Blood and Bone: The quarantine chronicles

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Abstract
In the midst of the chaos of the global pandemic, the online daily webinar series Blood and Bone was created. The series started with a blank schedule on a google doc and, with enthusiasm and participation from the hematopoiesis and hemostasis/thrombosis communities, was quickly filled through September 2020. In the absence of any editing of the speaker list, a diverse, well-balanced, and scientifically exciting program emerged. The seminar is hosted on Zoom and live-streamed on YouTube daily, and can accommodate up to 1000 attendees. Attendance has topped over 600 and averages 200 to 300 people daily; this has been sustained for 10 weeks. In addition, there is a weekly Thursday trainee series that hosts three 20-minute seminars. In this forum, we reflect on a series that allowed global scientists to come together to help shape chaos into an opportunity for community and growth.

KEYWORDS
hematopoiesis, hemostasis, megakaryocyte, platelet, thrombosis

1 | PERSONAL REFLECTIONS, DR MACHLUS

Recognizing chaos is a much different skill than embracing it. In the lab, I regularly look into a microscope and marvel at the beauty of megakaryocytes extending long, delicate proplatelets, a process that makes platelets, cells essential for life. Platelet birth and megakaryocyte death, whose mysterious patterns invite us toward them as something waiting to be unraveled. As scientists, if nothing else, we are drawn to the idea that we can turn chaos into, well, less chaos. But I dare you to tell that to a precocious 5-going-on-15-year-old, an aging and very territorial dog, and a rambunctious puppy who have been confined to share the same limited space for the foreseeable future. Every morning we wake up to the macroscopic chaos of sickness, schools being closed, conferences being canceled, and trips being postponed indefinitely. We were all struggling to rearrange our lives and try to figure out what this new normal means as parents, students, teachers, and scientists.

Having been separated from my peers, my lab, and my profession, the cancellation of a much-anticipated Keystone meeting was a particularly hard blow for me. The literal isolation of quarantine destroys more than routine—it threatens the progress that is gained only...
through solidarity and symbiosis. One evening in mid-March, over a glass of wine, I thought about my friends and colleagues around the world who were in the exact same situation. Those meticulously prepared talks that were waiting to be shared with peers; those talks that no longer had an audience. The Blood and Bone seminar was my small attempt to refute stagnation and isolation. I had no grandiose ideas at the time, but rather was looking for a way to offer new content to my lab members and perhaps connect with a few friends.

I began by reaching out to about 50 friends and colleagues and explaining my idea. There was something cathartic about this simple act of checking in and asking for help. I created a blank google doc and invited people to sign up for time slots to give talks. Then I went to bed, expecting that the next day would be entirely devoted to pleading with friends to sign up for enough slots to sustain the series for a few weeks. As is the true nature of entropy, when I awoke, I was stunned to see that same google doc full through May. By the end of the next day, the Blood and Bone seminar was fully booked until September 2020, over 160 sign-ups.

The skill set of a lab scientist does not exactly prepare one to become a virtual scientist. Between organizing, planning, advertising, moving a children's IKEA desk into my spare bedroom, and hanging an old pink blanket up as a shabby but functional backdrop, the first few days were completely overwhelming. I wasted no time in consulting Dr Taylor, a friend and colleague who I knew was skilled in public outreach. I felt lucky to have Dr Taylor as a team member, helping me to disseminate information and brainstorm. With our first seminar topping out at over 500 attendees, we had no choice but to rapidly acclimate to Zoom and YouTube and adapt to their many issues as they arose.

2 | GENERAL REFLECTIONS
(DRS MACHLUS AND TAYLOR)

Using this technology of live information sharing and streaming talks via Zoom and YouTube meant that we were able to reach an even wider audience than a traditional conference; this came with its own particular set of advantages and drawbacks. The challenge of scheduling across multiple, if not all, time zones was incredibly stressful and ultimately proved impossible. Therefore, we implemented supplemental social hours to accommodate our friends in Australia and Asia. On the other hand, the amount of CO₂ emissions spared by reducing conference travel was notable and sets an important precedent for our responsibility, as scientists, to the planet. "Reading" a virtual room can be challenging, but not having audience videos meant that the system was capable of handling large viewing figures (up to 1000), and most talks attracted more attendees and engagement than a traditional conference presentation. Although the level of interaction will never compare to an in-person conference, the undoubtable pros such as accessibility, cost, and the like made this online seminar, and future ones like it, an important resource and something we should consider incorporating more as a complement to physical meetings.

Quite differently from traditional conferences, those who signed up were automatically given time to speak; we did not make any cuts or assign any type of speaker hierarchy. With a self-selecting speaker list, the topics have varied wildly from one day to the next. Some chose to stick to their specific topics (eg, coagulation, hematopoiesis, platelet disorders, or myeloproliferative neoplasms) while other researchers looked more broadly at the research on offer and thought laterally about their skill set. This was also reflected in the structure and content of people's talks, where complex and fascinating science was presented in accessible and creative formats to reach a broad audience. A particularly fun example from Dr Shavit was a detour about how zebrafish mutants are named, during which we found out that there are a surprising number of Buffy the Vampire Slayer fans in the #BloodandBone community!

To further information sharing outside of Zoom and YouTube, Dr Aleman, Dr Kerr, and Dr Haynes swiftly created a Blood and Bone Slack. This space has become a fully functioning forum with over 600 researchers, where information can be shared at unprecedented speed about techniques, models, opportunities to seek mentoring, and open job postings. In these uncertain times, having a network to share career prospects for trainees and principal investigators (PIs) cannot be overstated, as graduating PhD students are looking at a job market with fewer opportunities, and many institutions have hiring freezes in place. Adding the slack channel proved to be an important aspect to ensuring that the Blood and Bone seminar allowed PIs to learn as well as strengthen their community.

From the onset, trainee presentations were given the same importance as those of lab heads and PIs. Dr Taylor bravely, albeit hesitantly, signed up for the second talk (it's not easy to follow Dr Italiano), which proved a huge success. He then spearheaded the initiative that became the Thursday Trainee Hour, where 3 early-career researchers are showcased each week. These slots were snapped up quickly, and more dates have been added as the lockdown extends. Of the current 166 signups, 130 are for the primary seminar and 36 are for the trainee hour. The introduction of a trainee hour provided a less intimidating platform for the PhD students and postdocs to present their work and showcase their skills, while elevating their profile and visibility within the community.

Given the fact that the speaker list was not edited, it is promising to see a 40:60 and 60:40 female: male split (assuming the sex of participants and using the sex binary) for the seminar and trainee hours, respectively. This is comparable with the Research and Practice in Haemostasis and Thrombosis publication statistics from July 2017 to July 2018, which found that approximately 42% of their authors were women. However, it is worth noting that when looking at first versus senior authors, 50% and 38% were women, respectively. This underscores the issues surrounding retention of women and lack of diversity in more senior science positions. Speaking to conference participation, a 2019 study from JAMA Network Open examined 181 medical conferences from 2013 through 2017, and found the proportion of female speakers to be approximately 34%, suggesting that Blood and Bone surpassed
the reported average. A follow-up study in 2020 presented evidence that participation of women in conferences is influenced by the proportion of women on planning committees; committee composition was statistically significantly associated with speaker composition. Therefore, it is interesting to speculate that the encouraging number of women participants may have been influenced by the fact that the series was organized by a young, female faculty member.

The Blood and Bone seminars not only featured a promising balance regarding the sex of the participants but also in the quality of talks and diversity of topics. While this is encouraging, further work in the community is needed to increase the representation of our black, Asian, minority ethnic, lesbian, gay, bisexual, transgender, queer, and related communities (LGBTQ+), and disabled colleagues. For example, our LGBTQ+ colleagues may face additional barriers (eg, cultural and structural) to being “out” at work. This highlights why strong allyship is required to create open platforms where people can not only present their science but also bring their whole selves to work. Likewise, in addition to structural racism, geographic diversity is always a challenge. Figure 1 shows the current geographic locations represented by all of the speakers. Given the challenges of different time zones, it is perhaps unsurprising that we have such a high representation from the United States and Europe and none from Asia. However, the lack of participants from South America and Africa is well noted and cannot be explained simply as a result of scheduling. The causes that disenfranchise particular geographic communities is something that must be addressed in the future.

Apart from the practicalities of time zones, to increase diversity of both speakers and attendees, conferences must be safe spaces that confront discrimination. An example of this obstacle can easily be seen in Zoom security, which was an issue in the early days and continues to be a challenge. The harassment received from trolls who would log into seminars and comment about the appearance of female speakers or say lewd things via the private chat made some seminar participants feel uncomfortable in what was supposed to be a safe space. This highlights the importance of working to create science spaces that are safe and inviting for everyone. We know that a more diverse science community results in more and better information. Besides shifting attendee statistics through approaching specific people and groups, we envision conferences in the future where there is a designated space for people to report discrimination and/or discomfort. Conferences would also benefit from being able to provide closed captions for audiences who have hearing and/or vision disabilities.
Throughout the seminar, we reached out to our community to get feedback. Presenters reported receiving congratulatory messages and collaboration requests from both academic and industrial partners, which may not have occurred outside of this series. The most common feedback on format related to how strange it was to not be able to see the audience and associated visual cues while presenting. According to speakers, they still experienced levels of anxiety, like stage fright, when putting together the talks and adapting to the virtual presentation format, but this adrenaline was also said to be a motivating factor.

Speakers also described the process of putting talks together and presenting as an island of normality within the sea of anxiety and chaos. People reported that even if they were having an “unproductive” day, the seminar meant they would get in at least 1 hour of science and the associated sense of achievement. Consistent among participant feedback was also the sense of community and routine as being essential for mental well-being and was even described as an act of self-care.

It is miraculous, but not surprising, that global scientists coming together could shape chaos into an opportunity for community and growth. Dr Machlus may have had the idea and sent that first email, but it was the hematopoiesis and hemostasis/thrombosis communities that brought the Blood and Bone seminar to life. We have learned through this experience that global cooperation is not just absolutely possible, but it is what so many of us crave. Although we look forward to the day we finally get to see everyone face to face, we will do so with an entirely new appreciation of our combined capabilities to both shape and be shaped by the future.

Blood and Bone Website: https://bloodandboneseminar.com
Link to Blood and Bone google doc: https://docs.google.com/spreadsheets/d/1QU_E94DStscXb-0gPn79r4nne9QV63zxiD8RrZAg/edit#gid=0
Blood and Bone Slack: https://join.slack.com/t/bloodbonenewebinar/shared_invite/zt-evoczu8h-v1e5i4WOE3ak4ex1YMojHA
Blood and Bone YouTube: https://www.youtube.com/channel/UC7PjWzYLHaAadNmSacmLP5g

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