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On the Cover

Dr. William H. Boyce, professor of urology at the Bowman Gray School of Medicine, foresees the day when drugs will be developed to solve the kidney stone problem, a malady that each year afflicts 600,000 Americans. Renal stones may vary in size from bits resembling sand to the large masses pictured on the cover, but they are alike in that they cause intense pain, loss of time from work, disability and, in some cases, death. The incidence of kidney stones in North Carolina is twice the national average.
The 1971 legislature enacted a statute making it an offense to operate a motor vehicle while under the influence of any drug to such a degree that physical or mental faculties are appreciably impaired. However, while provisions have been made to test operators for alcohol, none have been made to test for drugs. A sample of blood or breath may be tested in less than 15 minutes for alcohol. Tests to identify and determine the amount of other drugs require several hours. Blood and/or urine samples may be required to test for some drugs. There is no "implied consent" statute making it easier to obtain samples for drug testing. Once the drug is identified and the concentration is determined, then it is necessary to have an expert present testimony that impairment was produced by the concentration of the drug identified. The presence of a drug does not necessarily mean that the person is impaired. There is no "presumptive level" for other drugs as there is for alcohol. Some drugs may be detected for a day after the effect has disappeared, i.e., amphetamine in urine. The amounts of other drugs which may impair have not been established. A therapeutic dose of some barbiturates may cause as much deterioration of performance as that created by the ingestion of half-pint of 100-proof liquor in an hour or by a blood alcohol concentration of 0.15 per cent. Therapeutic concentrations of other drugs such as meprobamate and chlordiazepoxide do not appear to affect performance. Nevertheless, the intention of the statute is good and may have the desired effect when an erratic driver who has little or no alcohol states that he has been taking drugs.
Control the formation of plaque on teeth and you all but eliminate dental disease.

So completely is "plaque control" (a new preventive dentistry technique) viewed as an effective procedure for solving the dental disease problem that for the first time all segments of the dental profession have joined in a statewide effort to educate the public to its value.

Dental disease is probably the most common disease with which mankind has to contend. It attacks people early in life and continues throughout life, and if allowed to continue unimpeded, will eventually result in loss of all dental structures.

It sounds almost incredibly naive but a considerable portion of our present-day population accepts as inevitable the fact that during their lifetime they will lose their teeth, and the sooner they get full dentures, the better off they are going to be.

According to Dr. Ralph Young, dental consultant for the State Board of Health, people culturally in many instances do not look upon their teeth as a vital part of the body's anatomy and place very little value on them. He attributes the problem mostly to a lack of education.

Bacteria which cause dental disease are present in everyone's mouth. Foods that bacteria need to produce their noxious and harmful by-products are the foods necessary to sustain life—sweets in particular. Only when bacteria are allowed to colonize on the surface of the teeth is the potential for dental disease present. Coupled with improper oral hygiene, unchecked bacteria can wreck a dental structure in early life.

Working feverishly during recent years to find a solution to the dental disease problem, scientists noted that bacteria normally swim about freely in the mouth, their by-products neutralized by saliva, causing little harm. They noted, however, that a deposit of bacteria is able to resist neutralization by saliva. The result is a formation of destructive plaque and finally decay and gum disease.

It soon became clear that the old-fashioned technique of brushing would not dislodge the colonies of bacteria. The scientists discovered that if the colonies were disrupted at least every 24 hours they could be rendered harmless. So, they set about devising a new oral hygiene procedure designed to prevent bacteria from colonizing on teeth (a special technique for brushing
Bend the floss around the tooth in a U-shape. Gently slide the floss under the gum until you feel the pressure.

and flossing). Thusly, plaque control was embraced by the dental profession as the answer to the problem of teaching people themselves to save their teeth. Since it was impossible to educate the public to seek dental care not available to them at the time, it was necessary to initiate an educational program on plaque control for private dentists and auxiliaries.

Different segments of the dental profession were quick to see the potential of the plaque control technique and formed committees to look into the possibilities of recommending its adoption. In order to coordinate efforts of the profession, a preventive dentistry committee was formed in the fall of 1970 embracing all groups with similar interests. During the next three months emphasis on plaque control will reach a new plateau. Using as a teaching staff dentists recruited and trained when the plaque control technique first came upon the scene, the committee will stage five seminars throughout the state for the purpose of training dentists who wish to incorporate in their preventive dentistry programs the plaque control technique. In an effort to standardize procedures a training session was held in December for 25 dentists who will serve as faculty.

Dr. Young believes success has been assured as a result of bringing together the dental health division of the State Board of Health, the school of dentistry, dental faculties of community colleges and private practitioners through their official body in a joint effort to solve a common problem.

"We can't twist arms in an effort to get dentists to learn the technique, but we are obligated to make it available to every dentist in the state," Dr. Young stated. "Someway, we have got to dispel the notion that still exists among a big part of the state's population that losing teeth is a sure thing," he said.
Aides Boost Nursing Home Care

“IT'S BEEN A LONG TIME SINCE I SAT IN A STUDENT SEAT BUT YOU KNOW IT FEELS GOOD!” This is one of the more memorable remarks made by a participant in the N. C. State Board of Health nursing assistant training program. The remark points up the gratitude of individuals who have had the opportunity to learn to give better nursing care through the program to elderly citizens.

During 1968-69 training programs were held in individual nursing homes, limiting the number of facilities as well as individuals who could participate. Course material consisted mostly of developing new techniques in delivering better patient care.

In 1970 there were 1,883 nursing assistants employed in nursing homes throughout the state and many of these were inadequately prepared for responsibilities they were expected to assume. These persons represented the young, middle-aged, white, black, female, and male. A sizable number of the group had less than a high school education, most averaging about grade nine.

The nursing assistants did not have the benefit of instructions in many aspects of the job they were expected to do. Instructions came mostly via assignment to another nursing assistant who had been an employee in the facility for some time, the buddy system in other words. This kind of arrangement tended to perpetuate less than desirable patient care. Inquiries, however, revealed that 82 percent of the nursing homes in the state would welcome help in developing a program of inservice training for their personnel.

Programs were set up to concentrate on topics requested by nursing home personnel through their expressed needs. Sessions dealt generally with the physical, psychosocial, emotional and spiritual needs of aging patients. Resource persons in the community, technical institutes and community colleges are being used successfully in the nurse assistant teaching program. These professionals include sociologists, clinical psychologists, podiatrists, social workers, nurses, ministers, as well as an executive personnel expert and counselors, housekeepers, and firemen.

An evaluation of the program, now in the second year, reveals that:

- Subject matter has been timely, useful and practical.
- Personnel have developed insight into how attitudes are formed, both those of the patients and nursing assistants.
- Personnel are now able to talk about attitudes (their own as well as the patient’s) and how to deal more effectively with them.
Miss Agnes Campbell (right), nursing consultant with the State Board of Health, discusses an inservice training program for nursing assistants with a nursing supervisor.

Nursing assistants show genuine interest in routine patient care as well as techniques of restorative nature. Other benefits of the program have been brought to light in the form of motivating individuals to enter professional and technical schools of nursing as a result of elementary training in the nursing assistant program. The program has also benefited by staging joint meetings with nursing assistants from other nursing homes.

Future plans for inservice training programs include:

- Continuing transferring responsibility for the program to individual community facilities. Of course, personnel from the State Board of Health will be available to act in an advisory capacity.
- Plans to assist any region of the state indicating a need for this service to organize, plan and implement the program.
- Interest has also been shown in providing courses for the licensed nursing personnel. Programs are now opening up in this area through universities and colleges in North Carolina. Educational and informational programs should be coordinated so that individuals may receive maximum benefit from time and effort spent.

The nursing assistant program has proven valuable to those who have participated. Certainly, those who have a deep concern for patients placed in their care should be commended for their eagerness to learn, to care, and to help individuals who must depend so completely on others for help during their twilight years.
On September 2, 1870, Charles Louis Napoleon Bonaparte (Emperor Napoleon III) stood doubled over in pain under a tree at Sedan, incapable of leading his army against the Prussian onslaught. And so it was that France's fortunes went down to defeat.

His was an age-old problem that has been a bane to the lives of princes and paupers alike—a problem that continues to plague our present-day society with excruciating pain, considerable loss of time from work, permanent disability and, in some cases, death.

France's downfall and Louis Napoleon's ultimate death was caused by kidney stones, a malady that afflicts some 600,000 Americans each year.

Only recently have there been promising indications that a solution to the kidney stone problem may be near, perhaps within the next decade.

When that day comes, there will be cause for celebration in North Carolina where the incidence of renal stones is twice the national average.

Dr. William H. Boyce, professor of urology at the Bowman Gray School of Medicine who has gained in-
Through the use of a special chamber, Dr. Boyce studies the effect of various dyes and stone-forming inhibitors upon crystals of the type that make up kidney stones.

international prominence for his work on urinary calculi, foresees the day when drugs will be developed that can dissolve all types of kidney stones and prevent new stones from forming.

In recent years he has conducted research on one such drug — an organic dye known as methylene blue — which appears to be the most promising agent yet tested for the prevention of urinary stones and incrustation of indwelling urinary catheters.

Dr. Boyce reported that over a period of 18 months, daily oral administration of 195 mg of methylene blue appeared to have sharply reduced the need for surgical treatment in patients with certain types of kidney and bladder stones.

He was quick to point out, however, that there have been only a small number of cases in which methylene blue completely dissolved stones in patients at the medical center.

“Methylene blue is not an answer to all stone diseases,” Dr. Boyce said. “It is simply one more step toward an ultimate solution.”

Not all kidney stones have the same composition. Stone crystals can be calcium oxalate, calcium phosphate or uric acid, all formed upon a lattice-like matrix. Methylene blue is least ef-
fective against stones composed of calcium oxalate.

Dr. Boyce theorizes that stone formation is a combined organic and inorganic process in which ions available from dyes act at the surface of crystalline matrixes either to interfere with their growth or dissolve them from the outside.

Methylene blue was first synthesized in 1876. Its medicinal use, as a bacteriostatic agent, dates from just before the turn of the century. In the mid-1950s, the late Albert Sobel, a biochemist, reported that toluidine blue, a dye of the same family, inhibited calcification of rat cartilage even in the presence of high concentrations of calcium.

This was followed in 1958 by the observation of Dr. John Howard of Johns Hopkins that there is a factor in the urine of stone-forming patients that spurs calcification. His research showed that when urine from stone-forming patients was injected into rats, considerable calcification of the rat cartilage resulted, whereas urine from non-stone-forming patients caused no calcification of the cartilage.

In the early 1960s, Dr. Bartholomeus Van’t Reit of the Medical...
College of Virginia found that methylene blue interfered with the growth of artificially induced kidney stones in rats and in some cases caused them to shrink.

Working with Van't Reit on the research was a young neurologist, Dr. William M. McKinney, who joined the Bowman Gray faculty in 1963. The enthusiasm for the methylene blue work which he brought with him was soon shared by Dr. Boyce, a five-time winner of the American Urological Association's Annual Award for Research in Urology.

Before beginning clinical trials with the dye, they first had to make sure that the drug had no harmful effects. Tests showed the dye to be one of the safest drugs known. Use of the drug with patients at North Carolina Baptist Hospital was begun in 1964.

Dr. Boyce now believes that the future of methylene blue is in preventing kidney stones from forming. He also is enthusiastic about its use in the prevention of catheter incrustation. "When you pull out an incrusted catheter," he said, "you may very well leave some of its accretion in the renal pelvis or bladder. Now you have provided a perfect nucleus for stone formation, hardly the goal of the urologist."

More importantly, the work with methylene blue probably will lead to the development of drugs which will be effective in dissolving and preventing all types of kidney stones. It is probable that renal stone formation is one medical problem for which a cure will be effected before cause is fully understood.

Possible causes, under investigation, include poor nutrition, heredity, disturbances in body chemistry, infections and various kinds of stresses. Also under consideration is the possibility that a natural stone inhibitor is built into normal urine and, when this inhibitor breaks down, stones begin to form.

Stone formation may not be caused by any one of these factors but rather by a combination. No one has the answer at present. But this much is known:

- The Southeast — particularly North Carolina, South Carolina and Georgia — leads the nation in the number of stone cases.
- Stones are more common among men than women and more common among whites than Negroes. The peak incidence occurs among rural working men between the ages of 35 and 45.
- Stones formed in the bladder vary in size from bits resembling sand to large round masses that measure more than three inches in diameter and weigh up to one and a quarter pounds. Stones formed in the kidneys usually are irregular in shape and sometimes are as much as three inches in length.

Despite differences in size and contour, these stones have one thing in common. They consist of simple inorganic crystals, cemented together by an organic matrix.

They also are alike in that they cause suffering, loss of work time, disability and death.
Over 3,000 people were arrested for illegal possession and distribution of drugs in North Carolina in 1971, according to Roy Epps, director of the newly established N. C. Drug Authority. The violations represent a 25 percent increase over 1970.

Epps, a former narcotics agent with the State Bureau of Investigation, was one of a number of speakers appearing on the program of the N. C. Health Council's annual meeting in Durham recently. The gathering of some 200 health professionals from throughout the state heard discussion on drug abuse, the delivery of health care and national health insurance.

While the state's drug abuse problem is a relatively new phenomenon, Epps noted it is growing at an ever-increasing rate. This statement is born out by figures from the Department of Mental Health released recently which show that the number of drug addicts admitted to North Carolina's four mental hospitals each year jumped from 16 in 1961 to 780 by September, 1971.

Epps pointed out that the purpose of the N. C. Drug Authority, established by the 1971 General Assembly, is to coordinate all drug abuse, prevention education and rehabilitation programs in the state. Another major responsibility of the Authority is to serve as an effective arm in dealing with new and revised drug laws passed by the recent legislature.

The Authority will review all non-state requests for federal money and programs to financially support local programs throughout the state for rehabilitation and treatment of drug abusers and license non-professional treatment centers (rap houses).

Epps noted that rap houses have come under considerable criticism. "Many law enforcement officers and other responsible citizens think that improperly operated rap houses have created an increase in the use of drugs and not a decrease," he said. "Our purpose is not to eliminate rap houses, but to help them provide better service and obtain broad-based community support."
John K. Lockhart (right), administrator of Northern Surry Hospital in Mount Airy, was named president of the N. C. Health Council for 1972 at the organization's recent meeting in Durham. He is shown discussing the program with Dr. Jacob Koomen, state health director, outgoing president.

Licensing requirements include the following provisions:
- The center must not harbor fugitives (persons who are wanted for committing a felony) or minors (persons under age 16) in flight from their parents.
- The center must have a working agreement with a doctor who is willing to make medical services rapidly available to a patient referred from the center.

**Rewritten Drug Laws**

For the first time since 1935, the legislature acted upon a major revision of the Uniform Narcotic Act (the N. C. Uniform Control Substances Act) effective Jan. 1, 1972. The act classifies 100 drugs into schedules, ranging from hallucinogens (LSD) and contraband drugs (heroin) labeled most harmful to marijuana and hashish labeled least harmful. The act also sets up penalties which are more severe based on the nature of the drug, whether it is the first, second or third offense, and whether the drug is illegally possessed or distributed.
“It is important to differentiate between the various schedules for the purpose of penalties,” Epps explained. “The illegal distribution (and I emphasize illegal distribution and not sale because profit does not have to be involved in the transaction) of any of the listed substances is a felony, regardless of quantity or the reason for the illegal distribution.

“For illegal possession of such drugs as LSD, heroin or hard narcotics, the penalty is the same as illegal distribution (a felony). Illegal possession of amphetamines, barbiturates, or certain tranquilizers on first offense would be a misdemeanor, second offense up to five years in prison and $5,000 fine (a felony), and third and subsequent offenses, up to 10 years and $10,000,” Epps said.

“The most radical change comes in the penalties for possession of marijuana and hashish,” Epps revealed. “The amount of marijuana legally presumed to be for one’s own use rather than distribution has been increased from one to five grams, and hashish from one-tenth of a gram to one gram. The first offense is a misdemeanor, with maximum fine of up to $500 and six months in prison; second offense, still a misdemeanor, up to two years in prison and $1,000; and third or subsequent offense would be a felony carrying up to 10 years imprisonment.

“It is important to remember at this point that even though the state has a hostile attitude toward illegal use of drugs and that potential penalties are very severe, the judge now has in his discretion the authority to suspend any portion of the sentence and fine. Conversely, he can also impose any portion of the sentence and fine that he feels is just in each case,” Epps said.

In addition to rewriting the narcotic act, the 1971 General Assembly amended the Motor Vehicle Law, making it unlawful to drive under the influence of alcohol, any narcotic drug, or “any other drug” to such a degree that a person’s mental or physical faculties are appreciably impaired. According to Epps, the “any other drug” provision was added to alert people to the fact that if a drug prescribed or purchased over-the-counter causes a person’s faculties to be impaired to the extent that driving is dangerous, he should ask someone else to drive for him or run the risk of losing his driving privileges. In October, 1971, eight people were charged with driving under the influence of drugs other than alcohol or narcotics.

**National Health Insurance**

In a message delivered in absentia John A. McMahon, president of N. C. Blue Cross and Blue Shield, predicted the enactment of some form of national health program in the next two or three years. “Change is coming in methods of financing and delivering health care,” he said. “Only the nature of the change is open to doubt.”

Commenting on plans for national health insurance currently under consideration in Washington, McMahon likened the measures to a rainbow, with proposals solely for financing at one end of the spectrum,
...a doctor treating an addict is no longer required to identify the addict (Jan. 1, 1972). The addict, in turn, cannot now use the fear of prosecution as an excuse for not seeking treatment.

and proposals with drastic changes in delivery at the other end. McMahon said he thinks an acceptable plan should include these principles:

Access to adequate health care must be provided to all Americans at a reasonable cost, through a system that offers individuals freedom of choice and provides flexibility to adjust to changing circumstances.

Prevention and ambulatory care must be emphasized, to avoid unnecessary use of hospital facilities. Primary care must be followed by referral to progressively more sophisticated facilities and personnel where appropriate.

Specific attention must be given to individuals now at a disadvantage because of either geographic or economic circumstances.

McMahon emphasized that a national health program must do more than add money to our present health system. "Otherwise, inflation will result, dissatisfaction will grow among patients, and more regulation will follow," he said.

For minor burns from stove or matches, quick dousing in cold water seems to promote faster pain relief and faster healing. This idea was advocated by physicians in ancient times, and it's winning favor among modern first aid experts. Quick local cooling of the burned area results in far less severe general injury and shock to the body.

However, remember that we're talking about small, minor burns such as the housewife gets from the kitchen stove or the electric iron. Serious burns always require immediate treatment by a physician. For small burns the cold water treatment, started immediately, apparently works better than ointment or other remedies. Even a small burn from a match or light bulb can be very painful. The cold water helps to relieve the pain quickly and allows the healing process to start working.

EPPS

American Medical Association

January, 1972

THE HEALTH BULLETIN
“Don't burn your candle at all. Forget you have one.”
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On the Cover

Properly trained ambulance attendants can make the difference between life and death in many emergency situations. Knowledge of routine emergency treatment measures is of vital importance in the early treatment of victims of heart attacks, drowning, drug overdose, or electric shock. Training courses designed to help ambulance attendants meet most emergencies competently are offered throughout the state by the Department of Community Colleges in cooperation with the N. C. State Board of Health.
Dr. Baker Takes Oath

With a legion of friends looking on, including three former governors, politicians and university luminaries, Dr. Lenox D. Baker was sworn in recently as the first secretary of the Department of Human Resources—a newly created state governmental entity embracing 32 agencies. Dr. Baker set forth the development of cooperation, communications and mutual assistance as his first job. He allowed that there will be problems, but "there will be no obstructions to our efforts." The honored Duke orthopedic surgeon cited two prime responsibilities of the job. "Our first obligation is to the taxpayers who support government and who deserve economy of their resources. Our second responsibility involves a duty to those who cannot support nor care for themselves, the recipients of the services of the various agencies," Dr. Baker said. He pointed out that the Reorganization Act of 1971 as spelled out by Governor Scott and the General Assembly — "more efficient and economical administration and increased services in quality and scope for those in need"— comprise the job to be done. Dr. Baker paid tribute to career employees of the agencies consolidated. He also said the directors of the five major agencies to be combined have fine records and indicated he will lean heavily on them as well as the other agency directors and their boards and commissions.
Heart Attack

(The following is an interview by Clay Williams with Dr. William Grossman, head of the Cardiac Catheterization Lab, Memorial Hospital, Chapel Hill.)

Q. Dr. Grossman, what is the anatomy of the human heart?

A. The heart can be best described as a complex muscle with four chambers. Two chambers on the right side of the heart receive blood from the venous side of the body (from the veins). This is blood that is returning to the heart after the oxygen and nutrients have been extracted from it. The two chambers receive the blood and pump it through the lungs where carbon dioxide is exchanged for oxygen. The other two chambers (left) of the heart receive blood as it returns from the lungs and pass it along to the tissues of the body. The muscle that constitutes the wall of each of these four chambers of the heart receives its own oxygen and nutrient supply by specialized arteries called the coronary arteries. The chambers on the right receive blood from the veins of the body and do not have to do very much work. Their function is mainly a passive function of receiving blood and passing it on to the lungs. The chambers on the left, however, receive blood from the lungs and then pass it on to the body. They have to do a tremendous amount work, and particularly the left ventricle, which is the main pumping chamber of the heart, because it is the chamber that has to pump blood to the entire body and essentially bring oxygen and nutrients to the whole body. This very muscular chamber is supplied in its various parts by three different coronary arteries. The right coronary artery is one of the major coronary arteries. This supplies the back part of the left ventricle. The left coronary artery breaks shortly after its origin into two vessels, and this is why we speak of three coronary arteries. The two vessels that are formed by the left coronary artery are the left anterior descending, which supplies the forward part of the left ventricle, and the left circumflex coronary artery which supplies the lateral wall of the left ventricle. Since this is the major pumping chamber of the heart, it is not surprising that when there is an interruption of blood
supply to any part of the muscle comprising the left ventricle, a heart attack will occur. So if there is an obstruction to blood flow in either the right coronary, the left anterior descending or the left circumflex coronary artery, that part of the left ventricular muscle which is supplied by one of these arteries will die and this is what happens in a heart attack.

Q. What is a heart attack?

A. In order to understand a heart attack, we have to think of what would happen to a muscle or any living tissue when it is forced to continue when its blood supply is interrupted. That is, the tissue is no longer able to get oxygen and essential nutrients. This happens with the heart when an obstruction forms, a blood clot, for example, within one of the coronary arteries. When this happens, blood cannot get to the heart muscle. The heart muscle, however, must continue to function in order to sustain life. As a result we have a situation where a muscle is working, but it is not getting an oxygen or nutrient supply. As a consequence a segment of the heart muscle, that segment supplied by the particular coronary artery that becomes obstructed, dies. It is the death of a segment of heart muscle which is the common denominator of all types of heart attacks.

Q. Do heart attacks usually give warning?

A. Yes. I think an understanding of the warnings can be better appreciated now that we know what it is that characterizes a heart attack. I said that a heart attack is due to the obstruction of one of the coronary arteries and death of the heart muscle that is normally supplied by this vessel. The warning usually occurs because total
occlusion is preceded by partial occlusion, that is, when a clot is forming in one of the coronary arteries and is going to block off the channel of that artery, the clot does not all of a sudden appear. It grows gradually over a period of weeks, or months, or even years. As it grows and gradually narrows the channel, the blood supply that gets through this coronary artery to the muscle supplied by the coronary artery will diminish and the muscle will begin to ache. The ache might be likened to a charley horse. The muscle is working, it's still getting enough blood supply to function, but it is not getting enough blood supply to function properly to meet excessive demands. Excitement, nervousness, excessive demands on the heart will be characterized by an aching sensation in the chest, usually a dull ache. Squeezing pressure may be felt over the central or left part of the chest, radiate into the shoulder and down the left arm. There may be some numbness in the hand. The pain may radiate into the neck or jaw. The pain may be precipitated by exertion or excitement. This is a warning that the blood supply to a part of the heart muscle is gradually and slowly being blocked off.

Q. Can heart attacks be classified on a scale say from mild to severe?
A. Yes. In fact most heart attacks are probably mild to moderate. If the part of the heart muscle involved is small, the rest of the heart muscle, that is the muscle that remains alive, may function perfectly well and the patient or individual who suffers the heart attack may be able to go on living a normal life for years. Heart attacks are not all severe and do not all result in disability.

Q. What should a person do who happens to be in the presence of someone suspected of having a heart attack?
A. First of all, a person who has had one of the warning signs should see his doctor immediately with the hope that early treatment will prevent obstruction from progressing to a complete block. When an attack actually occurs, the person will usually feel pressure, pain and general discomfort in the chest—discomfort that will not go away. The pain may become extremely severe, giving the sensation that something is crushing his chest. Sweating is usually associated with the condition, along with a pale color, nausea, possibly vomiting, a feeling of dizziness, weakness and a desire to sit still and not move. Even if the pain is not severe, the person will feel very anxious and tense and may express the fear that something terrible is going to happen.

Q. Statistics reveal that about 70 percent of victims of acute heart attacks die before they reach the hospital. Why?
A. The major cause of death in patients suffering from an acute heart attack during the first 12 hours is a disturbance in the heart rhythm. That is an abnormal rhythm will develop and the heart will not contract
properly and will not expel blood to the rest of the body. These deaths form the great majority of the deaths from a heart attack in patients who have not been able to reach a hospital or doctor in time. They are all preventable because the rhythm disturbances which lead to these deaths can all be very rapidly reversed by treatment with medication. Do not waste time hoping the pain will go away. Go immediately either to the emergency room of a hospital or to the doctor's office.

Q. Is there hope today that the victim of a crippling heart attack can someday live a normal, productive life?

A. Yes, there certainly is. First, there are medicines which can help the patient who develops symptoms of additional coronary blockage. Your doctor can easily provide these. But if the medicines are ineffective in slowing down the process, we may suggest surgery — the type of surgery which is exciting many and which is being performed increasingly all over the country. The procedure (by-pass graft) simply means that a vein is taken from the leg of a patient (a vein that is not essential called the saphenous vein) and hooked up in such a way as to by-pass the blocked coronary artery allowing blood to flow beyond the blocked area down to the muscle that previously was deprived of blood supply. In many cases the operation results in very dramatic improvement and frequently a permanent cure or a permanent cessation in the chest discomfort resulting from insufficiency of blood flow through the coronary arteries.

Dr. William Grossman examines an electrocardiogram of a patient just admitted with a myocardial infarction (heart attack). The electronic equipment provides continual monitoring of the heart while the patient rests in bed.
A total of 1,024 people were killed in North Carolina by firearms in 1970, according to a study released recently by Dr. Abdullah Fatteh, associate chief medical examiner.

Homicides, suicides and accidents inflicted with guns rank high among such killers as heart disease, cancer and automobile accidents.

The gun accounted for 484 homicides, 406 suicides and 90 accidents in North Carolina in 1970. The study showed more murders were committed by guns than by any other means and that the most popular method of committing suicide was by shooting.

Over half the victims of firearms deaths were below the age of 40, with an additional 198 killed between ages 41 and 50. The highest number of accidental gun deaths ranged in age from 11-20, and the highest number of murders was in the 21-30 age group.

Five counties led the state in firearm deaths. They were (in descending order) Mecklenburg, Forsyth, Guilford, Wake and Durham. Mecklenburg also led in homicides with 79, Guilford had 34, Forsyth 25, Durham 19 and Wake and Wilson 14 each. Clay, Perquimans and Tyrrell Counties reported no deaths by firearms during 1970. The rate of firearms deaths amounted to about 20.2 deaths per 100,000 population.

Most of the firearm murder victims were black (303), while the largest number of suicides was among the white race (373). Males outnumbered females in both categories. The largest number of murders happened during weekends in August. January and July appeared to be the favorite months for suicide.

Over three-fourths of the accidental firearm victims were white males. Most of the deaths occurred during the weekend during the winter months — October through February. In nearly all cases the fatal shot was fired by a person other than the victim.

Birth Rate Increases

For the first time since the downward trend started in 1962, an annual increase in the birth rate has been recorded in North Carolina, according to a report released recently by the Vital Statistics Department of the State Board of Health. However, the past decade showed a downward trend to 19.4 births per 1,000 population, a 20 percent decrease since 1960. A total of 98,455 births were registered in North Carolina in 1970, 4,573 over 1969. White births increased by 14 per-
The gun accounted for 484 homicides, 406 suicides and 90 accidents in North Carolina in 1970.

cent, compared to three percent for nonwhites. According to the U. S. Bureau of the Census, the population of North Carolina in 1970 was 5,082,059, an 11 percent increase over 1960. In 1970, whites comprised 77 percent of the population and females outnumbered males by 107,275. The increase of births over deaths was 53,783.

The report also showed that 98.5 percent of all live births in North Carolina during 1970 occurred in hospitals. For nonwhites, the percentage of hospital births rose from 74 to 95 percent since 1960.

Approximately one out of eight North Carolina infants born in 1970 was illegitimate. Nonwhite births out of wedlock occurred at a rate of one out of three. Although the incidence of illegitimacy is less for whites, the illegitimacy rate for whites rose by 65 percent during the decade.

The report pointed up a shorter life expectancy for nonwhites. A nonwhite child (0-4 years) is twice as likely to die. The nonwhite young adult (ages 15 to 44) is three times as likely to die as are whites of the same age. Only for children (5-14 years) and for the aged (65 and over) are the death rates similar for white and nonwhite.

Preliminary findings show that death rates for cancer, motor vehicle accidents and homicide rose appreciably between 1960 and 1970. The rate for heart disease, diabetes, and suicide also increased while the stroke rate decreased slightly. The maternal death rate decreased by 46 percent to 2.9 deaths per 10,000 live births. This rate is equivalent to one maternal death for every 3,395 live births.
The phone rings in the hospital emergency room. A young man's voice, frantic with fear, pleads for an ambulance to be sent "quick! I can't wake my roommate and he's having trouble breathing!"

A two-man ambulance team is dispatched to an apartment across town. They rush in, only to find the teenager has stopped breathing and has no noticeable pulse — the victim of accidental drug overdose.

Immediately they begin resuscitation and external cardiac compression in an attempt to revive heart beat and get the young man breathing again. Within 30 seconds, his color returns and he is breathing well enough to be placed aboard the ambulance. A mask attached to a resuscitator is secured over his face to aid in breathing until more sophisticated equipment can be used at the hospital. After a few days in the hospital, he returns home.

This is only one in a number of instances that happen throughout the state daily where trained ambulance attendants, by reacting swiftly and assuredly, save many lives.

The real life drama points up the importance for emergency care at the scene before the victim is moved to a hospital," Watson said. (Almost 70 percent of all acute heart attack victims die before they reach the emergency room of a hospital.) "If the brain is deprived of oxygen for no longer than four minutes, it will die. It is vital, therefore, that victims of drug overdose, drowning, electric shock or heart attacks be given emergency care quickly and decisively. If treatment is not started until the patient arrives at the hospital, it may be too late to save him," he said.

"Not too long ago, the ambulance attendant’s first thought would have been to get the victim to the hospital emergency room as quickly as possible without regard to providing emergency treatment. The emphasis now is on doing as much as the attendant is trained to do before he is moved," Watson said.

These were only a few of the points presented to 60 ambulance attendants by Watson and Dr. A. J. Wyman during an advanced course on cardiac compression (a method of restoring heartbeat by rhythmically pressing on the chest with the heel of the hand) at Pitt Technical Institute in Greenville. The course would allow the students to renew their certificates and enable
Cardiac compression continues on the way to the hospital.

them to continue to give emergency care in compliance with the rules and regulations of the State Board of Health.

Since 1967, North Carolina law has required ambulance attendants to be certified before they could practice. The State Board of Health, along with representatives of those who provide ambulance service, established minimum training requirements necessary for certification. They also specified minimum safety standards, sanitation and equipment to be required for emergency vehicles. The State Board of Health has the responsibility to see that the rules and regulations are carried out.

Art Lamson, coordinator for the Emergency Medical Services Program for the State Board of Health, explained that ambulance attendants can initially qualify for a certificate by successfully completing the Ambulance Attendant Training Course or by having both the standard and advanced Red Cross first aid courses.

"The 24-hour AAT course is made up of eight three-hour sessions, dealing with basic first aid skills such as making sure the air passage is clear, stopping bleeding, deciding which victims need attention first, splinting broken bones and even delivering babies. This course is offered across the state through the Department of Community Colleges. Local physicians usually give the medical instruction and supervise as the attendants practice techniques and learn to use standard emergency equipment available in ambulances." said Lamson.

Certification is good for two years, then must be renewed with additional training. If the attendants have had the AAT, they can take the Red Cross courses or six hours of advanced training in cardiac care and management of burn cases.

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According to Lamson, North Carolina ranks close to the top in the quality of ambulance service provided. "The state has about 1500 attendants who have had between 50 and 60 hours of emergency care training. In all there are 3300 certified attendants operating out of 320 facilities in North Carolina," he said. "Most states have no regulations requiring that ambulance attendants be trained in emergency care.

"Even though improvements have been made in providing initial emergency medical care in the state, there is still a long way to go before quality emergency care can be provided on a continuing basis," Lamson said. "North Carolina, as do other states, has a hodgepodge of ambulance providers — 123 certified rescue squads, 125 funeral homes, 40 town or county operated services, and 30 commercial ambulance services — with no evident overall organization.

"The State Board of Health requires all these separate services to meet minimum requirements before a permit to provide ambulance service is issued. If individual ambulance providers wish to go beyond minimum requirements and they have the capability and training to do so, we encourage that they do," Lamson said. "Our purpose is to help them see the need for better service while recognizing their limitations.

"Our most pressing need is for better communications between vehicle and hospital," Lamson said. "Our minimum standards do not include radios — installing them is a purely local decision. Only 20 counties have adequate communications systems between the emergency vehicle and the hospital. With good radio communication, the emergency room would have time to call in extra personnel or have special equipment on stand-by. Valuable minutes would be saved just by knowing what to expect when the patient arrives."

Another problem is the lack of uniformity in quality of emergency medical services across the state. It may be excellent in urban areas while in rural areas it may be less than average. "Due to the limited number of emergency cases in rural areas, opportunities for ambulance attendants to gain experience are not as frequent. Nearly 50 percent of our counties have less than 30,000 population. We need a working agreement between urban centers and rural areas so a rotating program can be established for attendants in order to give them opportunities to gain experience," Lamson said.

"Before much can be done to improve the ambulance system, we must have the support of the public. The general public has not yet realized that properly trained ambulance attendants can reduce traffic deaths by 20 percent simply by providing initial emergency medical care. Such care could also cut down on the possibility of further injury by inexperienced, inadequately trained ambulance attendants," Lamson said.

Watson said that one of the biggest needs is for educating motorists how to react when emergency vehicles...
approach. "When some motorists hear a siren or see a red light flashing, they proceed at a leisurely pace or worse slam on brakes and swerve. Many people don't know what they are supposed to do."

State law requires that upon the approach of an emergency vehicle (police car, fire truck, ambulance or rescue wagon) signaling with flashing lights and siren or bell, drivers should pull over and stop as close to the right-hand curb as possible. They should remain stopped until the emergency vehicle has passed.

Watson said that another way to improve emergency care is to train more people in basic first aid. "Standard first aid should be required for promotion from grammar schools and advanced first aid for high school graduation," he said. He also favors requiring first aid before granting a driver's license.

"This would mean that nearly every vehicle on the road would have a driver with a basic knowledge of first aid. At the scene of every accident there should be someone who knows how to control bleeding, clear air passages and start the victim breathing again. A basic knowledge of first aid could make the difference between life and death, because it is impossible for the ambulance to be at the scene instantaneously," he said.

He recommended several methods to more quickly get help to the scene of an accident. Perhaps the most important are roadside emergency telephones and a nationwide emergency telephone number.
The group of women doctors above was photographed at a recent meeting of county public health directors in Raleigh. They are (back, left) Drs. Marjorie Strawn, health director, Caldwell County; Sarah Morrow, health director, Guilford County; and Corrina Sutton (Ph.D.), training officer, State Board of Health. (Front, left) Dr. Verna Barefoot, health director, Craven County; Isa Grant, chief, Chronic Disease Section, State Board of Health; Ruth Burroughs, chief, Crippled Children Department, State Board of Health; and Caroline Callison, health director, Bladen-Sampson Counties.

The new State Board of Health Building takes shape as workmen complete erection of the steel skeleton. Completion date for the $4 million structure is set for March, 1973. Styling is contemporary, clad with pre-cast concrete panels. The building, situated at the northeast corner of the Legislative Building, totals 160,000 feet of floor space.
State Of North Carolina Vital Statistics Summary

<table>
<thead>
<tr>
<th></th>
<th>November 1971</th>
<th>Year to Date 1971</th>
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<tbody>
<tr>
<td>Births</td>
<td>7,376</td>
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<tr>
<td>Deaths</td>
<td>3,588</td>
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<tr>
<td>Infant Deaths [under 1 year]</td>
<td>160</td>
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<tr>
<td>Fetal Deaths [stillbirths]</td>
<td>101</td>
<td>1,388</td>
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<td>Marriages</td>
<td>3,801</td>
<td>44,274</td>
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<tr>
<td>Divorces and Annulments</td>
<td>1,389</td>
<td>14,335</td>
</tr>
</tbody>
</table>

Deaths from Selected Causes

- Diseases of the heart [all forms] 1,289 14,774
- Cancer [total] 560 6,086
  - Cancer of trachea, bronchus and lung 115 1,232
- Cerebrovascular disease [includes stroke] 446 4,899
- Accidents 267 3,033
  - Motor vehicle 156 1,630
  - All other 111 1,403
- Diseases of early infancy 76 1,089
- Influenza and pneumonia 98 1,182
- Bronchitis, emphysema and asthma 46 590
- Arteriosclerosis [hardening of arteries] 49 568
- Hypertension [high blood pressure] 20 222
- Diabetes 68 773
- Suicide 33 523
- Homicide 51 564
- Cirrhosis of liver 48 539
- Tuberculosis, all forms 8 93
- Nephritis and nephrosis [certain kidney diseases] 22 262
- Infections of kidney 24 243
- Enteritis and other diarrheal diseases [stomach and bowel inflammations] 9 82
- Ulcer of stomach and duodenum 9 116
- Complications of pregnancy and childbirth 1 27
- Congenital malformations 32 426
- Infectious hepatitis 17
- All other causes 432 4,635

Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.
"This is Doctor Brown. I wanted you to know I'm going to quit practice next week."

THE HEALTH BULLETIN
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THE HEALTH BULLETIN

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On the Cover
The Guilford County Health Department comprehensive health service for children and youth is the only program of its kind in North Carolina. The program seeks to provide total health care for 12,000 children on its registry from birth to age 18. One phase of care is testing for speech and hearing impairments. Here Barbara Meeks, speech therapist, tests Phillip and Tommy Sneed for language articulation by asking the name and function of pictured objects. Performance on this gross screening test may indicate learning disabilities in which case further testing and therapy would be provided.
The 1969 N. C. General Assembly directed the Legislative Research Commission to study and report to the 1971 General Assembly on the need for legislation concerning local and regional water supply systems. It was determined that many provided inadequate service and that there was a lack of effective planning to avert future water supply problems. As a result, the 1971 General Assembly enacted many significant pieces of legislation dealing with water supplies and water resources. The so-called "Small Water Supply Act" is expected to have the most immediate effect on many private citizens. The "Small Water Supply Act" authorized the State Board of Health to adopt standards and criteria for small water supplies such as those serving mobile home parks, subdivisions, and other housing areas. New standards, intended to provide more adequate small water systems, covering all phases of water system design, have been adopted by the State Board of Health and became effective on Jan. 1, 1972. Even though the State Board of Health is striving to bring about the results intended by the Act, much of the success which the program is expected to achieve will depend upon the interest and cooperation of local governments and individuals. For it is the local departments, planning authorities, zoning authorities and other agencies of local government who have the first opportunity to contact developers and builders and to convince them of the need to provide safe, adequate and reliable water supplies which the citizens of our state deserve.
But for a blinding headache secession of Southern states from the Union might have been avoided.

At the time debate was going on in the United States Senate that would eventually lead to division of Southern and Northern states, Jefferson Davis, a senator from Alabama who wielded considerable influence over the body, and who was not at all enthusiastic about the drastic move, was confined to his room with a severe migraine headache.

With the possible exception of the common cold there may be no physical ailment that brings more misery to more people than the headache. Unlike many other ailments, the frequency of headaches is on the increase. It is estimated that 25 million Americans annually seek medical attention beyond conventional remedies for headaches.

Dr. John Pfeiffer, professor of neurology at Duke Medical Center, describes a headache simply as pain somewhere in the general region of the head or neck muscles, usually at the base of the skull. He estimates that probably 90 percent of all headaches are of the migraine and muscle tension variety involving muscles of the scalp and neck and blood vessels of the head—mostly the vessels on the outside of the head.

The most cursed and least understood of all types of headaches is the migraine, most of which arise from changes that take place within the scalp arteries due to artery dilation. Dr. Pfeiffer estimates that only about 50 percent of headache sufferers actually have migraines, but many claim to have them probably because they are familiar with the word.

A migraine headache, as described in medical textbooks, may last from a few minutes to several days. It is often associated with vomiting, nausea and constipation or diarrhea. Although the migraine is usually experienced in the temple region, it can become generalized. The migraine syndrome usually runs in families. It can occur during or shortly after a stressful period in which resentment, fatigue and prolonged tension are features. Many migraine victims add to their misery by involuntarily introducing reactions in certain head arteries by becoming overly tense.

A muscle contraction headache is defined as sustained contraction of skeletal muscles about the face, scalp and neck. Pfeiffer pointed out that contraction is obviously involuntary.
Dr. Pfeiffer examines a portion of the carotid artery at the base of the skull. The vessel is sometimes associated with certain types of vascular headaches.

and is usually the reflection of tension or anxiety. He said the individual unconsciously brings into play continuous contraction and after a period of time the origin of involved muscles becomes painful just as sustained contraction of muscles of the forearm might after gripping an object for a prolonged period of time.

Why is the head such a sensitive part of the body's anatomy? Pfeiffer says it is because of the pain-sensitive tissues outside the skull, super-sensitive scalp arteries, the dural sinuses, and the highly sensitive arteries at the base of the brain. He explained, however, that the brain itself is insensitive and cannot feel pain, although pain sensation is transmitted to the brain. In fact, Pfeiffer said, the brain is so insensitive that many surgical procedures are performed on it under local anesthetic.

The Duke neurologist revealed that headaches are surprisingly common among children. He noted that children sometimes get migraine headaches at an early age, but they usually do not have the proper language to explain the symptoms. He said that a history of headaches among children shows that they also get a fair number of tension headaches.

The time to see a doctor, Pfeiffer said, is when you have never had a headache and get one abruptly, or if a headache changes in character, frequency and severity or if it is associated with other symptoms which could be related to the central nervous system such as visual impairment, sensory disturbance, weakness and mental confusion. All these things, Pfeiffer suggested, would indicate that the problem is more complex than a simple tension headache.
America's Big Headache

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Public Health in Guilford County

The county health department has often been described as the doctor to the community. The Guilford County Health Department has been doctor to Guilford County since July, 1911, and as such has the distinction of being the first county health department in the United States.

Acting on legislation passed by the 1911 General Assembly, Guilford County commissioners set up a board of health and authorized hiring a full-time physician to be superintendent of health with a yearly salary of $2,500. His primary duty was to treat rural school children for smallpox, scarlet fever, typhoid and diphtheria which were the major health problems of the time. He enforced quarantines and educated people to the value of constructing privies and wells according to sanitary regulations. He was also charged with inspecting county prison farms, the county jail, and the county home for sanitary conditions as well as maintaining the health of inmates.

The county health director comprised the entire staff of the Guilford County Health Department until a sanitarian was added in 1926. Today the department has a staff of 275, a budget of over $2 million, and serves a population of 289,000. Total health appropriation per capita amounts to $6.23 compared to a statewide county average of $2.97.

The Guilford County Health Department is a leader in providing health and environmental services. It was instrumental in setting up the first countywide air pollution control program in the state and it is the only county health department with its own pharmacy, a major outpatient clinic operation, public health training and orientation program, and a comprehensive health services program for children known as the "Children and Youth Project."

The C & Y project, as it is called, is the only one in North Carolina and one of 63 in the nation. The million dollar program is financed through 75 percent federal and 25 percent county funds.

This project requires the use of specialized personnel to handle the large number of patients. The Guilford County Health Department employs four pediatric nurse practitioners, two with master’s degrees in public health and pediatric nursing. Through an in-service program, these four practitioners along with local and outside pediatricians are training 20 other nurses in special pediatric nursing skills.
Miss Annette Knight, pediatric nurse practitioner with the “Children and Youth Project,” examines two-month old Chanel Sapp as Mrs. Sapp looks on. C & Y clinics may see as many as 1200 children during an average month. Children in this program receive comprehensive health care from birth to age 18.

Dr. Sarah Morrow, director of the Guilford County Health Department, said that the C & Y project which was begun in September, 1966, has had a real impact on the health of the county’s children. “Children being admitted to schools now are healthy—their defects are being corrected before they start to school. Too, children are not anemic as they used to be three or four years ago.

“As a result of projects initiated under the program we have seen dramatic evidence that the C & Y project has tremendously reduced the hospital admission of pediatric patients at Cone Memorial Hospital. We are delighted that the children are well enough to be cared for on an outpatient basis,” she commented.

Dr. Morrow, a pediatrician, is enthusiastic when she talks about the “Children and Youth Project.” “We’re seeing about 1,200 children a month and we have close to 12,000 children registered in the program. The program includes infant care, speech and hearing testing and therapy, dental treatment—in fact, a program to meet the total health needs of the child.

“In addition to the C & Y project, doctors have long recognized that caring for all indigents in their offices
is an impossible task. With the cooperation of the local medical society, doctors come to the health department to conduct the clinics. We agreed to provide nursing service, X-ray, laboratory tests, and maintain records," she said.

A pharmacy was set up in the health department because patients were frequently failing to follow up a doctor's orders for drug therapy. "The pharmacy dispenses free drugs needed by the low-income patients seen in the health department and the mental health center," Dr. Morrow said.

The Guilford County Health Department also operates a public health training program for medical personnel. There is a nurse training program for about 40 senior nursing students from A & T State University and UNC-Greensboro, a program for licensed practical nurses in training at Guilford Technical Institute, and field training for students from the UNC School of Public Health. Also, doctors in the Cone Hospital residency training program get experience in the outpatient clinics of the health department.

At its Greensboro office, the health department has 20 regularly scheduled clinics including cancer detection, eye and skin, prenatal and gynecological, tuberculosis and venereal disease clinics. Many of these are held four days a week, with others such as the orthopedic clinic being offered once a month. The High Point branch of the Guilford County Health Department holds similar clinics but not on as great a scale because, as Dr. Morrow explained, the population of High Point (70,000) is less than that of Greensboro (149,000) and the demand is therefore not as great.

A family planning project was established in April, 1971. Its 10 clinics a week have served 3,000 patients in the Greensboro area. A family planning program has been incorporated into the Model Cities project in High Point. Margaret Alexander, director of the family planning program, said there have been few unplanned pregnancies and only about eight percent dropout rate among the patients she has counseled.

The Guilford County Health Department benefits not only those who receive direct care in clinics, but serves all county residents through its environmental program. Owen R. Braughler, head of the environmental health section, supervises the activities of 18 environmentalists whose duties range from approving septic tank and sewage plans to inspecting the sanitation of restaurants and motels.

Under Braughler's guidance, Guilford County became the first county in the state to adopt a county-wide air pollution control program (August 26, 1966). "We think we have achieved positive results—especially in air pollution. In 1971, the National Air Sampling Network, a nationwide air quality monitoring system, rated Greensboro as having the second cleanest air in any city with 50,000 or more population (Miami was first)," he said. He attributes the improvement in air quality in the heavily industrialized Greensboro area to the response of
In 1970, the pharmacy in the Guilford County Health Department filled 28,000 prescriptions for low-income patients at no charge to them. Vernon H. Richardson, pharmacist, fills a prescription for Mrs. Linda Sneed.

Industry to a "teach and lead" program rather than coercion.

Because of its "clean" air, Greensboro was one of three cities on the eastern seaboard selected to participate in a "health effects" study program in schools to gather data for the Environmental Protection Agency. The purpose of the study is to determine if there is any connection between air pollution and respiratory problems. Braughler said that other cities in the study are Charlotte with "mediocre" air and Birmingham, Ala., with "dirty" air.

Even though Guilford County is a leader in the area of environmental health, Dr. Morrow said that one of the major health problems in the county is the disposal of solid waste. "However, we hope we have solved this problem through a recent agreement with the cities of Greensboro and High Point and the county administration," she said. "The county will purchase three pulverizing machines and one should be in operation within the year."

The pulverizing technique reduces volume of solid waste by 60 percent. Pulverizing machines can handle items up to the size of a refrigerator and will grind waste to the size of confetti. "This method does not produce an odor, attract flies or rodents, and it enhances future possibilities for recycling metals and glass," Dr. Morrow pointed out.
Hospitals Boost "Newborn" Care

From the time of an infant's first lusty cry until he leaves the hospital, his chances for getting a healthy start in life are greatly enhanced by Laura Harbison, pediatric nursing consultant (newborn care), N. C. State Board of Health.

She is charged with promoting improved baby care in North Carolina hospitals—an area of vital concern in that each year approximately 10,000 low birth weight or premature babies (weighing five and one-half pounds or under) are born in the state. Whether these high risk babies survive to go home depends to a great extent on the quality of nursing care provided in the hospital nursery.

Miss Harbison's efforts to promote improved baby care are aimed primarily at nurses and center around four broad categories: evaluating the quality and quantity of nursery personnel, offering continuing education programs to nurses who work with the newborn, suggesting simplified, safer techniques in infant care, and assisting the hospital staff in developing an educational program for parents.

In evaluating nursery personnel, she checks the number of nursing personnel on duty in the nursery and their training. "Generally, there should be one registered nurse, licensed practical nurse or aide on duty for every eight infants. In addition, a registered nurse supervisor should be on duty for every 16 infants," Miss Harbison said. "However, some low weight infants and term infants with problems may require the full attention of one nurse to provide continuous intensive care and surveillance the infant must have in order to survive."

To provide nurses an opportunity to learn the latest nursing techniques and advances in medical knowledge, the State Board of Health supports courses in newborn care twice a year at Duke Medical Center and five times a year at Baptist Hospital in Winston-Salem. "We encourage nurses to take a refresher course at least once every four years," she revealed.

According to Miss Harbison, the number of infant deaths occurring in infants under age one has been steadily decreasing for many years. "However, the number of deaths occurring in infants under seven days old has not decreased dramatically despite improvements in prenatal, labor and delivery care. In North Carolina in 1969, 2,329 infants died during their first year of life. Of these, 1,450 (63 percent) died during the first seven days.

"Primary causes of death in infants under seven days old are the respiratory distress syndrome or breathing difficulty, prematurity and congenital abnormalities. These deaths occur in high risk infants, and mothers of high risk infants usually fall into five categories: under 17; over 35;
Wires from heart and respiration monitoring equipment are attached to baby in an isolette. The equipment is used for babies born with heart or respiratory abnormalities, as well as those with illnesses that could result in heart failure. The equipment, however, is used mostly on premature babies subject to apnea, a condition where baby stops breathing. The nurse is signaled immediately by a flashing light and beeping sound if any change occurs in heart or respiration rates.

unmarried; women with a history of a previous fetal and infant death; and those with less than a high-school education. Until we reach these people with family planning and family life education services, more deaths will occur.”

She pointed out, however, that recent studies have shown that high quality intensive newborn care and improved medical equipment are reducing infant deaths and the occurrence of handicapping conditions.

While low birth weight babies are more likely to have difficulties, all newborns face potential environmental threats, such as heat loss and infections. Many hospitals are now providing a newly manufactured radiant warmer to prevent the initial heat loss that occurs during delivery.

Miss Harbison said the threat of hospital staphylococcal (skin) infections was reduced with the development of hexachlorophene used in nurseries to bathe newborns. However, the Food and Drug Administration and the American Academy of Pediatrics recently recommended that hospitals stop bathing newborns with hexachlorophene because of possible resulting brain damage. Since then, doctors have noticed the outbreak of mild skin infections in hospital nurseries across the country. Now, according to Miss Harbison, the ban has been relaxed and it is being left up to the physician to weigh the risks to the individual baby according to what he may see developing.

March, 1972

THE HEALTH BULLETIN
Nothing ventured, nothing gained: this is the philosophy of Marjorie Pearce, a social work consultant with the Crippled Children's Department of the State Board of Health. She had received a request for services from a hospital which was treating a little girl with a big problem. As it turned out the family was ineligible to receive a cost service item from the department because the income was in excess of that stipulated by regulations.

At first, the referral seemed routine—a request for an artificial leg, for a little girl who was born with multiple congenital abnormalities, including a cleft palate and only part of one arm and one leg. Prior sponsorship by the Crippled Children's Department provided the palate repair and an artificial arm and leg, but now another leg was needed as the child had outgrown her old one. Now, the family no longer met eligibility requirements.

The couple's annual net income was in excess of the criteria used for determining financial eligibility for a family of three. Net income is the amount remaining after deducting compulsory taxes, medical expenses, payment for hospital insurance, and the cost of a baby-sitter, if the mother is employed. Even though medical expenses were high for the year and a baby-sitter had been employed, net income made the family ineligible.

The young family fell into the depths of despair when it was learned they were ineligible for Crippled Children's services. They saw no way to stretch their income to cover the cost of the prosthesis (artificial limb) which their daughter needed immediately. Yet, their fervent wish was that their little girl be active, walk, play and develop and live as normal a life as possible.

Although Crippled Children's policies did not permit the purchase of the limb, there were no limitations to prevent Miss Pearce from helping the family. The couple was willing for Miss Pearce to contact other agencies and organizations in their behalf, in an effort to obtain money for the limb. As a result of conferences with a local health department and the director of the Easter Seal Society for Crippled Children and Adults, a plan of action was formed. In a few weeks, enough money had been contributed, mostly by church groups, to assure the purchase of the limb. Counseling was immediately started with the mother regarding the social development and adjustment of the child.

The Crippled Children's Program is broad in scope, defining a crippled child as "an individual under the age of 21 years who has an organic disease, defect, or condition, which may hinder
the achievement of normal growth and development." A total of 19,495 children received services in North Carolina during 1971. Mental retardation does not disqualify a child from receiving help for a disabling condition. Services are provided regardless of race, creed, and national origin.

The involvement described here represents only one phase of the social worker's role in public health. Requests for program services usually start in physicians' offices, clinics, hospitals, medical centers, and health departments for children with handicapping conditions. Review of these requests by the staff of the Crippled Children's Department frequently indicates the need for social work consultation with a family to assure the best care of the child. Referrals for service may be made when the social work consultant is in attendance at one of the 74 clinics sponsored by the Crippled Children's Department.

Social workers give consultant service upon request to local health departments, physicians, and hospital personnel on policies and procedures of the Crippled Children's Program. Activities of the program are coordinated with departments of social services, vocational rehabilitation, school personnel, and other agencies in developing plans for meeting the medical, social, and educational needs of handicapped children. They also participate in in-service training programs and in interagency conferences relating to child care.

Currently, the department has three social work consultants. Each one serves the counties in a particular region of the state in an effort to provide complete social work consultation throughout the state for the Crippled Children's Program.
Gov. Bob Scott recently announced the appointment of three new members to the N. C. State Board of Health. Dr. Ralph W. Coonrad, Durham physician, succeeds Dr. Lenox D. Baker who resigned when he became secretary of the Department of Human Resources. An honor graduate of Duke University School of Medicine, Dr. Coonrad is currently assistant clinical professor of orthopedic surgery, Duke Medical Center, and attending orthopedic surgeon at Watts and Lincoln Hospitals, Durham. He was recently appointed medical director of the N. C. Cerebral Palsy Hospital, Durham, to succeed Dr. Baker.

Dr. Donald W. Lackey, Lenoir veterinarian, succeeds Dr. Benjamin W. Dawsey of Gastonia. Dr. Lackey, a graduate of N. C. State University and the University of Pennsylvania School of Veterinary Medicine, has been in practice in Lenoir since 1946. He is president-elect of the N. C. Veterinarian Medical Association.

Robert B. Nichols Jr., a Hillsborough dairy farmer, succeeds J. M. Lackey of Hiddenite who resigned. Nichols will serve a term expiring May 1, 1973. He is a 1951 graduate of N. C. State University and is currently serving as vice president of the American Dairy Association of North Carolina and a board member of Long Meadow Farms.
## State Of North Carolina Vital Statistics Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>December 1971</th>
<th>Year to Date 1971</th>
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</thead>
<tbody>
<tr>
<td>Births</td>
<td>7,875</td>
<td>95,704</td>
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<tr>
<td>Deaths</td>
<td>4,127</td>
<td>44,870</td>
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<tr>
<td>Infant Deaths [under 1 year]</td>
<td>172</td>
<td>2,111</td>
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<tr>
<td>Fetal Deaths [stillbirths]</td>
<td>122</td>
<td>1,510</td>
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<tr>
<td>Marriages</td>
<td>4,749</td>
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<tr>
<td>Divorces and Annulments</td>
<td>1,175</td>
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### Deaths from Selected Causes

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<thead>
<tr>
<th>Cause</th>
<th>October 1971</th>
<th>Year to Date 1971</th>
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<tr>
<td>Diseases of the heart [all forms]</td>
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<tr>
<td>Cancer [total]</td>
<td>629</td>
<td>6,715</td>
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<tr>
<td>Cancer of trachea, bronchus and lung</td>
<td>134</td>
<td>1,366</td>
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<tr>
<td>Cerebrovascular disease [includes stroke]</td>
<td>495</td>
<td>5,394</td>
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<tr>
<td>Accidents</td>
<td>335</td>
<td>3,368</td>
</tr>
<tr>
<td>Motor vehicle</td>
<td>201</td>
<td>1,831</td>
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<tr>
<td>All other</td>
<td>134</td>
<td>1,537</td>
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<tr>
<td>Diseases of early infancy</td>
<td>91</td>
<td>1,180</td>
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<tr>
<td>Influenza and pneumonia</td>
<td>138</td>
<td>1,320</td>
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<tr>
<td>Bronchitis, emphysema and asthma</td>
<td>63</td>
<td>653</td>
</tr>
<tr>
<td>Arteriosclerosis [hardening of arteries]</td>
<td>73</td>
<td>641</td>
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<tr>
<td>Hypertension [high blood pressure]</td>
<td>24</td>
<td>246</td>
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<tr>
<td>Diabetes</td>
<td>83</td>
<td>856</td>
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<tr>
<td>Suicide</td>
<td>50</td>
<td>573</td>
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<tr>
<td>Homicide</td>
<td>77</td>
<td>641</td>
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<tr>
<td>Cirrhosis of liver</td>
<td>53</td>
<td>592</td>
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<tr>
<td>Tuberculosis, all forms</td>
<td>16</td>
<td>109</td>
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<tr>
<td>Nephritis and nephrosis [certain kidney diseases]</td>
<td>27</td>
<td>289</td>
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<tr>
<td>Infections of kidney</td>
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<td>Enteritis and other diarrheal diseases [stomach and bowel inflammations]</td>
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<td>Ulcer of stomach and duodenum</td>
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<td>Complications of pregnancy and childbirth</td>
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<tr>
<td>Congenital malformations</td>
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<td>Infectious hepatitis</td>
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<tr>
<td>All other causes</td>
<td>439</td>
<td>5,074</td>
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Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.

March, 1972
"Think of it as a little game, Mr. Phelps. I'll jab and you yell."
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On the Cover

Miss Ernestine Walkingstick, a Cherokee Indian and public health nurse on the Qualla Boundary Preserve in Cherokee, N. C., returns from a home visit to an elderly member of the tribe. Roughly one-fourth of the tribe is elderly. The home health visiting program is just one of the health services which the U.S. Public Health Service provides to over 8,000 Cherokees living in Western North Carolina.
From the original grant in 1663 by England's Charles II to the Eight Lords Proprietors of Carolina, many states, and counties without number, have evolved. Those lands between 31° north and 36° north, from the Atlantic to the Pacific (then called the South Seas) were at stake. Two years later the grant was increased ½° north and 2° south, approximately from Virginia's southern border to a point just south of St. Augustine, Florida. Knaves as well as honest people abounded. "Rascal, imposter and usurper" was not an uncommon appellation. From all this vast expanse "North Carolina" began to emerge in 1710 when Edward Hyde was named its first governor. Creation of counties proceeded apace. Hindsight shows us it was carried to ridiculous extremes. One and all concede that this Humpty Dumpty can never be put back together but the state's present drive toward regionalization can be made to circumvent the ills of fragmentation. Local public health would profit immensely if the local health departments were gradually phased out and if regional organization were substituted therefor. Seventeen regions (18 if populous region G were cleft in twain) would provide an ideal base from which to deliver local service. Stat orientation at the expense of local autonomy would, all things considered, be a boon.

April, 1972
More Services for the Aged

The Governor's Council on Aging was established by the 1965 legislature to band with other concerned governmental and private organizations for the purpose of formulating and operating a program of action to create a more meaningful existence for senior citizens in North Carolina. The Council does not provide services. Rather, its mission is education — apprising appropriate agencies and the public of the problems confronting older persons and the services needed to solve them.

Of the five million people in North Carolina over eight percent (400,000) are 65 years of age and older. In rural counties the percentage goes as high as 10 percent. Of the 11,000 people who live in Polk County, for instance, nearly 2,000 (16 percent) are 65 and over. The total population of North Carolina increased over 11 percent from 1960 to 1970. During the same period the number of people 65 and over increased 32 percent.

Many of today's senior citizens who have reached retirement age do not fit the prototype of the aged that we have observed through the years. The senile, weather-beaten old person living out his remaining days sitting in the rocker on the front porch does not, for the most part, fit the lifestyle of old people of the 70's. They are vigorous, healthy and active. Yet, at the other end of the spectrum, many are ill — one in four over 65 has one or more chronic ailments. About 60 percent are women, many of whom are widowed. Over 21 percent of the 65 and over live alone and three percent live in some type of institution.

By far the majority of elderly persons living in their own home want to continue to live there. For them to do so, a brace of services, such as home health, homemaker, home repair, maintenance and transportation services, must be made available by the community. Many old people, at one time or another, desperately need follow-up physical therapy.

North Carolina has home health services in only 40 counties and homemaker services for adults in 33. A short-range target of the Governor's Council on Aging, working along with allied agencies and organizations, is to encourage counties and communities to take steps to provide homemaker and home health services to senior citizens in all 100 counties.

For many of the elderly shopping for food and medicine, or seeing the doctor, become insurmountable barriers because of the lack of transportation. Some efforts are being made to furnish transportation by volunteer groups, including churches, women's clubs, civic clubs and OEO and Model Cities agencies. Beneficial as these efforts are, they are not
meet the transportation needs, according to Eddie Brown, executive director of the Governor's Council on Aging. If this service is not supplied, many elderly people will eventually find it necessary to move into a nursing or rest home, or a home for the aged in order to receive proper care, Brown allowed.

Home maintenance and repair is another pressing need for old people. A sizable number of the aged live in the same house to which they came as a bride or groom decades ago, and in which they raised a family. Many such homes are in a bad state of repair. Repair cost is a factor, to be sure, but finding someone to do the work is even more difficult. It has been recommended that a skill bank comprised of the aged who can still work some, be established.

Income is a critical problem with a segment of the aged, Brown pointed out. "It is not enough to enable people merely to remain in their own homes, but each individual should be able to live a full and meaningful life. Loneliness and a feeling of uselessness are considered to be serious problems among older people and are thought to contribute to physical and mental deterioration in some cases. If an old person can find something useful to do he will usually feel better about himself and his environment," Brown said.

The Governor's Council on Aging has provided leadership throughout the state in connection with the White House Conference on Aging, including speak-out forums which afforded the elderly a chance to speak their minds, in meetings held in 17 multi-county regions, a state White House Conference in Raleigh and an orientation meeting for state delegates who participated in the National Conference.

While the Council has statewide responsibility for planning and coordinating action programs, a plan is being implemented to place a planner on aging in each of the 17 multi-county planning regions in order to strengthen local councils where they exist and provide organizational leadership where they do not exist. Brown said services to the aged must be delivered at the community level and local councils on aging are needed there to assist in developing and utilizing these services.
Boasting an R. N. degree, six months of advanced medical training, plus six months of clinical experience, the family nurse practitioner is a budding health professional charting a new course in providing better and more accessible health care to the people in North Carolina — mostly in rural areas.

The shortage of doctors, overcrowed and under-staffed clinics lend a certain urgency to this intermediate health care concept developed by nurses and physicians at the Schools of Nursing, Medicine and Public Health at UNC. “The program should go a long way toward bridging the gap between other medical supportive personnel and the physician,” says Dr. Lucy Conant, dean of the UNC School of Nursing. She cautions people, however, not to expect miracles overnight, although she agrees that the program appears to be a step in the right direction.

The Family Nurse Practitioner Committee at UNC defines the role of the family nurse practitioner in definite terms:

“She is a practitioner who is prepared to make independent judgments and to assume principle responsibility for primary health care of individuals and families in organized services. She assumes major professional responsibility for decision-making in relation to health needs. She works closely with doctors and other members of the health team in the delivery of health services to individuals and families.”

Does the advanced training and experience make the family nurse practitioner a specialist? “A lot of nurses working in doctors’ offices and in public health are doing some of the things practitioners are trained for, but it is not part of the nurse education program,” Dean Conant stated. “It is done out of necessity. A principle part of the nurse practitioner program is to prepare people to perform professionally within the framework of their official designated activities and ultimately to establish the concept as policy.”

At the end of the training program, a family nurse practitioner is expected to be able to:

- identify the health status (illness-wellness) of the individual by taking a health history, doing an appropriate physical examination and initiating appropriate preventive, screening, and diagnostic procedures;
- assume responsibility for the management of health problem(s) of the individual with appropriate in-
The family nurse practitioner — she might well be called a mid-doctor. This type intermediate health care is expected to go a long way toward bridging the gap in the delivery of health care services to areas where it’s needed most.

- assume responsibility for on-going health maintenance and clinical management of stable chronically ill patients;
- identify the need for continuity of care for individuals and families and coordinate the health care needs with appropriate interpretation, consultation and referral;
- provide relevant health instruction, counselling and guidance to individuals and families;
- relate individual and family health problems to the community; identify emerging health problems; help to initiate appropriate intervention through community action.

What type of nurse is the ideal candidate for the family nurse practitioner program? "We are looking for a nurse with experience who has the interest and motivation and preferably one who has been working in a setting where she has been making decisions and assuming responsibility," Dr. Conant said.

For the present, admission to the program is limited to registered nurses in North Carolina who have an arrangement with a hospital, doctor, a group of doctors or an organized health service such as an ambulatory patient care facility or health center where there is interest and commitment by both medical and nursing practitioners to the family nurse practitioner concept.

The first class, a pilot group of seven, graduated last year. Another group of 12 graduated in March. Dean Conant expects the program to grow, "how fast, I don’t know. It depends upon a lot of factors. We think it is going to be a useful program, and certainly there is a need for better health care in this state. We think this will help."

April, 1972
Tucked away in an isolated section of Jackson and Swain Counties in Western North Carolina, a tribe of 8,000 Cherokee Indians live among the mountains that have been their home since before European explorers discovered the New World.

For the Cherokees, the coming of the white man brought death and destruction to what was once a proud Indian nation. In 1835, a treaty between the U. S. government and a minor group of Cherokees provided for relocating the entire tribe in the west, even though the majority of the Indians wished to remain in their native land. Finally in 1838, the unwilling Cherokees were moved to Oklahoma on a forced march along the “Trail of Tears,” so called because over 4,000 of the 17,000 Indians who started the trip perished during the journey.

The Eastern Band of Cherokee Indians now living in North Carolina are the descendants of Indians who hid in remote coves of the Great Smokey Mountains to escape the march. Today, 5,000 Cherokees live on the Qualla Boundary, a 57,000 acre, tribal-owned preserve bought and paid for by the Cherokees and held in trust for them by the federal government.

One of the biggest problems the Cherokees faced over the years was maintaining their health in the isolated, rural mountain setting. Their plight has been complicated by low incomes and lack of education which thwarted efforts to elevate their living conditions. Poor sanitation often led to epidemics of typhoid and a high incidence of worms in children.

Historically the tribal medicine man looked after the health of his people. Even today there are two medicine men on the preserve who give advice and herbal remedies to clients as far away as Tennessee.

Officially, the health of the Cherokees was the responsibility of the Department of the Interior until 1955 when the U.S. Public Health Service took over. Observers of the health and sanitation situation that existed then and now say the progress made in the last 17 years has been phenomenal.

The health of the Cherokees was not ignored prior to 1955. In 1934 a 25-bed Cherokee Indian Hospital was built in the town of Cherokee which provided basic health care in cooperation with nearby local health departments. So seldom did the Cherokees use the health facilities in the beginning that one doctor met the demand for medical services. There was little emphasis on health and sanitation education and there were many cases
Mrs. S. G. Williams holds her daughters Cynthia and Selina as they wait apprehensively for a shot during immunization clinic in the Indian Health Station.

of tuberculosis, syphilis, diabetes, and intestinal parasites, such as roundworm and whipworm.

According to Dr. William Moorfield, U.S. Public Health Service medical officer who was assigned to the preserve in 1970 by the government, there has been a drastic change in the attitudes of many Cherokees regarding the state of their health. "The number of patients seeking services is overflowing our facilities. We see between 80 and 90 patients every day in our outpatient clinics. As a result of efforts of the Public Health Service, much success has been achieved in making the Cherokees aware of their health problems. Tuberculosis and syphilis are no longer problems here, and the incidence of roundworms in Cherokee children has dropped from close to 90 percent to nine percent," he said.

"Diabetes is a major health problem among the Cherokees. Of the total population over 40 years of age, almost half have diabetes. We don't know exactly why the number is so high, but diabetes is common among all Indians. The disease tends to run in families and the Indian's fondness for high carbohydrate diets compounds the problem.

"We hold a diabetes clinic every other Thursday which provides instruction in proper diet and self care, especially care of the extremities which are particularly vulnerable to the disease. We do not offer a screening program because it would not be practical. However, in families that have known cases of diabetes, we are able to catch it early because of their awareness that the disease can cause serious complications if allowed to persist," Moorfield pointed out.

Other frequent health problems in adult Cherokees are gallbladder
diseases and atherosclerosis (hardening of the arteries). The leading cause of death, however, is automobile accidents, homicides or self-inflicted wounds. “These deaths are usually tied in with an alcohol problem found primarily among young males. The problem is not one of social drinking or chronic alcoholism, but “spree drinking,” which stems mostly from not having many recreational opportunities around here,” he said.

Major health problems in pre-school children are dental cavities primarily as a result of poor oral hygiene, and otitis media (ear infections) which can lead to deafness if untreated.

Health services are provided free to any Cherokee Indian listed on the tribal roll. While eligibility is not affected by income, approximately 80 percent of the Cherokee families earn less than $3,000 a year.

In addition to daily general outpatient and biweekly diabetic clinics, the U.S. Public Health Service holds biweekly well-baby clinics and a weekly prenatal clinic. “Cherokee women have learned the value of prenatal care. Cherokees today have a lower infant and maternal mortality rate than other American Indians,” Moorfield commented. There is also a daily dental clinic, monthly eye clinic, monthly orthopedic clinic in Bryson City (about 10 miles from Cherokee), and immunizations are available at the Indian Health Station across the street from the hospital. A pharmacy, located in the Indian Health Station, dispenses prescribed drugs at no charge to patients.

The Indian Hospital handles cases involving obstetrics, internal medicine, pediatrics, psychiatry and some minor surgery. Services beyond the scope of the hospital are contracted out to specialists or the hospital in Bryson City. The health services staff consists of three full-time physicians, a hospital nursing staff of 16, one full-time dentist and two dental assistants, and a public health nurse and her assistant.

Environmental Health

Noteworthy progress has also been made in the area of environmental health. According to Edmund Youngbird, U.S. Public Health Service sanitarian technician, in 1956, 60 of the 606 existing homes on the preserve had a safe water supply as opposed to 905 of 1099 homes in 1972. Only 75 had adequate sewage disposal (septic tanks) then as opposed to 905 now. Nearly all homes now have some type of toilet facility.

“The increase in the number of homes with sanitary toilet facilities and sewage disposal is due primarily to federal money made available through the Indian Sanitation Facilities Bill, enacted by the 1961 session of Congress,” Youngbird said. “We expect to continue this program about five more years. We will never have 100 percent of the homes equipped with sanitary facilities because the people are reluctant to change. Many of the Cherokees are suspicious because of prior promises made to them but not kept, and some, especially the old, simply do not trust
Funds available from federal and tribal housing projects have made it possible for many Cherokee families to build new homes or improve old ones. On the left is an Indian home typical of many which used to be found on the preserve. At right, a Mutual Help Home (sponsored by the Qualla Housing Authority) will soon be ready for occupants next door to move into.

non-Indians.

"On the whole, younger Indians are more receptive to maintaining sanitary conditions, but we can't change their culture. Housekeeping is a case in point. We have seen people move into a newly built home, having been taught how to clean the house and keep out roaches. We would go back a few weeks later and the house would be filthy," he said.

All businesses on the preserve, mostly motels and restaurants, along with 162 dwellings, have municipal water and sewage. "Our water supply is from mountain streams, and it is good and constant. We have no need for a filtering plant and the only treatment necessary is chlorination. We do add fluoride, however, Most families not on municipal water are served by a spring and reservoir system. Water samples are taken from each spring at least once a year and sent to the State Board of Health Laboratory in Raleigh for testing," he said.

Youngbird and other health leaders on the preserve are particularly proud of the solid waste program which provides regular trash pickup even in the most remote coves. The program reaches 80 percent of the homes on the preserve. Waste is dumped at a sanitary landfill on the preserve.

Inspection of the motels and restaurants leased and operated by the Cherokees is carried out by sanitarians from the Jackson-Macon-Swain District Health Department. The 1971 N.C. General Assembly appropriated $10,000 providing a full-time sanitary to work with the Cherokees' growing tourist facilities, including the fast-growing campground sites.

Through the input of federal funds and the efforts of men like Youngbird and Moorfield, the Cherokees' historically bleak health picture is rapidly brightening.
New Brushing Twist Advances Dental Health

A new dimension has been added in preventive dentistry by a young dentist at the UNC Dental School in Chapel Hill.

Dr. Steve Jacobson, a graduate student studying periodontics, recently completed a study which demonstrated that by including the tongue and palate in the brushing routine, plaque-causing microorganisms and the oral debris that they harbor may be reduced by 40 percent.

Plaque is a soft, slimy substance that causes tooth decay and gum disease. It builds up when germs normally rendered harmless by saliva attach themselves to the teeth in colonies. The colony gives off acid which eats away at teeth and gums causing cavities, gum disease and bad breath. This complex, metabolically interconnected, highly organized bacterial system is the arch foe of oral health. It takes 24 hours for plaque to build up in sufficient quantities to be damaging. After that the colony is sealed to the neutralizing effect of saliva. If allowed to go unattended, it will grow into hardened deposits of tartar.

Inflammation can be cured by cleaning the teeth of plaque which is the irritating agent. Localized gum inflammation, if allowed to continue untreated, will work its way down into the ligaments which connect the tooth to the bony socket. It will eventually attack the bone that surrounds the teeth and dissolve it. Abscesses will form; teeth will loosen and fall out. In order to stop the process, a dentist must recognize the condition in the early stages — symptoms often do not appear until it's too late.

Throughout recorded history man has tried different techniques to keep his teeth and mouth clean. Once, the main emphasis for using anything inside the mouth was to shine the teeth and keep the breath fresh. The toothpick, the first utensil used for oral hygiene, was used by the Babylonians as early as 3500 B.C. It was fashioned from a twig or splinter and used to dislodge food particles which became impacted around the teeth. Time and events brought the chewstick, a tasty twig frayed at the end by chewing. The teachings of Mohammed included detailed instructions regarding the proper grasp and stepwise application of the chewstick. In 1500 B.C. the Chinese invented the toothbrush (as we know it today) which had natural hoghair bristles at right angles to the handle. In 1788 dental floss was invented in England.

With the advent of microbiology in the 1700's, followed by the invention of the microscope, actual samples of debris from the teeth could be examined microscopically. Certain
Levels of debris shown in the tubes above demonstrate differences in volumes of sediment harvested during controlled and experimental trials of two representative groups of subjects. In each set of tubes the one on the left contains lesser amounts of debris collected following tongue and palate brushing.

types of wiggling bugs were correlated with different degrees of irritation around gum tissue. Thus, periodontal disease was identified.

It is now known that gum tissue around teeth reacts to the presence of plaque by becoming inflamed. The tissue gets puffy, red and subsequently the gums begin to bleed. It is not known exactly what initiates the inflammatory reaction. There is, however, a relationship between the presence of plaque around the teeth and gum tissue. Investigations have proven that by removing plaque, inflammation reverses itself in the early stages of periodontal disease and the tissue becomes firm and healthy again.

The basic means of controlling plaque is by mechanical therapy — removing debris from the surface of the teeth. This is accomplished normally with a toothbrush and dental floss. It is vital to use dental floss with brushing because the brush can only clean the outside, tongue-side and biting surfaces of the teeth. In order to reach the area between the teeth dental floss has to be applied. Plaque can be controlled by correctly flossing and brushing on a daily basis.

In reviewing literature for his thesis, Dr. Jacobson found many studies documenting the fact that dead cells found in saliva and in newly formed plaque originated from the tongue, palate and inside the cheeks. He reasoned that an objective study which included brushing the roof of
The N. C. State Board of Health held its regular quarterly meeting March 23, 1972, in the Cooper Memorial Building in Raleigh, and took the following action on rules and regulations:

1. Passed regulations governing the sale of pet turtles.
2. Passed rules and regulations governing N. C. Controlled Substances Act (injurious drugs) Chapter 90, Article 5.
   A. Passed amendments rescheduling the following drugs from Schedule 2 to 3 (Chapter 90, Article 5):
      - Amphetamine; its salts and isomers
      - Phenmetrazine and its salts
      - Any substance except injectionable liquid which contains methamphetamine and its salts and isomers
      - Methylphenidate
   B. Passed amendment to exclude from Schedule 2 (Chapter 90, Article 5), the entire Article 5, the drug naloxone hydrochloride.
3. Passed amendment to summer camp regulations.
4. Passed rules and regulations governing certificate of need for construction or addition to health facilities, including procedure for public hearings.

Copies of the above rules and regulations may be obtained by submitting a request to the N. C. State Board of Health, Raleigh.

The subjects were equally divided into two groups. One group brushed as usual; the other included the tongue and palate in their brushing procedure. The type of toothbrush, toothpaste, as well as the time of day and the length of time for each brushing was controlled by Dr. Jacobson. In two weeks the groups switched. At the end of each phase, the subjects' mouths were thoroughly rinsed with a water pressure irrigation device and the residue centrifuged. Accumulated debris of the two groups were compared. Each time the mouths of the tongue and palate group were found to be 40 percent cleaner. The study also showed that total plaque accumulation was significantly less when each group brushed the tongue and palate.

Dr. Jacobson concluded from the study that (1) brushing the tongue and palate markedly reduces oral debris; (2) reduction of oral debris as a result of tongue and palate brushing retards initial plaque formation and total plaque accumulation; (3) brushing the tongue and palate contributes to overall mouth cleanliness and is a valuable aid to recommended care of the mouth.
State Of North Carolina Vital Statistics Summary

<table>
<thead>
<tr>
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<th>January 1972</th>
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<tr>
<td>Deaths</td>
<td>4109</td>
<td>4414</td>
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<tr>
<td>Infant Deaths [under 1 year]</td>
<td>211</td>
<td>208</td>
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<tr>
<td>Fetal Deaths [stillbirths]</td>
<td>144</td>
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<td>Marriages</td>
<td>2834</td>
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<td>Divorces and Annulments</td>
<td>1095</td>
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Deaths from Selected Causes

- Diseases of the heart [all forms]: 1547, 1598
- Cancer [total]: 551, 603
- Cancer of trachea, bronchus and lung: 123, 130
- Cerebrovascular disease [includes stroke]: 442, 564
- Accidents: 289, 323
  - Motor vehicle: 140, 186
  - All other: 149, 137
- Diseases of early infancy: 114, 104
- Influenza and pneumonia: 147, 186
- Bronchitis, emphysema and asthma: 65, 81
- Arteriosclerosis [hardening of arteries]: 71, 63
- Hypertension [high blood pressure]: 21, 18
- Diabetes: 74, 99
- Suicide: 49, 48
- Homicide: 41, 60
- Cirrhosis of liver: 47, 68
- Tuberculosis, all forms: 8, 11
- Nephritis and nephrosis [certain kidney diseases]: 31, 35
- Infections of kidney: 32, 19
- Enteritis and other diarrheal diseases [stomach and bowel inflammations]: 7, 6
- Ulcer of stomach and duodenum: 10, 10
- Complications of pregnancy and childbirth: 4, 2
- Congenital malformations: 41, 47
- Infectious hepatitis: 2, 2
- All other causes: 486, 467

Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.
"My cholesterol is lower than anybody's in the house!"
On the Cover

Each year at the Durham County Health Department, over 20,000 tests for glaucoma are conducted as part of multiphasic screening examinations for chronic disease. Here, Mrs. Margaret McCotter, R. N., prepares a patient for the simple, painless glaucoma test. The Durham County Health Department, which has the third highest per capita local health expenditure in the state, also offers 20 other regularly scheduled clinics.
Pesticide Overuse Condemned

By
W. A. "Bill" Williams
Pesticide Epidemiologist

U. S. population 1970, 2-3 million. U. S. production of synthetic organic pesticides 1970, 1,060 million pounds. Five pounds plus per capita! Pesticides — substances used to kill insects, weeds, algae, nematodes, and other destructive forms of life. Pesticides — poisons which kill non-target organisms including man and contaminate the environment when used improperly. Since synthetic pesticides were first produced in the late 1940's over 900 basic compounds have evolved. These are formulated into over 60,000 federally registered brand name products. They are used widely by farmers, industry, governmental agencies and by people in their own homes and gardens. Pesticides are essential to our modern way of life. Production of ample food and fiber as well as control of disease vectors depend heavily on their use. But do we need to use them in such huge quantities? If pesticides were used only when detrimental pests were present and in accordance with label directions, the total quantity used would be reduced drastically. Recent "scouting" programs in certain crops in North Carolina have shown that when pesticides are applied when the need for them is demonstrated rather than by the calendar, at least a 90 percent decrease in their usage was reported without decreasing crop production. The theory that "if one pound is good — two pounds is double good" simply should not apply in pesticides usage.

May, 1972
THE HEALTH BULLETIN
More children will be vaccinated against measles and rubella in North Carolina during the current fiscal year than in any other state in the nation, according to John Irvin, coordinator for the N. C. State Board of Health Immunization Program.

"By the end of May we expect to have immunized close to 500,000 children in campaigns in 80 counties," Irvin said. "This means we will have reached approximately one-half of the children between ages one and 12 in one of the most massive public health campaigns ever launched in North Carolina."

The immunization effort got into full swing last fall. With the cooperation of county health departments and school officials across the state, weekday vaccination programs have been held in public, parochial and private schools, day-care centers, kindergartens and nurseries. Sunday immunization programs were aimed at preschool children.

The immunization campaign came about primarily as a result of a law enacted by the 1971 General Assembly which added red measles to the list of immunizations required by age two and before admission to school.

When a child catches measles he is agonizingly sick, as any parent knows who has seen his child burn for days with high fever. And, according to Dr. J. N. MacCormack, head of the Communicable Disease Section of the State Board of Health, there is no effective treatment for measles once it is caught — the disease must run its course.

One of the worst measles cases Dr. MacCormack recalls involved a bright nine-year-old girl from rural North Carolina. "She had previously come to an immunization clinic with her sister, but was not vaccinated because her mother reported the child had had measles. As it turned out, the mother was wrong, and the little girl caught measles soon afterwards. Her condition quickly worsened and soon she went into a coma due to encephalitis (brain fever) and remained in the hospital for two weeks. When she was finally well of measles she was left with partial paralysis, bladder control problems and brain damage," Dr. MacCormack said.

In addition to encephalitis, Dr. MacCormack said other potential complications are middle ear infection which can lead to loss of hearing, and measles pneumonia, which may kill.

Dr. MacCormack also pointed out that studies with a matched control group of first graders in New York and Connecticut revealed that children with so-called uncomplicated measles scored significantly lower on learning
John Irvin, head of the N. C. State Board of Health Immunization Program, aims at one-half million measles shots by June 1, 1972.

readiness tests than the children who had not had measles.

In contrast to red measles, the child who catches rubella (German measles) may not feel sick at all. But if his pregnant mother catches it early in her pregnancy, the baby may be born dead or with multiple defects, including blindness, deafness, or mental retardation.

While North Carolina has not had an epidemic of rubella since 1964, the disease has surfaced often enough to be listed as the cause for medically terminating pregnancies in at least 93 women from mid-1967 through 1971. “These women underwent tests which revealed that they had indeed caught rubella during early pregnancy and each made her own decision in light of the probability that the baby would be born with congenital defects,” Dr. MacCormack explained. Prior to May 19, 1971, when the reporting of abortions became mandatory, notification of the State Board of Health was done on a voluntary basis. Dr. MacCormack suspects there were even more abortions related to rubella. “These figures mainly point up the fact that even though we are not in an epidemic of rubella, the disease is a threat and needs to be wiped out,” he said.

Irvin cautioned that the purpose of a mass campaign is to serve as a catch-up tool for quick immunization of the unvaccinated population. “We cannot over-emphasize the importance of an on-going immunization program by family physicians and during regularly scheduled public health clinics. Mass campaigns will miss some children and new children are always being added to the population,” he said.

“Progress is rapidly being made toward eliminating both measles and rubella in the state,” Irvin concluded.

May, 1972
THE HEALTH BULLETIN 5
For the safety of your ears, some things are meant to be seen, not heard. For example, you start the fan over the stove to clear the kitchen of odors. You scrape the dinner leftovers into the garbage disposal and turn it on. You stack dishes in the electric dishwasher and flip the switch.

At this point, tests show the noise level in your kitchen is probably about 85 decibels, or even higher if the equipment is more than five years old.

A decibel is a unit for measuring the loudness of sound. Normal conversation at five feet is 70 decibels. A moderately loud radio or television set at 10 feet is about 85 decibels. Drop some bones into the garbage disposal and the noise level will soar to about 100 decibels.

Even lower intensities of sound — 75 decibel ranges and up — can distract and fatigue those who hear them. This is more likely when the sound is intermittent and unexpected, as so many household noises are. Tension, ulcers and states of anxiety, headaches and allergies are all aggravated by noise. Noise can not only cause real damage to hearing but can also affect blood pressure, the heart, and eventually every bodily function.

The implications for safety in the home are obvious. Someone who is distracted, fatigued or tense is much more likely to have an accident than someone who is alert, energetic and composed.

Today’s home has many more units of whirring, grinding, humming equipment than ever before. The average house seems to grow noisier every year, and noise itself can grow easily into a hazard.

The noise of slammed doors and pounding water pipes has been with us for a long time. But added to this are the nerve-shattering sounds from dishwashers, washing machines, blenders, televisions, radios, vacuum cleaners, electric razors, hair dryers, carving knives, and on and on.

According to John Lumsden, chief of the Occupational Health Program of the N. C. State Board of Health, safe noise levels for industry have been set at 90 decibels (A-scale) by recent
... teenagers are blasting their eardrums into old age.

federal regulations. He pointed out that constant noise above this level is considered to be high enough to cause permanent hearing loss over the course of a working lifetime. "The majority of manufacturing plants in North Carolina have noise levels in areas in excess of the legal standard 90 decibels," he said.

He praised North Carolina industry however, for its concern during recent years over noise levels. "An honest effort is being made to shield workers from damaging noise levels by furnishing them with earmuffs for short-range protection and designing controls into machines for long-range noise control."

According to some researchers, many teenagers are blasting their eardrums into old age. Scientists recently checked the sound level in front of a bandstand. It measured 120 decibels — the same as a Saturn 5 missile blastoff at Cape Kennedy.

What can be done about too much noise at home? Quite a lot.

Use linoleum or resilient tile on hard floors. Use thick rugs with a heavy cushion beneath them. Use drapes and overstuffed furniture to hold down reverberations that magnify noise. Use rubber, felt or flexible metal weather stripping on the bottom of doors.

Keep plumbing in good repair to avoid the pounding and whining that come with high water pressure, defects in pipes and fixtures and poor design.

Choose your household appliances with an ear to their quietness and avoid as much as possible having several noisemakers going at the same time.

When you look for an apartment or house, always investigate its noise potential. Do airplanes fly low in the vicinity? Any fire signals or sirens nearby? Check the construction. Sound waves strike thin walls, causing them to transmit sound like the earpiece of a telephone.

If despite every control, sound becomes unbearable, then buy some good earplugs. They can be a great help, especially when noise levels in homes are beginning to approach those in factories.
Public health has been defined as the "art and science of preventing disease, prolonging life and promoting physical and mental efficiency through organized community effort." (C. E. A. Wilson)

The Durham County Health Department is a prime example of how organized community effort has combined to build one of the most progressive and extensive public health programs in the state.

Established March, 1913, by the N. C. General Assembly, the Durham County Health Department was one of the first four health departments in existence in the state. With a budget of $6,500 and a staff of one, the fledgling health department faced the task of preventing deaths from communicable disease epidemics that periodically ravaged the city during that period of time. Along with blunting the spread of such dread diseases as diphtheria, typhoid fever and smallpox, the most critical initial problem was creating a sanitary environment.

Today, the Durham County Health Department has a budget of close to $1 million and a per capita local health expenditure of $4.78, the third highest in the state. A staff of 100 conduct public health control programs in air pollution, family planning and multiphasic screening for chronic disease.

According to Dr. O. L. Ader, who joined the Durham County Health Department in 1944 and was appointed health director in 1958, constant growth and expansion of services have characterized the health department since its creation. He attributes this to a public health conscious and cooperative Board of County Commissioners. "They have taken advantage of any matching money available and have consistently supported public health," he said.

While the commissioners have provided financial and public backing for the health department, Dr. Ader has provided notable administrative leadership in both controlling existing health problems and expanding and creating new programs.

When the Davidson County native came to Durham, the biggest public health problem facing the county was a tremendous number of venereal disease cases. "The health department was treating up to 2,000 new cases of syphilis a week prior to the opening of the Rapid Treatment Center in Durham in Nov., 1943, by the U. S. Public Health Service," Dr. Ader said. "Our case load was composed primarily of patients with late syphilis and those that had advanced to the
The Durham County Health Department cooperates with the Duke School of Nursing in providing senior nursing students with three month's field experience in public health. Here, Dr. O. L. Ader discusses a case with Duke nursing student Kathy McCormick of Pittsburg, Pa.

point of involving the central nervous system or the heart. Advanced cases often necessitated up to five years of treatment, and our VD clinic required the full-time services of six nurses and four doctors, several clerks and laboratory workers."

The Durham County Health Department was the first county health department in North Carolina to use penicillin in the treatment of gonorrhea. Dr. Ader said this occurred because, "We were close to the Rapid Treatment Center which sponsored the program and provided the penicillin for gonorrhea treatment."

Although Durham County has consistently been an innovator in the area of VD, Dr. Ader says one of his most personally satisfying accomplishments was the decision of City Council to fluoridate the city water supply in 1962. "It has been proven that in cities with fluoridated water supplies, dental decay is reduced roughly by two-thirds. Eliminating dental cavities in children is important because if a child has poor teeth, he may lie awake all night from the pain and not feel well or be alert in school the next day. He is also prevented from eating proper foods because his teeth are rotten, and abscessed teeth in children can be linked to the later arthritic crippling of adults," Dr. Ader said.

Dr. Ader reports that over 66,000 visits were made to the various clinics in the Health Department in 1971. These visits were made by 30,000
different individuals, or nearly one-fourth of the county residents.

The Health Department holds over 20 clinics on a regular basis, including VD clinic, screening clinics for chest diseases, diabetes, glaucoma, and cancer as well as prenatal, well-baby, family planning, and immunization clinics.

Dr. Ader pointed out that as communicable diseases came under control in the 1930's, public health personnel moved into other areas of responsibility, particularly in the area of maternal and child health and chronic disease screening. However, a great deal of attention is still being focused on VD and tuberculosis, which Dr. Ader said are the most pressing health problems currently facing Durham County.

"We are now participating in special federal programs to deal with TB and VD," Dr. Ader explained. "Even though TB has not been wiped out, we have done a considerable job toward controlling the disease. The number of active TB cases has been gradually declining, but we still find approximately 32 new cases a year. However, we know the disease is under better control because fewer people are being exposed to infectious or 'open' cases. This was pointed up in studies conducted in a junior high school in a highly populated neighborhood in 1949 and again in 1969 and in 1970. In 1949, of the 200 ninth graders who were given an intradermal tuberculin skin test (a method which reveals exposure but not necessarily the presence of the disease), 21.4 percent had positive reactions. In 1969, the reactor rate had dropped to 3.3 percent and in 1970, to 1.8 percent," Dr. Ader noted.

Based on 1970 figures, the rate for new TB cases is slightly higher in Durham County (24.9 per 100,000 population) than for the state as a whole (23.7 per 100,000 population). Dr. Ader attributes this relatively high level to two contributing factors — Durham's population is one-third black (TB tends to occur more frequently in blacks) and the urban nature of the area which leads to closer personal contact and greater chances for contamination.

"We are giving the tuberculin skin test to all persons under age 21 who come into the chest clinic. If it is positive, we do follow-up investigations hoping to locate the active TB case to which the person was exposed," Dr. Ader commented.

For the last five years, the city of Durham has been listed among the top five cities in the United States in number of reported gonorrhea cases. Dr. Ader cites as a probable reason the fact that they are finding more cases because "The VD clinic is open every day and is easily accessible and we have an active, well-trained staff to treat and follow up cases. In contrast, our syphilis rate is much below that of cities of the same size and race composition — Durham ranked 46th in 1970."

To help solve the gonorrhea epidemic, Durham County is par-
Each year, approximately 30,000 people register for health services at this desk in the health department. Dr. Ader noted that the health department provides services for nearly one-fourth of the Durham County residents.

ticipating in a 21-month, $70,000 federal gonorrhea control program (the first of its kind to be conducted in North Carolina). The purpose of the program is to encourage the routine examination of all patients for gonorrheal infection, even if they have no symptoms. "We have solicited the cooperation of all local physicians and clinics in finding and reporting gonorrhea cases," Dr. Ader said.

The health department is also active in family planning. Dr. Ader stated that this program enrolled over 5,000 or 85 percent of the estimated number of low-income women in the county since 1964. "The family planning program has been successful, and we think it is answering a particular need for these women. We estimate that about 300 unwanted births are prevented each year as a result of information and birth control devices furnished by our clinics," Dr. Ader said.

Just as public health was initially established to deal with sanitation, the various environmental problems of modern society are the responsibility of local health departments.

Durham was the second county in the state to begin a local air pollution control program. Since this program began in 1965, the air pollution in Durham has been reduced 50 percent. The city now ranks near the top among larger North Carolina cities in clean air. Dr. Ader and his environmental staff attribute the decrease to urban renewal and the cooperation of industry.

From its early days of fighting epidemics, the Durham County Health Department has earned the reputation of taking whatever steps necessary to improve the health of its people.

May, 1972

THE HEALTH BULLETIN
Summer is a pleasant time of the year, but it has its own group of health hazards. Heat strokes, heat exhaustion, thunder storms, snake and insect bites, sunburn, allergies, drownings, water-borne and farm accidents are some of the mishaps that can mar an otherwise delightful season of the year.

According to Dr. Edwin L. Boyette of Chinquapin, who served for many years as the chairman of the Rural Health Committee of the Medical Society of North Carolina, in order to avoid heat strokes and heat exhaustion it is important to maintain an adequate intake of fluids and salt. “Use common sense and don’t get too hot while working or enjoying recreational activities,” Dr. Boyette advised.

“Whether working in the fields or playing golf a person invites trouble if he should remain on farm equipment or take cover under a single tree during an electrical storm. You can lessen the hazard of being struck by lightning by taking proper cover immediately,” he said.

Stinging and biting insects cause a particular problem in summer. The biting insects are mosquitoes, ticks, red bugs, yellow flies, horse flies and a host of others. Mosquitoes abound particularly in the eastern part of North Carolina. A certain variety apparently carries sleeping sickness from horses to man. Houses should be screened and breeding places destroyed.

Dr. Boyette noted that stinging insects, such as bees, wasps and hornets, kill more people than snake and spider bites combined. “People who have experienced a severe reaction from a bee or wasp sting, or those who have a history of breaking out with hives and getting very sick, should see a doctor when stung,” he said.

It is not uncommon in North Carolina to become infected with Rocky Mountain Spotted Fever from tick bites. When you come from the woods, or other cultivated land areas, take a bath immediately. Examine the body carefully and get rid of ticks as quickly as possible.

Dr. Boyette revealed that North Carolina has two varieties of extremely poisonous spiders. “The Black Widow can be identified by a red spot. The other, the Brown Recluse, can be identified by a back that resembles a violin. It also has long legs that appear out of proportion to the rest of the body,” he said.
The general practitioner warned people not to expose hands or body to dark, cool places which might house a Black Widow web. Old out houses, tobacco barn flues and piles of wood are favorite nesting places. In the event of a Black Widow bite see a doctor as quickly as possible. Good treatment is available.

Dr. Boyette disclosed that 90 percent of all reported accidental poisoning cases involve children under five years of age. "Children in this age group are in the learning stage. They learn by exploring their environment. What they see, they try to reach; what they reach, they put in their mouths. They are completely dependent upon adults for protection. Poisonous materials are used more frequently in the summer in the form of insect sprays, combustible materials for starting cook-out fires, turpentine, paints, solvents and many other poisonous items used in cleaning. These materials should be kept under lock and key," he said.

The ominous sound of a rattlesnake strikes terror in the hearts of the most fearless of men. Dr. Boyette said those bitten by a poisonous snake should make some attempt at first aid and then see a doctor. Whiskey is not a good remedy for a snake bite.

Spring and summer have been called the sneezing seasons. If a known plant or weed is bothersome to a hay fever sufferer, destroy it. The country doctor warned that sensitive individuals should be wary of poison oak and poison ivy. "A quick soap and water bath will sometimes prevent a reaction. Your doctor also has appropriate medications available," Dr. Boyette said.

The summer tanning process should be carried out gradually — a little exposure each day. Small children should not be allowed to blister — especially at the beach. Large areas can burn rapidly and result in a very sick child.

Dr. Boyette allowed that swimming and boating accidents can be controlled to a great degree by teaching everyone to swim. "If you go for a boat ride or play in a farm pond you should know how to swim. A long pole and an inner tube secured to a long rope can be the means by which hundreds of potential drowning victims can be rescued each year."

Summer can be a fun time for everyone. It can also be a time of senseless tragedy.
Lawn Mower Safety Tips

Every year hundreds of people in North Carolina receive lacerations, punctures, amputations and fractures while engaged in the operation of power lawn mowers. They lose feet, toes, fingers, hands and eyes. A power lawn mower is a dangerous machine and should be operated with great care.

To avoid accidents, put these safe-mowing practices to work:

- Check mower for cracks, loose nuts or bolts and parts that need replacing.
- Fill the tank before you start so that you won't have to do it during mowing... when the engine is hot! Leave space for expansion. The heat of the sun can cause gasoline to expand.
- Clear away stones, sticks, rocks, wire, etc. on the lawn. Place large objects, such as sand boxes, tricycles and swings where you won't step back and trip over them.
- Don't wear ill-fitting or loose clothing. It can get caught in the machine. Wear sturdy shoes, preferably steel-toed safety shoes. Never mow in sandals or bare feet. Wear safety glasses for eye protection.
- Keep children and pets away from the mowing area.
- Do not let children start or operate the mower.

- Do not use electrically powered mowers when grass is wet or when it's raining unless you're sure the motor and power cord are in perfect condition and the motor is properly grounded.
- Stand firm when starting the mower. Keep feet well away from the blade. Set the machine on a flat surface so that it will not tip or roll.

Correction: Board Action

In the April issue of The Health Bulletin, the following error occurred:

“The N. C. Board of Health held its regular quarterly meeting March 23, 1972, in the Cooper Memorial Building in Raleigh, and took the following action on rules and regulations:
Adopted rules and regulations governing the N. C. Controlled Substances Act (injurious drugs) Chapter 90, Article 5.
A. Adopted amendments to the Act rescheduling the following drugs, which should have read — from Schedule III to II (instead of Schedule II to III) Chapter 90, Article 5:
• Amphetamine; its salts and isomers
• Phenmetrazine and its salts
• Any substance except injectionable liquid which contains methamphetamine and its salts and isomers
• Methylphenidate

Copies of the above rules and regulations may be obtained by submitting a request to the N. C. State Board of Health, Raleigh.”

All other portions of Board Action appearing on page 14 were correct.
## State Of North Carolina Vital Statistics Summary

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<th>Year to Date</th>
<th>February</th>
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<td><strong>Infant Deaths [under 1 year]</strong></td>
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<tr>
<td><strong>Fetal Deaths [stillbirths]</strong></td>
<td>215</td>
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### Deaths from Selected Causes

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<tr>
<th>Cause</th>
<th>Year to Date</th>
<th>February</th>
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<tbody>
<tr>
<td>Diseases of the heart [all forms]</td>
<td>3,167</td>
<td>1,569</td>
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<tr>
<td>Cancer [total]</td>
<td>1,200</td>
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<tr>
<td>Cancer of trachea, bronchus and lung</td>
<td>232</td>
<td>102</td>
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<tr>
<td>Cerebrovascular disease [includes stroke]</td>
<td>1,073</td>
<td>509</td>
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<tr>
<td>Accidents</td>
<td>559</td>
<td>236</td>
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<tr>
<td>Motor vehicle</td>
<td>301</td>
<td>115</td>
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<tr>
<td>All other</td>
<td>258</td>
<td>121</td>
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<tr>
<td>Diseases of early infancy</td>
<td>197</td>
<td>93</td>
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<tr>
<td>Influenza and pneumonia</td>
<td>517</td>
<td>331</td>
</tr>
<tr>
<td>Bronchitis, emphysema and asthma</td>
<td>162</td>
<td>81</td>
</tr>
<tr>
<td>Arteriosclerosis [hardening of arteries]</td>
<td>127</td>
<td>64</td>
</tr>
<tr>
<td>Hypertension [high blood pressure]</td>
<td>36</td>
<td>18</td>
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<tr>
<td>Diabetes</td>
<td>184</td>
<td>85</td>
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<tr>
<td>Suicide</td>
<td>88</td>
<td>40</td>
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<tr>
<td>Homicide</td>
<td>119</td>
<td>59</td>
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<tr>
<td>Cirrhosis of liver</td>
<td>129</td>
<td>61</td>
</tr>
<tr>
<td>Tuberculosis, all forms</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>Nephritis and nephrosis [certain kidney diseases]</td>
<td>57</td>
<td>22</td>
</tr>
<tr>
<td>Infections of kidney</td>
<td>44</td>
<td>25</td>
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<tr>
<td>Enteritis and other diarrheal diseases</td>
<td></td>
<td></td>
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<tr>
<td>[stomach and bowel inflammations]</td>
<td>15</td>
<td>9</td>
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<tr>
<td>Ulcer of stomach and duodenum</td>
<td>29</td>
<td>19</td>
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<tr>
<td>Complications of pregnancy and childbirth</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Congenital malformations</td>
<td>94</td>
<td>47</td>
</tr>
<tr>
<td>Infectious hepatitis</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>All other causes</td>
<td>957</td>
<td>490</td>
</tr>
</tbody>
</table>

Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.

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May, 1972

THE HEALTH BULLETIN
"Mr. Poindexter, I'm sick and tired of your not responding to treatment!"

If you do NOT wish to continue receiving The Health Bulletin, please check here and return this page to the Health Bulletin.
The Health Bulletin

The Official Publication of The North Carolina State Board of Health
In 1971, the New Hanover County Health Department provided over 82,000 services to county residents, including immunizations, chest X-rays, and nursing visits to patients’ homes. Here, Dr. J. C. Knox, county health director, advises Mrs. E. T. Craig about immunizations she must have before she can go abroad. The department also offers amputee, diabetes, eye, orthopedic, and crippled children clinics in cooperation with the New Hanover Memorial Hospital.
Today's health problems cannot be solved by health professionals alone. We need businessmen, politicians, and consumers to tell us their needs, their priorities, how to get support for our services, and how to make our services acceptable to our patients. Thousands of citizens are contributing to the health of their communities by serving on boards, advisory committees, task forces, and as volunteers. If the citizens are to join with the health professionals in the solution of community health problems, we need to make this a more productive partnership. Do we need broader representation on our boards and advisory committees? Do we select people who have a genuine interest in the problems we face? Do they know what is expected of them when they agree to become a volunteer — a member of a board or committee? What kind of orientation are they given to this new task? Do we recognize the knowledge and skills they bring to us? Do we encourage and provide opportunities for active participation in discussion and decision-making? Learning to work together is an educational process for health professionals and citizens. We must learn to listen as well as talk to one another. The more we learn to appreciate, respect, and trust one another, the more likely we are to provide the health services our communities need, want and use.
The 77-year-old woman was mending from a stroke when she fell and broke her hip. Three months in the hospital and one month in an intermediate care facility brought her face to face with the reality of — continued specialized nursing care.

Fortunately, the county health department provided home health services. Otherwise, the elderly patient would have spent months, maybe years, in a nursing home instead of convalescing in the comfort of her own home.

A home health agency is an organization which provides skilled nursing and other therapeutic services in the patient’s home.

The organizational structure under which home health services are provided is as varied as the number of agencies in existence. A county health department (public) may include home health services among its programs; a hospital (private) may do the same. Both have policies governing the services offered.

The 1971 General Assembly passed a home health agency licensure law requiring private agencies (profit or non-profit) to be licensed. A profit-making agency must be licensed in order to receive reimbursement from Medicare and Medicaid. There are 11 licensed agencies in North Carolina, and 23 operated by governmental agencies not subject to licensure. The 34 agencies offer home health services to about 60 per cent of the state’s population.

A home health agency must offer skilled nursing as a primary service. The agency may select the types and numbers of other services offered as long as at least one service is provided in addition to skilled nursing. Home health aide, occupational therapy, medical social services, speech therapy, physical therapy along with skilled nursing qualify an institution for payment under Medicaid and Medicare programs. There is, however, no limit to the types of services that may be offered by an agency.

Home health services play an important role in the spectrum of patient care. Hospitals, nursing homes, intermediate care facilities and homes for the aged are an integral part of the health care delivery system. Many patients do not need institutional care but do need some professional observation. Home health agencies provide this care in the home setting — at a much lower cost. A patient who needs a surgical dressing changed twice a week, routine physical therapy, or observation for adverse drug reaction can receive services in the home for a fee ranging from $8 to $15 per visit, compared to $35 to $100 per day hospital cost. Too, the home environment many times hastens recovery.

Home health services must be
Home nursing care can be invaluable to the patient confronted with the need for routine attention for a long period of time.

ordered by a physician along with a plan of treatment. The physician must review the plan on a routine basis. According to Ernest Phillips, chief of the Medicare-Medicaid Section of the N. C. State Board of Health, the physician plays a vital role in the service. He allowed, however, that a program of educating physicians to the importance of home health agencies in health care must be stepped up.

"Many physicians are enthusiastic over the service and refer as many patients as possible to the agencies, while others seldom use them."

The Medicare program (restricted to patients over 65) spurred development of formally organized home health agencies in North Carolina. Prior to 1966 and Medicare there was no program that paid for home visits. Medicaid (restricted to certain economic groups) aids patients of all ages.

Phillips said Medicare and Medicaid payments will not totally support the cost of operating an agency. He pointed out that there is an initial tool-up period where some funds have to be provided to underwrite the cost and many county health departments, for example, don't have the money. In the private sector there are few people who are willing to risk money in the hopes that such a service will develop into a profit-making venture.

Home health agencies appear to have established their potential for bridging the gap between expensive institutional health care and less expensive care delivered in the home setting for convalescing patients. All that remains is for interested citizens to make home health services a reality wherever they are needed. For the aged who are infirmed and infants of poverty-stricken parents, it offers hope with minimum financial obligation.
Dr. Koomen Lauds Family Planning Programs

In his report to a joint meeting of the N. C. State Board of Health and the Medical Society of the State of North Carolina held in Pinehurst last month, Dr. Jacob Koomen, state health director, discussed planned parenthood. "Because of the growing concern over population control, it is appropriate to seriously consider this matter, and to share a public health perspective on the limitations of births with the medical profession," Koomen stated.

"Although birth control may be regarded from several points of view," Dr. Koomen said, "the most personal, and perhaps of the greatest concern to the medical practitioner, is that of the individual." He reflected on the thoughts of Dr. C.-E. A. Winslow, a noted public health writer during the 1930's. "The mother able to bear children should have adequate prenatal care; the mother able to bear children should have competent obstetrical care; and the woman who is unable to bear children should be protected against the hazards of childbirth." Koomen said conception control for health reasons has today been liberalized and extended to recognize one of the most basic of human rights — that of determining the number and timing of one's own children.

The public health official said the consequences of a large number of children in a household of limited means are well known to public health and social workers, as well as the family doctor. He again referred to the writings of Dr. Winslow: "The new child itself is one of the chief sufferers in the family that grows too fast for its economic resources. We owe it to future generations that children should not be born into families unable to provide homes for them sufficient to ensure minimum physical and mental health."

Dr. Koomen pointed out that the population for the United States by the year 2000 has been projected by some to be over 322 million. North Carolina can be expected to reach the seven million mark. North Carolina, he revealed, has historically shown a substantially higher birth rate than the national average.

Dr. Koomen cited the writings of Dr. Norman E. Himes, author of the book — A Medical History of Contraception — which stated: "Man's attempts to control the increase in his numbers reach so far into the dim past that it is impossible to discern their real origin. Some forms of limitation on the rate of increase are undoubtedly as old as the life history of man. Sadly, the major means for
population control up until modern times were infanticide and abortion. Although the sheath was known for some time, it was largely used for the prevention of venereal disease."

"Coupled with the lack of readily available technology were the constraints limiting the prescriptions and procedures relative to contraception," Dr. Koomen said. "In North Carolina, physicians and public health workers, as well as the public, have been fortunate in being free of restrictive legislation. Today, we enjoy a relatively liberal climate of opinion regarding contraception."

Dr. Koomen pointed to North Carolina's leadership in developing a statewide, public, planned parenthood program. "The first contraception clinic in the state was established privately in 1922. The first state-administered contraception clinic in the United States was established in North Carolina in 1937. As early as 1932 the North Carolina Conference for Social Services had endorsed such a movement, followed by the North Carolina Federation of Women's Clubs. Practicing physicians have always been in the forefront. "Since the beginning public contraceptive services in North Carolina have grown. Today, all 100 counties offer some type of family planning service. In 1970, 31,764 patients were served by county health departments. An additional 5,497 were served by OEO-sponsored projects, while three special projects funded by the National Center for Family Planning Services saw 4,328. Thus, public programs ministered to 41,589 persons. With a major increase in Federal financial support the state's contraceptive services will continue to expand. The Medical Society of the State of North Carolina has reiterated its support of the program."

Dr. Koomen reflected that through the years doctors were too busy keeping mothers and babies alive to be concerned with over-population. "Even the risk of defective children was no justification for fetal destruction. Now, the medical profession must look with equal concern to the quality of life and the impact of an increasing number of lives upon our ability to remain viable as a society. In this light the question of unrestricted abortion will continue to vex us."
Public Health In New Hanover County

For close to 100 years, maintaining public health in New Hanover County has meant a constant struggle against health menaces spawned by its river and coastal environment.

First, with a bustling port (Wilmington) for a county seat, the area was exposed to diseases brought in by sailors from foreign harbors. Then there was the curse of malaria spread by mosquitoes which flourished in marshes and swamplands.

New Hanover County is situated along a narrow triangle of land between the Cape Fear River and the Atlantic Ocean. At its widest point the county measures only about 20 miles. A short distance south of Kure Beach, the Cape Fear and Atlantic Ocean meet to form the tip of the triangle.

Although it is the second smallest county in land area, New Hanover ranks fourth in population density per square mile. Wilmington, the state's largest port, is located about 30 miles upriver.

At one time, Wilmington was known as a "sailor's graveyard" with disease running unchecked. Epidemics of typhoid, scarlet fever and diphtheria took their toll. A particularly severe seige of yellow fever struck in 1878.

The next year community leaders established a county health board to deal with future epidemics and the people's health in general.

One of the board's first actions was to protect the population against another bout with yellow fever by enforcing a strict quarantine of all ships arriving from the West Indies and South America. (At the time, yellow fever was believed to be carried aboard ships.)

In 1881 a sanitation program was set up to collect garbage. A city health board was set up in 1895 which recommended draining all ponds and low places in the city to lessen the danger of malaria.

In 1913 the N. C. General Assembly passed legislation combining the functions of the county and city health boards and created the New Hanover County Consolidated Board of Health. The action made the New Hanover Health Department one of the oldest in the state.

Over the years prevention of malaria taxed facilities and the ingenuity of New Hanover health officials. According to Dr. J. C. Knox, health director for the past three years, an active program of mosquito
Mina Ferguson, technician in the New Hanover County Health Department laboratory, tests blood serum samples for blood sugar, a test used in diagnosing diabetes. The laboratory conducts most of the tests needed by the health department and examines milk samples for nine nearby counties.

control has successfully met the challenge.

"In the last 15 to 20 years, we have not seen any malaria except the imported variety brought in by military personnel," he said. Dr. Knox attributes the prevention of malaria to an active program of drainage, and application of pesticides and larvicides. "Our environmentalists are able to control the reproduction of malaria mosquitoes by being knowledgeable of their habitat and breeding habits," he noted.

Three people work full-time on mosquito control. During summer months, extra help is hired to spray for mosquitoes. Dragline operators keep an extensive system of drainage canals open and free of debris year-round.

Overgrown canals and still water offer an ideal place for the malaria mosquito to lay her eggs.

Dr. Knox said that while malaria has the potential to be a problem again if constant control is not maintained, the greatest public health problem currently facing the county is the disposal of sewage. "Because of the high water table (about 12 inches below the ground) and poor soil absorption, we are running out of land suitable for septic tanks. We are having to turn down requests for new building sites as a result," he added.

Package treatment plants at one time provided an answer to the problem for subdivisions and small communities. But this method is no longer favored by the Board of Water
and Air Resources. Dr. Knox said the effluent (residue of treated sewage) from a package treatment plant must have ground capable of accepting it. "As narrow as our county is, effluent will either run into the Atlantic Ocean or the river. Because of the necessity for maintaining suitable environment for shellfish production, it is necessary that strict sanitation measures be adhered to in order to prevent pollution of the ocean. And because certain nutrients in the effluent may cause increased growth of plant life in rivers and streams, draining it to the river is also discouraged."

Dr. Knox said one solution is to establish a central water and sewage system along with a county-wide method of collection. "The city will soon have two modern sewage treatment plants in operation, both built with expansion capabilities to eventually handle larger volumes of waste. However, before such a system can become operational, city and county governments must come to an agreement that this is the most workable solution to a complex problem. In the meantime, we are having to refuse more and more requests for building in areas not connected to city sewage," Dr. Knox said.

A problem which does have a solution in sight is that of the physical facilities of the New Hanover County Health Department. Program and clinic needs have outgrown available space. The Board of County Commissioners recently approved construction of a new health department building, but no target date has been set for completion.

Dr. Knox pointed out that "People tend to associate malnutrition with the eastern part of the state." He indicated that reports of malnutrition in eastern North Carolina are exaggerated. "The people are not starving unless they have a malabsorption condition. In fact, they are often overweight. Some people may be malnourished but they are not starving. On my way to work, it is not unusual to pass a child eating a soft drink and cake for breakfast. If we had a nutritionist on our staff, people could be taught to spend their money for nourishing foods. Give a child a choice and he will drink a soft drink instead of milk," Dr. Knox said. He noted that for two years the health department has been trying without success to find a qualified nutritionist. "Providing money without qualified personnel will not solve problems," Dr. Knox stated.

The staff of the department is composed of 65 nurses, environmentalists, lab technicians and clerical personnel. A full-time dentist and dental assistant provide dental care for school children. Dr. Knox is the only physician on the staff, but local pediatricians and several retired specialists cooperate in conducting clinics.

"The health department serves most of the county's population in some way, either through sanitation programs or personal health services. What services we offer are available to any county resident without question concerning means," Dr. Knox said.
Through a continuing program of drainage, application of pesticides and larvicides, the New Hanover County Health Department attempts to keep the coastal county's mosquito problem under control. Here a dragline is used to clear a drainage ditch of debris and overgrowth.

In 1971 the New Hanover County Health Department provided over 82,000 services to county residents. These included immunization clinics, chest X-rays and maternity services (pre and postnatal and family planning). Nursing visits accounted for approximately 25 per cent of the services. The health department has provided visiting nurse service to the community since 1918.

In addition to holding about 10 regularly scheduled clinics at the headquarters building downtown, the New Hanover Health Department provides nursing staff and some clerical assistance for six clinics held at New Hanover Memorial Hospital. These include amputee, diabetes, eye, orthopedic and crippled children, and speech and hearing clinics. The department also sponsors several satellite nursing clinics in housing projects for the convenience of patients.

According to Dr. Knox, several housing projects provide special units for the aged. The health department holds four "health maintenance medical clinics" a month for elderly residents, in conjunction with the New Hanover and Wilmington Services for the Aged, part of the Governor's Coordinating Council on Aging.

An illustrious past history notwithstanding, the New Hanover County Health Department will continue to provide residents of the county with all the health services its resources will allow.
New Hope For Stroke Victims

Early and intensive rehabilitative treatment not only can increase the stroke patient's chances of survival but also, in many cases, can hasten his return to usefulness.

This has been proven over the past three years by the unique Comprehensive Stroke Program now operating in 19 North Carolina counties. They are Ashe, Alleghany, Surry, Caldwell, Alexander, McDowell, Burke, Catawba, Stanly, Montgomery, Moore, Hoke, Scotland, Cumberland, Vance, Halifax, Edgecombe, Pamlico and Craven.

Sponsored by the North Carolina Regional Medical Program and headquartered in Winston-Salem, the program is directed by Dr. B. Lionel Truscott, professor of neurology at the Bowman Gray School of Medicine.

The Comprehensive Stroke Program is the only one of its kind in the United States. It was initiated in 1968 on the premise that "an improvement in the quality and accessibility of care for stroke patients can be achieved immediately, realistically and economically by the coordination, training and more effective use of existing health manpower and resources."

North Carolina appeared to be an appropriate place to test the theory inasmuch as the state ranks third in the nation in the incidence of and mortality from stroke. At the same time the state ranks low in its number of health workers — 38th in number of nurses and 36th in number of physicians.

The health manpower problem is compounded by the fact that 50 per cent of the state's physicians are located in areas serving 25 per cent of the population. Moreover, 60 of the state's 100 counties have no physical therapists and 14 counties have no hospitals.

It was recognized that the majority of individuals who experience stroke receive their primary care in small community hospitals of less than 200 beds and that these hospitals, usually located in rural or semi-rural areas, often do not have the personnel or the equipment to offer the sustained excellence of treatment possible in urban hospitals.

It was for these reasons that the Comprehensive Stroke Program was designed especially to cover areas where there are not large medical facilities.

After the program was organized and the guidelines for training and treatment were developed, the mammoth job of training hospital personnel to serve as effective members of the local stroke teams was undertaken. Since the start of the program more than 2,500 physicians, registered nurses, public health nurses,
Dr. B. Lionel Truscott indicates one of the locations where the Comprehensive Stroke Program is active. The program is not operating in the 19 North Carolina counties outlined on the map. Dr. Truscott, director of the Comprehensive Stroke Program, is a professor of neurology at the Bowman Gray School of Medicine.

LPNs, aides and orderlies have been trained to perform in this capacity. The first hospitals joined the program in the spring of 1969 and a few hospitals have been added each year. Public health agencies in each of the 19 counties are active in the program.

During the past three years, more than 600 stroke patients have been treated under the guidelines of the program.

When a stroke patient is admitted to one of the participating hospitals, he receives a thorough clinical evaluation, laboratory evaluation and immediate rehabilitative treatment. This treatment is designed to minimize complications, reduce contractures and to help the patient regain use of his limbs.

By the third week, the patient normally is ready to leave the hospital. "Whatever else needs to be done can be done at home," Dr. Truscott said.

"Discharge planning" begins as soon as the patient has passed the critical phase of his illness. The public health nurse goes to the patient's home to counsel the family and to supervise...
preparation of the home for the comfort of the patient. She makes sure that scatter rugs and other obstacles have been removed and arranges for ramps to be built if they are needed. A social services representative advises the family of possible sources of financial aid if help with mounting bills is needed. She also provides assistance in the rental or purchase of such items as crutches, cane, walker, etc.

Members of the family are given training in how to care for the patient and how to continue rehabilitative treatment.

The patient's progress is evaluated through careful follow-up after he leaves the hospital: What is his functional capacity? Does he have detectable weakness? Will he require rehospitalization? Will he be able to return to employment?

The Comprehensive Stroke Program has proved how stroke care can be improved through the coordination of available health resources, the training of existing personnel, the establishment of acceptable standards of stroke care and the promotion of total patient management.

Dr. Truscott believes his program will be influential in the continued improvement of stroke care in hospitals over the state.

Each year stroke hits approximately 20,000 North Carolinians, 6,000 of whom do not survive. This gloomy picture could be changed through the efforts of the Comprehensive Stroke Program.

Hallmarks of the program are intensive treatment, begun as soon as the patient is admitted to the hospital, and continuing care of the patient after he leaves the hospital. Benefits, resulting from this approach, were indicated by a survey of stroke patients at 21 participating hospitals and 13 nursing homes, before and after the development of the Comprehensive Stroke Program:

• Decrease in mortality. Prior to the establishment of the program, 30 percent of stroke patients admitted to the participating hospitals died within the first month and 40 percent died within six months. Deaths of stroke patients admitted to these hospitals now have been reduced to 15 percent during the first month after onset of illness and 20 percent during the first six months.

• Fewer in-hospital complications. The most common complications affecting stroke patients are pneumonia, bedsores, contractures and urinary tract infections. The treatment schedule of the Comprehensive Stroke Program has brought about a significant reduction in both the number and severity of these complications.

• Shorter hospital stay. Patients treated under the guidelines of the stroke program were able to leave the hospital four days sooner. They required an average of 19 days in the hospital as opposed to 23 days for patients not on the program.

• Reduction in hospital charges. As a result of the shorter hospital stay, patients in the stroke program were able to save up to $240 on their hospital bill.
## State Of North Carolina Vital Statistics Summary

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<th>Category</th>
<th>March 1972</th>
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<tr>
<td>Births</td>
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<td>Deaths</td>
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<td>Divorces and Annulments</td>
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<td>4,007</td>
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### Deaths from Selected Causes

- **Diseases of the heart [all forms]**: 1,461 / 4,628
- **Cancer [total]**: 572 / 1,772
  - Cancer of trachea, bronchus and lung: 130 / 362
- **Cerebrovascular disease [includes stroke]**: 544 / 1,617
- **Accidents**
  - Motor vehicle: 177 / 478
  - All other: 152 / 410
- **Diseases of early infancy**: 99 / 296
- **Influenza and pneumonia**: 191 / 708
- **Bronchitis, emphysema and asthma**: 51 / 213
- **Arteriosclerosis [hardening of arteries]**: 66 / 193
- **Hypertension [high blood pressure]**: 17 / 53
- **Diabetes**: 87 / 271
- **Suicide**: 48 / 136
- **Homicide**: 46 / 165
- **Cirrhosis of liver**: 55 / 184
- **Tuberculosis, all forms**: 9 / 36
- **Nephritis and nephrosis [certain kidney diseases]**: 17 / 74
- **Infections of kidney**: 15 / 59
- **Enteritis and other diarrheal diseases**
  - [stomach and bowel inflammations]: 7 / 22
- **Ulcer of stomach and duodenum**: 13 / 42
- **Complications of pregnancy and childbirth**: — / 4
- **Congenital malformations**: 41 / 135
- **Infectious hepatitis**: 1 / 3
- **All other causes**: 424 / 1,381

Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.

June, 1972

THE HEALTH BULLETIN 15
"We had sex education today."
IN THIS ISSUE

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On the Cover

One activity of the Wake County Health Department is an extensive milk sanitation program which involves various laboratory tests to insure high quality milk. A bacteria count will be determined from the samples pictured. In addition to milk sanitation, the health department conducts programs in family planning, health education and venereal disease, immunization, diabetes and pediatric supervisory clinics.

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Impairment of drivers from chronic medical problems, other than alcoholism, is believed by researchers to be a contributing factor in 15 percent to 25 percent of crashes. Driving under the influence of intoxicating liquor has been established nationally as a factor in approximately 50 percent of traffic fatalities. The Driver Medical Evaluation Program operating as a joint program between the State Medical Society, the Department of Motor Vehicles and the State Board of Health, provides a system for evaluating those drivers and driver license applicants whom the driver licensing agency has reason to believe have mental or physical conditions which might impair their driving ability. The program reviewed approximately 6300 cases in 1971. Of this total, 60 percent were allowed to continue driving with no restrictions and an additional 25 percent were allowed to continue driving with restrictions. The remaining 15 percent were found to have medical conditions which would seriously impair their ability to safely operate a motor vehicle. The program is structured to stimulate improved driver licensing with proper safeguards against licensing potentially dangerous drivers, on one hand, and needlessly removing the opportunity of the citizens to drive, on the other. Identifying the driver at risk medically and applying the proper restrictions to compensate for his physical or mental conditions continue to be problems of major proportions. Their ultimate solution will unquestionably reduce the traffic fatalities occurring on our streets and highways.
Train Allied Medical Person To Act Solely As Agent of Doctor

By
John Glasson, M.D.
President
N. C. Medical Society

In connection with the current nationwide discussions on the delivery of medical care, the importance of the use of allied medical care personnel in providing better access to medical care by the people of our state and nation has been emphasized and reemphasized.

This is by no means a new concept, for when one examines the delivery of medical care, certainly over the past 25 years one sees a widespread use of auxiliary medical care personnel both in the hospital and office setting.

More recently we have seen the development of programs for the training of newer types of allied health personnel, including physicians' associates, physicians' assistants, technicians in many specialty fields such as orthopedics, neurology, pediatrics, etc. We have in addition seen the development of new roles for nurses both in the scope and locale of their activity as nurses.

I have previously publicly supported the decreased administrative role for nurses and the increased role in patient care, but I should like to add my voice to those who sound a warning against the development of any roles in medical care which lead to second level of quality in medical care.

In measuring the attributes or shortcomings of the programs, it would seem wise to measure these ideas in health care delivery as to whether the proposal involves placing any person who has had less than maximum training both in time and in quality of his education in a role as an independently functioning practitioner.

This principle of measurement applies, in my opinion, across the full gamut of health care personnel from doctors right on through the multiple variety of allied health personnel now being trained in the various centers throughout the country.

We must constantly guard against loss of quality in our efforts to produce increased quantity by reducing beyond what should be an irreducible minimum, the period of time necessary to provide adequate high-quality education in a mature individual who is capable of accepting responsibility for life and death as a result of his own medical decisions.

It is worthy of note that the Institute of Medicine of the National Academy of Science is currently beginning a study of the multiple types of training and training schools which have
give only a vague idea of what the individual is capable of doing. A committee of the A.M.A. is now addressing itself to this problem.

There are those who feel that the generalist physicians' associate, possibly the product of a three or four year training program, must almost certainly operate in a semi-independent status in order to use his rather extensive training, whereas the physicians' assistant who is trained as a highly skilled technician in a much more limited field might well fit in better as a team person under the direction of a competent physician.

The Duke Physicians' Associate program has always emphasized the fact that the physicians' associate who graduates from that institution is trained to act solely as the agent of the doctor. It would seem worthy of note that as we continue to develop this concept of physicians' assistants in medical practice that we do not lose sight of this principle.

There can be no question but that access to medical care can be greatly improved and that the quality can remain high with maximum use of appropriate allied health personnel. Let us not delude ourselves, however, into expecting anyone with less training over a shorter period of time to deliver medical care of top quality on an independent basis. We can plan rationally for nothing but the best in quality of medical care, and experience seems to dictate that as the years roll by this top quality care will not be had at less cost regardless of what system of delivery is used.

blossomed forth in the production of allied health personnel. It would seem obvious that unless some order is arrived at in these programs that the training of allied health personnel in our large centers could conceivably dilute to an untoward degree the time available for the training of physicians.

The problem in the training of physicians' assistants and associates points up the need for guidelines for training this group of providers of medical care so that one has some idea of what the name really means. The initials P. A. as presently constituted...
Overbreathing Risky for Swimmers

By J. N. MacCormack, M.D.
N. C. State Board of Health

“Hyperventilation” is a medical term for overbreathing — breathing too rapidly and/or deeply. This activity produces changes in the body chemistry primarily because of “blowing off” too much carbon dioxide, and the individual who hyperventilates begins to notice light-headedness or giddiness, increased sweating, and may become unsteady on his feet. Various other symptoms may ensue — a feeling of pressure in the chest, palpitations, and a “pins and needles” sensation in the fingertips and around the mouth. If overbreathing is carried out for a long period of time there may actually be loss of consciousness or convulsions.

The “hyperventilation syndrome” is a nervous disorder which is usually associated with underlying anxiety of some type. The person who is frightened or upset often begins to hyperventilate without being consciously aware that he is doing so. When the symptoms listed above become apparent, the person often becomes more upset and hyperventilates even harder. A sensation of shortness of breath may also result in more vigorous overbreathing, thus making matters worse. These episodes are sometimes confused with asthma or heart disease, and it is usually very gratifying to the afflicted individual to learn the true nature of his symptoms.

Aside from the hyperventilation syndrome, deliberate overbreathing may represent a really serious threat to those who like to swim underwater. The swimmer who hyperventilates in order to improve his distance without having to come up for a breath is subjecting himself to the danger of losing consciousness in the water without any warning.

Dr. Albert B. Craig, Jr. of the University of Rochester School of Medicine and Dentistry interviewed several swimmers who had “blacked out” while attempting long-distance underwater swims after hyperventilating. Although in retrospect the swimmers usually recalled noting an urge to breathe, there was little or no warning that they might pass out. One of the cases was described by Dr. Craig as follows:

A 17-year old male swimmer had participated in a water polo game about 20 minutes before entering an underwater swimming contest. Before beginning he took 10 or 12 “very deep breaths” and for the first few feet underwater he felt “very dizzy.” He completed the first lap, 75 feet, and about halfway back “my mind went blank.” Spectators said that he con-
The underwater swimmer who hyperventilates himself in order to stay under longer is asking for trouble. When too much carbon dioxide is blown off in the process of overbreathing to take in more oxygen in order to stay underwater longer, the risk of possible loss of consciousness in the water and subsequent drowning is ever present.

continued to swim, completed the second lap, turned, and appeared to surface (about 160 feet). He then began to sink and was immediately pulled out. Artificial resuscitation was carried out for two or three minutes before spontaneous respirations were adequate.

One might reasonably ask why this phenomenon occurs. The answer lies in a consideration of the physiologic mechanisms responsible for the stimulus to take a breath: a high carbon dioxide concentration in the blood is a much stronger stimulus for breathing than is a low oxygen blood content. When an underwater swimmer hyperventilates, he does so to build up his oxygen concentration but inadvertently lowers his blood carbon dioxide concentration in the process. Then, as he swims holding his breath, his oxygen supply is used up faster than his carbon dioxide concentration can build up to the point necessary to strongly stimulate breathing. The end result is a lack of sufficient oxygen supply to the brain, and the individual loses consciousness.

It should be emphasized that Dr. Craig's study does not condemn the practice of underwater swimming. It does point out, however, the inherent dangers in hyperventilating before attempting long distance swimming without breathing.
North Carolina's birth rate reaches its lowest point ever. The illegitimate birth rate climbs. The marriage rate is stable. The divorce rate continues upward. Infant mortality is lower. The population increases.

Birth rate drops

In the N.C. State Board of Health 56th annual vital statistics report, it was noted that the birth rate was the lowest ever recorded in the history of the state. The birth rate was 18.6 resident births per 1,000 population in 1971 compared to 19.3 in 1970. The white rate was 17.0 and 23.9 for nonwhite.

Total number of births for the state in 1971 was 95,527 (67,220 white and 28,307 nonwhite). The percentage of live births attended by physicians in a hospital was 98.7 in 1971. The trend for hospital births has been steadily going up (91.0 in 1960 and 98.5 in 1970). Midwives and other non-physicians attended less than one percent of the 1971 live births.

A total of 12,271 illegitimate births were recorded in 1971. Of this number 2,316 were white and 9,955 were nonwhite.

The national birth rate continued to decline during the first three months of 1972, according to federal vital statistics. The rate is now lower than the Depression years and stands at the lowest level since full record keeping began in 1917.

Straight-line projection of North Carolina's population shows an increase to 5,147,797 in 1971 of which 1,183,238 were nonwhite. Between 1960 and 1970 the state's population grew by 526,000 persons. Out-migration for nonwhites continued high, whites netted an immigration of 97,950.

Divorce rate up

A total of 15,350 persons were divorced in North Carolina during 1971. During the year 48,971 marriages occurred. The state's marriage rate was 9.5 marriages per 1,000 population in 1971. The rate has increased progressively since marriage registration began in 1962. The North Carolina divorce rate was 3.0 divorces per 1,000 population in 1971. The divorce rate was 2.7 in 1970. The divorce rate for the United states was estimated at 3.5 in 1970. The North Carolina divorce rate accelerated after 1964 when one-year separations replaced two-year separations as ground for divorce. In the United States the divorce rate began rising in
ANNUAL BIRTH RATE: UNITED STATES
AND NORTH CAROLINA, 1960-1971


Death rate stable

A total of 44,829 North Carolina residents died in 1971. Of the total 32,905 were white and 11,924 nonwhite; 25,998 were male and 18,831 were female.

The state’s death rate amounted to 8.7 resident deaths per 1,000 population in 1971. Male deaths outnumbered female deaths by 38 percent. The death rate was 22 percent higher for nonwhites (10.1) than for whites (8.3). A nonwhite child 0-4 years of age was twice as likely to die as a white child of the same age. A nonwhite adult 25-44 years of age was three times as likely to die as a white adult in the same age group. Three out of five deaths to North Carolina residents occurred in a hospital.

Infant deaths lower

The report shows a reduction in the infant (deaths under one year of age) mortality rate of 30 percent since 1960. In 1971 the infant mortality rate was 22.0 deaths per 1,000 live births; 31.6 in 1960 and 24.1 in 1970. The perinatal rate (a combination of fetal and neonatal deaths) was 31.3 resident deaths per 1,000 deliveries in 1971. The fetal (stillbirths) mortality rate in 1971 was 15.5 deaths per 1,000 deliveries. The neonatal (under 28 days after birth) mortality rate was 16.0 per 1,000 live births, while the postneonatal (deaths 28 days to one year after birth) mortality rate continued its downward trend and was reported as 6.0 deaths per 1,000 neonatal survivors. A total of 3,604 fetal and infant deaths were reported in 1971.

July, 1972
THE HEALTH BULLETIN
If a child has not started to develop his potential and self-confidence by the time he reaches school age, prospects for exemplary results from the teaching process can be considerably dimmed in later life, according to Charles Wood, director of health education at Wake County Health Department. He said the first six years are the most crucial in a person's development.

The concept is encompassed in the main thrust of a new health education program called "primary prevention." This innovation in preventing social illness has been in effect in the Wake County Health Department since September. It is based on the theory that if you build a proper foundation and strong self-image in a child during the period from birth to six years of age and do it correctly, technically a person should be able to adjust to his environment in later life without relying on artificial supports such as drugs and alcohol.

The Wake County Health Department is employing the new program primarily in the area of drug abuse, control of venereal disease and family planning. "What we are trying to do is eliminate conditions in homes which spawn various illnesses — working on the theory of preventing rather than treating illness in an advanced stage," Wood said. "Rather than being crisis-oriented, the idea is to hit the disease before it fully develops."

In a long-range effort to prevent drug abuse, Wake County health educators try to teach mothers of infants and young children how to instill in the child a healthy concept of himself. "We attempt to teach the mother to give the child love, respect and encouragement and to help him develop conscience, self-discipline and proper attitudes. Research indicates that people with positive self-images have no need to use drugs to prop up their self-confidence," Wood said.

Prevention and control of venereal disease involves an active classroom and community approach, primarily through films and discussion groups. Wood estimates that the health department staff reaches around 5,000 people a year throughout the county with venereal disease prevention information. Because of its strategic location in the capital city, the Wake County Health Department has come to be looked upon as something of a central information center for venereal disease education. "Students from nearby colleges constantly seek information from us for term papers. Also, many requests for information
Charles Wood, director of health education at the Wake County Health Department, and his assistant, Judy Adams, examine a film for use in an upcoming venereal disease prevention program. Wood estimates that the health department staff reaches close to 5,000 people a year in the county with venereal disease prevention information.

come from areas outside the capital," Wood said.

Family planning education incorporates primary prevention concepts even before the birth of a child. The mental health of the family as well as the growth and development of each family member is directly related to whether a new baby is wanted or unplanned, Wood explained. The Health Education Department provides counseling for abortion candidates, expectant and new mothers. Health educators also work in county high schools, colleges and industries teaching birth control.

In addition to educational aspects of family planning, the Wake County Health Department has 7,000 participants enrolled in its clinical family planning program, one of the largest in the state. Participants are primarily from lower and middle income levels, with about 50 percent white and 50 percent black.

Dr. Christine Suberman, a recent graduate of the UNC School of Medicine, whose duties consist mostly of working with family planning, said the program has grown from 161 women enrolled in 1969 to the current figure, including approximately 1,000 college students. "This tremendous growth is due to an active recruiting program. Family planning is top priority with public health nurses in Wake County. They reach people in prenatal classes, well-baby and VD clinics and on college and high school campuses. Also, part of its success stems from the fact that the health department has never raised a barrier
as to who could participate, regardless of age, marital status or income level. The health department sponsors 17 family planning clinics a month, including six in outlying areas," Dr. Suberman said.

Other health programs include 12 VD clinics a month, a weekly eye clinic (sponsored by the Commission for the Blind), immunization clinics, nurse screening clinics, diabetic and pediatric supervisory clinics. Public health nurses hold 13 clinics in outlying areas of the county.

Director of the Wake County Health Department is Dr. Millard Bethel. He supervises a staff of 80, including 49 public health nurses. The department is located in a modern, two-story building. Under Dr. Bethel's leadership, the health budget has grown from $283,000 in 1963-64 when he first came to $839,000 in 1971-72. Of the total budget, $735,000 is local money with a per capita health expenditure of $3.22.

According to Dr. Bethel, the most pressing need in the Wake County Health Department is for more space. "The current building was built with plans for adding a third floor, but lack of parking facilities prohibits expansion at this time," he said.

Dr. Bethel favors dividing the state into about 25 to 30 regions in order to provide better quality public health service to small, rural counties as well as highly populated counties. "We need to get the state more involved in local health just as it is in highway building, school systems, etc., with the state providing material rather than minimal financial backing. This would result in more equitable public health because of the inability and occasional indisposition of small counties to fund programs," he said. Dr. Bethel also recommends that local boards of county commissioners share decision-making powers with the State Board of Health. "We don't need to remove local interest entirely. We can retain individual tailoring to local needs, while the state provides a firm guiding hand," he said.

One activity of the health department that affects every resident of the county is sanitation. Wake ranked second in the state (Cumberland was first) in the number of septic tanks installed in 1971, according to Mitchell Duke, acting director of the sanitation department. "Last year 1,200 septic tanks were installed. Some people think most of Wake County is connected to various city and municipal sewage systems, but this is incorrect. In fact, city sewage serves only 100 square miles out of a total 900 square miles in the county. Further complicating the problem for residents where city sewage is not available is the fact that soil in the county ranges from extremely good to extremely bad, with 20 to 25 percent of the land in the county severely limited in its capability to accept septic tank method of disposal," Duke commented.

To deal with waste disposal problems, the health department hired a soils scientist, Dr. Bill R. Smith, to evaluate soil characteristics at building sites. Wake is the only county to
employ a full-time soils scientist. "If tests indicate the soil is not satisfactory for septic tanks, we suggest the landowner acquire more land in order to have enough room for a workable system. Otherwise, we must refuse to issue septic tank permits. Last year we turned down septic tank requests for 400 lots," Smith said.

Another service of the Wake County Health Department is its leukocyte (white blood cell) counting project, part of a general milk sanitation program. The Wake County Health Department was the first in the state and among the first in the nation to conduct leukocyte testing. The program started four years before the U.S. Public Health Service Milk Code established leukocyte standards for Grade A milk in July, 1971.

A leukocyte is a white blood cell that helps defend cows as well as humans against overwhelming invasions of bacteria or other irritations. A high leukocyte count indicates tissue irritation or infection in the cow which may be due to improperly operated milking machines. A high count may also be caused by sudden noises the cow is not used to or from disturbances occurring around the milking area.

The leukocyte program began when Joe Quayle, a dairy scientist, joined the Wake County Health Department staff in 1967. According to Quayle counting the number of leukocytes in a sample of milk is the quickest and most accurate method to check milking procedures on dairy farms. "The cow may look and act healthy, but she could have an infection such as mastitis or an irritation related to such

Wake County's 49 public health nurses are involved in programs ranging from home health services to conducting well-baby clinics. Here a public health nurse weighs a young patient during a nurse screening clinic.
improper milking procedures as irregular pulsation or overmilking. This could cause a 20 percent reduction in the amount of milk the cow produces and a 20 percent reduction in its quality. A high leukocyte count alerts us to the presence of infection or irritation in a herd. By being aware of this, we can help the dairyman locate the problem and correct it enabling him to produce higher quality milk in larger quantities," Quayle said.

"Does a high leukocyte count make milk harmful to drink? Not as a rule, Quayle said. But he explained that in about two percent of the cases a high leukocyte count could be caused by staphylococcal infection. Drinking this milk could result in a severe gastrointestinal disturbance, with vomiting and diarrhea, he said.

"Each month we test raw milk samples from 130 dairies in a nine-county area, including 34 in Wake County. If a dairy's samples consistently show abnormal leukocyte counts, milk from the farm can be degraded and taken off the market in accordance with Milk Code guidelines. However, less than two percent of the tests we run show over 1.5 million count and we rarely have to take milk off the market for this reason," he said.

As the health department serving North Carolina's capital city, Wake County is occasionally cast in the role of model for the state. It can be justifiably proud to point to a program of quality public health services and display its leadership in health education, family planning and sanitation.
# State Of North Carolina Vital Statistics Summary

April 1972  |  Year to Date 1972
---|---
**Births**  |  6,805  |  29,745
**Deaths**  |  3,924  |  16,804
**Infant Deaths [under 1 year]**  |  184  |  795
**Fetal Deaths [stillbirths]**  |  102  |  441
**Marriages**  |  3,126  |  12,942
**Divorces and Annulments**  |  1,298  |  5,305

# Deaths from Selected Causes

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>April 1972</th>
<th>Year to Date 1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diseases of the heart [all forms]</td>
<td>1,370</td>
<td>5,998</td>
</tr>
<tr>
<td>Cancer [total]</td>
<td>610</td>
<td>2,382</td>
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<tr>
<td>Cancer of trachea, bronchus and lung</td>
<td>129</td>
<td>491</td>
</tr>
<tr>
<td>Cerebrovascular disease [includes stroke]</td>
<td>496</td>
<td>2,113</td>
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<tr>
<td>Accidents</td>
<td>291</td>
<td>1,179</td>
</tr>
<tr>
<td>Motor vehicle</td>
<td>161</td>
<td>639</td>
</tr>
<tr>
<td>All other</td>
<td>130</td>
<td>540</td>
</tr>
<tr>
<td>Diseases of early infancy</td>
<td>102</td>
<td>398</td>
</tr>
<tr>
<td>Influenza and pneumonia</td>
<td>118</td>
<td>826</td>
</tr>
<tr>
<td>Bronchitis, emphysema and asthma</td>
<td>61</td>
<td>274</td>
</tr>
<tr>
<td>Arteriosclerosis [hardening of arteries]</td>
<td>55</td>
<td>248</td>
</tr>
<tr>
<td>Hypertension [high blood pressure]</td>
<td>22</td>
<td>75</td>
</tr>
<tr>
<td>Diabetes</td>
<td>75</td>
<td>346</td>
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<tr>
<td>Suicide</td>
<td>51</td>
<td>187</td>
</tr>
<tr>
<td>Homicide</td>
<td>55</td>
<td>220</td>
</tr>
<tr>
<td>Cirrhosis of liver</td>
<td>53</td>
<td>237</td>
</tr>
<tr>
<td>Tuberculosis, all forms</td>
<td>16</td>
<td>52</td>
</tr>
<tr>
<td>Nephritis and nephrosis [certain kidney diseases]</td>
<td>23</td>
<td>97</td>
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<tr>
<td>Infections of kidney</td>
<td>20</td>
<td>79</td>
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<tr>
<td>Enteritis and other diarrheal diseases [stomach and bowel inflammations]</td>
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<td>29</td>
</tr>
<tr>
<td>Ulcer of stomach and duodenum</td>
<td>9</td>
<td>51</td>
</tr>
<tr>
<td>Complications of pregnancy and childbirth</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
<td>Congenital malformations</td>
<td>39</td>
<td>174</td>
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<tr>
<td>Infectious hepatitis</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>All other causes</td>
<td>448</td>
<td>1829</td>
</tr>
</tbody>
</table>

Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.
"Oh dear! It says these stop-smoking pills may be hazardous to your health."
On the Cover
The Cumberland County Health Department is one of five health departments in North Carolina which offers a neurology clinic. Here a patient undergoes an electroencephalogram (EEG), a test for measuring electrical output from the brain. Among other things, the test is used in diagnosing epilepsy, permanent brain damage or brain tumors. The health department also holds venereal disease clinics, prenatal, maternal, well-baby, family planning and chest X-ray clinics. The Cumberland County Health Department clinics serve approximately 50,000 people a year.
Sanitary engineers have received some criticism for recommending the use of the sanitary landfill as a solution to the solid waste disposal problem. An explanation of the facts behind the approach that has been accepted by governmental officials appears in order. Use of the sanitary landfill was considered appropriate since it was the method that was economically feasible and immediate implementation was possible. Public officials were aware that the method could be satisfactorily used until such time as new and innovative ideas might be developed. They were also familiar with the basic operational procedures involved in the sanitary landfill concept. The term “recycling” has become almost a household word with a major portion of the public having the opinion that all efforts should be concentrated toward recycling. The recycling of adaptable materials will require plans and equipment for proper separation and handling before this method will have an impact on the disposal problem. Recycling facilities will have to be assured of a continuous flow of materials in order to construct and design the necessary equipment for proper processing of specific types of wastes. Much progress has been made in the development of disposal facilities on a statewide basis utilizing the sanitary landfill concept. Municipal and county officials are to be congratulated for having assumed responsibility for the proper disposal of solid waste and for the joint utilization of facilities to eliminate duplication of effort and cost.
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Think Well Before Using

Space Necessary for Human Development?

On the Cover

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A task force on nutrition has recommended to Governor Scott that an office of food and nutrition be created to coordinate existing food programs. One of seven proposals proposed for battling malnutrition in the state, the group would place a food and nutrition office under the wing of the Department of Human Resources.

In a letter to task force chairman, Dr. Ronald H. Levine, N. C. State Board of Health, Governor Scott expressed support for the recommendations.

The task force was established by Governor Scott following release of findings of the North Carolina Nutrition Survey in July, 1971. The survey, carried out by the N. C. State Board of Health, exposed serious nutritional deficiencies among a surprisingly large number of North Carolinians. Twenty-seven percent of North Carolina households were found to be consuming a nutritionally inadequate diet.

Dr. Levine reported that the most serious problem uncovered by the task force was lack of coordination among state agencies concerned with food and nutrition programs. A central office of food and nutrition was recommended to serve as a focal point in "winning the battle against malnutrition." The office would be charged with coordinating current and future nutrition programs, initiating nutrition programs for young children, obtaining federal and private financial support to upgrade nutritional status of North Carolinians, and encouraging citizen concern for better nutrition.

The cost of implementing the recommendation is not known at this time, but Dr. Levine said the office could be set up within the Department of Human Resources without approval of the state legislature. "If additional funds are needed, we will have to go to the General Assembly for support," he added.

The task force noted two main "problem areas" related to dietary inadequacy — low income and a "profound lack" of nutrition knowledge among homemakers. The 1971 nutrition survey found that 43 percent of households with per capita income under $1,000 had inadequate diets, compared to 24 percent of those with per capita incomes over $2,000.

The majority of the task force's recommendations dealt with increasing purchasing power of low-income families. The task force recommended that public assistance
payments for families with dependent children be increased from 86 percent to 100 percent of certified need.

The report noted that many North Carolinians are not covered by minimum wage laws. The task force recommended that legislation be initiated to bring more job categories under the state minimum wage laws, including agricultural and part-time workers.

The nutrition survey pointed to a close relationship between low income, low educational levels and irregularity of employment. Almost 90,000 North Carolina citizens were unemployed at various times during 1971. Reports indicate that graduates of occupational education programs are more successful finding jobs than others in the same age group. Five months after graduation, about 95 percent of technically trained graduates were employed compared to 85 percent employment among the age group as a whole. Based on these findings, the task force recommended that funds be made available to expand occupational education programs throughout the state.

The 1971 survey showed that two-thirds of North Carolina homemakers were limited in their knowledge as to what comprises an adequate nutritional meal. To increase the homemaker’s nutritional knowledge, the task force recommended that funds be made available for hiring and training nutritionists to work in local health programs. The group also suggested that courses in nutrition be included in required preparation of elementary and appropriate secondary teachers, and that the Department of Public Instruction recognize nutrition courses as acceptable for teacher certificate renewal.

The task force learned that over 80 percent of children in North Carolina public schools took part in the school lunch program last year. This assured many children of at least one nutritionally adequate meal a day during the school year. Changes in federal laws regarding matching funds for the school lunch program require the state to supply additional money in order to continue the program. The task force recommended support of the necessary six percent state matching requirement in the 1973-75 biennium to continue the “very vital” national school lunch program in North Carolina.
Through an innovative maternal and child health nurse coordinating program, the Cumberland County Health Department is teaching maternity patients who are unable to pay medical costs proper methods of infant and self care and family planning. At the same time, the health department assures patients of continuing health care for themselves and their babies by setting up appointments for return clinic visits.

According to Kate Williamson, director of nursing at the health department, Cumberland County is one of few health departments in the state to employ a nurse who is stationed full-time in a hospital for the purpose of coordinating maternal and child health services for clinic patients. The maternal and child health coordinating nurse begins working with new mothers soon after delivery to make them aware of health services available in the community.

For the past several years Cumberland County has consistently ranked among the top three counties in North Carolina in the number of live births occurring each year. With the large number of births plus a high infant mortality rate among non-whites, Cumberland County had particular need for help in the area of maternal and infant care.

Local health officials, pediatricians and obstetricians recognized that maternity clinic patients were going home from the hospital with little knowledge of baby care, Mrs. Williamson said. All too often the new mothers did not realize the need for follow-up examinations for themselves or the baby. Such lack of continuity of care could result in a health problem for the mother and delayed detection of any abnormalities in the infant, which if discovered early, could often be prevented or cured.

The health department began the program in 1970. In addition to providing continuity of care between hospital, clinic and home for maternity patients, the coordinating nurse teaches two classes a day in baby care and family planning. Last year, close to 1,700 new mothers, private and public patients alike, attended the classes. Seventy-three percent of the mothers who received prenatal care through the maternity clinic are now bringing their babies to the pediatric clinic, an increase of 40 percent since 1970. Sixty-one percent of the mothers are coming back for postnatal
Teaching new mothers proper methods of infant care is one duty of the Cumberland County Health Department's maternal and child health coordinating nurse. There are, for instance, correct procedures for bathing a baby. Using a doll as a model the new mother learns to support the head and back while bathing. She also learns that it is important to have all supplies within easy reach so she will not have to relax support of baby during the process.

checkups and 61 percent are on birth control.

Another of the department's public health endeavors is a regional neurology clinic, one of five such clinics offered by North Carolina health departments. The neurology clinic is held once a month in cooperation with Duke University. Some 25 patients a month receive electroencephalogram (EEG) testing on referral from private physicians, crippled children clinics, development evaluation clinics, mental health clinics and nearby county health departments. An EEG which records brain waves is used in diagnosing epilepsy, permanent brain damage or brain tumors. The health department uses facilities and personnel of the Cape Fear Valley Hospital to conduct the tests. Results are interpreted by a Duke neurological team. When the EEG indicates abnormality, patients are usually sent to Duke Medical Center for observation and follow-up treatment.

In all, some 50,000 people a year take advantage of services provided by the Cumberland County Health Department. In addition to clinics already mentioned, the health department sponsors immunization, tuberculosis and venereal disease clinics.

Dr. Carl W. Hammer directs Cumberland County's public health efforts and supervises a staff of 72. The
present health department building was built in 1942. According to Dr. Hammer, clinic facilities are entirely inadequate even though larger clinics are held five miles away in space belonging to the hospital. "A new building is in the planning stage, but we expect it will be at least five years before the health department staff can move into a new facility," he said.

Dr. Hammer said the public health program that has given him greatest personal satisfaction has been providing clinic patients with family planning education and birth control devices. "When I first came to North Carolina in 1963, I was amazed at the number of women pregnant with their fifth child. I remember one woman who was expecting her 11th child. Now we see over 1,000 patients a year just in family planning clinics. Even though Cumberland County has a high birthrate, I have seen a marked reduction in the number of women having the third child. Those having over five children have about disappeared," he said.

Dr. Hammer pointed out that a public health problem of staggering proportions across the country is the gonorrhea epidemic. Cumberland County has not been spared and Dr. Hammer said he cannot even estimate how much gonorrhea exists there. "Having Fort Bragg nearby contributes to the problem. It is not a problem with older, more experienced troops. They know better. The problem is kids between 18 and 20 who are learning their lesson the hard way," Dr. Hammer said.

The health department is about to mount what Dr. Hammer called a "three-pronged attack" on gonorrhea, beginning around Sept. 1. "First we will try to determine the incidence of the disease in the population through tests conducted in family planning and maternity clinics. Then we will track down every case and get contacts. When a certain name pops up more than twice, the person will get special attention to determine if there is reinfection or mistreatment. We will also make a greater effort to assure that the females we treat are cured, not just treated," he explained.

Dr. Hammer said the biggest public health problem in Cumberland County involves water and sewage. Last year, 1,942 septic tanks were installed in Cumberland County, more than in any other county in the state. According to Lacy Williams, director of the department's Environmental Health Section, the septic tank problem exists because of the county's rapid growth in population. "So far this year we have averaged 250 septic tanks installed per month. Fortunately most of the county has sandy soil and a low water table which more readily absorbs residue from septic tanks. But over a period of time the ground will be contaminated at the rate which we are installing septic tanks," he said.

A solution appears to be in sight, however. In late 1971, Cumberland County Commissioners adopted a comprehensive countywide water and sewage plan. The plan involves cooperation between county and city government to expand sewage
collection and treatment systems to eventually include the entire county. Lacy said the countywide system became operational on a limited basis recently when the community of Hope Mills began pumping its sewage into the Fayetteville Public Works Commission treatment plant. County government will supply lines for the collection system and the city will provide sewage treatment. Lacy commented that the adoption of the Clean Water Bond Act last May should speed up implementation of the system.

The health department is proud of the county’s accomplishments in solid waste disposal, especially roadside dumping. Lacy estimates that within the past 19 months, Cumberland County has eliminated 75 percent of fresh roadside dumping. This reduction is due to cooperation among the health department, civic-minded county officials, and spirited teenagers who pitched in to wage a garbage cleanup campaign.

Residents of Cumberland County benefit in many ways from the varied services of their health department.

As a result of the mobile nature of personnel stationed at Fort Bragg, Cumberland County is dotted with trailer parks, and probably has more than any other county in the state. At the latest count there were 568 parks with a combined total of 5,567 spaces. Mushrooming mobile home parks in the county have increased the development of community water supply systems. County health department sanitarians maintain constant surveillance of mobile home park water systems to make sure there is an adequate supply of safe water for human consumption and other domestic uses.
A number of prescriptions given to patients by doctors are never taken to the drugstore to be filled, according to Claude U. Paoloni, Assistant Professor of Pharmacy, UNC-Chapel Hill.

Assume, however, that Jane Doe does have her prescription filled. What are the chances that she will take the drug as directed? Not good.

Paoloni said patients often fail to complete a prescribed drug dosage course. "The doctor's directions may call for three doses daily for six days. After two to three days, particularly if the patient is feeling better, medication may be stopped. The drug, therefore, cannot fulfill its intended purpose. Equally as alarming is the fact that drug leftovers are sometimes stored in the medicine cabinet for extended periods of time and often reused if symptoms appear — and this can be dangerous. Once an antibiotic has been dispensed in liquid form, its potency is influenced adversely to the extent that it may become completely ineffective."

The pharmacy professor urges his students to establish personal contact with persons presenting prescriptions once they begin their careers. He ventured that an explanation by the pharmacist concerning directions would increase to 70-80 percent the number of patients who would take medication as prescribed. Paoloni said such a relationship between pharmacist and patient could be beneficial in a number of areas in providing better health care.

Obviously, the doctor cannot follow each patient personally to see that he takes his medicine correctly. This is the patient's responsibility and he only shortchanges his own health by careless administration of prescribed drugs.

Paoloni called attention to the adverse effect of one drug on another if taken together. A patient, for instance, is given a commonly used antibiotic. He is also self-medicating daily with a popular over-the-counter antacid. The infection persists. "What happens here," Paoloni explained, "is that the antacid interacts with the antibiotic in such a way that the blood stream's ability to absorb and deliver the antibiotic to the intended area is seriously hampered."

Paoloni said some combinations of drugs, and even foods, can act adversely or cancel each other out when taken together. Some of the more tangy cheeses should not be eaten by patients who are on certain courses of drug therapy for high blood pressure or by persons on certain antidepressants used in the treatment of mental depression. Their interactions could prove fatal. Medical authorities
state that alcohol can be a frequent offender in interfering with the desired effects of prescribed drugs.

Physicians would do well to take the time to explain to the patient what drugs or foods may not be taken with prescriptions they issue, Paoloni suggested. This is often overlooked in the hurry of an office visit. He said the patient can do himself (and the physician) a favor by inquiring about this aspect of his care. “Here, again, the pharmacist should serve as a source of advice when he fills a prescription. He is an expert on drugs and their actions and should concern himself with the hazards of a particular drug whenever the occasion arises.”

Today’s society is often described as “drug oriented.” Television and other news media urge us to take a pill, powder or a teaspoon of this or that. Paoloni cautioned that all drugs are potentially dangerous when not taken as directed. Aspirin, for instance, cause many deaths each year among children who accidentally consume them when mother is not looking. Actually, drug reactions account for a sizable portion of hospital admissions.

Perhaps William Penn summed it up best in 1693 when he said, “The remedy often times proves worse than the disease.”
Most of us are aware that various creatures stake out a territory. The song of the mockingbird, the boundary-marking dog, the tree-clawing bear all announce: This is my territory; transgress at your peril. For many animals the territory is a temporary one, established during the mating period. For others, it is as permanent as the species can make it.

An established territory may be more than an area protected for purposes like mating or hunting, however. Space itself may be necessary for the development of a physically healthy animal and for the establishment of mutually satisfactory relationships with other animals.

Two dimensions of the space factor must be considered. The first is that of propinquity (nearness to others). Most animals seem to need and desire some degree of association with similar species for accomplishment of activities such as learning, companionship, security, and mutual attainment of goals. The inability of dogs to cope effectively with their environment if reared in isolation and the mutual security and service features of a baboon troop are evidences of the need for a close relationship.

But while space may serve a "closure" function, through associations, it may on the other hand serve an equally important "buffer" function as well, by freeing the animal from excessive association. There are many indications that lack of sufficient space (the amount needed varies from one species to another) may be detrimental to proper physical development and is potentially destructive.

Some of the first evidence of the "buffer" need came from wildlife biologists. Population cycles, rapid build-up followed by severe mortality, are documented in many species. Explanations typically have been based on starvation or disease as direct outcomes of increased numbers. In the absence of disease-causing pathogens, analysis of dead animals frequently reveals typical internal organic damage. An alternative explanation suggests that the physical damage was
It is potentially misleading at any time to project animal behavior upon humans?

A consequence of stress caused by overcrowding. Erratic behavior of the animals prior to death supports this explanation.

Laboratory experimentation tends to authenticate the stress factor. Animals subjected to extreme crowding frequently develop physical deterioration; in some cases they die. But of perhaps even greater importance is the fact that they may abandon their normal behaviors and engage in activities which are not only abnormal but actually destructive of the social fabric which provides the basic support for corportative and mutually rewarding activity. A famous experiment with rats, in which space is so arranged that the customary "guardian" behaviors of the male rats cannot be exercised, is illustrative. In the rat world's equivalent of the neon-lighted great-white-way, abnormal sexual practices become common, baby rats are cannibalized, a life of "gay abandon" is practiced and seemingly enjoyed.

Inevitably, the question has been raised whether man likewise is subject to the consequences of overcrowding. The question is of particular concern at present because of the burgeoning human populations, an increasing tendency to concentrate population growth in restricted areas, and the resultant urban behavioral problems which are surfacing.

Perhaps a potential for understanding and eventually controlling human problem behavior resides in the speculative explanation of animal territorial behaviorism. It is potentially misleading at any time to project animal behavior upon humans. The dangers of doing so are greater when animal behavior is presumed to be instinctive.

Dealing more directly with urban problems besetting mankind, acceptance of overcrowding as a cause fails to note that rural areas also produce human behavioral problems. If consideration of overcrowding is restricted to the possibility that it produces certain kinds of behavior, the premise would be more respectable and informative — to wit, human behavioral problems in urban environments.
Phil Forman (left), representative of Pfizer Laboratories presents a check in the amount of $2,500 to Dr. Jacob Koomen, state health director. The funds will be used to buy educational aids to help with the fight against venereal diseases in North Carolina.

The Venereal Disease Control Section of the N. C. State Board of Health was recently presented a gift of $2,500 by Pfizer Laboratories to be used for venereal disease education in North Carolina.

According to Myron J. Arnold, venereal disease education coordinator, the money will help pay for films, printed material, workshops and other expenses incurred as part of a new VD awareness program.

The program, a joint effort of health officials and the Department of Public Instruction, will be directed toward seventh through twelfth grade students, but primarily those in junior high. "We want to teach them about VD before they can get into trouble. The disease appears to be moving into lower age ranges and more affluent circles than was customary in the past. We also want to get ahead of the drop out problem," Arnold explained.

North Carolina ranks among the top 10 states in the nation in number of venereal disease cases reported, Arnold noted. Last year, 23,846 new cases of gonorrhea alone were reported. Over half of these occurred in the 15-24 year age group.
## State Of North Carolina Vital Statistics Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>May 1972</th>
<th>Year to Date 1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>Births</td>
<td>7,044</td>
<td>36,789</td>
</tr>
<tr>
<td>Deaths</td>
<td>3,693</td>
<td>20,497</td>
</tr>
<tr>
<td>Infant Deaths [under 1 year]</td>
<td>156</td>
<td>951</td>
</tr>
<tr>
<td>Fetal Deaths [stillbirths]</td>
<td>102</td>
<td>543</td>
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<tr>
<td>Marriages</td>
<td>4,742</td>
<td>17,684</td>
</tr>
<tr>
<td>Divorces and Annulments</td>
<td>1,686</td>
<td>6,991</td>
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</table>

### Deaths from Selected Causes

<table>
<thead>
<tr>
<th>Cause</th>
<th>May 1972</th>
<th>Year to Date 1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diseases of the heart [all forms]</td>
<td>1,328</td>
<td>7,326</td>
</tr>
<tr>
<td>Cancer [total]</td>
<td>605</td>
<td>2,987</td>
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<tr>
<td>Cancer of trachea, bronchus and lung</td>
<td>134</td>
<td>625</td>
</tr>
<tr>
<td>Cerebrovascular disease [includes stroke]</td>
<td>433</td>
<td>2,546</td>
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<tr>
<td>Accidents</td>
<td>289</td>
<td>1,468</td>
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<tr>
<td>Motor vehicle</td>
<td>158</td>
<td>797</td>
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<tr>
<td>All other</td>
<td>131</td>
<td>671</td>
</tr>
<tr>
<td>Diseases of early infancy</td>
<td>98</td>
<td>496</td>
</tr>
<tr>
<td>Influenza and pneumonia</td>
<td>81</td>
<td>907</td>
</tr>
<tr>
<td>Bronchitis, emphysema and asthma</td>
<td>49</td>
<td>323</td>
</tr>
<tr>
<td>Arteriosclerosis [hardening of arteries]</td>
<td>51</td>
<td>299</td>
</tr>
<tr>
<td>Hypertension [high blood pressure]</td>
<td>21</td>
<td>96</td>
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<tr>
<td>Diabetes</td>
<td>79</td>
<td>425</td>
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<tr>
<td>Suicide</td>
<td>48</td>
<td>235</td>
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<tr>
<td>Homicide</td>
<td>49</td>
<td>269</td>
</tr>
<tr>
<td>Cirrhosis of liver</td>
<td>43</td>
<td>280</td>
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<tr>
<td>Tuberculosis, all forms</td>
<td>7</td>
<td>59</td>
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<tr>
<td>Nephritis and nephrosis [certain kidney diseases]</td>
<td>21</td>
<td>118</td>
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<tr>
<td>Infections of kidney</td>
<td>16</td>
<td>95</td>
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<tr>
<td>Enteritis and other diarrheal diseases [stomach and bowel inflammations]</td>
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<td>38</td>
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<tr>
<td>Ulcer of stomach and duodenum</td>
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<td>62</td>
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<tr>
<td>Complications of pregnancy and childbirth</td>
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<td>8</td>
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<tr>
<td>Congenital malformations</td>
<td>28</td>
<td>202</td>
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<tr>
<td>Infectious hepatitis</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>All other causes</td>
<td>421</td>
<td>2,250</td>
</tr>
</tbody>
</table>

Marriages, divorces and annulments are by place of occurrence, all other data are by place of residence.
"Just forget the war, domestic issues, your family problems, and financial worries, and think of something else."

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