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Stratégies de relations publiques pour contrer les fausses nouvelles sur les vaccins

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DOSSIER : POLITIQUE DE SANTE

Résumé: Comme tous les autres projets humains, les politiques de santé publique sont souvent affectées par des imperfections et des erreurs. Cependant, elles sont mieux ancrées dans les résultats de la recherche scientifique que d'autres actions humaines en général, et politiques gouvernementales en particulier. D'une manière générale, les données sur lesquelles reposent les politiques de santé publique remplissent les conditions suivantes : méthodes de recherche rigoureuses, tests indépendants et précis, reproductibilité des résultats, mesure du taux d'erreur, capacité à écarter des hypothèses rivales et un degré d'acceptation satisfaisant au sein de la communauté scientifique.

Les politiques de santé publique comprennent des campagnes de vaccination de la population, en particulier des enfants. Ces actions de vaccination sont considérées comme sûres et efficaces par les institutions publiques, les organisations de santé, les médecins et les chercheurs en santé. Malgré cela, un nombre croissant de parents choisit de ne pas vacciner leurs enfants. Les fausse nouvelles sur les vaccins publiées dans les médias, en particulier dans les nouveaux médias, par les influenceurs, ont contribué certainement à cette tendance.

Ces influenceurs sont insuffisamment qualifiés ou totalement non qualifiés pour commenter l'innocuité et l'efficacité des vaccins dans les médias. Par conséquent, ils ne peuvent pas produire des données fiables et des opinions qualifiées, c'est-à-dire des informations indépendantes, précises, pertinentes, fiables et complètes. Cependant, ces influenceurs parviennent à influencer, dans une large mesure, le comportement des parents en matière de vaccination.

La stratégie de lutte contre les fausses nouvelles en publiant des preuves contraires est évidemment nécessaire, mais pas suffisante parce que beaucoup de fausses infos sur les vaccins fonctionnent comme des mythes. Etant fixées d'une manière partiellement irrationnelle, les mythes anti-vaccination ne peuvent être démystifiés seulement avec les dernières preuves scientifiques. C'est pourquoi il est nécessaire d'envisager des stratégies de relations publiques capables d'influencer des opinions collectives irrationnelles.

Keywords: anti-vaccine activism, anti-vaccine topics, rumor, fake news, PR strategy

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Mots-clés :
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DOSSIER : POLITIQUE DE SANTE

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Public relations strategies to counter fake news about vaccines

(Stratégies de relations publiques pour contrer les fausses nouvelles sur les vaccins)

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Introduction

The self-preservation drive and the utilitarian principle govern, to a significant extent, the conduct of individuals and societies' evolution. Regardless of time and place, both individuals and societies naturally (or spontaneously) tend to preserve their existence and act under the best perceived cost-benefit ratio (cf. Fârte, 2018: 146). Therefore, it is not surprising that individuals and governments are preoccupied with forestalling or delaying death, preventing or treating diseases, and reducing health-related costs. Moreover, in all civilized societies, the human right to health protection is guaranteed by the constitution so that governments are even obliged to take measures to ensure hygiene and public health.[1]

Despite the remarkable achievements of modern medicine, health care is inherently imperfect. There are and will always be wrong diagnoses, ineffective treatments, drugs

associated with severe side effects, unnecessary suffering, and avoidable deaths. However, today, human life expectancy is far longer than it was in pre-modern times. The infectious epidemics of the past have been brought under control or even eliminated. Working together, national governments and international health organizations eradicated many causes of morbidity. More and more people enjoy an increasingly healthy and prosperous life. The health care system works well despite professionals' culpable ignorance, the greed of some drug manufacturers, and some regulatory authorities' negligence. As an open self-organizing learning system, it quickly responds to feedback and improves itself continuously.

Living without the specter of the great epidemics, accustomed to the repeated victories over various diseases, aware of their health care entitlements, suspicious of the apparent partnership between Big Pharma and Big Government, and eager to express their feelings and opinions about health care problems and solutions, lots of people spread dubious opinions and claims about specific medical procedures and treatments. Many virulent dissenting voices regarding health care focus their criticism on vaccination. They try to discredit this particular "way to help a child develop immunity to vaccine-preventable diseases" (Burgess, 2019). The anti-vaccinists challenge the politico-medical establishment claim that "[v]accines are among the greatest and most effective public health interventions in preventing morbidity, mortality and public health costs caused by infectious diseases" (OÅ□piÅ□ski, 2012: 381). The new communication technologies, especially the internet, facilitate a rapid spread of the anti-vaccination views on a large scale.

The incidence rates of vaccine-preventable disease (VPDs) – e.g., Diphtheria, Haemophilus influenzae type b, Hepatitis B, Human papillomavirus, Influenza, Measles, Pertussis, Poliomyelitis, Tuberculosis, Typhoid and paratyphoid fever, Varicella and herpes zoster – is still low, but "increasing numbers of parents, who apparently love their children, refuse to vaccinate them" (OÅ□piÅ□ski, 2012: 381). The situation in Romania is an example that clearly illustrates this tendency. Thus, the MMR vaccine was introduced in the Romanian national calendar in 2005 to protect children against measles, mumps, and rubella. According to the report for the year 2018 of The National Center for Surveillance and Control of Communicable Diseases, in the first years, the MMR vaccine coverage was over 95% (WHO target). Since 2010, the vaccine coverage values have been decreasing, standing in 2018 at 89.6% (dose 1) and 80.9% (dose 2).[2] The total number of confirmed cases with measles in Romania reported until December 20, 2019, was 18,908, 64 of which resulted in death.[3]

Even though the reduction in vaccine coverage rate has not yet reached a critical

threshold, there are many reasons to worry. In general, individuals' beliefs are antecedents to individuals' behaviors (cf. Okuhara et al., 2018: 3). Parents decide to vaccinate their children or not only if they see some compelling reasons to do that. These convincing cognitions stem from neither parents' personal beliefs nor dominant public opinion in society, but from those beliefs that prevail in parents' cognitive environment.

Unfortunately, many parents fall victim to fake news and cling to certain prevailing beliefs that are gravely mistaken. Trapped in closed communicative networks, they insulate themselves from the mainstream information related to vaccination and continue to hold the wrong beliefs. Moreover, their steadiness in professing mistaken beliefs about vaccines influences very much the people who waver in their decision. Therefore, it could be useful to identify and implement different public relations strategies to counter fake news about vaccines and diminish the influence of anti-vaccination activists.

In order to achieve this aim, I will pursue the following objectives:

· To identify the sources of anti-vaccination messages;

· To distinguish and weigh the anti-vaccine topics, opinions, and claims;

· To detect the rationale behind such cognitions and attitudes;

· To understand the anti-vaccinists' information-seeking behavior and information-spreading behavior;

· To advance some effective PR strategies for correcting the prevailing wrong beliefs about vaccination.

History proved that the average man is suspicious about the general measures imposed by the political establishment or international agencies. Moreover, he tends to discard the persuasive messages that exceed his cognitive resources and appear to threaten his freedom (cf. Fârte, 2019: 65-66). Therefore, one can hope for a high level of parental compliance with vaccination only if he adapts his persuasive message to the parents' cognitive environment and concerns.

1. Who spreads anti-vaccine messages?

All areas of human knowledge (including the medical field) inevitably involve plenty of controversies. Having the responsibility to increase sound knowledge, researchers and scholars carry out the duty to analyze and eventually reject the claim of knowledge on a given topic. They know that any valuable research presupposes relevant research ideas, answerable questions, testable hypotheses, direct, systematic, and careful observations, systematic evaluation of data, and valid conclusions (Marczyk et al., 2005). On the other hand, they also know that science makes progress toward the truth only through trial and error. Even honest and competent researchers are prone to make mistakes when they realize their scientific projects, starting with the formulation of research ideas and finishing with drawing conclusions from the collected empirical data. Therefore, it is no wonder that any scientific community continuously tests, criticizes, revises, or rejects the results of scientific research.

As a scientific body, the medical community focused on vaccination issues not only allows but also encourages careful discussions about the pros and cons of the use of vaccines. No matter how controversial these discussions may be, they do not count as vectors of anti-vaccine messages unless (a) the scientific standards are abandoned and (b) the intended target audience consists mainly of laypersons instead of scholars and researchers.

The most pernicious influence on the parents' vaccination decision is exerted by some former scholars in the field who came into conflict with their academic community because they fell short of some scientific or ethical standards and refused to retract their biased or fraudulent claims. Disgraced and stripped of their academic credential, they gradually radicalize their views, transforming themselves from scientists into social activists.

An illustrative example in this respect is the case of Andrew Wakefield, a gastroenterologist at the Royal Free Hospital in London. He published a paper in *The Lancet* and announced at a press conference that "he had concerns about the safety of the measles-mumps-rubella vaccine (MMR) and its relationship to the onset of autism" (Dominus, 2011). Wakefield did not claim to have proved that the MMR vaccine caused autism. He just stated that "the three vaccines, given together, can alter a child's immune system, allowing the measles virus in the vaccine to infiltrate the intestines; certain proteins, escaping from the intestines, could then reach and harm neurons in the brain" (Dominus, 2011). As it often happens, "his concerns, not his caveats, ricocheted around the world" (Dominus, 2011). The criticism appeared immediately. Wakefield's peers "pointed out that the paper was a small case series [12 children] with no controls, linked three common conditions, and relied on parental recall and beliefs" (Godlee, 2011). Besides, Wakefield was accused of "subjecting developmentally

disabled children to unnecessary invasive procedures" (Dominus, 2011) and "undisclosing financial conflict of interest" (Godlee, 2011). He got the opportunity to either replicate the paper's findings or retract his claim as a mistaken one. Wakefield has declined to do either. Consequently, he was "stripped of his clinical and academic credentials" (Godlee, 2011).

Andrew Wakefield radicalized his views and remained adamant in his belief that "MMR causes a bowel disorder which he calls autistic enterocolitis, that then causes autism" even though it has been dismissed by mainstream medicine (Dominus, 2011). He no longer asks the qualified peer reviewers to validate his claims. Instead, he illegitimately empowers parents as medical experts engaging in a dialogue with them about complex health issues. Of course, Wakefield and other scholars like him know very well that laypersons could be loyal followers but not peers in health care or immunology. Laypersons' support cannot justify any theory.

The second category of influencers who mold parents' beliefs and decisions about vaccination is formed by health professionals who make claims outside their area of competence. In some cases, these doctors felt impelled to go outside of their area of expertise because of their own children's health problems. They unconsciously want to consider vaccination as the leading cause of disease in their children.

An illustrative example of this category is Dr. Christa Todea-Gross, who authored the book *Vaccines: Prevention or Disease* (2012), the "Bible of the Romanian anti-vaccinists." Dr. Todea-Gross is a family doctor, pediatric specialist, a priest's wife, and the vice president of the Pro Vita Federation, an umbrella group for dozens of Orthodox Christian NGOs in Romania. In the opening of her famous book on vaccines, she made the following confession:

"I am now a primary family doctor, but my knowledge about vaccines did not increase until after (and I regret it) my own children suffered from post-vaccine complications. Now I am very clear about the connection between the numerous chronic diseases, often labeled 'diseases with an unknown cause', and the 'mandatory' vaccines of the infant and the small child." (Todea-Gross, 2012)

It is clear that Dr. Christa Todea-Gross is not a research scientist in immunology and doesn't work on an academic research platform. Her "knowledge" about vaccines comes from biased secondary sources. However, Christa Todea-Gross' formulate her claims on vaccines not in a humble, tentative manner, but with the haughtiness of a self-proclaimed specialist in immunology:

"I have been surprised to find that over the last 100 years, tens of thousands of studies have

been published in books, magazines, newspapers, yearbooks, etc., which undoubtedly attest that vaccines are a real attack on the immune system of the human. The immune system can be destroyed slowly and irreversibly, causing the most serious chronic, non-curable diseases, including the syndrome of sudden infant death." (Todea-Gross, 2012)

Some Romanian Orthodox Church institutions strengthen the authority of Dr. Todea-Gross in the Romanian anti-vaccine movement. The publishing house Christiana, various NGOs belonging to the Pro Vita Federation, and many Orthodox clergymen support Dr. Todea-Gross in spreading her anti-vaccine opinions. Officially, the Romanian Orthodox Church does not oppose to vaccination, but it does not require its members to adopt a unique position relating to vaccines.

Another example is given by a dentist, Mircea PuÅ□caÅ□u, who prohibited the vaccination during a measles epidemic. Without invoking any evidence, he made the following dubious claims:

"This vaccine [MMR] contains aluminum, hydroxide, aluminum salt. Some are neurotoxic, others cancerous, such as foreign DNA – they have types of adverse reactions. But this vaccine is indicated in the ideology of autism – which is a serious disease with delay, the cases have multiplied in us. It is known, the connection between this mercury salt and autism has been made." (cf. Stirileprotv, 2017)

Paradoxically, the unfounded claims of the dentist Mircea PuÅ□caÅ□u were "reinforced" by an Orthodox monk:

"After this presentation, I am very convinced that vaccines are not doing well. God tells Adam not to eat from the Tree of Good and Evil because he will die on that day. I declare myself convinced. Thank you to Dr. Raduca, thank you to Dr. PuÅ□caÅ□u. From now on, I will recommend to all my students not to take the vaccines anymore because there is a risk. If there is a risk, it falls under the Christian principle, and it is, therefore, unchristian to do something that you know implies a health risk." (cf. Stirileprotv, 2017)

Normally, the endorsement of a monk cannot increase the epistemic authority of a dentist who lacks any credential in immunology. Unfortunately, within the communicative network of bigoted anti-vaccinists, the mixture of pseudo-medical authority and religious authority works.

The third category of people who exert a negative influence on the parents' vaccination decision consists of scholars – but not medical professionals – who strive to adjust their scientific findings and theories to the religious or metaphysical world-views they embraced. A typical example seems to be Alfred Russell Wallace (1823-1913), British humanist, naturalist, geographer, and social critic. Deeply concerned with the moral, social, and political values of human life, Wallace approached various themes "from socialism to spiritualism, from island biogeography to life on Mars, from evolution to land nationalization" (Camerini, 2019). He was a prolific author and made some notable contributions, especially to the theory of evolution by natural selection.

On the other hand, Alfred Wallace advocated spiritualism and believed in a non-material origin for humans' higher mental faculties (Camerini, 2019). Maybe because of his politico-philosophical stance on society, Wallace sharply criticized the enforcement of vaccination. His book on vaccination – *Vaccination an Illusion: Its Penal Enforcement a Crime* (Wallace, 1898) – contains opinions that can be considered exaggerated in relation to their factual basis: (1) vaccination affects the liberties of Englishmen, the lives of their children, and the health of the whole community (p. 3); (2) all official statements on vaccination are untrustworthy (p. 3); (3) vaccination gives no protection (p. 9); the facts and figures of the medical profession and Government officials, in regard to the question of vaccination, must never be accepted without verification (pp. 20-21); (4) much of the evidence adduced for vaccination is worthless (p. 23). It is also evident that Wallace's statements on vaccination are imbued with specific politico-philosophical values.

The fourth source of anti-vaccine messages consists of celebrities who enforce the "postmodern medical paradigm", questioning the legitimacy and authority of science and stressing the need for patients to hold more power (cf. Kata, 2011: 3779). Actors like Robert De Niro, Jessica Biel, Jenny McCarthy, Alicia Silverstone, and Jim Carey, artists like the rapper Kevin Gates, journalists like Olivia Steer, and activists who bear illustrious names like Robert F. Kennedy Jr. manifest their "disillusionment and suspicion towards science and the notion of expertise" (cf. Kata, 2011: 3780). Besides, they express their doubt about the effectiveness and innocuousness of vaccines (Hoffman, 2019). These celebrities are neither health professionals nor scholars; however, widely known and esteemed, they get lots of media coverage for their anti-vaccine claims in hybrid online and offline environments. In many situations, celebrities got involved in the anti-vaccine movement because their children have autism or other diseases supposed to be caused by vaccines.[4]

Last but not least, it is essential to include among the significant sources of anti-vaccine messages the anti-vaccination activists who count as online influencers. As mentioned above, most people live now in a postmodern medical paradigm, characterized by hypercomplex interaction networks and user-generated content (cf. Kata, 2011: 3779). According to some studies, 80% of internet users search for health information online and 16% of seekers searched online for vaccination information. Of this group, 70% say what they found influenced their treatment decisions (cf. Kata, 2011: 3779). Unfortunately, medical pieces of information on websites form a confusing mixture. The educated opinions of health professionals and the accurate descriptions of some drug side effects are put together with irrelevant or even preposterous claims of unqualified laypersons. In these perplexing circumstances, online influencers may rival physicians as the leading source of health advice (cf. Kata, 2011: 3779).

2. Anti-vaccine topics and ideas

Like all populist or new age ideologies, the anti-vaccine movement is extremely heterogeneous in terms of supporters, motivations, ideas, and claims. The tidal wave of anti-vaccine propaganda is made up of parents (especially mothers belonging to the middle-class) who are worried about their children's health and who sincerely want the best for their little ones. In general, such parents base their health care decisions on junk knowledge they found on the internet. They ignore the undeniable fact that the internet is an "overstuffed bazaar" (Bruni, 2019) where quality data are overwhelmed by dubious or misleading information. These parents often believe that the ailments of their children (especially autism and autoimmune diseases) are caused by a single factor, easy to be located and incriminated, namely vaccines.

Unfortunately, the anti-vaccine wave of parents who reject immunization in good faith is ridden by countless influencers animated by nefarious motives: health care specialists stripped of their license who want to be perceived as martyrs to a great cause, doctors who want to expand their sphere of competence and influence in an abusive manner, pundits who promote religious or metaphysical paradigms in which vaccination cannot be considered a legitimate practice, New Age gurus who promote "healthy eating and lifestyle", libertarians who systematically oppose any governmental policy, anti-capitalists who excoriate pharmaceutical companies for their alleged excessive profits, bigoted clergymen who see in vaccination an attack on God's plan, social media stars who resort to clickbait scam in order to increase their website traffic and advertising revenue, paranoid people who are obsessed with conspiracy theories, etc.

The stream of anti-vaccine propaganda is so multifaceted and supplied from so many and varied sources that it is almost impossible to systematize all anti-vaccine topics and ideas. Sometimes anti-vaccine ideas are formulated directly and explicitly; sometimes, they are expressed in an implicit or allusive manner. In some cases, the anti-vaxxers openly assume their label; in other cases, they camouflage themselves under the labels of "pro-safe vaccine" supporters (Kata, 2011: 3781) "vaccine risk-aware" parents (Dickson, 2019), or "vaccine-hesitant parents" (Ali, 2019). Some anti-vaccine claims are presented in a quasi-scientific way, by citing different bibliographical sources, presenting some statistical data, or discussing some theses with pros and cons. In other situations, anti-vaccine claims are given in a simple dogmatic way.

The anti-vaxxers are incredibly versatile. They deliver their obnoxious ideas in a

multitude of forms (text, animation, audio, video, or graphics) and formats (book, flyer, leaflet, brochures, booklet, presentation, poster, ad, podcast, audiovisual material, social media post, or social media comment). Many times, anti-vaccine ideas are hybridized with harsh criticism over other medical problems (most of them invented): abuses in the pharmaceutical industry, the harmfulness of chemotherapy, 5G health risks, inventing disorders (in psychiatry) for drugs profit, the recruitment and sponsorship of pro-vaccine activists by masonry, or frauds with cytostatics and other vital drugs.[5]

Although anti-vaccine messages are proliferating exponentially in the media sphere (especially on the internet), most of them reiterate the same central ideas concerning the following topics: (a) natural order, (b) human rights, (c) healthy human system, (d) unnecessary treatment, (e) dangers of vaccines, (f) conspiracy theory, and (g) vested interests.[6]

Table 1. Anti-vaccine topics and ideas

Anti-vaccine Topics	Anti-vaccine Ideas
Natural order	· Vaccination is against God's Will. · Vaccination is an anti-Christian act. · Modern medicine's tendency toward overtreatment and interventionism undermines human health.
Human rights	· Forcing vaccination on every child undermines civil liberties. · Doctors should not dictate medical decisions about children. · Parents have the right to choose what they think is the best option for their children. · Government should not be able to tell people what to put in their bodies.
Healthy immune system	· Vaccines slowly and systematically destroy the natural immune system. · Trivial infections and childhood diseases are necessary for developing a healthy immune system. · Vaccine preventable diseases protect us from a much more serious diseases: cancer, tumors, severe kidney disease, and allergies.
Unnecessary treatment	· Childhood diseases are not so serious as to require preventive intervention. · Natural immune system provides sufficient protection. · Vaccines have never saved us. Epidemics have not disappeared due to vaccines but because of other causes: improved hygiene, healthy food, or clean water. · Vaccine preventable diseases can be avoided by healthy nutrition and hygiene practices. · There are alternative treatments for childhood diseases. E.g., homeopathy.
Dangers of vaccines	· Vaccines are not 100% safe. · Vaccines contain toxic substances: aluminum, thimerosal (ethylmercury), formaldehyde, gelatin, antibiotics, monosodium glutamate (MSG), sucrose, sodium Hydroxide, etc.
Side effects of vaccines	· Vaccines may cause autism, infertility, encephalitis, meningitis, paralysis, autoimmune disease, ADHD, leukemia, cancer, diabetes, asthma, juvenile arthritis, etc. · Vaccines create a world of all kinds of debilitating allergies and inflammations. · Side effects of vaccines are too numerous and grave to be recorded and treated.

Conspiracy theory	· By means of vaccines, globalist leaders and agencies aim to de-populate the planet or to cause various sort of harm at a mass scale. · Vaccines will be used to collect biometric identities of all people.
Vested interests	· Children are guinea pigs for Big Pharma. · Vaccination policy is motivated by profit for pharmaceutical companies and physicians.

As can be seen, the assertions focused on the first two topics arise from philosophical and religious views about health problems and solutions. These statements can be discussed and criticized but not falsified in the conceptual framework developed by the anti-vaccine activists. The one who guides his life after the fatalistic dictum "Deus vultus" cannot be convinced with empirical evidence to use vaccines as natural means of preventing certain diseases. For a believer, natural evidence cannot falsify supernatural intuitions even if the health and life of his children are at stake. In the same way, "libertarians" and "socialists" will be permanently at odds with the ultimate authority on the child's health problems. As individualists, libertarians claim the right to decide whether or not to vaccinate their children. Assuming a collectivist perspective on society, the socialists claim that in certain circumstances, the child and society's best interests exceed the parents' right to decide on such health problems freely.

The ideas focused on conspiracy theories and Big Pharma vested interests also have propositional contents impossible or hard to falsify through empirical evidence. Nobody can bring empirical evidence to prove that there is no all-powerful agency trying to implement the diabolical plan to de-populate the planet. The idea of such a diabolical plan is absurd. One can highlight an absurdity utilizing logic, but he cannot falsify it by means of empirical data so that the followers of conspiracy theories to give it up.

On the other hand, it cannot be denied that there are major financial interests related to vaccines' production and sale. For example, in 2016, vaccines represented around 5% of the world drug market, with a turnover of 42.3 milliard Euros. Around 65% of it was shared between four companies: Merck, Sanofi Pasteur, GSK, and Pfizer (cf. Chevailler, 2019: 32). It is reasonable for the general public to ask for explanations regarding the small number of vaccine manufacturers and the massive amounts of money at stake. Such reasonable explanations can be provided outside any conspiracy theory. The increased pressure of public opinion and the threat of civil claims have forced the vaccine manufacturers to adopt increasingly high safety standards. Compliance with these standards imposed costs so high that some manufacturers have been eliminated from the vaccine market. Only big pharmaceutical companies can internalize the high costs of medical research and the costly adaptation to the safety standards.

The undeniable fact that companies in the drug industry have not guaranteed great profits is illustrated by the tribulations of some American antibiotic producers:

“Antibiotic start-ups like Achaogen and Aradigm have gone belly up in recent months, pharmaceutical behemoths like Novartis and Allergan have abandoned the sector and many of the remaining American antibiotic companies are teetering toward insolvency. One of the biggest developers of antibiotics, Melinta Therapeutics, recently warned regulators it was running out of cash.” (Jacobs, 2019)

Unlike the subjects discussed above, the topics related to the harmlessness and effectiveness of vaccines are fully open to reasonable debates based on empirical evidence and sound arguments. Therefore, governmental health agencies like The National Center for Surveillance and Control of Communicable Diseases (http://www.cnscbt.ro), professional medical publications like The Medical Life (https://www.viata-medicala.ro), and educational centers for parents like The Virtual Children’s Hospital (https://www.facebook.com/drCraiuMihai) strive to address the parents’ concern about the safety and effectiveness of vaccines. They provide – sometimes in a preemptive way â□□ useful information about infectious diseases and vaccines, vaccine stocks, legislation, guides, protocols, and procedures, annual reports, surveillance data analysis, or side effects. All these precious data are available for those who need to relieve their anxieties.

3. Communication behaviors related to childhood vaccination. Types of anti-vaccine fake news

As one can quickly notice, the ideas professed by vaccine-hesitant parents and anti-vaccine activists diverge from those of public officials. All governmental agencies involved in national health policy are required by law to provide precise, relevant, reliable, and complete information. In order to reach such high standards of rationality, these institutions have to build truth-conducive mechanisms in such a way that the information produced and disseminated corresponds as well as possible to reality. They take into consideration only reliable sources of information, systematically collect all relevant data, consider all plausible hypotheses, and strive for valid interpretation of data. To put into circulation official information on vaccines, one must have credentials in microbiology, immunology, or epidemiology. Therefore, it is no wonder that official information seems arid and often presented with delay in the public sphere.

On the other hand, vaccine-hesitant parents and anti-vaccine activists feel free to discuss their feelings, attitudes, or opinion whether or not there is a solid factual basis for them. In general, the anti-vaxxers have no professional qualifications in the field and disseminate emotion-laden propositions in emotionally charged contexts. They are prone to panic and tend to feed panic. Many times, people who are receptive to anti-vaccine ideas spread rumors and gossip.

Rumor and gossip have two dimensions, one expressive, the other instrumental. If instrumentalized to cause harm, rumor and gossip deserved to be condemned and kept under control. Sometimes, it could be recommendable to punish people who spread them maliciously in the media sphere. If rumor and gossip are taken into consideration under the expressive dimension, they are valuable resources for understanding some deep-seated communication dysfunctions in a given situation.

It is said that rumor don't go around about everyone and everything. Rumor has credibility and velocity only if there is an unspoken truth behind it. Of course, this uncovered truth could have no direct correlation with the rumor. For example, many people persist in believing that the MMR vaccine causes autism because the public officials reacted with delay and awkwardness to the apparently scientific claims of Andrew Wakefield. The connection between the MMR vaccine and autism is false. However, this idea got traction because it is a truth that public officials dealt negligently with the parents' anxiety generated by Wakefield's article.

Summarizing, (a) public officials may disseminate only information verified as accurate and true in a context that favors reasoned debate, and (b) the opponents of vaccination are prone to ventilate unverified information in emotionally charged contexts, which are liable to induce panic. However, to support vaccination campaigns through strategic communication, it is not sufficient to know the predominant information-spreading behaviors. It seems necessary to take into consideration the most pernicious category of messages, namely the fake news.

The literature on fake news is considerable. It contains lots of exemplifications, definitions, descriptions, classifications, and correlations that help us to understand this complex and elusive phenomenon. In this article, I will discuss only a few of them.

At first, it is essential to assume a clear definition of fake news. A convenient starting point in this regard is the definition proposed by Hunt Allcott and Matthew Gentzkow: The class of fake news includes all "news articles that are intentionally and verifiably false and could mislead readers" (Allcott & Gentzkow, 2017: 213).

It follows that fake news pretends to tell us something new about a situation, person, or event. In other words, fake news feigns to show us a newly discovered fact, not a sheer opinion. Actually, fake news presents either a well-known fact (e.g., "All drugs and vaccines have adverse effects")[7] or a propositional attitude (e.g., "I believe that natural immunity is preferable to vaccine-acquired immunity"). "Sold" as genuine news, the opinion articles that are devoid of any evidence surely count as fake news. On the other hand, the articles that openly express evidence-based opinions and help people to

understand some complicated issues better should not be considered fake news.

Secondly, in the narrow sense, fake news is "deliberately fabricated and disseminated with the intention to deceive and mislead others into believing falsehoods or doubting verifiable facts" (cf. Fârte & ObadÄ, 2018: 29-30). Anyone who publishes news (about vaccination) assumes *ipso facto* the primary intention of sharing true information. He would only fulfill this pledge if the information he transmits was verified as being correct, complete, and up-to-date. On the contrary, he breaks his commitment and propagates fake news if the information transmitted is inaccurate, partial, or out-of-date. The gravest form of misinformation by fake news is the spread of blatant lies.

It is worth noting that the intention to inform does not have to be exclusive. People often disseminate valuable news through mass media to inform, educate, motivate, train, facilitate the purchase decision, get votes, etc. Mixing the primary intention of informing with other intentions does not necessarily lead to false news. For example, the members of a think-tank who post informative messages about vaccines in social media could subsidiarily aim to increase their employability, to strengthen the organization's prestige, or to get funds from donors.

Those who produce and disseminate fake news about vaccines in order to mislead worried parents prove intentional wickedness. Fortunately, they seem to be few, maybe because their deed could be considered criminal and punished by the court. Most people who spread such fake news are guilty of recklessness or negligence. An illustrative example of recklessness is provided by an online activist who referred to the scientific finding that "the flu vaccine prevented fewer deaths than expected in people over 65" using the sensationalist (and ridiculous) headline "Flu Vaccines Are Killing Senior Citizens, Study Warns" (Moyer, 2018). On the other hand, people can be guilty of negligence if they (re)distribute anti-vaccine messages (sometimes just to ridicule them) on social networks without considering the risk that some people could believe them. For example, the American film studio 20th Century Fox was guilty of negligence when created a group of fake news sites as part of a viral marketing campaign for its film *A Cure for Wellness*. "The sites displayed ads for the movie and slipped references to its plot alongside made-up stories about divisive topics like abortion, vaccines, and President Trump. (…) Some [fake news] were shared thousands of times on social media by users who appeared to believe that they were factual news stories, and others were reposted by partisan websites like Red State Watcher" (Stack, 2017).

Finally, the propositional content of fake news could be (a) verifiable false (e.g., "The MMR vaccine causes autism"), (b) devoid of any evidence (e.g., "The world's six largest pharmaceutical companies have plotted to eliminate their competitors in order to

increase their profits"), or (c) irrelevant to the problem at hand (e.g., "Some orthodox monks condemned participation in child vaccination").

Summarizing, it is possible to discriminate between genuine news and fake news based on four criteria: (a) the level of facticity, (b) the quality of information, (c) the importance of the intention to inform, and (d) the degree of intentional wickedness. Evidently, the types of fake news types can be discriminated from genuine news rather methodologically than ontologically (Fârte & ObadÄ, 2018: 28). In fact, there are intermediate forms of fake news in regard to each classification criterion.

(a) The level of facticity

High level	Genuine news
	Evidence-based opinion article
	Factual article including well-known data
Low level	Opinion article devoid of any evidence

(b) The quality of information

High quality	News article verified as being correct, complete, and up-to-date
	Article based on pretended expertise and containing incomplete or inaccurate information
	Out-of-date news article
	Article with inaccurate data
	Pure speculation
Low quality	Article based on blatant lies

(c) The importance of the intention to inform

Of great importance	Strictly informative article

Article where the intention of information predominates

Informative article where the intention of information is secondary

Of little importance Noninformative article

(d) The degree of intentional wickedness

High degree Malicious fake news

Fake news disseminated by recklessness

Low degree Fake news disseminated by negligence

There are many situations in which a given article may not be included in the fuzzy set of fake news unless one considers the communication context and the recipients' prior knowledge about the subject.

4. Effective PR strategies for containing anti-vaccine activism

As a coordinating authority on international public health, the World Health Organization (WHO) continually stresses the importance of communication about vaccine safety. According to it, communication professionals should be prepared to (a) explain adequately the benefits and risks of a recommended vaccine, (b) address public concerns and upcoming or persistent rumors about vaccine safety, and (c) manage vaccine safety crises if and when they occur (WHO, 2018).

Vaccines do not protect us from all diseases, but they prevent the spread of infectious diseases in a world that is becoming more and more globalized. A very high vaccination coverage (>95%) creates "herd immunity" (also called "community immunity or "herd protection") that gives protection to different groups of people who are particularly vulnerable to disease, but cannot safely receive vaccines (Oxford Vaccine Group, 2019):

- people without a fully-working immune system
- people on chemotherapy treatment
- people with HIV
- newborn babies
- elderly people
- people who are very ill in hospital

That is why it is necessary to reach a broad consensus on vaccination, and this

consensus depends largely on combating fake news about vaccines.

Given the importance of vaccination and the proliferation of fake news about vaccines, public authorities might be tempted to use coercion or propaganda for manufacturing consensus. The experience has shown that coercive and propagandistic measures backfire. At present, people are more jealous of their freedom than ever before. The new communication technologies allow them to connect with a myriad of anti-establishment (*eo ipso* anti-governmental) communication nodes. Therefore, the best way to ensure compliance with the policy of vaccination is to build a liberal consensus through public relations programs.

Public relations specialists use strategic communication (as reasoned persuasion) in order to mold peoples' cognitions, attitudes, and behaviors, and thereby to generate "mutual understanding, goodwill, and support" (Smith, 2002: 4) in an open, free, and pluralistic society. The broader use of vaccines has caused bitter divisions in our societies. By enhancing credibility, restoring trust, and repairing misunderstandings, we can heal, at least in part, many of such divisions.

Public relations strategies are legion because specific communication goals could be very numerous and diverse. Some strategies "enable an organization to launch a communication program under the conditions and according to the timeline that seems to best fit the organization's interests" (Smith, 2002: 4). They are considered *proactive strategies*. The others are "measures that respond to influences and opportunities from an organization's environment" (Smith, 2002: 82). These approaches are generally called *reactive strategies*. To neutralize the pernicious anti-vaccine messages, the governmental agencies and other organizations that sustain vaccination policies have to implement mixtures of proactive and reactive strategies.

In his excellent book *Strategic Planning for Public Relations* (2002), Ronald Smith presents a comprehensive list of proactive and reactive strategies. In the following, we will only refer to some of them, which seem to be more effective in countering anti-vaccine fake news. Obviously, the list of such effective PR strategies remains open.

The most basic proactive strategy for coping with fake news is **transparent communication**. The organizations involved in vaccination policy show transparency and accountability if they make their goals and activities open and observable to whom it may concern. Transparency means to give comprehensive information about vaccines and vaccination so that people could see the (acceptable) reasons behind public officials' positions and actions. Transparency increases the public's knowledge and understanding. Last but not least, it prevents rumors.

One can apply the strategy of increasing transparency policy by various means. For example, a good website − well stocked with relevant content, optimized for different devices, browsers, data speed, search engines, and users, able to scale to several potential visitors, functional, user-friendly, secure, and reliable (Chand, 2016) − allows the public a prolonged and comprehensive contact with relevant information about vaccines. Such a website is also an educational tool, not just an information tool. The websites of the [Romanian] National Center for Surveillance and Control of Communicable Diseases (http://www.cnscbt.ro), World Health Organization (https://www.who.int/vaccine_safety/initiative/communication/en), Oxford Vaccine Group (http://vk.ovg.ox.ac.uk/vk/herd-immunity) are excellent tools for increasing transparency about vaccination. On the contrary, the Pro Vaccine's website (https://provaccin.wordpress.com) falls short of the transparency standard because it mixes valuable information about vaccination with biased opinions about highly controversial topics such as abortion.

Using websites to increase transparency, supporters of the vaccination policy can provide a reliable platform for debunking uneducated opinions and false speculations about vaccines. For example, it is known that anti-vaccine activists insist on incriminating some vaccine ingredients (e.g., aluminum, thimerosal, and formaldehyde). In the section "FAQs about vaccines" of the website "Vaccine Knowledge Project" people could find exhaustive information about all active and added vaccine ingredients. These data support the official claims that "many of the substances used in vaccines are found naturally in the body," "[a]ll vaccine ingredients are present in very small quantities," and "there is no evidence that they cause harm in these amounts" (Oxford Vaccine Group, 2019)[8]. In general, the opinion articles that incriminate some vaccine ingredients do not mention reliable scientific data.

A second proactive PR strategy is **publicity**, namely delivering newsworthy information about vaccination to the media in order to capture the interest of its publics. Of course, it is not easy to find information that may be considered attractive and valuable at the same time by the public health organizations, by the journalists, and by the public. However, there are many newsworthy facts and events about vaccination that could achieve significant media coverage: the decline in the number of girls receiving the HPV vaccine which protects against cervical cancer[9], the fact that over 140,000 people worldwide died from measles in 2018[10], the televised debate between a pro-vaccinist (Dr. Mihai Craiu) and an anti-vaccine celebrity (Olivia Steer)[11], the involvement of some Orthodox monks and priests in the anti-vaccine movement[12], etc. Once the media and the public devote attention to these topics, PR specialists can try to deliver,

additionally, comprehensive information in order to strengthen the intended influence.

Publicity depends largely on delivering news and informative articles that are verified as correct, complete, and up-to-date. Beyond their informative value, these articles may directly disprove some well-known anti-vaccine speculation, such as the claim that aluminum-containing vaccines harm the brain of children. Many Romanian journalist have taken an essential piece of information related to aluminum ingestion: “While infants receive about 4.4 milligrams of aluminum in the first six months of life from vaccines, they receive more than that in their diet. Breast-fed infants ingest about 7 milligrams, formula-fed infants ingest about 38 milligrams, and infants fed soy formula ingest almost 117 milligrams of aluminum during the first six months of life” (Children’s Hospital of Philadelphia)[13]. Dr. Mihai Craiu challenged Olivia Steer’s claim about the toxicity of vaccines using the information mentioned above. Left without reply, Olivia Steer slowed down her anti-vaccine campaign closing, for example, her Facebook account.

As reactive PR strategies for counteracting anti-vaccine fake news, one can use the following approaches selected from the classification of Ronald Smith (Smith, 2002: 100-116): (1) preemptive rebuttal, (2) attack, (3) shock, (4) denial, (5) justification, (6) concession, (7) concern, (8) apology, (9) rectification, and (10) silence. Each strategy could serve as a very effective way of counteracting different types of fake news.

The **preemptive rebuttal** is “based on the observation that the first one to tell the story sets the tone, against which all alternative versions must compete” (Smith, 2002: 101). It implies anticipatory strikes when bad news is inevitable (Smith, 2002: 101). Prebuttal could help prevent the negative impact of anti-vaccine articles based on reliable scientific data.

Because of the “cloud of fear surrounding vaccines” (Moyer, 2018), scientists, public officials, and pro-vaccine opinion leaders tend to censor themselves, “playing down undesirable findings,” “avoiding undertaking studies that could show unwanted effects,” or declining to comment about the shortcomings of some vaccines. Capitulating to this tendency, they give anti-vaccine activists the opportunity to make the first step. Thereby they allow anti-vaccinists to shape the frame of discussion inconveniently. In an open, free, and pluralistic society, the problematic findings – such as the association (not causal link) between a flu vaccine and miscarriage (cf. Moyer, 2018) − cannot be hidden. If they are not discussed preemptively as means of improving the quality of vaccines, they surely will be used by anti-vaccine activists, not so much to inform the public but to undermine the public’s confidence in all vaccines.

As an offensive response strategy, the **attack** targets the credibility and honesty of the anti-vaccine opinion leaders. This strategy should be used primarily against scientists

stripped of their academic credentials (e.g., Andrew Wakefield) and doctors who went outside their area of expertise (e.g., Dr. Christa Todea-Gross and Dr. Mircea PuÅ□caÅ□u) because they give credibility to anti-vaccine ideas to the greatest extent. Based on pretended (but widely perceived) expertise, their articles stay on the blurred border between genuine, informative articles and fake news. Ultimately, these pretended experts act deceitfully inasmuch they deliver imposter content with incomplete or inaccurate information. Sometimes it could be suitable to threaten such "experts" with a lawsuit or withdraw an academic or medical license. (This option was used in the cases of Andrew Wakefield and Mircea PuÅ□caÅ□u.) However, some caution is required here not to create the perception of a "martyr to a great cause."

Secondly, it could be suitable to attack those celebrities who endorse anti-vaccine movement (e.g., Jessica Biel, Jenny McCarthy, and Alicia Silverstone) even though they have no medical credentials. It is recommendable to attack ruthlessly such famous persons because people tend to believe what beloved celebrities say even if the opinions and speculations brought to attention are wrong.

A third target of the attack strategy consists of religious leaders who arrogantly want to mold public opinion regarding vaccination. Because of their supposed privileged relationship with Divinity, priests and monks have (and keep) an aura of infallibility in the eyes of believers even if some of their ideas or actions are preposterous. For example, the priest Iustin Petre advised his "disciples" not to vaccinate their children. [14] Instead of vaccination, he offered the children of his disciples the Holy Communion____. Such people deserve scorn and should be scorned to the extent of their arrogance.

Applying the strategy of **shock** means to expose the target audience to a strong and unexpected stimulus to stir up agitation of the mind or strong emotions (such as surprise, disgust, or indignation). The shock strategy was used by Laura Brennan, a victim of the anti-vaccination campaign in Ireland, that caused a sudden fall in the uptake of the HPV vaccine. When she was 24, Laura Brennan was diagnosed with cervical cancer. After a year, she was told that her cancer is metastatic noncurable. Laura Brennan was alarmed that people were not getting the HPV vaccine to prevent women from being in her tragic situation. She started a pro-vaccine campaign sending the following emotion-laden message: "If anything good comes out of this, I would hope parents would get their daughters vaccinated. The vaccine saves lives. It could have saved mine". (cf. Grimes, 2019) After Laura Brenan's campaign, the rate of HPV vaccination climbed back up over 70 percent in Ireland. (*ibidem*) This case proves that in an emotion-charged context − filled with irresponsible speculation − it is sometimes necessary to send emotion-laden messages.

Denial is a reactive strategy in which "the organization refuses to accept blame, claiming that the reputed problem does not exist or did not occur, or if it did, that it is not related to the organization" (Smith, 2002: 104). The best-known use of denial is related to the relation between the MMR vaccine and autism. Because the rumor that the MMR vaccine causes autism got traction internationally, it was necessary to deny it on a scientific basis vigorously. This was done with professionalism. Unfortunately, denial is not very effective because the anti-vaccine activists tend to ignore evidence or simply change the object of (unproven) accusations. For example, once proved that the MMR vaccine does not cause autism, they would claim that it causes encephalitis, meningitis, paralysis, autoimmune disease, or ADHD. Denial works only where vaccine-hesitant parents are open to evidence-based arguments.

The supporters of vaccination policies may use the strategy of **justification** when they admit to doing certain controversial deeds but did so for a good reason. For example, it is known that some vaccines (e.g., the vaccine against Rubella) contain live viruses that have been prepared from human cell lines of fetal origin, using tissues from aborted human fetuses as a source of such cells.[15] For many Christian, accepting immunization with such vaccines means passive material cooperation in evil. For them, abortion is a grave sin, even if it is legal. Therefore, vaccine manufacturers and public health agencies should provide an acceptable justification for using tissues from aborted human fetuses. They also should give assurances that they seek alternative solutions devoid of moral difficulties.

The **concession** is a "diversionary strategy by which the organization tries to rebuild its relationship with its publics by giving the public something it wants" (Smith, 2002: 106). For example, although "there is no evidence to suggest that the amount of thiomersal used in vaccines poses a health risk" (WHO)[16], "several public health agencies and vaccine manufacturers agreed in 1999 to cease using thimerosal as a precautionary measure", so that today "no vaccine contains Thimerosal except the influenza vaccine" (Public Health)[17]. Using concessions, public health agencies reduce social tension around vaccination and manifest consideration for the public's concerns.

Needless to say, concessions can backfire. Some anti-vaccine activists could treat an unnecessary concession as a token of weakness or as delayed recognition of past mistakes. Thus, fake news (as pure speculation or opinion devoid of any evidence) may proliferate instead of dwindling. However, concessions offer the advantage of reducing the social tension around vaccination and proving demand towards the public's concerns.

The strategy of **concern** allows pro-vaccine organizations to show the public that they are not indifferent to a problem, without admitting any guilt. Since all drugs and vaccines are imperfect and could have side effects, emphatic manifestations of concern demonstrate empathy and alleviate people's anger or anxiety. The vaccine manufacturers and public officials should give assurances that they take into consideration all possible adverse effects and seek remedies against them.

When an organization is clearly at fault, and when the long-term rebuilding of relationships is more important than short-term stalling or legal posturing, it could resort to the **apology**, accepting full responsibility and asking forgiveness (Smith, 2002: 109). Targeted by good, informative news and educated evidence-based opinions, the organization cannot avoid public apology without risking a denigration campaign. It is noteworthy that such a campaign involves, besides uncomfortable truths, malevolent speculations, insults, and blatant lies.

For example, the former Romanian minister of public health, Ion Bazac, did apologize in January 2009 for the failure of the HPV vaccination campaign. According to the audit, only 2.57% of the targeted population received the HPV vaccine. The minister recognized that parents were not adequately informed, and doctors did not receive methodological instructions regarding the vaccination procedure.[18] The minister's apology prevented malicious rumors and began preparations for the next campaign of vaccination.

The strategy of **rectification** is opportune when an organization involved in vaccination programs is rightly accused of a misdeed that has caused harm. Rectification implies containing a problem, repairing the damage, and preventing its recurrence (Smith, 2002: 111). Unfortunately, there were many cases in which organizations did not take corrective action, although rectification was necessary. For example, in 2010, the Romanian Ministry of Health was rightly accused by the media for approving immunization with the BCG vaccine doses that have expired for several months.[19] Despite criticism, the vaccination program with expired doses continued. Of course, such an attitude can only undermine public confidence in the safety of the vaccination program.

Finally, **strategic silence** can work when patience and composure could not be confounded with accepting guilt or embarrassment. Nowadays, vaccination programs are criticized by a multitude of social groups and for a variety of reasons: (a) vaccine-hesitant parents who are concerned about the health of their children, (b) former scientists in search of celebrity, (c) social media influencers who want to earn more

money by increasing the traffic on their websites, (d) religious leaders who speak in the name of God in matters where they are ignorant, (e) New Age gurus who try to mold the entire people's life, etc. No public health agency could design and implement a consistent vaccination program if it reacts to each anti-vaccine message or action. Moreover, the mixture of genuine news, evidence-based opinions, speculations, and fake news is so intricate, and the media outlets form a network so confusing that nobody can manage to give a satisfactory reply to all challenges. Only through trial and error, one can find out when to keep silent and when to speak.

Conclusion

In this article, we have started from the assumption that vaccines are among the most significant and most effective public health interventions in preventing morbidity, mortality, and public health costs caused by infectious diseases. Like all other human artifacts, vaccines are imperfect. Most of them have significant side effects. The existing vaccines can be improved or may be replaced with better vaccines, but it would be a disaster to give up their benefits. Moreover, because certain social groups cannot be vaccinated, any society needs high vaccination coverage (>95%) and eo ipso a broad consensus on vaccination.

In our open, free, and pluralistic societies, it is challenging to achieve such a broad consensus. The news communication technologies give vaccine-hesitant parents and anti-vaccine activists the power to disseminate a myriad of half-truths, malevolent speculations, preposterous ideas, and blatant lies about vaccination. Many of these ideas were grouped around several anti-vaccine topics in order to see their recurrence easily. Then, we have discriminated several essential sets of media article – from genuine news to blatant fake news − based on four criteria: (a) the level of facticity, (b) the quality of information, (c) the importance of the intention to inform, and (d) the degree of intentional wickedness. Finally, starting from an excellent contribution of Ronald Smith, we have presented twelve public relations strategies that could be effective in countering fake news and building a strong consensus on vaccination. Most of them were illustrated with real, current examples. These public relations strategies do not constitute a scientific panacea, but they surely can improve the present situation in regard to vaccination.

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Notes

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[1] Article 34 of the Romanian Constitution – *The Right to Health Care* – states the following: “(1) The right to health care is guaranteed; (2) The state is obliged to take measures to ensure hygiene and public health; (3) The organization of the medical care and social insurance systems in case of illness, accidents, childbirth, and recovery, the supervision of the exercise of the medical professions and of paramedical activities, as well as other measures for the protection of the individual's physical and mental health are established by law.”

https://www.constituteproject.org/constitution/Romania_2003?lang=en.

[2] The National Center for Surveillance and Control of Communicable Diseases, *Analysis of the Evolution of Communicable Diseases under Surveillance: Report for the year 2018*. http://www.cnscbt.ro/index.php/rapoarte-anuale/1302-analiza-bolilor-transmisibile-aflate-in-supraveghere-raport-pentru-anul-2018/file.

[3] The National Center for Surveillance and Control of Communicable Diseases, *Measles Cases in Romania on December 20, 2019*. http://www.cnscbt.ro/index.php/informari-saptamanale/rujeola-1/1313-situatia-rujeolei-in-romania-la-data-de-20-12-2019/file.

[4] “Possibly the most highly visible anti-vaxxer in Hollywood, [Jenny] McCarthy has a son who was diagnosed with autism when he was two-and-a-half” (Dickson, 2019). https://www.rollingstone.com/culture/culture-features/celebrities-anti-vaxxers-jessica-biel-847779.

[5] In this regard, it is very illustrative the Facebook page “GO ON, Olivia STEER”. The materials posted on this page contain lots of unusual hybridizations of anti-vaccine ideas. https://www.facebook.com/goonoliviasteer.

[6] All topics and ideas mentioned in the table appears recurrently on the anti-vaccine websites and social

media pages in Romania. E.g., https://actadiurna2016.wordpress.com; https://bucovinaprofunda.com; http://www.cuvantul-ortodox.ro; https://danielvla.wordpress.com; https://ortodoxinfo.ro; https://www.activenews.ro; https://saccsiv.wordpress.com; https://saccsiv.wordpress.com; https://www.facebook.com/goonoliviasteer. Most of them are taken from Western anti-vaccine source (e.g., the Facebook page "Stop Mandatory Vaccination". https://fr-ca.facebook.com/pg/StopMandatoryVaccinationNow/posts) and hybridized with fundamentalist orthodox ideas or New Age hints.

[7] ___ Although the proposition is true, it may count as fake news if someone repeats it for making anxious parents overestimate the risks of vaccination. Therefore, we should be suspicious of anyone who reiterates well-known truths in the mediasphere for no good reason.

[8] ___ http://vk.ovg.ox.ac.uk/vk/vaccine-ingredients.

[9] ____ https://www.irishtimes.com/opinion/editorial/decline-in-hpv-vaccine-uptake-will-have-worrying-health-outcomes-1.2768206.

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