COVID-19 Worldwide Digital Repository

The Alliance for Digital Pathology
April 22nd, 2020
Webinar

• Mute yourself during the webinar

• Q&A session at the end– submit your questions via the Zoom chat
The Alliance

A temporary and voluntary regulatory science initiative to advance digital pathology and streamline innovation by harmonizing and standardizing pathology workflows

https://digitalpathologyalliance.org

Founded by MGH, MDIC, DPA, FDA
Program

Community outreach and survey results (Amanda Lowe)

Autopsy guidelines and partners (Matt Leavitt)

Data capture, management, sharing (Markus Herrmann)
 Timeline

PRIOR WORK
• Pre-Analytics and Standards Alliance Working Groups

CURRENT CORONAVIRUS OUTBREAK
• Histopathologic studies of COVID-19

BEYOND
• Cancer research and classification of tumors
• Machine learning and artificial intelligence
Global Data Repository Community - 22 countries and growing!
https://www.mapcustomizer.com/map/Alliance%20Data%20Repository
Community Outreach

Associations who have helped us spread the word.
Community Outreach
Survey respondents, contributors, and people or groups interested in our work.

LEADING ACADEMIC MEDICAL CENTERS
• MGH, Cornell, UCLA, UCSF, Vanderbilt, Leeds, MSK, Mount Sinai, Cedars Sinai,

PATHOLOGY ASSOCIATIONS
• Japan, China, Argentina, Belgium, Sweden

CONSORTIUMS AND WORKING GROUPS
• TILS-WG

INDUSTRY
• Amazon AWS, Advanced Cell Diagnostics, Leica, Lumea, Visiopharm, mTuitive, Objective Pathology, Propel

BIOPHARMA
• GSK, Merck, AstraZeneca
Survey Results

TISSUE PROCESSING AND AUTOPSY OF COVID-19

1. Are you currently processing COVID-19 tissue specimens at your facility?
   - Yes: 13 (33%)
   - No, they are sent to another lab: 2 (1%)
   - No: 25 (63%)

2. Is your institution performing autopsies on COVID-19 patients?
   - Yes: 8 (47%)
   - Yes, but it’s being Yes, but the...: 0
   - No: 7 (53%)

The Alliance for Digital Pathology
Survey Results

PLEASE EXPLAIN WHY AUTOPSIES ARE NOT BEING PREFORMED AT YOUR INSTITUTION

• We do not have a proper Airborne Infection Isolation Rooms (AIIRs)
• Autopsies are not performed due to health regulations.
• No protocol and small number
• Lack of trained pathologists to do autopsy
Survey Results

TISSUE EXCISION AND TYPES

4. How is the tissue being excised from COVID-19 patient(s)? Select all that apply.

- During Autopsy: 10
- CT or MRI guided Needle Bio: 4
- Other: 3

5. What type of tissue are you excising of COVID-19 cases? Select all that apply.

- Lung: 13
- Liver: 7
- Kidney: 6
- Heart: 7
- GI: 4
- Other: 3

The Alliance for Digital Pathology
6. Do you have access to a Whole Slide Scanner?

   More Details
   - Yes, at my institution: 12
   - Yes, through another institution: 1
   - No, but I can take microscope...: 0
   - No, I have no access to imaging...: 1
   - No, but I would be able to send...: 1

80% 20%

7. What type of Whole Slide Scanner do you use?

   More Details
   - Hamamatsu: 1
   - Leica/Aperio: 6
   - Motic: 1
   - Olympus: 1
   - 3DHistech: 2
   - Philips: 6
   - Other: 3

Survey Results
Survey Results

PRIVACY, PROTECTION AND SHARING

9. Would you be able to share digital images of COVID-19 cases for international research and education of the disease?

More Details

- Yes: 8 (38%)
- No: 0 (0%)
- Maybe, but would require app...: 5 (31%)
- 62%

10. Would it require patient consent at your institution to use COVID-19 specimens or images for research?

More Details

- Yes: 4 (31%)
- No: 5 (31%)
- I do not know: 4 (38%)
Survey Results

PRIVACY, PROTECTION AND SHARING

11. Do you have a method in place to anonymize cases to comply with HIPAA and/or GDPR requirements?

- Yes: 11
- No: 2

12. Would your institution consider being collection site for COVID-19 specimens and images?

- Yes: 9
- No: 4
Survey Results

CONNECTING THE DOTS

13. Do you have access to unprocessed tissues or slides of COVID-19 patients and are willing to share them? If you need help with this, please describe how we could help.

More Details

38 Responses

Latest Responses

"yes"

"no"

14. Can we contact you regarding this questionnaire? If yes, please provide your contact information and include your name, title, institution, country, email and phone number.

More Details

Latest Responses
Share our Survey

Global COVID-19 Specimen and Data Acquisition Questionnaire

The Digital Pathology Alliance (digitalpathologyalliance.org) is leading an effort to develop a public, international repository of Whole Slide Images of COVID-19 patient tissue samples for the medical and scientific communities around the world. To support this effort, we request 2 minutes of your time to complete the questionnaire below.

1. Are you currently processing COVID-19 tissue specimens at your facility? *
   - Yes
   - No, they are sent to another laboratory.
   - No

LINK HERE
Autopsy Guidelines

Purpose

We need to answer some critical questions:

Mechanism of partial immunity —> Prevention strategies
Disease pathways —> Enlightened Therapies
Autopsy Guidelines

Purpose

Purpose: The purpose of these recommendations is not only help ensure the safety of those performing post-mortem examination, but to coordinate efforts:

Standardizing collection and data sharing methods, the global Pathology community can work together as ONE, to apply our unique skills and understanding to solve these problems.
Autopsy Partners

CAP Autopsy Committee
Health Dept and State ME officials
Royal College of Pathologists
Center for Disease Control
International Societies (eg. Italian AP / Cytology Soc.)
Academic Autopsy Groups
COVID-19 Worldwide Digital Repository

- **Purpose** – Studying COVID-19 and beyond
- **Scope** – Autopsy, structured reporting, digital imaging
- **Actors** – Data collectors, coordinator, distributors and consumers
- **Workflow** – Data submission, review and sharing
- **Live demo** – Presentation of prototype web interface
- **Legal aspects** – Data sharing agreements and licensing
- **Participation** – Getting involved
- **Q & A** – Questions and answers and discussion
- **Conclusion** – Next steps
Purpose

CURRENT CORONAVIRUS OUTBREAK
• Pathophysiology of COVID-19 disease
• Histopathologic diagnostic criteria of COVID-19

BEYOND
• Emerging infectious diseases
• Cancer research and classification of tumors
Scope

AUTOPSIES
• Promote autopsy procedures
• Standardize autopsy procedures and reporting

STRUCTURED REPORTING
• Create structured electronic autopsy report template
• Capture metadata using standard medical ontologies

DIGITAL IMAGING
• Collect digital images of autopsy tissue specimens
• Share images together with relevant metadata
Actors

DATA COLLECTORS & CURATORS
Pathologists around the world

DATA COORDINATOR
World Health Organization (WHO)

DATA DISTRIBUTORS
• Professional associations, e.g. DPA
• Government agencies, e.g. NCI/NIH
• Industry consortia, e.g. MDIC
• Academic consortia, e.g. BIGPICTURE

DATA CONSUMER
Pathologists and scientists around the world
Actors
Workflow

DATA SUBMISSION
Pathologists enter metadata, upload images and download report

DATA PEER REVIEW
Pathologists review data and perform quality control

DATA CURATION
Imaging informaticists clean and harmonized data sets

DATA SHARING
Imaging informaticists make data sets publicly available
Live Demo
Legal aspects

**COLLECTOR – COORDINATOR**
Data sharing agreement

**COORDINATOR – DISTRIBUTOR**
Data sharing agreement

**DISTRIBUTOR – CONSUMER**
Open license
Participation

CODE OF CONDUCT

• Voluntary
• Collaborative
• Precompetitive
• Not-for-profit
• Free and open source

https://digitalpathologyalliance.org/code-of-conduct
Next Steps

PUBLISH
- Manuscript is actively being worked on
- In discussions with several journals

AUTOPSY GUIDELINES
- Finalize, endorse, release to community

LAUNCH DATA REPOSITORY
- Formalize metadata template
- Procedures for upload
- Formalize agreements

FUNDING SUPPORT
- Evaluate needs
- Funding methods
Acknowledgment

College of American Pathologists (CAP)
- Autopsy Committee
  - Henry Sanchez, MD
- Pathology Electronic Reporting (PERT) Committee
  - Samantha Spencer, MD
  - Mary Edgerton, MD, PhD

International Agency for Research on Cancer (IARC)
- Group of WHO/IARC Classification of Tumours Series
  - Alberto Machado
Please send any questions to the following address:
data-repository@digitalpathologyalliance.org