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Vaccine hesitancy in migrant communities: a rapid review of latest evidence☆

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By refusing or delaying vaccination, vaccine hesitant individuals and communities undermine the prevention, and ultimately, elimination of communicable diseases against which safe and effective vaccines are available. We reviewed recent evidence of vaccine hesitancy within migrant communities in the context of increased human mobility and widespread anti-immigrant sentiment and manifest xenophobia. Among many immigrant parents and families, vaccine hesitancy is largely associated with fears and misinformation about vaccine harms, limited knowledge of both preventable diseases and vaccines, distrust of host countries' health systems and their attendant intentions, language barriers, and perceived incompatibility between vaccine uptake and migrants' religion. Hesitancy toward measles, influenza, and human papillomavirus vaccines are most discernible, and main migrant populations involved include Somalis and Poles.

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Introduction

In 2019 the World Health Organization (WHO) reported that measles, a disease for which a safe and effective vaccine has been available for more than half a century, had seen a 30% global increase in cases since 2016, and several countries that were either measles-free or approaching measles elimination status had recorded a resurgence of the highly contagious respiratory disease [1,2]. This worrying situation comes nearly a decade after WHO Member States endorsed the Global Vaccine Action Plan at the World Health Assembly in May 2012, resolving to eliminate measles in five of the six WHO regions by the year 2020 [3]. The Decade of Vaccines (2011–2020) has come and gone, and no WHO region has achieved and maintained measles elimination [4]. Evidence from systematic reviews suggests stagnating and declining measles vaccination rates are due in part to vaccine hesitancy [5], broadly defined by the WHO Strategic Advisory Group of Experts on Immunization (SAGE) Working Group on Vaccine Hesitancy as the delay in acceptance or refusal to vaccinate oneself or others despite availability of vaccination services [6]. Grounded in rumors and misinformation about the safety and effectiveness of vaccines [7•], and digitally enabled by the internet and social media [8,9], the viral spread of vaccine hesitancy has been associated with diminishing public trust in science and in vaccination in multiple countries [10,11,12•]. WHO declared vaccine hesitancy as one of the world's top 10 global health threats in 2019 [13], urging regular monitoring of vaccine sentiments at national and subnational levels to gauge declining trust in vaccination and prioritize research and intervention in populations and subpopulations most at-risk for hesitancy. This paper reviews recent evidence of vaccine hesitancy among migrant populations.

Our interest in migrants is motivated by several factors. At the 72nd World Health Assembly of 2019, WHO prioritized the health of refugees and migrants, recognizing that access to healthcare services including vaccination is more difficult for migrants and people on the move [14,15]. Further, human mobility is often linked to infectious disease transmission [16]. Although vaccination is often required for immigration and refugee resettlement, many immigrant communities experience lower immunization rates and higher burden of vaccine-preventable diseases than host

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populations [17]. When involuntary and on a large scale [16], migration can be highly disruptive to both the displaced population and the host country, undermining the resilience of the health system and compromising health service delivery in the latter, including vaccination services [18]. Among the newcomers, some concerns about vaccination may be rooted in the culture or experience of the home country, and hence may precede migration [19]. Xenophobia (real or perceived) and potential undocumented status in the host nation may render some migrants both reluctant to integrate and vaccinate [20•,21]. Lastly, multiple outbreaks of vaccine-preventable diseases among some immigrant communities in host countries with otherwise high vaccination coverage suggest vaccine hesitancy could be a factor in their health vulnerabilities [22•,23••].

Defining migrants

The International Organization for Migration (IOM) is credited with the following definition of migrant: 'Any person who is moving or has moved across an international border or within a state away from his/her habitual place of residence, regardless of (1) the person's legal status; (2) whether the movement is voluntary or involuntary; (3) what the causes for the movement are; or (4) what the length of the stay is' [24]. This inclusive definition, however, overlooks the multigenerational structure and cultural heritage of many migrant families. As conveyed by the phrase 'second-generation immigrant', some native-born individuals can still be viewed as 'migrants' or may identify as such even without any personal experience of transnational migration. Several generations post-relocation, the values and health belief systems of the descendants can remain strongly grounded in the traditional culture of the country of national origin of their émigré parents, grandparents, or great grandparents. This is mostly evidenced in the religion of various migrant populations who become minorities in Western countries such as the Amish and Orthodox Jews in the United States (US), communities with documented histories of underimmunization and vaccine-preventable disease outbreaks [25,26]. Alternatively, upon arrival in the host country, some recent immigrants may be grouped with the long-established population of shared descent, even without assimilation. Hence, examining vaccine hesitancy among migrant populations in some host countries without implicating ethnic/racial minority populations can become challenging and problematic. In this review, we consider the ethnic/racial minority population of shared national origin with recent migrants in a given host country as members of the same emigrant group or diaspora.

Measles vaccine hesitancy in the Somali and Romanian diasporas

Although a consistent body of research has shown no causal relationship between the measles–mumps–rubella (MMR) vaccine and autism [27], misinformation about such a link has permeated several clusters of the global Somali diaspora [23••,28,29•]. In the US Midwest state of Minnesota, home to the largest US-based Somali immigrant population, MMR vaccination compliance among Somali children plummeted from 92% in 2004 to 42% in 2016 as a result of Somali parents' ill-informed fears of a link between the MMR vaccine and autism, driven by anti-vaccination activism targeted at the Somali Minnesotan community [28]. Ultimately, this sharp decline in immunization rate led to a 75-case measles outbreak between March and August 2017, which was largely confined to Somali Minnesotans who constituted 81% of the cases [23••]. Although no fatalities were reported, the cost of the outbreak was significant as more than 8000 individuals were exposed to measles and more than 500 persons were excluded from childcare and school for 21 days. The state of Minnesota and public health partners spent over US $2 million on the measles outbreak response [23••]. A 21-case measles outbreak had already afflicted the same community in 2011, after an unvaccinated 30-month-old Somali American child contracted measles following travel to Kenya [28]. In the same year in Northern Europe, an 18-case measles epidemic broke out in Oslo, Norway, and 70% of the unvaccinated children infected were from the local Somali community [29•]. In Sweden, Somali mothers who delayed MMR vaccine were concerned that their children may stop talking as a side effect from vaccination [30]. This delay was also compounded by Somali mothers' perceived stigmatization by Swedish health personnel who ignored their concerns or prejudged their stance on vaccination [30].

In the United Kingdom (UK), some migrant populations and subpopulations from Eastern Europe, namely Romanians and Roma Romanians, have been the focus of recent investigations after three measles outbreaks totalling 174 confirmed cases afflicted their communities between 2017 and 2018 in the cities of Birmigham, Leeds, and Liverpool [22•,31]. Findings from these studies revealed that rather than intentional delay or active refusal of vaccination, the main determinants of underimmunization in these immigrant communities were access-related, including language and literacy barriers as well as cuts to spending and services for medically underserved communities [22•,31].

Influenza vaccine hesitancy among Polish families in the UK

Current global estimates suggest that seasonal influenza is associated with more than five million hospitalizations [32], and up to about 650 000 deaths annually, including up to about 100 000 deaths among underfive children [33]. Annual vaccination is the primary prevention method against this acute viral respiratory disease. The UK is home to large numbers of migrants from Eastern Europe, the region with both the world's overall highest mortality

rate of influenza lower respiratory tract infections in 2017 (5.2 per 100 000 people) [34], and the world's lowest percentage (50%) of public trust in vaccine safety in 2018 [12•]. Research has documented low vaccination uptake rates among UK-based Polish immigrant children [35•,36••]. A cross-sectional study of vaccine uptake among primary school students in Edinburgh, Scotland, found that 37% of Polish families declined influenza vaccine for their children, compared to only 6% of White British families, resulting in a threefold difference in influenza vaccine uptake between White British (71%) and Polish immigrant (25%) children [35•]. Evidence suggests that Polish immigrant parents held many of their health beliefs and vaccination concerns before moving to the UK and continued to be influenced by the Polish diaspora mass media and social media as well as by opinions and current developments in Poland where a highly organized anti-vaccine movement is currently thriving [11,36••]. Likely amplified by Russian media [37], Poland's anti-vaccine movement is bolstered by widespread political populism in Eastern Europe associated with anti-science, anti-Western, and anti-immigrant sentiments [38•].

HPV vaccine hesitancy in immigrant populations

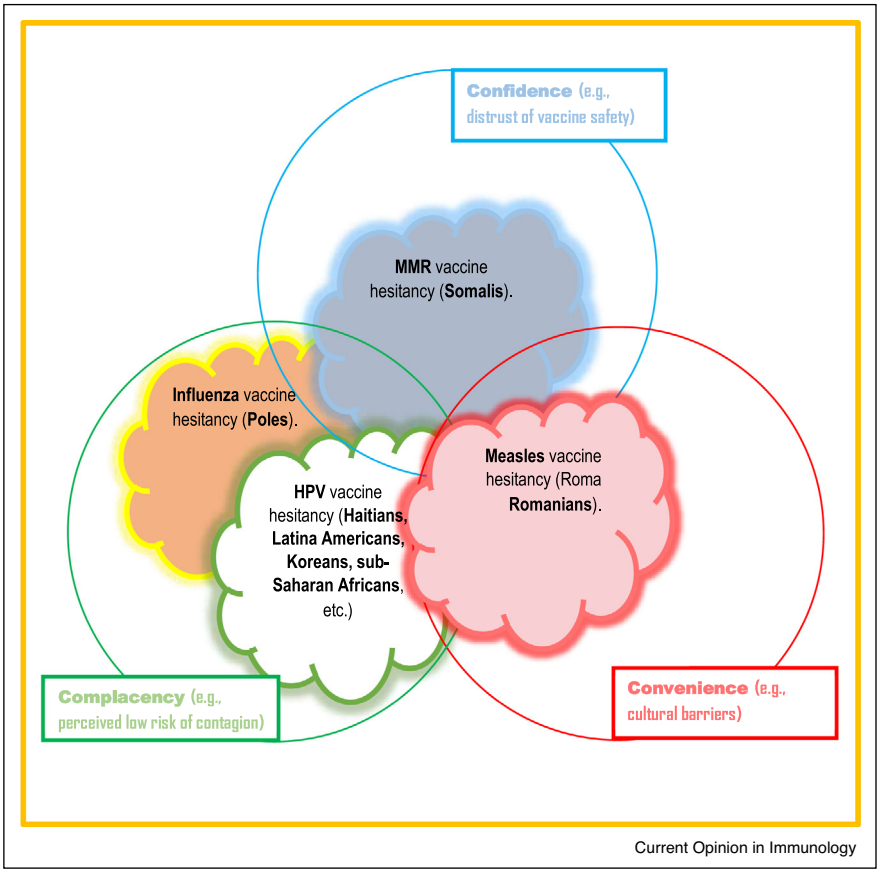
Sexually transmitted human papillomavirus (HPV) infects both men and women, causing genital warts and cervical cancer. The latter is the fourth most common malignancy among women worldwide after breast, colorectal, and lung cancers [39]. An effective vaccine against HPV has been approved by the US Food and Drug Adminsitration since 2006 and is recommended to teens before the onset of sexual activity to prevent cervical cancer [40]. African countries have some of the world's highest incidence rates of cervical HPV infection [41]. Yet, a study of parental attitudes towards HPV vaccine found widespread reluctance *vis-à-vis* the vaccine among UK-based immigrant parents from Kenya, Nigeria, South Africa, Zambia, and Zimbabwe; many of whom have been in the UK for two decades or more [42•]. Hesitancy was driven by concerns that approving the HPV vaccine for their daughters was tantamount to granting them a license for promiscuity. Because of its relative recency, the most suspicious parents believed HPV vaccine is a racist biopolitical strategy designed to sterilize Black/African girls for population control purposes [42•].

In the US, research found similar reluctance *vis-à-vis* HPV vaccination among Haitian parents and recently immigrated young Korean women. The latter believed the HPV vaccine is more appropriate for promiscuous women [43]. The former reported being uncomfortable vaccinating their children against sexually transmitted infections as they believe children should not be sexually active [44]. Other US-based studies on HPV vaccine acceptance have involved the Latin American and Somali diasporas. A recent study of Latina immigrant mothers of 9–12 years old daughters in Alabama (southern US), found 35% of them manifested HPV vaccine hesitancy, operationalized as 'Don't know/Not sure' in response to the hypothetical question: 'If your daughter's doctor recommended that she gets the HPV vaccine, would you let her get it?' [45••]. The main determinants of hesitancy included health insurance status, HPV awareness, and perceived risk of HPV infection [45••]. Meanwhile, Somali Minnesotan parents and young adults perceived an incompatibility between HPV vaccine uptake and their Muslim faith which precludes premarital sex [46•]. Likewise, research from the Netherlands identified multiple barriers to cervical cancer prevention among Somali immigrant women, including, perceived low risk of HPV and cancer because of premarital sexual prohibitions by Islam, being embarrassed to get Pap smears due to female genital mutilation, having a male gynecologist, and overall distrust of the Dutch healthcare system [47]. By and large, limited knowledge of both cervical cancer and HPV vaccination, and religion-driven social conservatism which hinders open and informed conversation about sexual and reproductive health, are some of the main drivers of HPV vaccine hesitancy among many immigrant families.

Summary of determinants of vaccine hesitancy in migrant populations

Taken together, the identified drivers of vaccine hesitancy in migrant populations can be aggregated in three main analytical categories consistent with the 'three Cs' of vaccine hesitancy proposed by the SAGE Working Group on Vaccine Hesitancy: complacency, confidence, and convenience (Figure 1) [6]. There is complacency when risks of contracting vaccine-preventable diseases are perceived as low, and vaccination is deemed unnecessary. HPV vaccine hesitancy among migrant parents from various races and national origins appears to be driven largely by complacency-related drivers like deference to religious and cultural norms as protective factors [41,45••,46•]. Likewise, childhood influenza vaccine refusal among Polish parents in the UK is to a large extent a manifestation of complacency [35•,36••]. Confidence encompasses issues of trust, including trust in the safety and effectiveness of vaccines, and trust in the health system and health providers that deliver them [6,48]. Low confidence is the essential underlying factor of MMR vaccine hesitancy among Somali parents in the US, Norway, and Sweden [23••,29•,30]. Last, convenience mostly involves structural drivers of vaccination hesitancy. The reviewed literature suggests that low vaccination uptake within the UK-based Romanian and Roma Romanian communities is driven primarily by convenience issues such as cultural barriers and ease of registration with a general practitioner [22•,31]. It is most likely that the 'three Cs' interact to cause vaccine hesitancy among migrants through a pathway of social

Figure 1



Underlying determinants of vaccine hesitancy in migrant populations.

exclusion. Experiences of marginalization or discrimination in host countries may lead immigrant communities to distrust the health system and health providers, culminating in vaccine hesitancy as an expression of cultural alienation or even an active skepticism of the healthcare practices of the host culture [49].

Conclusion

There is little doubt that migrant populations are susceptible to vaccine hesitancy, especially those relocated in democratic societies besieged by anti-science extremism [50]. However, this neither implies that the main determinants of underimmunization or non-vaccination among immigrants are more of an agentic/volitional nature than of a structural/external one, nor that the onus of addressing hesitancy within their midst should be mostly on them [51••]. We have observed elsewhere that both political discourses that fuel prejudice and exclusion of the other, and restrictive policies that materially deny good quality healthcare to the poor and prohibit access to universal health coverage to migrant populations, especially undocumented migrants, represent as great barrier to immunization as vaccine hesitancy [52], and perhaps fuel the latter. In the US, the putative immigrant country par excellence, the recent Trump presidency was defined by racist rhetoric, anti-immigrant federal policies, high-profile acts of police brutality against minority communities of color, and heightened awareness of structural racism as a formidable contribution to disparities in disease infection and mortality [53,54]. More than any vaccine-related concerns, these factors may have exacerbated ethnic minorities and immigrants' fragile trust in government and alienation from available public healthcare services like COVID-19 vaccination [54]. Such low levels of trust in government and the public healthcare system may also fuel vaccine hesitancy. Ultimately, we believe the most effective strategies to increase and sustain optimal vaccination coverage in migrant populations will be those that combine community-based immunization service delivery tailored to the specific health issues and unmet social needs of a given immigrant community with migrant-friendly health systems and policies that affirm and protect their human rights and dignity [55–57].

Conflict of interest statement

Charles S Wiysonge is one of the editors of this themed issue on Vaccines.

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