



National Immunisation Advisory Committee

UPDATED RECOMMENDATIONS FOR THE VACCINATION OF ADULTS AGAINST
MEASLES

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About NIAC

NIAC membership includes nominees from the Royal College of Physicians in Ireland, its Faculties and Institutes, the Royal College of Surgeons in Ireland, the Irish College of General Practitioners, the National Immunisation Office, the Nursing and Midwifery Board of Ireland, the Infectious Diseases Society of Ireland, the Travel Medicine Society, the National Virus Reference Laboratory and lay members. Meetings are attended by representatives from the Department of Health and the HSE. Representatives of the Health Products Regulatory Agency attend to provide regulatory advice in relation to vaccines.

[NIAC](#) considers the evidence about vaccines and provides advice to the Chief Medical Officer and the Department of Health. The Department and the Minister for Health make policy decisions on vaccines which are implemented by the Health Service Executive.

2024 UPDATED RECOMMENDATIONS FOR THE VACCINATION OF ADULTS AGAINST MEASLES

1. VACCINATION OF ADULTS (≥18 YEARS) WITH MMR VACCINE

MMR vaccine should be promoted and offered opportunistically to unvaccinated or partially vaccinated adults. The decision on whether to vaccinate adults needs to take into consideration likelihood of immunity from natural infection, country of birth, past vaccination history and future risks of exposure and disease. Where there is uncertainty about vaccination status MMR should still be given if indicated as MMR vaccine can be safely given to those who are immune.

NIAC recommends that adults in the following groups who are partially vaccinated, unvaccinated or unsure about their vaccination status should receive 1 or 2 doses of MMR vaccine as indicated by their vaccination history:

- a) All adults aged under 25 years of age.
- b) Adults considered at high risk of exposure to measles (e.g., those living in congregate settings or members of underserved communities).
- c) Adults living with people who are vulnerable to severe consequences of measles infection. (e.g., non-immune pregnant women, severely immunocompromised people, and infants under one year of age).
- d) Migrants from low resource settings (migrants from low resource settings are less likely to have been vaccinated with MMR and should be offered two doses of MMR vaccine unless documented evidence of vaccination).
- e) Adults of all ages who are planning to travel to an area where measles is endemic or where outbreaks are occurring.

It is estimated that at least ninety percent of people born in Ireland before 1978 are likely to have had measles infection and are thus immune to measles. Where there is uncertainty about measles status, the MMR vaccine should be offered on request to individuals born in Ireland before 1978 particularly if they are considered at high risk of exposure or disease as outlined in b) and c) above.

2. VACCINATION OF HEALTHCARE WORKERS

NIAC recommendations for vaccination of healthcare workers (HCW) are outlined in Chapter 12 and Chapter 4 of the [Immunisation Guidelines for Ireland](#) and are unchanged. All HCW who have direct patient contact, as defined in Chapter 12 should be immune to measles. Acceptable presumptive evidence of immunity against measles includes at least one of the following:

Written documentation of vaccination with two doses of MMR vaccine at least four weeks apart

Or

Serological evidence of measles immunity (i.e., detectable measles specific IgG from an INAB accredited laboratory or equivalent*)

Or

Birth in Ireland before 1978. It is estimated that at least ninety percent of adults born in Ireland before 1978 are likely to have had measles infection. MMR vaccine should be offered to such individuals on request if they are considered at high risk of exposure.

NIAC recommends that all HCWs born outside of Ireland (regardless of age) or born in Ireland after 1978 without evidence of two doses of MMR vaccine or measles immunity (i.e., detectable measles specific IgG from an INAB accredited laboratory or equivalent*) be offered one or two doses of MMR vaccine as required at least four weeks apart so that a total of two doses are received.

3. VACCINATION OF ADULTS DURING OUTBREAKS OR FOLLOWING A MEASLES CLOSE CONTACT

NIAC recommendations for vaccination of adults during outbreaks or following a measles exposure are unchanged, additional language is added below to provide clarity. Presumptive immunity by birth before 1978, should not be used to confirm immunity in those identified by public health to be close contacts with a measles case.

- a) When measles outbreaks occur, susceptible persons should be given MMR vaccine, unless contraindicated, within 72 hours of contact with a case. A person should be considered susceptible if they have not received two doses of MMR vaccine or do not have serological evidence of measles immunity (i.e., detectable measles specific IgG from an INAB accredited laboratory or equivalent*). If there is uncertainty about vaccination status, MMR vaccine should be given as MMR vaccine can be safely given to those who are immune. If vaccination within 72 hours of exposure is not achievable, MMR vaccine should still be offered to susceptible persons as this is a good opportunity to vaccinate previously unvaccinated individuals.
- b) In the case of an outbreak or close contact with a measles case in a healthcare setting, either written documentation of vaccination with two doses of MMR vaccine at least four weeks apart or serological evidence of measles immunity (i.e., detectable measles specific IgG from an INAB accredited laboratory or equivalent*) are acceptable evidence of confirmed measles immunity as outlined in [Chapter 4](#) of the immunisation guidelines of Ireland. (Table 4.1).
- c) Pregnant women without measles immunity and those who are severely immunocompromised who have been exposed to measles may be eligible for post

exposure prophylactic HNIG. Guidance in [Chapter 12](#) of the immunisation guidelines of Ireland should be followed.

Recommendations may be updated when more information becomes available.

*Acceptable laboratories to be determined by local occupational health and/or public health teams. Only international laboratories that are accredited to the same international standard (ISO15189) as INAB should be accepted.

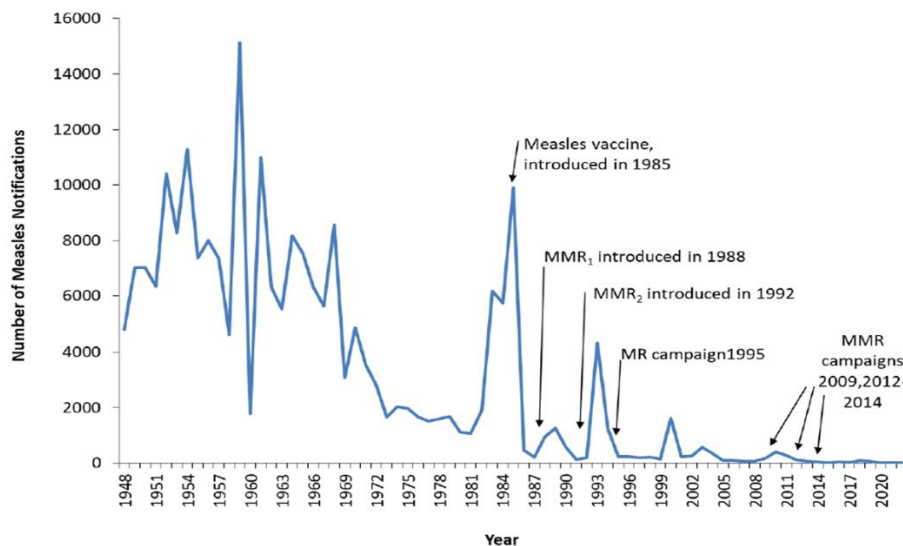
1. INTRODUCTION

The recent large measles outbreaks in the UK have prompted a renewed focus on providing catch up MMR vaccines to partially vaccinated and unvaccinated children, teenagers and young adults. Unfortunately, due to several years of suboptimal MMR vaccine uptake, Ireland is vulnerable to similar large measles outbreaks occurring. Vaccinating unvaccinated and partially vaccinated children, teenagers and young adults against measles is now urgent. NIAC continues to recommend catch up vaccination with MMR of all unvaccinated or partially vaccinated children and teenagers aged <18 years. In the current context NIAC has re-examined the recommendations for vaccination of adults aged ≥18 years living in Ireland. NIAC previously recommended MMR vaccination for the following adults: non-immune healthcare workers, migrants and ethnic minority groups without documented evidence of measles vaccination and adults without evidence of vaccination who are travelling to areas where measles is endemic, or outbreaks are occurring. In these updated recommendations for vaccination of adults with MMR, the likelihood of measles immunity and risk of exposure and disease is examined to determine which adults should be offered MMR vaccination in Ireland.

2. HISTORY OF MEASLES VACCINATION IN IRELAND AND SEROPREVELANCE IN ADULTS IN IRELAND

The monocomponent measles vaccine was introduced in Ireland in 1985, followed by the combined Measles, Mumps and Rubella (MMR) vaccine in 1988. The second dose of MMR vaccine was added in 1992. Vaccination led to a rapid and substantial reduction in notified measles cases. (Figure 1)

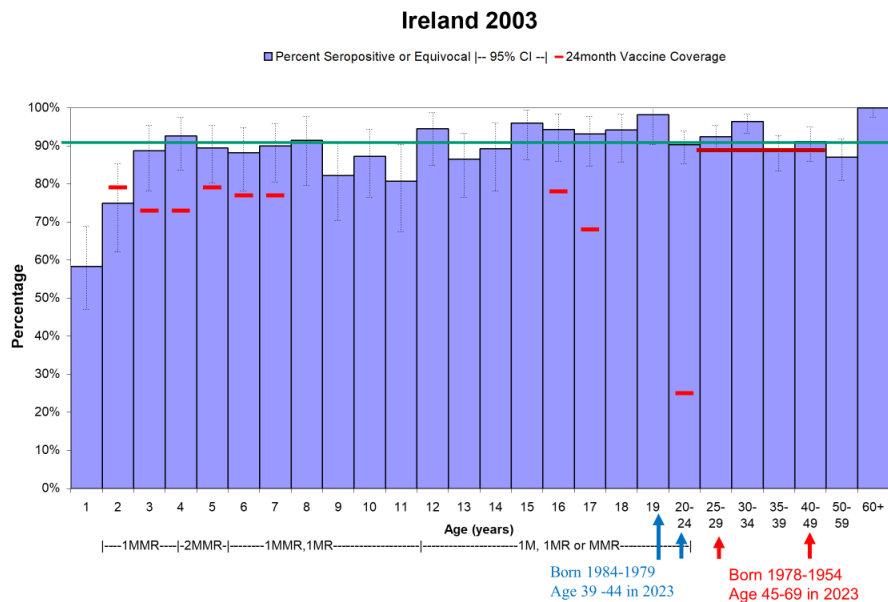
Figure 1. Number of measles cases notified, 1948-2022, with vaccination schedules and catch-up campaigns highlighted. Source: HPSC Vaccine Preventable Diseases Team.



In 1993 Howard Johnson and colleagues published the first seroprevalence study of measles in children in Ireland since the introduction of vaccination. Johnson et al. conducted a cross-sectional seroprevalence survey of children attending outpatient clinics in the three Dublin paediatric hospitals from July 1991 to November 1992. The prevalence of measles seronegativity decreased with age reaching 5% by 14 years of age (birth year 1977/1978).¹ This study was the origin of the longstanding guidance that most adults born in Ireland prior to 1978 are likely to be immune to measles.

Since this time there have been two additional measles seroprevalence studies in Ireland. In 2003, Ireland contributed data to the ESEN2 (European Sero-Epidemiology Network) survey. A total of 2,590 samples were analysed from six HSE areas. Seroprevalence again increased with age. Measles seronegativity was lowest at 7.6% in those aged over 40 years at the time of the study (born prior to 1963). Of those born between 1964 and 1983, 7.8% were seronegative.² (Figure 2)

Figure 2. Measles seroprevalence in people living in Ireland in 2003. Source: HPSC vaccine preventable disease team.



In 2022, the HPSC seroepidemiology unit (SEU) carried out a study of measles seroprevalence in adults in Ireland aged 18-34 years, (birth year 1988-2003). In this study, 14.7% of those aged 18-19 years, and 17.9% of males aged 18-19 years were seronegative. Seronegativity decreased with increasing age group. The lowest rate of seronegativity was seen in those aged 30-34 years (8.9%) (birth cohort 1988-1992).³ (Table 1)

Table 1. Measles seronegativity in adults in Ireland aged 18-35 years. Source: SEU report 2022.

Age (years)	Birth cohort	% Seronegative	(95% CI)
All	1988-2003	10.7	9.1-12.4
18-19	2003-2004	14.7	9.9-20.7
20-24	1998-2002	11.6	8.7-15.0
25-29	1993-1997	10.1	7.4-13.3
30-34	1988-1992	8.9	6.4-11.9

The aforementioned seroprevalence study conducted by Johnson et al. was conducted at a time when Ireland’s population was more homogenous. Likelihood of measles immunity through natural infection is dependent on the timing of introduction of vaccination in the country where a person grew up. Measles vaccine was introduced earlier in the United States, Canada, the UK and several other European countries. In the US where measles vaccination was introduced in 1968, birth before 1957 is generally considered evidence of immunity to measles.⁴ In the UK, where measles vaccination was introduced in 1968, those born before 1970 are considered likely to be immune to measles.⁵

3. VACCINATION OF CLOSE CONTACTS AND DURING OUTBREAKS

Vaccine induced immunity develops more quickly than that following natural infection, for the measles component of the MMR vaccine, MMR vaccine is effective as post exposure prophylaxis when given within 72 hours of contact. The local public health department should be urgently informed about any cases of measles and will advise on contact tracing and provision of MMR vaccine to close contacts. Outbreaks of measles may be controlled by immunising all susceptible individuals (without known contraindications) over six months of age within 72 hours of contact. Often, due to the incubation period of measles and timing of notification of cases, vaccination within three days of exposure is not achievable, in this scenario MMR vaccine should still be offered opportunistically to susceptible individuals. A second dose of MMR, given at least four weeks later is recommended for all those who are not known to have been vaccinated previously. As there is no national vaccine database in Ireland, adults born since the introduction of MMR vaccine may not be able to confirm their vaccination status in a timely manner, if there is uncertainty about vaccine status MMR vaccine should be given as uncertainty regarding previous MMR vaccination is not a contraindication to vaccination.

4. DISCUSSION

Over the past year there has been a resurgence of measles in Europe, most recently in the UK.⁵ Unfortunately, due to suboptimal vaccine uptake, Ireland is vulnerable to similar measles outbreaks. The uptake of the first and second dose of MMR vaccine in childhood is less than 90% and has been suboptimal for several years. Additionally, the 2022 seroprevalence report from the SEU highlighted that almost 15% of adults aged 18-19 years and almost 12% of adults aged 20-24 years were likely susceptible to measles infection. Almost one in five males aged 18-19 years included in this study were not immune to measles. Given the significant measles outbreaks in the UK, it is now urgent that unvaccinated and partially vaccinated children, teenagers and young adults in Ireland are vaccinated with MMR vaccine as soon as possible.

While children, teenagers and young adults less than 25 years of age and those with additional risks should be prioritised in a MMR catch up vaccination campaign, there are some older adults who should also be offered MMR vaccine. The decision on whether to vaccinate adults against measles needs to take into consideration likelihood of immunity from natural infection, the country of birth, past vaccination history and the future risks of exposure and disease. Those born in Ireland before the introduction of measles vaccine are likely to have immunity through natural infection. Older seroprevalence data suggests that 90-95% of those born in Ireland before 1978 are immune to measles. An updated study of measles seroprevalence in those born prior to the introduction of measles vaccination would provide more clarity on likelihood of measles immunity in older adult age cohorts.

Where there is uncertainty about measles status, measles vaccination should be offered on request to individuals born in Ireland before 1978, particularly if they are considered to be at high risk of exposure, for example health care workers and those living in congregate settings or members of underserved communities that are known to have lower vaccine uptake. There is a 5-10% chance that a person born in Ireland before 1978 is not immune to measles, thus those living with infants under one year of age, pregnant women without immunity and severely immunocompromised people should also be offered vaccination as these populations are at increased risk of severe consequences of measles.

Presumptive measles immunity by year of birth is based both on seroprevalence data and likelihood of exposure to wild type virus. Measles vaccination was introduced at different times in different parts of the world and thus presumptive immunity by birth year prior to 1978 cannot be reliably applied to those born outside of Ireland. The original seroprevalence study which found that 5% of those born between 1977 and 1979 were non-immune were carried out at a time when Ireland's population was more homogenous than it is now. NIAC continues to recommend that migrants from low resource settings receive two doses of MMR vaccine unless documented evidence of vaccination, regardless of age. All other adults born outside of Ireland who are

unvaccinated, partially vaccinated or uncertain about their vaccination or measles status should be offered 1 or 2 doses of MMR vaccine as indicated by their vaccination history, particularly if considered at increased risk of exposure or if they are living with vulnerable persons.

NIAC recommendations for healthcare workers have not changed. All healthcare workers should be immune to measles. Acceptable presumptive evidence of immunity is with either written documentation of two doses of MMR vaccination, serological evidence of immunity or birth in Ireland before 1978.

In the case of an outbreak, or a defined measles exposure, the level of risk is higher. Given there is a 5-10% chance that a person born in Ireland before 1978 may be susceptible to measles, presumptive immunity by year of birth should not be used in the management of measles contacts.

Finally, the current measles threat highlights the significant challenges in identifying unvaccinated people in Ireland and appropriately targeting catch up vaccination. At present, Ireland does not have a national population vaccination register and cannot determine what proportion of children have received two doses of MMR vaccine. Additionally, uptake data on MMR catch up vaccination programs which occurred throughout the 1990s and 2000s are not available. For this reason, the recent SEU study was critical in identifying age cohorts of young adults that may be susceptible to measles. However, the SEU currently cannot assess immunity across other demographic characteristics that could help target catch up campaigns. As per prior [NIAC recommendations](#), NIAC again highlights the urgent need for a single, unique, integrated vaccination database in Ireland. This database should facilitate timely electronic recording and reporting of all vaccinations for children and adults, using the Individual Health Identifier (IHI) and should be able to easily adapt to changes in schedules, addition of new vaccines and catch-up campaigns. NIAC strongly supports the work that has already commenced to develop such a database.

NIAC will continue to monitor the current measles threat and adapt recommendations accordingly.

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