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## Vaccination in newly arrived immigrants to the European Union

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### ABSTRACT

The challenge of assimilating millions of immigrants in the European region each year presents significant socioeconomic issues. Among them is the threat of vaccine preventable diseases (VPDs) disease transmission within immigrant groups and the broader population given the permeability of nation state borders. A total of 3.8 million people immigrated to the European Union (EU) in 2014, among those were 1.6 million non-EU nationals. While vaccines have markedly reduced the transmission of disease, clusters of under-vaccinated individuals potentiate the rapid transmission of once-eradicated or controlled diseases. Immigrants pose a special challenge to host country public health vaccination programmes. Wars in their native countries may have interrupted vaccination programmes, documentation may be unavailable or unreliable, and refugees may present with health issues due to poor sanitation and food during transit. Further, immigrants are often reticent to access health care in the destination country, or may face financial or language barriers. Thus, preventive health care needs may go unaddressed and the first contact with a clinician is for an emergency. Equitable access to acute and preventive health care and services, including immunizations irrespective of individual's immigration status, should be a priority for European region countries. Ensuring appropriate and timely vaccination for immigrants could be accomplished with a universal European region immunization schedule. Priority should be given to highly communicable VPDs such as measles, mumps, rubella, pertussis, diphtheria, varicella and polio.

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### 1. Introduction

Vaccination programmes have achieved control, and in some cases eradication, of numerous vaccine preventable diseases (VPDs). For instance, in 2002, the European region was declared polio-free, and effective polio vaccination strategies were employed to quickly control disease transmission during the few outbreaks reported since elimination [1]. Vaccination has dramatically reduced morbidity and mortality among residents of the 53 member states of the European region, as defined by the World Health Organization (WHO) to include the European Union (EU), the European Economic Area (EEA), and other nations. However, resurgence of VPD remains a clear and present threat. In 2014, 32 region members reported endemic measles transmission despite very high vaccination rates among targeted populations

(94% for one dose of measles containing vaccines (MCV)) [2]. Vaccine hesitancy has resulted in clusters of un- or under-vaccinated individuals, and EU agreements have created permeable borders allowing quick movement throughout the region. Further complicating the containment of disease, the expanding immigration crisis has witnessed a tremendous influx of at-risk people. Although many VPDs in Europe result from domestic acquisition and not importation, immigrants are more vulnerable to VPD as they often come from areas of poverty, poor health, and low vaccination rates [3,4].

Immigration notably affects affluent countries and affects the health of both residents and immigrants [5]. Immigration is a marginal but steadily growing phenomenon: a total of 3.8 million people immigrated to EU in 2014, and among those were 1.6 million non-EU nationals. Since 2015 the number has increased substantially due to the European immigrant crisis and is projected to remain at approximately 1.5 million annually through 2036 [6]. Immigration reflects globalization and neoliberalism [7], is politically controversial, and the need for continued immigration to

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Europe is still poorly recognized [8]. Large populations cross borders and are internally displaced for a variety of reasons including violence, armed conflict, oppression, and natural disasters, often fleeing without any identification [9]. These immigrations introduce the risk of VPDs, and immunization guidelines could be employed to proactively address these risks.

Although the European Centre for Disease Control (ECDC) issues evidence-based guidance, they are not binding and their acceptance and implementation differs greatly among European countries. Taking into consideration the high mobility of EU populations coordination among nations is ideal to ensure effectiveness of preventive measures. The WHO has developed a European Vaccine Action Plan 2015–2020 stressing special attention to migrants and culturally tailored advocacy communication with vulnerable migrant populations, however no other detailed information is mentioned [4]. Unfortunately its implementation has stalled due to a paucity of coordinated effort among host EU countries. Acceptance and implementation of a universal EU immunization schedule would ensure a standardized approach to vaccination and follow-up, but each country currently uses its own schedule. This public health challenge is one area in which EU member nations might welcome a stronger liaison role to coordinate the various agencies and stakeholders in the field of immigrant integration [10].

For instance, initial entry to the new host country may be an ideal opportunity to address immunization gaps. While immigrants tend to be relatively healthier than the native population upon arrival, this “healthy immigrant effect” may not extend to VPDs, an exception especially true for immigrants from countries without vaccination programmes [11]. Migrants face numerous challenges upon their encounter with the host health care system. Social isolation, cultural and language barriers, lack of prior health care records and fear of discrimination to name a few. Each of these barriers delays access to care and potentially impedes care-seeking to the point that the immigrant’s first contact with the health care system is on an emergency basis [9,12]. Medicine is not the only social good with which immigrants struggle to engage; they also face challenges accessing the education system, the labour market and housing [10]. Undocumented immigrants are often fearful and reluctant to disclose their status to others, including health care providers [7]. While migrant groups may be more homogeneous, diversity remains a challenge requiring a tailored approach. Regardless of the challenges in meeting their needs, member nations have an obligation to ensure that immigrants have non-discriminatory, equitable access to health care services, including immunization, irrespective of their legal status based on the World Health Assembly resolution WHA61.17 on migrants’ health and Health 2020 [13,14]. This review provides the current landscape of communicable diseases and recommends a unified approach to vaccination for these pathogens.

## 2. Risk of VPDs

The health problems of migrants are generally similar to those of their host populations; however, the physical and psychological effects of leaving their home countries and the long, arduous journeys they undertake increase their overall health risks [15]. Mass population movement, lack of clean water and inadequate sanitation conditions increase the risk of acquiring VPDs.

The risk of VPDs among newly arrived immigrants, particularly those transiting without proper documentation or authorization, is influenced by the conditions of host nation facilities, many of which are managed by non-governmental organizations (NGOs) or even spontaneous unstructured camps [16]. Close physical contact in crowded conditions has also been frequently associated

with a high level of human to human transmission of measles [17], mumps [18], pertussis [19], varicella [20], meningococcal disease [21] or influenza [22].

Although migrants entering the European Union tend to be in relatively good health, crowded living conditions and poor hygienic standards promote the rapid transmission of illness [23]. VPDs among new immigrants should be monitored using existing surveillance systems, and additionally with syndromic surveillance to identify signs of VPDs prior to laboratory confirmation and initiate a timely response [24,25]. Medical screening should include a detailed medical and social history as well as a physical examination [26]. The physical exam should include information to identify syndromes for monitoring, such as: acute respiratory infection with fever, prolonged productive cough, bloody diarrhoea, non-bloody gastroenteritis, rash and fever, meningitis, encephalitis, lymphadenitis with fever, acute paralysis, sepsis or unexplained shock, acute jaundice, fever and bleeding, skin parasites or unexplained deaths. Syndromic surveillance is possible to quantify as the number of cases presenting with the syndrome, a proportion of migrants presenting with a specific syndrome, or a proportion of visits related to a specific syndrome. A public health response should be triggered when an indicator reaches a defined threshold for action. Thresholds for action can be established either as an absolute value or as a relative change over time [16]. The most notable VPDs affecting immigrant health, and which demand a proactive public health approach, are reviewed here.

### 2.0.1. Hepatitis A

Western Europe is considered low endemicity area for hepatitis A infection. Recent outbreaks of hepatitis A infection in Western Europe were limited to high risk groups (i.e. men who had sex with men, drug users, etc.) [27]. (Hepatitis A infection is often mild or asymptomatic and children remain an important source of infection for adults. Natural infection leads to lasting immunity and routine vaccination is an important step towards hepatitis A elimination. In 2010, only 2 countries of the European union had mandatory vaccination for all or at risk groups as part of their immunization schedule) [28]. The decision whether to implement a mandatory vaccination for migrants should be guided by their level of preexisting immunity to hepatitis A virus and an epidemiology of accepting countries [29,30].

### 2.0.2. Hepatitis B

Hepatitis B virus is the most common cause of hepatitis leading to cirrhosis and hepatocellular carcinoma. Most infected individuals are unaware of their status and may unknowingly infect others. Hepatitis B infection is prevalent among immigrants from SubSaharan Africa, South East Asia and Eastern Europe [31]. Vaccination with hepatitis B vaccine is the safest and most effective way to protect uninfected individuals [32].

### 2.0.3. Invasive meningococcal disease

The crowded environment and physical conditions facilitate the transmission of invasive meningococcal disease. These conditions are particularly problematic in various camps through exposure to asymptomatic carriers. Typically, invasive meningococcal disease is reported in children and adolescents and young adults [33].

### 2.0.4. Polio

Polio (poliomyelitis) has been eliminated in Europe in 2002. The global vaccination initiative has reduced the number of reported polio cases by over 99% since 1988, to 74 reported cases in 2015 and only 31 in 2016 [34]. Wild poliovirus type 2 was eradicated in 1999 and case numbers of wild poliovirus type 3 are now at the lowest-ever levels with no cases reported since a single case

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