



# European Medical Students' Association

Association Européenne des Étudiants en Médecine

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## Vaccine Hesitancy

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*The European Medical Students' Association (EMSA) represents medical students across Europe. We envision a healthy and solidary Europe where medical students actively promote health. EMSA empowers medical students to advocate health in all policies, excellence in medical research, interprofessional healthcare education, and the protection of human rights across Europe.*

## **Problem Statement**

Vaccine hesitancy is emerging as a critical public health challenge despite the proven success of immunization programs in controlling infectious diseases. The World Health Organization (WHO) defines vaccine hesitancy as a “delay in acceptance or refusal of vaccines despite the availability of vaccination services” (WHO, 2015; ECDC, 2020). According to The Lancet Child & Adolescent Health (2019), vaccine hesitancy has been reported in more than 90% of countries worldwide. The WHO identified it as one of the top ten threats to global health, as it undermines efforts to control infectious diseases, leading to preventable outbreaks and increased morbidity and mortality.

Additionally, this vaccine hesitancy is also a growing challenge in clinical education environments. As misinformation and distrust contribute to declining vaccination rates, medical students are increasingly exposed to preventable diseases during clinical rotations. This poses a heightened personal health risk and complicates their interactions with patients. For instance, resurgences of measles, pertussis, and COVID-19 have been documented in under-vaccinated communities in healthcare settings, where medical trainees often serve on the frontlines with limited authority and inadequate protection (Dubé et al., 2015; Gagneur, 2020).

Despite their future roles as trusted messengers in vaccine promotion, many medical students receive minimal formal preparation to successfully counter vaccine misinformation and lead public health advocacy in increasingly polarized environments (Sojati et al, 2023). The current medical curriculum in many countries frequently omits instruction on debunking myths, using behavioral science tools for persuasive communication, and addressing vaccine hesitancy in diverse sociocultural contexts (Paterson et al., 2016). Furthermore, a global assessment reported that only 62.7% of medical student respondents answered general vaccine questions correctly, further highlighting knowledge gaps (Saitoh et al, 2024).

This lack of training undermines both student confidence and broader public health efforts, representing a missed opportunity to harness students’ credibility and energy as peer educators and community advocates (McLean, Charlesworth, May, & Pollard, 2018). As future physicians, medical students must be equipped not only with scientific knowledge but also with the skills to lead vaccine education efforts, especially as healthcare professionals remain among the most trusted sources of immunization advice (Larson et al., 2018).

Modern research indicates that hesitancy is not solely rooted in a lack of knowledge but rather in a complex interplay of sociocultural influences, political dynamics, and pervasive digital misinformation. For example, studies indicate that online platforms have become a fertile ground for anti-vaccination narratives, where unverified claims about vaccine safety and efficacy rapidly gain traction (Kata, 2012; Larson et al., 2018; Tang et al., 2021). Historically, opposition to vaccination dates back to the late 18th and early 19th centuries, when mandatory smallpox inoculation was met with resistance (WHO, 2017).

While the core arguments against vaccines have remained largely unchanged, the rise of digital and social media has amplified the anti-vaccination movement, enabling misinformation to reach a global audience at unprecedented speed. This has created an additional burden for public health officials, who must now combat waves of disinformation while striving to control disease outbreaks (WHO,

2017). According to the WHO, simply debunking myths is insufficient; an effective response requires a comprehensive strategy that builds confidence, educates the public, and equips individuals with critical thinking skills to discern misinformation (WHO, 2017).

Vaccine hesitancy is driven by multifaceted factors, including concerns about vaccine safety, doubts regarding vaccine efficacy, inconsistent or insufficient information, and a low perceived risk of contracting vaccine-preventable diseases. Recent research (Troiano & Nardi, 2021; Loomba et al., 2021; Sallam, 2021) indicates that these elements do not act in isolation. Instead, they interact with contextual variables—such as the timing of vaccine campaigns, local cultural and political climates, and the specific nature of the vaccines themselves—to create a complex challenge for public health professionals.

Recent studies indicate that parents who exhibit vaccine hesitancy are particularly susceptible to misleading narratives and tend to rely on unverified information sources that exacerbate their concerns (Troiano & Nardi, 2021; Loomba et al., 2021). These parents are more inclined to accept fear-based messaging from anti-vaccination groups, even when such claims lack scientific substantiation. Furthermore, emerging research shows that conspiracy theories often play a significant role in reinforcing vaccine hesitancy, offering a framework that justifies their reluctance. This evidence highlights the urgent need for targeted public health interventions that counteract misinformation and rebuild trust in vaccination programs through transparent and culturally sensitive communication strategies (Sallam, 2021).

Similarly, the COVID-19 pandemic has intensified vaccine hesitancy, as the rapid development and emergency authorization of vaccines fueled concerns about safety and long-term effects (Parimi et al., 2022). Misinformation and conspiracy theories surrounding COVID-19 vaccines spread rapidly, deepening distrust in health authorities and vaccination efforts. Additionally, inconsistent messaging from governments and scientific institutions, such as frequently changing guidelines and conflicting statements, combined with varying policies per province or country, along with the politicization of public health measures, has heightened skepticism, not only toward COVID-19 vaccines but also routine immunizations (Romer & Jamieson, 2025).

The consequences of vaccine hesitancy extend far beyond individual health risks. Declining vaccination rates threaten herd immunity, placing vulnerable populations, including immunocompromised individuals and infants, at greater risk (Das et al., 2024). Healthcare systems also bear the burden, with increased hospitalizations and economic strain resulting from preventable disease outbreaks (Sinuraya et al., 2024). Addressing vaccine hesitancy requires a multifaceted approach that integrates evidence-based communication, policy interventions, and community engagement to restore public confidence and promote informed decision-making (Correia et al., 2025; Pennisi et al., 2024)

## Our View. Aim

Vaccine hesitancy has remained a priority for EMSA throughout the years due to its recognition as a significant public health challenge, particularly since the emergence of COVID-19 and the production of the relevant vaccine. As an organization, EMSA also understands the complexity of the various reasons

behind vaccine hesitancy and acknowledges that this global issue will not be overcome by a one-size-fits all approach.

EMSA has taken proactive steps to advocate for vaccine hesitancy, through organizing informational sessions and webinars to educate its members, and is currently working on a comprehensive infographic booklet meant to be disseminated to FMOs to target a wider audience of medical students and possibly the public. Additionally, EMSA is a full member of the Coalition for Vaccination, established by the European Commission in 2019, and a new member of the Infectious Disease Alliance, which strives for advocacy and education surrounding infectious diseases, including immunization awareness. EMSA also upholds and participates in World Immunization Week by helping promote global vaccination through representation in discussions, webinars, and workshops online.

EMSA's goal is to ensure that accurate, accessible, and easily understandable information about vaccines reaches both the public and future healthcare professionals. It emphasizes the importance of addressing safety concerns through reputable institutions while maintaining transparency to foster public trust. Furthermore, EMSA believes that equitable access to vaccines is essential in effectively tackling vaccine hesitancy from a public health perspective.

## **Recommendations**

EMSA calls on European institutions and national governments to:

- Develop an EU-wide digital vaccine education hub by:
  - Creating a centralized, multilingual digital platform providing scientifically accurate, accessible, and engaging vaccine information.
  - Offering interactive tools such as personalized vaccine schedules, AI-driven misinformation tracking, and live Q&A forums with experts (Tuckerman et al., 2022).
  - Ensuring multilingual access and mobile-friendly design to reach diverse and underserved populations (Correia et al., 2025).
  - Integrating the platform with primary care providers to enhance vaccine literacy among parents, emphasizing the importance of routine immunization from prenatal care onwards (Shen & Dubey, 2019).
- Strengthen digital misinformation countermeasures by:
  - Implementing real-time monitoring and debunking of misinformation through social listening tools (Tuckerman et al., 2022).
  - Collaborating with social media platforms to remove misleading content and promote credible sources (Tang et al., 2021).
  - Training healthcare professionals as digital vaccine advocates, with skills in motivational interviewing, myth debunking, and storytelling to effectively engage hesitant individuals (Shen & Dubey, 2019).
- Ensure equitable access to vaccination across Europe by:
  - Scaling up successful national initiatives, such as mobile vaccination clinics in France, community-driven campaigns in Portugal, and employer-based immunization programs in Germany, across EU member states (Correia et al., 2025).

- Adopting a family-centered approach that engages vaccine-hesitant parents with proactive and clear communication (Shen & Dubey, 2019).
- Removing logistical barriers through flexible scheduling, home vaccination services, and improved pain management techniques to encourage participation in immunization programs (Correia et al., 2025).
- Introduce an EU-wide digital vaccination card by:
  - Creating a standardized cross-border vaccination record system with automated reminders to reduce missed childhood vaccinations (Tuckerman et al., 2022).
  - Ensuring GDPR compliance to protect privacy, API interoperability to allow integration across systems, and paper-based alternatives for digitally excluded populations (Correia et al., 2025).
  - Establishing safeguards to prevent discrimination linked to vaccination status.

EMSA calls on healthcare providers, medical practitioners, and medical organizations to:

- Address vaccine hesitancy among healthcare professionals by:
  - Developing targeted educational programs and peer-to-peer discussions to increase vaccine confidence (Tuckerman et al., 2022).
  - Incorporating training in effective communication techniques, such as the presumptive approach, into medical school curricula to better equip future healthcare professionals in addressing patient concerns (Shen & Dubey, 2019).
- Strengthen healthcare worker engagement as vaccine advocates by:
  - Providing specialized training in motivational interviewing to help healthcare professionals reframe concerns, address fears, and build trust with hesitant individuals (Shen & Dubey, 2019).
  - Encouraging healthcare professionals to share their personal vaccination experiences to humanize the decision to vaccinate and strengthen public trust (Tuckerman et al., 2022).
  - Promoting honest communication by acknowledging side effects while emphasizing the overwhelming safety and benefits of vaccines compared to the risks of vaccine-preventable diseases (Shen & Dubey, 2019).
- Combat misinformation and promote vaccine literacy by:
  - Developing and distributing clear, evidence-based educational materials in simple, jargon free language to address common parental concerns (Tuckerman et al., 2022).
  - Promoting trusted resources from WHO, EMA, and national health agencies (Correia et al., 2025).
  - Encouraging the use of reliable vaccine-tracking apps such as CANImmunize to improve public access to accurate information (Correia et al., 2025).

EMSA commits to:

- Expand vaccine advocacy and awareness campaigns by:

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- Launching a student-led, EU-wide initiative focusing on social media education and community outreach (Tang et al., 2021).
  - Combating misinformation, engaging with local communities, and educating young parents on vaccine safety and importance (Tang et al., 2021).
  - Support evidence-based policy making by:
    - Collaborating with public health institutions to track real-time vaccine hesitancy trends (Tuckerman et al., 2022).
    - Advocating for increased funding for research on vaccine acceptance and effective interventions (Tuckerman et al., 2022).
  - Monitor and evaluate vaccine hesitancy interventions by:
    - Establishing a strong monitoring framework to assess the impact of interventions. ○ Tracking parental confidence, vaccine uptake rates, and the effectiveness of medical education initiatives (Correia et al., 2025).
    - Continuously adapting strategies and ensuring policy adjustments remain evidence-driven, relevant, and impactful (Tuckerman et al., 2022).

## **Definitions**

EMSA: European Medical Students' Association

WHO: World Health Organization

COVID-19: SARS-CoV-2 virus

EU: European Union

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