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Remote Pathology Practice

The Time for Remote Diagnostic Pathology in This Digital Era is Now

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The coronavirus disease 2019 (COVID-19) pandemic exacerbated pathologists' retirement and increased pathologists' burnout, worsening the pathologist shortage. Medicine suffers from an unprecedented and growing pathologist shortage impacting hospital systems and their patients within the United States and worldwide. This shortage continues to erode pathologists' ability to serve all our patients' diagnostic needs; however, few immediate solutions are apparent. Digital pathology and remote pathology diagnosis have a growing capacity to improve pathologists' ability to serve our patients. On May 11, 2023, the Centers for Medicare & Medicaid Services (CMS), which "regulates all laboratory testing (except research) performed on humans in the United States through the Clinical Laboratory Improvement Amendments (CLIA)," [1] in cooperation with the Department of Health and Human Services secretary, confirmed that the COVID-19 pandemic was no longer a US public health emergency.[2] CLIA regulations affect approximately 320 000 laboratory entities throughout the United States, with their main objective ensuring quality laboratory testing, which includes "the accuracy, reliability, and timeliness of laboratory [pathology] results." [1,3] With the end of the COVID-19 pandemic, CLIA released a memorandum regarding the exercise of enforcement discretion and other laboratory flexibilities, stating:

> CMS will continue to exercise enforcement discretion to permit pathologists and other laboratory personnel to review digital laboratory data, digital results, and digital images ("digital materials") remotely, without obtaining a separate CLIA certificate for the remote testing site, provided that the designated primary site or home base has such a certificate (using the address of the primary site) and the work being performed at the remote testing site falls within the specialties/subspecialties under the primary site's certificate. A private residence may be a remote testing site. We consider digital data, results, and images accessed by VPN [virtual private network] or other secure method to be an extension of the laboratory that does not require a microscope or other laboratory equipment. Therefore, the remote review of these materials does not require equipment that is essential to being a separate laboratory, while maintaining the accuracy, reliability, and timeliness of laboratory results.[3]

As such, pathologists' freedom to practice remotely remains intact postpandemic.

On May 16, 2023, the College of American Pathologists (CAP) released an advocacy update summarizing this new CLIA post–public health emergency guidance (see Table 1),[4] which supersedes prior CMS directions regarding digital pathology and remote practice.[3,4] The COVID-19 pandemic spotlighted the importance of laboratory medicine in diagnostic testing for societies and health care systems, but the pandemic's demands simultaneously accelerated an already critical pathologist shortage.[5,6] This pathologist shortage has actually been growing for decades, dating from before the 21st century.[7–16] Pipeline efforts, including those by the CAP, have already been instituted to address the shortage by increasing medical student awareness of the field with postsophomore fellowships,[17–21] student interest groups,[22] virtual pathology electives,[23] social media initiatives,[24] and other curricular exposure programs.[25–31] In fact, these efforts have yielded improvements nationally[32] and internationally[33] so far. Although these efforts are effective, they will take years to have a substantial impact and are not a complete solution to the continuing and growing pathologist shortage.

Pathologist shortages will continue to rise if further career and technical interventions addressing these historic trends are not considered.[34–39] A recent comprehensive study of the pathologist workforce in 162 countries and territories from 2019 to 2022 revealed a mean number of 14 pathologists per million, and suggests that services brought on by COVID-19 emergency relief plans, which include advances in digital pathology and other virtual/technology-enhanced assistance systems, may have helped mitigate downward trends.[40] With the recent CMS guideline memorandum continuing remote pathology diagnosis in the postpandemic era, and with the subsequent impact that digital pathology has on the field, the time is now to address the logistics that will allow remote-practicing pathologists to move forward for the benefit of current and future patients. Ideas and guidelines regarding how stakeholders, including colleagues, administrators, and pathologists' families, can support the concept of remotely practicing pathologists are presented.

PROS AND CONS OF WHOLE SLIDE IMAGING AND REMOTE PATHOLOGY DIAGNOSIS

In 2020, Borowsky et al[41] determined that digital slides via whole slide imaging (WSI) are noninferior to glass slides

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Table 1. Clinical Laboratory Improvement Amendments (CLIA) Public Health Emergency Guidance From May 11, 2023, as Summarized on the May 16, 2023, College of American Pathologists Advocacy Update[a]

The primary, home site, laboratory has a current, unrevoked, or unsuspended certificate of waiver, registration certificate, certificate of compliance, certificate for PPM procedures, or certificate of accreditation
The primary laboratory complies with other applicable federal laws, including HIPAA
The laboratory director of the primary site CLIA number is responsible for all testing performed under its CLIA certificate, including testing and reporting performed remotely
Survey findings will be cited under the primary laboratory's CLIA certificate. Enforcement actions, if taken, will affect the primary laboratory's CLIA certificate
The primary laboratory's test reports must indicate the remote site location where the testing is performed. The laboratory may use a coding system rather than the remote site address, eg, personnel residence, on the final report. This coding system must be available upon request
The primary laboratory must be certified in the specialties and/or subspecialties of the work performed at the remote site
The primary laboratory must provide the CMS with a list of all staff working remotely, upon request
The primary location is responsible for retaining all documentation, including testing performed by staff working remotely

Abbreviations: CMS, Centers for Medicare & Medicaid Services; HIPAA, Health Insurance Portability and Accountability Act of 1996; PPM, provider-performed microscopy.

[a] Data derived from College of American Pathologists.[4]

for the primary diagnosis in surgical pathology specimens. The study showed no diagnostic subset categories with statistically significant modality-specific discrepancies in diagnoses, and showed that the average time to review cases was comparable between WSIs and glass slides (averages of 5.20 and 4.95 minutes, respectively).[41] Later that year, Hanna et al[42] also validated that WSIs could be signed out remotely and safely for primary diagnoses, and showed "operational feasibility supporting remote review and reporting of pathology specimens." Other studies[43–45] have drawn similar conclusions to these, including remote diagnosis of intraoperative and intraprocedural consultations by frozen section and rapid on-site examination.[46]

Past obstacles have delayed the routine implementation of WSIs in pathology laboratories globally, including storage capacities, information technology (IT) resources, slide access requirements, plug-in software applications, system compatibilities, practice integration, regulatory agency differences, technical aspects (ie, scanner qualities and times), and overall cost.[47] Another significant obstacle has been pathologists' resistance to change and adaptation.[48] Pathologists' emotions certainly impact their medical-related decisions.[49] But although healthy skepticism is encouraged and essential in delivering efficient care and optimizing patient outcomes,[50] pathologists' ever-increasing role in population health, precision medicine, and data aggregation calls for pathologists to embrace virtual diagnostic tools.[51]

These obstacles, however, are being increasingly overcome as more pathologists, especially new-in-practice pathologists, recognize and voice their preferences for the opportunities to practice in various hybrids of remote diagnostics. Numerous advantages counter these obstacles, including reliable data security (ie, glass slides can be lost or broken), easier slide access (ie, ability to sign out cases remotely), sharing of cases (eg, for second opinions, virtual teaching/education), research standardization, and implementing automated algorithms to improve diagnostic accuracy, time, and productivity.[47] The US Food and Drug Administration approved the first WSI system in 2017 (Philips IntelliSite Pathology Solution) to allow pathologists to review and interpret digital slides "prepared from biopsied tissue," and ensured that special controls (for WSI systems) "must be met to assure. . .precision, reliability, and clinical relevance."[52] Pathologists must strive to take further advantage of these opportunities and to continuously lower obstacles, and supporting bodies such as the Food and Drug Administration must continue to facilitate trials and surveillance of the slide-scanning marketplace to appropriately approve technologies (and encourage the growth of the IT clinical sector) that operate at levels of or exceedingly above those of Philips IntelliSite Pathology Solution (such as the Aperio AT2 DX system).[53]

Health care institutions with pathology departments and private pathology groups are constantly changing environments, and these dynamic environments are frequently in tension with the human need for stability. Lujan et al[54] stated:

> Pathologists as the rest of humankind are resistant to change because it can be uncomfortable. The notion of doing things this way, because "this is the way we have always done them" can be particularly hard to overcome. This does not only apply to introduction of new technologies but to any type of change within an organization, but it may be fair to say that when new technology is involved, the tendency of rejection is even more pronounced. Even more so in our case, where technology is challenging the more than 500-year tradition of how we have been doing things in pathology.[54]

A 2020 study by Nilsen et al[55] suggested that successful change in a health care setting can be optimized through 3 self-perceived employee characteristics pertaining to change: (1) influence to change, (2) preparedness to change, and (3) valuing of change. Digital pathology and remote practice are here now and will continue to grow as practice guidance to WSI exists.[56] As such, institutional and group leaders must be change agents, championing digital pathology and its provision of remote diagnostic options.

REMOTE DIAGNOSTIC PATHOLOGY: ADDRESSING ANGST AND GETTING BUY-IN

Pathologists can successfully address the logistics of converting to remote practice spaces suitable for sustained WSI-based sign-out. A couple of initial steps can be helpful. First, digital pathology screen displays that act as adjustable and tangible portals to read slides must be selected and instituted.[57] These screen displays function like microscopes, but with digital emissive features, frame synchronization

technologies, high-definition resolution, fast screen-refreshing rates, extensive color outputs, and augmented high-end functions.[58] Second, digital pathology must be institutionally selected, beginning with early adopters and expanding throughout institutions' departments, promoting and ensuring widespread adoption of remote clinical practice while supporting individual pathologists' needs.[59] This can be done through holistic, guided frameworks that consider the complete context in which innovative technologies (like WSI) can be applied[59] while acknowledging the importance of human factors and extrinsic ecosystems (which is particularly important to income-limited countries)[60] when integrating the use of these and other related artificial intelligence (AI) tools in clinical practice. Health care institutions and private groups must learn from others' successes and failures.[61]

Champions in the field have successfully advocated for congressional action so that nontraditional remote diagnostic practice is accounted for by CLIA, emphasizing its improvement in the lives of patients and physicians with an expansion of pathologists beyond physical, on-site laboratories.[62] Validation studies regarding digital pathology, establishing completely remote histology, cytology, autopsy, frozen sections, teaching services, and interdepartmental collaboration, have been successfully performed; pathologists' understanding of these can help relieve their angst and increase their buy-in about using digital pathology.[63]

The pandemic, which forced many people, both nationally and internationally, to remain at home for extended periods of time, has now passed. During and since the pandemic, digital pathology proved itself to be a successful solution for pathologists to practice remote diagnostic pathology, including from home.[64] Further, critical evaluation of cost-efficient analyses, technical feasibility, and occupational health outcomes pertaining to digital pathology, and national and international guidelines (such as those outlined in the CLIA), will continue to establish safeguards for WSI in routine diagnostic pathology.[65] This includes the integration of AI.[66]

Productivity can be maintained and even increased with the appropriate use of remote digital pathology if pathologists are adequately supported by their institutions or groups. In a 2021 study by Wang et al[67] on effective remote operation during the pandemic, the authors identified 4 key challenges to operating remotely (remote interference, ineffective communication, procrastination, loneliness) and magnifying characteristics (social support, professional autonomy, monitoring, and service). Specifically, they found that positive social support lowered levels of remote operating challenges, increased professional autonomy, and decreased loneliness, and that productivity can be maximized with appropriate amounts of profession-related service and administrative monitoring.[67] In other words, too many or too few hours practicing remotely, with too much or too little monitoring, can decrease productivity and increase remote operating challenges.

As long as pathologists have the self-discipline to carry out their duties remotely while compartmentalizing their personal and practice obligations, remote diagnostic pathology can be successfully accomplished. It is incumbent on health care institutions and private groups to mitigate service complexities[68] and achieve appropriate levels of virtual monitoring and medicolegal risk.[69] Numerous country-specific guidelines have been implemented to ensure the ethical implementation of digital pathology; however, pathologists have so far tended to exhibit a lack of confidence and understanding of these.[70] Although tensions between digital pathology and data/tissue ethics do exist, these issues can be resolved with time, pertinent regulation through professional societies like the CAP, and, where necessary, proper legislation.[71] Considerations for AI automation within context-specific means must be included in this regulation and legislation, too.[72]

A HYBRID SYSTEM MAY BE BEST

Life-work balance[73] in medicine has been an issue of increasing importance to physicians during the past 3 decades because of practice design and significant cultural flaws within the health care system.[74] Although pathology has historically been a field with low relative rates of burnout when compared with other medical specialties, the pandemic pushed many to breaking points with exacerbated professional disengagement due to loss of control over service loads and professional meaning.[75] Given the vital role of pathologists in patient care "and the importance they have in promoting community health," Omidifar et al[76] note, it is critical to address and resolve pathologist burnout by improving pathologists' well-being and personal lifestyles. This includes establishing supportive practice environments that minimize potential practice site conflict and reduce or eliminate miscommunication, negativity, and unprofessionalism, which have devastating effects on pathologists' health, team morale, and individual self-esteem.[77]

Remote diagnostic pathology has many potential benefits for pathologists, including the reduction of time-consuming, practice-associated tasks like commuting and parking, and more time for life-associated tasks. Time dedicated to diagnosis must be well spent for superior patient care.[78] Granting pathologists more autonomy over their schedules and the division of their time dedicated to patient care duties and self-care–related activities is essential to maintaining a healthy life-work balance and significantly increased professional satisfaction.[79] Remote digital pathology supports that autonomy. Also, pathology laboratories may want to transform or encourage transformation of workspaces to remote digital sign-out spaces for better support consolidation of independent pathologists' needs, free up hospital rooms for patient beds or other necessary faculty workspace areas, and more efficiently distribute workload to support subspecialization through digital slides tagged by specimen category type (eg, skin, blood, placenta).

But too much time practicing remotely from home can ultimately be detrimental to some. The traditional hospital or office practice is often considered a safe haven for many physicians, and not every pathologist is unhappy practicing on-site. In fact, many find it quite enjoyable.[80] Happily balancing remote and institutional/group on-site practice in a hybrid manner is not a new conversation for physicians, and optimal life-work balance requires us as human beings to be proactive in creating balanced lifestyles.[81] This includes actively engaging in self-care practices (ie, not just "soldiering on"), triaging tasks (ie, setting priorities), navigating time and money accordingly, avoiding cynicism, and making life-work balance happen with primary intent.[82]

Although an entirely remote diagnostic practice may be appropriate for some pathologists, a hybrid system (ie, remote practice part of the time and on-site practice the rest of the time) may be the best option for most pathologists to successfully balance institutional or group pathology needs and their individual needs. A key to maintaining an appropriate life-work balance is healthy moderation

between the two.[82] As seen during the pandemic, excessive time practicing remotely can negatively impact personal relationships (including with significant others and children)[83] and result in higher rates of depression and anxiety, especially in families with conflicts at home.[84] Furthermore, people who do not have proper social support may suffer more from remote practicing conditions (namely from home), which can lead to psychological detachment, increased stress, decreased sleep, and decreased productivity.[85] Hybrid systems with sufficient remote technologies may promote a more sustained balance for pathologists, and therefore can prevent potentially harmful outcomes from prolonged remote practice.[86]

THE PATHOLOGISTS' ON-SITE PRACTICE SPACE

The pathologists' on-site practice space likely will evolve as hospital offices are becoming scarcer and institutional space is becoming more limited.[87] One way to ameliorate this trend is through the establishment of shared practice spaces used by a group of pathologists (ie, "desk sharing"). As an example, suppose a group of 8 pathologists contracts with a small community hospital that has space available for 2 offices with 2 microscopes or WSI-enabled desktops at each office (for a total of 4 desk-sharing practice spaces). In a hybrid system, half of the pathologists could practice on-site each day while the other half practice remotely.

Although this setup may seem relatively simple, it provides a framework and theoretical construct that shows that this scheduling system is practical. Desk sharing (ie, one desk shared by multiple individuals throughout the week) may work better and be more efficient and easier to execute for larger groups than for smaller ones, though it may negatively affect group identity and cause conflicts in organizational culture (ie, pathologists may not be able to view their office spaces as individualized status markers if they are shared with others).[87,88] Teaching and other educational needs would also need to be taken into account in academic institutions. Successful implementation calls for colleagues to understand each other's fundamental practice patterns and processes. This also includes time on the phone or in online meetings, which could be highly distracting to other persons in the same shared practice space. Implementing additions (eg, portable cubicle walls in rooms with open areas that can accommodate multiple desks for individual pathologist practice) to allow for privacy and quietness during individual practice hours may be considered. Further research observing the real-world implementation of shared on-site pathology spaces should be evaluated, though, as previous studies suggest that these have not been yet optimized.[89,90]

These valued shared practice spaces would be designed to offer "collaboration and community in furnished and equipped" spaces at or near an institution and provide support in case of emergency consultations requiring on-site attention.[91] Pathologists require and appreciate their privacy while on-site, and current literature suggests that shared spaces, which are often voluntarily created, may offer pathologists much-needed privacy and limited noise intrusion while providing needed social interaction, separation of practice and life activities, and, ultimately, professional satisfaction.[91]

VIRTUAL VERSUS IN-PERSON TEACHING

Virtual learning is increasingly practical with improvements in computer technology, wireless internet, and screen-sharing applications (like Zoom Video Communications Inc). With the unprecedented times brought on by the pandemic, both educators and learners were required to adjust to remote learning environments. Because of the growing variety of available web-based resources, interactive online forums, up-to-date open-access information, and peer mentoring (for both knowledge and psychosocial support),[92] remote learning has been shown to be increasingly effective. Pathology education is no exception to this: virtual learning provides educators and learners with convenience, flexibility, and improved engagement while meeting learning outcomes criteria.[93]

However, hybrid learning may be more beneficial than online-only learning for medical students[94] and trainees.[95] The benefits of remote learning can be dampened or nullified by technical challenges, confidentiality issues, diminished learner engagement (ie, being easily distracted while on a Zoom webinar), loss of communication, poor time management, and reduced learner well-being.[96,97] In pathology, the on-site experience of the university or live-microscope environment and the much-needed hands-on learning that occurs when discussing cases face-to-face with faculty and peers strengthen the student experience.[98] Pathology training programs have also been challenged by changes to resident rotations, didactic sessions, wellness strategies, and leadership engagement.[98] All of these must be addressed to maximize a hybrid educational experience. Nevertheless, the pandemic demonstrated that online learning can be executed at the highest level, boosting confidence in educators and learners alike to continue to move forward.[96,97] Catalyzed by the pandemic, the medical education community is now in a new online era.[99]

Currently, many training programs have greatly advanced their IT support, remote learning systems, digital pathology tools, and resources allowing for efficient, effective, high-quality learning for both medical students and trainees, with continued optimization moving forward.[100] This includes remote diagnostic pathology electives (even using social media)[101,102] for medical students and postgraduate trainees who are attempting to gain one-on-one experiences with training program educators as they prepare to apply for residency and fellowships, or for nonpathologist trainees to better understand the discipline of pathology.[103,104] A hybrid system accounts for these positive traits of remote learning and couples them with face-to-face, interdepartmental small-group sessions where learners can apply what they learn online to mentorship, professionalism, and real-world problem-based scenarios.[105] This provides time and cost efficiencies when compared with traditional in-person–only training.[105]

CONCLUSIONS

The time for remote diagnostic pathology in this digital era is now. The capacity to provide superior remote pathology diagnostics has been accentuated from the lessons learned regarding digital pathology and medical education during and following the pandemic.[106] Within any pathology department, whether academic or private, institutional or group based, the threshold for digital pathology is now sufficiently supported with medicolegal and IT functionality

Table 2. Summary of Best-Practice Hybrid Setups for Pathologists While Optimizing Both Remote and On-site Practice Spaces[a]

Remote	On-site
Create private home office spaces that promote maximum productivity for the individual pathologist (eg, keep the door closed, quiet space)	If desk sharing, discuss with your employer alternating on-site versus remote scheduling and verify how many days a week each of you are in each setting
Keep pets like dogs and cats away from the practice space unless they are well trained and can remain by your side without barking, begging for attention, jumping on the keyboard, etc	Open spaces may be too loud or distracting for sufficient sign-out or interdepartmental consultation; recommend shared practice spaces instead and allow employees to engage in personalizing the environment
The space should be clean, tidy, and with a backdrop appropriate for onscreen presentation (eg, good lighting, professional degrees behind on the wall, a plant in the corner of the room)	If private space, decorate your office according to optimal productivity and feeling like the space "is yours"; double-headed microscopes are beneficial for in-person one-to-one teaching conferences with trainees or medical students
Ensure fast Wi-Fi speeds and up-to-date computer technologies capable of efficient WSI sign-out; remote IT access may be necessary in cases of emergencies	If hospital space is limited, perhaps look for a nearby remote rental space where a shared space can be established
Create safe, secure VPNs to ensure proper protection of PHI and minimization of HIPAA violations	Encourage social interaction with colleagues while in person on life and practice manners
Intentionally schedule time away from your office space for day-to-day personal life needs (eg, exercise, family, banking, groceries, sleep)	Still encourage in-person trainee and medical student engagement, as it is pertinent for growth, mentorship, and much-needed hands-on experience
Refrain from being tempted to continue feeling the need to go back into your home office to practice more, etc, after you have signed off for the day	Pathologists and staff within the department in a hybrid system should all meet in person once every 2–3 weeks to go over housekeeping, have coffee, catch up, and maintain good team chemistry
If you have young children, still approach your office as if you were on-site (ie, routine nanny, babysitting, or daycare services while you are practicing)	Colleagues should discuss each other's practice habits, patterns, and needs to help ensure positive environments for all in a shared practice space
Set reminders for multidisciplinary, interdepartmental, trainee/medical student teaching, or other important virtual conferences so these are not missed	Continue to set life priorities and enter/leave the office at appropriate times to that you are still completing your practice-related duties in a timely fashion
Virtual pathology rotations can be conducted over private shared screen recording platforms (eg, Zoom) with live WSI and EHR navigation for effective teaching and MedEd	In-person rotations can still be supplemented with on-site WSI and online/SoMe resources that still promote learner and educator engagement in this postpandemic digital era
If there is too much remote conflict (due to children, relationship issues, etc), ask your supervisor if you can practice on-site more during a designated period	If you find yourself practicing more effectively at home, discuss with your supervisor the possibility of having more weekly remote hours versus on-site hours

Abbreviations: EHR, electronic health record; HIPAA, Health Insurance Portability and Accountability Act of 1996; IT, information technology; MedEd, medical education; PHI, protected health information; SoMe, social media; VPN, virtual private network; WSI, whole slide imaging.

[a] These are determined through a qualitative review of literature pertinent to this topic as highlighted in the main text, as well as anecdotal thoughts constructed by the authors. Recommendations mentioned herein are done so without complete, evidence-based guidelines, as there is a current lack of research in this area.

so that pathologists and trainees can practice diagnostic pathology remotely. Every pathology department or group will have to find its own balance,[107] ensuring that practicing both remotely and on-site is equitable and sustainable for both institutional or group leadership and for pathologists, while providing supportive, positive cultural environments.

A hybrid system is a strong consideration moving forward (see Table 2). Socioeconomic factors must be considered on an individual basis, as hybrid practice environments that mitigate stress, promote happiness, and enhance psychological well-being will evolve, changing the pathologists' practice experience.[107] Some pathologists may prefer to practice predominately or entirely remotely, whereas others may prefer to practice predominately or entirely on-site. Pathologists can rotate their on-site presence, and institutions and groups can bring everyone together in person on occasion to reinforce team camaraderie, build professional identity, discuss essential housekeeping issues, and provide pertinent wellness check-ins. Pathologists practicing remotely must cultivate their personal spaces and build self-regulatory skills, and institutions and groups must support this.[108] Importantly, when on camera for consultations, departmental meetings, or multidisciplinary tumor board conferences, pathologists must present themselves effectively and professionally, just as they do in face-to-face encounters when practicing on-site. Recommendations outlined by Ohnigian et al[109] are helpful.

Whether remote or on-site, there may be no uniformly perfect or ideal practicing space design.[110] This design is highly subjective to individual pathologists and the settings in which they practice (whether on-site or remote). In other words, pathologists and their employers must adhere to the Latin phrase *temet nosce*, or "know thyself," and optimize what they need to practice at their optimal levels given the resources that are available to them. Additionally, institutions and groups must pay attention to their state's department of public health regulations regarding remote practice, as certain states may have or enact guidelines to allow pathologists to view digital data (including WSI) only at CLIA-licensed laboratories.[4] Institutions and groups must also prioritize pathologists' health and maximize their participation when constructing practice environments and help pathologists to cope with practice-related clinical challenges in "comprehensible, manageable and meaningful ways."[111] Furthermore, the informal connectedness, belonging, trust, teamwork, safety, functionality, and legitimacy that social spaces

bring to trainees must be strongly supported too, for proper professional and mentorship support.[111,112]

Remote digital pathology is no longer a thing of the past. In this digital era, remote diagnostic pathology is thriving, and pathologists, institutions, and groups must learn how to embrace it to ensure adequate and superior patient care while recognizing the complexities and advantages of practicing virtually.

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