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Indiana EMT-B curriculum (plus additions) For Reciprocity

National Standard curriculum*: http://www.nhtsa.gov/people/injury/ems/pub/emtbnsc.pdf

Minimum course hours (didactic & lab, excluding Indiana required additions)	110
ED clinical	8
Ambulance clinical	8
Total	126

****Indiana only recognizes non-visualized airway for basic providers***

Additional Indiana Requirements*

1) **Indiana Driving Laws: http://www.in.gov/dhs/files/driving_laws.pdf 1contact hour**
2) **Autism Spectrum Disorder: http://indianafirstresponder.org/catalog.html 4 contact hours**
3) **Sudden Infant Death Syndrome 2.5 contact hours**
4) **Geriatric Care 4 contact hours**
5) **Asprin Administration 1 contact hour**
6) **Peripheral IV Maintenance 3 contact hours**
7) **Weapons of Mass Destruction: http://teexweb.tamu.edu/teex-third.cfm?area=OGT&templateid=290 8 contact hours**
8) **Hazardous Materials Awareness & Operation (didactic only) 8 contact hours**

****Contact hours reflect amount of credit received as in-service.*

GERIATRIC CARE AND HANDLING

EMS COMMISSION

INDIANAPOLIS, INDIANA 46205

Revised: August 1989

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GERIATRIC CARE AND HANDLING

PURPOSE OF MODULE

To orient the EMT student to the special needs and appropriate special care and transfer techniques for assessing, treating, and transporting geriatric patients, in emergency and nonemergency situations. To also instill in the EMT to blend into that system as an integral part of it, working closely with all other medical and professional health personnel and agencies that have a role in the care of geriatric patients.

CONTENT OUTLINE

I. INTRODUCTION

- A. Definition of Geriatrics
- B. Discussion of Aging
  1. Statistics of population age changes
  2. Effects of an aging population

II. THE HEALTH-CARE SYSTEM FOR THE AGED

- A. Decentralization of health-care
  1. Affect on geriatric care
     - a. Resources and advantages
     - b. Limitations and drawbacks
  2. Components of decentralized system
- B. EMT role in decentralized health-care system
  1. Interactions with other agencies and facilities
  2. Types, structure and role of facilities

III. PSYCHO-PHYSIOLOGY OF AGING

- A. Physical aging process
  1. Sensory and function losses
  2. Patient's perception of aging
- B. Clinician attitudes about aging
  1. Effects on interactions with the aged
  2. Effects on clinical care for the aged

IV. GERIATRIC DISEASE PROCESSES

- A. Age as a factor in disease development
- B. Primary diseases of aged

V. ASSESSMENT AND CARE OF GERIATRIC PATIENTS

A. Factors modifying usual care techniques
   1. Interpersonal communications
   2. Behavioral disorders

B. Special care needs of geriatric patients
   1. Physical and mental limitations
   2. Emotional support
   3. Basic bedside care and handling

C. Trauma in the elderly
   1. Response variations
   2. Treatment considerations

D. Elderly Abuse

E. Common Medications

F. Request for limited resuscitation
   1. Living wills
   2. Limited heroics

VI. TRANSFER AND TRANSPORTATION

A. Transport considerations
   1. Patient condition
   2. Environmental factors
   3. Mental and emotional needs

B. Transfer techniques
   1. Bed to cot
   2. Floor to bed or cot
   3. Bed to chair
   4. Floor to chair
   5. Walking assists

C. Appliances and equipment
   1. Wheelchairs
   2. Walkers
   3. Hospital beds
   4. Home oxygen systems
   5. Urinary catheters

VII. DEATH AND DYING

A. Kubler-Ross phases
B. Hospice programs
C. Requests for limited resuscitation
D. Religious needs and concerns
E. Family and staff crisis intervention

GERIATRIC CARE AND HANDLING

OBJECTIVES OF LESSON

Upon completion of this lesson, the student is expected to be able to:

1. List two (2) resources in health-care and two (2) advantages of each that have effects on the geriatric patient.
2. List two (2) limitations in health-care and two (2) limitations of each that have effects on the geriatric patient.
3. Name one (1) effect the aging population has on society.
4. List the components of a decentralized system.
5. List three (3) types of geriatric facilities and their major role.
6. Identify two (2) sensory losses in the aging process.
7. Identify two (2) functional losses in the aging process.
8. List two (2) EMT attitudes that may have an effect on the interaction with the aged.
9. List two (2) EMT attitudes that may have an effect on the clinical care of the aged.
10. Name three (3) primary diseases of the aged.
11. List two (2) care needs of the aged related to physical limitations.
12. List two (2) care needs of the aged related to mental limitations.
13. Identify three (3) considerations that must be used when handling the elderly.
14. Identify two (2) considerations that must be used when treating the elderly.
15. List the two (2) requests that may be made for limited resuscitation.
16. Name three (3) transport considerations that must be made by the EMT when transporting the elderly.
17. Identify a danger associated with transport of a patient with a urinary catheter.
18. List the phases of death and dying.

19. Identify the purpose of the Hospice program.

20. Identify two (2) needs of a dying patient that must be considered by the EMT.

21. Demonstrate transfer techniques for the elderly:

bed to cot/stretcher	floor to chair
bed to chair	assist walking
floor to cot/bed	

22. Demonstrate appropriate care of urinary catheter tubing during transport of a patient on a stretcher/cot.

EMT GERIATRIC CARE MODULE

I. INTRODUCTION

A. Definition of Geriatrics

Geriatrics is the study of all aspects of aging including the physiological, pathological, psychological, economic, and sociological problems of the elderly. Some sources attach this definition to the term Gerontology, defining Geriatrics as the area of study related to the diseases of the elderly. However, for the purposes of this module, we will subscribe to the former definition as it encompasses the total phenomenon of aging and is more compatible with our objectives.

B. Discussion of Aging

1. Statistics of population age changes

The fact is the United States has an aging population. There is, however, some confusion as to the cause. While it is true that there has been a dramatic increase in life expectancies at birth, for both sexes, between the years 1900 and 1980 (46.58 years, male, 49.07 years, female, to 69.85 years, male, and 77.53 years, female), the major reason for the rise in elderly population is the increase in the number of annual births prior to 1920 and after World War II. The oldest age groups are the fastest growing segments of the population. And, as the years pass, those members of the "baby boom" of the late 1940's and 1950's will create a "senior boom" that will last well into the next century. (See figure 1)

Approximately 25.5 million citizens over the age of 65 are presently living in the United States. Of these, about 1.2 million receive long term care in nursing facilities or other institutions. The rest, including 3.5 million functionally dependent elderly, live in homes or other noninstitutional settings. It is a myth that most elderly citizens live in nursing homes. The figure is actually closer to five (5) percent.

2. Effects of an aging population

The aging population will have far reaching effects on society. It is impossible to measure the impact these effects will have on those who deliver prehospital emergency care or to foresee all the areas that will be involved. We can, however, make reasonable predictions based on trends which are even now forming in the work force, social services, housing and health care services.

ACTUAL AND PROJECTED PERCENTAGE
OF U.S. POPULATION 65 YEARS OF AGE AND OLDER

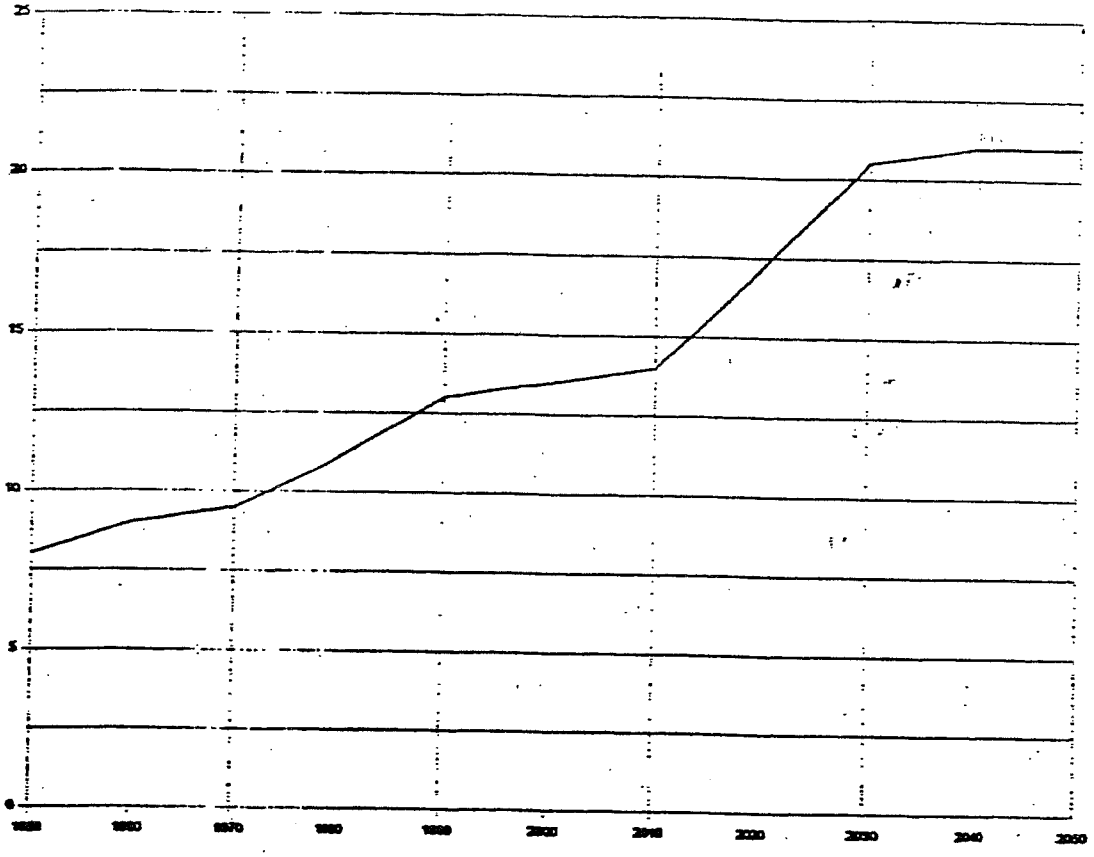

Figure 1.
Source of Information: U.S. Bureau of the Census

Due to the rise in the number of older Americans, the ratio of working age citizens (18-64) to retirement age citizens (65 or over) will begin to decline. In 1985, the ratio was 5.3 working age citizens for each person of retirement age. By the year 2030, the ratio will drop to 2.7 to 1. In an effort to keep a strong tax base, it will be necessary to make adjustments in the usual retirement age of 65.

Older workers will remain in the work force in job-sharing or part-time positions. In an effort to support government sponsored assistance, the nation must reduce its unemployment rate. The creation of new income sources, and therefore new taxable resources, can help to prevent a taxpayer revolt as workers see more and more tax dollars used to pay for programs designed to help the elderly. Paraprofessional positions will be created to deal specifically with services for the

elderly: social services, senior advocacy, visiting nurses, and in-home health care programs. Women traditionally have assumed the responsibility for caring for elderly relatives. With more women entering the work force, and with the older population itself aging, there will be an increased demand for nurses, physical therapists, geriatric specialists, management personnel, and all skilled and semi-skilled workers involved in the operation of nursing home type facilities. The EMT will see an increase in the convalescent type ambulance transports.

Social services can be divided into programs that offer assistance to older people and programs offered by older people. Programs which offer assistance to the elderly include Social Security, Supplemental Security Income (SSI), Medicare, Medicaid, and Food Stamps. Social Security is a retirement pension program administered by the federal government. Money paid into the program by today's worker is used to provide income for today's retired. As the ratio of workers to retired decreases, the ability of Social Security to provide benefits will be jeopardized. Today's young wage-earner can expect to see major changes in either the administration of Social Security or in its benefits if the program is to survive. SSI is administered by the Social Security Administration and provides payments to those whose incomes are below specific levels. SSI is not based on previous work experience and is not limited to the elderly. Medicare and Medicaid are government programs to provide assistance in paying for health related services. These programs can be expected to expand to include preventive medicine and long-term health care. Food Stamps is a federal program administered through local welfare departments. Eligibility depends upon income rather than age. In the future, nutrition can be expected to be emphasized in health care programs and homemaker/handyman programs. Those programs offered for older people include: Retired Senior Volunteer Program (RSVP), Service Corps of Retired Executives (SCORE), Senior Companion Program, and Green Thumb. Since older people have been very successful in both paid and volunteer positions, we can expect an increase in the type of programs which utilize the older person as a contributor rather than the client. In 1980, 72 percent of all elderly owned their own homes. 22.3 percent of all owner-occupied housing units and 16.4 percent of all renter-occupied units are occupied by persons 65 years or older. Older Americans receive government assistance for housing subsidies, tax breaks and preferential placement.

In the future, older people will have a wide choice of housing options ranging from long-term care facilities; to maintaining homes within the general population; to housing complexes and communities designed specifically for the elderly with provisions for food and personal services, recreational facilities and health care services close at hand.

Since few homes in which the elderly reside are designed to accommodate an ambulance cot or wheelchair, it is imperative the EMT develop and maintain skills in lifting, carrying or moving patients through close quarters. The EMT must also have the ability to adapt emergency are techniques to cramped spaces.

Architects should consider the needs of the elderly and the disabled in the design of future housing. Persons age 65 and over use health care at a greater rate that those under age 65 because the elderly have higher rates of illness, injury, and disability than the younger population. Public funds pay for approximately 65 percent of all health care expenditures for the elderly. The other 35 percent is paid by out-of-the pocket payments or through supplemental insurance purchases. Those areas of health services not normally covered by insurance; dental, eyeglasses and rehabilitation services, are not as highly utilized by the elderly. As a result of the aging population, changes related to health care could include preventive medicine measures, increased payment fro long-term health care, payment for in-home health related services, and fuller coverage for special needs such as eyeglasses and dental services centers will be located in, or near, housing developments for the elderly. And, the EMT cannot only expect to see an increase in the nonemergency, convalescent type transport, but an increase in the number of older patients.

II. HEALTH CARE SYSTEM FOR THE AGED

The health care delivery system in this country has been constantly changing and evolving. However, never have these dynamics been ore evident than in the years post World War II. Traditionally, health care had been "centralized" in nature. That is, the system was comprised generally of a physician as the primary care practitioner and the hospital as the central location where health care was delivered to in-patients. Few "medical services" were otherwise available or could be effectively delivered in alternative forms.

However, since World War II the health care delivery system has experienced sweeping change in purpose, process and design fueled by societal, educational, political, economical and technological factors. Smith and Kaluzny define the health care delivery system in the mid-eighties as a "white labyrinth that is an elaborate set of arrangements that makes available to us the technology of the health sciences." The current health care delivery system is comprised of four general categories: financing mechanisms, primary providers, secondary providers, and consumers.

Financing mechanisms include:

1. Private and public charity;

2. Fee for service – which means the patient pays for his personal resources for services rendered by a health care provider;

3. Blue Cross/Blue Shield – largest health care insurer in the country offering a variety of health insurance plans at a variety of prices;

4. Other commercial health insurance;

5. Medicaid – partially funded by states and partially by federal government. Medicaid is actually a living expense subsidy as opposed to health insurance;

6. Medicare – health insurance available to those with certain disabilities or those 65 and over subsidized by the federal government; and,

7. Other public subsidies – such as supplemental security income (SSI).

Primary providers include:

1. Health care professionals and paraprofessionals – including physicians, dentists, nurses and nursing personnel, therapists, allied health personnel, paramedics, EMTs, etc;

2. Hospitals – including general and specialty hospitals; mental health institutions, and certain highly specialized clinics;

3. Extended care facilities – including retirement living centers that can accept only private pay residents, assisted living centers that provide limited assistance such as housekeeping and linen service, meals and assistance with bathing for private pay residents (Insurance does not cover nursing homes at both the intermediate care and skilled nursing levels; Intermediate care will provide limited nursing service including passing medication, evaluation of patients, physician services, meals, housekeeping, etc. Medicaid and some private insurance policies will pay for these services. Skilled nursing care is more intense including in some cases IV therapy, enteral feeding, various medical treatments and the like. Medicaid and some private insurance policies will pay for limited lengths of stay for specific diagnoses. In some cities nursing homes have opened what is called "super-skilled" or "sub-acute" nursing units that have nearly the same level of service as a hospital.);

4. Home health agencies – provide nursing services in the patient's home for a fee (Medicaid and some private insurance policies will pay for this. Services range from companion-sitter services to those of registered nurse or allied health professionals. Some home health agencies are doing IV therapy, enteral feeding and other advanced treatments at home.);

5. Neighborhood health clinics – usually government subsidized with specific emphasis on a special need in the community such as well babies or pregnancy counseling;

6. Health Maintenance Organizations (HMO's) – health insurance with a general emphasis on preventive health (Some HMO's have actual "storefronts" from which they see patients. Others are a group of health care providers organized by a central governing body that agree to provide health care services under specific terms. The patient is charged an annual subscription fee and then very modest amounts, if any, for visits. HMO's are very popular as alternative providers of health care.);

7. Preferred Provider Organizations (PPO's) – generally a group of health care providers that agree to provide services to member patients at preferred or discounted rates (Members are charged an annual membership fee and then preferred rates at time of service.);

8. Ambulatory Clinics – generally they provide various surgeries or treatments that can be done on an out-patient basis (no overnight stay) (This approach to medicine is popular as a deterrent to the rising cost of health care. Medicaid, Medicare and private insurance will generally pay for services received at these facilities.);

9. Emergency Medical Service Systems – generally funded or subsidized through local government (Generally patients are charged for service and insurance will cover.); and,

10. Urgent Care Centers – generally free-standing, for-profit centers (Services rendered without appointment and covers most nonemergency problems.).

Secondary providers include:

- educational institutions (nursing and medical schools, etc.)
- professional associations
- drug and equipment suppliers
- research institutions

With this brief explanation of the components of the decentralized health care system, it should be apparent that an EMT should familiarize himself with the resources of his community. The medical staffs of these provider organizations may be unfamiliar with the operations of the EMS system; therefore, direct contact by representatives of the EMS provider organization prior to an emergency response may avoid confusion and a misunderstanding of roles and objectives during a response.

The obvious advantage of the system to the geriatric patient is its great availability. Medical services of many types and descriptions are offered to anyone willing to pay. The health care industry is becoming acutely aware of the importance of marketing to tell the consumer of what is available. Additionally, competition is such that the development of new programs of the "repackaging" of old ones is a constant

challenge.

Additionally, a new awareness of the aging of our population has made providing for the needs of the elderly a new priority. Society has realized that it is getting older. As the general population ages, a new power base will emerge. We already see the effects of this emphasis in increased research on problems of the elderly such as, arthritis, Alzheimer's disease, etc. Private industry is hurrying to build the estimated additional 1.5 million nursing home beds and related services by the year 2000. Furthermore, this consumer group will comprise 25% of the total population by the year 2000, accounting for 43% of the total hospital days and 18% of the total physician visits.

With this emphasis also comes the continued rising cost of health care. Why do these costs continue to rise? Four explanations are reasonable:

1. Simple inflation; between the years of 1975 and 1981 the medical care price index rose at an annual rate of 9.9%.

2. A favorable attitude toward the increased usage of sophisticated and costly medical technology exists among physicians, hospitals and even patients.

3. The nature of disease and morbidity is changing. Acute, short term illness such as infections diseases are less predominant in favor of chronic, long term illnesses such as heart disease and cancer.

4. More Americans have health insurance: 7# in 1940 to over 90% in 1980.

However, the elderly have not necessarily gained parity on the ability to pay for health care. Generally, the elderly live on reduced or fixed incomes. Many believe that Medicare will pay for their healthcare costs without exception. However in the government's attempt to roll back its health care costs, the Medicare system has been profoundly affected.

Recently the government started reimbursing hospitals on a system of diagnostic-related groupings (DRG's). Simply put, the government will pay a hospital a fixed sum for a patient with a specific diagnosis. If the hospitals can provide the care for less, it makes a profit; if it cannot, it suffers a loss. Therefore, patients, including the elderly, are sometimes discharged from a hospital sooner than under the previous reimbursement system. Many elderly that may not have the family or friends support network that younger patients have, find themselves in extended care facilities or using home health care agencies for convalescence. However, Medicare will only pay for limited stays for specific diagnoses. If they are not Medicare eligible or must stay longer than Medicare will cover, they must pay from personal resources. An extended stay can have a devastating effect on life savings and "nest eggs." When that happens, many elderly find themselves on the Medicaid rolls to pay for their care. This

process can have serious effect on a person's sense of pride and self-worth and also on one's status in society and family.

Clearly, one of the most important challenges of this decade will be how to provide health care to an aging population in a way that can be afforded. EMT's will find themselves relatively detached from the problems of pay for elderly health care; however, DRG's may soon extend to pre-hospital care. When that happens we all may be reevaluating how care is to be provided and under what conditions.

III. PHYSIOLOGY OF AGING

A. Physical Aging Process

Aging - is a general term used to describe the processes through which an individual acquires the socially defined characteristics of old age. As the body ages the probability of disease, injury and death increases. The group of processes which cause the body to deteriorate, become less viable and more vulnerable is called **senescence.**

1. Sensory and Function Losses

Sensory processes which deteriorate with age include:

1. Vision
2. Hearing
3. Balance
4. Taste
5. Smell
6. Sensations

Vision - Two structures within the eye are particularly affected by age, the lens and the iris. As age increases, the lens becomes yellow and thickens, colors begin to fade and it becomes difficult for the eyes to focus, especially on very near objects. The iris controls the amount of light entering the eye by controlling the size of the pupil. The average diameter of the pupil decreases with age creating the need for brighter light for vision. The elderly find glare from bright lights to be a serious problem and have greater difficulty in adapting to darkness and distinguishing between levels of brightness.

Hearing - Most people begin to suffer from hearing loss around the age of 20. Hearing loss is usually slow and uneven and affects men and women equally until the age of 55. After 55, the loss of hearing is greater in men. The elderly have difficulty in hearing tones at the higher frequencies; and, have difficulty in distinguishing background noise from normal conversation.

Balance - It is unknown whether the decrease in sense of balance is due to

changes in the inner ear, changes in the blood supply or coordination problems created by the central nervous system. Whatever the cause, the elderly have a greater difficulty in maintaining balance and tend to fall more often than younger people.

Taste and Smell - The sense of taste declines as a result of the decrease in the number of taste buds and the fact that the remaining taste buds become less sensitive. The sense of smell seems to begin to decline about the age of 45. Not enough research exists to indicate if the cause is due to aging or due to the irritants such as smoking and air pollution.

Sensations - Research indicates that all general body sensations - touch, pain, muscle movement, and vibration decrease with age.

Functional losses that result from aging include:

1. Reaction time
2. Complex performance
3. Muscle strength
4. Memory

Reaction Time - Increases with age. It is not clear if the increase is due to a degeneration of the physical processes or a desire to be more careful and more accurate.

Complex performance - Involves a series of actions in response to a series of stimuli. The processing of data by the brain takes longer in the elderly.

Muscle Strength - decreases as a person ages partly because the muscle cells atrophy and partly because of loss of lean muscle mass.

Memory - Some elderly suffer little or no memory loss. When it does occur, short-term or recent memory seems to be more affected than long-term or remote memory.

2. Patient's Perception of Aging

The older patient's perception of aging is often a self-fulfilling prophecy in that in his younger years he developed a negative attitude toward the elderly. Old age is viewed as a time when a person must relinquish control of his activities, possessions, ambitions and desires and becomes more responsive to the demands of others. Old age is perceived as a time of physical and financial dependency. The elderly often have unjustified fears including the fear of not enough money to live on, being institutionalized, poor health, loneliness, lack of medical care, and crime.

B. Clinician Attitudes About Aging.

The approximate average age of EMTs in Indiana is thirty-three (33). By this age, the EMT has already formed definite attitudes in regards to aging. We are a youth-oriented society with emphasis on physical fitness and physical attractiveness. When the EMT faces his elderly patient, is he looking into a magical mirror which predicts his future? His elderly patients have problems, that's what makes them patients. They are ill, confused, frightened, sad and lonely, not physically fit and certainly not physically attractive. Ignoring the alternative, the EMT does not want to age because to age is to become the elderly patient. Even without the EMT being aware of their presence these attitudes may affect his relationship with the elderly and the care he renders. These attitudes may include the following feelings.

Anger	Apathy
Fear	Confusion
Aggravation	Boredom
Resentment	Complacency

If the EMT has not accepted the reality of his own aging, he may develop a fear of the elderly. Confusion about the seemingly injustices of life can affect the EMT's dealings with his patients. The EMT who has comforted the parents of a SIDS victim or small child killed in an accident may develop anger or feelings of resentment towards the elderly. Dreams of life-saving rescue and red lights and sirens gives way to boredom and apathy as the EMT transports the elderly patient from a hospital to a nursing facility and back again. Too often the EMT becomes smug and complacent as he deals with the elderly, failing to recognize the elderly patient as being in a class by himself. Just as the pediatric patient cannot be treated as a little adult, the elderly patient cannot be treated as a large child, nor can he be treated simply as an adult. Failure on the part of the EMT to recognize the special needs of the geriatric patient can cause feelings of aggravation with the patient and lead to a decrease in the quality of care. The EMT must come to grips with the reality of his own aging and be willing to expend extra time, effort, and understanding if the needs of the elderly are to be served.

1. Effects on interactions with the aged

Attitudes of the EMT can have the following effects on the EMT's interactions with elderly patients.

a. ignoring the patient's presence by directing questions to others instead of to the patient

b. failure to touch the patient or to maintain eye-to-eye contact except when giving necessary care

c. failure to allow the patient to make decisions regarding his care

d. failure to allow the patient control over his body or his possessions

e. treating the patient as if they were a small child

f. failure to allow the patient extra time to respond to questions

g. invading the patients right to privacy

2. Effects on clinical care for the aged

Attitudes of the EMT can have the following effects on patient care.

a. rough handling of the patient

b. inadequate attempts at obtaining patient history

c. assuming a confused state of consciousness is normal for the patient

d. inadequate packaging of the patient

e. failure to take the patient's complaints seriously

f. incomplete patient assessment

g. failure to recognize major health problems

IV. GERIATRIC DISEASE PROCESSES

"The only absolute rule about the aging process is that it eventually stops." Even though the average life expectancy has risen over the years, there seems to be a limit to man's longevity. Recorded history has always shown those rare individuals who lived 110-120 years. At the present time there are nearly 12,000 people over the age of 100 in the United States. In 1930 a study by German pathologist, Ludwig Aschoff indicated that very few people die of old age.

A. Age as a Factor in Disease Development

Inevitable changes occur in body systems and vital organs as we grow older. These changes contribute to the aging process and play a key role in the development of disease. Vital organs and systems affected by age include the following.

Heart and Cardiovascular System - Arterial walls thicken and become less resilient as plaque and fatty deposits accumulate inside arteries. Heart valves become rigid and heart muscle deteriorates. Cardiac output declines as the heart works harder to pump blood.

Lungs and Respiratory System - The respiratory system becomes less efficient as the lungs become less elastic and lung capacity decreases. Chest capacity decreases due to arthritic changes in the joints.

Kidneys and Bladder - At age 70, blood is filtered by the kidneys at one-half the rate at age 30. Bladder capacity declines by one-half.

Musculoskeletal Systems - bones lose calcium, become more brittle, and slower to heal. Cartilage wears down and loosens, synovial fluid decreases, and ligaments harden.

Immune System - Immune system response to infectious agents becomes delayed or inadequate.

B. Primary Disease of the Aged

Diseases of the elderly can be divided into two groups: those diseases, both acute and chronic, which are leading killers of the elderly; and, those diseases which are mainly debilitating. Those disease which often result in death include the following.

Cardiovascular Disease - including myocardial infarction, congestive heart failure, hypotension, and arrhythmias

Cancer - 90% of all cancers occur in individuals over the age of 40

Cerebrovascular Disease - the third leading cause of death in ages 65-84 and the second leading cause in those 85 and over.

Chronic Obstructive Pulmonary Disease (COPD) - Emphysema, chronic bronchitis and other related conditions are the fourth leading cause of death. COPD has been identified as the most rapidly increasing health problem in America.

Diabetes - the most common metabolic disease of the elderly affects 20% of all over the age of 65

Pneumonia - often listed as the cause of death even though the patient suffered from another potentially fatal chronic condition

Debilitating disease which affect the elderly and which should be considered by the EMT when delivering care include the following.

Arthritis -Osteoarthritis is found in almost all people over the age of 45. It is very painful, but usually not crippling. Rheumatoid arthritis is found in all age groups and can be rapidly crippling.

Visual Disorders - including cataracts, glaucoma and Senile Macular Degeneration

Parkinson's Disease - the most common movement disorder to the elderly

Anemia - usually the result of other chronic illnesses or drug induced blood loss

Dysphagia - May be caused by conditions such as stroke or palsy; or, by less effective esophageal peristalsis.

Hiatal Hernia - found in 40-60% of those over 60 years of age

Osteoporosis - a contributing factor in fractures, especially of the hip, wrist, and vertebrae

V. ASSESSMENT AND CARE OF GERIATRIC PATIENTS

A. Factors modifying usual care techniques

1. Interpersonal Communications

Those patient factors which affect interpersonal communications include

a. Hearing deficits
b. Visual problems
c. Social isolation
d. Sociocultural differences

2. Behavioral Disorders

Those behavioral disorders which must be considered when delivering care to the elderly include

a. Cerebrovascular Accident
b. Aphasia
c. Organic Brain Syndrome
d. Alzheimer's

B. Special Care Needs of Geriatric Patients

The major reasons for problems in caring for and communicating with the elderly relate to sensory and neurological deficits and environmental or sociological factors. Special care techniques can be used to circumvent these problems.

1. Physical and Mental Limitations

Hearing deficits - Do not shout! This can be mistaken for hostility. Talk slowly and distinctly, using a normal tone of voice but lower the pitch. Allow the patient to see your lips and use gestures and facial expressions to relay your thoughts. Keep background noise to a minimum. Rephrase your questions rather than repeating them.

Visual problems - Increase the lighting whenever possible. Reduce glare and maintain eye-to-eye contact with the patient.

Social isolation - Remember, most elderly live alone, and therefore, lack social stimulation. A type of "cabin fever" may result. Crying, depression and memory loss may actually be a reaction to isolation. Carry on normal conversation with the patient as much as possible.

Sociolcultural differences - Factors such as ethnic and racial differences and differences in levels of education can create communication problems. Avoid slang or technical terminology. The EMT should monitor the patient for positive signs of understanding during assessment or when explaining care which he is giving.

Aphasia - Even though the patient may be unable to talk, keep in mind he may still be able to hear and understand what is being said. Be alert to any signs of positive feedback from the patient. Consider eye blinking or finger movements as a means of nonverbal communication. Do NOT ignore this patient verbally.

Organic Brain Syndrome - OBS is a catch-all phrase to denote those acute and chronic mental disorders associated with brain damage or impaired cerebral function. Those disorders could include CVA and Alzheimer-disease.

Alzheimer's Disease - A form of presenile dementia usually occurring between ages 40 and 60. This is a progressive disease ranging from loss of memory to complete loss of intellectual function. Any OBS patient requires tender loving care and patience on the part of the EMT.

2. Emotional Support

Often times the elderly patient views the hospital or nursing facility as a place where one goes to die. The patient may be confused, apprehensive or fearful about transport to such facilities. The EMT needs to maintain communications with the patient, explaining the care that is being given en route, providing a hand to hold and reassuring the patient to help relieve his fears. As with all patients, the elderly should not b lied to. Tactful, yet honest, answers should be considered for all questions. Keep in mind it is not the responsibility of the EMT to inform a patient that he is being admitted to a nursing facility. Questions about diagnoses or prognoses should be referred to the medical staff. The value of simple verbal communication and physical contact should not be overlooked in providing emotional support.

3. Basic Bedside Care and Handling

In addition to techniques mentioned elsewhere in this supplement, the following suggestions should be considered.

a. Talk *to* the patient - even when others are present, direct questions and comments to the patient. Explain your actions. Give patients time to answer your questions. Believe what you are told. Maybe he really is 103 years old!

b. Touch the patient - remember that sensitivity to pain decreases with age and sensitivity to touch increases. A hand on the shoulder or a hand to hold helps to ease feelings of fear or isolation.

c. Allow the patient some control over his situation – a choice of lying flat or head elevated when not contraindicated. Let the patient hold his transfer papers whenever possible.

d. Respect the patient's modesty and privacy. Protect your patient from the eyes of curious bystanders. A well-placed sheet or blanket is always appreciated. The elderly deserve the same confidentiality as others.

e. Address the patient by his title (Mr. Smith or Mrs. Jones, etc.) not by "Pops", "Granny", "Honey", "Sweetie", "Tootsie", or "Sugar." Do NOT use first names unless so requested. Sir or madam are always appreciated. Patients are not gomers, grunts, vegetables, senile, dirty old men, old biddies, nasty old ladies, good girls, or good boys. Remember, all patients, especially the elderly, deserve your respect, your patience, and your understanding.

C. Trauma in the Elderly

Trauma is the sixth leading cause of death for those over age 65.

1. Response Variations

The elderly patient's reaction to trauma is different than the younger patients. Variations to consider include

a. a decrease in perception of pain;
b. death can result from seemingly minor injuries;
c. the period of convalescence will usually be longer;
d. recovery may be incomplete; and,
e. the presence of chronic conditions can complicate the injury.

2. Treatment Considerations

Falls follow motor vehicle accidents as the major cause of accidental death in the elderly. Consideration should be given to assessment of why the patient fell. Did the patient trip? Was there a drop attack (temporary muscle paralysis)? Vertigo? Postural hypotension? Handle the patient gently; the bones and skin of the elderly are very fragile. Thoroughly assess for fractures.

Hypothermia is a major threat to the elderly. 50% of all hypothermia patients are elderly and the death rate is 34-40%. Contributing factors are medications and nervous system deficits which interfere with shivering.

Choking is a common occurrence. Contributing factors are aphagia, poor posture while eating, poorly fitting dentures and holding food in the mouth for extended periods of time. Consider choking as a possibility in any elderly patient with a noisy airway.

Shock reaction can be exaggerated due to blood loss compounded by preexisting anemia, hypoxia and preexisting chronic conditions. consider the patient's increased need for oxygen. Factors complicating the assessment and emergency care of elderly patients include a patient history interview which may be rambling and not always pertinent, an inaccurate recall of current medications and illnesses, and the decreased sensitivity to pain.

D. Elderly Abuse

No study of trauma in the elderly would be complete without the mention

of elderly abuse. Abuse can take many forms including neglect of patient's hygiene and nutrition needs, withholding of care, verbal abuse, and physical attacks. Abuse is found in nursing facilities as well as in the home. The EMT needs to be alert to any irregularities or inconsistencies when assessing the patient, be alert for information that doesn't a"add up." Document incidents of trauma to the elderly as thoroughly as you would any accident. Talk to the patient and give credence to responses to your questions. Follow local protocol for reporting and if none exist, report your concerns to the emergency staff of the receiving hospital. Understand that any abuse exists because it is so often ignored. The end result of abuse, no matter how minor, is always tragic. Our elders deserve better and the EMT must share the responsibility to guarantee their dignity and insure humane treatment.

E. Common Medications

Even though pharmacology is not a part of Basic EMT training, the EMT needs to be familiar with the names of common medications and the conditions for which they are usually prescribed. Names of medications obtained through the patient history interview can give clues to underlying physical conditions. The following list contains both brand and generic names and is not intended to be complete.

Heart conditions

Digitalis preparations
Digoxin
Lanoxin
Dilantin

Diuretics

Diuril
Hygroton
Lasix
Moduretic
Dyazide

Angina

Amyl Nitrate
Isordil
Nitrol
Nitrostat
Calan
Verapamil
Procardia

Anti-Hypertensives

Aldomet
Apresoline
Minipres
Inderal
Tenormin

Pain Needs

Tylenol #3
Darvocet

Arthritis	Anti-convulsants	Diabetes
Butazolidin	Dilantin	Insulin
Corticosteriods		Orinase
Indocin		Diabinese
Clinoril		Dymelor
Feldene		
Motrin		
Tolectin		

Anti-Anxiety/Sedatives Hypnotics/etc.	Antibiotics
Chloral Hydrate Placidyl	Penicillins
Valium/Diazepam	Tetracyclines
Thorazine	
Dalmane	

VI. TRANSFER AND TRANSPORTATION

A. Transport Considerations

1. Patient's Condition

In most instances, the method used for convalescent transport is chosen by the patient, the nursing facility, or the physician. Techniques used to transport a patient will depend upon both the patient's physical condition and the patient's physical abilities. Patients can be transported by ambulance cot, wheelchair, or escort depending on circumstances. All emergency transports should be made by cot. Those patients who are capable of maintaining a seated position may prefer a wheelchair for routine transports such as to a doctor's office. Escort patients must be capable of walking with a minimum of assistance and be able to climb into the ambulance. It should be pointed out that while many ambulance services do not offer convalescent transports by wheelchair or escort, many do. And, the EMT should be capable of dealing with these situations.

2. Environmental Factors

Temperature and other weather conditions must be considered when transporting the elderly. Since the ability to regulate body temperature decreases with age, the elderly patient needs to be protected against even minor changes in air temperature. An extra sheet or lightweight blanket as cover on a cool summer evening is appropriate. On warm, humid days, care

must be taken to prevent overheating. A towel or scarf wrapped around the head can protect against rain, snow or wind. An ambulatory patient should be assisted when walking on any wet, slick or icy surface. The safety of the patient and the EMT should be a prime concern in any transportation effort.

3. Mental and Emotional Needs

As mentioned previously, the elderly patient may view transport to a hospital or nursing facility with fear and apprehension. Care must be taken to ease their fears. Reassurance can be offered through conversation with the patient, explaining where the patient is being taken and what care is being given. Attempts should be made to communicate with all patients, even those who appear to have a lowered level of consciousness. Discretionary use of the siren should be considered and always forewarn the elderly patient if the siren is used, especially if used intermittently. The importance of establishing eye-to-eye and physical contact with the elderly patient cannot be over-emphasized.

4. Transport Techniques

Transferring a patient can require several assistants or minimal assistance depending upon the patient's size and his physical condition. If assistants are used, clear instructions should be given to assure a smooth transfer. The safety of the patient, the EMT and helpers must be of prime concern.

1. Bed to Cot

Several methods can be used to move a patient from bed to cot. It is important that enough helpers be used to allow for sufficient support of the patient's head, legs and body weight. The head of the cot can be placed at the foot of the bed forming an "L", then a two or three man carry can be used with the EMT and helpers lifting and rotating to place the patient on the cot. A lift sheet can be used to slide a patient onto a cot. Some facilities provide roller devices to slide very heavy patients from bed to cot.

2. Floor to bed or cot

Be sure to inspect the patient for injuries if he has fallen. A two or three man life can be used to remove a patient from the floor. If placing the patient on a cot, the EMT any helpers should kneel on the same side of the patient. Lift the patient off the floor and have a helper slide the cot under the patient. Remember, it is always risky to walk backwards carrying a patient or to step over a cot.

3. Bed to chair

If the patient is not too heavy and capable of bearing weight, the EMT can face the patient, with the patient seated on the side of the bed, place his arms around the patient then lift the patient and pivot to place him in the chair. If using a wheelchair, be certain the wheels are locked. An extremities lift can also be used with one EMT lifting by wrapping his arms around the patient's chest from behind, and another lifting the legs.

4. Floor to chair

A two man extremities lift is the safest method to move a patient from the floor to a chair. It is best to have the stronger EMT at the patient's torso and, as with all lifting techniques, lift using the legs not the back.

5. Walking Assists

Always provide support to the ambulatory patient, have the patient hold your arm and be prepared to catch the patient if he should begin to fall. Draw the patient's attention to potential hazards such as throw rugs, mats and curbs. Never leave the ambulatory patient unattended.

C. Appliance and Equipment

1. Wheelchairs

Even though wheelchairs are available in many different sizes and styles, they all have the same basic features. All wheelchairs have a braking system which locks the large rear wheels. Armrests can be stationary or adjustable and removable. Footrests are usually removable: some are designed to pivot; and, some are available with pads to support the legs which can be elevated.

2. Walkers

A walker is a lightweight metal frame device which allows a patient to walk unassisted. A variation of the walker is the walker-cane which is smaller and used in the same manner as a cane. A quad-cane is smaller still and has a base of four small legs which allows the quad-cane to stand by itself when not being held.

3. Hospital Beds

A hospital bed is similar in size to a standard twin bed and can have

electric controls or be adjusted by hand crank. Adjustments can be made in the height of the bed, and the head and foot of the bed can be elevated to various levels. Siderails are usually present on hospital beds.

4. Home Oxygen Systems

Common methods of providing home use oxygen are oxygen cylinders, liquid oxygen and oxygen concentrators. Oxygen cylinders store high concentrations of oxygen at pressures of approximately 2200 PSI. With the liquid oxygen systems, oxygen is stored in liquid state and heat from the surrounding area vaporizes the liquid oxygen allowing for delivery of high concentrations of oxygen to the patient. Oxygen concentrators provide high oxygen concentrations by capturing room air, separating the oxygen from other components through a filtration-like process and delivering oxygen to the patient. All systems use a flowmeter to establish the flow rate and may be used in conjunction with a humidifier. Usual safety precautions apply in the presence of any home-use oxygen system.

5. Urinary Catheters

Two common urinary catheters are the internal Foley Catheter and the external, condom-type catheter. Before transporting any catheterized patient, be certain the tubing is taped securely to the patient's leg and have the catheter bag emptied. Care should be taken not to pull or stretch the tubing when moving the patient. Keep in mind that some patients who are confused or not in complete control of their actions may pull on the tubing with their hands. Every effort should be taken to prevent this from occurring. Report any problems such as a displacement or damage to the medical staff. If the patient is being transported in a wheelchair, place the bag in a position that protects the tubing form being caught in the wheels. If transporting on a cot, lay the bag on the cot or hang it from the foot of the cot on the patient's left side. Any indication of bloody or cloudy urine should be brought to the attention of the receiving facility.

VII. DEATH AND DYING

A. Kubler-Ross Phases

Elizabeth Kubler-Ross, known for her research on death, lists five (5) stages through which a person passes when facing death. The stages are not always experienced in the same order and any stage may be experienced more than one

time.

Denial – a refusal to accept the fact of impending death

Anger – towards God, family, friends, and/or those who are delivering care

Bargaining – usually secret commitments made to God in exchange for an extension of life or a higher quality of life

Depression – a realization that death is imminent with sadness for past actions and goals left unaccomplished

Acceptance – The final stage involving a calm acceptance that death is near

B. Hospice Programs

The original meaning of the term "hospice" referred to a shelter for travelers on a difficult journey. Today, "hospice" refers to an organized program of care for people facing death. Hospice programs are locally administered and coordinate the services of the physician, nurse, social worker, spiritual leader and trained volunteers. Services are available on a 24-hour basis without regard for ability to pay. Services include caring for physical, emotional and spiritual needs and are extended to the family during the period of bereavement. A major goal is to maintain the patient at an optimal level of functioning.

C. Requests for Limited Resuscitation

1. Living Wills

A living will is a document drafted by an individual which expresses his wish that heroic measures not be taken in the event of impending death. The decision to honor a living will does not rest with the EMT but with the patient's physician.

2. Limited Heroics

Often times, doctor's orders will include statements such as "no heroics" or "comfort measures only." These orders directed toward the medical and nursing staff to assure that extraordinary measures are not used to prolong a life in the face of certain death. In the presence of such orders, the EMT would not normally be called to the scene. If the EMT has been called, then the safest action for him to take would be to deliver care as he would for any patient. In the interest of avoiding legal complications, the only "do not resuscitate" orders the EMT should follow are those issued by a physician who is physically present and who assumes full responsibility for his actions.

If the EMT is to commit an error, let that error be the decision to render care.

D. Religious Needs and Concerns

Traditions and customs regarding death vary from one religion to another. The EMT should respect the religious needs of all patients, especially the elderly. However, the EMT should not allow the fulfillment of religious needs to interfere with the care he must deliver.

E. Family and Staff Crisis Intervention

When the EMT has been called to the scene of a death, his attentions need to be shifted to the survivors. An elderly survivor should not be left unattended. The EMT should offer to contact a neighbor or family member and ask them to come to the home. Local protocols regarding contacting the coroner or funeral service should be followed. The deceased should be handled with respect and dignity and the EMT should avoid remarks such as "it's God's will," "he won't suffer anymore" or "at least he had a full life." A touch on the hand and a simple expression of sympathy is sufficient.

Just as the EMT's attitudes about his own aging will affect his care of the elderly, his attitudes about death will affect his care of the dying and the comfort he can give survivors. It is, therefore, important the EMT learn to deal with the death of others by examining his feelings about his own.

GLOSSARY

Advocacy – to support something or a cause

Ageism – a dislike of aging or older people based on the belief that aging makes people unattractive, unintelligent, non-sexual, unemployable, and senile

Aging – to grow or become old

Aphagia – the inability to swallow

Aphasia – the inability to speak

Atrophy – a wasting in bulk of the body or any part of the body

Dysphagia – difficulty in swallowing

Dysphasia – difficulty in speaking

Geriatrics – the study of all aspects of aging including the physiological, pathological, psychological, economic, and sociological problems of the elderly

Peristalsis – contracting movements of the intestines by which their contents are forced onward

Senescence – the process of growing old

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PERIPHERAL INTRAVENOUS LINE MAINTENANCE FOR EMT BASICS

EMS COMMISSION
INDIANAPOLIS, INDIANA

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PERIPHERAL INTRAVENOUS LINE MAINTENANCE FOR EMT-BASICS

The IV maintenance module was developed to assist basic emergency medical technicians manage non-critical patients who have a preestablished peripheral IV line already in place when they need to be transported in an ambulance. EMTs encounter many of these patients at home, in long-term care facilities, or in a hospital setting. These patients may require transportation to other locations for diagnostic examinations, treatments, or emergency care while the IV remains in place.

This module is a mandatory part of the initial EMT-B training course in Indiana. The module may also be taught as part of a continuing education program for EMT-Basics.

This curriculum represents a minimum standard in IV maintenace training. Additional hours and information may be added by a certified EMS training institution or by an EMS provider organization utilizing this curriculum as part of EMT-Basic continuing education.

Note: This curriculum does not change the commission's policy regarding the emergency transportation of patients from home or from an extended care facility to an emergency department or hospital

COURSE DESCRIPTION

This is a one and a half hour course module for EMT-Basic students and for EMT-Basics. It is designed to provide the basic knowledge and skills needed to safely transport a patient with a pre-established periphal IV infusion.

INSTRUCTOR QUALIFICATIONS

1. The instructor must be an individual who is trained at least to the level of a certified Indiana EMT-Basic with formal training in this IV Maintenance module.

2. This module must be taught under the direction of a certified EMS training institution.

3. This module must be supervised under the direction of a licensed Physician.

4. The classroom presentation of this module must be done under the physical supervision of a Primary Instructor, Medical Director or Physician, Registered Nurse, Paramedic or Advanced EMT.

NECESSARY EQUIPMENT

IV practice arm
IV tubing--micro and macrodrip
IV fluids
IV catheters
Armboards
Tapes of various appropriate sizes
Guaze pads
IV dressings of various types and sizes

COURSE OBJECTIVES

At the completion of this course the EMT-B student will be able to:

1. Maintain a continuous peripheral intravenous infusion at the ordered drip rate using aseptic techniques.

2. Monitor the patient's vital signs, overall condition, and IV in order to prevent complications.

3. Adequately stabilize tubing and venipuncture site in preparation for a safe transport.

4. Record at regular intervals all procedures, assessments of patient condition, and fluid intake/output.

5. List the limitations of authorized activities associated with monitoring a peripheral intravenous line and intravenous fluids.

6. List three (3) reasons that an intravenous infusion is established.

7. List three (3) intraveneous solutions most likely to be encountered when transferring a patient with a pre-established intravenous infusion.

8. Identify the types and sizes of containers in which IV fluids are packaged.

9. Describe the information about the patient's IV drip rate which an EMT-Basic must receive from the physician or nurse of a sending institution when an EMT-Basic is authorized to transport the patient from that institution to another location.

10. List five (5) complications of intravenous infusions.

11. Demonstrate the procedures for trouble-shooting an intravenous line when the patient or equipment exhibits any complications.

12. List the additional steps of patient assessment which are necessary prior to transporting a patient with an intravenous infusion.

13. Demonstrate the steps for checking the IV equipment and set-up which need to be completed prior to transporting a patient with an intravenous infusion.

14. List the eight (8) items that need to be documented on the patient report form when the patient has an IV infusion in place.

15. Demonstrate the correct procedure for discontinuing an IV infusion.

16. Demonstrate aseptic technique when handling IV equipment.

17. Demonstrate how to shut off a primary intravenous line and to turn on a secondary intravenous line.

18. Demonstrate how to turn on a primary intravenous line and to turn off a secondary intravenous line.

LESSON PLAN

Topic	Time
THE ROLE OF THE EMT-B IN HANDLING AND MAINTAINING IVs	15 minutes

1. The role of the EMT-B is to safely handle and transport STABLE patients who have indwelling peripheral IVs.

2. The EMT-B is authorized only to transport patients whose IVs contain the following solutions:

a. Crystalloid solutions (i.e. 5% Dextose in Water, Lactated Ringer's, and Normal Saline).
b. Vitamins
c. Sodium chloride, excluding saline solutions in excess of 0.9% concentration
d. Potassium Chloride (20meq/liter maximum concentration)

The EMT-B is NOT authorized to transport a patient whose IV:

a. consists of a "piggy-back" or "secondary" IV set-up.
b. contains blood products.

3. The EMT-Basic must acquire and secure enough of the appropriate IV solution from the authorities at the sending facility to maintain the ordered drip rate throughout the planned transport.

4. The operational goals in handling a patient who presents with a preestablished IV are:

a. To keep the IV patent and infusing fluid at the ordered rate.
b. To handle the patient in a manner which will prevent IV line complications.
c. To monitor the patient and IV equipment in a manner that will identify any IV line complications (such as infiltration, clot occlusion, empty bag, overhydration) in a timely way.
d. To successfully trouble-shoot any complications which may arise in the operation of the IV line during transport of the patient.

5. Personal Safety. The EMT-Basic should perform IV maintenance duties in such a way as to avoid contact with blood through the use of universal precautions and body substance isolation procedures. These precautions and procedures include the use of appropriate protective equipment and following appropriate procedures. At a minimum such equipment includes gloves, masks and eye protection. At a minimum such procedures include aseptic techniques, safe handling and disposal of hazardous IV equipment, and the appropriate documentation and follow-up of any expose incident (such as the reporting of an exposure, follow-up testing and treatment of an exposure).

FLUID ADMINISTRATION 15 minutes

1. The Purpose of IV Fluids

a. Replacement of lost fluids (vomiting, diarrhea, dehydration).
b. Maintenance of luid and electrolyte balance (e.g. patients who are NPO or unable to take enough oral fluids to meet their needs).

2. Major Complications of IV Fuid Administration

a. OVERHYDRATION–Overhydration may lead to pulmonary edema and congestive heart failure. Signs and symptoms of these conditions include: rales in the lungs, shortness of breath, tachypnea, dependent edema, irregular pulse and/or tachycardia, jugular vein distention, possible hyper- or hypotension. Should such conditions occur, contact on-line medical direction, report your findings and follow medical drection orders. You may be advised to keep the infusion open but reduce the rate of the infusion to a new rate determined by the medical director. You will likely need be advised to keep the patient in a sitting position.

b. CLOT OCCLUSION–If an IV line is not infusing, the catheter in the vein will become clotted-over, occluding the flow. In such a case DO NOT FLUSH THE IV LINE. Rather, contact on-line medical control for advice. You may be directed to discontinue the infusion.

c. INFILTRATION OF THE IV FLUID INTO THE SURROUNDING TISSUES–Extravasion at the IV site presents as cold, puffy, painful area around the site; the IV does not infuse properly; there is no blood return into the IV line. In such a case, contact on-line medical direction. You may be advised to to discontinue the IV infusion.

d. POSITIONAL IV–Occasionally the position of the patient or equipment will interrupt the flow of the IV. In this case reposition the patient's limb, the IV tubing, and/or the catheter/tubing connection. Restablize the IV when the infusion is again flowing smoothly.

e. PYROGENIC REACTION–foreign proteins enter the body by way of contaminated fluid. Discuss the signs and symptoms of such a reaction and the procedures for discontinuing the IV. Contact with on-line medical control will guide the EMT-B in handling this situation.

f. ALLERGIC REACTION–discuss the signs and symptoms for such a reaction, the procedures for handling the IV in such a situation, and the steps to take in managing the allergic reaction. Contact with on-line medical control will control will guide the EMT-Basic in handling this situation.

g. INFECTION. Poor aseptic technique may have resulted in an infection to the patient.

3. Types of Intravenous Cannulas

a. 14 gauge–20 gauge size cannulas are commonly used for adult patients.
b. 20 gauge–25 guage size cannulas are commonly used for children patients.
c. Depending on the gauge size of the cannulas, the length of the catheter will vary from 1/2" to 3".

DISPLAY OF IV EQUIPMENT AND
DEMONSRATION THE TECHNIQUES FOR APPROPRIATE HANDLING 45 minutes

1. Demonstrate the technique for safely changing an IV bag, at the appropriate time (when 50 cc of solution remain in the bag) and using aseptic techniques.

2. Demonstrate the stabilization of IV and tubing at the IV site. The site must be covered, the cannula and IV tubing stabilized (using two taped stress loops to avoid accidential extravasion as well as an armboard, if appropriate and needed). The intial stabilization should be done and/or approved by the sending hospital/facility staff.

3. Demonstrate the nature and use of the IV equipment for maintaining and adjusting the IV flow rate which is ordered by medical authority. The student should be introduced to and have a chance to operate the IV line features and positions which affect flow rates. The demonstration and discussion should include such topics as:

a. establishing and rechecking the rate of flow by counting the drops/minute in the drip chamber. Adjusting the roller clamp, counting for 15 seconds intially while adjusting the flow rate, then counting the drops for a full minute when checking the established flow rate. Note acceptable margin of variation--1 to 2 drops/per minute.

b. how flow rate is influemnced by the height of the bag, the amount of fluid in the bag, the position of the patient's limb and iv site relative to the heart, and the influence of altitude during transport.

4. Demonstration of techniques for trouble-shooting an IV line, which is not infusing.

a. Check for an object which is contricting circulation above the IV site (for example, a blood pressure cuff, bandage, even tourniquet.)

b. Check IV tubing attachments.

c. Check for air venting into bottled fluids.

d. Check for a flooded drip chamber.

e. Check the height of the IV fluid. Sometimes, cramped quarters during transport may inhibit gravity required for proper flow of the intravenous fluid.

f. If EMT-Basic is unable to reestablish flow, discontinue the flow of the infusion and contact medical control.

RECORDING AND DOCUMENTING — 15 minutes

1. The following data items should be recorded in a complete documentation of IV maintenance handling:

a. Patient condition, including vital signs, lung sounds and other signs and symptoms shoudl be assessed and reassessed and documented on a regular basis.
b. Condition of the IV site should be assessed and reassessed and recorded on a regular basis.
c. Amount of fluid infused and the amount of fluid in the IV bag should be noted and recorded at least every hour.
d. Record the amount of urine output or emesis (using a definite measure of the amount such as cc or ml).
e. When changing an IV bag, record the time and the solution used.
f. If an IV must be discontinued, record the time and the type/size of the catheter removed, and the reason for the discontinuation.
g. Record changes in patient condition.
h. Record any abnormalities or problems encountered with the IV.
i. Record the type of solution and of the administration set.

IV MAINTENANCE PRACTICE SESSION — 50 minutes

The EMT-B student should practice all of the techniques demonstrated and discussed in the previous sections of the module, including:

1. Adjusting and maintaining ordered flow rates.

2. Changing an IV bag, bottle using sterile technique.

3. Discontinuing an IV using safe and sterile techniques.

4. Stabilizing IV sites, equipment and tubing.

5. Noting, reporting and documenting all of the involved assessments and procedures.

TESTING AND EVALUATION — 40 minutes

1. Written Test
2. Practical Skills Test
   a. Stabilize site and tubing.
   b. Adjust flow to a specified rate.
   c. Change the IV bag using appropriate sterile and safe techniques.
   d. Discontinue IV.

PREPARATION

Motivation: Acetylsalicylic acid or ASA is in widespread use for it's antiplatlet effects. It is currently being used to prevent recurrent myocardial infarction and to lessen the effects of MI in progress. Clinical trials show a 20% decrease in death and nonfatal reinfarction. Pre-hospital administration of aspirin has been in use at the Advanced Life Support level for quite some time.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment. This addendum is to be included in the Cardiovascular Emergencies module.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to cardiac emergencies. Examples: video, local protocols, overheads of run reports.

EMS Equipment: Blood pressure cuff, stethoscope, oxygen tank and delivery systems, aspirin training bottle.

PERSONNEL

Primary Instructor: One instructor with knowledge and experience in administration of aspirin.

Assistant Instructors: The instructor to student ratio is 1:6 for psychomotor skill practice. Individuals used as assistant should be knowledgeable in cardiac emergencies.

Recommended Minimum Time to Complete: This addendum is included in the Cardiovascular Emergencies module.

PRESENTATION

I. DESCRIPTION

A. Common uses

1. Acetylsalicylic acid or ASA is in widespread use as an antipyretic, anti-arthritic, and analgesic. It has antiplatlet effects that are currently being used to prevent recurrent myocardial infarction and to lessen the effects of MI in progress. Clinical trials show a 20% decrease in death and nonfatal reinfarction.

B. How supplied

1. Available in tablets ranging from 65mg to 650mg. Also available in capsule, chewing gum, powder and suppositories. Chewable tablets are the only type to be given by the EMT-B.

II. MECHANISM OF ACTION

A. How aspirin works

1. The mechanism of action reduces clot formation in the MI patient.
2. Produces relief of pain.
3. Exerts an anti-inflammatory effect at higher doses.
4. Relieves fever.

III. INDICATIONS

A. Chest pain/discomfort

1. Chest pain/discomfort in the adult patient that is believed to be of cardiac orgin is the only indication for the EMT to give aspirin.

IV. CONTRAINDICATIONS

A. Do not give aspirin if these conditions exist:

1. Known hypersensitivity to aspirin

IV. (cont.)

2. Bleeding, internal or external

3. Patient who is on coagulant therapy such as Coumadin or Heparin. Administer only with on line medical control approval.

V. SIDE EFFECTS

A. High doses

1. Effects of high dose aspirin include tinnitis (ringing in the ears), nausea/vomiting, and bleeding of the GI tract.

B. Other

1. Doses of 1000mg per day may cause prolonged bleeding time, nausea and vomiting.

2. Allergy to aspirin could result in allergic reaction and anaphylaxis. Always ask the patient if they are allergic to aspirin If yes, withhold the medication.

VI. EMT PRECAUTIONS

A. To be used in the adult patient only

1. Patients with asthma and nasal polyps have an increased incidence of hypersensitivity. Administer only with on line medical control approval.

2. Use with caution if patient has a past history of GI bleeding. Administer only with on line medical approval.

VII. ASPIRIN MEDICATION ADMINISTRATION

A. Considerations

1. Enteric aspirin has a coating that allows the medication to dissolve more slowly. This type of aspirin is not for use in the acute situation. The patient with chest pain/discomfort should be given aspirin that dissolves quickly.

2. Baby aspirin can be chewed in the mouth and swallowed.

3. Aspirin that smells like vinegar should be discarded.

VII. (cont.)

4. Aspirin is a drug that is carried on the ambulance. The expiration date should be checked monthly. Replace prior to expiration date.

5. If the patient takes aspirin on a regular basis, it is still acceptable to give aspirin for suspected MI.

6. There are no contraindications for administering aspirin and nitroglycerin together.

B. Dosage

1. Two (2) baby aspirin (81mg each) that total 162mg.

C. Time

1. Time is heart muscle. The patient should be treated and transported without delay to the nearest medical facility that can treat myocardial infarction.

2. Aspirin should be given as soon as possible as directed my medical control.

D. Communication/Documentation

1. Aspirin is given only with on line medical approval of medical director either on line of off line.

2. Call early! Let the receiving hospital know as soon as possible that you are enroute with a possible MI. This allows hospital staff to prepare the equipment and medications needed to care for this patient.

3. Include in your verbal report that aspirin was administered. Give the time and dose administered.

4. Document on the run sheet that aspirin was administered. Document the time and dose administered and include information that this was verbally reported to the emergency department.

APPLICATION

Procedural (How)

1. Demonstrate the assessment and emergency medical care of a patient experiencing chest pain/discomfort.
2. Perform the steps in administering aspirin for chest pain/discomfort using a substitute candy tablet.
3. Demonstrate the assessment and documentation of patient response to aspirin.
4. Demonstrate the verbal and written documentation required after administration of aspirin.

Contextual (When, Where, Why)

1. The training lab must provide simulated cardiac situations for the student to practice demonstrated skills. The student must integrate many single skills into one simulated cardiac emergency scenario in order to perform safe and effective patient care.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear of actual cases where cardiac emergency patients were treated with administration of aspirin.
2. The student should hear recorded verbal reports of patients who experienced chest pain/discomfort.

Visual (See)

1. The student should see an instructor appropriately care for a simulated patient with chest pain/discomfort.
2. The student should see an instructor administer appropriately a small candy to simulate a patient receiving aspirin for chest pain/discomfort.
3. The student should see reenactments or videos of EMS calls where the patient has been assessed and given aspirin.

Kinesthetic (Do)

1. The student should practice the assessment and emergency medical care of a patient experiencing chest pain/discomfort.

2. The student should simulate the administration of aspirin using a small candy.

3. The student should practice the assessment and documentation of patient response to the aspirin.

4. The student should practice verbal and written reports for a patient with a cardiac emergency.

EVALUATION

Written:	Develop evaluation instruments, e.g. quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of the lesson.
Practical:	Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

SUDDEN INFANT

DEATH SYNDROME

(S.I.D.S.)

FIRST RESPONDER

TRAINING

GUIDE

Indiana State Department of Health
Maternal and Child Health Services
1330 West Michigan Street
P.O. Box 1964, Room 236N
Indianapolis, IN 46206-1964
317/633-8459 or 1(800)433-0746

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COURSE OUTLINES

- Learning Objectives - Suggested Agenda
- Medical Facts and Characteristics
- Overheads/Slides
- Parents Perspective
- Instructors Discussion Guide for Video

INDIANA STATE DEPARTMENT OF HEALTH

SUDDEN INFANT DEATH SYNDROME (SIDS)

EMS TRAINING PROGRAM

Learning Objectives

Participants will be able to:

1. Define Sudden Infant Death Syndrome
2. Identify the common characteristics of Sudden Infant Death Syndrome
3. Identify common physical findings with a SIDS death
4. Identify characteristics that may help distinguish SIDS from child abuse and neglect
5. Understand the parent's emotional reaction to a SIDS death
6. Learn techniques that will help them respond to families in a more supportive fashion at the time of, and immediately following the death

Presentation Outline

30 - 40 minutes	Definition, characteristics and physical findings of SIDS
30 minutes	Parents personal experience with a SIDS death, suggested response by first responders
45 minutes	"Finding Answers with Compassion" Training video primarily for police and coroners on how to respond to sudden deaths of children birth to 2 years of age in a supportive and effective manner
5 - 15 minutes	Final questions and discussion

SUDDEN INFANT DEATH SYNDROME (SIDS)

MEDICAL FACTS AND CHARACTERISTICS

OUTLINE

SLIDE 1 **Definition**

Revised in 1989 by National Institutes of Health to reflect new knowledge about SIDS.

3 key words in the definition:

<u>sudden</u>	-	death occurs quickly and painlessly
<u>unexpected</u>	-	infants look and appear healthy and normal, approximately 40% will have a slight cold or URI at, or shortly before their death, medical history is usually unremarkable
<u>unexplained</u>	-	despite a complete autopsy and investigation as well as recent and research that has occurred, still no specific cause of death has been found

SIDS is still a diagnosis of exclusion. Autopsy and scene investigation are done to rule out other causes of death. If no specific cause is found and the characteristics of the infant and circumstances surrounding the death are consistent with SIDS, then the death is ruled Sudden Infant Death Syndrome.

Common Autopsy Findings Consistent with SIDS:

a. Intrathoracic petechiae

b. Fluid in lungs and upper airway

c. Minor inflammation of the bronchi and/or lungs

SLIDE 2 **Percentage of SIDS Infants Autopsied In Indiana 1981-1993**

- overall average 96% - slightly higher than U.S. average
- since mid 1980's, most autopsies have been performed by board certified forensic pathologists
- should by a complete autopsy, chest and cranial, and include histology and toxicology studies

SLIDE 3 **Leading Causes of Infant Mortality United States 1991**

- SIDS is the second most common cause of death in infants, birth to 1 year of age (infant mortality)

- SIDS is the leading cause of death in infants 1 month to 1 year of age (post neonatal mortality)
- approximately 6,000 SIDS deaths occur each year in the U.S. and 135 each year in Indiana

SLIDE 4 **Infant Mortality vs. SIDS Rate Indiana 1981 - 1993**

- SIDS rate in Indiana very stable - similar pattern in U.S.
- Indiana SIDS rate 1.5 per 1,000 live births
- little change in SIDS rate despite a gradual decline in overall infant mortality, increased use of home monitors and increased SIDS research

SLIDE 5 **Indiana SIDS Deaths by Age of Infant 1991 - 1993**

- approximately 400 SIDS deaths during this time
- 90% of deaths occur between 3 weeks and 6 months of age
- peak occurrence between 2 - 4 months of age
- essentially no change in this characteristic from year to year
- rare in infants less than 2 weeks of age and in infants more than 10 months of age

SLIDE 6 **Incidence and Age at Death SIDS vs. Other Causes**

- most unique feature of SIDS is age of infant at time of death
- well documented characteristic worldwide for approximately 40 years

SLIDE 7 **Indiana SIDS Deaths by Time of Day 1991 - 1993**

- 70% of deaths occur between midnight - 11:00 a.m.
- 5% of deaths occur between 6:00 p.m. - midnight
- very little change from year to year
- Sleep is a universal characteristic of SIDS deaths
- 2 most common circumstances of a SIDS death:
  baby found dead in the morning, or,
  baby found dead shortly after being placed down for a nap

SLIDE 8 **Indiana SIDS Deaths by Time of Year 1991 - 1993**

- higher number and rate of deaths in colder months of year and lower number and rate of deaths in warmer months of year
- very little change from year to year
- well documented characteristic of SIDS in countries throughout the world that have a seasonal, climate change, where uniform birth and death records are maintained and where autopsies are generally performed

RISK FACTORS

SLIDE 9 **Indiana SIDS Deaths by Sex of Infant 1991 - 1993**

- very little change from year to year

SLIDE 10 **Indiana SIDS Rate: White vs. Nonwhite Population 1981 - 1993**

- racial differences with the occurrence of SIDS
- nonwhite infants have approximately double the rate
- American Indians have approximately 3 times the rate of SIDS compared to white infants
- when social factors such as poverty, teen pregnancy, low birthweight, etc. are taken into account, the gap between the groups narrow, but does not disappear entirely

Other Risk Factors

- **Low birthweight babies** (less than 5 lbs., 8 oz.) have approximately 3 times the rate of SIDS as normal birthweight babies
- **Premature babies** (less than 37 weeks gestation) have approximately 2 times the rate of SIDS as full term babies
- Babies born to women less than 20 years of age have a 2 - 3 times higher rate of SIDS than babies born to women more than 20 years of age
- Babies born in to low income families have a higher rate of SIDS than babies from middle and upper income families
- Babies born to women who smoke during pregnancy have a 3 times higher rate of SIDS than babies whose mothers do not smoke. Babies exposed to passive smoke from the mother have a 2 times higher rate of SIDS than babies not exposed to passive smoke.
- Babies born to women who use cocaine and other opiates during pregnancy have approximately 7 times higher rate of SIDS

SLEEP POSITION

- Babies who sleep prone (on stomach) have approximately 2 1/2 times higher rate of SIDS than babies who sleep on their side or back

KEY POINTS ABOUT RISK FACTORS

1. Risk factors have been identified by looking at large groups of infants over a long period of time. They cannot be used in a clinical setting to predict the outcome of an individual infant.

2. Approximately two-thirds of infants who die of SIDS have few, if any risk factors and most babies who experience these risk factors do not die of SIDS

3. Risk factors by themselves do not cause SIDS

4. How these risk factors increase the risk for SIDS is unknown but by the eliminating or reducing these factors we can possibly decrease the number of SIDS deaths.

Leading Theories/Research Regarding Causation

- Likely more than one cause of SIDS

- Two part process - infants develop a predisposition to SIDS while developing in the womb and then a seemingly insignificant event later in life acts as a triggering mechanism to cause the death.

- Detailed research in the brain and brainstem of SIDS babies has documented increased scar tissue, delayed mylenization of nerve cells and lack of development in areas of the brain that respond to high carbon dioxide levels. These changes could be due to hypoxic injury or delayed development.

- Complex interplay of internal physiologic changes, a critical period of development and external/environmental (risk) factors

Major areas of study include the developing fetus, nervous system and brain stem development, heart and respiratory patterns, sleep patterns, body chemical imbalances, pathological findings and environmental factors

SLIDE 11 - 17 **Infant Deaths 1 Year and Under, SIDS vs. Abuse and Neglect, Indiana 1983 - 1993**

- Over the past 10 years, SIDS deaths have outnumbered Abuse and Neglect deaths approximately 8:1
- This trend also holds true in the larger counties throughout Indiana:

Marion
St. Joseph
Lake
Elkhart
Allen

- In Vanderburgh Co. there was one year when the number of SIDS deaths and abuse/neglect deaths were the same (1991) and one year when the number of abuse/neglect deaths exceeded the number of SIDS deaths (3 vs. 0, 1993).

Refer to Handout: How to Distinguish Between SIDS and Child Abuse and Neglect

Physical Appearance Most Commonly Associated with SIDS

- "Natural" appearance of deceased baby
- frothy drainage from mouth and nose (sometimes blood tinged)
- purple mottled markings - pooling of blood
- rigor mortis sets in quicker in infants than in adults

Reemphasize that an autopsy is needed to accurately diagnose SIDS and distinguish from abuse and neglect. Preliminary autopsy results are generally available 24 - 48 hours after the death and final autopsy results are generally available in 4 - 8 weeks.

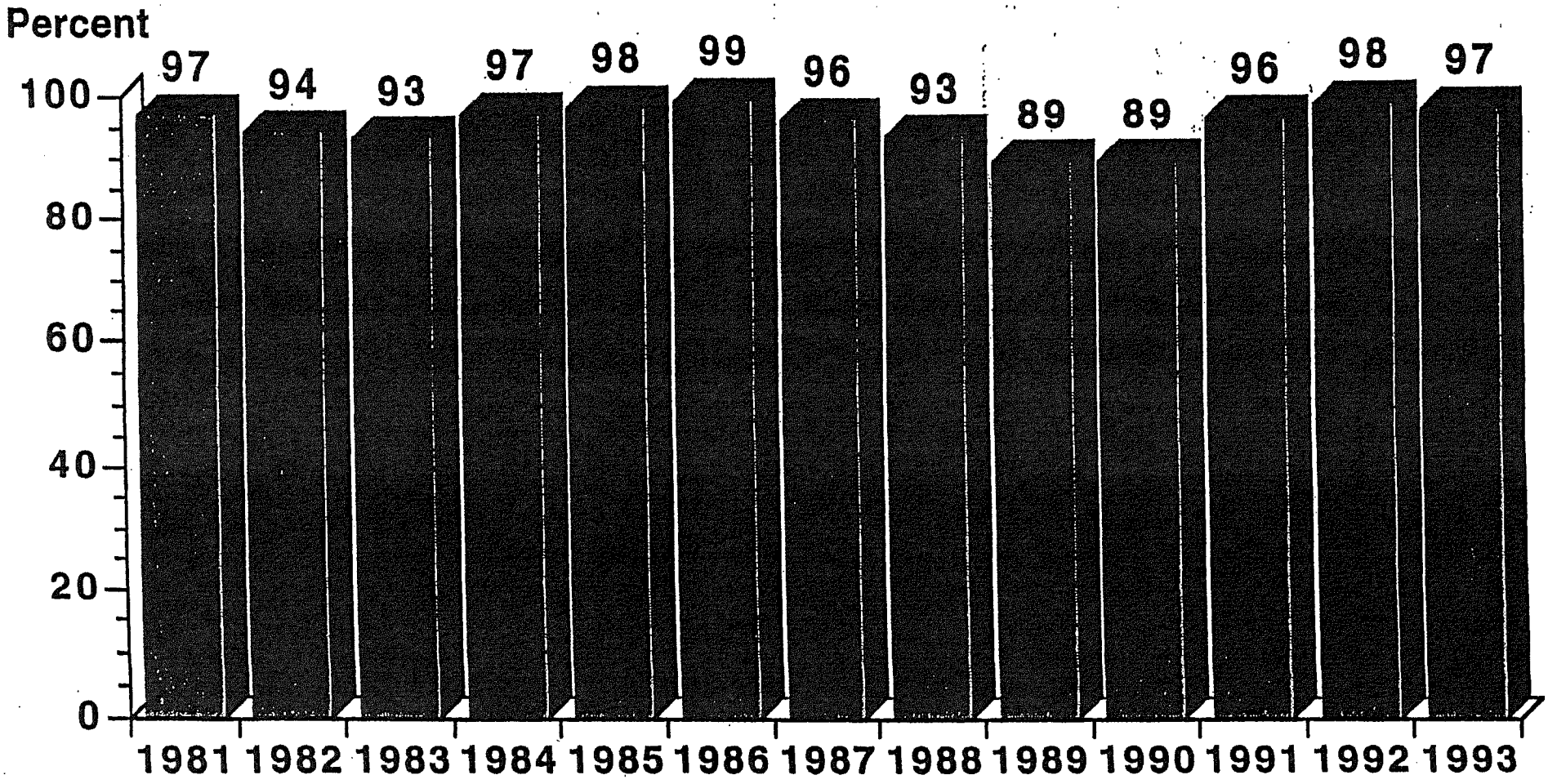
SLIDE 18 **SIDS Case Management System**

- Suggested steps to take when a sudden, unexpected death of an infant has occurred to get an accurate diagnosis and to assist families in coping with their grief
- Important for all first responders to function as a team

Definition
Sudden Infant Death Syndrome
SIDS

The sudden, unexpected death of an infant under one year of age that remains unexplained after a complete autopsy, review of the death scene and review of the medical history.

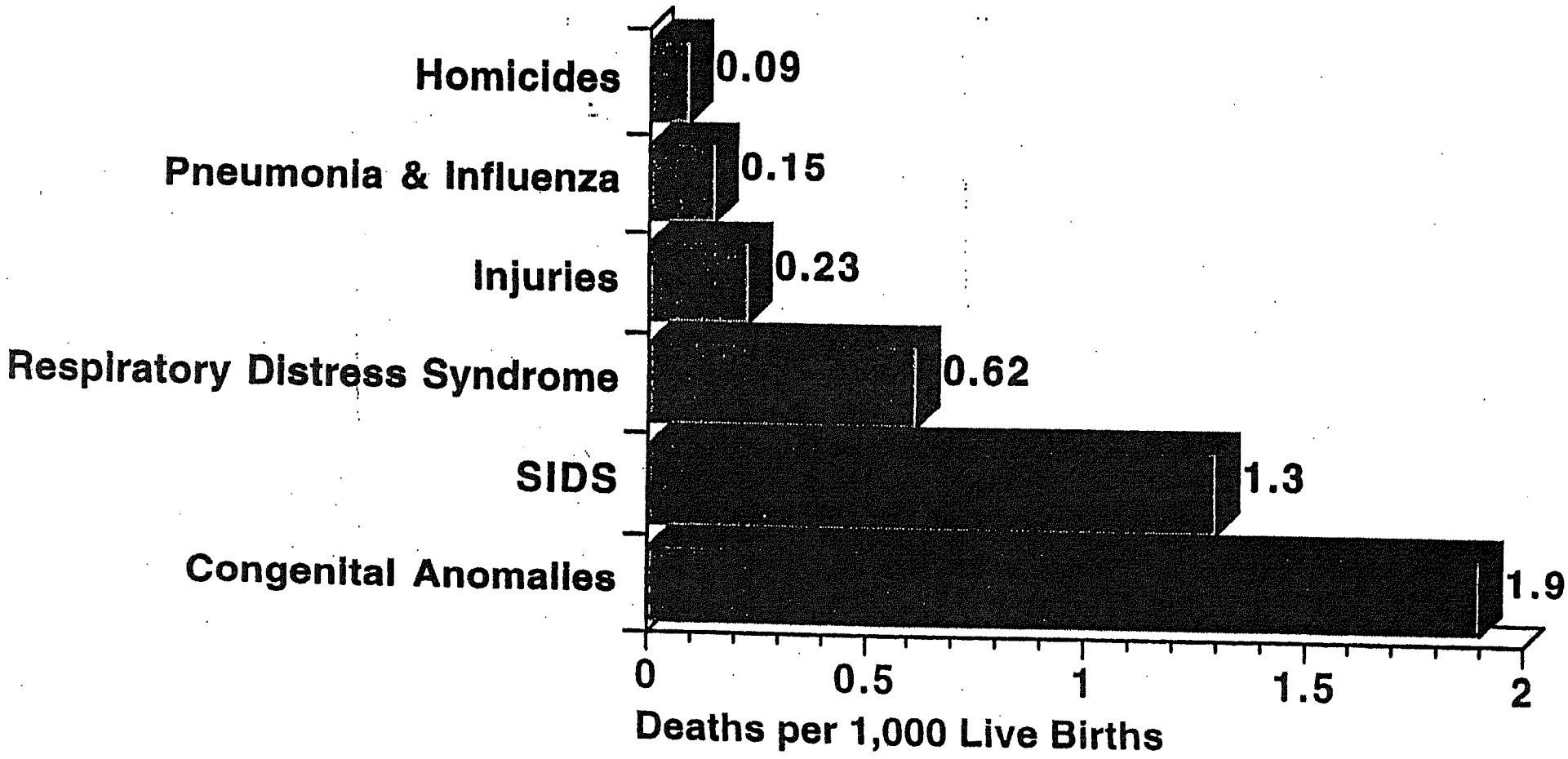
Percentage of SIDS Deaths Autopsied Indiana, 1981-1993



Source: ISDH, MCH

SLIDE 2

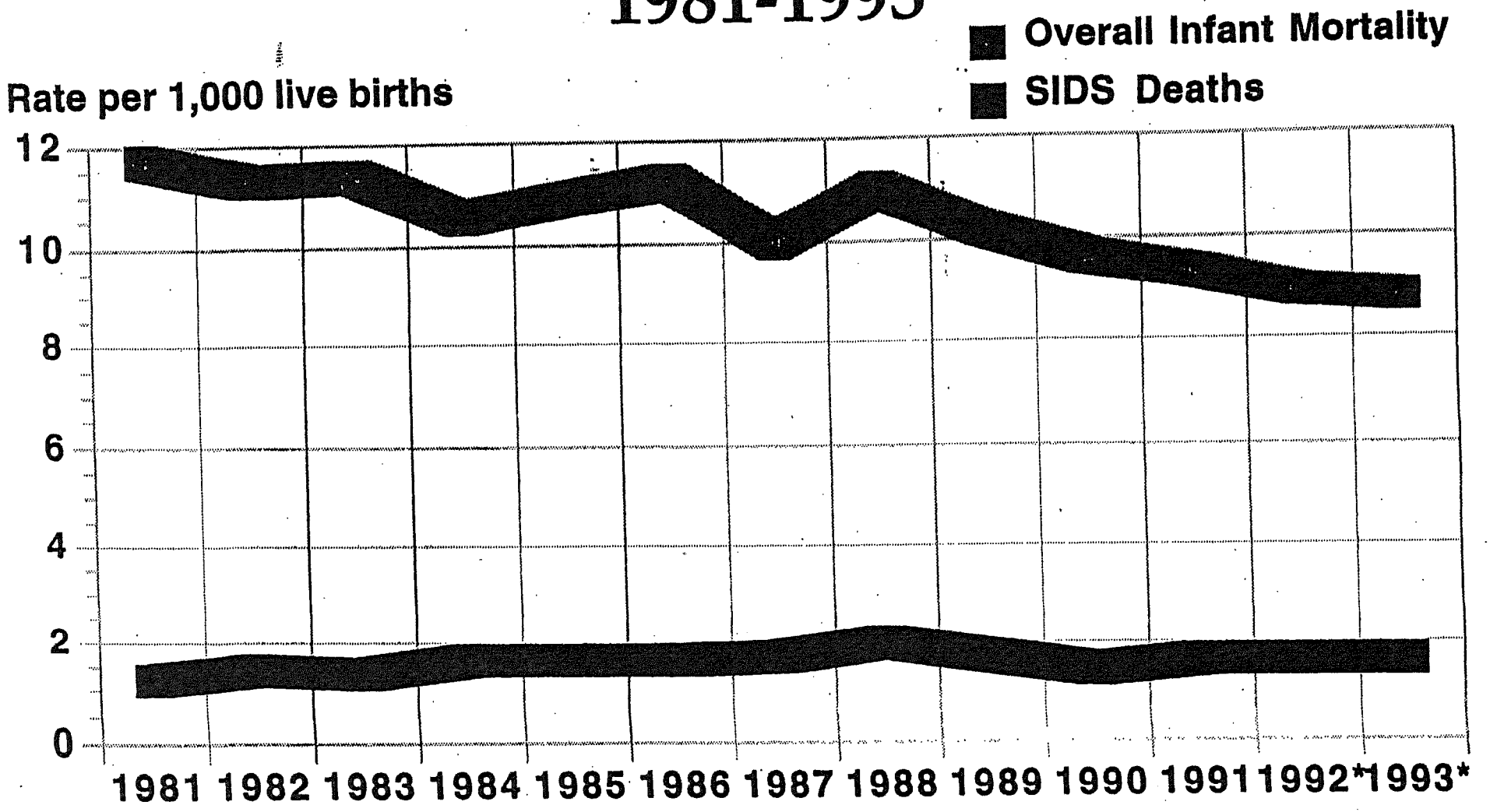
Leading Cause of Infant Mortality, United States, 1991



Source: National Center for Health Statistics

SLIDE 3

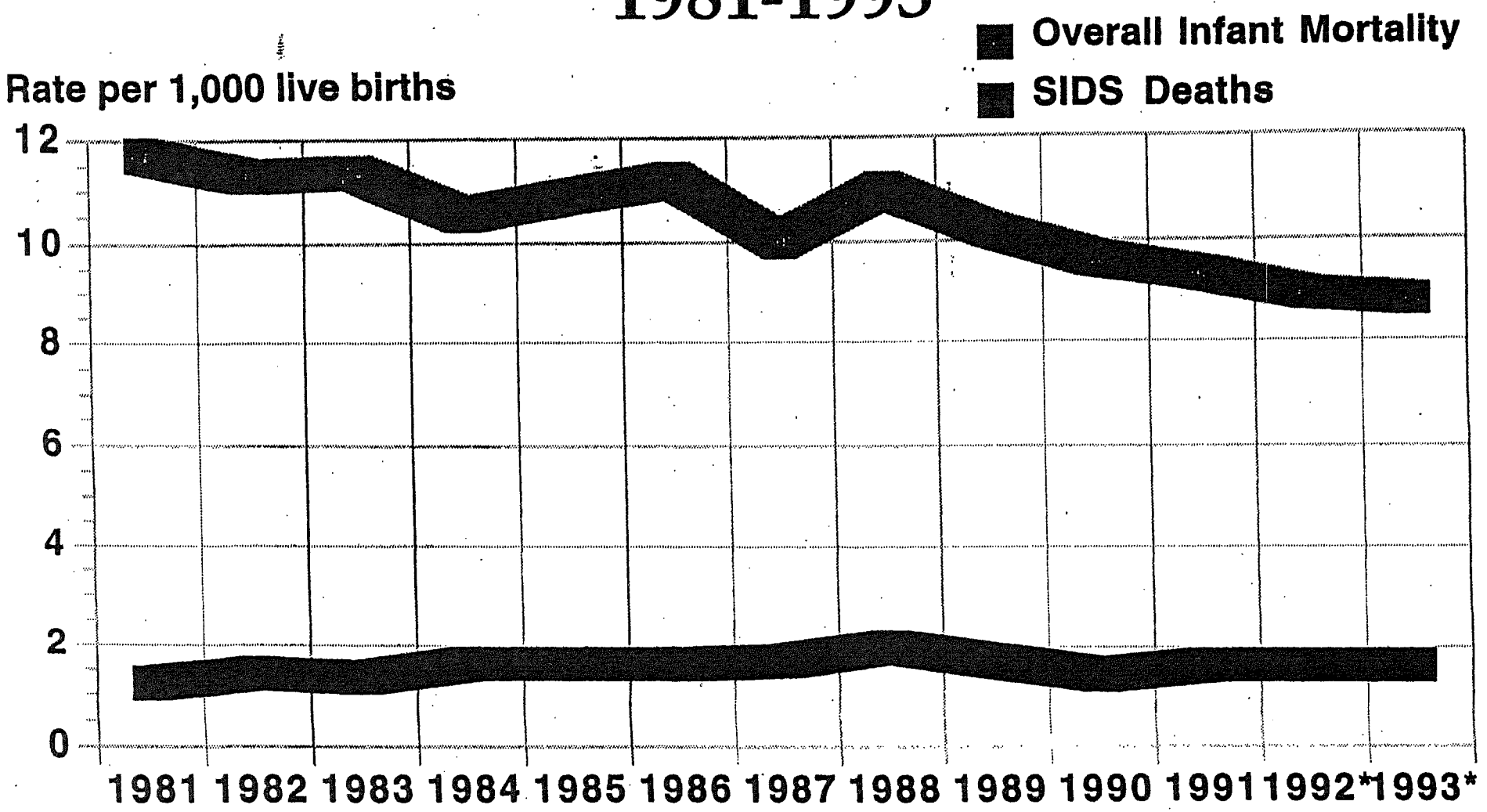
Infant Mortality vs. SIDS Rate Indiana 1981-1993



*Provisional

Source: ISDH, MCH

Infant Mortality vs. SIDS Rate Indiana 1981-1993

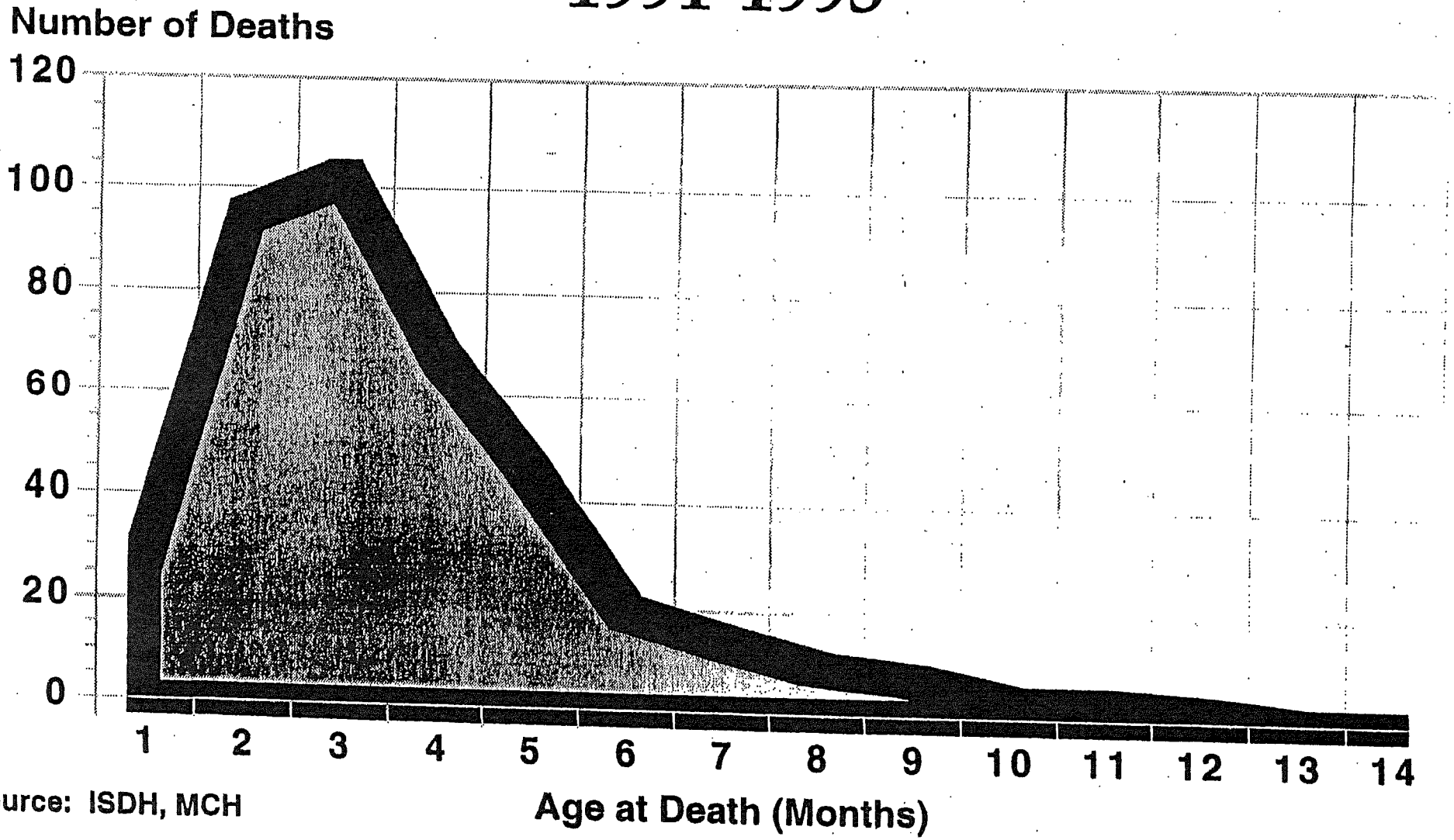


Source: ISDH, MCH

*Provisional

SLIDE 4

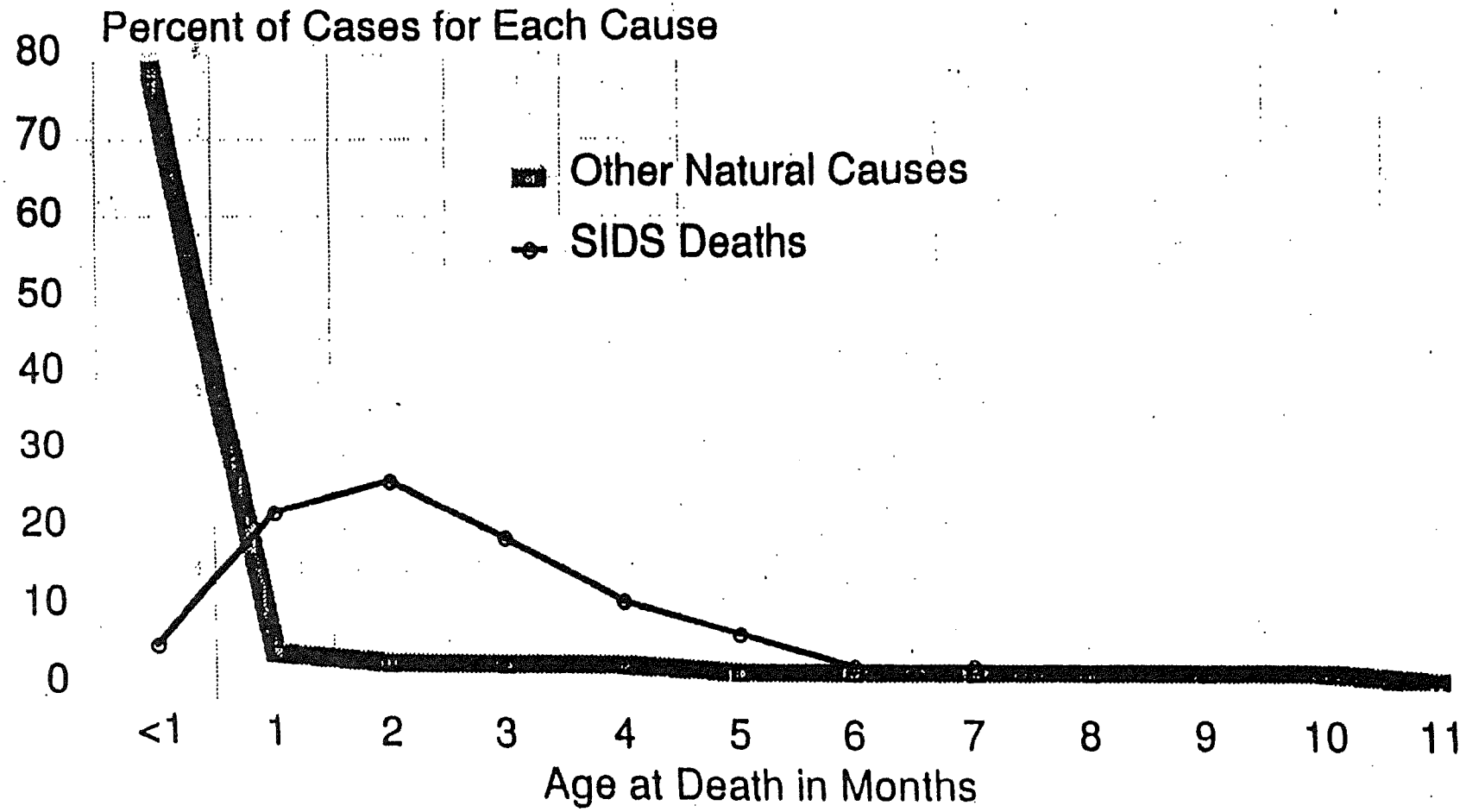
Indiana SIDS Deaths by Age of Infant 1991-1993



Source: ISDH, MCH

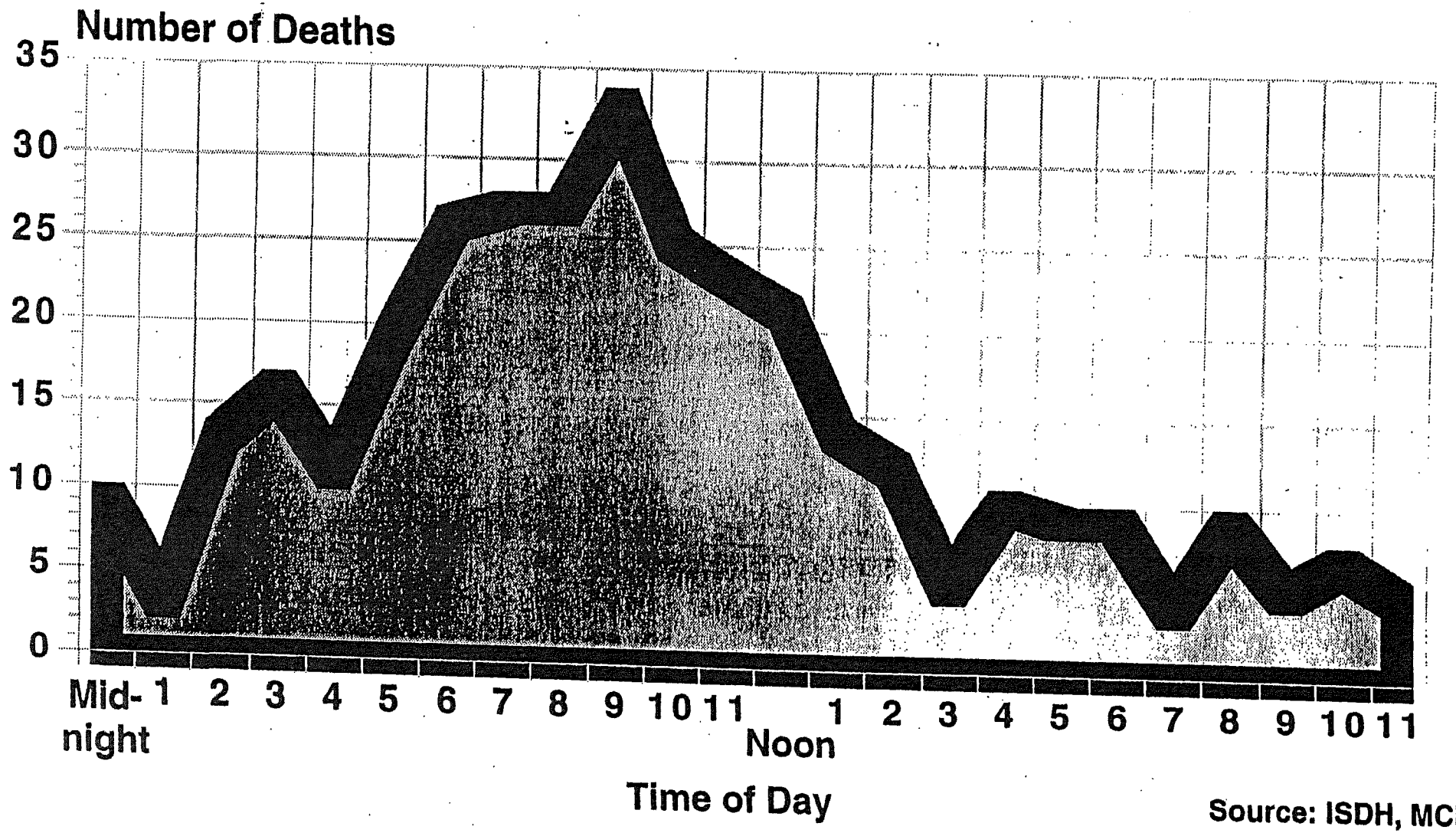
SLIDE 5

Incidence and Age at Death
S.I.D.S. vs. Other Causes of Infant Death



Source: Johns Hopkins University Press, 1988

Indiana SIDS Deaths by Time of Day 1991-1993



Source: ISDH, MCH

SLIDE 7