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## Employer and Training Needs: Report 13 Health Care Occupations

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Report Number Thirteen

HEALTH CARE OCCUPATIONS

# EMPLOYER AND TRAINING NEEDS

PREPARED FOR METROPOLITAN TECHNICAL COMMUNITY COLLEGE



Center for Applied Urban Research

university of  
nebraska  
at omaha

HEALTH OCCUPATIONS

by

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## HEALTH OCCUPATIONS

### Purpose of the Study

The purpose of this study is to determine the employer and training needs in the metropolitan Omaha area in several occupations related to health care. These include medical laboratory technician, EEG and EKG technicians, electronic bio-medical technician, medical office and record assistant, X-ray technician, surgical technician, occupational therapist, dental laboratory technician, dental hygienist, and dental assistant.

In many of these areas, the person trained by a community college serves the function of performing routine tasks and freeing a more highly trained individual for more complicated or supervisory duties.

Metropolitan Technical Community College currently offers programs in two of these fields, dental assistant and respiratory therapist. While some courses offered by Metro Tech could be utilized by persons wishing to train for occupations in other areas, no formal programs leading specifically to the remaining specialties are now being offered.

The study is intended to provide pertinent information to Metropolitan Technical Community College so that they can evaluate the possibility of the inauguration of courses of study in which programs are not now offered or whether to continue those courses currently included in the curriculum.

## OCCUPATIONAL THERAPIST

### Study Design and Execution

An exploratory study of the field of occupational therapist was made to determine the target population for this job category. Among the types of institutions that employ these persons are acute care hospitals, rehabilitation centers, nursing homes, psychiatric units, and public school systems.

Telephone interviews, using the shorter form constructed for use in previous surveys of employer and training needs, were made with persons at a psychiatric unit and a large hospital which includes acute, rehabilitation, and psychiatric care units.

### Findings of the Study

Both of those interviewed stated that to be employed as an occupational therapist persons must be graduated from an accredited five-year program at a college or university. This training includes four years of class work plus a nine-month internship. Persons must also pass a national registry examination.

Both of the interviewees said that about two or three years ago they had been on a committee to investigate the inauguration of a course at Metro Tech leading toward employment as a certified occupational therapy assistant (COTA). At that time no need for training such persons was determined so the program was not instituted. These assistants must be supervised by OTR's (registered occupational therapists), and not enough persons in this latter job category can be found.

### Conclusion

Since the findings of the interviews revealed that to be employed as an occupational therapist students must take a five-year program and since this type of program is beyond the scope of Metro Tech, only two interviews were conducted. The details of salary and need for employees are not applicable for Metro Tech because they concern only the graduates of accredited five-year programs.

## MEDICAL LABORATORY TECHNICIAN

### Study Design and Execution

The Omaha Telephone Directory was consulted to determine the sample of medical laboratories. Five local firms were listed. In addition, three hospitals were contacted by telephone to determine their needs for medical laboratory technicians.

A survey questionnaire was administered to four of the five laboratories and the three hospitals. The findings of the study and conclusions are presented here.

### Findings of the Study

Number of employees. Two of the laboratories contacted do not employ medical laboratory technicians but rather use certified technologists with four-year degrees. One lab said they needed two or three technicians a year, and the other reported that they had only one non-certified and 10 certified persons in this job category. The three hospitals each had one or two persons employed as medical technicians.

New Jobs in This Category. Only one of the interviewees said they would be having any new jobs in the next three years. This laboratory said that business would be increasing because of the new Children's Hospital addition to Nebraska Methodist Hospital and that they had too few applicants when they did have a job opening. One other laboratory said their need for employees would increase, and two others said it would remain about the same. Three of those interviewed stated they had about the right number of job applicants. Only two laboratories expressed any desire to hire medical technicians.

Skills, Experience, and Training. An associate of arts degree was felt to be necessary for the position plus certification as a medical laboratory technician. To be certified a person must have two years of training from an accredited school and pass a certification examination conducted by the American Society of Clinical Pathologists. Specific courses mentioned to be included in a program of study were hematology, microbiology, chemistry, immuno-hematology, and serology.

One hospital gave the information that although several programs exist which purport to train medical technicians in Omaha and in Nebraska that none is yet certified. Both Southeast Community College in Lincoln and the Omaha College of Health Careers are about to graduate their first classes and will then be able to administer the certification examination. About 80 graduates per year from the five Omaha programs fill the need for non-certified technicians.

Some of the labs have medical technology students working as technicians, and these students are being trained in their own medical technology programs.

A need for trained phlebotomists was expressed by one of the hospitals interviewed. Cytotechnologists are also needed, and a program is not offered in Nebraska.

Without further education little mobility and no advancement is possible for a medical laboratory technician, certified or otherwise. Technicians cannot do much because of federal regulations and must have constant supervision. The need for technicians seems to be minimal and is decreasing.

Only one of these interviewed felt Metro Tech should establish a course for medical laboratory technicians. This person felt Metro could fill the need between laboratory assistant and technologist. A more typical opinion was that no need existed for establishing training courses in this field, that the market is saturated with technologists, and so there is no use for technicians.

Salary Scale. Salaries range from about \$5.00 to \$7.00 per hour for persons with five or six years of experience.

#### Summary and Conclusions

Four laboratories and three hospitals were contacted to determine the employer and training needs for medical laboratory technicians in the Omaha area. Only two laboratories expressed any desire to hire medical technicians. Most of the laboratories only employ medical technologists.

An associate of arts degree plus certification is necessary to become a medical technician. Little mobility and no advancement is possible in this job category without further training. Salaries range from \$5.00 to \$7.00 per hour with five or six years of experience.

The need to establish any further training for medical technicians does not seem to exist because the job market is filled with technologists.

## DENTAL LABORATORY TECHNICIAN

### Study Design and Execution

The Omaha Telephone Directory was consulted to determine the sample of dental laboratories. Fifteen local firms were listed. Telephone calls were made to one-third of these laboratories (or a total of five). A wide range of sizes, based on the number of employees, was included.

Since some of these laboratories suggested that dentists, particularly orthodontists and those specializing in the fitting of dentures, are setting up their own laboratories, calls were made to two of these offices suggested by the owner of one of the dental laboratories. Listings of professional dentists in the telephone book were also consulted to try to determine those larger groups of dentists who might have their own labs, and calls were made to two of these. Neither one, however, maintained a laboratory. In most cases the laboratory manager or director was interviewed. A prosthetics technician and an owner were also among the interviewees.

The survey instrument used was the shorter form constructed for use in previous studies of employer and training needs and adapted for use in this study. The findings resulting from the seven interviews conducted are summarized here.

### Findings of the Study

Number of Employees. Two of the laboratories interviewed employed four persons each. Three persons worked at one laboratory, five at another, nine at a third, and 30 at yet another. The largest number of employees in one laboratory was 106.

New Jobs in This Category. The determination of need for dental lab technicians was inconclusive. Respondents had varied perceptions, and some even gave contradictory answers to alternative questions used to determine need. Although five of the seven laboratories expected their need for technicians to increase, only three said they would be creating new positions. Only one of the seven said there were more positions than applicants in the Omaha metropolitan area (four thought its number of applicants approximated its number of positions while two said applicants exceeded positions). Two of the seven reported too few applicants when they had advertised positions, and only one reported too many applicants. No associations were found between size of the company and their assessments of need.

The large laboratory expressed some doubts about their future, citing an increase in dentists having their own technicians and the possible growth of discount dentists.

Skills and Experience. Three of the laboratories responding to the survey listed the making of crowns, bridges, and dentures plus work in porcelain and metal as being among the skills and knowledge required for the job. Two cited dental anatomy and experience in the field. Others mentioned were manual dexterity, memory, communication skills, lab procedures, managerial skills, and problems of orthodontics.

When queried about the skills, knowledges, or experiences often lacking in job applicants, two persons interviewed mentioned the ability to adapt to the work setting. Two also found manual dexterity or artistic ability lacking. Other things found wanting were common sense, technology, managerial and lab skills, knowledge of physiology, and general experience.

No consensus was reached about the type of education or training that would be the best preparation for the job. Two interviewees felt that an apprenticeship program or on-the-job training would be best. One felt that the apprenticeship program should be preceded by a two-year program at a technical community college, but two others said only a one-year program need precede the apprenticeship. One person did not mention any apprenticeship program but felt one year at a technical college would be sufficient, while another stated that two years of college would be necessary. One respondent noted that the National Dental Laboratory Association requires two years of college training plus five years of experience for certification.

The specific courses that should be included in a program of studies to prepare students for the job of dental laboratory technician were again highly varied. Two mentioned dental anatomy or physiology, and two also mentioned work in metal and porcelain for dentures, crowns, and bridges, with greater concentration in one or the other department. Laboratory procedures, the fitting of appliances, chairside experience, and patient history were included in the courses which respondents felt should be taught.

Salary Scale. Beginning salaries ranged from the minimum wage of \$3.50 per hour, through \$4.00 or \$4.50 an hour, and \$600 per month to the highest beginning salary, \$175.00 per week. The top salaries mentioned were \$7.00 an hour, \$8.00 an hour, \$15,000 to \$18,000 a year, \$500 a week, and \$30,000 a year.

One person interviewed said the field is wide open and that the salary schedule is reviewed every six months at his laboratory. Salary depends on skill and initiative, he stated.

Available Training. The only available training anyone interviewed knew about in the State of Nebraska was at Hastings College. One person stated that the Army and the Navy both have good training programs and that anyone attempting to set up a study program would do well to follow the courses offered by them. One person said he thought dental lab technician training was available at institutions at Watertown, South Dakota, and in Minneapolis. Another mentioned that he thought someone tried to start a course in Lincoln but met resistance from some lab owners. This same person said, "This city needs a center to train beginning students and to bring people up to date on new techniques."

#### Summary and Conclusions

Seven dental laboratories in the Omaha area were contacted by telephone to determine employer and training needs for the occupation of dental laboratory technician. Five of these were independent laboratories, and two were operated by groups of dentists to service their own office needs.

The number of persons employed at these labs varied from three to 106. Three of the laboratories interviewed said they would be creating new jobs within the next three years, three said they would not, and one didn't know. Only one or two thought demand for workers exceeded the available supply of applicants.

The skill, experience, or knowledge most frequently cited as necessary for the job was the making of crowns, bridges, and dentures. Two cited dental anatomy and experience in the field. Ability to adapt to the work setting was mentioned as lacking in job applicants as was manual dexterity or artistic ability.

Most of those interviewed felt that an apprenticeship or on-the-job training program should be combined with a varying amount of training at a technical community college in order to prepare for the job.

## DENTAL HYGIENISTS AND ASSISTANTS

### Study Design and Execution

The target population for the study of the need for dental hygienists and assistants was local referral services, officers of state and local dental associations, private dental clinics, and colleges of dentistry. Informal interviews were conducted with representatives of these several areas. Questions focused on present and future demand for qualified persons and the perceived role of Metropolitan Technical Community College in their training. Information regarding salaries was obtained plus other relevant comments.

### Dental Hygienists

Number of Employees and Need. The interviewees estimated that about half of the area dentists employ hygienists, and half of these are on a part-time basis. An oversupply of qualified persons was reported. This saturated condition of the job market for hygienists was expected to continue for some time. This situation appears to be true in metropolitan areas throughout the Midwest with persons from nearby states looking to eastern Nebraska for possible employment. Prospects are somewhat improved in the rural areas with the exception of the Hastings vicinity which has a dental hygiene training facility.

The University of Nebraska College of Dentistry (at Lincoln) is decreasing its enrollment, which in turn will negatively affect the demand for dental hygienists. Also, one respondent commented that hygienists are dismissed before dental assistants in the event of an economic downturn. Only about 30 to 40 percent of the population presently seek dental care, according to one informant, and until that situation changes, the need for dentists and dental hygienists is expected to remain about the same.

Creighton University's Community Dentistry Program employs four dental hygienists at present. They will only hire people with a four-year degree plus experience and/or a masters degree.

Training. Training to become a dental hygienist can be either a two-, three- or four-year program at an accredited facility. Those with less than a four-year degree are restricted to clinical practice. In addition, credits from a technical or community college are not transferable to four-year institutions at present.

Salary. Beginning salaries for dental hygienists average \$55.00 per day, although they can range as high as \$80.00 per day with some experience.

### Dental Assistant

Present Program. Metropolitan Technical Community College offers a one-year curriculum in dental assisting. This program is described in the 1979-80 catalog as follows:

The Dental Assisting curriculum meets the employability standard of the College and is approved by the Council on Education of the American Dental Association.

Program objectives include: knowledge development of all facets of dental assisting, a strong basic background in the care and restoration of the oral cavity, and a working knowledge of all chairside and laboratory equipment and its care.

Other institutions in Nebraska which offer similar programs are the Omaha College of Health Careers, Southeast Community College in Lincoln, Central Technical Community College in Hastings, and Mid-Plains Community College in North Platte. Iowa Western Community College in Council Bluffs, Iowa also offers training for dental assistants.

Some of those interviewed felt the present program at Metro Tech was excellent; others felt it was average but no worse or no better than any other program in the state. However, all said it should be continued. Graduates from Metro Tech and other schools were criticized for their job attitudes and lack of communication skills (both oral and written). They need to have more practical training, not only in what the names of instruments are but what they are for. They are often lacking a practical sense of what to do. More clinical practice was suggested. Students are often allowed only to observe in dental offices, and they need hands-on experience. Dentists need to provide on-the-job training in addition to what is taught at present. A two-year program was one suggestion, but a one-year program could suffice if "they knew what to teach."

Dentists sometimes hire assistants and train them themselves, but this is not usually the case, and they would prefer not to have to do so. Dental assistants do not have to be licensed. Unlike dental hygienists, they do not work directly on the patient but assist the professional dentist and work under his supervision.

Demand. All of the interviewees stated that a demand existed for trained assistants in the Omaha area. This demand was variously described as "great" and "fair to strong." "Dentists are always looking for assistants," said one interviewee. Another remarked, "The emphasis is on trained. Too often they aren't, really."

Salary Scale. Beginning dental assistants can expect to receive salaries in the \$500 to \$700 per month range. Increases are given with experience, but the turnover is rather high, and persons contacted could not state what a top salary might be.

#### Summary and Conclusions

The field for dental hygienists is at present oversupplied. The field is even more limited for persons trained in a two-year program.

The research indicated that a demand exists for dental assistants. The present program at Metro Tech received mixed comments but should be continued. Emphasis should be on a more practical program of training.

## EEG and EKG TECHNICIANS

### Study Design and Execution

Hospitals were determined to be the principal employers of EEG and EKG technicians and so interviews were conducted with persons at four large Omaha hospitals.

### Findings of the Study

#### EEG Technicians

Number of Employees and Need. Study participants indicated that many positions were open for EEG technicians six months ago. Presently there are about eight job openings in the Omaha area. However, the Omaha College of Health Careers has a one-year program and will soon be graduating its first class who are expected to fill all the positions open. OCHC has affiliations with four hospitals in Omaha and one in Lincoln in order to give their students the necessary clinical experience and training. They are seeking accreditation for their program in this area. One interviewee said she knew of no city in the country that could support two schools offering training in this field. None of the interviewees said Metro Tech should establish a course of training for EEG technicians.

The hospitals interviewed employed two to four persons as EEG technicians. One hospital said it would be having one additional position open due to expansion, but the others said their need for employees in this field would remain about the same. Employment is available only in larger hospitals as smaller ones do not have the facilities and equipment.

Skills, Knowledge, and Training. To work as an EEG technician a person must have a knowledge of basic science plus neuro-anatomy and anatomy, physiology, EEG, pharmacology, abnormalities and normalities of the nervous system, and psychology. They must also have a clinical background. An extensive examination, both oral and written, is required for registration. This examination is conducted by the American Board of Registered EEG Technicians.

The type of training that would best prepare a person to work in this field would be a one- or two-year program at a technical community college. Affiliation with a hospital is mandatory.

Salary Scale. EEG technicians who are not yet registered can expect to start as Technician I at salaries of \$9,000 or \$10,000 a year. With registration and

experience they can command salaries of \$14,000 to \$15,000 per year as Technician II. Chief technicians may make \$14,000 to \$19,000 a year.

### EKG Technicians

Number of Employees and Need. One of the hospitals interviewed employs 12 EKG technicians plus a director, but several of these persons only work part time. The other has five regular employees and two on-call persons. They are looking for additional on-call employees. The turnover is not a significant factor in this area, and the need fluctuates. Students who prefer to work part time are frequently employed, and part-time positions are rarely advertised. When a full-time position is advertised, the number of applicants is about right.

Both of the hospitals contacted said that they trained their own people for this work and were of the opinion that others did too. Operation of the machines and placement of electrodes is an easy thing to teach people how to do.

Skills, Knowledge, and Training. A high school education plus on-the-job training are the chief requirements for employment as an EKG technician. Good patient relationships and some familiarity with hospital procedure would also be helpful. Omaha College of Health Careers also offers EKG technician training.

EKG technicians with additional training conduct tests using treadmills, vectors, and Holter monitors. One supervisor in this department stated that having a school to train persons for this more complicated work might be helpful. Working with cardiac ultra-sound would require one and a half years of college plus six months clinical experience. Knowledge of cardiac functions and pathology would be necessary plus anatomy, physiology, and mathematics. The interviewees stated that they did not feel Metro Tech should establish training for EKG technicians, however.

Salary Scale. Beginning salaries range from minimum wage to \$4.20 an hour. With experience a person could expect to make \$5.00 an hour or \$10,500 a year.

### Summary and Conclusions

The fact that the Omaha College of Health Careers will soon be graduating its first class of EEG technicians will affect the job market for persons in this field in the Omaha area. One or two years of training are necessary, and the training is much more extensive than for EKG technicians who are usually trained on the job. The consensus was that Metro Tech should not establish a program of studies for either area.

## ELECTRONIC BIO-MEDICAL TECHNICIAN

### Study Design and Execution

The target population was identified as hospitals and companies listed in the telephone directory under the heading of "Medical Electronics." A survey questionnaire was administered to two of the five local medical electronics firms and three of the 18 hospitals listed. The findings of the study and the conclusions are presented here.

### Findings of the Study

An electronic bio-medical technician is a person who maintains, repairs, calibrates, adapts, or does research design for many kinds of electronic apparatus used in medical therapy, diagnosis, and research.

Medical electronics firms usually are engaged in the manufacture of bio-medical equipment, rent hospital-type equipment to hospitals, particularly small ones, and provide technicians to work on it. They also do preventive maintenance.

Number of Employees. The hospitals contacted employed four to eight persons as bio-medical technicians. One of the firms interviewed had only one employee but is the Omaha office of a large national firm which employs several thousand people. The other firm refused to indicate how many were employed as electronic bio-medical technicians.

New Jobs in This Category. All of the interviewees said they would be having from one to three new jobs in the next three years due to expansion. One hospital said they had three openings now which they had not been able to fill, and this person volunteered the information that most hospitals in the area were planning to expand and take over the work that is now contracted out.

Three of the interviewees (two hospitals and a firm) said they had too few applicants when they did have a job opening. One of the medical electronics firms said they had about the right number, and one hospital said the situation varied seasonally.

As far as the situation in the metropolitan area is concerned, three of the interviewees felt that the demand for trained people was great, and two said more job openings existed than trained people to fill them. Hospitals, particularly, are looking for people and often have to train their bio-medical technicians themselves.

Need for Program. All of the interviewees felt that Metro Tech should establish a program of studies to prepare individuals to work in this job category. A need for refresher courses in addition to the regular program was also expressed. "The equipment is expensive," one person pointed out, "and a great deal of knowledge is needed to work on it." The supervisor of bio-medical instrumentation at one hospital said he gets inquiries from people seeking training. No specific program is presently available in the state to educate electronic bio-medical technicians, as nearly as could be determined, although electronics training is available in several schools. Colorado, Minnesota, and Wisconsin are nearby states where training is offered. The University of Nebraska at Omaha offers a baccalaureate program in electronic engineering technology with a bio-medical option, but these graduates would be going into clinical engineering, not into repairing and servicing equipment. The acting chairperson of electrical systems technology who is in charge of the UNO program said that there is a great need for repair persons. "Community colleges can do a better job [of training these persons] than the universities," he stated.

The University of Nebraska Medical Center started to put together a program with Metro Tech about a year ago in the hopes of establishing a bio-medical technician program, according to the president of the Omaha area bio-medical society. This group attempts to deal with problems encountered by bio-medical technicians and to offer short refresher courses.

The biggest problem with establishing the program of study appeared to be with getting qualified teachers.

Skills and Knowledge. Electronics technology was mentioned by everyone as being required knowledge for the job. At least a two-year associate degree in this field would be necessary. An aptitude for and at least some knowledge in physics, biochemistry, physiology, and biology were also cited as being important. Communications skills and a knowledge of medical terminology were mentioned by two of the interviewees. Other areas included knowledge about fluids and patient safety.

Communications and customer relations skills, general knowledge, knowledge of physiology, a degree, mechanical background, and knowledge of medical terminology were areas where applicants were often found lacking.

A large majority of the interviewees felt that the type of education or training which would best prepare a person for the job of bio-medical technician would be a two-year program at a technical community college. One person said that a four-year program at a college or university would be necessary with training in electronics technology with a bio-medical option.

Specific courses that should be included in a program of study for this field were physiology, chemistry, medical nomenclature, physics, anatomy, electronics, mathematics, instrumentation, and science. The most frequently mentioned were medical terminology and physiology.

An Existing Program. The Forest Park Campus of St. Louis Community College offers a two-year program in bio-medical engineering technician training, a 70-hour course leading to an Associate in Applied Science degree.

The curriculum includes courses in technical analytical geometry and calculus, anatomy, physiology, electric circuits, electrical drafting, bio-medical electrical safety, electrical shop, and physics. In addition to classroom work, students are given practical experience in the college's engineering laboratories and at area hospitals. In addition to the four semesters of classroom instruction a bio-medical internship is required during a summer session.

An advisory committee of area hospital administrators, maintenance engineers, and practicing bio-medical technicians works with the college to enable the curriculum to keep pace with current employment requirements.

Applicants are selected from the upper half of their high school classes or from those who have shown a high scholastic aptitude.

Salary Scales. Beginning salaries for bio-medical technicians were variously quoted at \$4.15 to \$6.50 per hour and \$12,000 to \$16,000 per year. Persons with experience in the field can command salaries of \$7.00 to \$10.00 per hour up to \$20,000 or \$22,000 per year.

Three levels of technician are usually designated by hospitals. Technician I (entry level) receives the lowest salary quoted above and is considered to be a trainee. Technician II services the equipment and receives a dollar or two more per hour. Technician III receives an average of \$9.00 per hour and up to \$10.50 an hour. This person would do some guiding of other employees as well as fixing equipment.

These comparatively low salaries in hospitals were given as the reason that hospitals have a high turnover and have difficulty attracting new employees.

#### Summary and Conclusions

Medical electronics firms and Omaha hospitals were surveyed to determine employer and training needs for electronic bio-medical technicians.

All said they would be having new jobs in this field due to expansion and felt the need for trained people in the Omaha area was either great or that the number of jobs greatly exceeded the number of persons available to fill them.

Electronics technology was mentioned by everyone interviewed as necessary knowledge for the job. Aptitude for and some knowledge in various fields of science was deemed important as well as communications skills and knowledge of medical terminology. Most of the respondents felt that a two-year program at a technical community college would be the best preparation for the job, and they were unanimous in stating that Metro Tech should establish such a course of study.

Salaries varied from \$4.15 an hour to \$22,000 per year. Hospitals are planning to expand in this area, but pay scales are rather low so they may encounter some difficulty.

## MEDICAL OFFICE AND RECORD ASSISTANT

### Study Design and Execution

The term "medical office and record assistant" was interpreted to mean a person who keeps, analyzes, and preserves health records in the medical record department of a hospital or clinic. Therefore hospitals and clinics were sampled.

Two of the clinics which were contacted said they did not employ this type of person but used untrained persons as file clerks. Record keeping in the offices of private physicians is often done by a person who also acts as secretary and receptionist. A survey questionnaire was administered to four of the hospitals and to one of the clinics where accredited record technicians are employed. The findings from the five interviews conducted are summarized here.

### Findings of the Study

Number of Employees. The president-elect of the Omaha Health Record Association who is employed at one of the hospitals estimated that 80 to 100 accredited record technicians are working in the Omaha-Council Bluffs area. The medical record departments interviewed employ from one to 18 persons. These persons, however, are not always full time, and some are in categories other than accredited record technicians. Some of these categories are registered record administrators who sometimes do the work of ART's, medical transcriptionists, health record analysts, and various clerical persons who work with insurance, statistics, correspondence, etc.

The assessment of the need for trained people in this field was somewhat varied. One interviewee said that the demand was great, but the remainder either stated that the number of trained applicants was about equal to the number of jobs available or that the number of trained people exceeded the number of jobs. The main factor affecting the job market for accredited record technicians is that the College of St. Mary has a four-year program for registered record administrators, and graduates of this program and others with this kind of training are seeking work in this area. Consequently, in a number of cases RRA's are doing the work of ART's.

The clinic and one of the hospitals stated that they would be having some new positions open within the next three years, but they could not say how many. The other three hospitals do not anticipate any new job openings.

One person stated a great need exists for medical transcriptionists (including terminal digit filing which is used by most hospitals).

Skills, Knowledge, and Training. Filing and typing were the skills most frequently mentioned as being necessary for the job of medical record technician. Others included medical terminology, psychology, communication skills, statistics, English (both oral and written), chemistry, physiology, anatomy, and mathematics.

Management training is sometimes lacking in applicants for this kind of a position.

The majority concluded that a two-year program at a technical community college would be the best preparation for this job, but courses and accreditation through the American Medical Records Association would also be necessary. This group offers a correspondence course consisting of 17 modules, and at least one interviewee stated that this was the method of training utilized by most of the ART's at present.

The American Medical Records Association is in charge of accreditation of medical record technicians and conducts the examination which must be passed before receiving accreditation.

As nearly as could be determined, no school in Nebraska offers the two-year program leading to accreditation as a medical record technician.

The Iowa Medical Record Association has a school in operation.

Need for Program. Four of those interviewed stated that Metro Tech should establish a program of studies to prepare individuals to work in this job category, but the person who said they should not was very emphatic about her answer. She indicated the University of Nebraska Medical Center conducted a study about six years ago and determined that no need existed for such a program in this area. The main reason was that so many registered record administrators were seeking work and offered competition to accredited record technicians so that students would not be able to get the kind of job they were seeking. This person presently serves on the education committee for the American Medical Record Association and has been on the Metro Tech advisory committee.

One person interviewed said she personally would be interested in taking courses at Metro Tech and that she knew of others employed in her department who would be also. These employees are encouraged to take additional training in order to upgrade their job classifications.

Salary Scale. Beginning salaries for medical record technicians are about \$4.00 or \$5.00 an hour in this area. They can range up to \$15,000 per year with

accreditation and experience. Someone in this salary range would also be doing supervisory work. Salaries depend upon experience and responsibilities involved.

Some Existing Programs. St. Louis Community College at Florissant Valley offers a four semester program leading to the associate in arts degree. This course of study will prepare a student for transfer to a college or university which offers a baccalaureate program in medical record science. Typing is a required skill. Courses offered include English, college algebra, biology, chemistry, psychology, trigonometry, history, anatomy, physiology, behavioral science, microbiology, and some electives.

The City College of Chicago at its Truman College campus offers medical record technician training leading to an associate in applied science degree. Their program consists of 63 hours of course work and involves the study of techniques used in keeping, analyzing, and preserving health records for patients, health practitioners, hospitals, and the public. It prepares medical record technicians with technical skills necessary to maintain components consistent with medical, administrative, ethical, legal, accreditation, and regulatory requirements of the health care delivery system. Typing is a pre-requisite. They also offer an advanced certificate as a medical record transcriptionist requiring 35 credit hours of study.

See Appendix A for the curriculum recommended by the American Medical Record Association.

#### Summary and Conclusions

Four hospitals and one clinic were interviewed to determine the need for medical record technicians in the Omaha area. One estimate was given that 80 to 100 persons are employed in this category in the Omaha-Council Bluffs area. Some new jobs will be available, but an oversupply of registered record administrators offers competition to accredited record technicians.

Most persons presently train for this field through a correspondence course offered by the American Medical Records Association which is in charge of examination and accreditation.

While the majority of those interviewed felt that Metro Tech should establish a course of study for medical record technicians, one emphatically did not.

## X-RAY TECHNICIANS

### Purpose of the Study

The purpose of this study is to determine the employer and training needs in metropolitan Omaha for x-ray technicians.

### Study Design and Execution

To identify the employers of x-ray technicians, informal interviews were held with the chairman of Radiology and the educational coordinator of the Division of Radiologic at the University of Nebraska College of Medicine. An interview also was held with the educational coordinator of the radiology technology program at Saint Joseph Hospital. These professionals in the field of radiology all said that the main employers of x-ray technicians in the area are the eight major hospitals in Omaha. They identified the chief technologists in the departments of radiology as being the persons who would be the most knowledgeable about the employer and training needs in this job category. A sample of four of these chief technologists was chosen for the study. During interviews, the survey instrument used for the previous employer and training needs studies was administered. An informal interview also was conducted with the radiology manager of the Radiologic Center, which is a physicians group. The findings of this research are presented here, with conclusions about the need for x-ray technicians and a program at Metro Tech.

### Research Findings

#### The Need for X-Ray Technicians

The radiology manager of the Radiologic Center said that radiologists in Omaha are organized into groups, such as the Radiologic Center and Radiology Consultants Inc. and contract with hospitals and clinics for their services. About six of these groups serve most of the hospitals in Omaha and some near-by communities. Thus, while a radiologist usually will work at several hospitals or clinics, the chief radiologist and x-ray technicians are hired by each hospital and are a permanent part of the hospital staff.

In addition to the chief radiology technologists, some of the hospitals had several supervisors in the radiology departments. The number of x-ray technicians in each hospital was related to the size of the radiology departments and varied from one to 25. One of the chief radiology technologists estimated that most major hospitals employ 15 to 20 x-ray technicians. The majority of the hospitals

paid beginning x-ray technicians about \$5.00 an hour, while an experienced technician could receive up to \$7.00 an hour. The supervisors received beginning salaries from \$6.00 to \$6.50 an hour, and the chief technologists received annual salaries of \$15,000 to \$16,000.

The educational coordinator of the Division of Radiologic at the University of Nebraska College of Medicine said that some physicians, particularly orthopedic specialists, have their own radiology equipment and hire x-ray technicians. He predicted that the public concern for radiation exposure soon will cause federal or state action to mandate licensure for all persons using this equipment. This legal action could cause a tremendous need for certified x-ray technicians, according to this radiology professional. He explained the current problem of individual family practice physicians or clinics lowering the budget for salaries by hiring untrained persons to take x-rays instead of qualified x-ray technicians.

Half of the interviewees said that there are too few qualified applicants for job openings, and the other half said that the supply of qualified job applicants is about equal to the number of job openings. Several of the study participants commented that they had never known of an unemployed x-ray technician.

Several of the interviewees said that a great need exists for x-ray technicians in rural communities. This demand was attributed to the lack of desire by unmarried graduates to locate in smaller communities. Most of the interviewees mentioned the high turnover in this job category. Several said that this was due to the high percentage of women in this field, who often resign for the birth of a baby or the transfer of a husband. One of the interviewees said that the continuing attrition of men from the field is due to the low salaries and the lack of the chance for advancement.

#### Present Programs

Programs in radiology technology are offered at the University of Nebraska College of Medicine, Saint Joseph Hospital, Archbishop Bergan Mercy Hospital, and the Immanuel Medical Center.

The University of Nebraska requires one year of college for entrance to the 26-month program, while Saint Joseph does not require previous college work for a 24-month certificate in x-ray technology. The heads of the programs at Saint Joseph Hospital and the University of Nebraska College of Medicine both said that their schools limit enrollment each year to only ten students. The representative from the University said that their enrollments are limited to prevent a saturation of the market. The Saint Joseph study participant said that the limit on the number

of students in their program is established so that all of the students can be accommodated each week in well-supervised x-ray work sessions.

The department of x-ray technology at the University utilizes the class offerings and facilities of the College of Medicine and the College of Nursing. Required courses include anatomy, physiology, physics, radiographic processing, special procedures, and radiation exposure. The Saint Joseph program representative also mentioned positioning for radiology and medical terminology.

When asked about the need for a program in x-ray technology at Metro Tech, most of the study participants were not positive in their responses. The concerns expressed included the expense involved in establishing such a program because of the need for training equipment, the saturation of the field with graduates if classes were too large, and the problem of Metro Tech not being affiliated with a hospital for a work-study program with the regular instructors.

#### Conclusions

Graduates of the four local programs in x-ray technology probably will have no difficulty in finding employment in the Omaha area, with an even greater demand for their services existing in rural Nebraska communities. This positive employment situation is due to the enrollment limits in the schools that offer x-ray programs and the high attrition rate in this female-dominated field. The demand for qualified x-ray technicians could increase if legislation is passed which would require certification for all employees who use radiology equipment.

Established x-ray technology schools could expand their present enrollments to meet the present or increased need for x-ray technicians. These schools already have access to radiology departments and professional staffs to provide instruction to the students. Particularly, the University of Nebraska College of Medicine and Saint Joseph Hospital presently have the available facilities and faculties to expand their programs.

## RESPIRATORY THERAPY TECHNICIAN

### Present Program

The 1979-80 catalog of Metropolitan Technical Community College describes a course of study leading to a one-year certificate in the field of respiratory therapy technician:

The respiratory therapy technician performs tasks under the direct or indirect supervision of a therapist or physician in various health facilities using diagnostic, therapeutic, and rehabilitative techniques in the treatment of patients with cardiopulmonary dysfunctions. The graduate respiratory therapy technician is in great demand to meet the needs in respiratory therapy departments in the area and throughout the country. A new program, the College's Respiratory Therapy Technician program is not currently approved for accreditation by the Joint Review Committee for Respiratory Therapy Education. Metropolitan Technical Community College is currently in communication with the Joint Review Committee for Respiratory Therapy Education in order to apply for accreditation as soon as possible upon implementation of the program.

### Study Design and Execution

To determine the target population, an exploratory study of the field of respiratory therapy technician was made. Contact then was made with the directors of respiratory therapy at three Omaha area hospitals, the head of the state association of respiratory therapists, and a person directly involved in the establishment of a new respiratory therapy program at Creighton University. The survey instrument constructed for other studies of established programs was used as a guide to determine employer needs and training requirements in the field of respiratory therapy at the technician level.

### Study Findings

Number of Employees and Job Prospects. The number of persons employed as respiratory technicians at each of the three hospitals surveyed ranged from four to 25. More significantly, only one hospital had a full staff of technicians. Respondents were unanimous in their feeling that the number of positions available far exceeds the number of qualified applicants. This shortage induces a seller's market with its accompanying moderate turnover rate among filled positions. Persons are being hired away from the hospitals which trained them. In recent studies the demand for respiratory technicians to fill existing positions was estimated to be between 40 and 100 positions per year. Even more severe are the

shortages of trained persons in non-metropolitan areas, according to one respondent.

Although only one respondent anticipated creating new positions in this occupational classification, all felt that this will be a strong and growing field for many years to come. In Nebraska it is a relatively new health related specialty, less than ten years old. With the expanding level of knowledge of respiratory problems and their numerous causes and the increasing incidence of respiratory disease due to an advanced technological society, all respondents indicated a large growth potential for the entire field of respiratory therapy.

Skills and Knowledge. Presently, the minimum requirement for a respiratory technician is that the person be eligible for certification. This means that the person must have taken at least a one-year program in respiratory therapy; preferably from an educational facility accredited by the American Medical Association and a joint review committee on respiratory therapy among others. Certification, achieved through examination, is currently optional in Nebraska. However, in July, 1980 state law will require that therapy must be administered or be supervised by a certified person in order to be eligible for Medicare-Medicaid reimbursement.

In addition to the current certification program a person may become registered in respiratory therapy. This entails further written examination plus a clinical simulation examination. Creighton University is in the process of establishing a registry program for students with bachelors degrees in science. Most facilities in the area hire either certified or registered persons. Those persons who wish to continue their studies to the bachelors or masters level are encouraged to concentrate their energies on the fields of administration and education as they relate to respiratory therapy.

Federal legislation has mandated the establishment of a single entry level position of respiratory care practitioner by 1983. This position will require a two-year associate degree in respiratory therapy from a properly accredited institution and successful completion of a certification examination. This is a prelude to the eventual establishment of a licensure procedure similar to that in the field of nursing. Once the entry level requirements have been met, a person would then be eligible to take certification examinations in respiratory therapy specialties.

Salaries. Starting salaries for non-certified technicians ranged from \$4.40 per hour to \$5.50 per hour. Certified technicians begin between \$5.20 and \$6.00

depending on experience. Respondents indicated, however, that the salary range for experienced certified technicians was somewhat more flexible because of the limited supply.

Comments and Suggestions. All respondents indicated that the present Metro program was basically good. However, given the increased professionalization and future legislated requirement for the field, all advocated expansion to a two-year program with certification as the end product. Mention was made of possibly setting up a special one-month course strictly for preparation for the certification exam.

Other suggestions offered were to increase the amount of clinical rotation and begin it earlier in the program to enable students to get a better feel for the field and to emphasize the need to be able to develop a rapport with staff and patients. More evening and Saturday classes were recommended as was a possible outreach program for the non-metropolitan area.

#### Summary and Conclusions

A significant demand for certified and registered persons in the respiratory therapy field was expressed. This demand is expected to continue for the foreseeable future. To accommodate the certification process and recent legislation, training programs should to expanded to two years.

## SURGICAL TECHNICIANS

### Present Program

Metropolitan Technical Community College has a one-year certificate program in surgical technology with national certification available to graduates. The course description, according to the 1979-80 catalog, is as follows:

The surgical technician is qualified to assist the surgeon, anesthetist, and registered nurse in the care of patients while in the operating room, emergency, or delivery room. Classroom instruction and clinical experience in operating room procedures and aseptic technique are offered under the supervision of a registered nurse.

### Study Design and Execution

The target population for the study was determined to be operating room supervisors of the eight major Omaha hospitals. A sample of four was chosen and a survey instrument was constructed similar to that used in previous studies.

### Study Findings

Number of Employees and Job Prospects. The number of surgical technicians on hospital staffs ranged from seven to 20 with no vacant positions. Only one supervisor had plans to create any new positions (two) in the near future. All others said they were at full staff and did not anticipate increased need in the next few years. The market was perceived by all as having a surplus of trained people for the number of positions available. In addition, the turnover rate is low, with a tendency to fill vacancies with registered nurses. All hospitals surveyed had employed Metro graduates and were quite satisfied. They also hired graduates from Iowa Western Community College.

Skills and Knowledge. The basic requirements for a surgical technician are completion of a formal educational program in surgical technology and eligibility for certification, although most employers preferred to hire only those persons already certified. A one-year program was considered the best preparation for employment in the field. Those respondents familiar with the Metro program thought it was well rounded and provided more than adequate training.

The position of surgical technician was described as "self-limiting," a "dead end" job. Mobility within the field is horizontal rather than vertical, with technicians specializing in orthopedics, neuro-surgery, obstetrics, cardiac surgery, reconstructive surgery, etc. Most advancement is the result of further

formal education, usually in the direction of registered nursing. A suggestion was made that technician training provide more course work in some of these specialty areas, particularly in open-heart surgery.

Given the trend toward hiring registered nurses to fill surgical technician positions, one respondent suggested that Metro should consider dropping its technician program and instituting a six-month course in operating room nursing. This person also said a need existed for an upgraded and more extensive nurse aide program.

Salaries. Starting salary for a non-certified technician is \$3.75 per hour. Certified surgical technicians can expect to begin at \$4.65 per hour. Experienced technicians can make up to \$6.80 per hour.

#### Summary and Conclusions

A minimal need exists for surgical technicians in the Omaha area. Currently the supply outstrips the demand, a condition that is expected to continue for some time. Training facilities should focus more on surgical specialties, especially within the nursing field.

APPENDIX

# A Sample Associate Degree Curriculum in Medical Record Technology

Academic Division  
 American Medical Record Association  
 875 North Michigan Avenue  
 Chicago, Illinois 60611

The medical record technician is a first line assistant to the medical record administrator in the medical record department of a health care facility. The technician is responsible for many aspects of preparing, analyzing and preserving health information needed by health practitioners, patients and the public. Students will be assigned by medical record technology program faculty to affiliated health care facilities for directed practice in medical record departments, with supervision and instruction by directed practice instructors. Applicants should type a minimum of 40 words per minute. Strongly recommended high school subjects include: typing, English, biological science (with lab), and mathematics.

## Semester System

<b>Freshman Year</b>	<i>Course</i>	<i>Credit Hours</i>	
<b>Fall Semester</b>	English	3	
	Anatomy & Physiology (with lab)	4	
	Medical Terminology	3	
	Medical Record Science I	4	
	(Includes: Introduction to the Health Care Delivery System, Analysis, Admitting Office Procedures, Numbering & Filing Systems.)		
	Elective	3	
		<hr/> 17	
<b>Spring Semester</b>	English	3	
	Introduction to Data Processing	3	
	Mathematics	3	
	Medical Transcription	3	
	Directed Practice I	1	
	Medical Record Science II	4	
	(Includes: Nomenclatures, Coding & Indexing, Registers, Accreditation Standards.)		
		<hr/> 17	
<b>Sophomore Year</b>	<b>Fall Semester</b>	<i>Course</i>	<i>Credit Hours</i>
		Social Science	3
	Elective (Approved)	3	
	Pathophysiology	3	
	Directed Practice II	2	
	Medical Record Science III	4	
	(Includes: Statistics, Health Data Systems, Medical Care Evaluation, Utilization Review & PSRO Functions.)		
	Medico Legal Aspects	2	
		<hr/> 17	
<b>Spring Semester</b>	Humanities	3	
	Medical Record Seminar	2	
	Medical Record Personnel Supervision	3	
	Directed Practice III	3	
	Medical Record Science IV	4	
	(Includes: Professional Relations, Current Trends, Organizational Patterns & Functions of Various Health Care Institutions.)		
		<hr/> 15	

**Total Credits: 66**

### Recommended Electives

Sociology; Psychology; Human Relations; Microbiology; Speech; Advanced Data Processing; Basic Statistics.

*See reverse side for Quarter System*