Editorial

DPA–ESDIP–JSDP Task Force for Worldwide Adoption of Digital Pathology

Key Messages

The worldwide taskforce created by Digital Pathology Association (DPA), European Society of Digital and Integrative Pathology (ESDIP), and Japanese Society of Digital Patholo gy (JSDP) aims to catalyze digital pathology workflow transformation through joint educational and awareness activities.

The success of the digital transformation that occurred in Medicine is illustrated by its ubiquitous deployment in radiology.[1] Although mature digital imaging technology exists to support a similar digital transformation in pathology, many pathology laboratories around the world remain skeptical about the adoption of digital workflow in routine clinical practice.[2] In recent years, the digital method of practicing pathology has been proven by several pathology laboratories to represent a viable business model. Moreover, ample validation studies have proven that whole slide imaging (WSI) is noninferior in diagnostic performance to the classic method of using glass slides and a conventional microscope.[3-5] There is a high concordance between diagnosis performed under the microscope and the WSI in several subspecialties of human pathology,[5] including cytopathology[6,7] and intraoperative consultation.[8,9] If properly implemented, carefully validated, and safely utilized, digital pathology can enable laboratories worldwide to undergo a comprehensive digital transformation and thereby allow them to capitalize on its many advantages such as automation of workflow, increased quality of diagnosis, and the creation on an integrated ecosystem that supports computational pathology.[10,11]

We envision the usage of WSI in the daily life of the pathologist to include connecting people and resources, as well as creating the ecosystem for computational and integrative pathology deployment.

The coronavirus disease-2019 (COVID-19) pandemic challenged pathology laboratories to maintain continuity of care from a safe distance, by promoting isolation.[11] Thanks to WSI, during the pandemic certain pathologists who had access to this technology were able to still render primary diagnosis from home, obtain second opinions via teleconsultation, and continue to teach virtually or to help vulnerable laboratories suffering from staff losses. Pathologists were able to continue performing their daily jobs as they were now connected to a network via digital means. They did not need to be anchored to a microscope.

This is an excellent proof of concept that digital pathology works in the real-world setting.

There is much known, and perhaps even more unknown data contained within the millions of pixels present in a WSI. Not surprisingly, these large digital pathology datasets are swiftly catching the attention of everyone interested in computer vision.[12,13] Coupling WSI with artificial intelligence (AI) tools is one of the hot topics in the medical literature today. Computational pathology likely represents the next big revolution in Pathology after immunohistochemistry and molecular pathology.[14] AI-based algorithms are being developed to not only provide computer-assisted diagnosis,[15] but also to augment the practice of pathology by permitting predictions and prognosis to be made directly from H&E pathology images.[16] The potential for AI to be used in discovery to widen our knowledge about human diseases may challenge the way pathologists practice by altering how diseases are classified and also generating new biomarkers of diseases.[17] Of course, such transformational new perspectives can only be understood and developed within the setting of clinical trials. However, first transitioning onto a digital pathology platform is a prerequisite to exploiting AI tools. As physicians trained broadly in disease and having intimate familiarity with tissue architecture and disease, pathologists are rightly the diagnostic experts in tissue-critical diseases. Pathologists need to foster the deployment of these capabilities, not only to improve the efficiency and quality of patient care but also to ensure the longevity of our profession in this worldwide digital transformation.

We are pleased to announce an enthusiastic alliance among the Digital Pathology Association (DPA), European Society of Digital and Integrative Pathology (ESDIP), and Japanese Society of Digital Pathology (JSDP) to promote the global adoption of digital pathology. DPA is a nonprofit organization comprised of pathologists, scientists, technologists, and industry representatives dedicated to advancing the field of digital pathology. The organization's mission is to facilitate awareness, education, and adoption of digital pathology and AI applications in healthcare and life sciences. Members are encouraged to share best practices and promote the use of the technology among colleagues in order to show efficiencies, share knowledge, and its ultimate benefits to patient care (https://digitalpathologyassociation. org/about-the-dpa). The Pathology Visions Conference is the annual conference for the DPA and is focused on providing opportunities to learn about cutting-edge,

real-world, practical applications in the ever-evolving field of digital pathology (https://digitalpathologyassociation. org/pathology-visions-conference). The ESDIP is the nonprofit, scientific association in Europe that brings together pathologists and computer scientists from industry and academia to foster digital and integrative pathology in

Figure 1: DPA–ESDIP–JSDP task force for worldwide adoption of digital pathology

research and routine settings (https://digitalpathologysociety. org/). It was founded in 2016, having its roots in the fields of telepathology and virtual microscopy back to 1992. ESDIP's annual meeting, the European Congress on Digital Pathology (ECDP), hosts individual and joint meetings of IHE PaLM WG and DICOM WG-26 to support standardization of systems (https://www.ecdp2021.org/). The JSDP is a leading professional society of digital pathology in the Asia-Pacific region with almost 20 years of history of contribution to the field of telepathology, and more recently, AI (https://www. jsdp.ai/index.php/jsdp2021/?lang=en). JSDP organizes an annual meeting every summer, to which are added other educational and research events throughout the year. The number of active members of JSDP is approaching 200, including pathologists, computer scientists, medical technicians, students, health administrators, and industry representatives. JSDP serves as a key hub for disseminating knowledge about digital pathology in Asia.

To address the need to support the entire pathology community with accelerating the digitization of Pathology laboratories, the ESDIP promoted a program of inter-institutional collaboration.[18] This culminated in April 2021 with the constitution of a DPA–ESDIP–JSDP task force with the intent of promoting the worldwide adoption of digital pathology [Figure 1]. The DPA–ESDIP–JSDP task force established formal agreements and has already begun sharing speaking engagements and moving towards achieving their goal [Figure 2]. The plan of activities of the task force includes regular meetings as well as joint
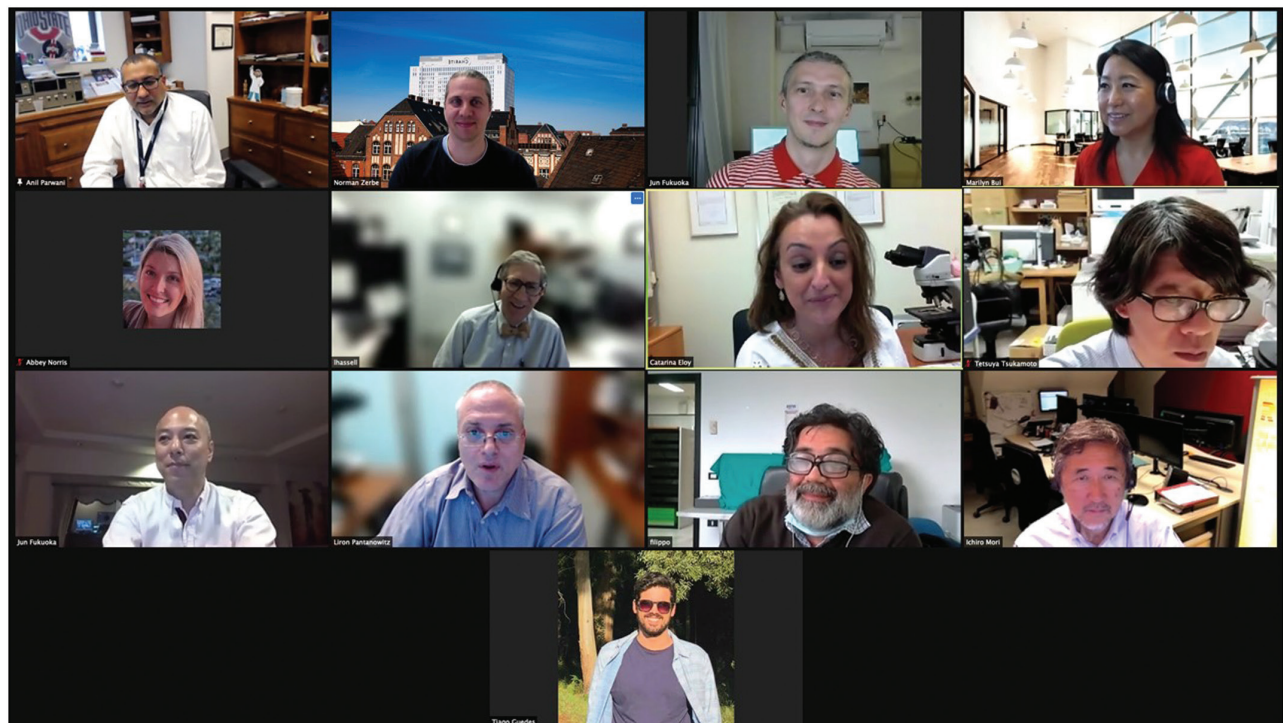
Figure 2: Online meeting of the DPA–ESDIP–JSDP task force, May 5, 2021 (from top to bottom and left to right: Anil Parwani, Norman Zerbe, Andrey Bychkov, Marilyn M. Bui, Abbey Norris, Lewis Hassell, Catarina Eloy, Tetsuya Tsukamoto, Junya Fukuoka, Liron Pantanowitz, Filippo Fraggetta, Ichiro Mori, and Tiago Guedes)

educational initiatives. This alliance aims to boost the exchange of knowledge across borders, unify concepts and standardization, and help break down political, social, and economic barriers,[19] including things as basic as mistrust in digital pathology.

The time to strike is now when the current technological and regulatory climate is favorable to support the digital transformation of pathology.

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Conflicts of interest
The authors are active members of the societies herein presented as part of the task force (AP, LP, MMB, and LH from DPA; CE, NZ, and FF from ESDIP; and AB and JF from JSDP). Liron Pantanowitz consults for Hamamatsu and is on the medical advisory board for Ibex. Marilyn M. Bui is a scientific advisory board member of Aiforia, ContextVision, and Visiopharm.

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