of the emergency medical services grant -- to make it one of the best in the country. There is no doubt we'll achieve it. The delivery of medical care is not confined to the four walls of a hospital, but it reaches its best potential when it is expanded to the whole community."

Holmes, representing the Tidewater Hospital Council, and Smith, kicked off the regional planning effort when they approached the Tidewater Regional Health Planning Council looking for Federal money to quicken installation of an area-wide hospital-ambulance radio system. Funds were sought to help establish an even more comprehensive system, and Bleh is just beginning to coordinate the effort.

In recent years, several professional medical groups have suggested goals for the emergency care system. The American Medical Association list is typical and authoritative. It delineates the four basic components of a good emergency care system:

- "1) Broad-based training, for on-the-spot first aid;
- "2) A communications system which assures prompt response to the need;
- "3) Well-equipped emergency vehicles, staffed by emergency medical technicians, trained and equipped to provide all necessary life support at the scene and during transportation;
- "4) High quality emergency care facilities, staff and equipment at the hospital level."

To these four, the AMA adds a fifth point -- coordination (such as the EMS council being formed regionally in metro).

#### How does metro stack up?

City by city, it appears that metro fares better than many areas of the nation in the



Portsmouth Ambulance Service helping an injured woman from car, using a spine board.

number of rescue units and quality of service. The tradition of volunteer rescue squads (some separate, others in volunteer fire units) is largely responsible for that. Volunteers from all walks of life originated and still provide the bulk of the service in Chesapeake, Hampton, Nansemond, Suffolk and Virginia Beach. Municipal services handle calls in Newport News and Norfolk, and a commercial service has exclusive rights in Portsmouth. Several small commercial services handle non-emergency calls and some emergencies in Norfolk and on the peninsula.

In rural areas, volunteer rescue squads provide service. Nationally, funeral homes once handled much of the service, especially south of Virginia, but wage law changes and upgrading of ambulance standards have forced most out of business because of finances. Locally, none survive. (One commercial service is associated with a funeral home, but it is not a hears that does double duty; the businesses are separate.)

#### Norfolk

The biggest change in any city's emergency health services has taken place in Norfolk. Police provided ambulance service for years, but changing standards put the city in violation of the recent laws. Vans and station wagons did not carry required equipment, and policemen did not have the necessary training.

The city in early 1971 turned over emergency calls to a private operator, Frank M. Yeiser Jr., 26, who had started his private Physicians and Surgeons service in 1969. Yeiser came to Norfolk City Council in July 1971 to ask for a subsidy to meet expenses. Like most commercial services, he charged \$20 a call. That charge won't cover costs, and Norfolknians weren't all paying for services rendered, adding to financial woes. A subsidy was applied for, City Council turned it down, and Yeiser indicated he was going out of business rather than cut quality of service. Three days later, City Manager Robert M. House, in what observers call an act of courage, called on Yeiser to become a consultant to the city and take over ambulance service.

What has evolved is a small, but very busy service, handled by well-trained crews. Called

Paramedical Rescue Service, it has three units and handles 12,000 calls a year. The charge is still \$20 a run, which is what most insurers pay. Many local residents, accustomed to free service, still don't pay. Federal funds from Emergency Employment Act programs pay the salaries; the fee pays operating costs, so Norfolk has avoided the financing question thus far. When federal funds run out, many observers feel revenue-sharing funds from the federal government will have to be used.

Yeiser has been the focus of much improvement in the city's preparedness to handle routine and disaster-scale emergencies. He has worked closely with police, fire, civil defense and hospital leaders to hammer out many mutual problems. "Police, fire and ambulance are essential public services, and need to be recognized as of equal importance," Yeiser said. "Ambulance service is a complicated area and you'd like to be able to concentrate on training, something that police and fire fighters often cannot do."

Yeiser gained accolades (which miffs many other units, particularly volunteer squads) after he amputated a truck driver's leg to free him from a crumpled tractor-trailer in 1972. Yeiser acted under a doctor's direction to end a six-hour ordeal involving police, firemen and two Virginia Beach rescue squads.

Almost a year later, Norfolk took delivery of a tool that Yeiser and others wish they had had that night. Called a "Hurst tool" after its manufacturer, the device has jaws powered by an hydraulic pump that spread with a force of five tons at the tips. That's about five times the force of anything available a year ago. Yeiser used the tool several times last fall to extricate people from wrecks. The tool was on loan from a local distributor, and the cost, \$3,800, caused the delay in the city's acquiring it. The only other local unit to have one is Kempsville's Rescue Squad, which purchased one earlier in the fall.

Operating in the Berkley section of Norfolk is Metropolitan Ambulance Service, started two years ago by a funeral home there. It handles about 400 calls a month, taking emergency calls relayed by the police for the Berkley area, plus private calls around the city, and interhospital transfers, a service not handled by PRS. Most of the equipment is old



and the vehicles lack radios. However, the crews are attending EMT classes, and the vehicles appear otherwise properly equipped.

#### Chesapeake

Chesapeake ambulance service is provided by the fire department which operates 10 units from its 12 fire stations. The service is free, and the equipment is purchased by volunteers from a central fund drive. The number of calls has passed 5,000 a year, with the two South Norfolk stations in the most densely populated area handling a third of the total. Policy and training is handled by each station's ambulance committee. Many of the calls are handled by paid fire fighters who were added to the once all-volunteer department several years ago.

Chesapeake units usually respond quickly to a call without waiting for volunteers to come to the station. It is not unusual for a volunteer to be picked up during the run so a paid man can return to the station where only one or two others may be available for a fire call.

#### Hampton

Hampton's picture is similar to Chesapeake's, with one major difference. The few paid men report directly to the volunteer officers rather than to other paid men, avoiding a problem which Chesapeake has had for years, and which Virginia Beach began to face last summer when it hired its first paid fire fighters. Generally, the more paid men, the quicker the volunteers see an authority conflict and lose interest.

In Hampton, four fire-rescue squads operate 10 ambulances. If volunteers don't respond within three minutes of a call, paid men take the ambulance call. Units raise funds to buy the ambulances. The city purchases the fire trucks. Similar patterns exist in Chesapeake and Virginia Beach. This ambivalence in priorities is one of many in the emergency care system.

#### Newport News

Newport News operates four ambulances and keeps one in reserve at fire stations. Ambulance duty is rotated among all department members, adding to the training problem. Fire fighters there and in other metro cities are expected to be taught first aid; lack of practice often negates the effort.

#### Portsmouth

Portsmouth has the only commercial service in metro, (The Portsmouth Ambulance Service), and guarantees it an 8 per cent profit each year. Operator B. W. Baker figures the city paid PAS about \$70,000 last year under the subsidy plan. The plan was worked out in 1968, at which time Baker said the police station wagons were his biggest competitor. Under the agreement, two ambulances and crews are available full time to handle about 700 calls each month. Basic charge is \$20. Like most commercial services, PAS pays minimum wages, bolstered by overtime. (Norfolk pays about \$1,000 a year more.)

While Baker is knowledgeable about the ambulance business and the standards required, his crews seem to come under more criticism than any other service in the area. Churchland residents say that PAS does not serve their area properly because on-duty ambulances are based downtown, a 15-minute drive hampered at rush hours by traffic over the only two bridges that link the main city with the suburban area. Among the harshest critics are policemen, fire fighters and doctors. Baker feels the addition of part-time Navy medics to allow PAS crews to take the EMT course, will improve service.

#### Virginia Beach

Of the 14 volunteer fire stations in Virginia Beach, nine have rescue squads. There is a tenth squad unaffiliated with a fire station. The all-volunteer squads, composed of over 300 people, operate 20 ambulances, and are linked under a central dispatcher.

#### The Military

The Navy has ambulances at all medical facilities in the Hampton Roads area (14 in Norfolk at the Naval Station, Naval Air Station and Amphibious Base dispensaries; eight in Portsmouth at the Naval Hospital and dispensaries at the Naval Shipyard and the Naval Weapons Station Annex, St. Juliens Creek; five in Virginia Beach at NAS, Oceana and Dam Neck dispensaries; and three on the peninsula at the Naval Weapons Station, Yorktown dispensary and the dispensary at the Naval Supply Annex, Cheatham). Additional ambulances are available for use only on naval facilities to support field amphibious or flight operations.

Navy ambulances make an average of 225 off-station ambulance runs a month and 385 on-station calls. Most drivers are taken from the ranks of hospital corpsmen. They are trained in first aid and operation of ambulance equipment.

#### Training

From the ambulance operator's point of view, whether the crews are volunteers or paid employes, the main concerns are training and financing.

Most local units insist that members be qualified in standard and advanced Red Cross first aid courses; many added defensive driving and rescue classes in recent years. But it wasn't until 1970 that Virginia enacted standards for ambulance equipment and crews, in the wake of a Highway Safety Act provision that called for states to upgrade emergency services by 1974 or face a partial loss of highway funding. That set of standards included a suggested 81-hour course for a new class of paraprofessionals - the emergency medical technician. The course is three times as long as the Red Cross courses, and is taught by physicians. Tests are state-administered and corrected.

Seven classes have been taught in the metro area. The first was organized by Dr. Forrest D. McCoig at Hampton's Dixie Hospital in the spring of 1972. The 160 graduates formed the state's largest single class. Smaller classes were held for Nansemond and surrounding area squads last spring. Norfolk's Paramedical Rescue Service men, and others, trained at Norfolk General Hospital and, most recently, at Tidewater Community College.

PAS Battalion Chief William Kube belongs to a fire department that doesn't operate ambulances, but he has personally been involved in first aid training for years. "The ambulance has become a lot more important today because of the large number of accidents and because the general practitioner doesn't go out," he said. "First aid is good for the housewife or the worker," he believes, "but EMT is for the person who wants to go out and render aid. Doctors are 100 per cent behind the EMT training; most say it has long been needed." Kube foresees more advanced training becoming available for EMTs that will perhaps make them into paramedics, the next step up the health service ladder. Kube smiled as he mused, "Maybe the paramedic will even come to supplant the general practitioner."

Virginia Beach has recently begun two EMT classes, but that city is much stronger in programs aimed at heart problems. For several years cardiologist Andrew Dickinson and general practitioner James Charlton have taught external heart massage (cardio-pulmonary resuscitation) to firemen, police and beach guards.

Last year, matching federal funds were received for an ambitious program to begin training selected volunteers to take some definitive care techniques out of the hospital and into the ambulance. The move required a change in state law to allow properly supervised, trained persons to administer certain drugs and use defibrillation equipment. The supervision will come by radio from the emergency room at the General Hospital of Virginia Beach. "We've about reached the ultimate survival rate in the hospital for heart diseases," said Ray Meekins, a rescue squad man on leave from his regular phone company job to coordinate the

(Cont'd on Page 53)



Left to right: First aid kit - dressings, bandages, clamps; short spine board; two oxygen tanks with masks; bag mask resuscitator; hand controlled stethoscope; traction splint - for broken bones.

program. "We're losing the majority of people in the field or en route."

Similar programs have been started using paid men, mainly fire fighters, in such cities as Jacksonville, Baltimore, Seattle and Houston. The Virginia Beach program is the first to rely on volunteers. About 30 men have been trained; another 30 will be scheduled this year for sessions conducted by Drs. Dickinson and Charlton. Portable electrocardiograph and defibrillation equipment has been placed on each of 20 ambulances operated from the 10 rescue squad stations. Cost -- \$6,000 per unit, paid for by a private fund drive, quietly conducted by Meekins.

In practice, the ambulance will be sent directly to a patient. The heart technician will travel in his own car without red lights or sirens. At the scene, he'll hook up the EKG, and report to a doctor by radio monitor. The doctor will advise direct treatment. If the heart is stopped or quivering, the doctor can have the technician administer a strong electric shock from the defibrillator in hopes of restarting it. A stopped heart and lack of breathing used to mean death, period. Today, using external heart massage and mouth-to-mouth breathing, it means that clinical death (no vital signs) can be reversed if biological death, hasn't yet occurred. Since the brain cells die (and can't be regenerated) after five minutes, a rescuer has five minutes to start CPR techniques. Other steps need to follow soon after to halt secondary problems.



Inside ambulance, crew checks vital signs, administers oxygen.

#### Financing

Though some financing problems have been partially solved, money remains a big concern of those involved in rescue service. John Dickens of the Virginia Beach Rescue Squad says his unit, along with adequate volunteer manpower, has traditionally had strong financial support from the community, a fairly affluent area. A mail campaign brings in about \$34,000 a year that is needed to pay expenses and purchase a new ambulance. Dividing the unit's 2,500 calls a year into \$34,000 yields only \$14 for each run. Even though the city pays for insurance and certain maintenance, and other services like laundry are donated by local businesses, Dickens projected the actual cost-per-run, even with volunteers, at over \$20.

**M**any units have sought funds under the Highway Safety Act; however, the funds allocated to the state ran out quickly, with

much of it channelled into driver training rather than emergency services (One Maryland rescue squadman commented that the Highway Safety Administration should be returning to emphasis on emergency care because funds spent on other areas — signs, engineering, drunk driver apprehension — were not reducing the number of highway deaths as much as improved medical care.)

Other squads use door-to-door campaigns and send members from captain to recruit to shopping centers and other public areas to seek donations.

#### The Hospital

As most ambulance calls end at the hospital, administration of emergency rooms is a vital area of emergency care. Several changes have recently taken place in emergency facilities at metro hospitals and more are in the offing.

Dr. McCoig of Hampton points out that hospitals have three choices in improving efficiency in emergency rooms:

1) Close it, especially if other facilities are close or the hospital cannot provide a chain of skilled services needed to back up the ER around the clock. (Leigh Memorial closed its ER because of nearness to Norfolk General; Whittaker in Newport News closed because of staffing inadequacy.)

2) Handle only emergency cases, and turn away many of the cases that are not emergencies (half to two-thirds). However, for many persons the ER is the only available around-the-clock medical service if they have no doctor or can't reach one. Until some alternative to the ER is made available 24 hours a day for non-acute emergencies, most hospitals will follow the next alternative.

3) See all who come, taking those most in need of care first.

McCoig was among the first 100 doctors in the nation to take up practice in the ER, rather than set up his own office. An Alexandria physician, James Mills, pioneered the idea 11 years ago when he gave up his practice and started a team at a hospital there to replace the dependence on interns. McCoig and other doctors rotate duty at Dixie's ER, so that one or more physicians are always on duty. The patients pay a hospital fee plus a doctor's fee. The doctors have no other practice; they refer patients to other services for follow-up treatment if needed.

The ER physician plan has spread to nearly all metro hospitals. With the change that will take place in the next year or so involving the installation of radios to allow ambulances to communicate directly with the ER and with other hospitals, hospitals will be able to advise crews of treatment needed and which hospital is best able to handle the patient at the moment. The radio system is valuable in day-to-day operation; it will be crucial in disasters.

#### Major Catastrophes

Most hospitals are currently updating disaster plans, since coordinators are planning a test this spring. It will be the first in 10 years. "Tidewater's never had a disaster," explained J. Herbert Simpson, Portsmouth Civil Defense director, "natural disasters, yes; mass casualties, no."

Robert L. Smith, speaking from his Civil Defense experience, was cautious. "We're in the process of updating our disaster plans. A month after California hospitals completed their disaster plan, they had the earthquake. Just after Chicago hospitals finished a plan, they had the train wreck."

Disaster planning is coordinated by Civil

Defense and the local health departments. The radio system will be vital in improving capability to handle disasters. Unfortunately, most disaster plans rely on the good will of the various agencies involved and no one has clear authority.

For major disasters, heavy reliance would be placed on the military and public health departments. The military is a source of first aid experience and expertise that local statistics don't show. One military doctor noted, "A lot of improvement will come directly as a result of our experiences in Korea and Vietnam, as unpleasant as that has been."

Another doctor cited the helicopter as one of the items on any EMS coordinator's shopping list. Successful tests in San Antonio, Denver and elsewhere showed the military could support the civilian community's need as well as needs of the battlefield.

Budget tightening has kept the program from expanding elsewhere, but there is no lack of military equipment and expertise in the metro area, whenever use can be made of it.

#### Public Awareness

The general public needs some training in its responsibility to maintain good health, and must be prepared to take steps when health fails because of accident or illness.

Most training for the general public comes through school courses added in recent years and through Red Cross and Public Health-sponsored classes. The Public Health Service's Medical Self-Help program, which includes the Red Cross standard course material, has reached about 24,000 Norfolk residents since its inception four years ago. Many are eighth-grade students. Portsmouth has recently added first aid to its school curriculum.

First aid training received a boost when the Occupational Health and Safety Act was introduced in the last two years. One of its requirements is that an employer provide first aid materials and some trained persons on the job site.

One of the goals of the regional EMS coordination is to increase public awareness of the emergency care system and how to use it, a goal that includes both education and communication. Sure to be discussed again is the possibility of a 911 phone number for reporting all forms of emergencies. (Discussions a few years ago ended in an impasse.) Regional cooperation is the sine qua non of an effective system, and the public must find adequate funds to institute it, and to purchase the equipment needed.

The strange — and sometimes sad — reality is that most of the changes taking place today in the emergency care system did not require amazing scientific breakthroughs. The helicopters, the radios, the knowledge, the people — all were there. They are finally being organized for effective use. In this, the public must become involved. A common gripe of ambulance crews is that people still haven't learned to get out of the way of an ambulance. (Frank Yeiser points out that well-trained crews don't need red lights and sirens to get a patient to the hospital. But one begins to wonder if warning devices should be relied upon less, simply because many other drivers fail to observe them.) It is perhaps even sadder that, until two years ago, the public was willing to allow many men whose only training was a first aid course, be, on many occasions the difference between life and death. It is not always the other fellow inside that wailing ambulance. One day it may be you.