Meeting the Future: How CME Portfolios Must Change in the Post-COVID Era

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ABSTRACT
The COVID pandemic hastened the urgency for continuing medical education providers to offer digitised learning options in their portfolios. Although digitisation offers a wealth of potential benefits for delivering CME, including individualised learning paths as well as convenience and ease of access, challenges also remain. The American College of Cardiology (ACC) digitised much of its CME portfolio, including converting several in-person courses to virtual formats, providing self-study programs and products for asynchronous review of focused clinical topics, and delivering its Annual Scientific Session and Expo virtually two consecutive years. The ACC is using data collected from these recent experiences to rebuild its digitally transformed CME portfolio, focusing on unique learning strategies that offer a global healthcare professional community access to high quality digitised continuing education.

Introduction
Suffice it to say that we did not see it coming. Back in 2019, the continuing medical education community had already been largely aware of the need to evolve CME portfolios to include more digitised learning opportunities, and most CME organisations were moving their digital education strategy forward at a comfortable and steady rate of change. Then, came 2020. COVID hit hard and fast, sparking a sudden sense of urgency to digitise CME experiences across entire portfolios. For many CME providers this was largely a survival strategy, since in-person programming still represented a significant percentage of their CME offering.

The American College of Cardiology’s journey to digitise its live education during COVID was typical of many CME providers. Once it was clear that the pandemic would immediately shut down any live educational events, ACC’s pivot to deliver all its education in a virtual format accelerated at a frantic pace. ACC’s Annual Scientific Session and Expo that attracts several thousand attendees each year as well as ACC’s portfolio of face-to-face educational courses were converted to all virtual experiences in 2020. Without the luxury of time to consider appropriate virtual learning strategies, emphasis was mostly placed on the mechanical aspects of converting content to a digital format. There was little time to pay attention to the unique engagement needs of virtual attendees, to novel methodologies for assessing virtual learning or to designing instruction for an increasingly digitised consumer.

Engaging the healthcare professional has become increasingly complex as digitisation has generated new tools and options for content delivery. According to a report [1] focused on digital marketing:

The attention of consumers in the digital world is shifting in important ways. Their attention and experience are migrating to mobile at a rapid rate. At the same time, the user experience in the mobile environment is shifting — from Web- and browser-based to a world of apps, streaming platforms, e-sports and gaming, podcasting, and e-commerce and messaging platforms. As a result, activities, content, communication, and transactions are taking place inside a large number of different consumer interfaces.

Just as marketers are wrestling with the best ways to deliver their messages through digital means, CME providers are tackling new ways to deliver digitised learning. The great catalyst, the COVID pandemic, has accelerated this change.

The Promise of Digitised CME
Digitisation offers a wealth of potential benefits for delivering CME. Digital learning holds the promise of being more personal and individualised, especially if the content is designed to be easily consumable in small increments and easily searchable. Well-designed
digital learning activities allow an individual to navigate through learning elements at his or her own pace, choosing whether to learn quickly and broadly across a topic or engage in a deeper learning experience on that same topic.

Digitised learning is also convenient. Logistical and financial hurdles can make face-to-face education difficult for individuals to attend and difficult for organisers to scale. Since digitised learning can often be accessed anywhere and anytime though a variety of devices, it offers a convenient learning opportunity. This has enabled the distribution of CME to broader and more global audiences than previously possible with traditional in-person events. Further, face-to-face classes, conferences, and workshops are too often the domain of practitioners at elite institutions rather than everyday clinicians in community practice. Digitising CME eliminates physical location as a barrier to access and is often less expensive or free. Thus, digitisation serves as a change agent for democratising continuing medical education, strengthening our ability to equip many more frontline healthcare professionals with the latest clinical knowledge and skills.

A Medscape reader poll [2] conducted in the early fall of 2021 confirms that learners see similar benefits of digitised learning, with many selecting as an advantage of virtual meetings the ability to choose which education sessions to attend. If virtual sessions are recorded so that archived versions are available on demand, it is possible to experience multiple sessions even if they are scheduled at similar times. Virtual attendees cite other advantages of virtual meetings, such as no need to travel, lower cost to attend and the ability to attend a meeting and simultaneously participate in day-to-day work responsibilities.

With asynchronous digital learning experiences, it is also possible to revisit learning material and review it multiple times. To assist with personalising learning journeys, a variety of sophisticated learning delivery tools increasingly offer data tracking capability to better guide learners to information deemed most relevant for them.

Digitising a CME portfolio offers potential re-use of existing content by combining previously developed learning elements in new and different ways. American College of Cardiology has combined traditional lecture-based education with direct links to published scientific manuscripts from its Journal of the American College of Cardiology (JACC) portfolio or to clinically relevant patient case quizzes. The ACC has also embedded e-learning tools into didactic learning sequences to translate baseline knowledge into practical clinical behaviours. The ACC’s suite of risk calculator apps has been used in this way, offering healthcare providers mobile-friendly tools for rapid, personalised assessments of a patient’s cardiovascular risk based on the latest clinical guidelines and science. Rubrics now exist [3] for determining the value of augmenting cognitive learning with e-learning tools.

There have been a few challenges in delivering CME across virtual platforms [4]. For large global meetings that have become so popular during COVID, it has been difficult to coordinate the presentation of live streamed sessions across multiple time zones and many organisations have turned to pre-recording their virtual education to help solve this dilemma. Pre-recording lowers the possibility of technical errors during education delivery and allows a staged approach to releasing education in different time zones. However, pre-recording may impede real-time engagement between faculty and learners, which is often the richest segment of a learning experience.

Leveraging more sophisticated digital formats will be key to improved learner engagement, which appears to be more challenging in the virtual learning environment. Data from the 2021 Annual Scientific Session and Expo (ACC.21) are typical of what the ACC has observed with its major medical meetings delivered in all virtual formats. Figure 1 shows that participation is robust on Day 1 and peaks in the initial hours of each day thereafter. Peak attendance correlates with presentations of major clinical trials and other ground-breaking science as well as presentations originally released during daytime hours in USA Eastern Standard Time. Figure 2 indicates a sizeable reliance on mobile devices for access to the meeting, something which must be kept in mind when contemplating virtual user interface design.

While some Medscape reader poll respondents [2] reported the benefit of simultaneously attending virtual events and performing their day-to-day responsibilities, another 26% of respondents cited the inability to disengage from their day-to-day responsibilities as a disadvantage. Poll respondents also cited the lack of networking opportunities as a disadvantage when attending a meeting virtually. Overall, if given a choice, almost half of poll respondents still prefer to attend meetings in person, but another 31% select “unsure/it depends”. At least in the near-term future, medical meetings will need to be delivered as hybrid events, offering both in-person and virtual attendance options.
Rebuilding CME Portfolios for a Digitised World

Clear patterns have emerged from our experience delivering digitised courses and conferences and astute organisations are already taking advantage of those insights to rethink and rebuild CME delivery models. For example, the European Society of Cardiology recently delivered its ESC Congress 2021 as a virtual event and eloquently streamed pre-recorded education sessions in a schedule personalised to each attendee’s time zone. Such improvements are necessary as more CME digitisation occurs. CME providers who do not continue to improve their delivery models will risk being replaced by competitors offering more value-added, customer-responsive experiences. What considerations will ACC be addressing for the delivery of digitised education as we move forward to the post-COVID era?

How Digitisation Affects Learning Design

Sustaining attendees’ undivided attention throughout a virtual learning experience is challenging. Yet much of the digitised CME produced during the COVID pandemic appears to be a simple conversion of content originally designed for in-person presentation. Although this is not surprising when rapid conversion of programming is required, traditional in-person lectures do not always translate well to the virtual environment. As digitised CME grows in prevalence, either standalone or as part of a hybrid learning experience, key best practices should be adopted [5]. These include delivering virtual learning in smaller increments, minimising long sequences of static slides with audio narration, and offering more opportunities for attendee interaction or discussions of practical applications. Alkhowailed et al [6], successfully incorporated problem-based learning (PBL) as a strategy mixed with traditional didactic lectures to keep medical students engaged during virtual sessions. In the CME setting, PBL is often accomplished through patient case scenarios interspersed with didactic material.

During synchronous presentations, the use of patient cases coupled with online polls and chat room interactions can greatly enhance attendee engagement, especially if clinical experts are assigned to monitor and facilitate chats during live streamed sessions. Opportunities for digital collaboration can also be designed into virtual CME experiences by using live feeds of expert panels or holding facilitated Q&A sessions. Dedicated faculty moderators can even initiate engagement the virtual chat area with provocative questions that encourage participant responses. In
digitised educational courses, mixing synchronous facilitated discussions with asynchronous self-study opportunities promotes efficient use of the finite attention spans of virtual learners. The ACC has used this strategy to redesign its cardiovascular overview and board preparation courses, previously in-person courses and now offered as virtual experiences.

A digitised CME portfolio offers other interesting design opportunities. Cognitive-learning strategies such as spaced practice, where key concepts are delivered over a period of time, interleaving where the presentation order of groups of similar ideas is mixed up or switched over time to reinforce key concepts, or elaboration by connecting new information to pre-existing knowledge can enhance and personalise a digitised learning experience [7]. With ample use of related but linked content sources, distinct start and finish lines for virtual courses and meetings will increasingly blur and learning experiences will become more continuous and autonomous.

It is also interesting to consider whether the digitisation of CME will affect the experience of data collection and learning outcomes reporting. It is likely that CME providers will need to rethink criteria and definitions of “learning” as well as variables that account for learning. The advent of new technology for digitised learning along with increased use of multiple tools for learner engagement may render multiple disparate data sets that then need to be consolidated to provide meaningful results about the effectiveness of the education. CME planners and evaluators will need to individualise assessment strategies and map education variables to key performance indicators based on the formats and delivery systems being used.

**How Digitisation Affects Learning Access**

Important in the production of any virtual CME experience is the ability to participate in learning on a different time schedule by asynchronously accessing recorded learning sequences that are offered on-demand. The scheduling needs of a virtual attendee are often very different than those of an in-person attendee. Individuals who attend virtual conferences may be expected to continue simultaneously with their daily professional work so their ability to participate in learning may happen in fits and starts. As previously mentioned, virtual conference attendees typically reside in multiple time zones that span the globe. Virtual attendance for ACC.20, ACC’s first all virtual Annual Scientific Session and Expo, was viewed by participants from more than 170 countries. Therefore, flexibility for when learning is accessed coupled with offering tight learning sequences that can be completed quickly and via mobile friendly devices are best practices for digitised learning.

Underpinning the ability to offer a seamless, convenient digitised CME experience is the need for developing an enterprise-wide content strategy, particularly in organisations maintaining vast digitised content repositories. Building such a strategy should consider the substance, structure, and relevant linkages for digitised content as well as the workflow and governance processes for both creating and maintaining content. To successfully employ an enterprise content strategy, new skills sets must be introduced to the digitised CME development process, including the use of content architects, digital taxonomists, and digital knowledge curators. ACC is already planning to engage such specialists. Remaining to be seen is the role that artificial intelligence will play in streamlining and personalising digitised content portfolios in the future.

**How Digitisation Brings People Together**

One of the most dramatic behaviours observed with virtual gatherings has been the burst of chat box greetings from all over the world at the beginning of events. During the COVID pandemic, there has been a dominant need for individuals to feel connected with each other and to align with the purpose of the virtual gathering. Priya Parker, an expert in creating transformative gatherings, believes that whether a group is gathering online or offline, group dynamics still exist and through thoughtful design and facilitation they can be shaped to create the socioemotional dynamics that make a gathering successful [8]. Paying attention to the crucial socioemotional aspects of a virtual event is critical and yet this is an area that some large conferences and meetings still de-emphasise.

Ironically, a digitised learning experience has the potential to bring together vastly larger and more diverse groups of participants than most in-person events, creating opportunities for broader perspectives and richer discussions. However, there has been a dearth of formally organised sessions in virtual meetings taking advantage of such learning opportunities. Fully 30% of respondents cite lack of networking opportunities as the greatest disadvantage of medical meetings [2]. Parker shares tips for setting the social tone of meetings, including clarifying the purpose of specific virtual gatherings (explaining different session types), setting the tone with an opening ritual (a focused and purposeful opening or plenary session)
and crafting time for celebrations (awards, recognition of milestone achievements or newly installed members).

Exploring formal educational sessions on the emotional, physical and spiritual wellbeing of healthcare professionals are also valid considerations during times of unusual and broadly shared stress such as a global pandemic.

With digitised education, it is often important to provide facilitation of conversations at events rather than tossing groups of attendees together into virtual chat rooms. Future virtual meetings must work harder at creating a purpose for social and networking gatherings by facilitating conversations to draw participants into the event. Offering conversation starters, interviews with experts, provocative discussion topics or group problem solving tasks may be good ways to start. Celebrations and acknowledgements can also be informal such as unobtrusive screen banners that highlight new members or milestone career achievements.

As virtual meeting platforms, big data and artificial intelligence become more sophisticated, there will be increased opportunities to identify meeting participants with similar interests or similar career stages and then issue personal invitations for them to attend focused online social events.

Building connections and common purpose among people in a digitised, globally accessible CME world also requires attention to cultural competence. Learners benefit from education designed by diverse planner groups and delivered by representative faculty. Assuring that planners and staff are familiar with multiple country customs and practices of the audiences they are trying to engage creates more respectful and culturally sensitive learning experiences. In addition to time zone and socioemotional considerations, contemplating cultural sensitivities through assembling diverse planning groups, offering virtual presentations given in alternate languages or providing translated supplemental materials should be required considerations for digitised CME.

**Conclusion**

Digitisation will continue to change the look and feel of CME portfolios in the future. Virtual and hybrid (live/virtual) educational events will continue to be offered and the formal time boundaries of virtual courses and meetings will increasingly blur into ongoing, continuous learning experiences. In-person educational events will not be replaced. Rather, these events will be integrated into the continuous flow of CME experiences and perhaps some will even evolve from leading events to trailing or supporting events within an overall learning experience. Mobile- and global-friendly delivery platforms will be a requirement for all major medical meetings and more sophisticated technology will allow for participants with similar interests to gather virtually for more focused and meaningful experiences. The design of educational programming for hybrid meetings will be customised, considering the unique needs of in-person versus virtual audiences. Vast repositories of digitised content will be catalogued, tagged, and linked to offer reuse and remixing of existing content to provide more personalised, deeper learning experiences. This change will require new skills sets to be added to the CME profession with expertise in content structuring, linking, managing, and delivering CME in a digitised world. Building cultural awareness among planners, presenters and learners will also be essential.

The digital competence of learners and faculty presenters will also need to improve, and ACC will be building new resources to assist both faculty in designing digitised CME and learners in maximising their digitised CME experience. Learning online will require a basic knowledge of digital tools and platforms plus an understanding of virtual etiquette when interacting with faculty and other attendees. Presenting education online will be less about imparting information and more about facilitating participant efforts to think critically, make sense of and then apply new knowledge. The CME community is poised to meet these challenges but there is much work ahead to achieve full success.

**Disclosure Statement**

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