REPORT 15 OF THE BOARD OF TRUSTEES (A-22)
Addressing Public Health Disinformation
(Reference Committee D)

EXECUTIVE SUMMARY

INTRODUCTION. At the November 2021 special meeting of the AMA House of Delegates, the House adopted Policy D-440.914, "Addressing Public Health Disinformation Disseminated by Health Professionals" which called on the AMA to study disinformation disseminated by health professionals and its impact on public health and present a comprehensive strategy to address this issue with a report back at the next meeting of the House of Delegates.

DISCUSSION. Disinformation is false or misleading information of which the author knows to be wrong and intends to cause harm. Health professionals are trusted messengers and the spread of disinformation by a few has implications for the entire profession. Physicians and health professionals have an ethical and professional responsibility to represent current scientific evidence accurately. The spread of health-related disinformation is unethical and unprofessional and harmful to patients and the public. Health professionals who participate in the media can offer effective and accessible medical perspectives, and they have an ethical obligation to consider how their conduct can affect their medical colleagues, other health care professionals, as well as institutions with which they are affiliated.

During the COVID-19 pandemic, disinformation has been of the utmost concern, leading some to describe a secondary "infodemic," wherein permanent harm may be done to the trust in institutions due to the sheer volume of mis- and disinformation spread in a rapidly changing and sensitive environment. Disinformation claims made by health professionals can be directly linked to topics such as the promotion of unproven COVID-19 treatments, false claims of vaccine side effects, and public health guidance that is not evidence-based.

This report discusses the impact of disinformation disseminated by health professional, provides an overview of the ways that disinformation is spread including through social media platform and traditional media, reviews the impact of peer-reviewed journals and preprints, and examines incentives for spreading disinformation. The report also provides an overview of the authority of health professional licensing and credentialing boards in addressing disinformation.

CONCLUSION. The dissemination of health-related disinformation by health professionals is a complex topic and one for which a comprehensive strategy will be necessary to protect patients and public health. Such a strategy is outlined in the Appendix of this report. The strategy addresses actions that can be taken by the AMA, by social medial companies, by publishers, state licensing bodies, credentialing boards, state and specialty health professional societies, by those who accredit continuing education to stop the spread of disinformation and protect the health of the public.

REPORT OF THE BOARD OF TRUSTEES

B of T Report 15-A-22

Subject: Addressing Public Health Disinformation

Presented by: Bobby Mukkamala, MD, Chair

Referred to: Reference Committee D

INTRODUCTION

At the November 2021 special meeting of the AMA House of Delegates, the House adopted Policy D-440.914, "Addressing Public Health Disinformation Disseminated by Health Professionals" which called on the AMA to study disinformation disseminated by health professionals and its impact on public health and present a comprehensive strategy to address this issue with a report back at the next meeting of the House of Delegates.

During the COVID-19 pandemic, the public health emergency was undoubtedly worsened and prolonged due to disinformation campaigns sowing distrust in vaccines, pharmaceutical interventions, and public health mitigation measures. Health professionals spreading disinformation lends credibility to specious claims.

For the purposes of this report, health professionals include, but are not limited to, those working in health care who maintain a professional license. Examples of licensed health care professionals include, but are not limited to: Doctor of Medicine or Doctor of Osteopathic Medicine, nurses, nurse practitioners, nurse-midwives, physician assistants, chiropractors, podiatrists, dentists, optometrists, pharmacists, clinical psychologists and clinical social workers. Health professionals may also include public health professionals, who may or may not be licensed health care professionals.

OVERVIEW OF DISINFORMATION

For the purposes of this report, the term "disinformation" is used to describe false or misleading information of which the author knows to be wrong and intends to cause harm.[1] Disinformation is often interchangeably used with "misinformation", however a key distinction between the two is the intent of the author. Misinformation is spread unwittingly, whereas disinformation is intentionally disseminated to confuse, deceive, or otherwise manipulate the reader. Misinformation is outside of the scope of this report as is the spread of disinformation by non-health professionals.

Example of Disinformation Campaigns

During the COVID-19 pandemic, disinformation has been among the utmost concerns, leading some to describe a secondary "infodemic" wherein permanent harm may be done to the trust in institutions due to the sheer volume of disinformation spread in a rapidly changing and sensitive environment.[2,3,4] Disinformation claims made by health professionals can be directly linked to topics such as the promotion of unproven COVID-19 treatments, false claims of vaccine side effects, and public health guidance that is not evidence-based.[5,6,7,8] Health professionals have been

involved in disseminating health-related disinformation, long before the COVID-19 pandemic, this includes promoting vaccine skepticism[9,10] and dangerous anti-cancer treatments.[11]

An illustrative case study for how health professionals have spread disinformation is around vaccinations. Vaccine hesitancy dates back to the 1700s and the practice of inoculation, particularly when vaccination was accompanied by government action.[12] These debates have centered around bodily autonomy and the role of the government in mandating immunizations. While the merits of these questions are debated by policymakers, the arguments for vaccination must be based in science. However, historically, this has not been the case, with numerous instances of health professionals engaging in disinformation tactics to achieve their desired political outcomes.

For example, a 1974 study falsely claimed that 36 children developed neurological side effects within 24 hours after receiving a routine diphtheria, tetanus, and pertussis (DTaP) vaccination.[13] Despite efforts by public health officials to combat the false information, the bell had already been rung, and many countries saw sharp declines in DTaP vaccine uptake, and some halted vaccination campaigns altogether.

Then, in 1998, a manuscript was published in *The Lancet* using fabricated data linking the measles, mumps, and rubella (MMR) vaccine to autism.[14] While the physician responsible for the fraudulent research ultimately had their medical license revoked and the paper was retracted, the impact it had on vaccine discourse and uptake was profound. One study found that this single manuscript falsely linking MMR vaccines to autism resulted in an immediate increase of about 70 MMR injury claims per month to the Vaccine Adverse Events Reporting System (VAERS), and a 10 percent increase in negative media coverage of vaccines.[15] The false connection between autism and vaccines has persisted and is often part of the core messaging in anti-vaccination campaigns.[16,17,18]

The troubling impact of health professionals creating and spreading vaccine disinformation in the context of the COVID-19 pandemic is discussed later within this report.

PROFESSIONAL RESPONSIBILITY OF HEALTH PROFESSIONALS

Ethical Obligations

Health professional associations have outlined standards of conduct that define ethical behavior. The AMA Principles of Medical Ethics state that a physician should continue to apply scientific knowledge and recognize the responsibility to participate in activities contributing to the improvement of the community and the betterment of public health.[19] Given the growing reliance and presence of health information on the internet, the AMA has also published *Code of Medical Ethics* Opinion 8.12, "Ethical Physician Conduct in the Media." This opinion outlines that although physicians who participate in the media can offer effective and accessible medical perspectives, they have an ethical obligation to consider how their conduct can affect their medical colleagues, other health care professionals, as well as institutions with which they are affiliated. Most importantly, it states that physicians will be taken as authorities when they engage with the media and therefore should ensure that the medical information, they provide is accurate and based on valid scientific evidence. Further, *Code of Medical Ethics* Opinion 10.1 states that even when a physician is in a role that does not involve directly providing care for patients in clinical settings, "physicians are seen by patients and the public, as well as their colleagues and coworkers as professionals who have committed themselves to the values and norms of medicine."

Finally, it has been suggested that health professionals also have an ethical obligation to correct false or misleading health information, share truthful health information, and direct people to

reliable sources of health information within their communities and spheres of influence.[20] In the modern information age, where the unconstrained and largely unregulated proliferation of false health information is enabled by the internet, health professionals have an ethical duty to actively participate in conversations about health and help correct false or harmful information.

Other health professionals have similar ethical standards. For example, the Ohio State Chiropractic Association Members' Code of Ethics states that chiropractors should act as members of a profession dedicated to the promotion of health, the prevention of illness and the alleviation of suffering. This includes guidance that chiropractors should exercise care when advertising to ensure the information is accurate, truthful, not misleading, false or deceptive, and is accurate in representing the chiropractor's professional status and area of special competence.[21]

Recently, the Boards of the American Pharmacists Association and the National Alliance of State Pharmacy Associations approved principles that are essential to fulfill a pharmacist's professional responsibilities. This includes using evidence-based guidelines when prescribing medications and emphasizing that pharmacists play an active role in reinforcing consistent and reliable public health messages while helping to provide accurate health-related information to patients in an era of misinformation.[22]

Trust in Health Professionals

It is critical to understand the role that health professionals acting in good faith play in the health information ecosystem. Multiple surveys have shown that health professionals are the most trusted sources of health information, particularly when compared to government institutions.[23,24] Data suggests that nine-in-ten U.S. adults (89 percent) have either a great deal or a fair amount of confidence in medical scientists to act in the public interest.[25] In 2018, the top three professions in the Gallup poll for honesty and ethics were nurses, medical doctors, and pharmacists.[26] Nurses were rated the highest, where 84 percent of people rated nurses' honesty and ethical standards as high or very high. Studies find that trust in health professionals lead to increased vaccination rates, whereas mistrust of health professionals was found to be a common theme amongst parents who lacked confidence in vaccines.[27,28] While trust is a complex, multi-faceted concept, the professional nature, high degree of training, and ability to connect to an individual are important factors for health professionals gaining and maintaining trust.

It should also be noted that health professionals are more than just experts in the public square. Many health professionals engage with the public as educators, advocates, entertainers and more. It is critical that future measures against disinformation preserve the totality of roles that health professionals may hold. Similarly, it must be respectful of the totality of thought that may exist within the profession and hold spaces for professional discourse that may challenge traditional thinking. While heterodoxy may undermine trust and allow for the spread of disinformation, it is often a necessary step before learning from historical mistakes. Actions taken that strengthen trust in health professionals will be undercut if they result in an overall retraction of health professionals from the public square, which may result in less credible voices filling the void. Policies and practices that promote the perception of inaction or indifference corrode trust similarly to bad behavior.[29]

IMPACT OF DISINFORMATION

Impact on Patients and the Public

The prevalence disinformation about COVID-19 has been fueled by social media. More than three quarters of U.S. adults either believe or are not sure about at least one of eight false statements about the COVID-19 pandemic or COVID-19 vaccines.[30] The same study found one-third believe or are unsure whether deaths due to the COVID-19 vaccine are being intentionally hidden by the government, and about three in ten each believe or are unsure whether COVID-19 vaccines have been shown to cause infertility. In addition, between a fifth and a quarter of the public surveyed believe or are unsure whether the vaccines can cause COVID-19 (25 percent), contain a microchip (24 percent), or can change DNA (21 percent).

The spread of disinformation regarding unproven medications to treat COVID-19 also led to direct patient harm. In the first eight months of 2021, the National Poison Data System reported an increase of over 150 percent in the number of calls made to poison control centers, with states such as Mississippi issuing alerts about the surge of calls from individuals overdosing on ivermectin.[31]

Impact on Minoritized Communities

When assessing the impact of disinformation spread by health professionals, it is also important to consider the disproportionate impact that it may have on different communities. Many of the most common COVID-19 disinformation campaigns require the reader to distrust institutions such as the federal government or the pharmaceutical industry.[32] For minoritized communities that have historically been failed by these same institutions, the initial belief that those in power may be untrustworthy is not as large of a logical leap.[33,34] These beliefs may be intergenerational and are reinforced by the multitude of injustices faced by minoritized communities in health care.[35,36] As such, any strategy for combating disinformation which does not center itself in restorative justice is unlikely to strengthen trust in any meaningful and lasting way.

Impact on the Health Profession

Disinformation spread by health professionals can have both direct and indirect impacts on health care and public health. In the above example of vaccine disinformation, health professionals spreading falsified research resulted in decreases in vaccine confidence and uptake resulting in outbreaks of preventable disease.[37] But it also corroded trust in health professionals which gave way to targeted harassment campaigns of those following the science.[38]

More difficult to measure are the indirect impacts. Studies have shown that an individual's trust in their health professional directly correlates to more positive health outcomes, due to factors such as more candid responses to personal questions and better adherence to treatment plans.[39] But when health professionals engage in actively spreading disinformation, there may be an overall corrosion of trust in health professionals.

Economic Impact

The spread of disinformation has had large economic impacts as seen during recent measle outbreaks and the COVID-19 pandemic. Studies show that the cost of a measles outbreak ranges from $9,862 to $1,063,936, with a median cost per case of $32,805.[40] In 2013, the New York City Department of Health and Mental Hygiene's response to a measles outbreak cost an estimated $395,000, which supported more than 10,000 hours of staff time along with other costs.[41] In 2019,

Clark County Public Health, in Washington state, spent nearly $865,000 responding to a measles outbreak. [42]

Data suggests that non-vaccination during the COVID-19 pandemic has caused harm of $1 billion per day and misinformation and disinformation has caused between 5 percent and 30 percent of this harm. [46] Further, misinformation and disinformation has caused between $50 and $300 million worth of total harm every day since May 2021.[46] These estimates demonstrate how mis- and disinformation contributes to the spread of disease and the effect both can have on the public health system. Finally, studies examining causality between mis- and disinformation and nonvaccination are limited. One estimate suggests that of the 43 million people in the U.S. who have chosen nonvaccination against COVID-19, 2 million to 12 million were unvaccinated because of misinformation or disinformation.[43] More research is needed to better understand the impact of disinformation on vaccination rates. Although the focus of this report is solely on disinformation, the currently available data on the economic impact does not distinguish between the cost of misinformation and disinformation.

HOW DISINFORMATION IS SPREAD

Social Media

It is impossible to discuss the spread of disinformation in modern times without mentioning social media. While disinformation existed long before the internet and social media became commonplace, it has acted as a multiplier of disinformation spread and a lightning rod for criticism. Platforms such as Twitter, Facebook, YouTube, Instagram and TikTok have all faced recent criticism over their handling of medical disinformation on their platforms.[44,45,46] Even Doximity, a platform targeted to credentialed physicians that does not allow anonymous users, has not been immune to concerns over disinformation during the COVID-19 pandemic.[47]

In the current environment, individuals often value convenience more than trust when making decisions about their health. For example, when individuals were surveyed about consumer behaviors regarding unregulated online pharmacies, approximately 1 in 4 Americans indicated that they would accept higher risk from purchasing at an illegal, unregulated online pharmacy if it was more convenient.[48]Alarmingly, prioritizing convenience over accuracy holds true for health professionals. Paradoxically, one survey found that only 2.2 percent of health professionals found social media to be a trustworthy source for health information, but 18.2 percent of the same cohort indicated that they get health information from it.[49]

Social media is a high-risk platform for receiving health information due to the main ways in which users are shown content: algorithmic recommendations. Most social media platforms utilize algorithms to promote content to the consumer in efforts to drive increased interaction with the site. For example, YouTube estimates that approximately 70 percent of all videos watched on their platform are through recommendations.[50] Researchers of social media platforms have shown that algorithms tend to prioritize metrics such as watch time, likes and comments, all of which favors content that elicits an emotional response like anger and reinforce previously held beliefs rather than promote factual accuracy.[51] For example, internal documents leaked from Facebook indicated that their algorithm prioritized the “angry face” emoji reaction higher than the “thumbs up” (“like”) reaction even when their own internal data suggested emotion-provoking content was more likely to contain misinformation.[52]

Amid intense criticism during the COVID-19 pandemic, some social media platforms began adjusting their algorithms to de-incentivize disinformation or to automatically include cautionary

statements on high-risk content and provide links to trusted source such as the Centers for Disease Control and Prevention (CDC) or World Health Organization.[53,54,55, 56] Many of these policies are too new to fully appreciate their impact, but preliminary studies suggest that tweaks to the YouTube algorithm dropped views on videos supporting conspiracy theories by up to 70 percent.[57] It should be noted, however, that this effect may not be durable – that is, content creators learned how to evade automated detection over time and the initial loss of views was partially recovered.

Social media companies at the end of the day are privately owned, profit-driven businesses. The algorithms were designed to maximize advertising revenue and user retention. Broad, sudden changes in policy that target disinformation may lead to an increase in competitors that market themselves as bastions of free speech in the marketplace of ideas.

The ideal role of health professionals in the social media landscape is unlikely to be one solely relying on reactive fact-checking. First, reactive fact-checking is unsustainable as it requires significantly more effort to do the research and provide refutations than it does to create the disinformation in the first place. Colloquially, this asymmetry of effort is referred to as "Brandolini's law".[58] Second, by the time disinformation reaches a qualified health professional who may be able to fact-check it, it is likely to have already had significant spread. Finally, reactive fact-checking can result in the "Backfire effect," in which some individuals are so invested in maintaining their viewpoint that external attempts to correct disinformation will instead make the reader *more* inclined to believe the disinformation.[59]

As such, combating disinformation spread by health professionals, particularly over social media, will require a three-pronged approach: deprioritizing disinformation in social media algorithms, affirming and empowering the role of reactive fact-checking, and addressing any underlying incentive structure for health professionals spreading health-related disinformation.

Traditional Media and Paywalls

When assessing the spread of health-related disinformation, it is important to understand where the underlying data come from. Disinformation does not necessarily imply that claims are entirely fabricated, but instead may rely on the distortion or intentional misrepresentation of otherwise valid figures. In the medical research ecosystem, this is commonly seen with the misrepresentation of *in vitro* results as holding significant value *in vivo*.

While the general public may not appreciate the nuance in medical research literature, health professionals should, and risk spreading disinformation when they sensationalize research claims. This is amplified further when health professionals are leaned on for their expertise in translating complex topics by media organizations. Like social media companies discussed above, traditional or online media companies often have the same financial motivations and accompanying tensions – sensationalized stories result in increased readership while well-sourced, measured journalism is expensive and time-consuming to create.[60,61] Unfortunately this results in trustworthy news increasingly being locked behind paywalls, with approximately 68 percent of U.S. news entities limiting free access to their content in 2019, an increase of 13 percent over 2 years.[62] As outlined above, this creates an ecosystem for low-quality, sensationalist websites without journalistic integrity to thrive due to the desire to value ease of access and convenience over perceived quality.

During the COVID-19 pandemic, some publications switched to a model in which public health information was published for free. While this led to an increase in available high-quality resources, it also required individuals to modify the routines they had built up over years of seeking out free information, which may have limited impact.

Peer-Reviewed Journals and Preprints

Academic research faces a similar problem as social media and traditional print journalism: convenient access trumps the perception of quality. During the COVID-19 pandemic, there has been an unprecedented surge in the number of academic articles published as "preprints," in which research articles are disseminated prior to peer-review in an academic journal.[63]

Under the traditional model, academic research is submitted to a journal, reviewed by an editor, and then sent to experts in the field for anonymized peer review. These peer reviewers will critically analyze the research for experimental structure and whether the conclusions offered are supported by the collected data. Peer review may result in the researchers being required to perform additional experiments to support their conclusions, or it may result in the research article being rejected outright from the journal. It serves as a critical check in the scientific process to enable high quality, trusted research, but it is often criticized as being unnecessarily slow and needlessly antagonistic.[64]

A preprint circumvents the peer review process by not being published in an academic journal and instead being uploaded to a freely accessible database. This is not a new phenomenon, but the push towards open access research and the appetite for up-to-date information during the COVID-19 public health emergency resulted in a surge in preprints, particularly in the life sciences. Preprints have been praised as a way of elevating younger researchers, reducing predatory publishing in which researchers may pay fees to less credible journals for favorable peer reviews, and generally being more accepting of negative findings.[65]

These benefits, however, require skipping peer review, meaning that the results may be less trustworthy, particularly for non-expert audiences that may not be able to critically evaluate experimental structures for things like adequate control groups. Depending on the author and the database, preprints may be type-set to imitate the look of common academic journals, and most are then assigned a Digital Object Identifier (DOI), which allows them to be tracked through academic databases such as Crossref and Datacite. The name preprint suggests that the article is in the process of undergoing peer review, but approximately 30 percent of life sciences preprints are never published.[66]

Preprints and paywalls represent a clear tension in solving the disinformation crisis. Access to an individual, high-quality life sciences journal can cost thousands of dollars, and research is spread across multiple journals in any given field. Yet free, easy-to-access preprints will often be the only resource accessed by both health professionals and the public seeking to understand complex issues even if they may be rife with errors, conflicts of interest or unsupported conclusions.

Incentives for Spreading Disinformation

Previous sections outlined why there is an audience for health disinformation content, but spreading disinformation requires there to be a party engaging with malice. For health professionals spreading health-related disinformation, this seems paradoxical. Most, if not all, health professionals take a professional oath to do no harm, and a misinformed public would seemingly make that job harder.

At first glance, health-related disinformation appears to be a highly fractured entity, as it is spread through a huge number of social media accounts and micro-targeted blog sites. However, deeper analysis reveals that the source of the various content is heavily centralized. For example, the

Center for Countering Digital Hate (CCDH) released a report in which they analyzed one month of anti-vaccine posts on social media, and found that nearly two-thirds of the claims (over 812,000 individual posts) could be traced back to twelve individuals, nicknamed the "Disinformation Dozen."[67] This is in general agreement with the public statements of social media platforms such as Doximity, which claim that less than one-tenth of one percent of their active users have been found to spread disinformation.[68]

Of the dozen individuals identified by CCDH, six have at one point held a license from a professional medical accrediting body, and at least two others represent themselves as health experts, albeit not from a credentialed profession. While it is impossible to infer intent from their public statements, spreading disinformation is a lucrative business for the Disinformation Dozen. The most common monetization model for health professionals spreading disinformation resembles the "influencer economy" born out of social media: monetizing their video channels and social media followings through advertisements, selling books containing medical disinformation, running subscription-based services which procure and disseminate disinformation, multi-level marketing schemes, public speaking tours, and paid media appearances.

Beyond the indirect routes of monetization, there are also instances of credentialed health professionals using disinformation to drive patients towards their medical practices. For example, one group currently under investigation by the House Select Subcommittee on the Coronavirus Crisis is believed to be charging upwards of $700 per patient for telehealth consults which were advertised to be with health professionals more likely to prescribe controversial, medications not authorized or approved to prevent or treat COVID-19.[69] The group is estimated to have generated more than $6.7 million in a 3-month period in 2021.

As such, any strategy to combat health professionals spreading disinformation must be two-fold: it must address their ability to find an audience, and it must address their ability to monetize an audience they do find.

AUTHORITY OF LICENSING AND CREDENTIALING BOARDS

Authority of Licensing Boards

Health professional boards exercise two main regulatory functions: licensure and discipline.[70] Licensure requires a demonstration of educational attainment and knowledge as evidence of competence at the time when health professionals begin practicing. Discipline, in contrast, oversees ongoing practice in a state. Health professionals can be disciplined for numerous misbehaviors, from business offenses to problems in the quality of care. Disciplinary actions range in severity from non-public warning letters, to public reprimand, to suspension or revocation of the license to practice. Disciplinary action is intended to protect the public directly by removing problematic health professionals from practice, restricting their scope of practice, or improving their practice. Various state practice acts establish the boards' mission, structure and power, and the administrative procedure acts govern many health professional board processes, especially for promulgating regulations and holding hearings. Legislation also provides boards with their budgets and staffing authority. The structure and authority of medical boards vary from state to state.[71,72,73] Some boards are independent and maintain all licensing and disciplinary powers, while others are part of a larger umbrella agency, such as a state department of health, exercising varied levels of responsibilities or functioning in an advisory capacity.[74,75] Despite the varying scope and authority of boards, many health professional boards state that the use of a false, fraudulent, or deceptive statements in any connection with their practice, is ground for discipline.

Limitations to Board Authority

Unfortunately, boards face various impediments to their disciplinary powers. These include low funding and staffing, insufficient legal framework (i.e., too little statutory priority for public protection, no explicit quality ground for discipline, high legal standards of proof),[76] high costs of investigation and formal legal process, differing authority by state, and fear of litigation by aggrieved health professionals. Medical boards have faced some criticism. Some have argued that state medical boards have significant discretion over the investigative and disciplinary process in responding to complaints. However, they have no proactive capacity to monitor physicians outside of formal and cumbersome complaint processes, and during the investigative period, physicians under scrutiny are free to continue to spread disinformation and abuse their medical credentials without restraint.[77]

First Amendment Considerations

The Federation of State Medical Boards (FSMB) has warned physicians that spreading disinformation about the COVID-19 vaccine could lead to the suspension or revocation of their medical license.[78] However, licensing boards are state actors and are subject to the First Amendment and are therefore limited in their ability to penalize health professionals based on the content of their speech. The First Amendment's protection of freedom of speech applies to all branches of government, including state licensing boards.[79] Based on existing Supreme Court precedent, courts are unlikely to look favorably on license revocations based on statements a health professional makes in a non-clinical context, even when those statements would constitute malpractice if they were made to a patient under care. This is because the board would have the burden of establishing not only that the interests it seeks to promote are compelling, but also that disciplinary action is the least restrictive means of achieving those goals.

In 2018 the Supreme Court elaborated on the First Amendment's application to laws restricting professional speech in *National Institute of Family and Life Advocates (NIFLA) v. Becerra*.[80] In that case, the Court struck down a California law that, required "crisis pregnancy centers" that held licenses as health care facilities to notify women that the state provided free and low-cost pregnancy-related services, including abortions. The Supreme Court concluded that laws regulating professional speech are exempt from normal First Amendment standards. This suggested that the First Amendment places few, if any, restrictions on regulations of professional conduct.

This case has important implications for the scope of licensing boards' disciplinary authority. It implies that boards may have considerable discretion when disciplining health professionals for statements made in connection with medical procedures, because these actions would constitute the regulation of professional conduct. However, because a health professionals' statements on platforms such as social media are unconnected with any medical procedure, disciplinary actions based on those statements would be subject to normal First Amendment standards.

ACTIONS TAKEN BY HEALTH PROFESSIONAL BOARDS

Federation of State Medical Boards

The FSMB released a statement in response to a dramatic increase in the dissemination of COVID-19 vaccine misinformation and disinformation by physicians and other health care professionals on social media platforms, online, and in media. FSMB noted that the spread of mis- and disinformation is grounds for disciplinary action by state medical boards, that could result in suspension or revocation of their medical license.[83] Since the release of that statement at least 15

boards have published statements about licensees spreading false or misleading information, and at least 12 boards have taken disciplinary action against a licensee for spreading false or misleading information.[81] The FSMB also released data from their 2021 annual survey which documented how medical boards are being impacted by, and addressing, physicians and other health care professionals who spread false or misleading information about COVID-19. The survey found that 67 percent of state medical boards have experienced an increase in complaints related to licensee dissemination of false or misleading information, 26 percent have made or published statements about the dissemination of false or misleading information, and 21 percent have taken a disciplinary action against a licensee disseminating false or misleading information.[83]

American Board of Medical Specialties

In 2021, the American Board of Medical Specialties (ABMS) released a statement stating that the spread of misinformation is harmful to public health, is unethical and unprofessional, and may threaten certification by an ABMS Member Board.[82] Further, the American Board of Emergency Medicine[83], the American Board of Pathology[84] and a joint statement by the American Boards of Family Medicine, Internal Medicine and Pediatrics[85] have stated that health professionals who are certified by specialty boards and spread disinformation place their certifications at risk.

National Council of State Boards of Nursing

The National Council of State Boards of Nursing alongside multiple nursing organizations has also released a policy statement noting that the dissemination disinformation pertaining to COVID-19, vaccines, and associated treatments through verbal or written methods including social media may be disciplined by nursing boards and may place their license in jeopardy.[86]

Pharmacy Boards

The American Pharmacists Association as well as various state boards have noted that inappropriately prescribing or dispensing medications that are not approved to prevent or treat COVID-19 could be considered unethical and unprofessional conduct and may violate board rules.[87,88,89,90]

LEGISLATIVE EFFORTS SURROUNDING DISINFORMATION

Federal Efforts

Various federal efforts have been taken to address disinformation. For example, the CDC has published strategies for communicating accurate information about COVID-19 vaccines, responding to gaps in information, and confronting misinformation with evidence-based messaging from credible sources.[91] The Surgeon General of the United States also published a report on strategies to help slow the spread of health misinformation during the COVID-19 pandemic and beyond. This includes strategies that major players can take including the government, health organizations, and individuals to address misinformation. [92]Building upon this report, the Surgeon General is now collecting data from technology companies and personal experiences about misinformation during the COVID-19 pandemic.[93] Further, Senator Chris Murphy (D-Conn.) and Senator Ben Ray Luján (D-N.M.) will introduce a bill promote public education on health care through a new committee in HHS. The Promoting Public Health Information Act will create the Public Health Information and Communications Advisory Committee, a group within HHS specializing in public health, medicine, communications and national security.[94]

State Efforts

Given the growing impact of disinformation on the COVID-19 pandemic, state legislators have introduced bills to combat disinformation. For example, California's AB 2098 (2022), would codify that licensed physicians disseminating or promoting misinformation or disinformation related to COVID-19 constitutes unprofessional conduct that should result in disciplinary actions by the Medical Board of California or the Osteopathic Medical Board of California. However, these efforts by states have been met with great resistance. For example, Tennessee's medical licensing board voted to remove a policy opposing coronavirus misinformation from its website.[95] At the time of writing, 14 states have proposed legislation to weaken medical regulatory boards authority and their ability to discipline doctors who spread false information or treat patients based on it.[96] In response, the FSMB has released a statement in opposition to a growing legislative trend aimed at limiting state medical boards' ability to investigate complaints of patient harm.[97]

AMA POLICY AND ACTIONS TO ADDRESS DISINFORMATION

Existing AMA Policy

AMA Policy D-440.914, "Addressing Public Health Disinformation Disseminated by Health Professionals, "calls on the AMA to collaborate with relevant health professional societies and other stakeholders: (a) on efforts to combat public health disinformation disseminated by health professionals in all forms of media and (b) to address disinformation that undermines public health initiatives; and (2) study disinformation disseminated by health professionals and its impact on public health and present a comprehensive strategy to address this issue. Existing Policy D-440.915, "Medical and Public Health Misinformation in the Age of Social Media," encourages social media companies to further strengthen their content moderation policies related to medical and public health misinformation, including, but not limited to enhanced content monitoring, augmentation of recommendation engines focused on false information, and stronger integration of verified health information; (2) encourages social media companies to recognize the spread of medical and public health misinformation over dissemination networks and collaborate with relevant stakeholders to address this problem as appropriate, including but not limited to altering underlying network dynamics or redesigning platform algorithms. The policy further calls on the AMA to continue to support the dissemination of accurate medical and public health information by public health organizations and health policy experts and work with public health agencies in an effort to establish relationships with journalists and news agencies to enhance the public reach in disseminating accurate medical and public health information.

Policy H-460.978, "Communication Among the Research Community, the Media and the Public," calls for increased cooperation between the scientific community and the media to improve the reporting of biomedical research findings and to enhance the quality of health care information that is disseminated to the public. The policy notes that both scientists and journalists should communicate biomedical research findings accurately and in an appropriate context. Journalists should include information on the limitations of research and should be cognizant of the emotional content of the health news they report. Furthermore, academic institutions, private industry, individual scientists, and funding agencies should not publicly announce results of biomedical research unless they have received critical review by others in the scientific community.

The AMA as a Public Trust

Disinformation spread by health professionals is not a new phenomenon. In 1906, the AMA formed the Propaganda Department (later renamed the Bureau of Investigation and subsequently

the Department of Investigation) to combat unscrupulous medical claims, often by those with professional credentials.[98, 99] While the public's trust in many institutions has waned during the COVID-19 pandemic, people still trust their doctors and doctors trust the AMA. In his November 12, 2021, address to the AMA House of Delegates, Dr. Madara noted that, "[t]he AMA exists to benefit the public, but we do so in a very particular way—by being the physicians' powerful ally in patient care. We serve the public by serving those who care for the public. Supporting physicians and improving our nation's health has been our focus since 1847."[100]

Following the onset of the pandemic and the growing negative effect of disinformation on public health initiatives to combat COVID-19 the HOD adopted Policy D-440.921, "An Urgent Initiative to Support COVID-19 Vaccination and Information Programs," which provided that that AMA would institute a program to promote the integrity of a COVID-19 vaccination information by educating the public about up-to-date, evidence-based information regarding COVID-19 and counter misinformation by building public confidence, as well as educating physicians and other healthcare professionals on means to disseminate accurate information and methods to combat medical misinformation online. This directive informed the AMA's active participation in the COVID Collaborative in partnership with the Ad Council.

The AMA has also continued to issue press statements, noting the harm of mis- and disinformation on the pandemic, has urged the CEOs of six leading social media and e-commerce companies to assist the effort by combatting misinformation and disinformation about the vaccine on their platforms, and sign on to joint statements addressing mis- and disinformation in prescribing treatments for COVID-19. The AMA has remained a source of trusted information with the COVID-19 resource center which provides physicians with up-to-date information about COVID-19 news, research, vaccines and therapeutics.

Council on Ethical and Judicial Affairs and AMA membership

Further, the AMA's Council on Ethical and Judicial Affairs (CEJA) has two primary responsibilities. Through its policy development function, it maintains and updates the AMA *Code of Medical Ethics*, and through its judicial function, it promotes adherence to the Code's professional ethical standards. CEJA has continued to publish *Code of Medical Ethics* opinions considering the ethical role of physicians in media as well as in non-clinical settings. CEJA also has the authority to expel or deny membership to the AMA, if the physician has been disciplined by their state board and based upon the egregiousness of the physician's conduct.

CONCLUSION

During the COVID-19 pandemic, disinformation has been of the utmost concern, leading some to describe a secondary "infodemic," wherein permanent harm may be done to the trust in institutions due to the sheer volume of mis- and disinformation spread in a rapidly changing and sensitive environment. Disinformation claims made by health professionals can be directly linked to topics such as the promotion of unproven COVID-19 treatments, false claims of vaccine side effects, and public health guidance that is not evidence-based.

Physicians and health professionals have an ethical and professional responsibility to represent current scientific evidence accurately. The spread of health-related disinformation is unethical and unprofessional and harmful to patients and the public. Health professionals who participate in the media can offer effective and accessible medical perspectives, and they have an ethical obligation to consider how their conduct can affect their medical colleagues, other health care professionals,

as well as institutions with which they are affiliated. Health professionals are trusted messengers and the spread of disinformation by a few has implications for the entire profession.

Social media platforms are a known source of disinformation and have been under such intense scrutiny recently that they may be amenable to reforms to bolster their credibility. Individual health professionals tend to be good at fact-checking things they encounter, but by the time something has gone viral, it is far too late. Health information should be treated differently and should be pre-emptively screened prior to it going viral. Health information is rarely so urgent that preventing it from going viral will impact a social media's audience and/or ability to stay socially relevant. Disinformation spreads because it is profitable to do so. Cutting off access to a potential customer base should be of the utmost importance as it is also clear that those who spread disinformation are benefitting from it financially.

Preprints and paywalls represent a clear tension in solving the disinformation crisis. Access to an individual, high-quality life sciences journal can cost thousands of dollars, and research is spread across multiple journals in any given field. Yet free, easy-to-access preprints will often be the only resource accessed by both health professionals and the public seeking to understand complex issues even if they may be rife with errors, conflicts of interest or unsupported conclusions. Best practices around paywalls and preprints to improve access to evidence-based information and analysis are needed.

The dissemination of health-related disinformation by health professionals is a complex topic and one for which a comprehensive strategy will be necessary to protect patients and public health. Such a strategy is outlined in the Appendix. The strategy addresses actions that can be taken by the AMA, by social medial companies, by publishers, state licensing bodies, credentialing boards, state and specialty health professional societies, by those who accredit continuing education to stop the spread of disinformation and protect the health of the public.

RECOMMENDATIONS

The Board of Trustees recommends that the following be adopted, and the remainder of this report be filed.

1. That Policy D-440.914, "Addressing Public Health Disinformation Disseminated by Health Professionals," be amended by addition and deletion to read as follows:
   Our AMA will: (1) collaborate with relevant health professional societies and other stakeholders: (a) on efforts to combat public health disinformation disseminated by health professionals in all forms of media, ~~and~~ (b) ~~to~~ address disinformation that undermines public health initiatives ~~by~~, and (c) implement a comprehensive strategy to address health-related disinformation disseminated by health professionals that includes:
   (1) Maintaining AMA as a trusted source of evidence-based information for physicians and patients.
   (2) Ensuring that evidence-based medical and public health information is accessible by engaging with publishers, research institutions and media organizations to develop best practices around paywalls and preprints to improve access to evidence-based information and analysis.
   (3) Addressing disinformation disseminated by health professionals via social media platforms and addressing the monetization of spreading disinformation on social media platforms.
   (4) Educating health professionals and the public on how to recognize disinformation as well as how it spreads.

(5) Considering the role of health professional societies in serving as appropriate fact-checking entities for health-related information disseminated by various media platforms.
(6) Encouraging continuing education to be available for health professionals who serve as fact-checker to help prevent the dissemination of health-related disinformation.
(7) Ensuring licensing boards have the authority to take disciplinary action against health professionals for spreading health-related disinformation and affirms that all speech in which a health professional is utilizing their credentials is professional conduct and can be scrutinized by their licensing entity.
(8) Ensuring specialty boards have the authority to take action against board certification for health professionals spreading health-related disinformation.
(9) Encouraging state and local medical societies to engage in dispelling disinformation in their jurisdictions.
~~; and (2) study disinformation disseminated by health professionals and its impact on public health and present a comprehensive strategy to address this issue with a report back at the next meeting of the House of Delegates~~. (Modify Current HOD Policy)

2. That Policies D-440.914, "Addressing Public Health Disinformation Disseminated by Health Professionals, "D-440.915, "Medical and Public Health Misinformation in the Age of Social Media," and H-460.978, "Communication Among the Research Community, the Media and the Public" be reaffirmed (Reaffirm HOD Policy).

Fiscal Note: $100,000

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APPENDIX

Comprehensive Strategy Against Medical & Public Health Disinformation

Goal	Objectives/Tactics
Maintain AMA as a trusted source of evidence-based information for physicians and patients.	• Provide evidence-based information to physicians. • Undertake public campaigns (like the COVID Collaborative on vaccines) in areas where disinformation is causing patients harm. • Educate health professionals and the public on how to recognize disinformation as well as how it spreads. • Continue to use the AMA's voice to speak out against the spread of health-related disinformation being spread by health professionals. • Maintain that CEJA has the authority to revoke AMA membership for those physicians spreading health-related disinformation.
Ensure that evidence-based information is accessible.	• Engage with publishers, research institutions and media organizations to develop best practices around paywalls and preprints to improve access to evidence-based information and analysis. • Discourage the dissemination of results of biomedical research unless they have received critical review by others in the scientific community.
Address disinformation disseminated by health professionals via social media platforms.	• Encourage health professionals' usage of social media platforms with robust disinformation policies in place. • Encourage social media platforms to automatically flag health information for de-prioritization in the sharing algorithm (and/or temporarily disabling the "Share" functionality on websites like Facebook) until it has been affirmatively checked by an appropriate fact-checking entity • Consider the role of health professional societies in serving as appropriate fact-checking entities.
Address the monetization of spreading disinformation on social media platforms.	• Affirm that all speech in which a health professional is utilizing their credentials is professional conduct and can be scrutinized by their licensing entity. This includes public appearances, social media posts, books, online videos, etc. • Health professionals should be responsible for representations of their professional recommendations in publications. • Upon license renewal, health professionals should be required to disclose all activities in which they have profited from their credential, including activities in which their credential lends credibility as an expert.

Ensure licensing boards have the authority to take disciplinary action against health professionals spreading health-related disinformation.	• Advocate for licensing boards to have authority to discipline health professionals spreading health-related disinformation. • Encourage increased transparency regarding the types of complaints referred for investigation, the current status of complaints in the investigation process, and what level of action is taken as a result of investigations. • Expedite timelines to process complaints in the domain of public health disinformation during public health emergencies.
Offer continuing education for health professionals who serve as fact-checker to help prevent the dissemination of health-related disinformation.	• Encourage appropriate accrediting bodies to provide health professionals with continuing education credit (or equivalent accreditation maintenance) for engaging with fact-checking organizations. This could be similar to current CME policies which allows health professionals to get credit for peer-reviewing literature. • Encourage trainings to be developed and offered to health professionals on how to address disinformation in ways that account for patients' diverse needs, concerns, backgrounds, and experiences.
Ensure medical specialty boards have the authority to revoke the certification of health professionals for spreading health-related disinformation.	• Support the authority of medical specialty boards in taking action against certification due to a diplomate engaging in unethical and unprofessional behavior by spreading disinformation that is harmful to public health. • Encourages medical specialty boards to work with social media platforms to verify and elevate credible sources of health information.
Encourage state and local medical societies, and their equivalents for other health professional organizations, to engage in dispelling health-related disinformation in their jurisdictions.	• Partner with community groups and other local organizations to prevent and address health disinformation.