



# Do we need the criminalization of medical fake news?

Kamil Mamak<sup>1</sup>

Accepted: 9 December 2020 / Published online: 4 January 2021

© The Author(s), under exclusive licence to Springer Nature B.V. part of Springer Nature 2021

## Abstract

Uncontrolled access to information on the Internet has many advantages, but it also leads to the phenomenon of fake news. Fake news is dangerous in many spheres, including that of health. For example, we are facing an increase in the amount of vaccine hesitancy. This has been considered by the World Health Organization in 2019 as one of the greatest threats to public health. This specific phenomenon is linked with the spread of information on the Internet around that issue. In this paper, I discuss a proposition of new crime, which has the aim of fighting medical fake news by stopping its spread. This proposition should be considered only if other non-criminal measures are inefficient. The proposal is “Whoever publicly disseminates information evidently discrepant with medical knowledge is subject to a penalty.”

**Keywords** Fake news · Disinformation · Criminalization · Public health · Medicine · Vaccine hesitancy

## Introduction

Melvin Kranzberg, a historian of technology, has famously said, “Technology is neither good nor bad; nor is it neutral” (Kranzberg 1986). The same can be said of the Internet. There are undeniable examples of the positive impacts of the Internet on our lives. However, it also allows for the creation of a sphere for antisocial behavior. One negative phenomenon on the Internet is fake news. Fake news was known at the beginning of the printing press in the nineteenth century (Noor 2017). However, in contemporary times it has started to play a more important role, one significant enough for *fake news* to be chosen as a “word of the year” in 2017 (Meza 2017). Fake news is also the bane of the Covid-19 era (Apuke and Omar, 2020; Orso et al. 2020; Pennycook et al. 2020).

Defining fake news is not an easy task; several researchers have tried to deal with this problem (Egelhofer and Lecheler 2019; Tandoc et al. 2018). Some use that term as an umbrella term linking many types of fake news (such as false news, polarized content, satire, misreporting, commentary, persuasive information, and citizen journalism) (Molina

et al. 2019). Some emphasize the differences between misinformation and disinformation (Southwell et al. 2017). In the article in *Science*, the definition of “fake news” was

fabricated information that mimics news media content in form but not in organizational process or intent. Fake-news outlets, in turn, lack the news media’s editorial norms and processes for ensuring the accuracy and credibility of information. Fake news overlaps with other information disorders, such as misinformation (false or misleading information) and disinformation (false information that is purposely spread to deceive people) (Lazer et al. 2018).

Fake news can play a significant role in humans’ lives wherever it is observed. Examples of its impact include Brexit and the election of Donald Trump (Rose et al. 2017). Furthermore, the rise of far-right populist movements in the world has been possible due to media policy failure; unregulated digital platforms have enabled high visibility for such phenomena (Freedman 2018). However, fake news is not limited to politics. It can play a role in other spheres of life: the news related to health is also the target of misinformation campaigns (Thompson and Krishna 2019). The popularity of fake news is a part of the anti-intellectualist approach (which belittles the role of experts) (Peters 2019). In this article, I propose an argument for the criminalization of the

---

✉ Kamil Mamak  
kamil.mamak@uj.edu.pl

<sup>1</sup> Department of Criminal Law, Faculty of Law and Administration, Jagiellonian University, Olszewskiego 2 Street, 31-007 Kraków, Poland

dissemination of medical fake news.<sup>1</sup> This type of fake news leads to negative consequences no less severe than in politics. This is because it impacts one of the most protected values in the legal system: human health. Often, there would be no medical fake news without research misconduct, which should be considered the moral and legal responsibility of dishonest scientists. This this paper is not about that. Rather, it focuses on the spread of information and the potential responsibility of people contributing to making medical fake news more visible, whether the person who is disseminating such information creates it themselves or merely shares it publicly. This proposition should only be considered if other non-criminal measures do not work.

This article is structured as follows: I begin with a discussion of medical fake news. The next section explains the process of the criminalization of anti-social behaviors. This this section I argue that creating and sharing fake news in the area of health requires legislative intervention to create an offence aiming to stop the spread of misinformation. In the following section, I present and discuss my propositions for such provisions. Then, I address some potential objections connected with the issue of freedom of speech. The article ends with conclusions.

## Medical fake news

In this article, I use the term “medical fake news,” which is used in the literature (Packer 2017; Waszak et al. 2018). However, there are other names for this phenomenon. Thompson and Krishna have discussed misinformation in health contexts and have defined it as the “acceptance of false or (scientifically) inaccurate data as useful (a) despite exposure to (scientifically) accurate data, (b) in the absence of accurate data or messages to the contrary, or/and (c) within historical or contextual legacies” (Thompson and Krishna 2019, p. 10). All earlier definitions presented in this paper (“fake news” or “medical fake news”) could not be used for the purpose of the legislation. This is because, firstly, they are too ambiguous. Secondly, the definition needs to be coherent with the legal system in which the proposition is introduced. It is especially crucial in criminal law, where citizens need to know which behaviors are prohibited and which are allowed. Therefore, we need to create a distinct, more straightforward definition. “Medical fake news,” in the context of this paper, should be understood as any “information discrepant with medical knowledge.” This does not mean that this definition is free of defects, but it is written in the language of criminal law, with terms that have

existing legal meaning. This definition is developed in the section concerning legislative propositions.

Medical fake news was—like “regular” fake news—also present in public spheres in other media before the Internet era. Mazur, for example, has described misinformation in the health context in the news on biomedical science in tabloids. He has also discussed the issue of publishers’ responsibility for such content and has concluded that if the fake news does not harm or defame identifiable individuals, the law is not breached (Mazur 1999). Part of the problem is also predatory journals, in which scientific standards are not met (ten Have and Gordijn 2017). Due to a lack of a high standard of review, they allow the publishing of articles that could be classified as medical fake news. One of the most disgraceful campaigns of disinformation in medicine was launched by the tobacco industry, which used scientists to try to “prove” that cigarettes were safe (Oreskes and Conway 2011). The most widely acknowledged example of medical fake news in social media is the explosion of anti-vaccination messaging (Terrasse et al. 2019). The Internet is crucial in the spread of the anti-vaccination campaign (Numerato et al. 2019). However, vaccination hesitancy is much older than the Internet. There are historical examples of vaccine laws from the nineteenth century; similar attitudes toward vaccines were present also at that time (Barilan 2020; Durbach 2005).

I focus on the example of medical fake news linking autism and vaccinations as an illustration of the general problem. Claiming that there is a link between vaccines and autism (which antivaccination movements do) is considered the most significant medical fake news (Thompson and Krishna 2019, p. 7). The explosion of information on this topic is connected to Andrew Wakefield’s withdrawn paper in *The Lancet*, which has been considered the greatest scientific fraud in history (Park 2012). Many potential factors help the spread of such news. In the current state of vaccine misinformation, the factors that facilitate its spreading include the movement’s high-profile supporters (such as Jim Carrey and Donald Trump) and the fact that vaccines contain dangerous ingredients, which is a foothold for liberty-related objections (Krishna 2018). However, the role of the Internet and social media cannot be overestimated in this matter. Vaccine hesitancy is considered responsible for a decline in vaccine coverage and an increasing risk of vaccine-preventable disease outbreaks and epidemics. One of the main factors contributing to low immunization coverage is fake news (Dubé et al. 2013), for which the Internet is a natural environment. Such information has had real-life outcomes and led to a reduction in child immunization rates (Aquino et al. 2017; Carrieri et al. 2019; Dubé et al. 2015; Jolley and Douglas 2014; Jones et al. 2012).

Studies among parents who refuse to vaccinate their children have revealed that one of the reasons for this is reading information about vaccines (such as information linking

<sup>1</sup> The idea of criminalization of medical fake news I presented in a popular science blog in Polish, see: Mamak (2020a, b).

vaccination with autism) (Smith et al. 2011). Other studies have indicated that parents who vaccinated their children were most likely to be informed about vaccines by a health professional and less likely to research using the Internet (Dubé et al. 2012) (which plays a significant role in disseminating anti-vaccination information) (Kata 2010). The large-scale study by the Betsch team has demonstrated that accessing vaccine-critical websites for only five to ten minutes increases the perception of the risk of vaccinating and has resulted in negative perceptions towards the risk of vaccinations and a lowering of intention to vaccinate (Betsch et al. 2010). The results of the spread of such information are horrifying: measles cases in 2018 increased by 30% globally, and the World Health Organization considered vaccine hesitancy one of the major threats to global health in 2019.<sup>2</sup>

In summary, fake information has the potential to contribute to vaccine hesitancy. Even journalists reporting on this topic who demonstrate both views in a balanced way can lead to a decline in vaccine intentions (Dixon and Clarke 2013). Therefore, if the presence of such information is problematic, such information should not be available. To make medical fake news invisible on social media, people should not interact with such news, because every interaction with it (tweet, share, vlog, or blog note) helps it spread, which therefore indirectly increases the risk of spreading diseases. One study has revealed that misinformation on social media sites may hinder disease prevention efforts (Sommariva et al. 2018). When considering the ordinary individual spreading medical fake news on the Internet, it is difficult to see the potential of danger of his or her activity. There is a risk of trivializing the impact of individual actions in relation to medical fake news; such actions can be falsely considered insignificant. At the same time, people in general could be terrified of the whole phenomenon of the increasing impact of medical fake news because they see the growing number of vaccine-preventable diseases. There is inconsistency in that logic. In fact, the phenomenon consists of the combined actions of individuals. To stop this dangerous phenomenon before it obtains even more influence on reality, we should stop the individuals who are contributing to it: we should stop the individuals spreading medical fake news. There are many potential ways to bridge the force of the impact of medical fake news, but these are not as effective as we would like. I believe that we should consider the most far-reaching measure: the introduction of criminal responsibility for the dissemination of such news. The aim of this new crime is to stop the spread of such news, and therefore stop the consequences that are inseparably connected with it (such as vaccine hesitancy and the increase in vaccine-preventable illnesses).

<sup>2</sup> Ten threats to global health in 2019.

## Criminalization

Criminalization is a process of designating a behavior as a crime. It is often an overused instrument of policy, especially in the time of penal populism (Pratt 2006). It can lead to overcriminalization (Husak 2009), and in consequence to mass incarceration (Chiao 2017; Fondacaro and O'Toole 2015; Reiter 2017; Schoenfeld 2018). However, not every criminalization should be treated as an unnecessary legislative intervention. If there is a sphere that needs criminal law intervention, the state should react to realize its primary goal (protecting its citizens). In addition, Harel has considered the duty of the state to criminalize violations of individuals' basic rights and liberties. He has argued that the state has not only an obligation to protect citizens against such violations but also the duty to criminalize them (Harel 2015). He has argued that "criminalization is a form of public acknowledgement of the wrongfulness of violations of the right to life and liberty." (Harel 2015, p. 21) There are many objections to the criminalization of certain behaviors as a tool for resolving social problems (McNamara et al. 2018), but sometimes it is a necessary instrument.

Social reality is in the process of constant change, and the law must be suited to this. If there are new processes with the potential for harming people, the law should participate and make such processes stop. For example, This was the case when computers became part of our everyday lives. There was a process of criminalization of behaviors connected with the abuse of computers (Hollinger and Lanza-Kaduce 1988). Before the era of computers, there was no need to create such provisions. The changing reality forced states to criminalize some behaviors connected with new phenomena.

Malsch has analyzed legal literature and identified four questions that have been developed to determine the need for new criminal provisions: "Is there a problematic situation that requires a response? Is there a role for the state? Are any adequate non-criminal responses available? Is criminal law an adequate response?" (Malsch 2007) I now refer to these questions.

### Is there a problematic situation that requires a response?

This concerns a problematic situation that requires legislative intervention. I believe that the dissemination of medical fake news information is problematic. I said that the dangerous phenomenon of vaccine hesitancy results from the collective actions of individuals. He dissemination of medical fake news has real-life consequences such as vaccine hesitancy, which is one of the threats to global health.<sup>3</sup>

<sup>3</sup> Ten threats to global health in 2019.

In the previous section, I focused on the description of the problem. One conclusion is that the accessibility to medical fake news is problematic. The possible role of the state is to stop the spread of such information. In other words, if the increasing number of vaccine-preventable diseases relates to the easy accessibility of fake information about that matter, it means that the process of making such information more visible is socially dangerous and therefore should be stopped.

### Is there a role for the state?

This problem is mainly focused on whether the persons involved can solve the problem in a satisfactory way. This may be with or without the engagement of the authorities (Malsch 2007, p. 202). It does not seem possible to stop the dissemination of medical fake news without the state's intervention. No private actor has the power to stop the spread of this type of information. There is a need for a legal framework to enforce certain behaviors. If there is no infringement of legal norms, then there are limited measures to block or delete such news. Technological platforms can act by adopting certain policies that forbid spreading medical fake news, but it is still possible to create or publish information in other places of the web. I believe that this criterion is met in this problem.

### Are any adequate non-criminal responses available?

The third criterion is connected to the belief that the criminal law should be *ultima ratio*—that it should be used as the last resort when measures from other branches of law are unable to achieve the same goal (Ouwkerk 2012). Before suggesting solving a problem using criminal law, other measures that could be helpful in this matter should be discussed (i.e., we should consider non-criminal measures).

One non-criminal instrument is education. Education has the potential to stop spreading medical fake news; if people do not believe such information, they will not disseminate it. Education can be also used to reverse the belief in fake news. Studies indicate that it is somewhat possible to correct misinformation and change the beliefs of people exposed to such information (Walter and Murphy 2018). However, the full effect is not guaranteed. The dangers of spreading false information in the field of medicine are demonstrated in the example of Wakefield's fake paper, in which a causative link between measles vaccination and autism was described. The paper was published in *The Lancet* and later retracted. Though the article was retracted, and despite the availability of other research demonstrating no such link, it was too late to stop the paper's devastating impact on individual decisions on vaccination. This occurred not only in case of measles but with all vaccines (Sansone 2018). It is hard

to eradicate such information, and it has been proven by researchers who examined the information shown in many versions of Google about the vaccine and autism. Those researchers discovered that negative information is still available in the top ten results in some localized versions of Google (Arif et al. 2018). There is a problem with how people can be educated on that topic and who should do the educating. Some have indicated that scientists have the duty to fight fake news (Grech 2017; Merchant and Asch 2018). Sarr and Behrns have claimed that the fight against misinformation in the field of medicine relies on physicians and surgeons; this fight is one of their responsibilities (Sarr and Behrns 2019). It is pointed out that scientists should participate in the discussion on social media where medical fake news is discussed (Reinisch et al. 2019). The education process requires a permanent presence on the web and a willingness to repeatedly answer the same questions. We need to create better conditions for communication between scientists and the public. If scientists do not communicate their findings themselves, there is a risk that the media may distort their results. Perhaps scientists should be more encouraged and rewarded for their engagement in public discussion on science. What is more, scientific findings should be more easily accessible for the public, especially if they come from studies financed with public money. Education is one possible way to neutralize the impact of medical fake news. However, according to Kata, it has been proven ineffective.<sup>4</sup> Therefore, education is not a powerful enough tool to stop this problem.

Another possible solution to at least part of this problem is the use of policies by tech giants, whose algorithms can also contribute to the spread of medical fake news (Arif et al. 2018). Studies suggest that the implementation of a policy to fight fake news introduced on Facebook after the U.S. election in 2016 may have been responsible for a decrease in users' interactions with such stories (Allcott et al. 2019). However, as mentioned earlier, the policies of tech giants can only partially stop such information. There are no preventive mechanisms on social media; content is published without the permission of the owner of the platform. Such content can be—at most—deleted after publication. This is not sufficient to stop this phenomenon. The studies cited have shown that the problem was not resolved completely, but only to a limited degree (Allcott et al. 2019).

Finally, there are several ideas when considering non-criminal legal instruments. Policies could be used to impact vaccination behavior. For example, some argue that vaccinations should be a requirement to be able to attend school (Silverman and Hendrix 2015; Eddy 2019). Furthermore, it is pointing out that a policy should introduce a mandatory

<sup>4</sup> Kata, A postmodern Pandora's box.

discussion with a physician about vaccine safety or funding research in that area and health communication campaigns (Silverman 2019). Some have stated that we should know more about fake news itself (for example, about the individuals who publish it) (Ward et al. 2016). Upon knowing the profiles of the authors of such news, we could prepare targeted campaigns to combat fake news in that sphere. However, not every user can be successfully converted because there are people using medical fake news deliberately. We know that Russian trolls are at least partly responsible for the spread of anti-vaccination misinformation. For them it is a tool for amplifying social discord.<sup>5</sup> Other authors propose introducing policy instruments to place warnings on biased domains with medical fake news (Waszak et al. 2018).

All these ideas have some potential to reduce the impact of medical fake news. However, efficacy should be measured by the decreasing number of people who refuse to receive vaccines. If this goal is not achieved, we may need more radical measures.

### Is the criminal law an adequate response?

In terms of the final criterion, we discuss whether criminal law is an adequate response to fight medical fake news. To address this, we examine whether criminal law can be used to control the spread of diseases and counteract fake news. For both questions, there are examples of crimes in the legal systems. States already act in the sphere of public health and try to prevent diseases using criminal law (for example, intentionally transmitting HIV/AIDS to another is a crime in many countries) (Francis and Francis 2012). Setting aside serious objections to the criminalization of that specific behavior (Jürgens et al. 2009), states already are using criminal law to stop danger in the area of public health. The state may also react by criminalizing behaviors contributing to the spreading of diseases. States also recently started fighting fake news using the criminal law. California, for example, passed new laws that criminalize the use of “deep fake” (a video version of fake news) during election season (Lecher 2019). Deep fakes have been a crime in China since the beginning of 2020 (Statt 2019). Earlier, fake news became a crime in Singapore (Griffiths 2019). I believe that this criterion is also met.

### Legislative proposition

The legislative proposal is discussed in this section. The problem of medical fake news is universal, but criminalization has a national character. International treaties imposing

an obligation on signatory states to introduce crimes are usually limited to the most severe behaviors, such as crimes against humanity (van Sliedregt 2018) or the international fight against drugs (Stewart 1989). However, even in such situations, states must change their legal systems according to the specifications of their legal systems. Therefore, I discuss my proposition in the context of one legal system: the Polish legal system. I focus on the literal meaning of the provision and aspects of crime that are not embedded in the text of the norm but result from the general rules of Polish criminal law. Only this holistic view can provide insight into the nature of the proposed legislation. Without the conceptualization of crime in the context of a concrete legal system, the understanding of the intentions and expected results regarding this provision could be hampered. The proposition, which has the aim of criminalizing the dissemination of medical fake news, is as follows: “Whoever publicly disseminates information evidently discrepant with medical knowledge is subject to a penalty.”

From the perspective of the literal meaning of the legislative proposition, four concepts should be considered separately: what “publicly” means, what “dissemination” means, what information is “evidently discrepant with medical knowledge,” and why is there a narrowing down to “medical knowledge.”

The word “publicly” is an element of many crimes in the Polish legal system, and it has a widely recognized meaning. According to a judgment of the Polish Supreme Court in 1934, “publicly” means when information reaches or can reach an unlimited number of people.<sup>6</sup> It is understood in that way that elements such as the place, circumstances, and manner of the offender’s action create a situation in which his or her behavior is or may be perceptible to an indefinite number of people.<sup>7</sup> These criteria are easily translatable into the Internet: if the information is accessible to unlimited people, it is publicly available. “Publicly” could mean a note published on a blog, a public film visible on YouTube, a public post on Facebook, or a tweet on Twitter. The privacy settings of information must be set to “public” for the information to be considered publicly available. This means that if one sends such information on Messenger or publishes a post that is limited to that person’s friends, it is not “public” in the meaning of the proposed legislation. From that perspective, we do not have to examine how many people have access to the information, only whether it has the potential to be available to unlimited people. The issue of “publicly” also applies to the traditional press and television. However, this article focuses on behavior on the Internet.

<sup>6</sup> *IK 105/34* (1934).

<sup>7</sup> J. Raglewski [in], Barczak-Oplustil et al. (2017) commentary to Article 212.

<sup>5</sup> Russia trolls “spreading vaccine discord” (2018); Broniatowski et al. (2018).



What is “dissemination” in the context of the presented provision? This characteristic is also used other crimes in the Polish legal system. According to the accepted understanding of “dissemination,” a situation is created that allows content to be read by others. The Polish Criminal Code already penalizes the “dissemination” of specific actions: it is a crime to disseminate pornography to children under 15 years old.<sup>8</sup> In the context of a proposed crime, “publicly” and “dissemination” should be interpreted together, meaning that a situation in which medical fake news is visible to a potentially unlimited number of people is created. “Publicly disseminated” could mean (for example).

- Saying something during an interview on the radio
- Saying something on a television show
- Creating a YouTube video
- Writing something in the newspaper
- Writing a post on a personal blog.

However, dissemination is not limited to creating content; it also means carrying out any activity that makes medical fake news more visible. This includes.

- “sharing” and “liking” on Facebook
- “liking” and “reposting” on Twitter
- giving a “plus” on Reddit.

As we can see, a wide range of interactions with the information meet the discussed criteria of the prohibited act. These characteristics of the crime answer the question “What are we not permitted do with the information?” I now explain the characteristics of the information itself. Answering the question “What information is prohibited?” is problematic in the context of this legislation.

Information must be “evidently discrepant with medical knowledge.” This criterion is potentially the most unclear of all terms used in the proposition. It involves narrowing down penalization to situations in which there is a dissemination of information that is obviously false. This means that this legislation could only be applied to a limited number of pieces of information: those which there is scientific consensus. One piece of false news is that autism is linked to vaccines. As previously mentioned, there are no disagreements about this among scientists, and the article from *The Lancet* has been declared fraudulent. The status of medical information must be clear for the representative body of scientists. It cannot be applied to a situation in which scientists have polarized opinions. For example, it is possible to publish positive results while others publish negative results

on the same issue based on the same data (Hofmann 2018). However, this does not mean that any doubt could make the status of the information “not evident.” For example, a blog note in which someone writes that there is a conspiracy and that vaccines are the tools of the elite for the depopulation of the planet does not bring into doubt the claim that vaccines are not made for depopulation. “Evidently discrepant with medical knowledge” could also mean pseudoscientific and “crackpot” theories (Roosth 2017). An example is the claim that disinfectants can be used to treat coronavirus. This theory has been disseminated during the coronavirus pandemic (Rogers et al. 2020).

The proposition refers to “medical knowledge.” First, my argumentation concerned that sphere of life, penalizing the dissemination of fake news in general or in other fields, requiring additional justification and could not meet the constitutional criteria for introducing penalization. It is clear that fake news crimes have the potential to be used by politicians as an instrument to suppress free speech and opposition movements. The inclusion of “medical knowledge” prevents the provision being used in other spheres of life; a condition of the legislation is proof that the fake news involves medical issues. This excludes the legislation from being used in politics (for example). I mention more free speech issues in the next section.

The practical question may be “Who will be deciding which information is ‘evidently discrepant with medical knowledge?’” In the Polish criminal law system, it may look as follows: At the beginning, as courts apply this provision, expert witnesses specialized in medical knowledge on that issue could be questioned. Over time, there will be no need to examine expert witnesses in similar cases (for example, in cases linking vaccines and autism).

In this section, I mention two aspects of a proposed piece of legislation. These are derived from the Polish legal system. They are not contained in the literal proposition. However, they also meaningfully impact the character and scope of the legislation. These issues are “social harmfulness” and “intentionality.”

At first glance, there appears to be a threat of a flood of accusations in petty cases that should not elicit criminal proceedings. One example is if somebody disseminates information that there is proof that eating an apple a day will cure baldness in three months. Such a claim is medical fake news, and it is apparent that the claim is impossible. However, in the light of the proposed provision, such a claim would not be prosecuted because it would not meet the criteria of “crime” under Polish law. According to the Polish Criminal Code, “A prohibited act of negligible social harmfulness does not constitute a crime (Wróbel et al. 2014).” This is an element of the definition of every crime. This criterion would differentiate hazardous information—such as information linking vaccines with autism—from trivial

<sup>8</sup> See: M. Bielski [in], Barczak-Oplustil et al. (2017) commentary to Article 200.

information that has no potential to cause harm. Nevertheless, there is a risk that at the beginning of the use of such a provision, there may be indictments that should not be submitted. However, in time the judiciary will likely develop instruments to filter information with no potential to harm.

The other issue—which is not literally in the legislative propositions but results from the general rules of the Polish legal system—is that this crime could only be committed intentionally.<sup>9</sup> In Polish criminal law, an act can only be committed unintentionally if it is clearly stated in the statute. In the presented proposition, there is no such option. Therefore, this requirement excludes perpetrators who, for example, do not know that they are acting "publicly" (they think that such information is sent only to their friends) or do not understand that this information is "evidently discrepant with medical knowledge." "Intentionally" refers to all elements of the crime, so this also connects with the circumstance that information is "evidently discrepant with medical knowledge." It must be added that this does not require that perpetrators believe the information that he or she disseminates is discrepant with medical knowledge (because he or she believes that it is not). He or she must be aware that such information is recognized by the mainstream of medicine as evidently discrepant to medical knowledge. This also means that people who are unaware that information is discrepant to medical knowledge and are "innocent transmitters" are not criminally responsible. Their behavior remains socially harmful but not illegal on the grounds of the proposed legislation (due to a lack of specific intention).

Taking all aspects into consideration, I present an example of a behavior that should be prohibited: a perpetrator is sharing information on Facebook from a blog in which there is a claim in the title that measles vaccines cause autism. His privacy settings are set so that all his posts are visible to an unlimited number of people. In addition, he writes this comment: "People, open your eyes; all evidence about the harmfulness of vaccines is hidden by Big Pharma!!!".

From the perspective of the proposed legislation, this situation meets all elements of a prohibited act. Sharing is a manifestation of "dissemination," and the post is potentially visible to an unlimited number of people (which meets the criterion of "publicly"). The information is "evidently discrepant with medical knowledge" because there is a scientific consensus on this matter: measles vaccines do not cause autism. This fake news is within the scope of medical knowledge; it concerns the medical safety of vaccinations. Furthermore, it is socially harmful because the accessibility to such information increases the number of people who

decide not to vaccinate their children. In addition, there is no doubt that the perpetrator has acted intentionally; he clearly states that he "knows" that there is no evidence of such a link in mainstream medicine.

The proposition's aim is to stop the flood of fake news related to medical issues by stopping individual people from disseminating such news. Such a proposition is a radical measure, but without an efficient dam to information, the antivaccination movement (as an example of a movement fueled by medical fake news) could lead to an epidemic. This has already happened throughout history. (Nelson and Rogers 1992).

### Free speech issues

The primary objection against introducing any legal responsibility for fake news is that it suppresses freedom of speech. Any solution in the fight against fake news in the form of governmental regulations carries a constitutional risk and raises concerns about censorship (Lazer et al. 2018). Any law that criminalizes fake news by definition restricts freedom of speech. This case is no different. Criminal liability for disseminating fake news limits freedom of speech. In this section, I comment on that issue.

Freedom of speech is not absolute. There are both legal and moral restrictions. We should not say all that we have in mind, and sometimes our words could even result in criminal charges against us. In many legal systems, there is a restriction in this area. In the Polish legal system, there are crimes such as defamation, insult, threats, and false testimony.<sup>10</sup> All these examples limit freedom of expression in some way. Therefore, the question is not whether limitation in that sphere is possible (it is) but whether it is justifiable. In previous sections, I justify introducing this legislation. I believe that it will be easier to consider this proposition considering that provisions criminalizing fake news already exist in the legal system. One such crime, present in many legal systems, is Holocaust denial (Kahn 2004; Teachout 2005; Pech 2009). However, there are arguments that such provisions should be repealed (Singer 2016).

In the Polish legal system, there is also such a crime in Article 55 of the Act of 18 December 1998 on the Institute of National Remembrance—Commission for the Prosecution of Crimes Against the Polish Nation (Act on the Institute of National Remembrance—Commission for the Prosecution of Crimes Against the Polish Nation 1998). According to this provision, it is forbidden by law to deny that the Holocaust happened. This provision states that "Anyone who

<sup>9</sup> It is an aspect of crime which is connected with the term 'mens rea' which is not used in the Polish legal system, see: Lewna (2018), Zontek (2018).

<sup>10</sup> There is a report showing which crimes already existing in the Polish legal system could be considered as the criminalization of fake news, see: Mamak (2020a, b).

publicly and contrary to the facts denies crimes referred to in Article 1(1) shall be subject to a fine or the penalty of imprisonment of up to 3 years. The sentence shall be made public."<sup>11</sup> The crimes that occurred in Poland, such as Nazi crimes or communist crimes, are listed in Article 1(1).

As we can see, there are two main elements in this legislative proposition. The first is that the act must be done "publicly" (it is not forbidden to deny the Holocaust in private). The second is that the assertion must be "contrary to the facts." This refers historical facts. It is assumed that there is some objective historical truth, and anyone who does not accept this and acts within the scope covered by this provision is criminally liable. In other words, publicly disseminating fake news about the Holocaust is punishable by law in Poland. Therefore, introducing a new type of provision covering medical fake news does not introduce criminal responsibility for the dissemination of fake news in Poland. Rather, it extends its scope, as such criminality already exists.

There is one final topic to discuss in the context of free speech: that the proposed provision could cause a chilling effect. (Howard 2019; Elkin-Koren and Gal 2019; Hazlett and Sosa 1997) Any regulation that introduces criminal responsibility into the sphere of freedom of expression has the potential to result in the self-censure of people who want to avoid charges, and therefore do not write or disseminate certain information. This can be observed in the case of a libel law and local politics (Bix and Tomkins 1993). In the case of the criminalization of the dissemination of medical fake news, people may hesitate to interact with any medical-related issues. This chilling effect could potentially be dangerous and should be avoided. However, from one perspective, such a situation may also have some positive consequences: people, knowing that there is criminal responsibility for dissemination, may become more critical about verifying sources of information.

The potential chilling effect on science is another important issue. What about whistleblowers and scientists who believe that the existing consensus in medicine is not true? Should they fear criminal responsibility when working on such issues and sending papers to a scientific journal? The answer is no. Firstly, working on an issue and sending an article to a journal is not making research "publicly" available. Secondly—and more importantly, if the data is persuasive and the reviewers will accept the paper for publication—it will mean that there is no longer consensus on that topic. Therefore, the published article is not "evidently discrepant with medical knowledge" because this paper forces us to revise the medical knowledge about that specific topic.

<sup>11</sup> Official translation on the website of Institute of National Remembrance.

Consequently, there is no threat to suppress the progress of science.

## Conclusions

In this paper, I have presented legislative propositions to criminalize the dissemination of medical fake news. These propositions are based on the observation that exposure to medical fake news increases the number of decisions based on such information. This is seen, for example, in vaccine hesitancy, which has been considered by the WHO to be one of the greatest threats to public health of 2019. The presence of such information on the Internet should be stopped to avoid more serious problems such as epidemics. I emphasize that my proposition is an attempt to solve the problems caused by the dissemination of medical fake news if other less invasive measures do not work. For example, we should strengthen our fight against medical fake news with the use of education. On the web, there should be easily accessible information correcting medical fake news. Experts should be present on the Internet and engaged in explaining these issues. Another activity that could lead to a decrease in the impact of such information is the self-regulation of tech companies. Google, Facebook, or Twitter should actively hide such information on the web. They have already achieved some success in the fight against fake news. In addition, states should strengthen non-criminal measures that could stop the impact of medical fake news—for example, actions in the sphere of administrative law forbidding unvaccinated children's access to school. However, if all these measures are insufficient and the number of people making decisions based on medical fake news increases, then the presented proposition may be useful.

## References

- Act of 18 December 1998 on the Institute of National Remembrance – Commission for the Prosecution of Crimes against the Polish Nation. Dz.U. Polish Journal of Laws of 2016 items 152, 178, 677, 749.
- Allcott, H., M. Gentzkow, and C. Yu. 2019. Trends in the diffusion of misinformation on social media. *Research and Politics*. <https://doi.org/10.1177/2053168019848554>.
- Apuke, O.D., and B. Omar. 2020. Fake news and COVID-19: modelling the predictors of fake news sharing among social media users. *Telematics and Informatics*. <https://doi.org/10.1016/j.tele.2020.101475>.
- Aquino, F., G. Donzelli, E. De Franco, G. Privitera, P.L. Lopalco, and A. Carducci. 2017. The web and public confidence in MMR vaccination in Italy. *Vaccine* 35: 4494–4498. <https://doi.org/10.1016/j.vaccine.2017.07.029>.
- Arif, N., M. Al-Jefri, I.H. Bizzi, G.B. Perano, M. Goldman, I. Haq, K.L. Chua, M. Mengozzi, M. Neunez, H. Smith, and P. Ghezzi. 2018. Fake news or weak science visibility and characterization



- of antivaccine webpages returned by google in different languages and countries. *Frontiers in Immunology*. <https://doi.org/10.3389/fimmu.2018.01215>.
- Barczak-Oplustil, A., M. Bielski, G. Bogdan, Z. Cwiakalski, M. Iwański, J. Jodłowski, P. Kardas, M. Małecki, A. Pilch, J. Raglewski, M. Szewczyk, W. Wróbel ed., A. Zoll ed., M. Rams, T. Sroka, A. Wojtaszczyk, and W. Zontek. 2017. *Kodeks karny: część szczególna. T. 2, Komentarz do art. 117–211a* Wyd. 5, stan prawny na 1 sierpnia 2016 r. Warszawa: Wolters Kluwer.
- Barilan, M. 2020. Conscience, religious tolerance and public health. <https://politicaltheology.com/conscience-religious-tolerance-and-public-health/>. Accessed 20 Sept 2020.
- Betsch, C., F. Renkewitz, T. Betsch, and C. Ulshöfer. 2010. The influence of vaccine-critical websites on perceiving vaccination risks. *Journal of Health Psychology* 15: 446–455. <https://doi.org/10.1177/1359105309353647>.
- Bix, B., and A. Tomkins. 1993. Local authorities and libel again. *The Modern Law Review* 56: 738–744. <https://doi.org/10.1111/j.1468-2230.1993.tb01902.x>.
- Broniatowski, D.A., A.M. Jamison, S. Qi, L. AlKulaib, T. Chen, A. Benton, S.C. Quinn, and M. Dredze. 2018. Weaponized health communication: Twitter bots and Russian trolls amplify the vaccine debate. *American Journal of Public Health* 108: 1378–1384. <https://doi.org/10.2105/AJPH.2018.304567>.
- Carrieri, V., L. Madio, and F. Principe. 2019. Vaccine hesitancy and (fake) news: Quasi-experimental evidence from Italy. *Health Economics* 28: 1377–1382. <https://doi.org/10.1002/hec.3937>.
- Chiao, V. 2017. Mass incarceration and the theory of punishment. *Criminal Law and Philosophy* 11: 431–452. <https://doi.org/10.1007/s11572-015-9378-x>.
- Dixon, G., and C. Clarke. 2013. The effect of falsely balanced reporting of the autism-vaccine controversy on vaccine safety perceptions and behavioral intentions. *Health Education Research* 28: 352–359. <https://doi.org/10.1093/her/cys110>.
- Dubé, E., J.A. Bettinger, B. Halperin, R. Bradet, F. Lavoie, C. Sauvageau, V. Gilca, and N. Boulianne. 2012. Determinants of parents' decision to vaccinate their children against rotavirus: Results of a longitudinal study. *Health Education Research* 27: 1069–1080. <https://doi.org/10.1093/her/cys088>.
- Dubé, E., C. Laberge, M. Guay, P. Bramadat, R. Roy, and J.A. Bettinger. 2013. Vaccine hesitancy. *Human Vaccines and Immunotherapeutics* 9: 1763–1773. <https://doi.org/10.4161/hv.24657>.
- Dubé, E., M. Vivion, and N.E. MacDonald. 2015. Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: Influence, impact and implications. *Expert Review of Vaccines* 14: 99–117. <https://doi.org/10.1586/14760584.2015.964212>.
- Durbach, N. 2005. *Bodily matters: The anti-vaccination movement in England, 1853–1907*. Durham: Duke University Press.
- Eddy, M. 2019. Germany mandates measles vaccine. <https://www.nytimes.com/2019/11/14/world/europe/germany-measles-vaccine.html>. Accessed 20 Sept 2020.
- Egelhofer, J.L., and S. Lecheler. 2019. Fake news as a two-dimensional phenomenon: A framework and research agenda. *Annals of the International Communication Association* 43: 97–116. <https://doi.org/10.1080/23808985.2019.1602782>.
- Elkin-Koren, N., and M.S. Gal. 2019. The chilling effect of governance-by-data on data markets. *The University of Chicago Law Review* 86: 403–432.
- Fondacaro, M.R., and M.J. O'Toole. 2015. American punitiveness and mass incarceration: Psychological perspectives on retributive and consequentialist responses to crime. *New Criminal Law Review: International and Interdisciplinary Journal* 18: 477–509. <https://doi.org/10.1525/nclr.2015.18.4.477>.
- Francis, L.P., and J.G. Francis. 2012. Criminalizing health-related behaviors dangerous to others? Disease transmission, transmission-facilitation, and the importance of trust. *Criminal Law and Philosophy* 6: 47–63. <https://doi.org/10.1007/s11572-011-9136-7>.
- Freedman, D. 2018. Populism and media policy failure. *European Journal of Communication*. <https://doi.org/10.1177/0267323118790156>.
- Grech, V. 2017. Fake news and post-truth pronouncements in general and in early human development. *Early Human Development* 115: 118–120. <https://doi.org/10.1016/j.earlhumdev.2017.09.017>.
- Griffiths, J. 2019. Singapore “fake news” law comes into force, offenders face fines and prison time. <https://www.cnn.com/2019/10/02/asia/singapore-fake-news-internet-censorship-intl-hnk/index.html>. Accessed 20 Sept 2020.
- Harel, A. 2015. The duty to criminalize\*. *Law and Philosophy* 34: 1–22. <https://doi.org/10.1007/s10982-014-9209-6>.
- Hazlett, T.W., and D.W. Sosa. 1997. Was the fairness doctrine a “chilling effect”? Evidence from the postderegulation radio market. *The Journal of Legal Studies* 26: 279–301. <https://doi.org/10.1086/467996>.
- Hofmann, B. 2018. Fake facts and alternative truths in medical research. *BMC Medical Ethics* 19: 4. <https://doi.org/10.1186/s12910-018-0243-z>.
- Hollinger, R.C., and L. Lanza-Kaduce. 1988. The process of criminalization: The case of computer crime laws\*. *Criminology* 26: 101–126. <https://doi.org/10.1111/j.1745-9125.1988.tb00834.x>.
- Howard, E. 2019. *Freedom of expression and religious hate speech in Europe*, 1st ed. Abington: Routledge.
- Husak, D. 2009. *Overcriminalization: The limits of the criminal law*, 1st ed. Oxford: Oxford University Press.
- Institute of National Remembrance. The act on the Institute of National Remembrance. <https://ipn.gov.pl/en/about-the-ipn/documents/327,The-Act-on-the-Institute-of-National-Remembrance.html>. Accessed 27 Nov 2019.
- Jolley, D., and K.M. Douglas. 2014. The effects of anti-vaccine conspiracy theories on vaccination intentions. *PLoS ONE* 9: e89177. <https://doi.org/10.1371/journal.pone.0089177>.
- Jones, A.M., S.B. Omer, R.A. Bednarczyk, N.A. Halsey, L.H. Moulton, and D.A. Salmon. 2012. Parents' source of vaccine information and impact on vaccine attitudes, beliefs, and non-medical exemptions. *Advances in Preventive Medicine*. <https://doi.org/10.1155/2012/932741>.
- Jürgens, R., J. Cohen, E. Cameron, S. Burris, M. Clayton, R. Elliott, R. Pearshouse, A. Gathumbi, and D. Cupido. 2009. Ten reasons to oppose the criminalization of HIV exposure or transmission. *Reproductive Health Matters* 17: 163–172. [https://doi.org/10.1016/S0968-8080\(09\)34462-6](https://doi.org/10.1016/S0968-8080(09)34462-6).
- Kahn, R. 2004. *Holocaust denial and the law: A comparative study*. New York: Springer.
- Kata, A. 2010. A postmodern Pandora's box: Anti-vaccination misinformation on the Internet. *Vaccine* 28: 1709–1716. <https://doi.org/10.1016/j.vaccine.2009.12.022>.
- Kranzberg, M. 1986. Technology and history: “Kranzberg's Laws.” *Technology and Culture* 27: 544–660. <https://doi.org/10.1177/027046769501500104>.
- Krishna, A. 2018. Poison or prevention? Understanding the linkages between vaccine-negative individuals' knowledge deficiency, motivations, and active communication behaviors. *Health Communication* 133: 1088–1096. <https://doi.org/10.1080/10410236.2017.1331307>.
- Lazer, D.M.J., M.A. Baum, Y. Benkler, A.J. Berinsky, K.M. Greenhill, F. Menczer, M.J. Metzger, B. Nyhan, G. Pennycook, D. Rothschild, M. Schudson, S.A. Sloman, C.R. Sunstein, E.A. Thorson, D.J. Watts, and J.L. Zittrain. 2018. The science of fake news. *Science* 359: 1094–1096. <https://doi.org/10.1126/science.aao2998>.
- Lecher, C. 2019. California has banned political deepfakes during election season. <https://www.theverge.com/2019/10/7/20902>

- 884/california-deepfake-political-ban-election-2020. Accessed 20 Sept 2020.
- Lewna, A. 2018. Obiektywizacja odpowiedzialności za lekkomyślność w prawie karnym Anglii i Walii (spojrzenie komparatystyczne). *Czasopismo Prawa Karnego i Nauk Penalnych* 2: 67–88.
- Malsch, M. 2007. Stalking: Do criminalization and punishment help? *Punishment & Society* 9: 201–209. <https://doi.org/10.1177/1462474507074751>.
- Mamak, K. 2020. *Prawnokarne sposoby walki z fake newsami*. <https://centrumcyfrowe.pl/spoltech/raport-prawo-fakenews/>. Accessed 20 Sept 2020.
- Mamak, K. 2020. Karalność medycznych fake newsów. <http://filozofiaipraktyce.pl/karalnosc-medycznych-fake-newsow/>. Accessed 30 April 2020.
- Mazur, A. 1999. Biomedical science in supermarket tabloids. *Knowledge, Technology and Policy* 12: 19–26. <https://doi.org/10.1007/s12130-999-1011-7>.
- McNamara, L., J. Quilter, R. Hogg, H. Douglas, A. Loughnan, and D. Brown. 2018. Theorising criminalisation: The value of a modalities approach. *Faculty of Law, Humanities and the Arts: Papers*. <https://doi.org/10.5204/ijcjsd.v7i3.511>.
- Merchant, R.M., and D.A. Asch. 2018. Protecting the value of medical science in the age of social media and “fake news.” *JAMA* 320: 2415–2416. <https://doi.org/10.1001/jama.2018.18416>.
- Meza, S. 2017. “Fake news” has been named the word of the year by Collins Dictionary. <https://www.newsweek.com/fake-news-word-year-collins-dictionary-699740>. Accessed 20 Sept 2020.
- Molina, M.D., S.S. Sundar, T. Le, and L. Dongwon. 2019. “Fake News” is not simply false information: A concept explication and taxonomy of online content. In *American behavioral scientist*, ed. M.D. Molina, S.S. Sundar, T. Le, and D. Lee. New York: SAGE. <https://doi.org/10.1177/0002764219878224>.
- Nelson, M.C., and J. Rogers. 1992. The right to die? Anti-vaccination activity and the 1874 smallpox epidemic in Stockholm. *Social History of Medicine* 5: 369–388. <https://doi.org/10.1093/shm/5.3.369>.
- Noor, F.A. 2017. How “fake news” was a tool of nineteenth century colonialism and conquest. *Media Asia* 44: 88–93. <https://doi.org/10.1080/01296612.2017.1455623>.
- Numerato, D., L. Vochocová, V. Štětka, and A. Macková. 2019. The vaccination debate in the “post-truth” era: social media as sites of multi-layered reflexivity. *Sociology of Health and Illness* 41: 82–97. <https://doi.org/10.1111/1467-9566.12873>.
- Oreskes, N., and E.M. Conway. 2011. *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. London: Bloomsbury Publishing.
- Orso, D., N. Federici, R. Copetti, L. Vetrugno, and T. Bove. 2020. Infodemic and the spread of fake news in the COVID-19-era. *European Journal of Emergency Medicine* 27: 327–328. <https://doi.org/10.1097/MEJ.0000000000000713>.
- Ouwerkerk, J.W. 2012. Criminalisation as a last resort: A national principle under the pressure of Europeanisation? *New Journal of European Criminal Law* 3: 228–341. <https://doi.org/10.1177/203228441200300302>.
- Packer, M. 2017. Are meta-analyses a form of medical fake news? Thoughts about how they should contribute to medical science and practice. *Circulation* 136: 2097–2099. <https://doi.org/10.1161/CIRCULATIONAHA.117.030209>.
- Park, A. 2012. Andrew Wakefield/Great Science Frauds. <http://healthland.time.com/2012/01/13/great-science-frauds/slide/andrew-wakefield/>. Accessed 20 Sept 2020.
- Pech, L. 2009. The law of holocaust denial in Europe: towards a (qualified) EU-wide criminal prohibition. *Jean Monnet Working Paper* No.10/09. <https://doi.org/10.2139/ssrn.1536078>.
- Pennycook, G., J. McPhetres, Y. Zhang, J.G. Lu, and D.G. Rand. 2020. Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy-nudge intervention. *Psychological Science* 31: 770–780. <https://doi.org/10.1177/0956797620939054>.
- Peters, M.A. 2019. Anti-intellectualism is a virus. *Educational Philosophy and Theory* 51: 357–363. <https://doi.org/10.1080/00131857.2018.1462946>.
- Pratt, J. 2006. *Penal populism* 1. Edition. Abington: Routledge.
- Reinisch, A., S.R. Schröder, F. Ulrich, W. Padberg, and J. Liese. 2019. Antibiotic-treated acute appendicitis—reception in social media. *Langenbeck's Archives of Surgery* 404: 343–349. <https://doi.org/10.1007/s00423-019-01777-y>.
- Reiter, K.A. 2017. *Mass incarceration* 1. Edition. Oxford: Oxford University Press.
- Rogers, K., C. Hauser, A. Yuhas, and M. Haberman. 2020. Trump's suggestion that disinfectants could be used to treat coronavirus prompts aggressive pushback. <https://www.nytimes.com/2020/04/24/us/politics/trump-inject-disinfectant-bleach-coronavirus.html>. Accessed 20 Sept 2020.
- Roosth, S. 2017. *Synthetic: How life got made illustrated*. Chicago: University of Chicago Press.
- Rose, J. 2017. Brexit, trump, and post-truth politics. *Public Integrity* 19: 555–558. <https://doi.org/10.1080/10999922.2017.1285540>.
- Sansonetti, P.J. 2018. Measles 2018: A tale of two anniversaries. *EMBO Molecular Medicine*. <https://doi.org/10.15252/emmm.201809176>.
- Sarr, M.G., and K.E. Behrns. 2019. Potential benefit and harm of social media and predatory publishing: A commentary on “antibiotic-treated acute appendicitis—reception in social media.” *Langenbeck's Archives of Surgery* 404: 351–352. <https://doi.org/10.1007/s00423-019-01778-x>.
- Schoenfeld, H. 2018. *Building the prison state: Race and the politics of mass incarceration* 1. Edition. Chicago: University of Chicago Press.
- Silverman, R.D. 2019. Controlling measles through politics and policy. *Hastings Center Report* 49: 8–9. <https://doi.org/10.1002/hast.996>.
- Silverman, R.D., and K.S. Hendrix. 2015. POINT: Should childhood vaccination against measles be a mandatory requirement for attending school? Yes. *Chest* 148: 852–854. <https://doi.org/10.1378/chest.15-1163>.
- Singer, P. 2016. *Ethics in the real world: 82 brief essays on things that matter*. Princeton: Princeton University Press.
- Smith, P.J., S.G. Humiston, E.K. Marcuse, Z. Zhao, C.G. Dorell, C. Howes, and B. Hibbs. 2011. Parental delay or refusal of vaccine doses, childhood vaccination coverage at 24 months of age, and the Health Belief Model. *Public Health Reports* 126 (Suppl 2): 135–146. <https://doi.org/10.1177/003335491112605215>.
- Sommariva, S., C. Vamos, A. Mantzarlis, L.U.-L. Đào, and D. Martinez Tyson. 2018. Spreading the (fake) news: Exploring health messages on social media and the implications for health professionals using a case study. *American Journal of Health Education* 49: 246–255. <https://doi.org/10.1080/19325037.2018.1473178>.
- Southwell, B. G., E. A. Thorson, and L. Sheble. 2017. The Persistence and Peril of Misinformation. <https://www.americanscientist.org/article/the-persistence-and-peril-of-misinformation>. Accessed 20 Sept 2020.
- Statt, N. 2019. China makes it a criminal offense to publish deep-fakes or fake news without disclosure. <https://www.theverge.com/2019/11/29/20988363/china-deepfakes-ban-internet-rules-fake-news-disclosure-virtual-reality>. Accessed 20 Sept 2020.
- Stewart, D.P. 1989. Internationalizing the war on drugs: The UN convention against illicit traffic in narcotic drugs and psychotropic substances. *Denver Journal of International Law and Policy* 18: 387.
- Tandoc, E.C., Jr., Z.W. Lim, and R. Ling. 2018. Defining “fake news.” *Digital Journalism* 2: 137–153. <https://doi.org/10.1080/21670811.2017.1360143>.

- Teachout, P.R. 2005. Making holocaust denial a crime: Reflections on European anti-negationist laws from the perspective of U.S. constitutional experience. *Vermont Law Review* 30: 655.
- ten Have, H., and B. Gordijn. 2017. Publication ethics: Science versus commerce. *Medicine, Health Care and Philosophy* 20: 159–161. <https://doi.org/10.1007/s11019-017-9774-1>.
- Terrasse, M., M. Gorin, and D. Sisti. 2019. Social media, E-health, and medical ethics. *Hastings Center Report* 49: 24–33. <https://doi.org/10.1002/hast.975>.
- Krishna, A., and T.L. Thompson. 2019. Misinformation about health: A review of health communication and misinformation scholarship. *American Behavioral Scientist*. September 2019. <https://doi.org/10.1177/0002764219878223>
- van Sliedregt, E. 2018. Criminalization of crimes against humanity under national law. *Journal of International Criminal Justice* 16: 729–749. <https://doi.org/10.1093/jicj/mqy027>.
- Walter, N., and S.T. Murphy. 2018. How to unring the bell: A meta-analytic approach to correction of misinformation. *Communication Monographs* 85: 423–441. <https://doi.org/10.1080/03637751.2018.1467564>
- Ward, J.K., P. Peretti-Watel, and P. Verger. 2016. Vaccine criticism on the Internet: Propositions for future research. *Human Vaccines and Immunotherapeutics* 12: 1924–1929. <https://doi.org/10.1080/21645515.2016.1146430>.
- Waszak, P.M., W. Kasprzycka-Waszak, and A. Kubanek. 2018. The spread of medical fake news in social media: The pilot quantitative study. *Health Policy and Technology* 7: 115–118. <https://doi.org/10.1016/j.hlpt.2018.03.002>.
- Wróbel, W., W. Zontek, and A. Wojtaszczyk. 2014. *Kodeks karny: przepisy dwujęzyczne*. Warszawa: Wolters Kluwer.
- Zontek, W. 2018. *Modele wyłączenia odpowiedzialności karnej*. Kraków: Krakowski Instytut Prawa Karnego Fundacja.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.