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## College/University Independent Medical Care in the COVID-19 Era

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## College/University Independent Medical Care in the COVID-19 Era

### Abstract

**Purpose:** Legislation was created for NCAA Divisions I, II, and III to guarantee an independent medical care administrative structure designed to give “unchallengeable autonomous authority” regarding diagnosis, management, and return to play decisions to primary athletics health care providers (physicians and athletic trainers). The purpose of this project was to 1) explore the structure of athletic health care in NCAA athletic institutions as it relates to independent medical care, and 2) describe changes in those structures that have occurred as a result of the COVID-19 pandemic. **Methods:** We used a cross-Sectional Study. Setting: College/University. In 2017, 162 supervising athletic trainers responded to our survey. Variables collected included health care delivery model, AHCA selection, decision making and injury reporting structure, confidence in independent medical care, COVID-19 response involvement, changes due to COVID-19. **Results:** The overall demographic characteristics indicated that most supervising athletic trainers were male (117/162, 72.2%), 48 ± 10 y old, and have been at the institution for a significant tenure 15 ± 11y. In 2020, responses from 174 supervising athletic trainers were recorded in the survey. The majority of respondents were male (108/174, 62.1%). Average age of the population was 45 ± 11y with 22 ± 10y of experience and 15 ± 10y of experience at their current institution. The athletics health care model is most common across all NCAA Divisions (n=163 80.7%). Average confidence was rated 4.54 ± 0.67. Results indicate a significant increase in confidence from 2017 to 2020 that patient care decisions are independent of influence. The majority of supervising athletic trainers indicated that they were involved in COVID-19 response (n=190, 94.1%) **Conclusions:** More NCAA Institutions should transition to a medical model of health care delivery to ensure independent medical care. Athletic trainers were used in the policy creation and implementation of COVID-19 protocols for their institutions and athletics programs.

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### ABSTRACT

**Purpose:** Legislation was created for NCAA Divisions I, II, and III to guarantee an independent medical care administrative structure designed to give “unchallengeable autonomous authority” regarding diagnosis, management, and return to play decisions to primary athletics health care providers (physicians and athletic trainers). The purpose of this project was to 1) explore the structure of athletic health care in NCAA athletic institutions as it relates to independent medical care, and 2) describe changes in those structures that have occurred as a result of the COVID-19 pandemic. **Methods:** We used a cross-Sectional Study. Setting: College/University. In 2017, 162 supervising athletic trainers responded to our survey. Variables collected included health care delivery model, AHCA selection, decision making and injury reporting structure, confidence in independent medical care, COVID-19 response involvement, changes due to COVID-19. **Results:** The overall demographic characteristics indicated that most supervising athletic trainers were male (117/162, 72.2%), 48 ± 10 y old, and have been at the institution for a significant tenure 15 ± 11y. In 2020, responses from 174 supervising athletic trainers were recorded in the survey. The majority of respondents were male (108/174, 62.1%). Average age of the population was 45 ± 11y with 22 ± 10y of experience and 15 ± 10y of experience at their current institution. The athletics health care model is most common across all NCAA Divisions (n=163 80.7%). Average confidence was rated 4.54 ± 0.67. Results indicate a significant increase in confidence from 2017 to 2020 that patient care decisions are independent of influence. The majority of supervising athletic trainers indicated that they were involved in COVID-19 response (n=190, 94.1%) **Conclusions:** More NCAA Institutions should transition to a medical model of health care delivery to ensure independent medical care. Athletic trainers were used in the policy creation and implementation of COVID-19 protocols for their institutions and athletics programs.

**Key Words:** Athletic Health Care Administrator; Athletic Health Care; SARS-CoV-19

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### Key Points:

- Four years after independent medical care legislation was passed, 80.7% of institutions still operate as an athletics health care model.
  - Supervising athletic trainers indicated high levels of confidence in the delivery of independent medical care at their institution.
  - Athletic Trainers were heavily involved in NCAA institutions' response to the COVID-19 pandemic.
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## INTRODUCTION

In an effort to further protect the health and well-being of the student-athletes, the National Collegiate Athletic Association (NCAA) instituted legislation requiring independent medical care to provide “unchallengeable autonomous authority” over diagnosis, management, and return to play decisions to primary athletics health care providers.<sup>1</sup> This legislation was passed for Division I institutions in 2016 and for Divisions II and III in 2017.<sup>1</sup> The goal of this legislation is to ensure that the medical decisions that are being made are not being influenced by coaches or outside stakeholders. These actions ensure the proper delivery of medical care to a student-athlete. The personnel responsible for these medical decisions are physicians and athletic trainers.<sup>1</sup> This establishment of independent medical care legislation aims to create an environment free from outside influence for medical professionals to make appropriate decisions.<sup>1</sup> Influence from non-medical professionals such as coaches or athletics directors on medical decisions has been a noted issue among collegiate athletics health care professionals.<sup>1,2</sup> Evidence has suggested that pressure from coaches is an “expected component” of working in certain job settings and that the athletic trainer is responsible for performing strategies to decrease the negative effects of pressure.<sup>2</sup> Organization climate has been identified as a factor that impacts a collegiate athletic trainers’ professional commitment.<sup>3</sup> Aside from athletic trainers choosing to leave an institution due to influence or organization climate, some have been dismissed from their institution due to feuds with coaches.<sup>4</sup>

The passing of this legislation also required each institution to designate an “athletics health care administrator” (AHCA) to oversee athletics health care administration and delivery as well as provide a direct contact to the NCAA Sports Science Institute for each institution, something that had not happened before.<sup>1,5</sup> Personnel deemed appropriate to fill this role include physicians, athletic trainers, other health care professionals, or administrative personnel with experience in managing health care.<sup>1</sup> As independent medical care has continued to evolve, situations that have life and death consequences may be the most critical. On March 11, 2020, the World Health Organization (WHO) declared the novel coronavirus, COVID-19, a pandemic.<sup>6</sup> A national emergency in the United States was declared on March 13, 2020.<sup>7</sup> The COVID-19 pandemic and the threat of transmission caused the NCAA to cancel many interscholastic events and modify standard procedures. It is unknown if all providers designated to have “unchallengeable autonomous authority” on patient care retained this ability when approaching COVID-19 prevention, recognition, treatment, and management. In a recent study done by Winkelmann and Games (2021), athletic trainers reported different job duties related to the COVID-19 pandemic including providing front-line screening and other support related to COVID-19 directly.<sup>8</sup> With new job duties for staff and changes to institutional protocols, it is necessary to determine if independent medical care has continued. The purpose of this project is to explore the structure of athletic health care in NCAA athletic institutions as it relates to independent medical care, considering the implementation at the early stages of legislation and again several years later. Understanding this structure is important in understanding the impacts on athletic health care decisions, especially those made during the COVID-19 pandemic.

## METHODS

### Design

This project used a cross-sectional, web-based survey design performed in 2017 and repeated in 2020 that included open and closed ended questions. These questions asked about AHCA roles and selection at NCAA Division I, II, and III institutions as well as changes relative to the COVID-19 pandemic. This study was deemed exempt by the Indiana State University Institutional Review Board.

### Participants

We created a database, using publicly available data, of all supervising athletic trainers (Head Athletic Trainers / Directors of Sports Medicine) of institutions that participate in NCAA Division I competition during the spring of 2017. To be eligible, participants had to be supervising other athletic trainers and worked in the college or university setting. We emailed the 338 supervising athletic trainers with valid email addresses in April 2017, and 47.9% (n=162) responded. The PI’s employer and educational institutions were excluded. In the second round of data collection, supervising athletic trainers were defined as those in the role of Head Athletic Trainer or Director of Sports Medicine at their institution. In September 2020, the database of supervising athletic trainers was updated for NCAA Division I and then compiled for NCAA II, and NCAS III institutions’ websites. We emailed 965 supervising athletic trainers and 18% (n=174) participants responded to the survey.

### Instrumentation

An online, web-based survey (Qualtrics®, Provo, UT) was used. We evaluated the instrument using two content experts to establish content validity. We also conducted a pilot study with two supervising athletic trainers to test the navigation of the tool. Participants indicated the type of health care delivery model, AHCA designation changes, involvement in COVID-19 response, decision-making and reporting structure for the institution, and confidence in the delivery of independent medical care.<sup>9</sup> Healthcare models at the institution were characterized as athletics model, academic model, medical model internal to the institution, and medical model

external to the institution. Health care delivery models are outlined in Table 1. The confidence items demonstrated moderate internal consistency (Cronbach's alpha = 0.671). Questions regarding involvement in COVID-19 policy development were included. Additionally, participants were asked to describe decision making and reporting structures within their institutions. Respondents answered closed ended questions using a 5-point Likert scale (1=no confidence, 2=a little confidence, 3=average confidence, 4=confident, 5=very confident). Additional questions were added to the survey to address changes to decision making or reporting structure due to the COVID-19 global pandemic. These items were reviewed by a clinician actively managing pandemic related patient care, policy development and execution.

**Table 1.** Models for Athletic Health Care

Health Care Delivery Model	Definition
Athletics Model	Athletic Training / Sports Medicine Services are housed in the athletics department of the institution. Athletic Trainers are employees of the athletic department, ultimately reporting to the athletic director.
Academic Model	Athletic Training / Sports Medicine Services are housed in an educational department of the institution. Athletic Trainers are employees of the institutions athletic training education or other allied health professional program, ultimately reporting to an academic chair or dean.
Medical Model (Internal)	Athletic Training / Sports Medicine Services are housed in another campus entity, such as Student Health Services, Hospital, or Clinic. Athletic Trainers are employees of these entities, ultimately reporting to the director of the department or medical director of services.
Medical Model (External)	Athletic Training / Sports Medicine Services are facilitated by an entity off-campus such as or Clinic. Athletic Trainers are employees of these entities, ultimately reporting to the director of the department or medical director of services.

### Procedures

An initial email was sent to all potential participants with an introduction letter and a link to the survey. The first item asked participants to confirm that they fit criteria for eligibility for the study. They provided consent and voluntarily answered questions. Follow-up emails were sent after one, two, and three weeks to encourage participation. Data collection ended after four weeks and was de-identified for data analysis. The same procedures were used in 2017 and 2020.

### Data Analysis and Trustworthiness

Demographic variables, AHCA role, and athletic health care model were analyzed using measures of central tendency, frequencies, and variance. We compared level of confidence that patient care decisions are independent of influence from the sample of athletic health care supervisors in 2017 and 2020 using an independent samples t-test, setting the p value at  $p < .05$  *a priori*. Chi-squared analyses were used to identify differences across the time points for person serving in the AHCA role as well as role selection and division of athletics. One primary investigator examined all open-ended responses using an inductive coding process.<sup>9</sup> The primary investigator searched for similar responses and categorized them into themes to create a codebook. The codebook was audited by one other member of the research team.

### RESULTS

In 2017, 162 supervising athletic trainers responded to our survey. The overall demographic characteristics indicated that most supervising athletic trainers were male (117/162, 72.2%), 48 ± 10 y old, and have been at the institution for a significant tenure 15 ± 11y. At the time, most Division I schools operated in the athletics model of healthcare (139/162, 85.8%), while an academic model (5/162, 3.1%), medical model internal to the institution (2/162, 1.2%), medical model external to the institution (5/162, 3.1%) and other models (11/162, 6.8%) were used less frequently to provide medical care. The "other" models described by the ATs were typically combination models or models in transition. The supervising athletic trainer was often selected (28/42, 66.7%) as the AHCA. Alternatively, the medical director was selected (20/162, 12.3%) or an athletics department official, such as the director of compliance (19/162, 11.7%) were selected as the AHCA.

AHCA selection occurred through one of two processes: appointment or collaborative process. Through appointment (120/162, 74%) an existing member of the athletics department or sports medicine staff was assigned to this role. The supervising athletic trainer was selected often (92/120, 76.7%) through appointment. The other supervising athletic trainers described a collaborative

process for selecting the AHCA (42/162, 26%). This process took into consideration a variety of factors, such as what the athletic conference suggested, as well as input from the higher administration of the institution. "Input from the higher administration of the institution" was used to show all of the factors that went into the collaborative process. There is no implication that direct appointment only involved a direct supervisor or internal administrator. The supervising athletic trainer was often selected (28/42, 66.7%) through this collaborative process. Alternatively, the medical director was selected (20/162, 12.3%) or an athletics department official, such as the director of compliance (19/162, 11.7%) were selected as the AHCA.

Few (14/162, 9%) of the supervising athletic trainers indicated patients played any role in their care when asked who has decision-making authority. One supervising athletic trainer indicated that the athlete may consult anyone on their care decisions. They stated, "An individual may include any or all of the following in their care: coach, sport administrator, parents, spouse, team physician, athletic trainer, and athletic director." While another supervising athletic trainer highlighted that even though the patient can choose whomever they would like as part of their care team, it is possible decisions are not free of influence or conflicts of interest. They stated, "The student-athlete has their parents, athletic trainer, team physician, specialty physician, and coach on their care team."

In 2020, responses from 174 supervising athletic trainers were recorded in the survey. The majority of respondents were male (108/174, 62.1%). The average age of the population was  $45 \pm 11$  with  $22 \pm 10$  years of experience and  $15 \pm 10$  years of experience at their current institution. The AHCA role was most commonly designated to head athletic trainer or director of sports medicine (n=155/202, 76.7%). Other positions that were given the AHCA role included Medical Director/Team Physician (n=15/202, 7.4%), Athletic Department Official (n=20/202, 9.9%), Vice President/Admin (n=3/202, 1.5%), and other positions (n=9/202, 4.4%). The majority of participants did not indicate a change in the AHCA position since 2017 (n=164/201, 81.6%), and statistically we did not identify any differences between the 2017 and 2020 data ( $p > .05$ ). For the participants that indicated a change in AHCA (n=31/201, 15.4%), normal turnover (n=20/31, 64.5%), transfer of role to a medical professional (n=3/31, 9.7%), and internal issues (n=6/31, 19.4%) were the reasons for the change.

Most institutions continue to operate under an athletics model (n=163/202, 80.7%) of health care delivery, as of 2020. Academic (n=5/202, 2.5%), Internal Medical (n=8/202, 4.0%), and External Medical (n=20/202, 9.9%) were also models among the 2020 respondents. Institutions were from NCAA Divisions I (n=48/174, 27.6%), II (n=44/174, 25.3%), and III (n=82/174, 47.1%). Health care models were not different by athletics division ( $p > .05$ ).

Respondents were asked to describe which professionals are involved in the decision-making structure at their institution, and in the 2020 sample, athletic trainers (n=154/174, 85.1%) and physicians (n=146/174, 80.7%) were the most common responses. One participant stated, "Sports Medicine (Physicians and ATs) staff are involved in patient care decisions and have ultimate responsibility for care decisions. Coaches and administrators get involved and [are] largely in the way but sports medicine staff retain final authority for return to play decisions." Again, very few respondents specifically indicated that the patient (n=16/174, 8.8%) was involved in decision making. In 2020, one participant stated, "Patients are consulted by the athletic training staff to make appropriate decisions for an individual's own best outcomes. Coaches and necessary staff are informed with the level of detail based on the request of the patients. Advanced cases where referral to other healthcare providers is warranted involves shared decision-making as a team including the athletic trainer, the physician, physical therapist, specialty healthcare providers, etc. with the patient at the center of the decision-making process." More individuals were identified as being involved in the reporting structure in the event of an injury that resulted in greater than 10 days lost. Those individuals included athletic trainers (n=79/174, 46.5%), team physicians (n=72/174, 42.4%), administrators (n=44/174, 25.9%), coaches (n=121/174, 71.2%), strength and conditioning staff (n=17/174, 10.0%), academics staff (n=20/174, 11.8%), resident life staff (n=3/174, 1.8%), and parents of the patient (n=4/174, 2.4%).

In 2017, the participants described a high level of confidence that medical decisions were being made free of influence at their institution (mean =  $4.4 \pm 0.8$ ). Similarly in 2020, participants indicated high levels of confidence in the delivery of independent medical care at their institution (mean =  $4.5 \pm 0.7$ ). Most recently, a majority of respondents indicated they were very confident (n=109/173, 63.0%) and confident (n=51/173, 29.5%) that their decisions were being made free of influence. The results indicate a significant increase in confidence from 2017 to 2020 among athletic health care supervisors that patient care decisions are independent of influence ( $t_{333} = -2.358$ ,  $p = 0.019$ , Cohen's  $d = 0.719$ ). A majority of respondents (n=151/173, 87.3%) indicated that their level of confidence was the same when a COVID-19 positive result was present.

Participants expressed many changes due to the COVID-19 pandemic. Athletic trainers were often consulted for guidance where 190 (n=190/202, 94.1%) indicated that they had some sort of involvement in their institutions COVID-19 response. Writing policy

(n=74/202, 41.6%), policy execution/implementation (n=71/202, 39.9%), sitting on committees (n=54/202, 30.3%), and aiding in testing (n=12/202, 6.7%) were the most common job duties taken on related to COVID-19. Approximately one third of participants (n=67/181, 37.0%) indicated there would be a change in their decision-making structure due to a positive COVID-19 result. Approximately one fourth of participants (n=54/170, 31.8%) indicated there would be a change in their reporting structure due a positive COVID-19 result.

## DISCUSSION

The use of the athletics model of health care delivery is still widely used in NCAA institutions at all levels. Communication has been identified as a factor that contributes to the “right fit” for athletic trainers in the college setting.<sup>11</sup> Professional communication has also been identified as a strategy to alleviate conflict in the work setting.<sup>11</sup> These conflicts may occur with coaches, co-workers, and other administrators. Closer relationships with athletics staff have been noted as an advantage that can increase communication.<sup>10</sup> These relationships have also contributed to a sense of role identity and role congruence.<sup>12</sup> Athletic trainers report feeling the satisfaction that they sought out in pursuing the profession by having close relationships and similar values with athletics staff.<sup>12</sup> These benefits may only provide attraction for athletic trainers who have had positive experiences.

Cultural differences between institutions should not be relied on for the creation of independent medical care. We believe structural changes may be necessary to make changes that culture can no longer influence. The NCAA requirement of the AHCA provided a structural change to athletic health care delivery.<sup>15</sup> The selection of AHCA may not have fulfilled the position with its original intent. The AHCA was intended to be an administrative role that assures the institution stays in compliance with NCAA health and safety legislation and interassociation recommendations.<sup>1</sup> With proper selection of AHCA, there may be a higher likelihood for the delivery of independent medical care to occur. There have been no significant changes to the AHCA position at reporting institutions since the implementation of independent medical care legislation. Turnover, realignment of position with a medical professional, and internal conflict were rarely reported, but must be considered moving forward as potential instances that would cause change in the AHCA position.

Although there is continued use, major barriers to the use of the athletics model still occur. The medical model structurally removes this threat by having medical professionals in supervisory roles for the sports medicine staff. Proper staffing has been a great challenge for many supervising athletic trainers.<sup>12</sup> Staffing problems include finding staff that continue to stay loyal to the institution and meet the expectations of the Appropriate Medical Coverage of Intercollegiate Athletics.<sup>12</sup> Supervisor roles in the athletics model are often filled with personnel that do not understand the logistics of providing appropriate medical care to an entire department of student-athletes. This is evident in the increased number of average hours per week, lower satisfaction with pay, decreased perceived support from administrators, and less loyalty to their current position reported by athletic trainers at institutions with an athletics model versus a medical or academic model.<sup>11</sup> Additionally, the use of non-medical supervisors are an even greater threat to the ability for a sports medicine staff to make decisions free of external influence. Sports medicine staff may feel that their jobs and livelihoods will be threatened if they do not comply with the wishes of coaches or administrators. This phenomenon has become more obvious to the public but has also been common for decades.<sup>4</sup>

The medical model has resulted in positive changes for collegiate athletic trainers. They have seen lower athletic trainer to patient ratios as well as lower average hours worked per week.<sup>11,13</sup> It is not certain that a causal relationship exists between improved staffing and transition to a medical model. If that relationship does exist, then transition to a medical model may also bring positive improvements to staffing issues.<sup>13</sup> Finally, budgets and administrative hierarchies would not be shared by medical and non-medical personnel. This would allow for the proper allocation of financial resources for medical personnel. Bids for medical supplies should not need to compete with apparel, travel, or renovation budgets.

A change in the model of health care delivery may provide the sports medicine department the opportunity to provide care that is completely free of external influence and allows the student-athlete to drive appropriate health care decisions. “Athlete-centered care” was a term created to translate the concept of patient-centered care (PCC) to sports medicine in 2014.<sup>10</sup> Although developing the term in athletics might make sense to athletic trainers working in sport settings, it can also assume that the patient values being an athlete above being a person or patient. Many respondents indicated that medical providers were key decision makers in patient care can create an environment for PCC to be achieved. An environment where PCC is achieved must be free of external influence such as coaches, administrators, and competitive outcomes. The environment is not the only factor contributing to PCC. PCC must include patient input on care decisions. Providers that work on the notion that they are providing the best care for the patient may still not be delivering PCC. Without patient input, the provider is delivering clinician-centered care. Institutions must understand that the health care model at the institution does not indicate PCC practices occur. Involvement of people that the patient trusts (i.e., coaches, professors) does align with the concept of PCC and may contribute to better outcomes, but their involvement should

be the decision of the patient, made without influence or coercion. Previous research on PCC in collegiate student-athletes indicated that athletic trainers were not as effective in involving support teams in health care decision making.<sup>14</sup>

Despite the potential barriers to independent medical care delivery, supervising athletic trainers are confident that decisions are being made independent of influence. This finding indicates that regardless of the large number of institutions still operating in an athletics model, independent medical care can still be delivered. Equally important, responses from sports medicine leadership may not reflect the thoughts, concerns, and opinions of the entire staff. The results of this study should reflect the perceptions of supervising athletic trainers or directors of sports medicine. Multiple factors such as age, years of experience, gender, or sport assignment contribute to individual experiences within the same institution.<sup>15,16</sup>

The high involvement of athletic trainers in COVID-19 changes to procedures and response to manage the pandemic is encouraging. Regardless of health care delivery model, athletic departments and in some cases entire universities, recognized the assistance that athletic trainers could provide. This point further proves that athletic trainers were asked to be versatile and offer other skills during the pandemic.<sup>8</sup> Policy development, sitting on committees, and coordinating testing were added to the responsibilities of athletic trainers.<sup>17</sup> This larger integration of athletic trainers into the management of the pandemic demonstrates the versatility and clinical leadership that athletic trainers can provide to an institution.

It is not known if a change in duties resulted in an increased average hours of work per week, as this was not the purpose of this investigation. Sports medicine staff with increased need for hours that do not have the ability to provide proper staffing are at risk for staffing issues that have occurred in a normal year.<sup>12</sup> This illuminates how the use of a medical model may allow staffing issues to be solved using other medical providers within the system and provide support for the proper procedures and decisions for medical care.

Supervisors of medical providers in an athletics model, may not be equipped to provide the proper guidance necessary and threaten the ability for an athletic trainer to make a decision independent of influence. When supervising athletic trainers reported changes to decision making and reporting structures due to a positive COVID-19 result, needing to involve other entities, sometimes external to the institution was seen as necessary. The need to involve other entities may raise caution for threats to independent medical care. All involved parties must be appraised for their necessity to be involved and clear policies and procedures should be established. Many supervising athletic trainers indicated confidence that decisions were being made free of external influence should remain the same when dealing with a positive COVID-19 result despite the necessary changes to decision making and reporting structure.

This study was not without limitations. The 2020 period of data collection was conducted during the COVID-19 pandemic. This may have contributed to a lower response rate in the follow-up collection. Our results indicate that supervising athletic trainers are confident medical decisions are being made without external influence. It should also be investigated if these perceptions are true. Future research should investigate if additional sports medicine staff that do not have positional authority share the same belief. Additionally, research that highlights institutions that have transitioned health care models should be conducted so that the results of the transition can be shared. This may be done in the format of a case-study. It may also be beneficial for future researchers to determine what changes to independent medical legislation may be made as a result of the pandemic to give further guidance if another event with similar magnitude were to happen.

## CONCLUSION

The results of this study indicate that supervising athletic trainers believe medical decisions are being made independent of external influence. Despite this encouraging result, there continues to be wide use of the athletics model for health care delivery. This would indicate a need for NCAA Institutions at Divisions I, II, and III to explore transitioning to a medical model of health care delivery for athletic health care to ensure structural support for athletic trainers and team physicians. Supervising athletic trainers should seek out resources to aid their sports medicine departments in communication strategies to prevent external influence on medical decisions. Advocacy work should be done for athletic trainers that are expressing constant external pressure to make inappropriate medical decisions. Sports medicine staffs should also embrace the health care core competency of patient-centered care for all medical decision making. Finally, during the COVID-19 pandemic, athletic trainers have shown versatility in roles and responsibilities as well as great value in aiding NCAA institutions in their COVID-19 response.



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