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The Impact of Transitioning from an In-Person to a Virtual Format on Annual Meeting Attendance: A Retrospective Analysis of the Mississippi Association of Nurse Anesthetists, 2014-2026

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Abstract

Continuing education is essential to the lifelong learning and recertification of Certified Registered Nurse Anesthetists (CRNAs). The COVID-19 pandemic forced many associations to cancel in-person meetings in 2020 and prompted a shift to virtual formats. Like many other associations, the Mississippi Association of Nurse Anesthetists (MANA) transitioned its annual meeting to a virtual format in 2021. This study examined how the transition of the Mississippi Association of Nurse Anesthetists (MANA) annual meeting from an in-person to a virtual format affected attendance. Using a retrospective, observational, longitudinal design, the author compared annual attendance for the in-person era (2014-2019) with the virtual era (2021-2026); no meeting was held in 2020. Attendance counts were obtained from the American Association of Nurse Anesthesiology and analyzed in SPSS using descriptive statistics, an independent-samples t-test with Cohen's d, and simple linear regression within each era. Mean attendance was lower in the virtual era (M = 66.2, SD = 26.6) than in the in-person era (M = 84.8, SD = 26.3), a 22.0% decrease, but the difference was not statistically significant, $t(10) = 1.22$, $p = 0.249$, $d = 0.71$. The two eras trended in opposite directions. Attendance declined significantly during the in-person years ($p = 0.024$) but rose significantly during the virtual years ($p = 0.042$). By 2026, it had nearly returned to pre-pandemic levels. These study findings suggest that a virtual format could be a potentially sustainable means of delivering an annual meeting and its associated continuing education credits to a state's CRNA membership.

Keywords: Nurse Anesthesia; Continuing Education; Virtual Conference; COVID-19; State-Level Nurse Anesthesia Association Meetings; CRNA

Abbreviations: CRNAs: Certified Registered Nurse Anesthetists; NBCRNA: National Board of Certification and Recertification for Nurse Anesthetists; MANA: Mississippi Association of Nurse Anesthetists; CE: Continuing Education

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Introduction

Certified Registered Nurse Anesthetists (CRNAs) are advanced practice registered nurses who must maintain board certification through the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA). Under the Continued Professional Certification program, CRNAs are required to earn 100 continuing education (CE) credits during each 4-year recertification cycle, including 60 assessed (Class A) credits and 40 Class B credits (NBCRNA, n.d.). For years, CRNAs have relied on national, regional, and state association meetings to earn accredited CE credits and connect with colleagues [1,2]. State associations like the Mississippi Association of Nurse Anesthetists (MANA) play an important role at the local level, providing Mississippi CRNAs with opportunities to earn those CE credits and build professional relationships.

With travel restrictions and limits on large gatherings in place due to the COVID-19 pandemic in early 2020, health care

organizations canceled or postponed their in-person meetings [3,2]. MANA held no exception to these restrictions, holding no annual meeting in 2020. MANA's annual meeting returned in 2021 with a fully virtual meeting and has kept that format ever since. Many other professional conferences made the same move from in-person to virtual platforms during this period [4]. Trainees and clinicians tend to prefer in-person meetings, where networking, informal learning, and engagement with speakers come more easily than they do online [1,2].

Virtual formats can boost participation by eliminating travel, reducing costs, and allowing people to attend from work or home [3,4]. Despite substantial research on virtual meetings during the pandemic, few studies have examined how the shift to a virtual format affected attendance at state-level nurse anesthesia association meetings. Understanding how the shift to a virtual format affected attendance can help CRNA state associations determine whether to remain virtual, return to in-person meetings, or adopt hybrid models for future annual meetings. The purpose of this study was to examine the effect of MANA's transition from an in-person (2014-2019) to a virtual (2021-2026) annual meeting format on the number of attendees. The research question guiding the study was: Did mean annual meeting attendance differ between the in-person and virtual eras?

Methods

Study Design and Sample

This study used a retrospective, observational, longitudinal design to compare annual meeting attendance before and after MANA transitioned from an in-person to a virtual format. The unit of analysis was the annual meeting, and the outcome variable was the total number of attendees recorded for each meeting. The sample comprised all MANA annual meetings held from 2014 through 2026. Due to the COVID-19 pandemic, no MANA annual meeting was held in 2020. Thus, the year 2020 was excluded from analysis. The annual meetings were grouped into two eras defined by delivery format: the in-person era (2014 to 2019) and the virtual era (2021 to 2026).

Data Collection

Attendance data came directly from the American Association of Nurse Anesthesiology (AANA). The author emailed the AANA Continuing Education Manager, who provided the recorded attendance for each MANA annual meeting from 2014 through 2026. For each year, the data identified the meeting year, the number of attendees, and the meeting format (in-person or virtual). The records contained no individually identifiable information; only de-identified, aggregate counts were used. Because the study relied on existing, de-identified, aggregated data and involved no contact with human participants, it did not meet the federal definition of human subjects' research. Also, the author confirmed this by completing the Mississippi State Department of Health self-certification form, which determined that the study involved no human subjects and did not require IRB review.

Data Analysis

Data was analyzed using IBM SPSS 26.0 statistics software. Descriptive statistics of mean, median, standard deviation, minimum, maximum, and range were calculated for each era. An independent-samples t-test was used to compare mean attendance between the in-person and virtual eras. Levene's test was used to evaluate the assumption of homogeneity of variance. The magnitude of the difference was quantified using Cohen's d and interpreted according to conventional thresholds (0.2 = small, 0.5 = medium, 0.8 = large). Simple linear regression was used to model the number of attendees each year. The unstandardized slope, Pearson correlation coefficient, coefficient of determination, and the associated p-value were reported for each. All tests were two-tailed, and statistical significance was set at 0.05.

Results

During the in-person era (2014-2019), attendance ranged from 58 to 120 (M = 84.8, Mdn = 75.5, SD = 26.3). During the virtual era (2021-2026), attendance ranged from 42 to 118 (M = 66.2, Mdn = 60.0, SD = 26.6). Mean attendance during the virtual era was therefore 18.7 attendees lower than during the in-person era, a decrease of 22.0%. Levene's test indicated that the assumption of equal variances was met ($p = 0.68$). An independent-samples t-test showed that the difference in mean attendance between the in-person and virtual eras was not statistically significant, $t(10) = 1.22$, $p = 0.249$. The effect size was medium to large (Cohen's $d = 0.71$), indicating that the difference was not trivial.

The non-significant result likely reflects the small number of meetings per era and substantial year-to-year variability. The two eras moved in opposite directions over time. In-person attendance fell significantly, dropping by about 12.3 attendees per year ($b = -12.3$, $r = -0.87$, $R^2 = 0.76$, $p = 0.024$). The study's two largest turnouts came in the first two in-person years, 115 in 2014 and 120 in 2015, after which attendance dropped and stayed lower through 2019. The virtual era reversed this pattern, with attendance climbing about 11.7 attendees per year ($b = 11.7$, $r = 0.83$, $R^2 = 0.68$, $p = 0.042$). Virtual era attendance grew steadily from a low of 42 in 2021, the first virtual year, to 118 in 2026, just short of the 120 reached in 2015 (Table 1) (Figure 1).

Discussion

This study examined whether MANA's transition from an in-person to a virtual annual meeting format was associated with a change in attendance. Mean attendance was lower during the virtual era than during the in-person era, a 22.0% reduction with a medium-to-large effect size, but this difference was not statistically significant. Two patterns complicate a simple reading of this decline. Attendance was already falling during the in-person era before COVID-19, and it rose steadily once the meeting moved to a virtual format. The downward trend during the in-person era should be noted. Attendance reached its highest point

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in 2014 and 2015, then dropped considerably well before any meeting moved to a virtual format. This timing matters: the lower mean attendance observed in the virtual era cannot be attributed solely to the format change, since some of that decline was already taking shape during the in-person years.

Table 1: Mississippi Association of Nurse Anesthetists Annual Meeting Attendance by Year and Format, 2014-2026

Year	Meeting Format	Number of Attendees
2014	In-person	115
2015	In-person	120
2016	In-person	72
2017	In-person	79
2018	In-person	58
2019	In-person	65
2020	No meeting (COVID-19)	—
2021	Virtual	42
2022	Virtual	53
2023	Virtual	61
2024	Virtual	59
2025	Virtual	64
2026	Virtual	118
In-person era mean (SD)		84.8 (26.3)
Virtual era means (SD)		66.2 (26.6)

Note: No annual meeting was held in 2020 due to the COVID-19 pandemic.

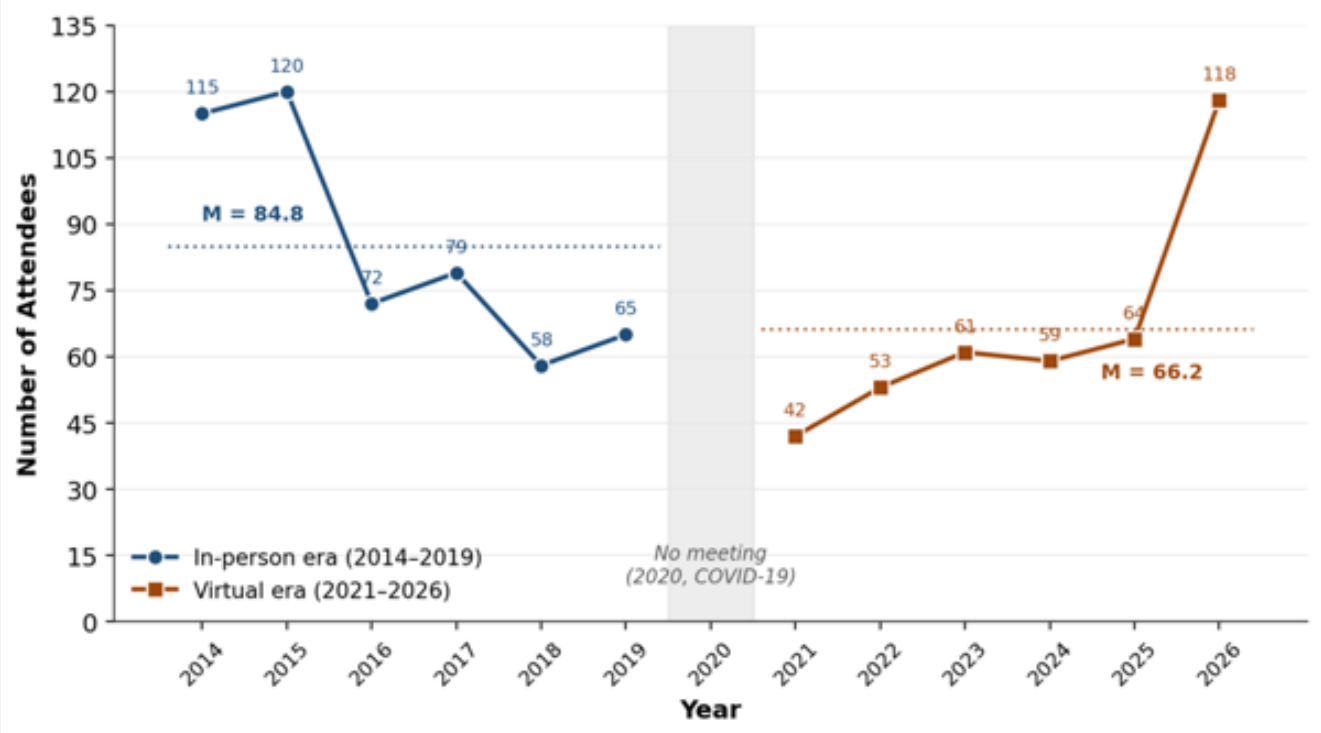

Figure 1: Mississippi Association of Nurse Anesthetists Annual Meeting Attendance, 2014-2026.
Note: Dotted lines indicate the mean attendance for each era. No meeting was held in 2020 due to the COVID-19 pandemic.

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These results feature a definitive downside of pre-post research designs, mistaking a pre-existing trend for the effect of an intervention. The steady climb in virtual attendance is noteworthy. Attendance rose every year from 2021 to 2026, never once dipped, and by 2026, it had nearly returned to pre-pandemic levels. These results could imply that members, organizers, and platforms grew more comfortable with the virtual format over time. The virtual format's accessibility could have helped: with no travel, lower costs, and the option to join from home or work, more people may have taken part as the format became familiar [5]. In a retrospective analysis of a regional orthopedic association, virtual conference attendance significantly exceeded prior in-person attendance; the authors attributed this increase in attendance to the removal of geographic barriers [3].

Similarly, a survey of urologists found that participation in virtual conferences rose markedly during the COVID-19 pandemic, even as in-person participation fell [4]. At the same time, trainees and clinicians consistently say they prefer in-person meetings, primarily for the networking and casual learning that are harder to obtain from a virtual format [1,2]. This study suggests that those two ideas can coexist. Format people like less can still be effective and even grow, especially for a rural state membership, where travel to an in-person meeting could be an obstacle. For state associations considering moving their annual meeting from an in-person to a virtual format, the findings of this study may offer reassurance that the annual meeting attendance will not diminish over time but may, in fact, expand its reach.

Also, these state associations will need to consider that there is potential for an increase or decrease with any format change; the hybrid model utilization that combines the accessibility of virtual attendance with the networking strengths of in-person gathering has been proposed as a means of capturing the benefits of both [2]. Limitations of this study should be noted. The study examined a single-state association, which may limit its generalizability to other states, specialties, and regions. Also, with MANA having only six virtual-format meetings, the number of meetings per era was small (n=6), reducing statistical power. Finally, as an observational pre-post analysis, the study design does not support a causal inference that the virtual format caused changes in attendance numbers. Future research should extend this analysis across multiple state and national nurse anesthesia associations to improve generalizability and statistical power. The use of a mixed-methods study may help with comparative evaluations of in-person, virtual, and hybrid meeting formats. Finally, a mixed-methods study may help associations identify the delivery model that best balances accessibility, professional networking, and educational effectiveness for the CRNA profession [6].

Conclusion

The transition of the MANA annual meeting from an in-person to a virtual format was associated with a modest, statistically nonsignificant decline in mean attendance. The downward trend of attendance before the COVID-19 pandemic and the recovery to pre-pandemic levels in the virtual era by 2026 makes the decline difficult to attribute to the format change. These study findings suggest that a virtual format could be a potentially sustainable means of delivering an annual meeting and its associated continuing education credits to a state's CRNA membership. Larger, multi-state studies are needed to confirm these findings and to guide associations in determining between in-person, virtual, and hybrid model formats.

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