

# Introduction

## Critical wheel cog

From the Editor:

This issue features a guest editorial from the National Society for Histotechnology Board of Directors. The Board presents the perceived evolution, over the past years, of histology to histotechnology, citing a histotechnologist as a critical cog in the production wheel who is engaged in the intellectual process, whether the intellectual process is clinical, industry, or research focused, i.e. someone who works well beyond the bounds of 'simply' preparing slides for someone else's evaluation. With some bias, I hope you will find that the manuscript by Pepper and coworkers provides an example of a histotechnologist (Jenkins) in the middle of a collaborative team of engineers, all delving into the new area of bioprinting. Without a histotechnologist team member, this group would be nothing more than a group of enthusiastic engineers with a new 'toy', suboptimized for a histotechnological application. I frequently ask my students if they would ride in a car that was designed solely by someone who had only ridden in a horse and carriage. Perhaps for

amusement they might, but I doubt for interest in functionality or safety that they would. Point being that medical care is radically advanced because a very important team member, the histotechnologist (a.k.a. 'the car driver') is an active part of the medical research, discovery, and care equation. The Board of Directors makes a compelling case that certified Histologists with valid qualifications, education, and certifications, should be recognized as professionals within the Allied Health Sciences and related science fields.

Hats off to histotechnologists; I hope you enjoy this issue!

Best wishes from Clemson,  
**Karen J L Burg, Ph.D.**  
Editor-in-Chief

### References

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# Histotechnology professionals

## Executive Summary

The National Society for Histotechnology (NSH) represents professionals from the histotechnology discipline who practice in clinical, research, pharmaceutical, veterinary, marine sciences and forensic laboratories. The NSH as a professional organization collaboratively affirm that through clearly defined parameters, education, skilled based knowledge and autonomy we are recognized as professionals within the allied health sciences and related science fields. The advancement of the science in this specialized field has made this profession an integral part of patient health care and translational research.

The educational route has advanced to align with other laboratory scientists through accredited degree programs along with associated skilled training to meet requirements for national certification. To maintain professional certification, continuing education credits must be obtained in this science. Many states require a license and associated continuing education for these professionals to be eligible for employment.

The use of technical advancements in the histology laboratory such as immunohistochemistry, molecular diagnostics, flow cytometry and computerized assisted digital analysis requires histologists to maintain proficiency through continuing education, to improve their theoretical and skilled based knowledge. Automation has reduced manual techniques transferring the histologist's skills to decision making and critical thinking. Similar to medical technologists, testing performed is considered high complexity testing under the Clinical Laboratory Improvement Act (CLIA). Histologists verify these complex test results by performing microscopic review for quality acceptance before release to the pathologist for interpretation. The result of these test interpretations and diagnosis are an integral part of the patient care and treatment plan.

The NSH is the global leader in professional development of practitioners in the discipline. The NSH is recognized as a resource to professional standards and accreditation organizations as a partner in developing quality programs and documents that are utilized in the anatomic pathology

laboratory. Moreover, the NSH is actively represented in numerous healthcare professional societies and participates in an advisory role as a voice in regulatory issues that impact health care.

The knowledge and technical skills of histologists have expanded beyond the hospital setting into industry, veterinary, translation research and diagnostics. This specialized knowledge has led to collaboration opportunities with other professional development associations in these research fields. As educators, histologists provide technical application training to interns in related fields, and serve as Program Directors at accredited histology schools, teaching future histologists.

The NSH supports the professional status of the histologist through knowledge, accountabilities and professional development.

## Position Support

A profession can be distinguished from an occupation by several clearly defined parameters: education, skill based knowledge, and autonomy. Education for a profession includes university degree along with technical skill training making the candidate eligible for certification by a nationally recognized association. The skill based knowledge required for an occupation is elevated to a higher level for a profession; professionals must be able to complete the hands on application and have the ability to train and educate other members of the health team. Autonomy or the ability to self direct ones work activities is critical to a profession; allowing for the development of standards related to work performance and the ethical behavior to fellow professionals and the clients served.

In the last 35 years, the histotechnology profession has continued to advance and exceed the basic parameters defining the profession. The recognized education route is through college or university programs offering approved training programs accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). This educational route is aligned with other health care professionals such as Medical Laboratory Technologists/Technician and Diagnostic Imaging Technologists/Technician.

National certification for all allied health science professionals is set and regulated by the American Society for Clinical Pathology (ASCP). The ASCP also requires that each histologist achieve 36 continuing education credits (CEU) over a 36 month period to maintain their professional certification. In many states, histotechnology professionals are required to obtain and maintain a licensure which can require histotechnologists to obtain additional CEU beyond the ASCP requirement. Continuing education is more than just collecting required CEU, it is critical that the education obtained is pertinent to the field in which the histologist is working. Technological advances in immunohistochemistry, molecular diagnostics, flow cytometry, and computer assisted digital analysis have moved these specialized techniques from research into the routine histology laboratory, requiring histologists to improve their theoretical and skill based knowledge. Automation has removed the tedium of repetitive testing and focused the skills of the histologist on developing and performing complex testing methods. In comparison to Medical Laboratory Technologists who verify test results for release to the requesting physician, histologists complete similar verification processes by completing microscopic review and approval of control material related to each patient stained slide before release to the pathologist for interpretation. Testing performed is considered high complexity testing under the CLIA. Diagnostic interpretation of these test results is an integral part of the decision process used by other medical health professionals for the planning of the patient care and treatment plan.

The NSH is a professional society formed by histologists for histologists, primarily as a source for high quality educational programs; the NSH has now developed into an internationally recognized leader in professional development. The technical skills and knowledge of histologists are being identified as a key element required for the writing of resource documents on medical/technical standards, quality management, and ethics. Recognition from other professional associations, such as the College of American Pathologists, has been proven through the successful partnership in the Histology Quality Improvement Program, a program where histologists and pathologists work in parallel to evaluate, grade, and provide technical feedback on the quality of specific pathology staining processes, with the goal of setting a standardized level of quality for histopathology testing in the United States. The histotechnology profession is actively represented within other healthcare professional societies and organizations through NSH appointment of

individual histologists. Involvement with the Healthcare Professionals Network (HPN) identifies issues that affect the profession and provides an opportunity to have a voice and provide input on regulatory issues that affect health care. The value of representation on the American Society for Clinical Pathology (ASCP) has been recognized and expanded to include a histologist appointment to the Board of Governors. This NSH member speaks for the profession, providing information that is used to establish the requirements and educational standards to obtain certification and ensures that the high level quality of the profession is maintained. The Joint Commission has acknowledged the professional standing of histologists by extending an invitation for the NSH to appoint a member to join its 'Laboratory Professional and Technical Advisory Committee'. Participation on this advisory committee has potential to directly impact the current scope of the care and treatment of the patient, by expanding the role of histologists in the development and implementation of quality assurance standards. The Clinical Laboratory and Standards Institute (CLSI) plays an important role in any laboratory, clinical, veterinary, industry or research, by establishing internationally recognized standards of practice referenced for maintenance of laboratory accreditation. Histologists have the ability to participate in the development of these standards; thereby ensuring that there is an appropriate alignment of practical application and regulatory requirements.

Histotechnology professionals have highly developed technical skills and knowledge outside the clinical hospital setting. Histologists are an integrated part of veterinary, industry and research laboratories. The methodologies developed and validated through transitional research are often the foundation of the complex tests which become the new technologies implemented in the clinical laboratories. This highlights the importance of the histologist's role in the 'bench to bedside' care of the patient. Professional affiliation with the American Association of Laboratory Animal Sciences (AALAS) enhances the opportunities for sharing educational and professional development. These affiliations also allow collaboration in the ethical care and treatment of animals in research.

Histologists are educators. Histologists teach students in histotechnology, pathology residents, veterinary residents, PhD candidates as well as other health care professionals that histologists interact with as part of the patient care team. Education methodologies include but are not limited to, personal instruction, written documentation and publication of articles in

peer reviewed journals. Histologists are also utilized as Program Directors in academic institutions to teach future histologists. In this role, they must follow the governance of the universities, colleges or programs to meet the appropriate accreditation requirements.

### Conclusion

A professional is the master of the skills in their field. The NSH supports the position that histotechnology is a profession, where all histologists are allied health care professionals, with all the rights, benefits and privileges that professional status provides.

### Educational resources

- National Society for Histotechnology ([www.nsh.org](http://www.nsh.org))

### Associated organizations

- American Society for Clinical Pathology (ASCP)
- Biological Stain Commission
- Clinical Laboratory Standards Institute (CLSI)
- College of American Pathologist (CAP)
- Health Professionals Network (HPN)
- National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
- American Association of Laboratory Animal Sciences (AALAS)

### Affiliated partners

- ADVANCE for Medical Laboratory Professionals
- American Association of Pathology Assistants (AAPA)
- American Medical Technologists (AMT)
- American Society for Clinical Laboratory Scientists (ASCLS)

- Association of Pathology Chairs (APC)
- Canadian Society for Medical Laboratory Scientists (CSMLS)
- Clinical Laboratory Management Association (CLMA)

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