



**APPENDIX B:
PURSUING A HEALTH CARE CAREER IN MICHIGAN**



DEMAND FOR HEALTH CARE SERVICES = HEALTH CARE JOBS

Perhaps the best economic news in Michigan today is the abundance of good jobs available in health care.

Three factors are placing crushing demands for medical services on health care providers that, in turn, are creating thousands of new health care jobs. First, Michigan residents are living longer and accessing health care services more frequently. This trend is expected to continue well into the future. Second, because so many Michigan residents have lost good jobs that provided health care benefits, the state's Medicaid caseload has soared. As of January, nearly 1.5 million Michigan citizens — a new record — were receiving health care through Medicaid. Lastly, Michigan has a large and growing population of more than 1 million people who have no health insurance of any kind.

Perhaps the best economic news in Michigan today is the abundance of good jobs available in health care.

From a workforce perspective, these demands are creating and sustaining significant job opportunities for Michigan residents who have the higher skills and advanced educations to fill them. *Health Care Workforce Development in Michigan*, an October 2004 study prepared for the Michigan Department of Labor & Economic Growth, projects that the state will need to fill more than 100,000 professional and technical health care jobs between 2004 and 2015. A complete copy of

Health Care Workforce Development in Michigan is available at www.michigan.gov/cis/0,1607,7-154-106436-,00.html.

As Michigan's economy continues to diversify and lose manufacturing jobs, the state's health care sector will become an even more significant source of stable jobs that pay good wages and provide full benefits for a growing number of Michigan residents and their families.

HOW TO GET A HEALTH CARE JOB IN MICHIGAN

Those who are considering careers in health care will find thousands of good job opportunities in Michigan now and in the future. This section of the study — new in this year's edition of the Economic Impact of Health Care in Michigan — is for students and others who are considering a health care job or career.

Health Care Education, Training & Academic Requirements

Health care jobs are generally held by people with advanced education and training. Health care training is available at each of Michigan's 28 community colleges, 10 of its 70 independent institutions, and all but one of its 15 public universities. Health care training is also available at the state's teaching hospitals.

Most community colleges offer entry level certification, associate degrees, and transfer options to baccalaureate and pre-professional programs. In addition, community colleges often work closely with hospital-based programs to provide academic components of health care training, as well as offering continuing education and refresher courses for those currently employed or wishing to re-enter the health care field. Michigan's public universities — some of the finest in the nation — offer education in many health care delivery fields. Upon entering specific academic programs, students complete courses relevant to their specialties with emphasis on training necessary to develop clinical skills. Internships in clinical settings often serve as capstone courses prior to graduation.

Students entering health care education must have a high school diploma or equivalent. All health care education programs are science intensive. Students are strongly encouraged to complete prerequisite courses in biology, chemistry, medical terminology, anatomy, physiology, and mathematics prior to entering college programs.

The following information provides a brief summary of some common jobs in health care. Salary information was obtained from the 2006-2007 edition of the *Occupational Outlook Handbook* on the Web site (<http://stats.bls.gov/oco/home.htm>) of the U.S. Bureau of Labor Statistics, which used data as of May 2004, and the Web site (<http://www.michlmi.org/employer/layout010201a.jsp>) of the Office of Labor Market Information in the Michigan Department of Labor & Economic Growth, which used data as of November 2004.

The following pages provide an at-a-glance look at licensed health care career opportunities in Michigan. They include a brief description of each career, including educational requirements and salary levels.

LICENSED HEALTH CARE PRACTITIONERS

Dentist

Dentists diagnose, prevent and treat problems of the teeth and tissues of the mouth. Most are general practitioners who handle a wide variety of dental needs, but there are eight specialty areas. They include orthodontics (straightening teeth), oral and maxillo-facial surgery (operating on the mouth/jaws), pediatric dentistry, periodontics (treating the gums/bone supporting teeth), prosthodontics (making artificial teeth or dentures), endodontics (root canal therapy), dental public health, and oral pathology (studying diseases of the mouth).

Average Annual Salary

U.S. mid-range not provided; median of \$129,920

Michigan average: \$134,250

Educational Requirements

All 50 states and the District of Columbia require dentists to be licensed, which usually requires graduation from a dental school accredited by the American Dental Association and passing written and practical examinations.

Optometrist

Optometrists examine people's eyes to ascertain vision problems/eye diseases and prescribe corrective lenses, vision therapy and low-vision rehabilitation. Most are private practitioners who also handle the business aspects of running an office.

Average Annual Salary

U.S. mid-range \$84,000 to \$166,000 with median of \$114,000

Michigan average: \$98,180

Educational Requirements

The Doctor of Optometry degree requires completion of a four-year program at an accredited optometry school, preceded by at least three years of pre-optometric study at an accredited college or university.

Pharmacist

Pharmacists distribute prescribed drugs, provide information to patients about medications and their use, and advise health practitioners on the selection, dosages, interactions, and side effects of medications.

Average Annual Salary

U.S. mid-range \$75,720 to \$94,850, with median of \$84,900

Michigan average: \$86,080

Educational Requirements

The Pharm.D. is a four-year program that requires at least two years of college study prior to admittance, although most applicants have completed three years.

Physician

Physicians are doctors who treat disease and injury and prescribe medications for preventive and curative treatment. Physicians may become internists and family practitioners, or specialize in specific areas.

Average Annual Salary

Physician salaries vary widely, depending on the type of practice and specialty.

U.S. median salaries for physicians and surgeons ranged from \$132,953 for beginning pediatricians to \$321,686 for anesthesiologists practicing the specialty more than a year.

Michigan average salaries for physicians ranged from \$122,230 for family and general practitioners to \$192,630 for surgeons.

Educational Requirements

To attend medical school, students must complete three or four years of college with a strong emphasis on science and take the MCAT (Medical College Admissions Test). Medical school usually includes two years of additional study in basic and clinical sciences, followed by a two-year hospital internship. Physicians who want to specialize must then complete a residency in their specialty, which may take three to six years.

Physician Assistant

Physician assistants work under the supervision of physicians to perform physical examinations, provide routine tests, and treat illness and injury. They prescribe medications, provide patient and family education, and provide appropriate referral to other health care team members.

Average Annual Salary

U.S. mid-range \$57,110 to \$83,560, with median of \$69,410

Michigan average: \$74,610

Educational Requirements

Acceptance to an academic physician assistant program requires at least two years of collegiate-level study and the completion of specific prerequisite courses.

Physician assistant programs vary in length and type of degree, but all include extensive supervised clinical training.

Registered Nurse and Advanced Practice Nurse

Registered nurses (RNs) supervise and plan the care of ill patients; oversee care given by practical nurses and nurses' aides; ensure that physicians' orders are followed; and may give injections and administer fluids. RNs often specialize in fields such as post-surgery care or pediatrics.

Advanced practice nurses are RNs with advanced educational and clinical experience beyond that required for initial licensure. Board certification is available in four specialties:

- **Nurse practitioners** work under the delegation and supervision of physicians and others to provide comprehensive primary care, including physical examinations; diagnosing, treating, and monitoring illnesses; prescribing medications and other treatments; and patient education.
- **Clinical nurse specialists** evaluate a health care facility's nursing practice and staff against established levels of patient care programs and clinical competency to ensure positive patient population outcomes.
- **Nurse anesthetists** administer anesthetics to patients under the delegation and supervision of surgeons, anesthesiologists, dentists, or other qualified professionals during procedures requiring anesthesia.

- **Nurse midwives** work under the delegation and supervision of physicians to provide health care for patients with obstetric and gynecologic needs, such as during childbirth and with postpartum care. They are concerned with the health and safety of both mother and infant.

Average Annual Salary

U.S. mid-range \$43,370 to \$63,360, with median of \$52,330 (*Note: advanced practice nurses usually receive salaries in the high range of nurse salaries, earning more than \$74,760 in 2004.*)

Michigan average: \$55,380

Educational Requirements

Some colleges offer two-year nursing programs leading to a diploma or associate degree and are combined with clinical practice in hospitals. Bachelor's degrees are required for nearly all nursing management positions and a master's degree is required to teach.

Advanced practice nurses are registered nurses typically holding a master's degree. Formal training for advanced practice nurses consists of a combination of didactic and clinical training with supervised clinical practice in the specialty area.

THERAPISTS

Occupational Therapist

Occupational therapists design and supervise therapy programs to help patients who are mentally, emotionally or physically disabled adjust to handicaps and regain abilities to perform daily living and self-care skills.

Average Annual Salary

U.S. mid-range \$46,690 to \$65,010, with median of \$54,660

Michigan average: \$53,150

Educational Requirements

All states require either a bachelor's or master's degree that includes clinical experience and successful completion of a national examination to become a certified occupational therapist.

Physical Therapist

Physical therapists develop and supervise written treatment plans to help patients restore bodily functions, prevent permanent disability, and relieve pain after an injury or illness. Therapy is designed to increase strength, coordination and range of motion.

Average Annual Salary

U.S. mid-range \$50,330 to \$71,760, with median of \$60,180

Michigan average: \$65,360

Educational Requirements

A bachelor's degree with emphasis on the sciences is required. Michigan and most other states require students to earn a master's degree and pass a certification examination to become a licensed physical therapist.

Radiation Therapist

Radiation therapy involves use of penetrating beams of high-energy radiation to treat diseases such as cancer. Radiation therapists are responsible for accurately recording, interpreting and administering the treatment prescribed by radiation oncologists.

Average Annual Salary

U.S. mid-range \$47,380 to \$69,650, with median of \$57,700

Michigan average: \$57,140

Educational Requirements

Radiation therapists must have a strong background in science. Career training includes a combination of classroom and clinical education, offered at both two-year and four-year institutions. Students then must pass a certification exam administered by the American Registry of Radiologic Technologists.

Respiratory Therapist

Respiratory therapists treat breathing and heart-lung conditions by administering oxygen, oxygen mixtures, aerosol medications and chest physiotherapy. They often provide emergency treatment for patients with heart failure, stroke, drowning or shock.

Average Annual Salary

U.S. mid-range \$37,650 to \$50,860, with median of \$43,140

Michigan average: \$44,910

Educational Requirements

To become a registered respiratory therapist, students must graduate from an approved two-year, college-level program at a community college or a vocational school and pass national written and clinical examinations.

ALLIED HEALTH TECHNICIAN & TECHNOLOGISTS

Cardiovascular Technician

Cardiovascular technicians assist in diagnosing and treating medical problems related to the body's cardiac and peripheral vascular systems, often through the noninvasive use of ultrasound equipment to perform tests called echocardiograms. Those who specialize in invasive cardiac catheterization procedures are called cardiology technologists.

Average Annual Salary

U.S. mid-range \$27,890 to \$50,130, with median of \$38,690

Michigan average: \$44,970

Educational Requirements

Two-year programs are offered at some community colleges and vocational/technical schools, with one year of core courses and one year of specialized education in either noninvasive or invasive technology. Those qualified in a related allied health care field need to complete only one year of specialized education.

Dental Hygienist

The dental hygienist is a professional licensed to provide direct care to patients, including oral prophylaxis (cleaning), taking X-rays, assessing the condition of the periodontium (gums) and providing periodontal therapy. They also act as dental health educators.

Average Annual Salary

U.S. mid-range \$47,258 to \$70,346, with median of \$58,344

Michigan average: \$55,700

Educational Requirements

Dental hygiene education can be obtained in a two-year certificate or associate degree program or in a four-year bachelor's degree program. All states require a license to practice dental hygiene, obtained by successfully completing both a clinical and written exam, the National Board Dental Hygiene Examination, or a comparable state exam.

Emergency Medical Technician-Paramedic

Emergency medical technicians, or EMTs, usually work in teams of two in specially designed ambulances. They provide immediate life- or limb-saving medical treatment at the scenes of accidents and injuries and transport casualties to hospital emergency rooms for further care. EMTs are classified into three categories.

- **EMT-Basic:** Staffs ambulances providing basic life support (e.g., restoring breathing, controlling bleeding, treating shock, administering oxygen, bandaging wounds, assisting heart attack victims).
- **EMT-Intermediate:** Undergoes an additional 65-80 hours of training and can perform additional duties (e.g., administering intravenous fluids and using defibrillators).
- **EMT-Paramedic:** Provides extensive pre-hospital care by administering drugs, interpreting electrocardiograms (EKGs) and using complex equipment. Paramedics undergo an additional 600 to 1,000 hours of instruction, including clinical and field internships.

Average Annual Salary

U.S. mid-range \$19,970 to \$33,210, with median of \$25,310

Michigan average: \$29,010

Educational Requirements

Basic emergency medical technician training includes about 120 hours spent in the classroom and 10 hours in a hospital emergency room. EMTs are required to pass state licensing or certification tests and participate in continuing education programs. Many earn associate degrees.

Laboratory Specialist and Technician

Clinical laboratory specialists include both clinical laboratory technicians and clinical technologists, also referred to as medical laboratory technicians or medical technologists. Both perform laboratory work to identify, diagnose and treat diseases. Technologists perform more complex laboratory tests and procedures, as well as supervise technicians, confirm their tests, and manage laboratory quality control programs.

Average Annual Salary

Clinical laboratory technician

U.S. mid-range \$24,890 to \$37,770, with median of \$30,840

Michigan average: \$32,650

Clinical technologist

U.S. mid-range \$38,740 to \$54,310, with median of \$45,730

Michigan average: \$46,950

Educational Requirements

An associate degree or completion of a specialized in-house training program is required to become a clinical laboratory technician. A bachelor's degree is normally required to become a clinical technologist; however, some employers accept an associate degree and extensive clinical experience as a substitute. Many technologists pursue additional graduate education or specialized training.

Licensed Practical Nurse

Licensed practical nurses (LPNs) — also called licensed vocational nurses in California and Texas — provide bedside care to patients who are ill, injured, convalescent and physically disabled. LPNs work under the supervision of registered nurses (RNs) and provide care that requires technical knowledge and skill, but not necessarily the in-depth professional training and education of an RN.

Average Annual Salary

U.S. mid-range \$28,830 to \$40,670, with median of \$33,970

Michigan average: \$36,920

Educational Requirements

Persons interested in becoming an LPN must complete a 12- to 18-month, state-approved vocational/practical nursing program and obtain state licensure.

Nuclear Medicine Technologist

Nuclear medicine technologists prepare and administer radiopharmaceuticals (radioactive substances) to detect and treat disease. They position equipment over patients to make images that identify abnormal areas and perform laboratory tests on tissue samples. Strict safety regulations must be followed due to the potentially dangerous effects of radiation.

Average Annual Salary

U.S. mid-range \$48,720 to \$67,460, with median of \$56,450

Michigan average: \$59,720

Educational Requirements

One-year programs that lead to certification are offered by hospitals, while associate and bachelor's degrees are offered in colleges and universities. Many states require licensing, and all technologists must meet federal standards for administering and using radioactive materials.

Pharmacy Technician

Pharmacy technicians work under the direction of a pharmacist to fill prescriptions according to doctors' orders. They measure medication and add drugs to intravenous solutions, which a pharmacist rechecks before dispensing. Technicians also assist customers, handle inventory duties and complete insurance forms.

Average Annual Salary

U.S. mid-range \$19,552 to \$28,808, with median of \$23,650

Michigan average: \$25,440

Educational Requirements

A high school diploma is usually required to begin pharmacy technician training. Two-year courses leading to certificates are available at most community colleges, and six-month programs are offered at privately operated schools.

Radiology Technician

Radiology technicians, or radiographers, use X-ray and ultrasound machines, magnetic resonance and positron emission scanners, and other equipment to help diagnose and treat illnesses and injuries under the direction of a physician. They explain and prepare patients for radiological tests and treatment.

Average Annual Salary

U.S. mid-range \$36,170 to \$52,430, with median of \$43,350

Michigan average: \$44,200

Educational Requirements

To become a registered radiology technician, students must complete a two-year training program in a hospital or school. Many states, not including Michigan, require a state-administered license to practice.

Surgical Technologist

Surgical technologists, also called surgical technicians or operating room technicians, assist in preparing operating rooms for surgery. They are responsible for having surgical instruments, sterile bandages and linens, needed fluids, and other equipment ready; handing instruments to physicians during surgery; and counting sponges and needles before and after the operation.

Average Annual Salary

U.S. mid-range \$28,560 to \$40,750, with median of \$34,010

Michigan average: \$36,250

Educational Requirements

Many vocational and junior colleges offer one- to two-year programs in surgical technology. Students must pass an examination by the Association of Surgical Technologists to become certified.

Ultrasound Technician

Ultrasound technicians, or diagnostic medical sonographers, use equipment that sends high-frequency sound waves into the patient's body, creating reflected echoes that are collected to form an image. This diagnostic data is then interpreted by a physician.

Average Annual Salary

U.S. mid-range \$44,720 to \$61,360, with median of \$52,490

Michigan average: \$50,430

Educational Requirements

Ultrasound technician programs are for one, two or four years, depending on the degree awarded.

HEALTH CARE SUPPORT OCCUPATIONS

Dental Assistant

Dental assistants work with dentists and others to provide dental care. They prepare patients for examinations, assist with dental procedures, prepare solutions, process X-rays, sterilize instruments, and keep treatment records. Clerical work may also be involved.

Average Annual Salary

U.S. mid-range \$23,005 to \$34,632, with median of \$28,330

Michigan average: \$30,870

Educational Requirements

Some dental assistants may obtain their skills on the job; however, many complete nine-month to two-year programs accredited by the American Dental Association that lead to a certificate or an associate degree. No licensing is required and certification is optional.

Medical Assistant

Medical assistants help deliver patient care by performing administrative and clinical tasks such as documenting vital signs, performing simple lab tests, and assisting during patient exams. Some may also remove sutures, draw blood and change dressings.

Average Annual Salary

U.S. mid-range \$20,650 to \$28,930, with median of \$24,610

Michigan average: \$25,640

Educational Requirements

Six-month to two-year medical assistant training programs are provided by community colleges and vocational/technical training schools.

Occupational Therapy Assistant and Aide

Under the supervision of an occupational therapist, occupational therapy assistants and aides help patients who are mentally, emotionally or physically disabled adjust to handicaps and regain abilities to perform daily living and self-care skills.

Occupational therapy assistants work closely with patients, using special equipment to help patients with their therapy. They teach patients how to adjust to work and home life after becoming disabled by injury or illness and document health insurance billing.

Occupational therapy aides prepare materials/equipment used during treatment and do clerical tasks. Aides are not licensed, so cannot perform the broad range of tasks performed by assistants.

Average Annual Salary

Occupational Therapy Assistant

U.S. . Mid-range \$31,970 to \$44,390 with median of \$38,430

Michigan average: \$39,480

Occupational Therapy Aide

U.S. Mid-range \$19,080 to \$31,910 with median of \$23,150

Michigan average: \$23,870

Educational Requirements

One-year diploma programs and associate degree programs for occupational therapy assistants are available. Graduates of both types of programs take a certification exam.

After earning a high school diploma or equivalent, occupational therapy aides usually receive most of their training on the job.

Physical Therapy Assistant and Aide

Physical therapy assistants and aides assist in providing services to improve mobility, relieve pain, and prevent or limit permanent physical disabilities of patients suffering from injury or disease.

Physical therapy assistants work under the direction of physical therapists to increase patients' strength, coordination and range of motion through exercise, massage, traction and other treatments.

Physical therapy aides help make therapy sessions productive under the direct supervision of a physical therapist or physical therapy assistant by keeping treatment areas clean/organized, preparing for therapy sessions, and helping patients move to and from treatment areas.

Average Annual Salary

Physical Therapy Assistant

U.S. Mid-range \$31,060 to \$44,050 with median of \$37,800

Michigan average: \$34,780

Physical Therapy Aide

U.S. Mid-range \$17,990 to \$26,310 with median of \$21,380

Michigan average: \$25,310

Educational Requirements

Physical therapy assistants typically earn an associate degree from an accredited program. Some states, not including Michigan, require licensure. Physical therapy aides need a high school diploma or equivalent and receive additional on-the-job training.

OTHER RESOURCES

Medical Opportunities in Michigan (MOM) - www.mimom.org

MOM is an internet recruitment tool for health care employers to locate physicians, physician assistants and nurse practitioners who are looking for positions in Michigan. These healthcare professionals can use the Web site to search opportunities in Michigan.

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2410 Woodlake Drive
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Individual Career Opportunities in Michigan (iCON) - www.nurseicon.org

iCON is an internal recruitment tool for health care employers to locate nurses that are looking for positions in Michigan. Nurse can use this website to search for nursing opportunities in Michigan.

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Health Opportunties for Today and Tomorrow (HOTT) - www.mihott.org

HOTT is a career exploration Web site where students can find detail on 83 different health care careers. This Web site contains detailed information such as the role and responsibilities of each career, lists of Michigan colleges and Universities that offer these training programs and resources to learn more about becoming a health care professional.

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Health Occupations Students of American (HOSA) - www.michiganhosa.org

HOSA is a student organization whose mission is to promote career opportunities in health care and to enhance the delivery of quality health care to all people.

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