activities, how effective they were in accomplishing their educational goals, and how satisfied residents and faculty have been with those efforts.

At Penn, daily fracture conference and weekly subspecialty educational conferences that traditionally met in person were disrupted by social distancing restrictions in mid-March 2020. In order to continue educating our residents, we implemented both morning and evening teaching via a screen-sharing software platform on personal computers and mobile phones (BlueJeans or Zoom) (Figure 1, 2). The evening fracture conference at our institution was met with active participation and the resident response was enthusiastic. For this reason, we expanded the conference format with the support of the Orthopaedic Trauma Association. The conference was organized as a case-based imaging presentation similar to traditional fracture conference, supplemented by “chalkboard” discussions led by a rotating group of orthopaedic trauma faculty across the country. Virtual real-time polling questions were incorporated to assess learner knowledge during the case and to create discussion. Though we felt that the national conference was being well received we were unsure if this was simply a case of confirmation bias due to high attendance and enthusiasm of certain faculty and residents.

For this reason, we conducted a national survey to gauge resident and faculty perceptions of virtual fracture conference with very compelling results. The overwhelming majority (88%) responded that participation in the virtual fracture conference improved their overall educational experience;
but is more aptly characterized by eras of dramatic leaps and advances in times of unprecedented stressors. These innovations are re-shaping the realm of education as well. In the domain of orthopaedics this has led to the successful implementation of a weekly, national fracture conference, and leadership conference which residents find both educational and of high professional value. Even as clinical practice has resumed our national fracture conference continues to average 120-150 participants every Wednesday evening—another sign that virtual conferencing may remain a mainstay in the education of surgeons in-training.

In a serendipitous turn the first year we decided to collect data on the value of our leadership conference, it was forced to go virtually as a result of COVID. Early results were very promising. Survey of our residents’ perspectives on the annual leadership conference showed that 100% of residents found value in the program, with 71% of participants finding it be of either excellent or very good value overall. In terms of value to their career development in particular 93% found it to be useful. 64% found it the career development potential to be extremely or very valuable. A majority of residents also found the speakers to be engaging with a high level of comfort in asking them questions concerning their specific content.

It remains to be seen if interest in our virtual conferences will remain as COVID-19 recedes, elective surgery resumes, and demanding clinical duties resurface. Unfortunately, we cannot predict either the future of COVID-19 or how learners will respond in a post-COVID learning environment. The COVID-19 disruption has accelerated our adoption of clinical innovations that have been years in the making. For example, rapid telehealth expansion has met a positive reception. Evolution does not always occur in a steady or gradual manner but is more aptly characterized by eras of dramatic leaps and advances in times of unprecedented stressors. These innovations are re-shaping the realm of education as well.

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