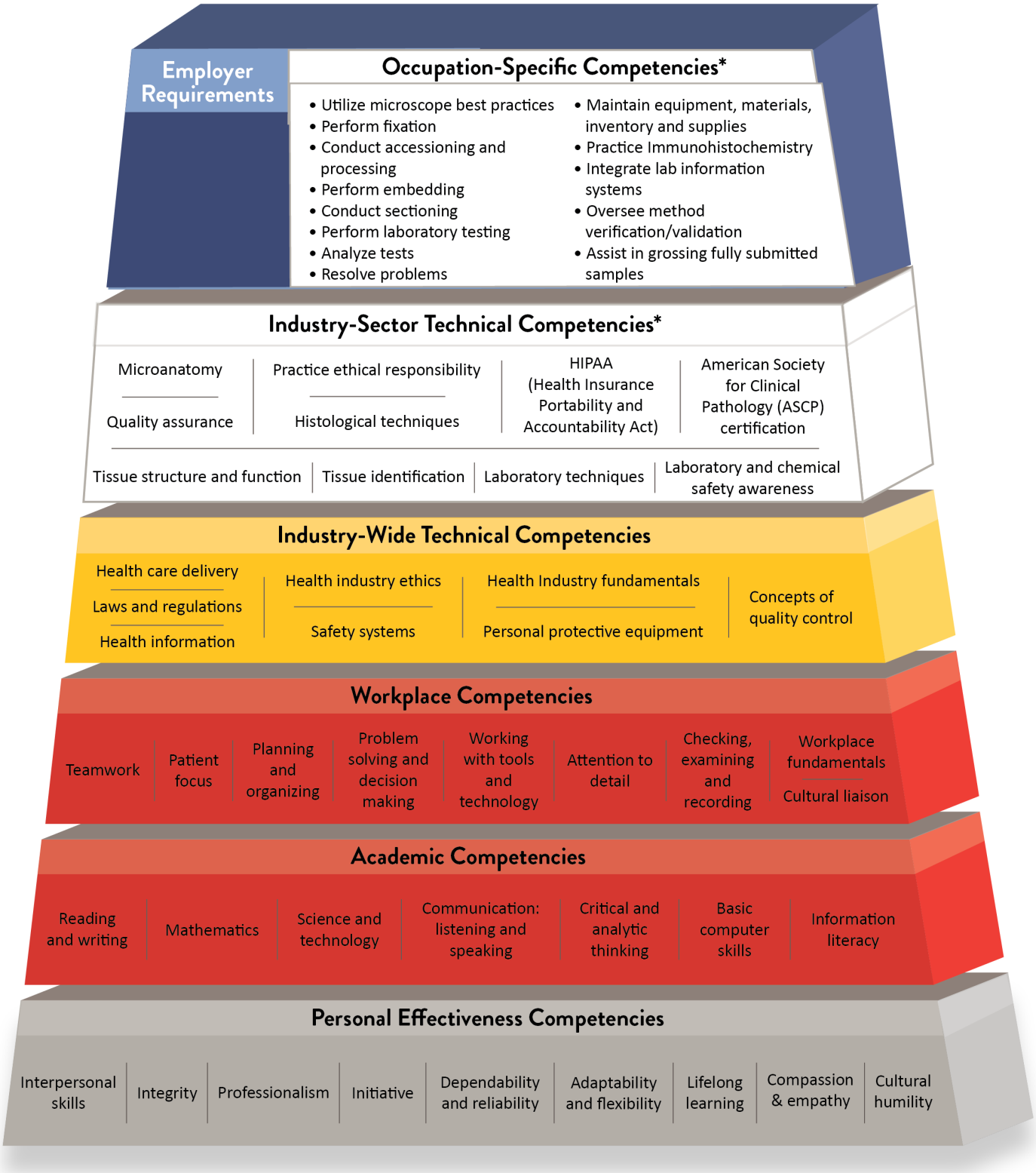
Minnesota Dual-Training Pipeline
Competency Model for Health Care Services
Occupation: Histology Technician/Technologist



Based on: Health: Allied Health Competency Model Employment and Training Administration, United States Department of Labor, December 2011.

*Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job training opportunities.

Competency Model for Histology Technician/Technologist

Histology Technician/Technologist – A professional who works in a health care setting and is responsible for preparing microscopic slides with biological tissues for examination for a medical pathologist to review. Using a variety of techniques and equipment, education in biomechanics, neuroscience and using physical assessment, histology technicians and technologists prepare thin slices of human tissue to make abnormalities visible with a microscope. This may include frozen and/or fresh frozen plasma sections.

Industry-Sector Technical Competencies

Related Instruction for dual training means the organized and systematic form of education resulting in the enhancement of skills and competencies related to the dual trainee's current or intended occupation.

- **Microanatomy** – Knowledge of the science concerned with the minute structure of cells, tissues, and organs in relation to their function. This includes the topics of epithelium, connective tissues and muscle, bone, and cartilage, integumentary, female and male reproductive, the gastrointestinal (GI) tract and accessory organs, circulatory, nervous, immune, respiratory and urinary systems.

- **Quality assurance** – Able to analyze tissue structures for quality based on histological technique and staining method and apply quality assurance measures to histology processes and procedures.

- **Tissue structure and function** – Understand the structure and function of individual tissue types as it relates to overall pathology.

- **Tissue identification** – Understand how to identify the basic tissue types and their subtypes as it relates to diagnosing and classifying diseases.

- **HIPAA (Health Insurance Portability and Accountability Act)** – Understand the law that provides data privacy and security provisions for safeguarding patient medical information.

- **Laboratory techniques** – Understand the foundational concepts, theories, and frameworks of histotechnology, recognize factors that affect procedures and results, and take appropriate action within predetermined limits when corrections are indicated.

- **Laboratory and chemical safety awareness** – Understand and recognize the possible safety hazards in the lab while implementing safety rules and regulations. Integrate protective equipment and preventive measures to address personal safety as well as environmental health and safety.

- **Histological techniques** – Understand the principles and applied aspects of grossing, fixation, processing, embedding, frozen sectioning, microtomy, staining, immunohistochemistry, enzyme histochemistry, cytology specimen preparation, electron microscopy, and light microscopy.

- **Practice ethical responsibility** – Know that medical ethics protect the interests of the patient, the patient's privacy and allow for people, regardless of race, gender, or religion to be guaranteed quality medical treatment and principles of care.

- **American society for clinical pathology (ASCP) certification** – Understand the core knowledge and information to be able to pass the ASCP examination and lead to obtaining certification.

Occupation-Specific Competencies

On-the-Job Training (OJT) is hands-on instruction completed at work to learn the core competencies necessary to succeed in an occupation. Common types of OJT include job shadowing, mentorship, cohort-based training, assignment-based project evaluation, and discussion-based training.

- **Utilize microscope best practices** – Know how to properly use multiple types of microscopes and how to clean and maintain them for continued use and efficiency.

- **Perform fixation** – Able to take tissue specimens from routine surgical cases, autopsies, or other scientific investigations and examine, describe and trim to proper size.

- **Conduct accessioning and processing** – Understand how to remove water from the tissue and replace with melted paraffin wax. Know how to cut the tissue into thin slices to be examined under a microscope.

- **Perform embedding** – Know how to orient tissue and place it in a wax mold to create a paraffin block for sectioning.

- **Conduct sectioning** – Understand how to take sections of tissue and place them onto a microtome. These sections are then placed on microscopic slides and stored for future procedures. This may involve frozen sectioning of fresh tissue specimens and/or microtome sectioning of formalin-fixed paraffin embedded specimens.

- **Perform laboratory testing** – Understand established protocols, perform waived, moderate or highly complex testing and report results to the medical team.

- **Analyze tests** – Knowledge of hematology, coagulation, microbiology, serology, immunology, immunohematology, chemistry, urinalysis, phlebotomy, and electrocardiogram (EKG) and how to interpret tests affiliated with these areas of medicine.

- **Resolve problems** – Able to recognize problems in the lab and take appropriate action to resolve them. Able to troubleshoot and take corrective action for lab procedures and unexpected events in lab operations.

- **Maintain equipment, materials, inventory and supplies** – Understand how to maintain an inventory of the necessary equipment and supplies to perform duties of histology tissue collection and preparation. Assist in ordering necessary supplies to perform functions of the position.

- **Practice immunohistochemistry** – Understand the process whereby antibodies are used to detect proteins (antigens) in cells within a tissue section. Immunohistochemistry routine stains and special staining can help evaluate various differential diagnoses.

- **Integrate lab information systems** – Understand the importance of continuous updated technology, automated barcode technology, and updating information into lab systems. This increased connectability and integration can provide benefits by decreasing the error potential.

- **Oversee method verification/validation** – Understand that method validation is usually applied to an "in-house method" developed by a laboratory, while method verification is applied to a "compendia method or previously validated method" when it is being used in a particular laboratory for the first time. Know how to oversee that these approaches are conducted effectively.

- **Assist in grossing fully submitted samples** – Know how to inspect the specimens, describing and measuring the tissue, inking if needed, and sectioning the tissue to be processed for diagnosis.

Updated February 2025