Measles: a re-emerging problem in migrants and travellers

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The resurgence of measles across Europe highlights the impact of ongoing insufficient two-dose coverage in affected countries. Coccarelli and colleagues estimated a seroprevalence of measles IgG antibodies of 80–88% among recent migrants from the WHO African region, while sub-optimal, these rates are greater than WHO coverage estimates from the region and on par with coverage reported in some European receiving countries. Despite record numbers of migrants arriving in Europe, the contribution of migration on the current epidemiology of measles in Europe is minimal. However, immigrants from within and outside Europe are a growing population who are more likely to travel and less likely to be vaccinated. For travel health practitioners in countries without endemic measles, these outbreaks are a reminder that MMR is an important travel vaccine. All travellers should be assessed for immunity, particularly if travelling to countries experiencing measles outbreaks. Two doses of MMR vaccine, administered at least 28 days apart, is recommended for all children aged 12 months and over and for adolescents and adults without documented two-dose coverage or measles immunity. Adults born before 1957 (USA), 1968 (Australia) and 1970 (UK, Canada), depending on the commencement of universal measles immunisation programmes and subsequent decline in measles transmission, are considered presumably immune through acquired natural immunity. For infants travelling to destinations experiencing high rates of measles a single dose from as young as 6 months of age is recommended for infants in the USA, the UK and Canada or 9 months of age in Australia. For infants receiving an early dose, two additional doses are recommended to commence from 12 months of age (except in Australia), where only 1 additional dose is recommended.

While there are reports of measles importations resulting from international adoptions and humanitarian entrants, the majority of international travel and subsequently, the majority of importations of measles are in short-term travellers. Large, sustained outbreaks in countries with sub-optimal immunisation coverage, such as many countries in Europe, result in regular incursions by travellers into regions that have eliminated measles, some resulting in local outbreaks. One of the criteria set by the WHO for monitoring the maintenance of measles elimination is a rate of locally acquired cases of <1 per million population. However, this is difficult to achieve for countries with high rates of international travel, particularly during ongoing outbreaks in popular destinations. Rapid control efforts are required to prevent large outbreaks occurring from the importation of measles by an international traveller, which is costly and time consuming for public health authorities.

The majority of imported cases of measles are young adults, who are more likely to travel and less likely to be vaccinated than children. While reported childhood immunisation coverage rates demonstrate high two-dose MMR coverage of >90% in countries such as Australia, the USA and Canada, this only provides data on the current programme, with historical coverage limited for older age groups and often not available for adults. Young adults are an important group at risk of under-immunisation, as a result of lower coverage of measles vaccine during childhood in an era of decline disease rates and single-vaccine dose recommendations. For those in the UK, young adults born between 1980 and 1990 are considered at risk of being unimmunised or partially immunised and for Australia, this includes those born between 1972 and 1978, identified in national serosurveys to have significantly lower population seroprevalence. In addition, adolescents and young adults were found to have a higher proportion of equivocal results, indicating potential for breakthrough disease. Migrant travellers visiting friends and relatives may be at increased risk of acquiring measles during travel. Measles in vaccine recipients is reported in enhanced surveillance, with time since vaccination and...
important risk factor. Of measles cases in a US study in which vaccination status can be verified, 20% were in one or two-dose recipients, although disease was reportedly milder. However, transmission from cases in vaccine recipients still occurs, further highlighting the need for continued two-dose coverage in travellers.

Ensuring young adult travellers are fully immunised is an important component of a pre-travel health-risk assessment as well as of importance to national control of measles and maintenance of elimination status. More than 1 in 10 travellers to a travel clinic in Melbourne, Australia were non-immune to measles, mumps or rubella and of more than 40,000 travellers seen at Global TravEpiNet sites in the USA, 16% were considered eligible for MMR. Of those only 47% were vaccinated with traveller refusal, the main reason for not accepting an MMR vaccine at a pre-travel health consultation. However, young adults are less likely to seek pre-travel health advice than older travellers and measles may not be considered a risk for travellers. In an enhanced surveillance study of measles in returned Australian travellers, only 1 of 25 imported cases reported seeking pre-travel health advice and few had perceived measles as a travel-associated disease. Further, MMR vaccine may not be considered a travel vaccine by primary care providers, who provide the majority of travel health advice to travellers.

Country of acquisition of measles is not the usual ‘high-risk’ country considered by travellers. For example, the index case associated with the current outbreak in Guatemala, the first outbreak in 20 years, included importation a traveller returning from Germany, not routinely considered to require travel advice for infectious disease prevention. Few travellers are likely to seek advice prior to travel to high resource settings. Of over 1200 travellers departing Boston Logan International Airport, 54% of travellers to low- or middle-income countries sought health information (from any source) prior to travel, compared with 25% of travellers to high-income countries.

Improving access to pre-travel health advice to young adults, most likely to be non-immune to measles, and improve awareness amongst general practitioners, mostly likely to see travellers, that MMR is a travel vaccine are important considerations for continued measles control. Until global measles control is improved, international travellers should ensure they are up to date with their MMR vaccines, to protect themselves and the communities into which they travel.

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References