

Virtual Conference Platforms Enhance Early Career Researchers' Professional Networking and Skill Development

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The Department of Veterans Affairs (VA) Health Services Research Career Development Award Enhancement Initiative (CDAei) is a long-standing tele-training platform serving the professional needs of early career researchers in VA. CDAei was used to foster strong developmental networks, hone critical professional skills (e.g., presenting and promoting one's research), and help bridge mentoring and professional development "gaps" for HSR Career Development Awardees (CDAs) throughout the Covid-19 pandemic. The present work describes CDAei's participation in the development, implementation, and evaluation of a virtual research meeting designed to promote professional socialization and career development despite Covid-era restrictions on in-person gatherings. Descriptive data (i.e., attendance, engagement, and satisfaction with the conference) are presented; implications for future conferences are discussed.

Keywords: Career development, research, tele-training, Covid-19

Acknowledgement: The views expressed in this manuscript are those of the authors and do not necessarily represent the views of the U.S. Department of Veterans Affairs. Funding for this work was provided by the Department of Veterans Affairs Health Services Research and Development Office [VA SDR 13-428]. No portion of these findings has been presented previously. The authors have no conflicts of interest to disclose.

Introduction

The Covid-19 pandemic presented tremendous challenges to the conduct of research. Immediately following the pandemic onset, several authors published sobering descriptions of the breadth and scope of disruption within academic medicine (Denfield et al., 2020; Gilmartin, 2020; Kliment et al., 2020; Levine & Rothmell, 2020; Sohrabi et al., 2021). Moreover, public health guidance related to social distancing caused a "ripple effect" in the scientific workforce. Delays to, or cessation of, in-person research activities, and even the shuttering of laboratories, were common occurrences. The reorganization of research priorities (i.e., Covid-focused work was emphasized) and interruptions to non-Covid-related research funding further complicated the picture (Denfield et al., 2020; Gilmartin, 2020; Kliment et al., 2020; Levine & Rothmell, 2020; Sohrabi et al., 2021). Heightened demand for healthcare resources meant that many clinician scientists experienced sustained, multi-month increases in their clinical workloads (Denfield et al., 2020; Gilmartin, 2020; Kliment et al., 2020; Levine & Rothmell, 2020; Sohrabi et al., 2021).

This further exacerbated challenges to their research productivity.

Early career researchers also faced the loss of essential training and career development opportunities. For example, attendance and participation in conferences is an essential mechanism for professional networking in academic medicine. Indeed, social networking theory has long highlighted the positive association between access to opportunities that foster the development and maintenance of robust professional networks and career success (Higgins & Kram, 2001; Higgins & Thomas, 2001). However, throughout the pandemic era early career researchers and their mentors shared deep concerns about the potentially deleterious career impact of losing access to critical professional development opportunities (e.g., professional conferences) due to public health restrictions on social gatherings.

The present work characterizes efforts to address the loss of access to professional development conferences throughout the first years of the Covid-19 pandemic amongst early-career Health Services Research (HSR) researchers and clinician scientists within the Department of Veterans Affairs (VA).

Veterans Affairs (VA) Career Development Award Enhancement Initiative (CDAei)

The VA Career Development Award Program is the primary training resource for early career researchers within VA. Similar to the K-award series offered through the National Institutes of Health (NIH), VA Career Development Awards offer multiple years of funding to support an elite cadre of early career researchers wishing to launch research programs within VA. In 2021, VA had a cohort of 71 Health Services Research (HSR) career development awardees (CDAs). A majority, 80%, of this pandemic-era CDA cohort

reported that some, and 5% reported that all, of their research activities were shuttered (Gilmartin, 2020). Many expressed a strong desire for emotional support and coping resources, professional socialization and connection opportunities, and access to accurate information about the changing research landscape from VA's research leadership (Weitlauf et al., 2021). The VA HSR Career Development Award Enhancement Initiative (CDAei) (Box 1; Figure 1) implemented a three-phase tele-training CDA enrichment project (Figure 2) to address these requests.

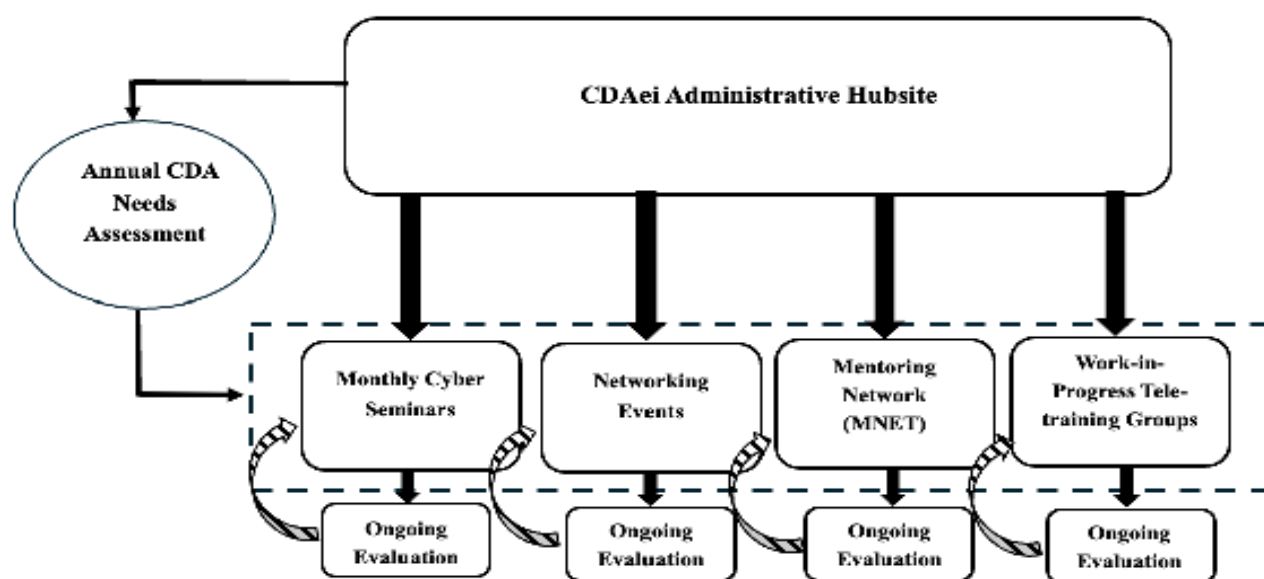
Box 1:

The VA Career Development Award Enhancement Initiative (CDAei) Program

The VA Career Development Award Enhancement Initiative, (CDAei), is a long-standing enrichment program offering career development training, support, and networking opportunities to VA career development awardees (CDAs) (Cronkite, 2017). CDAei uses a tele-training model to optimize CDA's access to these resources regardless of geographic location; this helps to reduce barriers to forming strong developmental networks amongst the national VA CDA diaspora. A hub-site facilitates a monthly cyber-seminar series that offers scholarly presentations from senior researchers within VA HSR, a virtual works-in-progress series that allows CDAs to present their ongoing work and receive real time feedback from peers, mentors, and senior researchers within VA in small group settings, a virtual mentoring toolkit, and a national mentoring network which allows CDAs to examine a virtual roster of a national cadre senior researchers (VA and beyond) available to consult with CDAs (Figure 1). The CDAei program content and curricula are continuously revised based on feedback consistently elicited from participants (Figure 1) (Cronkite et al., 2017).

Figure 1:

Career Development Award Enhancement Initiative (CDAei) Program Structure



Project Phases

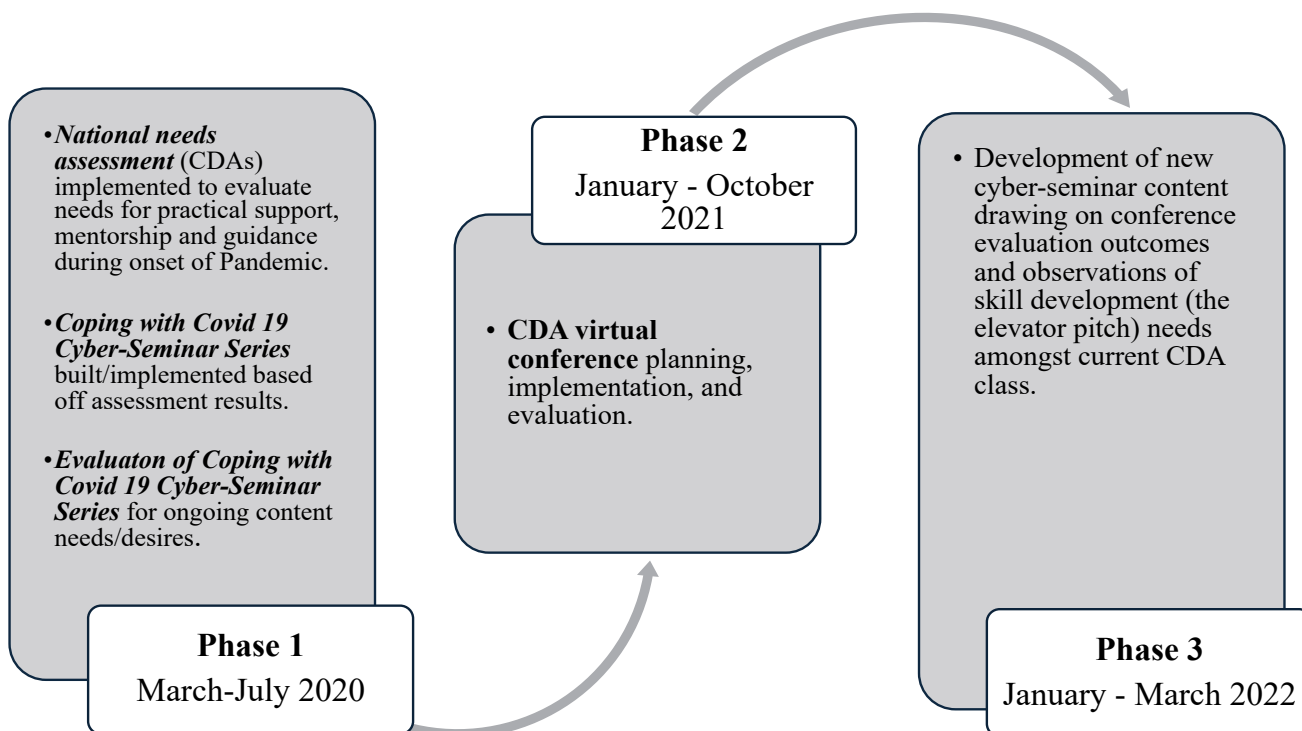
The first phase of this project, discussed in Weitlauf et al. (2021), began with the implementation of a national needs assessment survey. Here, the universe of pandemic-era VA HSR CDAs were asked about their perceived mentoring needs during the “lock-down” period in early 2020. Using the information gleaned from this assessment, the administrative staff of CDAei next developed, implemented, and then evaluated a three-session Coping with Covid-19 cyber-seminar series for the pandemic era CDA cohort (Weitlauf et al., 2021). This series offered emotional support, practical tips for coping (personal and professional), opportunities for networking, didactics pertinent to working effectively with mentors despite significant workplace disruption, and guidance for determining if, how, and when “pivoting” with respect to their science (e.g., focusing on Covid-related work) was the right choice. In the current research environment was the right choice.

Cyber-seminars were centrally coordinated via the CDAei hub-site. All content, however, was driven by the direct requests of CDAs. Cyber-seminars were delivered and then evaluated. The resulting evaluation data then guided the development of future seminars, forming a “living curriculum” that was responsive to CDAs’

emerging professional development needs. In addition, the hub-site used the cyber-seminar format to implement a “meta mentoring” strategy in which questions were solicited from CDA awardees nationwide and then addressed by multiple levels of VA research leadership (e.g., CDAei hub-site leaders, HSR research scholars and mentors from across the national pool of VA HSR mentors, leadership of regional VA HSR centers of excellence, and national VA HSR leadership). This created an open forum in which both junior and senior scholars could model examples of sharing their own professional “fixes,” struggles, and career “pivots.” Further, the “meta mentoring” strategy offered a relatively anonymous mechanism for inquiry, which improved CDAs’ access to guidance from local, regional and national HSR leadership. Resources (e.g., VA created apps for self-guided mental health/self-care) were made available through the CDAei mentoring toolkit. The curriculum design, and the “meta mentoring” strategy used to implement it, are both fully described elsewhere (Weitlauf et al., 2021). Feedback highlighted both the utility of the content shared and the broad recognition of the importance of maintaining access to critical career development and professional training opportunities at this stage of their career.

Figure 2:

Project Phases



The Current Project

The objectives of the second phase of this project, our focus here, were the development, implementation, and evaluation of a virtual version of the annual VA CDA conference designed to accommodate Covid-era restrictions on in-person gatherings. Specifically, the goal was to recreate “the magic” of an in-person career development conference by offering an experience designed to immerse early career VA HSR researchers within their professional community, foster critical opportunities for socialization into the profession, and help them create and/or maintain their professional networks appropriate to their short, medium and long-term career goals. VA has long been a pioneer in the development, implementation, and evaluation of tele-training modalities for trainees in psychology, medicine, and the associated health professions (O’Hara et al, 2010). However, most prior programs were designed to provide uniform didactic opportunities (e.g., monthly webinars or teleconferences) to the diaspora of trainees who are scattered across VA settings in all 50 states as well as within the U.S. territories (O’Hara et al, 2010; Cronkite et al, 2017). By contrast, our objectives to replace a dynamic, interactive, in-person career development conference with a virtual version were unprecedented within VA. The third phase of this project (Figure 2) used data from the conference evaluations to guide the development of further didactic content implemented in the CDAei cyber-seminar series the following academic year. Discussion of this phase of the project, however, is beyond the scope of this paper.

Confident that using technology a tele-training platform to connect VA HSR CDAs and their mentors with the content, curricula, and information sharing typically afforded by the in-person version of the annual CDA conference was possible, our conference planning was guided by the broader questions of “if, how, and under what circumstances could we use a tele-training modality to facilitate their connection with one another within the virtual conference environment?” To that end, the current work characterizes the planning, design, implementation and evaluation of this virtual CDA conference. We examine CDAs’ conference engagement and satisfaction with the virtual conference environment, content, and implementation through their post conference evaluations. Further, we highlight strategic approaches, e.g., stratified random assignment of participants into break-out rooms, that were designed to recreate some of the “magic” (e.g., serendipitous or “unplanned” crossings-of-paths that spark new professional interactions and foster networking opportunities) of in-person conferences. Putting this all together, we present “lessons learned” from all phases of the conference, (i.e., planning, implementing and evaluating).

Methods

Overview

Of the 115 conference participants, more than half were HSR CDAs (N = 60). The remainder were mentors, VA HSR researchers who participated as presenters, and VA administrators, including the administrative staff of CDAei. CDAs were asked to complete formal, post-conference evaluations that gathered descriptive information about their overall satisfaction with the virtual conference environment and experience via ranked order, forced-choice, and open-ended response questions. The subset of CDAs who served as moderators for plenary or other research presentation sessions were asked to complete a second post-conference evaluation about this experience.

Setting

The conference platform was Zoom Video Communications, (<https://zoom.us>), which was optimally designed to manage the desired conference architecture. A team of two IT specialists from Prometheus Federal Services (PFS)- a service provider for government health care agencies, with specific emphasis on information technology support managed the interface of conference attendees with this platform (i.e., generating registration links) They also managed the transition of each attendee from the “large” meeting Zoom rooms to the small break-out Zoom rooms and back again as needed given each days’ agenda.”

Procedures

Conference Planning Efforts

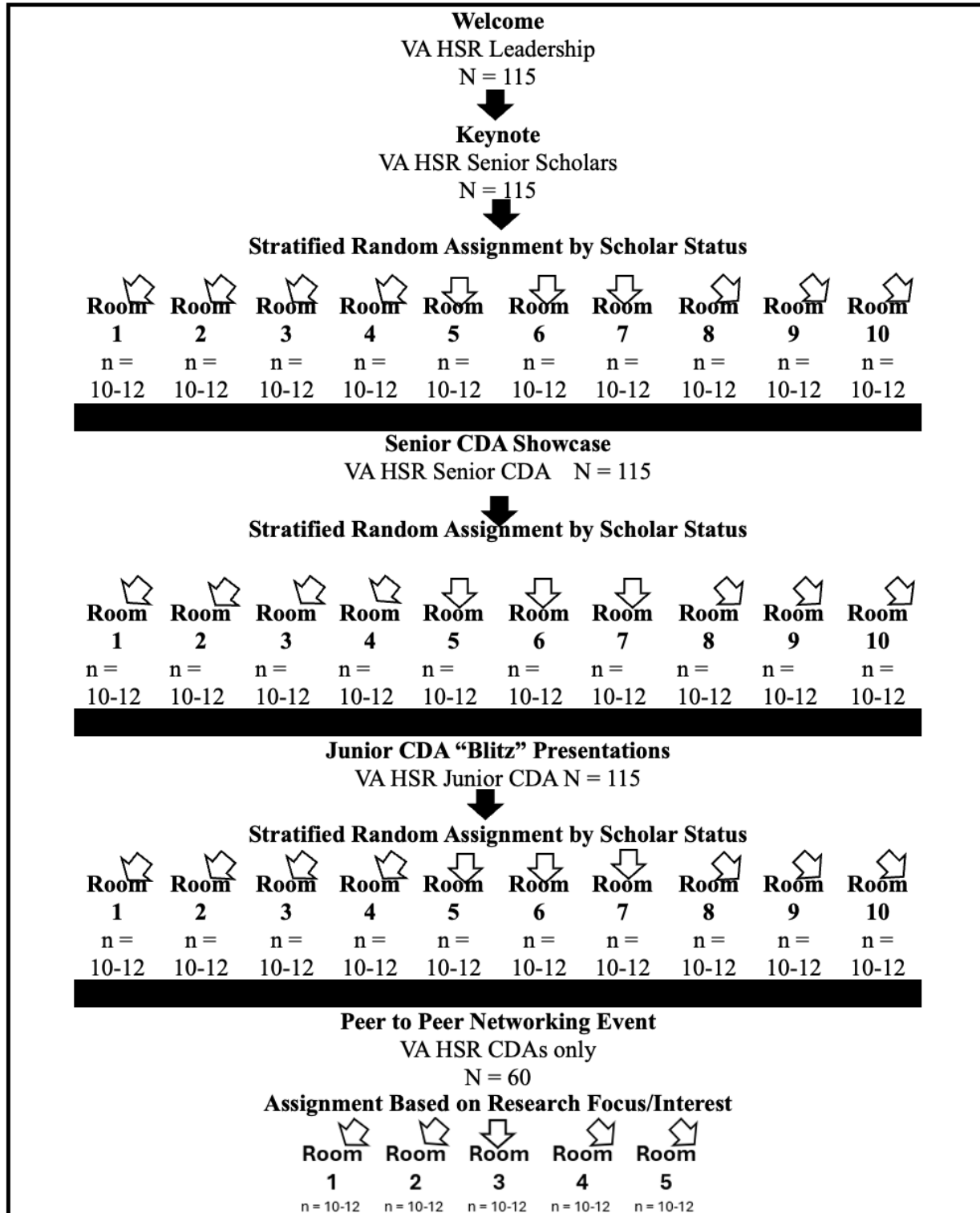
Conference planning efforts, which included an iterative series of meetings with CDAei administration, VA HSR leadership, the CDA community itself, and PFS, began approximately three months prior to the event. Planning efforts were guided by ongoing queries and dialogue between CDAei - via formal emailed surveys and evaluations of prior CDA curriculum (e.g., the 2020 *Coping with Covid-19* webinar series) and the current CDA community (i.e., awardees and their mentoring teams). These exchanges focused on their intent to attend the virtual conference, desired features of the conference architecture (e.g., opportunities for peer-to-peer networking, professional socialization, and broad mentorship through real-time feedback on research presentations), and willingness to serve as moderators for peers’ and colleagues’ presentations. Those that indicated that they were willing to serve as moderators were queried about whether they felt that having a formal “moderator training” would be important to their success in that role. Based on their feedback, a virtual training (i.e., how to be an effective moderator) was developed and

implemented a month prior to the conference. Concerns for potential “pitfalls” (e.g., “Zoom fatigue”) of a virtual conference were frequently reported by CDAs during the planning stage

and were considered in the planning of the conference architecture (i.e., structure and agenda). The final design of the conference is described below (also see Figure 3).

Figure 3:

Sample Conference Day



Conference Design

The virtual conference was designed around three, short, (3.5 hours each), consecutive days of programming (September 22 – 24, 2021). Consistent with prior, in-person, VA CDA conferences, the agenda included planned presentations from senior researchers and HSR leadership, plenary presentations by invited senior HSR CDAs in their final two years, and “blitz” round or “brief” presentations on works-in-progress by junior CDAs (Figure 3). Unstructured break-out sessions, including peer-to-peer networking groups, were planned for the conclusion of each conference day (Figure 3).

Several elements of the conference architecture were designed to promote both planned and spontaneous interactions amongst CDAs, and other conference attendees including their mentors, colleagues, and peers from the national HSR community. For example, all plenary and research presentation sessions were “big room” sessions, meaning that all conference attendees were assembled into the same Zoom room. Following the conclusion of these presentations, however, attendees were moved into small group discussion (break-out) rooms. Each break-out Zoom room had 10-12 participants and an official moderator who managed both the discussion and chat features of that room. Participants were pre-assigned (by CDAei staff) to break-out rooms using a stratified random sampling approach in which researchers at every career level were evenly distributed across rooms ensuring balanced attendance in each (Figure 3).

Conference Implementation

Conference registration was managed by PFS; they provided the conference registration link to the CDAei Program Manager, who in turn emailed the link to the CDAs and other invited scholars approximately one month prior to the conference. PFS then sent email invites containing a Zoom link for each day of the conference to the registrants. The conference agenda was attached to the email invite for the first day of the conference.

PFS managed the overall conference flow, and the presentation slides used by all presenters. Slides for each presenter were emailed to PFS the day before the start of the conference. Break-out room assignments were also emailed to PFS each morning before the start of the conference. PFS kept the conference running on schedule and managed the movement of participants back and forth between the main meeting room and the smaller break-out rooms.

Conference Evaluation.

Conference attendance was documented for each day of content. Post conference evaluations were administered to all CDAs in attendance. These evaluations assessed CDAs' perceptions of the conference's success with meeting their

professional goals relative to an in-person conference, i.e., “How successful was this virtual conference in meeting the professional goals of an in-person conference?”, concordance with expectations for content and scope, i.e., “The scope of the conference was appropriate to my professional needs,” satisfaction with the conference environment, i.e., “The conference environment was effective for my participation”, and global satisfaction with the virtual conference experience, i.e., “I would recommend this conference to others,” and “Overall, I was satisfied with this conference.” Response choices were organized on a five-point Likert-type scale ranging from negative (i.e., “not at all successful” or “strongly disagree”) to neutral (i.e., “neither successful nor unsuccessful” or “neither disagree or agree”) to positive (i.e., “very successful” or “strongly agree”).

Open ended responses to the queries: “What about this conference was most useful to you?” and “What about this conference was least useful to you?” allowed formal cataloguing of more in-depth descriptions of individual experiences with the conference. Separate evaluations for those who completed moderator training sessions and served as moderators during the plenary sessions were also administered.

Results

The VA HSR CDA Cohort (Pandemic Era)

Between 2016 and late 2021, 71 VA (HSR) career development awards were funded. Of the 71 awardees, 45 (64%) were women. More than half ($n = 28$) of these (women CDAs) had a Doctor of Philosophy (PhD) degree as their highest level of education, one had a Doctor of Pharmacy (PharmD), and the remainder were medical doctors (MDs). Among male CDAs, five were PhDs, the remainder were MDs. For the purposes of the present work, CDAs were deemed “junior” if they had received their award within the current (current year 2021) or prior two years (2019 – 2021), else “senior.” Most CDAs had multiple research mentors; primary (or senior) mentors are commonly shared across CDAs (i.e., several CDAs have the same primary mentor). All CDAs in this “pandemic era” cohort were invited to attend the conference; with their primary mentor.

Conference Evaluation Respondent Characteristics

One hundred and fifteen individuals registered for the 2021 HSR Virtual CDA conference. Of those, 60 were pandemic-era HSR CDAs (83% of the HSR CDA cohort); the remainder were key members of the CDAs' mentoring teams and/or invited presenters from VA HSR. Primary outcomes (satisfaction, appropriate scope, acquisition of new knowledge/skills, meeting professional goals, technical issues) were based on the 27 CDAs who completed

the post-conference evaluation (response rate = 45%). Among the subset of CDAs who served as research presentation moderators (n = 10), 100% completed the moderator training offered by CDAei before the conference. Nine served as moderators during the conference and completed the post-conference evaluations associated with this experience.

Primary Outcomes

Overall satisfaction with the conference (including the virtual conference environment) was high, with 96% of respondents stating that they agreed or agreed strongly with the statements: "Overall, I was satisfied with this conference," and "I would recommend this conference to others." Similarly, most respondents (96%) reported that they agreed or strongly agreed the statement: "The scope of the conference was appropriate for my professional needs", and with statements that the virtual environment, structure, planned activities and materials were effective in facilitating their acquisition of new knowledge and skills. More than half (54%) felt that the virtual conference fully succeeded in meeting their professional goals relative to an in-person conference. Thirty-nine percent, however, responded with "not applicable", indicating their perception that this was an apples-to-oranges comparison. The remaining 8% found the conference unsuccessful in meeting their professional goals. No respondents reported experiencing technical problems (e.g., logging on, connectivity, etc.) throughout this multi-day conference.

When queried (open ended questions) about the most useful aspects of the conference, the most frequent response was "Connecting in small groups with peers, other CDAs, for research discussions, networking, and professional socialization." One CDA summed this sentiment up with: "The goal {of this conference}, which was to make this interactive, was very successful. It was fun and informative to interact with others. It was very well done, well thought out, excellent speakers with useful advice and information (even for our mentors!). This was really excellent." When queried about what worked well with a virtual conference format, the most frequent response was also: "having the well-organized, pre-assigned, break-out rooms." CDAs nearly uniformly supported the use of structured and formally moderated post-presentation discussions in the pre-assigned break-out rooms. Several indicated this optimized participation without inducing "Zoom fatigue." While half of the respondents stated an explicit preference for in person conferences going forward, half were open to (and some even preferred) the virtual conference format.

When queried about the least useful aspects of the virtual conference, the most frequent response related to the perception that "The conference agenda favored senior research presentations and VA HSR leadership." While

CDAs found this helpful, many expressed an interest in having more emphasis on showcasing the work of the CDAs themselves.

Secondary Outcomes.

Of the 27 post-conference survey respondents, 10 had completed the formal moderator training sessions. Nine of those ten (90%) served as moderators throughout the conference and reported that they found the training helpful for fostering their professional skills. One commented: "I really benefitted from the focus on learners and connection and lots of the "soft skills" offered. Please retain this {focus}, I would benefit from hearing repeat messages {of this nature} in the future too, because you cannot take it in all at once."

Discussion

The majority (83%) of the pandemic era VA HSR Career Development Awardees (CDAs) attended the virtual conference, with more than 90% of those attending all three days of programming. Among the CDAs who completed the post-conference survey (n = 27), overall satisfaction with the conference environment was high. More than half of respondents favored the use of the virtual environment for future conferences, and none reported technical "glitches" or problems that prevented meaningful participation. The overwhelming majority (96%) felt not only that the scope of the conference was on point with their professional needs but met their expectations for an in-person conference.

While the scope and nature of post-conference evaluation data is purely descriptive and does not afford the presumption of cause and effect, the data does offer some clues as to what elements of the conference design fostered these positive outcomes. For example, the most frequently cited "high value" element of the conference was CDAs' participation in small group discussions in the break-out rooms following research presentations. The conference design included meticulous attention to the implementation of these break-out room discussions. Specifically, participants were pre-assigned to rooms using a random stratification approach that accounted for career level (i.e., ensuring that all break-out rooms were similarly populated with early, mid and senior career level participants), Break-out rooms were kept small (e.g., no more than 12 participants in a room) and staffed with a trained moderator who helped to keep the discussion on track and ensure that everyone could participate in the discussion. These "architectural" elements of the conference design likely fostered unexpected encounters, opportunities to meet and chat with new colleagues, and reduced the likelihood of "cliques" forming, and then setting the tone for break-out room discussions and interactions.

In addition, PFS centrally managing conference attendees' movement between plenary sessions

(i.e., “large” Zoom rooms) and break-out sessions (i.e., “small” Zoom rooms) likely minimized frustration, helped avoid delays in “finding the right room”, and prevented disparities in the conference experience between “Zoom experienced” and “Zoom naive” attendees. These “architectural” elements of the conference design were not directly assessed in post conference evaluations. As such, the extent to which they bolstered positive (or negative) impressions of the conference experience remains unknown. However, the fact that attendees reported no technical issues of any significance might suggest that creating and implementing a conference strategy, like ours, designed to foster “smooth and painless” transitions on the virtual platform, helped improve attendees overall experience.

The biggest “detraction” noted by CDAs was related to the emphasis on senior scholar presentations. Most respondents wanted more time with their peers. However understandable, it is not clear that this reflects the specific experience of an online or virtual conference format. Indeed, the annual in-person CDA conference also typically emphasizes the work of more advanced CDAs, offers plenary sessions by senior scholars within VA HSR, and prioritizes sessions given by VA HSR leadership for the benefit of the CDAs. Nonetheless, a clear message provided through the post-conference evaluations relates to the importance and value of peer-to-peer interactions among CDAs and is something that should be aptly considered in planning future conferences.

Regarding conference-related skill-building opportunities, we note that CDAs who participated as moderators for research sessions reported that pre-conference moderator training sessions were helpful. Moreover, observations of the CDAei administrative staff throughout the conference highlighted professional development needs that could be addressed in subsequent CDAei cyber-seminars. Specifically, presenters in the CDA “blitz” presentations were engaging, and their talks were successful. Nonetheless, many reported that presenting their work clearly and succinctly to an interdisciplinary audience was not only challenging and stressful, but an arena in which they had limited prior training. This observation led to CDAei offering cyber-seminars on how to prepare an effective “elevator pitch” talk in the next academic year. This third phase of our project (see Figure 2) is beyond the scope of the present paper.

Together these descriptive outcomes suggest that virtual formats for a professional development conference can be successful in meeting early career researchers' expectations for the level of professional socialization and networking typically facilitated by in-person conferences. Our findings are consistent with recent literature on this topic that highlights early career researchers' strong desire for mentorship around effective career management during the pandemic (Kliment et al., 2020; Weitlauf et al., 2021). This work also extends the extant

literature on this topic by highlighting how the “intangible” aspects of career development (e.g., opportunities to network, share research findings, interact with peers) can be fostered through online or tele-training modalities as necessitated by pandemic related restrictions on social gatherings (e.g., in person conferences), and suggests that critical elements of skill building (e.g., learning to be a moderator) were also addressed effectively through virtual training options.

Regarding limitations, several aspects of the methodology warrant comment. First, the scope of this work is purely descriptive. As with any cross-sectional assessment, no causal associations should be inferred. Moreover, with a response rate of 45%, we acknowledge that the reasons why CDAs chose to complete (or avoid) the post-conference survey are unknown. As such, we are unable to know or discuss the extent to which respondents' perceptions of the utility and value of the virtual conference would be generalizable to the entire pandemic-era VA HSR CDA cohort. Further, our design and study population is sufficiently limited such that analyses that examine whether (and when and/or how) individual difference characteristics (e.g., sex, professional discipline, junior/senior status within the CDA program), geographic or regional variation in their work setting (e.g., associated with a large or small VA medical center, located in an urban or rural setting), success within the CDA program itself (e.g., high vs. low research productivity), or any other unmeasured factor (e.g., clinical duties, research scope, health status, other Covid-era challenges) might impact CDAs' conference appraisals could not be pursued. Acknowledging these factors, the reader is cautioned against over-interpretation of these findings.

Nonetheless, this work also has many strengths. This is one of the first efforts to examine virtual conference formats for their ability to meet the professional and career development goals of early career researchers within academic medicine. It is certainly the first to examine this among VA HSR CDAs. This work positively contributes to the existing literature on this topic by highlighting features of our virtual conference architecture likely associated with high satisfaction among attendees and their enduring desire for peer-to-peer contact during this critical career phase.

Conclusion

In conclusion, our findings suggest that virtual conference formats can be. Moreover, our work suggests that some of the “magic” associated with in-person networking events (e.g., professional conferences) can be implemented in a virtual environment; planning efforts should include sufficient attention to the conference architecture so as to facilitate serendipitous interactions.

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