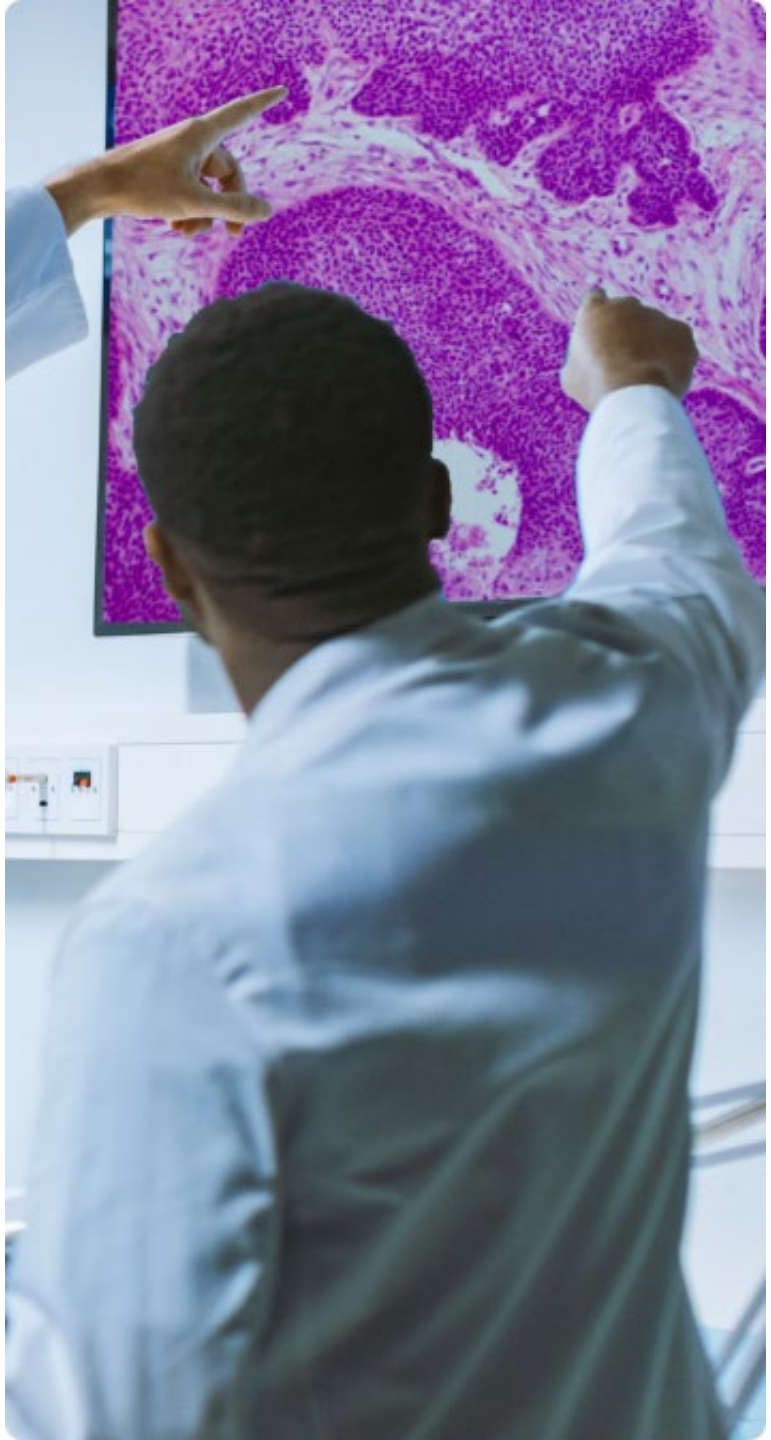
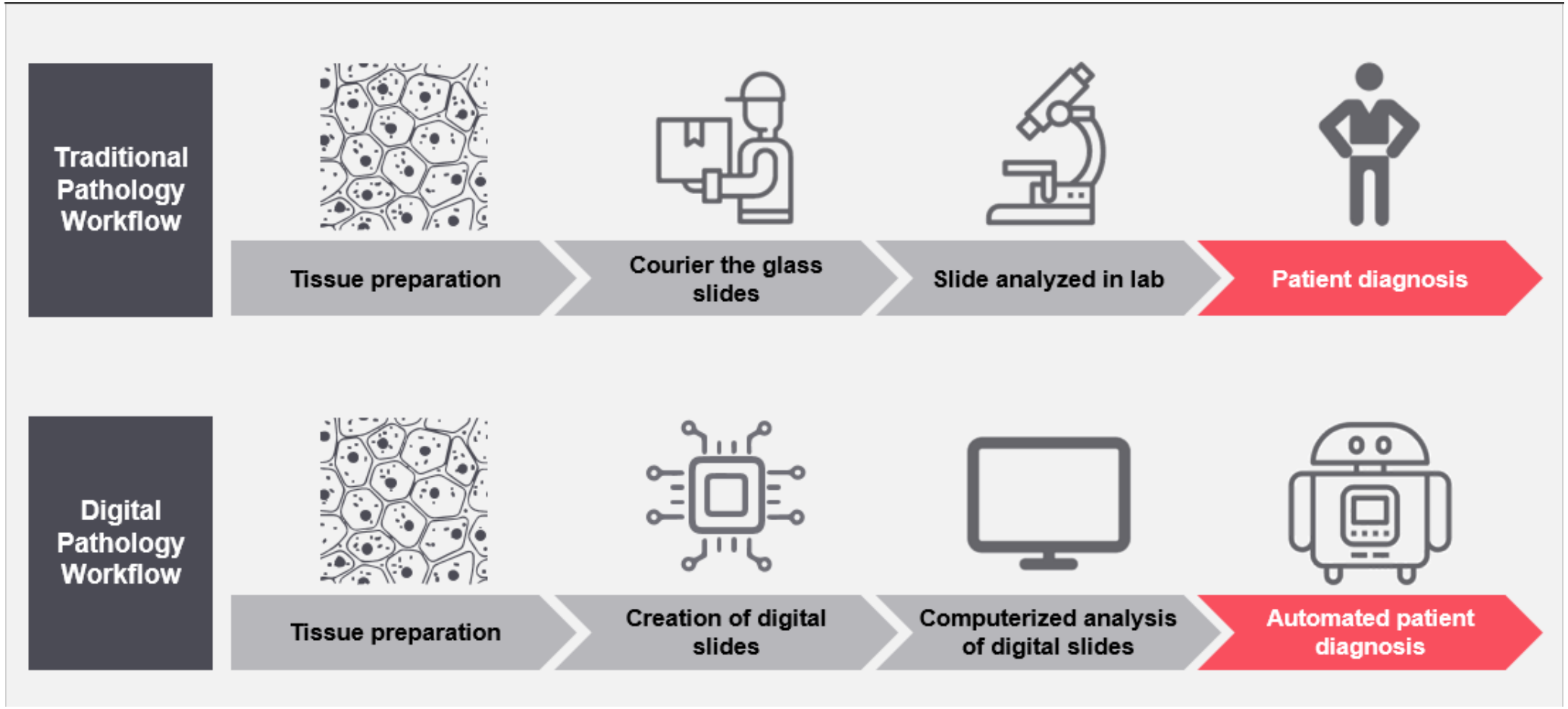
Short sample - Module 1: Introduction to Digital Pathology

What is Digital Pathology?

- Incorporates the acquisition, management, sharing and interpretation of digitized slides
- Digital slides are created when glass slides are captured with a scanning device
- Provide a high-resolution digital image that can be viewed on a computer screen or mobile device
- Capture an entire glass slide, under bright field or fluorescent conditions, at a magnification comparable to a microscope
- Digital slides can be shared over networks using specialized digital pathology software applications.
- Automated image analysis tools can also be applied to assist in the interpretation and quantification of tissue sections



Digital Pathology vs. Traditional Pathology



What are the Benefits of Digital Pathology – Quality:

Improved Analysis:
- Algorithms for analyzing slides are objective, accurate and quicker than microscopy
- Rapid access to prior cases
- Data Storage allows for long-term predictive analytics

Reduced Errors:
- Eliminates breakage
- Barcoding reduces risk of misidentification

Better Views:
- Offers live zoomed and multiple angle views
- Ability to measure multiple areas of interest (AOI)
- Allows for team annotation of slides
- Provides a dashboard view of data and annotations

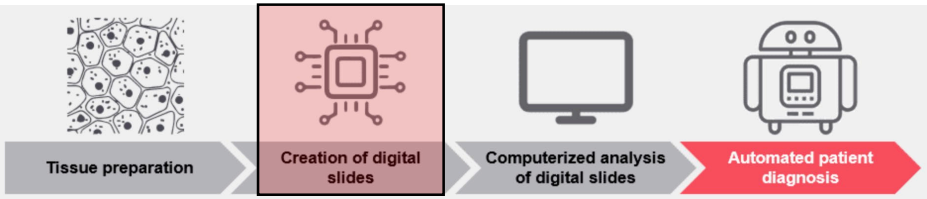
What are the Benefits of Digital Pathology – Productivity:

Improved Workflow
- Fosters collaboration
- Central storage enables easy access in streamlined workflow
- Curbs trend toward outsourcing
- Allows for automation, flex work schedules and remote access

Reduced Turnaround Times:
- Faster access to archived digital slides
- Reduces time retrieving, data matching and organizing
- Speeds up access to samples and improves turnaround time versus manual reviews, especially in complex cases

More Innovation:
- Big data allows pathologists to become more specialized
- Allows practices to extend to broader geographies
- Delivers better tools for teaching and training

Whole Slide Images (WSI)



- Scanning a complete microscope slide and creating a single high-resolution digital file
- Capturing many small high-resolution image tiles or strips and then montaging them to create a full image of a histological section
- WSI is furthering the field of diagnostic medicine, with the goal of achieving efficient and cheaper diagnoses, prognosis, and prediction of diseases due to the success in Artificial Intelligence and Machine Learning

Benefits

- Easy routine screening
- Quality and safety of patient care
- Efficiency
- Standardization