# Digital Pathology: Advancing Frontiers

*Nirag Jhala, MD*
Professor, Pathology & Laboratory Medicine
Director, Anatomic Pathology/Cytology
Lewis Katz School of Medicine
Temple University

**Abstract:**

Digital imaging today represents more of an evolution than a revolution in pathology. Emerging and evolving technology has allowed digital images to be manipulated in ways that has allowed ever-expanding applications. At current times, images captured on prepared slides are analyzed utilizing three different ways; (1) captured images either using still images or whole slide scanner are forwarded in digital mode or stored on a shared server, (2) dynamic imaging where in images are evaluated in real-time using a live link, and (3) hybrid where components of dynamic viewing and static images are utilized. In anatomic pathology, these digitized images are utilized in multiple applications including making primary diagnoses, offer consultation, for telepathology, re-review and proficiency testing, archiving and sharing, education and conferencing, image analysis, research and publications, marketing and business purposes). Once a digital image has been acquired, computer applications and deep machine learning can be utilized to develop algorithms that could be utilized to improve accuracy, reliability, specificity, and productivity. Examples to demonstrate use of such activities will be highlighted in the lecture.

**Biography:**

Dr. Jhala is Professor of Pathology and Laboratory Medicine at the Temple University Hospital and Lewis Katz School of Medicine at Temple University. Before joining Temple University, Dr. Jhala served as Professor of Pathology and Director of Cytopathology at the Ruth and Raymond Perelman Center for Advanced Medicine of the Hospital of University of Pennsylvania. Dr. Jhala is internationally recognized for his seminal work in area of gastrointestinal tract pathology and endoscopic ultrasound guided fine needle aspiration. He has a long-standing interest in translating and validating biomarkers utilizing objective parameters. He has over 120 peer-reviewed publications, serves on editorial boards of several journals and continues to be invited by national and international organizations as a speaker in his area of interest. He has long standing interest in the area of digital imaging and its applications. He was one of the members of the very first North East User's group meeting of CAS200 image analyzer. He has extensive experience in area of digital pathology and its utilization in objective quantifications. His work on objectively quantifying endocrine cells using image analyzer in the stomach was one of the data point utilized by FDA for approval of Lansoprazole (Prevacid $^{R}$).

Dr. Jhala's clinical interests are:

- Gastrointestinal tract pathology
- Endoscopic and Endobronchial ultrasound guided fine needle aspirates
- Refining diagnostic algorithms based on morphology
- Translating and validating biomarkers using objective parameters