

# Health Systems

## Oakland County, Michigan **SKILLS NEEDS ASSESSMENT PROJECT**



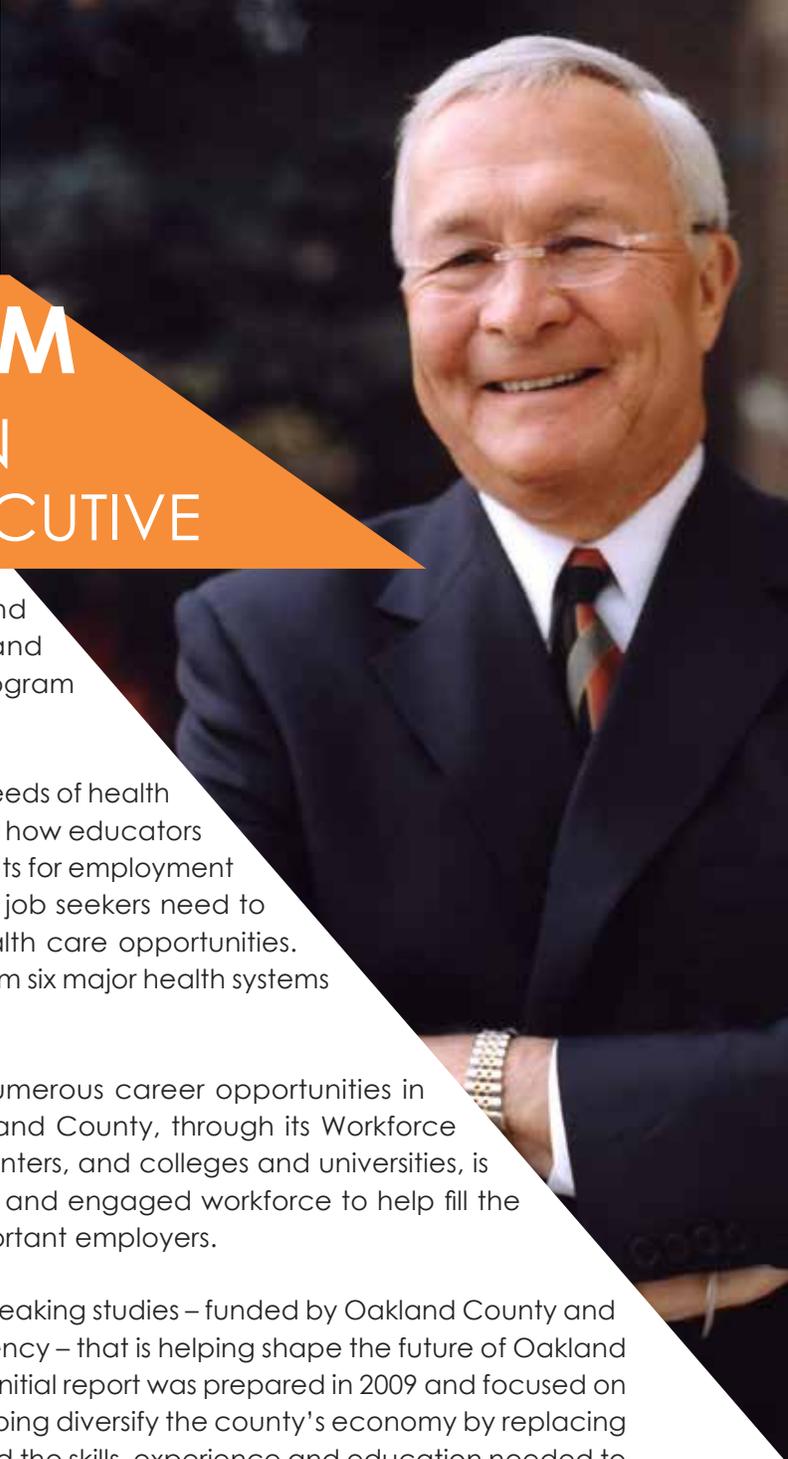
Report prepared and submitted by:

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**October 22, 2014**



A portrait of L. Brooks Patterson, an older man with short grey hair and glasses, wearing a dark suit, white shirt, and patterned tie. He is smiling and has his arms crossed. The background is dark and out of focus.

# A MESSAGE FROM L. BROOKS PATTERSON OAKLAND COUNTY EXECUTIVE

On behalf our region's employers and educators, I invite you to review Oakland County's 2014 Skills Needs Assessment Program report.

You'll find an in-depth look at the specific needs of health systems in Oakland County and the region, how educators can best prepare their curricula and students for employment in that field and what skills and education job seekers need to qualify for one of a host of attractive health care opportunities. The information used in the report came from six major health systems from southeastern Michigan.

Health systems have told us there are numerous career opportunities in various health-related occupations. Oakland County, through its Workforce Development Division, Michigan Works! centers, and colleges and universities, is committed to helping prepare a qualified and engaged workforce to help fill the immediate and future needs of these important employers.

This report is the third in a series of ground-breaking studies – funded by Oakland County and the Michigan Workforce Development Agency – that is helping shape the future of Oakland County's knowledge-based economy. The initial report was prepared in 2009 and focused on Emerging Sectors® companies that are helping diversify the county's economy by replacing lost manufacturing jobs. The report identified the skills, experience and education needed to work for emerging technology companies. The second report, completed in 2013, focused on the needs of advanced manufacturing and provided a list of qualifications needed to be considered for one of the top 14 jobs identified in that sector.

My sincere thanks go to the Oakland County Workforce Development Board and the Oakland County Business Roundtable's Workforce and Education Committee for their support of this project as well as the Board of Commissioners for its continued support. Thanks also to Beaumont Health System, Henry Ford Health System, McLaren Health Care, Oakwood Healthcare, Saint Joseph Mercy Health System and the University of Michigan Health System for their participation in this report.

I hope you find this 2014 Skills Needs Assessment Project report useful as you learn about the many opportunities available in health care.

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**The Skills Needs Assessment Project was funded by:**  
L. Brooks Patterson, Oakland County Executive  
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The Michigan Workforce Development Agency

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# EXECUTIVE SUMMARY

The Skills Needs Assessment Project (SNAP) 2014 was conducted by the Oakland County Michigan Works! Agency (MWA) on behalf of Oakland County Executive L. Brooks Patterson and the Oakland County Workforce Development Board. This project is a direct result of the SNAP initiatives conducted in 2009 and 2012 targeting the County's Emerging Sectors® and Advanced Manufacturing industries, respectively. Those published reports contained "customized job profiles" for the top jobs in each of the emerging sectors and advanced manufacturing industries. Individual profiles identified the knowledge, skills and abilities (KSA's) that job seekers and students needed in order to qualify for these positions. Given the efficacy of the initial SNAP projects, the Oakland County Executive and Workforce Development Board sought to replicate and expand it for the health care industry sector.

The focal point of the project was the development of a comprehensive web-based survey tool for the collection of data specific to the needs of health care employers. Data categories on which feedback was collected included company demographics; greatest hiring challenges and suggested remedies; important but difficult to find personal competencies in job candidates; difficult to fill job openings within a particular job family; and, the knowledge, skills and abilities associated with those occupations. Customized job profiles were then created for the jobs identified as most difficult to fill.

To accomplish all of the designated goals and objectives while ensuring the accuracy of the initiative, the project was conducted in four distinct phases: Research, Design, Validation and Implementation. The Research Phase included the review and analysis of extensive employment, skills and assessment data available through various web-based information sources utilizing historic and real time labor market information. The Design Phase involved the development of an acceptable and preliminary survey instrument. As part of the Validation Phase, individuals from the educational and employer communities were engaged in the process. Educators were asked to provide feedback on job profile content and employers assisted in the final development of databank components, including job specific content (job families/jobs/knowledge/skills/abilities) and survey dissemination strategies. Lastly, the Implementation Phase involved the comprehensive roll-out of the customized web-based survey designed to obtain quantifiable data from employers.

The Skills Needs Assessment Project surveys were disseminated to employers throughout the Southeast Michigan region with the partnership and cooperation of several organizations, including the Michigan Health and Hospital Association (MHA); the Southeast Michigan Hospital HR Directors; the State of Michigan Workforce Development Agency; and the Workforce Intelligence Network (WIN). In total, surveys were pushed to approximately 1,500 health care employers of all sizes across the Southeast Michigan region (Genesee, Lapeer, Livingston, Macomb, Monroe, Oakland, Saint Clair, Washtenaw, and Wayne Counties).

Employers from various health care industry sectors were given the opportunity to complete the survey instrument and provide direct feedback on the jobs for which qualified candidates may be difficult to find. Employer representatives received an initial email invitation with a direct link to the survey instrument. Several subsequent reminders were sent to the targeted population. Ultimately, sufficient survey responses allowing for further analysis were gathered from the Health System industry sector. Respondents included representatives from Beaumont Health System, Henry Ford Health System, McLaren Health Care, Oakwood Healthcare, Saint Joseph Mercy Health System, and the University of Michigan Health System.

In total, health care employers were given the option to select occupations from four job families, including Allied Health, Information Technology, Nursing, and Professional. The job family most frequently selected by respondents was the Nursing category (43 percent).

Comprehensive survey data analysis resulted in the creation of sixteen customized job profiles representing the occupations identified as most in demand and difficult to fill with qualified candidates from the available labor pool. Job profiles are specific to the Health System industry sector only.

Job profiles were created for the following occupations:

- Cardiovascular Technologist
- Computer Systems Analyst
- Critical Care Nurse
- Diagnostic Medical Sonographer
- Medical and Clinical Lab Technician
- Medical and Clinical Lab Technologist
- Medical Records and Health Info Technician
- Nurse Practitioner
- Nursing Assistant
- Pharmacist
- Pharmacy Technician
- Physical Therapist
- Physician Assistant
- Registered Nurse with Specializations
- Speech Language Pathologist
- Surgical Technologist

In addition to information on estimated annual job openings, desired education level and regional completions, specialty knowledge areas, and important personal competencies, each job profile contains the most important KSA's.

The survey analysis also provides insight into the greatest hiring challenges regional employers encounter and suggested remedies. Most frequently identified challenges in rank order include:

- An aging workforce nearing retirement;
- Lack of job candidates with required experience;
- Financial concerns or restrictions;
- Insufficient labor pool to meet demand;
- Perception of Southeast Michigan region; and
- Insufficient clinical space for learning opportunities.

# PROJECT SUMMARY BY PHASE

## RESEARCH PHASE

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During the Research Phase, extensive employment, skills and assessment data available through various web-based information sources were reviewed and analyzed. This initial data analysis and contextual research was used to identify health care jobs spanning multiple sectors. The EdEn team utilized Burning Glass\* data extraction and analysis technologies to obtain real-time labor market intelligence. This data, coupled with other data sources, including Economic Modeling Specialist Intl (EMSI)\* and direct feedback from Oakland County MWA offices, allowed for the creation of a list of in-demand health care occupations within the region. Comparative analyses against other federal labor sources were then completed, allowing for the segmentation of the occupations into job families. Feedback from health systems was also considered in order to appropriately categorize occupations into the following four job families: Allied Health, Information Technology, Nursing, and Professional. These job families were selected to minimize confusion for survey participants when selecting occupations. As much as possible, real-time labor market data was used to provide a springboard for the creation of the underlying survey databank, including occupation associated knowledge, skills, and abilities.

It was determined that employers within seven industry sectors could be targeted for completion of the survey instrument. Those industry sectors included: Clinical and Ambulatory Health Care; Health Systems; Home Health Care; Hospitals; Nursing Care Facilities; Offices of Health Generalists and Specialists; and Pharmacy and Health Retail Wholesale. A preliminary list of targeted employers was then compiled with the assistance of the Oakland County Department of Economic Development & Community Affairs, and the Oakland County Michigan Works One Stop Service Centers.

\*EMSI and Burning Glass are explained in detail in page 9.

## DESIGN PHASE

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The Design Phase of the Skills Needs Assessment Project involved the development of an acceptable and preliminary survey instrument targeting health care employers. In brief, the EdEn team created structured and user-friendly survey instrument(s) designed to collect business information on survey takers in addition to specific input in the following broad categories: hiring challenges and remedies; important but difficult to find personal competencies in job candidates; in-demand jobs for which employers are having difficulty finding qualified candidates; associated knowledge, skills, and abilities for those jobs; specialty skills or knowledge; and the required degrees, certificates or credentials.

Critical to the Design Phase was the engagement of Dr. Ty Partridge, Wayne State University professor and statistician, and the Lindner Technology Group, Inc. (LTGI), a technology consulting, software, and services company. Dr. Partridge was instrumental in the development of appropriate qualitative and quantitative survey questions; question type and rating scale selection; data associations; and appropriate database structure to allow for valid statistical analysis. LTGI provided the information technology services required for

the development of the web-based survey instrument(s) and the secure collection of survey data. LTGI has years of experience in the development of custom database-driven websites for education partners. LTGI applications are built using industry-standard technologies, including Microsoft® Windows, IIS (Internet Information Server), .net, Active Server Pages (.asp), JavaScript, and SQL Server. Data is easily exportable to SPSS and/or Microsoft Excel for further analysis. Both of these platforms are compatible with Oakland County technology.

## VALIDATION PHASE

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Concurrent to the Design Phase, the EdEn Team began to solicit feedback from the educational and employer communities. Educators who were also stakeholders in the initial SNAP project were asked to provide feedback regarding the usefulness of the original SNAP job profiles. As the primary “users” of the customized job profiles, EdEn sought to determine which components contained within these profiles were the most useful to educators as well as other data components that may be useful if added to the job profiles. Several employers were also engaged in 1:1 interview sessions. The purpose of each session was to obtain specific feedback from employers on the survey databank prior to implementation. Additional research was conducted by the EdEn Team to determine the validity of suggestions, and those deemed valid and appropriate were then incorporated into the survey instrument.

## IMPLEMENTATION PHASE

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Upon completion of the validation process, the EdEn team was prepared to begin widespread distribution of the survey to health care employers. Several web-based communication devices clearly articulating the goals and objectives of the project were developed to appropriately disseminate the survey to the target audience through several channels. The EdEn Team also designed a webpage interface that mimicked the web brand established through the AdvantageOakland.com website which linked directly to the survey instruments. Through a collective effort involving the Michigan Health and Hospital Association (MHA); the Southeast Michigan Hospital HR Directors; the State of Michigan Workforce Development Agency; and the Workforce Intelligence Network (WIN), the survey was distributed to over 1500 health care employers in the region. During this phase, Health System human resource executives participating in the health care database work group convened by the Workforce Intelligence Network were engaged in a collaborative environment to discuss and complete the survey instrument. Ultimately, survey responses allowing for further analysis were gathered from the Health System industry sector. Respondents included representatives from Beaumont Health System, Henry Ford Health System, McLaren Health Care, Oakwood Healthcare, Saint Joseph Mercy Health System, and the University of Michigan Health System.

# HEALTH SYSTEMS

## SKILLS NEEDS ASSESSMENT PROJECT

# SURVEY FINDINGS

*The Skills Needs Assessment Project targeting the Health Care industry was another landmark study for Oakland County. In an effort to continue to advance the economic prosperity of Southeast Michigan, the County was interested in obtaining a regional perspective on employment issues. Research and analysis conducted during the project coupled historical and real time labor market data, which allowed for the accumulation of an empirical data set. This data set then served as a baseline for verification by survey participants. Adaptive technology was used to develop customized survey instruments for distribution to health care employers across the region.*

*The information presented in the pages that follow represents the survey findings based upon feedback from the Health Systems within the Southeast Michigan region only.*

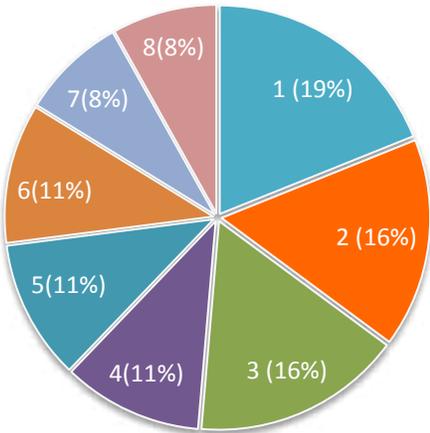
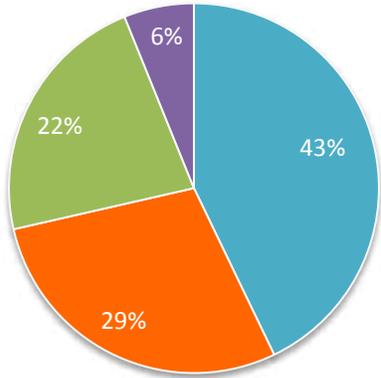
# RESULTS BY JOB FAMILY



## MOST FREQUENTLY SELECTED JOBS ACROSS FAMILIES

JOB	JOB FAMILY
Registered Nurse with Specializations	Nursing
Critical Care Nurse	Nursing
Cardiovascular Technologist	Allied Health
Diagnostic Medical Sonographer	Allied Health
Physical Therapist	Professional
Surgical Technologist	Allied Health
Nurse Practitioner	Nursing
Pharmacist	Professional
Pharmacy Technician	Allied Health
Physician Assistant	Professional
Speech-Language Pathologist	Professional
Computer Systems Analyst	Information Technology
Medical and Clinical Laboratory Technician	Allied Health
Medical and Clinical Laboratory Technologist	Allied Health
Medical Records and Health Information Technician	Allied Health
Nursing Assistant	Nursing

## MOST FREQUENTLY SELECTED JOB FAMILIES



## MOST DIFFICULT TO FIND PERSONAL COMPETENCIES ACROSS JOB FAMILIES BASED ON SURVEY RESPONSES

- 1 – Critical and Analytic Thinking
- 2 – Adaptability and Flexibility
- 3 – Dependability and Reliability
- 4 – Customer Focus
- 5 – Problem Solving and Decision Making
- 6 – Work Ethic
- 7 – Cultural Sensitivity
- 8 – Oral and Written Communication

The cumulative result of the Health Care Skills Needs Assessment project is the creation of customized job profiles. The profiles contain information specific to health systems in the region. Below is a **CUSTOMIZED JOB PROFILE GUIDE** to navigating each profile.

## JOB TITLE

O\*NET Code SOC Code

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Based upon O*Net Online occupational information created for the U.S. Department of Labor	Based upon O*Net Online occupational information created for the U.S. Department of Labor



### MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES (KSA)

KSA	KSA
KSA	KSA

The most important KSA's for a given occupation are derived from survey feedback whenever possible. When survey feedback was not statistically significant, results were combined with real time labor market data provided from Burning Glass\*.

**40**

Estimated annual job openings (2014-2019) for the specified occupation\*\*

**\$23.77**

Median hourly earnings for the specified occupation\*\*

### EDUCATION LEVEL

Most desired education level \*\*

**31**

Linked to desired education level and indicates how many graduates were available regionally\*\*

**11**

If more than one education level was desired, this is a secondary supporting statistic\*\*



### ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

This section contains a comprehensive listing of any specialized skills, certifications, or other unique knowledge requirements for the specified occupation as mentioned by respondents and/or found in online postings as compiled by Burning Glass.



### TASKS

This section contains a listing of tasks often associated with the specified occupation as documented by O\*Net Online and created for the U.S. Department of Labor.

#### DATA SOURCES:

\*Burning Glass updates a database of over 7 million current job listings compiled from over 17,000 sources and is the world's most comprehensive repository of job openings. The Labor/Insight™ tool is an advanced analytic application that provides access to real-time jobs data on a regional, statewide or national basis at an unparalleled, granular level of detail. Data combined with survey results was limited to the SE Michigan region exclusively.

\*\*Economic Modeling Specialist Intl (EMSI) Analyst is a web based tool that provides in-depth local employment labor market data.

### SOFT SKILLS IN DEMAND

This block contains a listing of the soft skills most often reported as important in job candidates for the specified occupation.

# REGISTERED NURSE, RN (WITH SPECIALIZATIONS)

O\*NET Code 29-1141.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Assess patient health problems and needs, develop and implement nursing care plans, and maintain medical records. Administer nursing care to ill, injured, convalescent, or disabled patients. May advise patients on health maintenance and disease prevention or provide case management. Licensing or registration required.	Case Management Registered Nurse, Charge Nurse, Director of Nursing (DON), Emergency Department RN (Emergency Department Registered Nurse), Home Care Registered Nurse, Long Term Care Registered Nurse, Medical-Surgical Registered Nurse, Oncology RN (Oncology Registered Nurse), Operating Room Registered Nurse (OR RN), Public Health Nurse (PHN), School Nurse, Staff Nurse, Staff RN (Staff Registered Nurse).

**NOTE:** *Highlighted titles were mentioned by survey respondents and may have been added to the list provided through O\*NET.*



## 26 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Acute Care	Outpatient Surgery Center Operations
Advanced Cardiac Life Support (ACLS)	Patient Care and Evaluation
Mental/Behavioral Health and Medicine	Patient Preparation
Case Management	Patient/Family Education and Instruction
Clinical Experience	Post Anesthesia Care Unit (PACU)
Computer Skills	Pre- and Post- Operative Procedures
Critical Care Nursing	Process Improvement
Discharge Planning	Rehabilitation Therapies
Home Health Care	Safety Systems
Hospice Care	Surgical Procedures and Protocol
Infection Control/Communicable Disease	Telemetry
Intensive Care Unit (ICU)	Treatment Planning
Operating Room Procedures and Protocol	Triage

**1558**

Anticipated Annual Job Openings (2014-2019)

**\$32.20**

Median Hourly Earnings

**ASSOCIATE'S DEGREE**

Most Desired Education Level

**1382**

Regional Associate's Degree Level Completions (2012)

**1501**

Regional Bachelor's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Acute Care Certification; Advanced Cardiac Life Support (ACLS) Certification; Basic Cardiac Life Support Certification; Certified Case Manager; Certified Dialysis Nurse; Certified Emergency Nurse; Certified Hospice and Palliative Nurse; Certified Medical-Surgical Registered Nurse (CMSRN); Certified Nurse Operating Room (CNOR); Certified Quality Inspector; Certified Rehab Nurse; Clinical Nurse Specialist (CNS); First Aid CPR Automated External Defibrillator; Home Care Certificate; Neonatal Resuscitation; Nurse Practitioner; Nursing Specialty Certification; Pediatric Advanced Life Support (PALS) Certification; Progressive Care Nursing; Registered Cardiac Electrophysiology Specialist; Registered Cardiovascular Invasive Specialist; Trauma Nursing Core Course (TNCC)



## TASKS

- Maintain accurate, detailed reports and records.
- Administer medications to patients and monitor patients for reactions or side effects.
- Record patients' medical information and vital signs.
- Monitor, record, and report symptoms or changes in patients' conditions.
- Consult and coordinate with health care team members to assess, plan, implement, or evaluate patient care plans.
- Modify patient treatment plans as indicated by patients' responses and conditions.
- Monitor all aspects of patient care, including diet and physical activity.
- Direct or supervise less-skilled nursing or health care personnel in a particular unit.
- Prepare patients for and assist with examinations or treatments.
- Instruct individuals, families, or other groups on topics such as health education, disease prevention, or childbirth and develop health improvement programs.

## SOFT SKILLS IN DEMAND

- LEADERSHIP
- TEACHING
- PLANNING
- ORAL AND WRITTEN COMMUNICATION
- BUILDING EFFECTIVE RELATIONSHIPS
- ORGANIZATIONAL SKILLS

# CRITICAL CARE NURSE

O\*NET Code 29-1141.03

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Provide advanced nursing care for patients in critical or coronary care units.	Critical Care Registered Nurse (CCRN), Intensive Care Unit Nurse, Cardiac Catheterization Laboratory Registered Nurse, Burn Center Nurse



## 24 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Advanced Cardiac Life Support (ACLS)	Mental/Behavioral Health
Cardiology	Neonatal Intensive Care Unit (NICU)
Clinical Experience	Patient Care
Communicable Disease	Patient Evaluation
Critical Care Nursing	Patient Preparation
Educational Programs	Patient/Family Education and Instruction
HIPAA Knowledge	Pediatrics
Hospice Care	Physical Medicine
Hospital Experience	Rehabilitation Therapies
Infection Control	Safety Systems
Intensive Care Unit (ICU)	Telemetry
Locomotion	Treatment Planning

**1558\***

Anticipated Annual Job Openings (2014-2019)

**\$32.20**

Median Hourly Earnings

**ASSOCIATE'S OR BACHELOR'S DEGREE**

Most Desired Education Level

**1382\***

Regional Associate's Degree Level Completions (2012)

**1501\***

Regional Bachelor's Degree Level Completions (2012)

\*Numbers represent the aggregate total for Registered Nurses. Statistics are not available for Critical Care Nurse alone.



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Advanced Cardiac Life Support (ACLS) Certification; Advanced Registered Nurse Practitioner; American Heart Association Certificate; Basic Cardiac Life Support Certification; Certified Case Manager; Clinical Nurse Specialist; Critical Care Registered Nurse (CCRN); First Aid CPR Automated External Defibrillator; Neonatal Resuscitation; Pediatric Advanced Life Support (PALS) Certification; Progressive Care Nursing; Trauma Nursing Core Course (TNCC).



## TASKS

- Assess patients' pain levels or sedation requirements.
- Monitor patients for changes in status and indications of conditions such as sepsis or shock and institute appropriate interventions.
- Set up and monitor medical equipment and devices such as cardiac monitors, mechanical ventilators and alarms, oxygen delivery devices, transducers, or pressure lines.
- Administer medications intravenously; by injection; orally; through gastric tubes; other.
- Evaluate patients' vital signs or laboratory data to determine emergency intervention needs.
- Prioritize nursing care for assigned critically ill patients, based on assessment data or identified needs.
- Document patients' medical histories and assessment findings.
- Advocate for patients' and families' needs, or provide emotional support for patients and their families.
- Conduct pulmonary assessments to identify abnormal respiratory patterns or breathing sounds that indicate problems.
- Administer blood and blood products, monitoring patients for signs and symptoms related to transfusion reactions.

## SOFT SKILLS IN DEMAND

**LEADERSHIP**

**TEACHING**

**PLANNING**

**TEAMWORK**

# CARDIOVASCULAR TECHNOLOGIST

O\*NET Code 29-2031.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Conduct tests on pulmonary or cardiovascular systems of patients for diagnostic purposes. May conduct or assist in electrocardiograms, cardiac catheterizations, pulmonary functions, lung capacity, and similar tests. Includes vascular technologists.	Cardiovascular Technologist (CVT), Cardiovascular Technician, Cardiology Technician, Cardiac Technician, Registered Cardiovascular Invasive Specialist (RCIS), EKG/ECG Technician (Electrocardiogram Technician), Electrocardiogram Technician (EKG Technician), Cardiopulmonary Technician, Cardiovascular Invasive Specialist, Cardiac Catheterization Technician



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Advanced Cardiac Life Support (ACLS)	Infection Control
Arrhythmia	Patient Preparation and Observation
Blood Administration	Pharmacy Procedures
Brachial Artery	Radiologic Technology
Cardiology	Repair
Cardiopulmonary Bypass	Specimen Handling
Catheterization	Sterile Process and Procedures
Electrocardiogram (EKG) Interpretation	Telemetry
Endoscopy	Ultrasound
Holter Monitor	Venipuncture

**40**

Anticipated Annual Job Openings (2014-2019)

**\$23.77**

Median Hourly Earnings

**POST-SECONDARY CERTIFICATE**

Most Desired Education Level

**31**

Regional Completions of at least 2 but less than 4 academic years (2012)

**11**

Regional Associate's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Advanced Cardiac Life Support (ACLS) Certification; Basic Cardiac Life Support Certification; Certified Cardiographic Technician; Registered Diagnostic Cardiac Sonographer; Microsoft Excel



## TASKS

- Monitor patients' blood pressure and heart rate using electrocardiogram (EKG) equipment during diagnostic or therapeutic procedures to notify the physician if something appears wrong.
- Explain testing procedures to patients to obtain cooperation and reduce anxiety.
- Observe gauges, recorder, and video screens of data analysis system during imaging of cardiovascular system.
- Monitor patients' comfort and safety during tests, alerting physicians to abnormalities or changes in patient responses.
- Obtain and record patient identification, medical history, or test results.
- Attach electrodes to the patients' chests, arms, and legs, connect electrodes to leads from the electrocardiogram (EKG) machine, and operate the EKG machine to obtain a reading.
- Adjust equipment and controls according to physicians' orders or established protocol.
- Prepare and position patients for testing.
- Check, test, and maintain cardiology equipment, making minor repairs when necessary, to ensure proper operation.
- Supervise or train other cardiology technologists or students.

## SOFT SKILLS IN DEMAND

**ORGANIZATIONAL SKILLS**

**CUSTOMER SERVICE**

**TROUBLESHOOTING**

**SELF-STARTER**

# DIAGNOSTIC MEDICAL SONOGRAPHER

O\*NET Code 29-2031.00

## JOB DESCRIPTION

Produce ultrasonic recordings of internal organs for use by physicians.

## OTHER REPORTED JOB TITLES

Cardiac Sonographer, Cardiac/Vascular Sonographer, Medical Sonographer, Registered Diagnostic Medical Sonographer (RDMS), Sonographer, Staff Sonographer, Ultrasonographer, Ultrasound Technician (Ultrasound Tech), Ultrasound Technologist (Ultrasound Tech)



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Anatomy and Physiology

Life Support

Blood Pressure Checking

Medical Terminology

Cardiovascular Disease

Obstetrics/Gynecology

Diagnostic Evaluation

Pathology

Diagnostic Procedures

Patient Positioning

Dictation

Patient/Family Education and Instruction

Echocardiography

Physical Demand

Hospital Experience

Qualitative Analysis

Infection Control

Quality Assurance and Control

Laboratory Equipment & Methods

Repair

**55**

Anticipated Annual Job Openings (2014-2019)

**\$28.02**

Median Hourly Earnings

**ASSOCIATE'S DEGREE**

Most Desired Education Level

**25**

Regional Associate's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Advanced Cardiac Life Support (ACLS) Certification; American Registry of Radiologic Technologists (ARRT) Certification; Basic Cardiac Life Support Certification; First Aid CPR Automated External Defibrillator; HIPAA Knowledge; Registered Diagnostic Cardiac Sonographer; Registered Diagnostic Medical Sonographer; Registered Polysomnographic Technologist



## TASKS

- Observe screen during scan to ensure that image produced is satisfactory for diagnostic purposes, making adjustments to equipment as required.
- Observe and care for patients throughout examinations to ensure their safety and comfort.
- Provide sonogram and oral or written summary of technical findings to physician for use in medical diagnosis.
- Select appropriate equipment settings and adjust patient positions to obtain the best sites and angles.
- Operate ultrasound equipment to produce and record images of the motion, shape, and composition of blood, organs, tissues, or bodily masses, such as fluid accumulations.
- Decide which images to include, looking for differences between healthy and pathological areas.
- Prepare patient for exam by explaining procedure, transferring patient to ultrasound table, scrubbing skin and applying gel, and positioning patient properly.
- Determine whether scope of exam should be extended, based on findings.
- Obtain and record accurate patient history, including prior test results or information from physical examinations.
- Maintain records that include patient information, sonographs and interpretations, files of correspondence, publications and regulations, or quality assurance records, such as pathology, biopsy, or post-operative reports.

## SOFT SKILLS IN DEMAND

**ORGANIZATIONAL SKILLS**

**COMMUNICATION SKILLS**

**RESEARCH**

**MANAGEMENT**

**PROBLEM SOLVING AND DECISION MAKING**

# PHYSICAL THERAPIST

O\*NET Code 29-1123.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Assess, plan, organize, and participate in rehabilitative programs that improve mobility, relieve pain, increase strength, and improve or correct disabling conditions resulting from disease or injury.	Chief Physical Therapist; Home Care Physical Therapist; Outpatient Physical Therapist; Pediatric Physical Therapist; Per Diem Physical Therapist; Physical Therapist, Director of Rehabilitation; Registered Physical Therapist (RPT); Rehabilitation Services Director; Staff Physical Therapist (Staff PT)



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Bedside Manner	Patient/Family Education and Instruction
Clinical Experience	Physical Demand
Disability Prevention	Physical Medicine
Discharge Planning	Physical Therapy
Fine Motor Skills	Therapeutic Program Development
HIPAA Knowledge	Rehabilitation
Home Care	Splints
Hospital Experience	Therapeutic Exercise and Procedures
Patient Counseling and Direction	Treatment Planning
Patient Evaluation	Ultrasound

**180**

Anticipated Annual Job Openings (2014-2019)

**\$39.30**

Median Hourly Earnings

**DOCTORATE DEGREE**

Most Desired Education Level

**1**

Regional Master's Degree Level Completions (2012)

**128**

Regional Doctorate Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

First Aid CPR Automated External Defibrillator; Basic Cardiac Life Support Certification; Advanced Cardiac Life Support (ACLS) Certification; American Physical Therapy Association (APTA) Member; Electronic Medical Records; EPIC



## TASKS

- Plan, prepare, or carry out individually designed programs of physical treatment to maintain, improve, or restore physical functioning, alleviate pain, or prevent physical dysfunction in patients.
- Perform and document an initial exam, evaluating data to identify problems and determine a diagnosis prior to intervention.
- Evaluate effects of treatment at various stages and adjust treatments to achieve maximum benefit.
- Identify and document goals, anticipated progress, and plans for reevaluation.
- Record prognosis, treatment, response, and progress in patient's chart or enter information into computer.
- Obtain patients' informed consent to proposed interventions.
- Test and measure patient's strength, motor development and function, sensory perception, functional capacity, or respiratory or circulatory efficiency and record data.
- Review physician's referral and patient's medical records to help determine diagnosis and physical therapy treatment required.
- Discharge patient from physical therapy when goals or projected outcomes have been attained and provide for appropriate follow-up care or referrals.
- Instruct patient and family in treatment procedures to be continued at home.

## SOFT SKILLS IN DEMAND

COMMUNICATION SKILLS

ORGANIZATIONAL SKILLS

RESEARCH

SUPERVISORY SKILLS

WRITING

# SURGICAL TECHNOLOGIST

O\*NET Code 29-2055.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Assist in operations, under the supervision of surgeons, registered nurses, or other surgical personnel. May help set up operating room, prepare and transport patients for surgery, adjust lights and equipment, pass instruments and other supplies to surgeons and surgeon's assistants, hold retractors, cut sutures, and help count sponges, needles, supplies, and instruments.	Certified Surgical Tech/First Assistant, Certified Surgical Technician, Certified Surgical Technologist (CST), Operating Room Surgical Technician (OR ST), Operating Room Technician (OR Tech), Operating Room Technologist (OR Tech), Surgical Scrub Technician, Surgical Scrub Technologist (Surgical Scrub Tech), Surgical Technician



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Anesthesiology	Patient Preparation and Care
Aseptic Technique	Perioperative Procedures
Behavioral Medicine	Pharmacy Procedures
Cancer	Physical Medicine
Cardiology	Process Improvement
Communicable Disease	Rehabilitation Services
Fine Motor Skills	Specimen Handling
Hospital Experience	Sterile Process and Procedures
Infection Control	Surgical Technology and Technology
Medical Technology	Women's Health

**41**

Anticipated Annual Job Openings (2014-2019)

**\$20.88**

Median Hourly Earnings

**POST-SECONDARY CERTIFICATE**

Most Desired Education Level

**296**

Regional Completions of less than 2 academic years (2012)

**118**

Regional Associate's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

American Heart Association Certificate; Basic Cardiac Life Support Certification; Central Service Certification; First Aid CPR Automated External Defibrillator; HIPPA Knowledge



## TASKS

- Maintain a proper sterile field during surgical procedures.
- Count sponges, needles, and instruments before and after operation.
- Scrub arms and hands and assist the surgical team to scrub and put on gloves, masks, and surgical clothing.
- Provide technical assistance to surgeons, surgical nurses, or anesthesiologists.
- Prepare patients for surgery, including positioning patients on the operating table and covering them with sterile surgical drapes to prevent exposure.
- Hand instruments and supplies to surgeons and surgeons' assistants, hold retractors and cut sutures, and perform other tasks as directed by surgeon during operation.
- Prepare, care for, and dispose of tissue specimens taken for laboratory analysis.
- Wash and sterilize equipment, using germicides and sterilizers.
- Monitor and continually assess operating room conditions, including patient and surgical team needs.
- Operate, assemble, adjust, or monitor sterilizers, lights, suction machines, or diagnostic equipment to ensure proper operation.

## SOFT SKILLS IN DEMAND

COMMUNICATION SKILLS

ORGANIZATIONAL SKILLS

CUSTOMER SERVICE

SELF-MOTIVATION

CREATIVITY

# NURSE PRACTITIONER

O\*NET Code 29-1171.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Diagnose and treat acute, episodic, or chronic illness, independently or as part of a health care team. May focus on health promotion and disease prevention. May order, perform, or interpret diagnostic tests such as lab work and x rays. May prescribe medication. Must be registered nurses who have specialized graduate education.	Gastroenterology Nurse Practitioner, Family Nurse Practitioner, Family Practice Certified Advanced Registered Nurse Practitioner, Acute Care Nurse Practitioner, Adult Nurse Practitioner, Advanced Practice Registered Nurse, Pediatric Nurse Practitioner, Thoracic Surgery Family Nurse Practitioner, Women's Health Care Nurse Practitioner



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Acute Care	Legal Compliance
Ambulatory Care	Neonatal Intensive Care Unit (NICU)
Behavioral/Mental Health	Patient Care and Preparation
Case Management	Patient Evaluation and Direction
Clinical Experience	Pediatrics
Computer Skills	Pharmacology
Discharge Planning	Physician Practices
Family Education and Instruction	Rehabilitation Therapies
Hospital Experience	Safety Systems
Invasive Procedures	Treatment Planning

**70**

Anticipated Annual Job Openings (2014-2019)

**\$44.27**

Median Hourly Earnings

**MASTER'S DEGREE**

Most Desired Education Level

**320**

Related Regional Master's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Advanced Registered Nurse Practitioner; Certified Pediatric Nurse; Nursing Specialty Certification; Basic Cardiac Life Support Certification; Certified Oncology Nurse; Advanced Practice Nurse; Neonatal Nursing; Psychiatric Nurse Practitioner; Certified Wound Care Nurse; Advanced Cardiac Life Support (ACLS) Certification



## TASKS

- Prescribe medication dosages, routes, and frequencies based on patient characteristics such as age and gender.
- Order, perform, or interpret the results of diagnostic tests, such as complete blood counts (CBCs), electrocardiograms (EKGs), and radiographs (x-rays).
- Analyze and interpret patients' histories, symptoms, physical findings, or diagnostic information to develop appropriate diagnoses.
- Develop treatment plans based on scientific rationale, standards of care, and professional practice guidelines.
- Diagnose or treat acute health care problems such as illnesses, infections, or injuries.
- Prescribe medications based on efficacy, safety, and cost as legally authorized.
- Counsel patients about drug regimens and possible side effects or interactions with other substances such as food supplements, over-the-counter (OTC) medications, or herbal remedies.
- Recommend interventions to modify behavior associated with health risks.
- Detect and respond to adverse drug reactions, with special attention to vulnerable populations such as infants, children, pregnant and lactating women, or older adults.
- Educate patients about self-management of acute or chronic illnesses, tailoring instructions to patients' individual circumstances.

## SOFT SKILLS IN DEMAND

- RESEARCH
- COMMUNICATION SKILLS
- ORGANIZATIONAL SKILLS
- SUPERVISORY SKILLS
- WRITING
- TEACHING

# PHARMACIST

O\*NET Code 29-1051.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medications and their use. May advise physicians and other health practitioners on the selection, dosage, interactions, and side effects of medications.	Clinical Pharmacist; Hospital Pharmacist; Outpatient Pharmacy Manager; Pharmacist; Pharmacist in Charge (PIC); Pharmacist in Charge, Owner (PIC, Owner); Pharmacy Informaticist; Registered Pharmacist; Staff Pharmacist; Staff Pharmacist, Hospital



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Accounting	Loss Prevention
Cash Register Operation	Order Entry
Dispensing Patient Medication	Packaging
Drug Therapy	Patient Care
Hospital Experience	Patient Counseling
Immunizations	Patient Evaluation
Influenza Knowledge	Procurement
Inventory Maintenance	Record Keeping
Inventory Management	Scheduling
Legal Compliance	Therapy

**172**

Anticipated Annual Job Openings (2014-2019)

**\$54.31**

Median Hourly Earnings

**DOCTORATE DEGREE**

Most Desired Education Level

**148**

Regional Doctorate Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Basic Life Support Certification; Certified Diabetes Educator; First Aid CPR Automated External Defibrillator; Registered Dietitian



## TASKS

- Review prescriptions to assure accuracy, to ascertain the needed ingredients, and to evaluate their suitability.
- Provide information and advice regarding drug interactions, side effects, dosage, and proper medication storage.
- Maintain records, such as pharmacy files, patient profiles, charge system files, inventories, control records for radioactive nuclei, or registries of poisons, narcotics, or controlled drugs.
- Plan, implement, or maintain procedures for mixing, packaging, or labeling pharmaceuticals, according to policy and legal requirements, to ensure quality, security, and proper disposal.
- Assess the identity, strength, or purity of medications.
- Collaborate with other health care professionals to plan, monitor, review, or evaluate the quality or effectiveness of drugs or drug regimens, providing advice on drug applications or characteristics.
- Order and purchase pharmaceutical supplies, medical supplies, or drugs, maintaining stock and storing and handling it properly.
- Analyze prescribing trends to monitor patient compliance and to prevent excessive usage or harmful interactions.
- Advise customers on the selection of medication brands, medical equipment, or health care supplies.
- Compound and dispense medications as prescribed by doctors and dentists, by calculating, weighing, measuring, and mixing ingredients, or oversee these activities.

## SOFT SKILLS IN DEMAND

**CUSTOMER SERVICE**

**ORGANIZATIONAL SKILLS**

**COMMUNICATION SKILLS**

**LEADERSHIP**

**BUDGETING**

**WRITING**

# PHARMACY TECHNICIAN

O\*NET Code 29-2052.00

## JOB DESCRIPTION

Prepare medications under the direction of a pharmacist. May measure, mix, count-out, label, and record amounts and dosages of medications according to prescription orders.

## OTHER REPORTED JOB TITLES

Accredited Pharmacy Technician; Billing and Quality Technician; Certified Pharmacy Technician (CPhT); Compounding Technician; Lead Pharmacy Technician (Lead Pharmacy Tech); Pharmacy Technician (Pharmacy Tech); Senior Pharmacy Technician; Technician



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Accounting	Order Entry
Cash Register Operation	Packaging
Hospital Experience	Patient Care
Infection Control	Patient/Family Education and Instruction
Inspection	Pharmacy Procedures
Inventory Management	Prescription Label Creation
Irrigation	Process Improvement
Laws and Regulations	Record Keeping
Mathematics	Safety Systems
Medical Terminology	Sterile Process and Procedures

**159**

Anticipated Annual Job Openings (2014-2019)

**\$13.32**

Median Hourly Earnings

**POST-SECONDARY CERTIFICATE**

Most Desired Education Level

**255**

Regional Completions of less than 2 academic years (2012)

**150**

Regional Associate's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Pharmacy Technician Certification; Computer Skills; Electronic Medical Records (EPIC); HIPAA Knowledge



## TASKS

- Receive written prescription or refill requests and verify that information is complete and accurate.
- Prepack bulk medicines, fill bottles with prescribed medications, and type and affix labels.
- Answer telephones, responding to questions or requests.
- Maintain proper storage and security conditions for drugs.
- Assist customers by answering simple questions, locating items, or referring them to the pharmacist for medication information.
- Price and file prescriptions that have been filled.
- Establish or maintain patient profiles, including lists of medications taken by individual patients.
- Order, label, and count stock of medications, chemicals, or supplies and enter inventory data into computer.
- Receive and store incoming supplies, verify quantities against invoices, check for outdated medications in current inventory, and inform supervisors of stock needs and shortages.
- Mix pharmaceutical preparations, according to written prescriptions.

## SOFT SKILLS IN DEMAND

**ORGANIZATIONAL SKILLS**

**CUSTOMER SERVICE**

**ORAL AND WRITTEN COMMUNICATION**

**COMMUNICATION – LISTENING AND SPEAKING**

**TEAMWORK**

# PHYSICIAN ASSISTANT

O\*NET Code 29-1071.00

## JOB DESCRIPTION

Provide health care services typically performed by a physician, under the supervision of a physician. Conduct complete physicals, provide treatment, and counsel patients. May, in some cases, prescribe medication. Must graduate from an accredited educational program for physician assistants.

## OTHER REPORTED JOB TITLES

Physician Assistant (PA), Physician Assistant Certified (PAC), Family Practice Physician Assistant, Midlevel Provider, Neurosurgical Physician Assistant, Orthopedic Physician Assistant, Cardiology Physician Assistant, Cardiothoracic Surgery Physician Assistant, Cardiovascular Physician Assistant



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Acute Care	Medical Management
Advanced Cardiac Life Support (ACLS)	Medication Prescription and Dispensation
Cardiology	Patient Care
Clinical/Hospital Experience	Patient Counseling and Direction
Critical Care	Patient Evaluation and Treatment
Discharge Planning	Patient/Family Education and Instruction
Drug Therapy	Physical Demand
Internal Medicine	Surgery
Invasive Procedures	Therapeutic Procedures
Laboratory Testing	Treatment Planning

**79**

Anticipated Annual Job Openings (2014-2019)

**\$44.01**

Median Hourly Earnings

**MASTER'S DEGREE**

Most Desired Education Level

**73**

Regional Master's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Advanced Cardiac Life Support (ACLS) Certification; Basic Cardiac Life Support Certification; EPIC; HIPAA Knowledge



## TASKS

- Examine patients to obtain information about their physical condition.
- Interpret diagnostic test results for deviations from normal.
- Obtain, compile and record patient medical data, including health history, progress notes and results of physical examination.
- Make tentative diagnoses and decisions about management and treatment of patients.
- Prescribe therapy or medication with physician approval.
- Administer or order diagnostic tests, such as x-ray, electrocardiogram, and laboratory tests.
- Perform therapeutic procedures, such as injections, immunizations, suturing and wound care, and infection management.
- Instruct and counsel patients about prescribed therapeutic regimens, normal growth and development, family planning, emotional problems of daily living, and health maintenance.
- Provide physicians with assistance during surgery or complicated medical procedures.
- Visit and observe patients on hospital rounds or house calls, updating charts, ordering therapy, and reporting back to physician.

## SOFT SKILLS IN DEMAND

**WRITING**

**ORGANIZATIONAL SKILLS**

**FILE MANAGEMENT**

**COMMUNICATION SKILLS WITH MEDICAL TERMINOLOGY**

**RESEARCH**

**SUPERVISORY SKILLS**

# SPEECH LANGUAGE PATHOLOGIST

O\*NET Code 29-1127.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Assess and treat persons with speech, language, voice, and fluency disorders. May select alternative communication systems and teach their use. May perform research related to speech and language problems.	Bilingual Speech-Language Pathologist, Communication Specialist, Educational Speech-Language Clinician, Speech Pathologist, Speech Therapist, Speech and Language Clinician, Speech and Language Specialist, Speech-Language Pathologist (SLP), Speech/Language Therapist, Teacher of the Speech and Hearing Handicapped



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Acute Care and Rehabilitation	Patient/Family Education and Instruction
Aphasia	Pediatrics
Clinical Experience	Physical Therapy
Communication Disorders	Program Development
Dysphasia	Rehabilitation
Home Health	Screening
Long-Term Care	Speech Therapy
Medical Coding	Swallowing Problems
Occupational Therapy	Therapeutic Intervention
Patient Evaluation and Care	Treatment Planning

**33**

Anticipated Annual Job Openings (2014-2019)

**\$35.29**

Median Hourly Earnings

**MASTER'S DEGREE**

Most Desired Education Level

**21**

Regional Master's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

American Speech-Language Hearing Association Certification; Basic Cardiac Life Support Certification; C-Arm Fluoroscopy



## TASKS

- Monitor patients' progress and adjust treatments accordingly.
- Develop or implement treatment plans for problems such as stuttering, delayed language, swallowing disorders, or inappropriate pitch or harsh voice problems, based on own assessments and recommendations of physicians, psychologists, or social workers.
- Write reports and maintain proper documentation of information, such as client Medicaid or billing records or caseload activities, including the initial evaluation, treatment, progress, and discharge of clients.
- Participate in and write reports for meetings regarding patients' progress, such as individualized educational planning (IEP) meetings, in-service meetings, or intervention assistance team meetings.
- Evaluate hearing or speech and language test results, barium swallow results or medical/background information to diagnose and plan treatment for speech, language, fluency, voice, or swallowing disorders.
- Complete administrative responsibilities, such as coordinating paperwork, scheduling case management activities, or writing lesson plans.
- Develop individual or group activities or programs in schools to deal with behavior, speech, language, or swallowing problems.
- Instruct clients in techniques for more effective communication, such as sign language, lip reading, or voice improvement.
- Administer hearing or speech and language evaluations, tests, or examinations to patients to collect information on type and degree of impairments, using written or oral tests or special instruments.
- Educate patients and family members about various topics, such as communication techniques or strategies to cope with or to avoid personal misunderstandings.

## SOFT SKILLS IN DEMAND

COMMUNICATION SKILLS

ABILITY TO ARTICULATE

ORGANIZATIONAL SKILLS

RESEARCH

LEADERSHIP

WRITING

# COMPUTER SYSTEMS ANALYST

O\*NET Code 15-1121.00

## JOB DESCRIPTION

Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software.

## OTHER REPORTED JOB TITLES

Systems Analyst, Programmer Analyst, Business Systems Analyst, Computer Systems Analyst, Computer Systems Consultant, Computer Analyst, Information Systems Analyst (ISA), Applications Analyst, Business Analyst, Systems Engineer



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Business Analysis	JAVA
Business Intelligence	Medical Terminology
Business Process	Oracle/Oracle PL/Oracle SQL
Data Analysis	Process Improvement
Database Design	Strategic Development
Database Software	System and Network Configuration
Electronic Medical Records	Systems Analysis
Enterprise Resource Planning	Systems Development Life Cycle (SDLC)
Health Information Management (HIM) Systems	UNIX
ITIL	Validation

**224**

Anticipated Annual Job Openings (2014-2019)

**\$37.11**

Median Hourly Earnings

**BACHELOR'S DEGREE**

Most Desired Education Level

**177**

Regional Bachelor's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Certified Information Systems Auditor (CISA); Certified Information Systems Security Professional (CISSP); Cisco Certified Network Associate (CCNA); Cisco Certified Network Professional (CCNP); IT Infrastructure Library; Microsoft Certified Systems Engineer (MCSE); Six Sigma Certification.



## TASKS

- Expand or modify system to serve new purposes or improve work flow.
- Test, maintain, and monitor computer programs and systems, including coordinating the installation of computer programs and systems.
- Develop, document and revise system design procedures, test procedures, and quality standards.
- Provide staff and users with assistance solving computer related problems, such as malfunctions and program problems.
- Review and analyze computer printouts and performance indicators to locate code problems, and correct errors by correcting codes.
- Consult with management to ensure agreement on system principles.
- Confer with clients regarding the nature of the information processing or computation needs a computer program is to address.
- Read manuals, periodicals, and technical reports to learn how to develop programs that meet staff and user requirements.
- Coordinate and link the computer systems within an organization to increase compatibility and so information can be shared.
- Determine computer software or hardware needed to set up or alter system

## SOFT SKILLS IN DEMAND

**COMMUNICATION – LISTENING AND SPEAKING**

**PROBLEM SOLVING AND DECISION MAKING**

**ORAL AND WRITTEN COMMUNICATION**

**ORGANIZATIONAL SKILLS**

**LEADERSHIP**

# MEDICAL & CLINICAL LAB TECHNICIAN

O\*NET Code 29-2012.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. May work under the supervision of a medical technologist.	Medical Laboratory Technician (MLT), Medical Laboratory Technician (Medical Lab Tech), Laboratory Assistant (Lab Assistant), Laboratory Technician, Phlebotomist, Clinical Laboratory Scientist, Laboratory Supervisor, Non-Registered Technician, Laboratory Associate (Lab Associate), Toxicology Laboratory Technician



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Analytical Testing	Mathematics
Biology	Medical Assistance
Blood Samples	Order Entry
Calibration	Pathology
Chemistry	Phlebotomy
Hospital Experience	Quality Assurance and Control
Infection Control	Record Keeping
Inspection	Repair
Laboratory Procedures	Sample Preparation
Laboratory Testing	Specimen Collection

**154**

Anticipated Annual Job Openings (2014-2019)

**\$16.00**

Median Hourly Earnings

**ASSOCIATE'S DEGREE**

Most Desired Education Level

**30**

Regional Associate's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

American Society for Clinical Pathology (ASCP) Certification; Basic Life Support Certification; Computer Skills; Good Laboratory Practice (GLP); Medical Laboratory Certification; Phlebotomy Certification; Registered Vascular Technologist



## TASKS

- Conduct chemical analysis of body fluids, including blood, urine, or spinal fluid, to determine presence of normal or abnormal components.
- Analyze laboratory findings to check the accuracy of the results.
- Conduct chemical analyses of body fluids, such as blood or urine, using microscope or automatic analyzer to detect abnormalities or diseases and enter findings into computer.
- Conduct blood tests for transfusion purposes and perform blood counts.
- Examine cells stained with dye to locate abnormalities.
- Set up, maintain, calibrate, clean, and test sterility of medical laboratory equipment.
- Analyze the results of tests or experiments to ensure conformity to specifications, using special mechanical or electrical devices.
- Analyze and record test data to issue reports that use charts, graphs, or narratives.
- Consult with a pathologist to determine a final diagnosis when abnormal cells are found.
- Prepare standard volumetric solutions or reagents to be combined with samples, following standardized formulas or experimental procedures.
- Inoculate fertilized eggs, broths, or other bacteriological media with organisms.
- Collect blood or tissue samples from patients, observing principles of asepsis to obtain blood sample.

## SOFT SKILLS IN DEMAND

**ORGANIZATIONAL SKILLS**

**COMMUNICATION – LISTENING AND SPEAKING**

**DETAIL-ORIENTED**

**INTERPERSONAL SKILLS**

**MULTI-TASKING**

**TROUBLESHOOTING**

# MEDICAL & CLINICAL LAB TECHNOLOGIST

O\*NET Code 29-2011.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff	Chief Medical Technologist; Clinical Laboratory Scientist (CLS); Clinical Laboratory Technologist; Histologist Technologist; Medical Laboratory Technologist (Medical Lab Tech); Medical Technologist (MT); Medical Technologist, Clinical Laboratory Scientist; Microbiologist; Microbiology Technologist; Research Assistant



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Biology	Laboratory Testing
Chemistry	Mathematics
Clinical Research	Oncology
Clinical Testing	Pathology
Clinical Trials	Patient Treatment
Electrophoresis	Sample Preparation
Hematology	Specimen Collection
Immunology	Transfusion
Infection Control	Urinalysis
Laboratory Procedures	Validation

**120**

Anticipated Annual Job Openings (2014-2019)

**\$26.86**

Median Hourly Earnings

**BACHELOR'S DEGREE**

Most Desired Education Level

**68**

Regional Bachelor's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

American Medical Technologist (AMT) Certification; American Society for Clinical Pathology (ASCP) Certification; Clinical Laboratory Scientist (CLS) designation; Computer Skills; Good Clinical Practice (GCP); Network Access Control (NAC)



## TASKS

- Conduct chemical analysis of body fluids, including blood, urine, or spinal fluid, to determine presence of normal or abnormal components.
- Analyze laboratory findings to check the accuracy of the results.
- Operate, calibrate, or maintain equipment used in quantitative or qualitative analysis, such as spectrophotometers, calorimeters, flame photometers, or computer-controlled analyzers.
- Collect and study blood samples to determine the number of cells, their morphology, or their blood group, blood type, or compatibility for transfusion purposes, using microscopic techniques.
- Enter data from analysis of medical tests or clinical results into computer for storage.
- Establish or monitor quality assurance programs or activities to ensure the accuracy of laboratory results.
- Analyze samples of biological material for chemical content or reaction.
- Set up, clean, and maintain laboratory equipment.
- Provide technical information about test results to physicians, family members, or researchers.
- Cultivate, isolate, or assist in identifying microbial organisms or perform various tests on these microorganisms.

## SOFT SKILLS IN DEMAND

**PROBLEM SOLVING & DECISION MAKING**

**ORGANIZATIONAL SKILLS**

**RESEARCH**

**COMMUNICATION – LISTENING AND SPEAKING**

**ORAL AND WRITTEN COMMUNICATION**

**INTERPERSONAL SKILLS**

# MEDICAL RECORDS & HEALTH INFO TECHNICIAN

O\*NET Code 29-2071.00

## JOB DESCRIPTION

Compile, process, and maintain medical records of hospital and clinic patients in a manner consistent with medical, administrative, ethical, legal, and regulatory requirements of the health care system. Process, maintain, compile, and report patient information for health requirements and standards in a manner consistent with the health care industry's numerical coding system.

## OTHER REPORTED JOB TITLES

Coder, Health Information Clerk, Health Information Specialist, Health Information Technician (Health Information Tech), Medical Records Analyst, Medical Records Clerk, Medical Records Coordinator, Medical Records Director, Medical Records Technician (Medical Records Tech), Registered Health Information Technician (RHIT)



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Accounting	Knowledge of Health Information Management (HIM)
Anatomy and Physiology	Medical Billing
Clinical Documentation	Medical Records Abstraction
Clinical Experience	Medical Records Documentation
CPT-4 Coding	Medical Records Experience
HCPCS Coding	Medical Records Review
Health Information	Medical Terminology
Health Information Technology	Outpatient Coding
ICD-10-CM Coding	Patient Care
Inpatient Coding	Validation

**87**

Anticipated Annual Job Openings (2014-2019)

**\$17.35**

Median Hourly Earnings

**ASSOCIATE'S DEGREE**

Most Desired Education Level

**215**

Regional Associate's Degree Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Certified Coding Associate (CCA); Certified Professional Coder (CPC); Certified Professional Coder-Hospital Outpatient (CPC-H); Certified Professional Coder-Payer(CPC-P); EPIC Certification; Microsoft Excel; Registered Health Information Technician (RHIT); Specialty Medical Coding Certification



## TASKS

- Protect the security of medical records to ensure that confidentiality is maintained.
- Review records for completeness, accuracy, and compliance with regulations.
- Retrieve patient medical records for physicians, technicians, or other medical personnel.
- Assign the patient to diagnosis-related groups (DRGs), using appropriate computer software.
- Process patient admission or discharge documents.
- Transcribe medical reports.
- Resolve or clarify codes or diagnoses with conflicting, missing, or unclear information by consulting with doctors or others or by participating in the coding team's regular meetings.
- Enter data, such as demographic characteristics, history and extent of disease, diagnostic procedures, or treatment into computer.
- Identify, compile, abstract, and code patient data, using standard classification systems.
- Release information to persons or agencies according to regulations.

## SOFT SKILLS IN DEMAND

**COMMUNICATION – LISTENING AND SPEAKING**

**ORGANIZATIONAL SKILLS**

**ORAL AND WRITTEN COMMUNICATION**

**INTERPERSONAL SKILLS**

**RESEARCH**

# NURSING ASSISTANT

O\*NET Code 31-1014.00

JOB DESCRIPTION	OTHER REPORTED JOB TITLES
Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants.	Certified Medication Aide (CMA), Certified Nurse Aide (CNA), Certified Nurse's Aide (CNA), Certified Nursing Assistant (CNA), Geriatric Nursing Assistant (GNA), Licensed Nursing Assistant (LNA), Nurses' Aide, Nursing Aide, Nursing Assistant, State Tested Nursing Assistant (STNA)



## 20 MOST IMPORTANT KNOWLEDGE, SKILLS AND ABILITIES

Assisted Living Practices	Nursing Home Practices
Cancer	Nursing Support
Communicable Disease	Patient Bathing and Toileting
Companionship	Patient Care and Direction
Dialysis	Patient Medical Assistance
Home Health Care Practices	Phlebotomy
Hospice Care	Safety Systems
Hospital Experience	Therapy
Long-Term Care Practices	Treatment Planning
Meal Preparation	Vital Signs Measurement and Recording

**821**

Anticipated Annual Job Openings (2014-2019)

**\$12.69**

Median Hourly Earnings

**POST-SECONDARY CERTIFICATE, HIGH SCHOOL DIPLOMA OR EQUIVALENT**

Most Desired Education Level

**661**

Regional Post-Secondary Certificate Level Completions (2012)



## ADDITIONAL SPECIALTY KNOWLEDGE IN DEMAND

Basic Cardiac Life Support Certification; Nursing Assistant Certification



## TASKS

- Answer patient call signals, signal lights, bells, or intercom systems to determine patients' needs.
- Turn or reposition bedridden patients.
- Provide physical support to assist patients to perform daily living activities, such as getting out of bed, bathing, dressing, using the toilet, standing, walking, or exercising.
- Review patients' dietary restrictions, food allergies, and preferences to ensure patient receives appropriate diet.
- Measure and record food and liquid intake or urinary and fecal output, reporting changes to medical or nursing staff.
- Record vital signs, such as temperature, blood pressure, pulse, or respiration rate, as directed by medical or nursing staff.
- Gather information from caregivers, nurses, or physicians about patient condition, treatment plans, or appropriate activities.
- Observe or examine patients to detect symptoms that may require medical attention, such as bruises, open wounds, or blood in urine.
- Document or otherwise report observations of patient behavior, complaints, or physical symptoms to nurses.
- Remind patients to take medications or nutritional supplements

## SOFT SKILLS IN DEMAND

**COMMUNICATION – LISTENING AND SPEAKING**

**COMPASSION**

**ORGANIZATIONAL SKILLS**

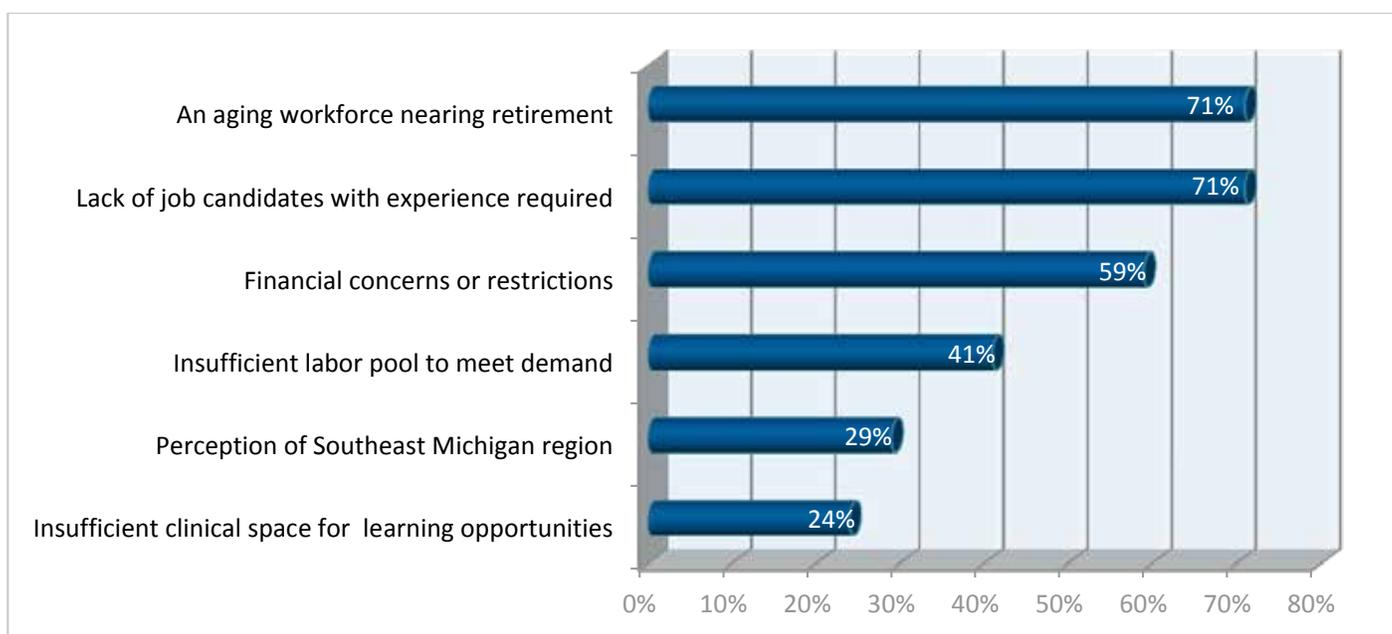
**INTERPERSONAL SKILLS**

**BUILDING EFFECTIVE RELATIONSHIPS**

## REGIONAL HIRING CHALLENGES & REMEDIES

Survey respondents were asked to provide input relevant to the greatest hiring challenge faced when attempting to fill open positions. Respondents were given the opportunity to select all applicable challenges facing their respective organizations from a list of six (6) possible options. Survey findings based upon frequency of responses are shown below.

### GREATEST HIRING CHALLENGES FACING EMPLOYERS



Respondents were then given the opportunity to elaborate upon the challenges selected and/or to write another challenge based upon individual experience. Comments received through the open-ended response question have been categorized and summarized below.

### AN AGING WORKFORCE NEARING RETIREMENT WITH INSUFFICIENT LABOR POOL TO MEET FUTURE DEMAND

The most significant challenge facing the Health Care Systems moving forward is an aging workforce coupled with the need for an effective pipeline of health care workers to meet future demand. While the respondents expressed satisfaction with the level of preparation demonstrated by college graduates, there is concern with the trend toward a reduction in instructors which results in waiting lists for nursing school candidates. The ability to develop an effective pipeline for talent at all levels will be a significant and ongoing challenge.

## LACK OF EXPERIENCE

Clinical experience was identified as the single most important quality that can be possessed by nursing and other health care employees. This is followed closely by a rapid shift toward a need for the ability to work with new technology. An overwhelming concern expressed by health system employers today is that nurses, in particular, typically fall into one of two categories. One will find either long time employees that possess a wealth of valuable experience but lack the necessary IT skills inherent in the current environment OR younger employees that have the requisite IT skills but lack important experience. More often than not, they fall into one or the other category and a vacuum, of sorts, has been created.

## COMMITMENT TO THE JOB

Health System employers indicated that there has been a shift in the approach to the nursing profession by many entering the field. In the past, it was not unusual for those entering nursing programs to do so because of a long term desire or passion for a career in nursing. As the occupation of nursing was increasingly identified as one that could potentially suffer from a serious shortfall in job applicants, many entered nursing programs motivated by an awaiting job rather than any type of calling. This has the potential effect of a significant increase in turnover within the Health Systems as many that enter the nursing profession determine that it may not be the appropriate career choice. Also, job passion and commitment level may be impacted.

## TRAINING OF NEW EMPLOYEES IS HINDERED BY STAFFING LIMITATIONS AND LACK OF SPACE

While educational institutions are doing a commendable job of providing qualified candidates for positions, actual employment within the Health System environment is the only way to truly assess any skill gaps and ultimate potential of a new employee. It is critically important to assess the potential technical skill sets and competencies related to actual patient care once on the job. In addition, most “on the job training” is front loaded for a nurse position in particular. This requires personnel that can devote time to both performance evaluation and further training deemed necessary. The key challenge is that, typically, health systems do not have the luxury of training departments/staff that may be found in other industries and most training is accomplished by “shadowing”, which is not ideal. Further, time spent by experienced nursing staff members for training and evaluation is in addition to, or conflicts with, their regular duties.

## EMPLOYER PROPOSED REMEDIES TO HIRING CHALLENGES

Employer input regarding remedies to address employment challenges was centered on two key factors. First was the growing need for an expansion of the ability of nursing schools to produce graduates whether it is through additional faculty and staff resources or the introduction of new schools/programs. Second was the need for newly trained/educated health care workers to have some type of exposure to the work environment. This could be accomplished either in advance of completion of their individual programs of study or prior to employment after graduation.

The following are the specific remedies that were suggested by survey respondents:

- Support the development of a regional and statewide health care database for job requirements and forecasted demand.
- Education and training providers should focus more attention on the “soft skills” necessary for success in the “people centered” health care industry. Programs for Medical Assistants, for instance, are very technical in focus while not spending enough time on such areas as professionalism, customer service, critical thinking and communication skills.
- A collaborative training initiative between educators and employers that would allow students to be exposed to training in a “real world” environment. This exposure would assist in identifying individuals that may not have the organizational/people skills to handle a job. It would also help to determine if the level of interest by the potential employee truly matches the often very demanding occupations within health care.
- Health Systems may have to consider the possibility of establishing expansive internal orientation/training programs solely dedicated to better preparing new employees for entry to their new jobs. While costly, it will offset the fact that many new graduates are either not being hired due to a lack of any practical experience or, upon hiring, require undo attention of staff for training purposes. Employers will have to “bite the bullet” with funding that will provide practical training to meet growing demand.
- More nursing schools are needed.
- Longer training for certified nursing assistants and home health aide candidates would be beneficial. Ideally, it would be beneficial if the State or County subsidized the funding needed for Certified Nursing Assistant (CNA) training.
- Health systems should work closer with organizations such as K-12, post K-12 guidance counselors and Michigan Works! agencies to develop screening efforts that can do a more effective job of determining if a candidate is truly interested in the profession/job.

As a first step in the data analysis process, all variables were screened to assure that the properties of the data met the assumptions of the statistical procedures to be used. Specifically, data were screened to ensure that there were no errant values (i.e., values that were outside the possible range), that the distribution of values adequately followed the normal bell shaped curve with extreme values occurring with a low frequency and more mid-range values occurring with a high frequency, and that there were no statistical outliers, which are values that are substantially different from the bulk of the values.

Traditional statistical analyses are sensitive to deviations from these distributional properties and if such deviations are not accounted for, the analyses will produce biased results. As the majority of the data collected from this survey were categorical frequency counts, distributional properties are of less concern for the majority of the analyses reported. The data screening procedures found that both of these continuous variables had distributional properties which sufficiently approximated those assumed by traditional statistical analyses and so no further adjustments or corrections were made.

## MISSING VALUE ANALYSIS

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One of the most common concerns with large scale survey data collection is missing data. Missing values occur for a wide array of reasons, but they can be categorized into three broad groups based on their statistical properties. The first is missing completely at random (MCAR). This type of missing data occurs when a respondent does not record a value for some reason that does not occur systematically; for example, the respondent might accidentally skip over a question while reading. The important thing is that the reason they did not respond had nothing to do with either their potential response or any characteristic of the respondent. This type of missing data does not negatively impact statistical findings.

The second type of missing data is missing at random (MAR). While this seems an odd distinction from the MCAR category, there is a subtle, but meaningful difference. MAR data might be missing for some systematic reason, such as the order of the question on a survey with the amount of missing data increasing towards the end of the survey, but the pattern of missingness is statistically independent of the potential value of the individual's response. In other words, a respondent might have chosen not to answer a question for a specific reason, such as fatigue or running out of time, but the reason had nothing to do with the answer they would have given had they answered the question. This type of missing data has less impact on the validity of statistical conclusions and adjustments can be made to the analyses to account for this pattern of missingness.

The third type of missing data is referred to as missing not at random (MNAR). This pattern of missingness is a direct function of the potential value of the missing data. Here the respondent chose not to answer a particular question specifically due to what their answer would have been. This final pattern of missing data is highly detrimental to statistical findings and cannot be corrected statistically.

On examination, most of the missingness did appear to be related to the order of questions on the questionnaire, such that as the respondents continued with the survey process they were more likely to skip questions at the end, or end the survey prematurely. Additionally, there did appear to be a considerable amount of missing data that could be considered missing by design. In other words, there were patterns of missing data that were due to the questions not being applicable for a given respondent, given their earlier responses. This is not an uncommon finding in branching survey structures, such as was implemented in this study. While various statistical imputation techniques are available for estimating missing values, there was too much globally missing data to implement them in this dataset. In cases where the data seemed to be missing by design there is no need to impute data in any case. In only one set of reported analyses were missing data of any concern, and it was corrected for within the analyses.

# CONSULTANT INFORMATION

EdEn Inc., located in Rochester, MI, is a project management firm focused on helping clients navigate the economic development landscape. Over the years, EdEn has earned a reputation for excellence as a “bridge” firm connecting southeast Michigan businesses, educational institutions, workforce development agencies, and economic development entities. As a direct result of experience working with and for regional stakeholders, EdEn has gained a unique working knowledge and perspective on collaborative initiatives. EdEn team members involved in this Oakland County Skills Needs Assessment Project included:

- David Banchiu, President
- Kristina Arnone, Vice President
- Dawn Campbell, Program Manager

In addition, EdEn collaborated with the following individuals for completion of various project components:

- Troy Lindner, President, Lindner Technology Group, Inc. (LTGI)
- Dr. Ty Partridge, Statistician, Wayne State University

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