

# Excellence Available Everywhere

## The Virtual Pathology Grand Rounds Experience

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### ABSTRACT

**Objectives:** *The goal is to describe the use of a virtual platform in the delivery of Virtual Pathology Grand Rounds (VPGR) and discuss the overall experience from the perspective of hosts, speakers, and participants.*

**Methods:** *Zoom was a natural choice for an online format because virtual platforms had been increasingly used to conduct meetings and medical education. VPGR hosted 14 speakers on a variety of topics, including subspecialty anatomic pathology material, digital pathology, molecular pathology, and medical education.*

**Results:** *There were 221 registrants and 114 participants for the first lecture, reaching a maximum of 1,268 registrants for the 12th lecture and the maximum limit of 300 participants during 3 lectures. Speakers stated that VPGR conveniently provided career-building opportunities through partnerships with host universities and remote attendance. Participants identified a lack of interpersonal communication and technical challenges as downsides.*

**Conclusions:** *VPGR serves as strong proof of concept for the feasibility and demand for high-quality, remote academic pathology talks.*

### Key Points

- Via Zoom, Virtual Pathology Grand Rounds (VPGR) enables attendees from around the globe to join institutions and collaborators in sharing knowledge, clinical expertise, and research findings.
- VPGR enables advancement for a diverse group of speakers at all career stages, despite lost opportunities for speaking engagements.
- VPGR serves as strong proof of concept for the effectiveness of online teaching and demand for high-quality, remote academic pathology talks.

Grand rounds seminars are a cornerstone of scholarship in all academic medical departments. Usually set as recurring weekly or monthly events, they provide education, stimulate discussion, and build faculty reputation.<sup>1</sup> The goal of these lectures is to disseminate current research topics and promote discussion of diagnostic and clinical best practices relevant to the field of pathology and laboratory medicine. Grand rounds is seen as an effective learning modality by laboratory medicine residents, particularly when delivered in a case-based fashion.<sup>2</sup> Grand rounds are considered part of the Accreditation Council for Graduate Medical Education common program requirements for didactic education of residents and fellows.<sup>3</sup> For all of these reasons, grand rounds are an essential and enduring component of medical education.

The onset of the coronavirus disease 2019 (COVID-19) pandemic led to cancellations in teaching conferences and lost opportunities for in-person grand rounds beginning in March 2020.<sup>4</sup> External speakers were no longer permitted to travel, and large group gatherings were prohibited on most campuses, preventing even internal

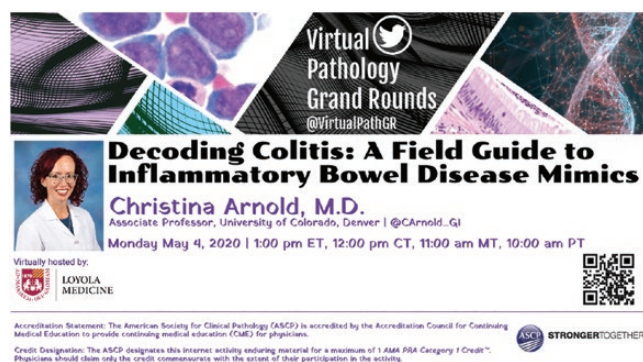
speakers from continuing to give these talks. Because virtual platforms had been increasingly used to conduct meetings and medical education (including the use of social media platforms, such as YouTube and Facebook), these platforms were a natural choice for the continuation of grand rounds in an online format.<sup>5</sup> Since the beginning of the pandemic, there has been a proliferation of virtual grand rounds using various platforms in many medical specialties, including emergency medicine, surgery, and gastroenterology, with events hosted by academic departments and professional societies alike.<sup>6-9</sup>

In this article, we discuss our approach to the development of an online, livestreamed, ongoing lecture series called Virtual Pathology Grand Rounds (VPGR), including a discussion of how we optimized this online platform, obtained continuing medical education (CME) credit for the activity, and measured outcomes from participants and speakers.

## Methods

VPGR was developed in response to the need for continuity in medical education and career development opportunities in academic pathology during periods of physical distancing. It originated with 6 volunteer pathologists representing 6 major academic medical centers agreeing on the need for an accessible, highly curated lecture series to discuss academic pathology topics. A unique hashtag (#VirtualPathGR), the @VirtualPathGR Twitter account, a VPGR page on Facebook, a consistent logo, and a template for announcements (Figure 1) were created in March 2020. These elements were used and distributed via Twitter and Facebook to promote the events.

A 1-hour social media–based VPGR series using the Zoom video conferencing platform was agreed upon.



**Figure 1** Example of the Virtual Pathology Grand Rounds template for event announcements, which included information about speaker title, topic, and host institution.

Zoom was chosen because it had become a ubiquitous presence for videoconferencing and is free for audience members, increasing the number of people who could participate. The utility of this remote sharing tool has been described in the pathology setting.<sup>10</sup> Each host institution set up the Zoom meeting for its event and hosted using its institutional accounts. We did not have institutional access to the webinar function; therefore, all sessions were held via the usual Zoom meeting function. Preregistration via Zoom was required to minimize risk of disruption by malicious actors. The registration was open to everyone, with no limitation on the number of registrants or their geographic location; however, as per Zoom regulations (nonwebinar option), only 300 attendees could enter the VPGR on a first-come, first-served basis.

Criteria for nominating speakers were developed, and the VPGR founders reviewed each potential candidate before selection by a majority vote. Once selected, speakers were contacted by email with an invitation to speak. Talk titles and dates were agreed on, and an announcement was made across all social media channels. Academic institutions served as “hosts,” similar to traditional ground rounds, and the speaker was introduced by one of the VPGR board members. Speakers then took over screen sharing and presented their lecture, with participants muted. While speakers presented, a VPGR member with host or co-host status would monitor the participant list to be sure that no attendees unmuted themselves and disrupted the speakers. Overall, the default Zoom security settings were deemed sufficient; preregistration was used to prevent active meeting links from circulating widely. Zoom functionality evolved during the events; by the time of this writing, a feature prohibiting participants from unmuting themselves was available. Additionally, speakers were asked to “Disable participant annotations” before starting so that no inadvertent markings could be made on the slides.

The question-and-answer (Q&A) period was moderated by a VPGR member, who read questions aloud from the chat window to the speakers. This approach enabled anyone to ask a question at any time throughout the lecture, without needing to unmute. It also prevented speakers from needing to navigate both their presentation and the chat function in Zoom. Postevent evaluations consisting of 10 questions were created in Google Forms and sent to participants using the chat function in Zoom at the end of each lecture. The evaluation questions are presented in the supplement (all supplemental data can be found at *American Journal of Clinical Pathology* online). Data on attendee demographics and the effectiveness of the speaker and grand rounds format

were collected. Feedback from speakers was collected informally by email, where they were asked to provide “comments on how VPGR has worked/not worked as a speaker, benefits for your career, etc.” Lectures were recorded in Zoom, edited by 1 of the authors, and archived on YouTube, where a VPGR channel was created. Twitter and YouTube activity data were collected. Following discussions with the American Society for Clinical Pathology (ASCP), that organization granted 1 hour of free CME credit to all attendees of each lecture. The speakers completed CME disclosure forms as required by ASCP. ASCP participation allowed for consistent access to CME, independent of the host institution. Given that this series was created by a volunteer nominating committee without dedicated institutional funding, no honoraria were available to speakers, but a printed certificate with the VPGR logo was created for each speaker and signed by the nominating committee.

## Results

From April 2, 2020, to October 2, 2020, VPGR hosted a total of 14 speakers on a variety of topics, including subspecialty anatomic pathology material, digital pathology, and medical education. Attendance climbed as the series continued (Figure 2); there were 221 registrants and 114 participants for the first lecture, but these numbers reached a maximum of 1,268 registrants for the 12th lecture and the maximum limit of 300 participants during 3 lectures. A gap in the number of registrants and attendees was present for all events; because there is no cost to register, anyone with any interest could register, and then choose whether to participate live. Registration

likely served as the best measure of general interest, with the number of live attendees representing the practical number who were able to attend. While there were no differences in the VPGR-based announcement of the event that reached 1,268 registrants, there seemed to be robust retweeting and spread via other social media accounts for this event. The final 2 lectures during this time period had fewer registrants and participants than the average, potentially because of “Zoom fatigue” or the general level of interest in those 2 topics. From the third lecture forward, CME credit was made available through ASCP. In total, 1,420 credit hours were offered for the 12 lectures eligible for CME credit.

Individual participants’ data were not specifically tracked, but participant feedback on postevent evaluations provided some basic information about attendees. Based on this information, while the majority (210/304, 69%) of participants were based in the United States, at least 21 other countries and 6 continents joined the online lectures. Most participants were pathology faculty or staff (193/304, 63%), though pathology residents and fellows, medical students, scientists, and health care professionals in other specialties also attended.

The speakers represented a spectrum of academic rank (7 assistants, 3 associates, and 4 full professors) and institutional representation, with 12 unique home institutions representing the Northeast, mid-Atlantic, South, Midwest, Mountain West, and West Coast regions. Topics for VPGR were chosen by the speakers and represent a range of subspecialty topics in pathology and laboratory medicine (Table 1).

Participant feedback was largely positive, and data are presented below for each evaluation returned within 3 days of the live event. The range of scores is given

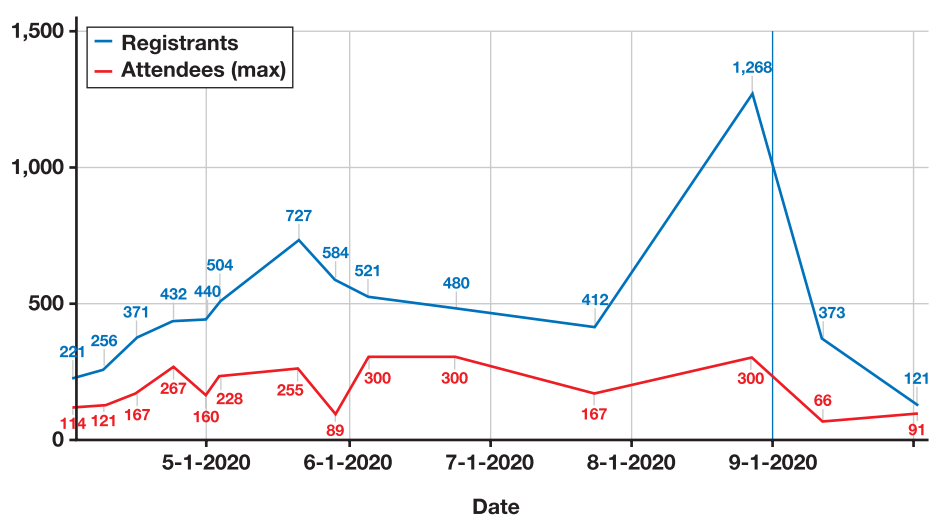


Figure 2 Zoom registration and live attendance totals for each Virtual Pathology Grand Rounds event.

by event, with standard deviations presented between averaged scores for the event. Per evaluations gathered through the first 14 lectures, participants rated overall presenter effectiveness at an average of 4.88 (range [SD], 4.5-5.0 [0.16]) on a 5-point scale, where 1 was “Not at all effective” and 5 was “Very effective.” When asked whether speakers met expectations for the quality of a grand rounds speaker, the average score given was 4.82 (range [SD], 4.5-5.0 [0.16]), and the average score given by participants for how VPGR lectures compared with live, in-person lectures was 4.25 (range [SD], 4.0-4.5 [0.18]) (select feedback on this issue provided in **Table 2**).

Participants generally thought that the Zoom platform was acceptable for VPGR (average, 4.72; range [SD], 4.5-4.8 [0.11]). They reported that it was easy to ask questions and interact with presenters (average, 4.57; range [SD], 4.4-4.7 [0.10]) and that they would recommend VPGR to peers (average, 4.73; range [SD], 4.2-4.9 [0.23]). Overall, audience members rated VPGR highly (average, 4.80; range [SD], 4.6-4.9 [0.11]). Speakers also generally appreciated and enjoyed the opportunity to lecture via VPGR. Speakers were generally positive about their experiences with VPGR. Specifically, they stated that VPGR conveniently provides career-building opportunities through partnerships with host universities and remote attendees. Select positive and negative comments from speakers are provided in **Table 3**. Participants and leadership from host institutions had a positive response, as well, with comments expressing appreciation for the VPGR group for seamlessly “stepping in” to provide high-quality extramural speakers who had not been accessible before the pandemic.

Social media engagement is evidenced by 2,090 @VirtualPathGR followers currently and more than 1.5 million total impressions monthly for the hashtag #VirtualPathGR on Twitter. The VPGR YouTube channel has more than 1,320 followers, with 889 average views (range, 276-3,436) per event. The VPGR Facebook page has 1,488 likes, demonstrating the importance of using multiple platforms to publicize events.

**Discussion**

VPGR serves as strong proof of concept for the feasibility and demand for high-quality, remote academic pathology talks. In other medical specialties, novel online lecture series were shown to promote ongoing education opportunities during the COVID-19 pandemic, provide access to faculty experts from other institutions, and increase community connectivity during periods of physical distancing.<sup>11</sup> Listener participation with VPGR was

**Table 1**  
**Characteristics of Virtual Pathology Grand Rounds Speakers, Hosts, and Topics**

Academic Rank	Speaker Institution	Host Institution	Topic	YouTube Views (as of December 14, 2020)
1	Assistant Weill Cornell Medicine	University of North Carolina at Chapel Hill	Genitourinary pathology	821
2	Assistant MD Anderson Cancer Center	Loyola University	Hematopathology	696
3	Associate MD Anderson Cancer Center	University of North Carolina at Chapel Hill	Cytology/molecular pathology	474
4	Full University of California San Francisco	Duke University	Neuropathology	1,121
5	Assistant Brigham and Women's Hospital/Harvard University	University of California San Francisco	Artificial intelligence/digital pathology	511
6	Associate University of Colorado	Loyola University	Gastrointestinal pathology	1,396
7	Assistant Johns Hopkins Medicine	University of North Carolina at Chapel Hill	Medical education/diversity, equity, and inclusion	382
8	Associate Emory University	University of California San Francisco	Gynecologic pathology	629
9	Assistant University of Pennsylvania	Duke University	Molecular pathology	759
10	Full Beth Israel Deaconess Medical Center	Beth Israel Deaconess Medical Center	Breast pathology	992
11	Full University of Pittsburgh Medical Center	University of California San Francisco	Endocrine pathology/molecular pathology	559
12	Assistant Johns Hopkins Medicine	University of North Carolina at Chapel Hill	Bone and soft tissue pathology	3,436
13	Full University of Wisconsin	University of California San Francisco	Endocrine pathology	393
14	Assistant Children's Hospital Colorado	Duke University	Pediatric pathology/molecular pathology	276



**Table 2**  
**Select Feedback From Participants Regarding the Online Platform for Lectures**

Positive Feedback	Negative Feedback
"Easy to see the slides and hear the presenter in a convenient and comfortable location"	"Can lead to more distraction as you try to multitask and use chat box"
"We don't have access to anyone with [the speaker's] expertise in our unit or possibly in our country"	"Would appreciate the ability to ask questions directly"
"I could easily take notes at my desk, while at a live lecture it is not usually that easy"	"The personal interaction is lacking. Also, appreciation like the crowd applauding"

**Table 3**  
**Select Feedback From Speakers Regarding the Online Platform for Lectures**

Positive Feedback	Negative Feedback
"Relatively large audience of participants from around the world"	"Feel like you're speaking to the endless abyss"
"Offers academic opportunities to those who cannot travel due to young families, home obligations, etc"	"Lacks the personal engagement with the audience that is key for in-person conference presentations"
"Opportunity that I likely would not have had pre-COVID at this stage in my career"	

robust, with many events ending with long Q&A periods. Still, participants did identify a lack of interpersonal communication and technical challenges as downsides. Remote learning comes with challenges, but VPGR shows that the pathology community can harness the power of remote technologies to enhance learning around the world, now and in the future.

The usual process for in-person grand rounds involves a committee of faculty (anatomic pathology and clinical pathology) who select the slate of speakers for the year, typically set as a recurring weekly meeting. Potential speakers, topics, and curricula vitae are submitted to this committee, which then decides whether to extend an invitation. At the onset of the COVID-19 restrictions, these standing engagements were abruptly cancelled, with no immediate plans to fill those slots. The authors approached their grand rounds committee with a proposal to remotely "host" grand rounds that the VPGR nominating committee organized. The same process of submission of speaker, title, and curriculum vitae for committee approval was followed for potential VPGR speakers to ensure high-quality speakers, but the authors were able to operate on a much shorter timeline given that

there was no need to travel or schedule beyond 1 hour of the speakers' time.

In addition to the agility in scheduling VPGR, the benefits of a free, online platform include accessibility to a broader audience, including international participants who may not have access to specific areas of expertise in their country. Attendance varied somewhat from session to session, but attendee numbers consistently exceeded those seen in traditional grand rounds meetings in the authors' collective experience. With the recording and archiving of VPGR sessions, those who cannot attend in real time can watch on demand, ensuring access regardless of time zone. Participants can claim CME credit, which may become increasingly difficult as in-person meetings are canceled. Participation is also driven by social media promotion, where thousands of potential attendees receive the message simultaneously. The proliferation and promotion of these events is iterative; each new opportunity validates the medium and effectiveness of the preceding events.<sup>10</sup>

Second, expert speakers can present from the comfort of their offices or homes. This 1 hour spent away from their clinical duties or families is small compared with the time and energy needed to travel to far-off destinations to deliver in-person presentations.<sup>12</sup> Additionally, VPGR provided opportunities for early-career faculty to present their work in a highly visible and accessible way, in contrast to traditional grand rounds events, which are often limited to more established speakers in the field. In this way, a more inclusive, social media-based platform levels the playing field for speakers at all career stages. Intentional efforts were made to identify and nominate early-career pathologists who may have lost opportunities for external speaking engagements because of the COVID-19 pandemic. The authors also felt that maintaining a link to a "host" institution was important for validating the experience as a legitimate invited academic talk to be included on a curriculum vitae. These experiences are essential for developing the national reputation necessary for promotion and tenure in most academic medical centers.

Third, although the sessions are open to a global audience, they serve to bring together pathologists, scientists, and trainees with a specific interest in the subject matter, "enriching," so to speak, the audience in content experts. This approach provides opportunities for increased visibility, networking, and exchange, leading to the possibility of collaborative projects in an extremely efficient manner.<sup>13</sup> In the future, VPGR may consider breakout room functionality so that such connections can be made.

Fourth, the virtual conferencing mechanism enabled seamless interaction with the speakers. In-person activities sometimes suffer from attendee reluctance to speak up or ask questions. The ease with which attendees can participate in the VPGR discussion using chat functionality served as the “activation energy” for discussions that may not occur in live meetings. This reduced threshold for interaction is especially important for the inclusivity of all attendees, especially those who may not speak English as a primary language.

There are disadvantages to the online nature of the VPGR platform, as well. Early on, we encountered minor technical glitches, including accidental annotation of the speakers’ slides during the talk, which was resolved as the authors became more proficient in managing Zoom settings. Fortunately, no willful malicious acts, such as sharing explicit comments and images, occurred—a phenomenon known as “Zoom bombing.”<sup>14</sup> In addition to standard Zoom security options, the use of preregistration and having multiple co-hosts with the ability to mute participants diminished the risk of Zoom bombing during VPGR sessions. Lack of in-person interaction also affects all involved. From the point of view of speakers, it can be difficult to engage an audience that is muted and faceless. Additionally, it is often challenging to maintain speaking energy and enthusiasm while speaking into a microphone from the office or home. These trends have been described in other specialties engaging in online learning.<sup>15</sup> Polling and audience interactivity are encouraged in the VPGR session (and are often fruitful), but they still cannot replace the energy and enthusiasm such activities have when delivered in person. The simultaneous proliferation of numerous pathology teaching events, including pathCast, the College of American Pathologists (CAP) Virtual Lecture Series (#CAPVirtualPath), and numerous pathology-themed podcasts (@PathPod, @DeeperLevels, @ASCP\_Chicago Inside The Lab), occurred during the early pandemic period. These resources are effective in driving interest in medical specialty and providing educational material and CME,<sup>16</sup> but the abundance of resources may contribute to Zoom fatigue.<sup>17</sup> The loss of certain cues and gestures and the alteration of instant responses by slightly asynchronous presentation contribute to Zoom fatigue. These issues can be mitigated by aligning the camera horizontally to the speaker and making eye contact with the camera. Asking those who are not speaking to turn off their cameras can also decrease distraction.<sup>18</sup> Regarding the impact of Zoom fatigue, the decision was made in late June/early July to move from weekly VPGR events to monthly events

in an effort to preserve interest. Despite that, there has been some decrease in participation in the most recent events.

VPGR is unique from the usual institution-based grand rounds in many ways. It allowed for more flexibility in scheduling and timing than the standing meeting time that most in-person grand rounds use. Shifting VPGR to an afternoon slot enabled viewers on both the East and West coasts of the United States to watch simultaneously. Weekly grand rounds are the norm for most academic institutions, but VPGR sought to fill the gaps created at the beginning of the COVID-19 pandemic, when few institutions had adapted to virtual platforms. As home institutions began hosting their internal grand rounds virtually, it made sense for VPGR to move to a monthly schedule. VPGR also added the ability to view events on demand on YouTube, which is generally not available for in-person grand rounds in the authors’ experience. Before COVID-19, none of the home institutions of the authors or nominating committee recorded grand rounds or made them available for future viewing. Participating in a live Q&A session is not possible when viewing at a later time, but the sessions still function as a way to increase access to expert knowledge, as many of the questions were of general interest to the group.

VPGR has created a mechanism through which attendees from around the globe can join with institutions and collaborators to share knowledge, clinical expertise, and research findings. The implementation of VPGR helped fill an academic void created by the COVID-19 pandemic and brought numerous benefits for both speaker and attendee. The performance and success of the VPGR platform serve as a unique example of successful endeavors initiated during (and because of) the pandemic. As we continue to navigate the uncertainty of COVID-19 and what lies beyond, VPGR has laid the foundation for possible online-only or hybrid online and in-person experiences as a way to move forward, where we take the lessons of success and implement them in future grand rounds series. The authors believe that the benefits and opportunities arising from virtual grand rounds far exceed the challenges and plan to continue the series beyond the period of COVID-19 restrictions. In the future, we plan to further diversify our speakers and topics as well as improve the technical aspects of VPGR delivery. Additionally, the archived lectures may be included as 1 component of virtual pathology electives combined with other digital offerings, such as annotated whole-slide images. These courses have been successfully implemented and will likely continue to be used to increase medical student exposure to pathology.<sup>19,20</sup>

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