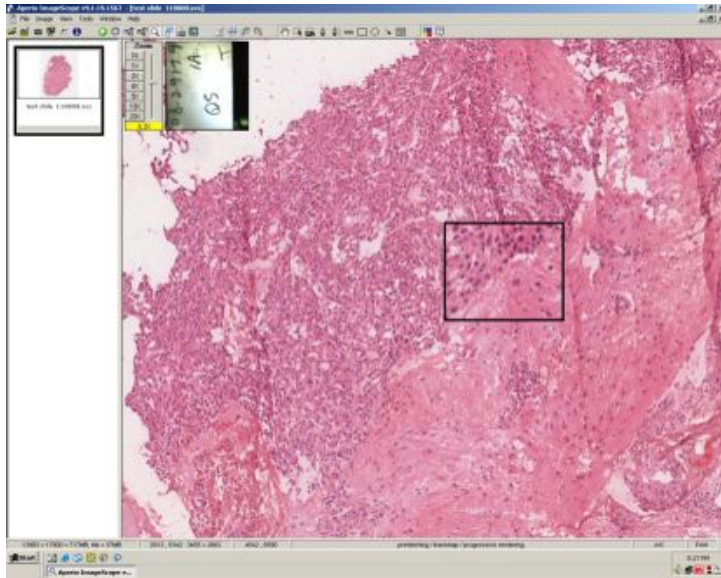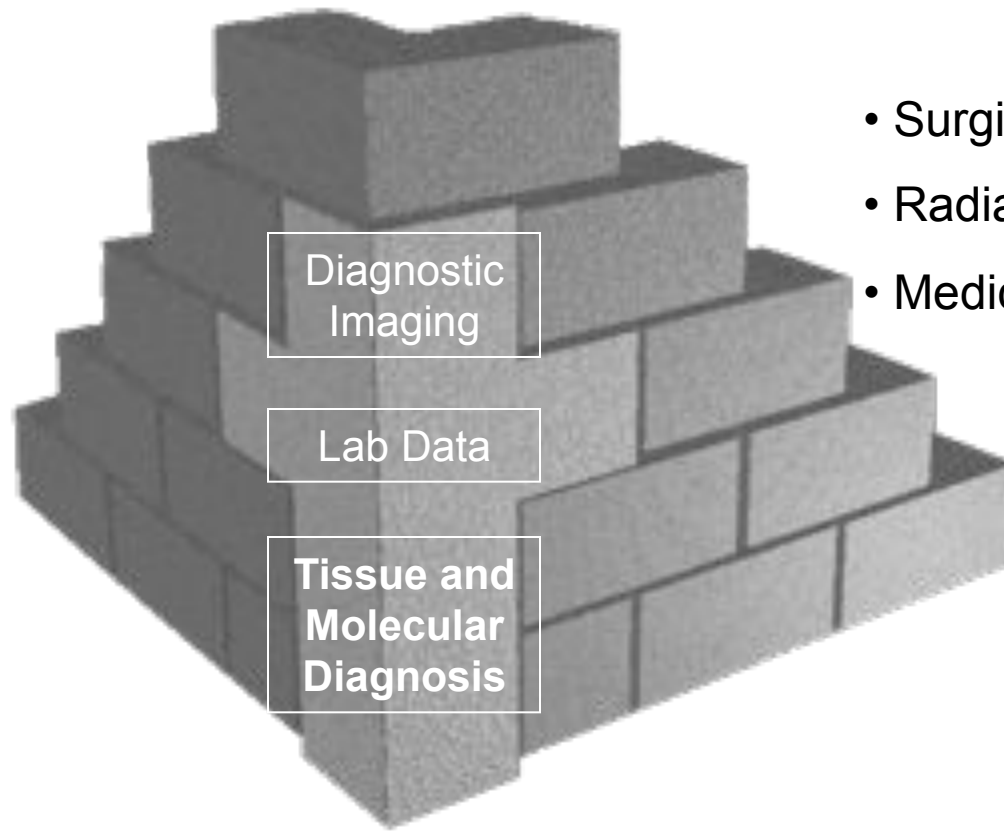# Telepathology and Cancer Care: 2012 and Beyond

Dr. Andrew J. Evans MD, PhD, FRCPC
University Health Network, Toronto, ON, CANADA

Histopathology: A Key Cornerstone of Cancer Care

Diagnostic Imaging

Lab Data

Tissue and Molecular Diagnosis

- Surgical Oncology
- Radiation Oncology
- Medical Oncology

Pathology: The Cancer Patient's Perspective

- Pathologists provide information that profoundly impacts their lives.
- Patients and clinicians must have <u>confidence</u> that the information:
  - is accurate
  - is available in a timely manner
  - reflects sub-specialty/expert interpretation.
- Quality control achieved through <u>sub-specialty consultation</u>

2012: Quality Implications for Today's Cancer Patients

- **Primary and frozen section diagnoses**
  - providing service where it previously did not exist

- **Rapid second opinions from experts**
  - supporting pathologists in remote/under-serviced locations
  - international collaborations
  - reduces delays due to slide transport, loss or damage
  - consensus pathology review for entry into clinical trials

- **Research with rapid knowledge transfer**
  - guideline development for controversial diagnostic and prognostic issues

- **Quality assurance/improvement**
  - immunohistochemistry - standardization for prognostic markers
  - diagnostic proficiency assessment
  - continuing medical education

The Future of Digital Pathology

1. What is being done now?

   - removing distance barriers (ie: using WSI to do the work pathologists have always done with microscopes <u>without shipping slides</u>).

   - referral networks (local, national, international)

   - expert/consensus opinions

2. What is coming?

   - using this technology to do what cannot be done with microscopes and human eyes

   - image analysis, computer-aided diagnostics

Barriers to Adoption

Barriers to Adoption

- Cost, IT support, data management

- Regulatory approval

- Licensure and medico-legal issues

- Lack of standards/best practice guidelines

  - validation studies

- Pathologist perceptions

  - inferior performance to light microscope

    - diagnostic accuracy and throughput

  - out-sourcing ("I will be replaced!")

October 2011

Regulators scanning the digital scanners

WSI systems = Class III medical devices
- Pre-market approval - validation studies
- Manufacturing standards

Validation Guidelines

DIGITAL PATHOLOGY DPA ASSOCIATION

Validation of Digital Pathology Systems in the Regulated Nonclinical Environment

Validation of Digital Pathology In a Healthcare Environment

COLLEGE OF AMERICAN PATHOLOGISTS™

Advancing Excellence

CAP Pathology and Laboratory Quality Center

Validating Whole Slide Imaging Systems for Diagnostic Use in Pathology

O
CONNECTING
FOR
GLOBAL
IMPACT

Thank you!