Health Protection Surveillance Centre

Infectious Disease Assessment for Migrants

Migrant Health Assessment Sub-committee of HPSC Scientific Advisory Committee

July 2015

Updated March 2024 - Measles Chapter 5.7

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

hpsc

Table of Contents

1/Key Recommendations

These **Key Recommendations** are current as of July 2014. There are a number of websites of reputable public health organisations that also provide information on infectious diseases and infectious disease assessments in migrants including:

Public Health England. Migrant Health Guide: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

TravelHealthPro: http://travelhealthpro.org.uk/

Centers for Communicable Disease Control and Prevention: www.cdc.gov

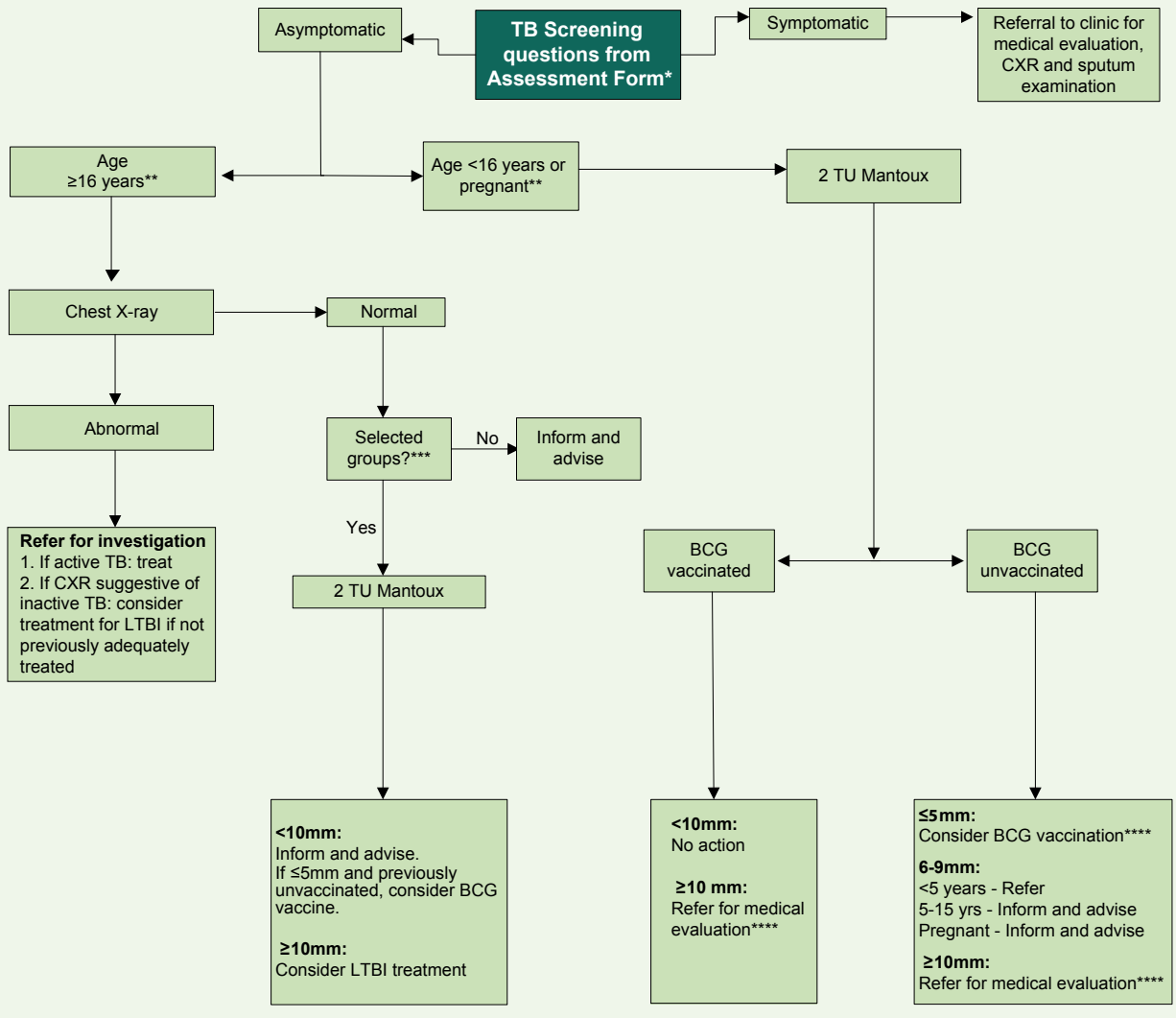
DISEASE	KEY RECOMMENDATIONS
Chickenpox/Varicella	**Offer test to:** • All healthcare workers (HCWs), unless known to be immune • Migrant women of childbearing age • Immunocompromised individuals and their household contacts **Vaccinate non-immune:** • HCWs • Non-pregnant women of childbearing age • Healthy close household contacts of immunocompromised individuals • Some immunocompromised people may be vaccinated, e.g. those with lymphocytic leukaemia in remission, transplant recipients and some children and adults with HIV infection. **Offer varicella-zoster immunoglobulin (VZIG) to:** • Non-immune women who have been exposed to varicella or zoster during pregnancy as soon as possible after exposure and ideally within 96 hours • Specific neonate groups (see section 5.1) • Specific immunocompromised individuals (see section 5.1)
Hepatitis B	**Offer test (HBsAg and anti-HBc) to:** • All new migrants originating from countries with a HBsAg prevalence of ≥2% • Household and sexual contacts of identified acute or chronic cases • All women attending antenatal services • Sex workers and those who have been trafficked • People who inject drugs (PWID) • Men who have sex with men (MSM) **Vaccinate:** • All infants according to the routine childhood immunisation schedule, 6 in 1 at 2, 4 and 6 months • All children aged 12 months to <10 years according to the "late entrants catch-up schedule" **Vaccinate if non-immune (vaccination not required in anti-HBc positive):** • All migrants originating from countries with a prevalence of ≥2% • Children born to parents from countries with a prevalence of ≥2% • Persons at risk of occupational exposure to blood or blood contaminated environments • Household and sexual contacts of persons with acute or chronic infection • Families adopting/fostering children from countries with a prevalence of ≥2% • Babies born to mothers who have HBV infection (they should receive a complete course of vaccine at 0, 2, 4 and 6 months and also HBIG within 24 hours of birth and have serological testing 2 months after vaccination completed) • HIV exposed and HIV infected infants should be given hepatitis B vaccine at birth and then continue with the routine childhood schedule • Sex workers and those who have been trafficked • Those deemed at risk following an assessment of their health needs • PWID and their contacts • MSM Refer all HBsAg positive cases to specialist services for review. People who are HBsAg negative, anti-HBc positive should be referred for specialist care if they become immunosuppressed (including that due to chemotherapy or transplantation).

Disease	Key recommenDations
Hepatitis C	**Offer test for anti-HCV to:** • All migrants who originate from countries with a prevalence of chronic hepatitis C of ≥3% • Those with a history of hepatitis C risk exposure/behaviour including people who inject drugs (PWID) and men who have sex with men (MSM) **Offer test for HCV RNA:** • All those who have a positive anti-HCV result Refer all positive cases to specialist services for review. Vaccinate those who are non-immune to hepatitis A and/or hepatitis B with hepatitis A and/or hepatitis B vaccine.
HIV	**Offer test for HIV Ag/Ab to:** • All women attending antenatal services • All those with risk factors for HIV including but not limited to ○ From high HIV prevalence countries (>1%) ○ Concurrent sexually transmitted infection ○ People who inject drugs (PWID) ○ Sex workers and those who have been trafficked ○ Men who have sex with men (MSM) • Concurrent TB infection Refer all positive cases to specialist services for review.
Intestinal parasites/ helminths	**Offer test (ova, cysts and parasites) to:** Symptomatic migrants only, particularly those who have: • Lived or travelled in endemic regions • Migrated from Southeast Asia or Sub-Saharan Africa • Eosinophilia **Note:** Healthcare professionals should also be aware that those with concurrent immunosuppression are at increased risk of developing disseminated parasitic infections, especially strongyloides, as this auto-infects and disseminates widely in those who are immunosuppressed. Note: a raised eosinophil count (>0.4 x 10^9/l) may be the only indication of a parasitic infection
Malaria	**Offer test (thick and thin malaria films) to:** *Symptomatic migrants only*, particularly those who have: • Fever • Lived or travelled in malaria-endemic regions within the previous 12 months, particularly in Sub-Saharan Africa Refer all positive cases to specialist hospital services for review.
Measles (Updated March 2024)	***Assess*** all migrants for previous measles vaccination. ***Vaccinate (MMR)***: All migrants without documented evidence of previous measles vaccination should be offered MMR vaccination as follows: • All children at 12 months of age should receive an MMR vaccine, with a second dose at 4-5 years of age. If protection is urgently required, the second dose can be given four weeks after the first. • All others according to the National Immunisation Office Advisory Committee (NIAC) "late entrants catch-up schedule" for children and adults, as follows: ○ 12 months to 4 years; 1 dose MMR ○ *4 -9 years; 2 doses MMR ≥28 days apart (*One dose if not yet in primary school; second dose will be given in junior infants) ○ 10-17 years; 2 doses MMR ≥ 28 days apart ○ 18 years and over; 2 doses MMR ≥ 28 days apart

Polio	**Assess all migrants for previous polio vaccination** • Be aware that acute cases of polio can present from countries where polio is endemic • Consider post-polio syndrome in patients who may have been infected in childhood **Vaccinate:** • All children according to the routine childhood immunisation schedule, 6 in 1* at 2, 4 and 6 months with a booster dose at 4-5 years old • All others according to the "late entrants catch-up schedule" for children and adults as follows: ○ 12 months to <4 years, three doses of 6 in 1* at two month intervals with booster at 4-5 years old ○ 4 to <10 years, three doses of 6 in 1* at two month intervals with booster dose at least 6 months and preferably 3 years after the primary course ○ 10 to <18 years, three doses of Tdap/IPV^ at one month intervals with booster dose 5 years after primary course ○ 18 years and older, one dose of Tdap/IPV^, followed by two doses of Td/IPV# at one month intervals *6 in 1: DTaP/IPV/HiB/HepB ^Tdap/IPV: Tetanus, reduced dose diphtheria vaccine, reduced dose pertussis vaccine/IPV #Td/IPV: Tetanus, reduced dose diphtheria vaccine/IPV

Rubella	**Offer test for rubella immunity to:** • All women of childbearing age **Vaccinate (MMR):** • All children (two doses) • Non-pregnant seronegative women of childbearing age (one dose) • Non-immune healthcare workers (one dose) • All children and non-pregnant adults from low income countries, without documented evidence of rubella vaccination, should be offered one dose of MMR; two doses may be required to fully protect against measles and mumps
Sexually Transmitted Infections (STI)	**Offer testing:** • All sexually active people who are from countries with a HIV rate of >1% (available from: http://apps.who.int/gho/data/node.main.622?lang=en) should be offered a full sexual health assessment. A high HIV rate in a country can be taken as an indicator of likely high rates of other STIs as well. **The following sexually transmitted infections should be screened for at a minimum in sexually active asymptomatic individuals from these countries:** ○ Serology for HIV ○ Syphilis serology ○ Urinary nucleic acid amplification test (NAAT) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* • Sexually active people who are from countries with an HIV rate of ≤1% should be offered sexual health screening as appropriate for their sexual history. • All people with symptoms of an STI should be offered a clinical assessment, STI testing and treatment Further information on what is involved in a sexual health assessment can be found at the British Society for Sexual Health and HIV website (http://www.bashh.org/). **Offer Vaccine (Human Papilloma Vaccine – HPV):** • Females at 12-13 years of age as part of the national vaccination programme • HPV vaccine may be given to females aged 9 to 26 years. • Vaccination with the quadrivalent HPV vaccine should be considered for HIV positive males and females from 9 to 26 years • Hepatitis B should be considered as per section 5.2 **Health Promotion** All sexually active people. This should include safer sex and contraceptive advice for both males and females and information for women about cervical screening. Refer to STI services if more specialist services are required.
Tuberculosis	**Risk assess:** All migrants from countries where prevalence of TB disease is known to be change ≥40 cases per 100,000 population as per the national TB guidelines 2010 (see Appendix F for a list of these countries) **Follow the TB disease algorithm**

Algorithm for assessing all migrants from countries with ≥40 cases of TB per 100,000 population.



*If history of recent contact with an infectious TB case refer to TB clinic.
** All persons from countries with annual TB notifications ≥40/100,000
***Age 16-35 years from Sub-Saharan Africa or a country with TB incidence >500/100,000
**** Timing of X-ray and BCG may be dependent on pregnancy status

Source: Adapted from HSE HPSC Guidelines on the prevention and control of tuberculosis in Ireland 2010

1.1 Summary Testing Chart

Disease	Chickenpox/ Varicella	Hepatitis B	Hepatitis C	HIV	Intestinal Parasites	Malaria	Rubella	STI	TB
Who to offer testing to?	All healthcare workers, unless known to be immune Migrant women of childbearing age Immuno-compromised individuals and their household contacts	HBsAg and anti-HBc: All new migrants originating from countries with a HBsAg prevalence of ≥2% Household and sexual contacts of identified acute or chronic cases All women attending antenatal services Sex workers and those who have been trafficked PWID MSM	Anti-HCV: All migrants who originate from countries with a prevalence of chronic hepatitis C of ≥3% Those with a history of HCV risk exposure/ behaviour including PWID and MSM HCV RNA to: all those who have a positive anti-HCV result	HIV Ag/Ab: All women attending antenatal services All those with risk factors for HIV: From high HIV prevalence countries (≥1%), concurrent sexually transmitted infection, PWID, sex workers and those who have been trafficked, MSM Concurrent TB infection	*Symptomatic migrants only,* particularly those who have: Lived or travelled in endemic regions Migrated from Southeast Asia or Sub-Saharan Africa Eosinophilia	Thick and thin malaria films *Symptomatic migrants only*, particularly those who have: Fever Lived or travelled in malaria-endemic regions within the previous 12 months, particularly in Sub-Saharan Africa	All women of child-bearing age	All sexually active people from countries with a HIV rate of >1% At a minimum: -HIV serology -Syphilis serology -Urinary NAAT for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* Sexually active people from countries with a HIV rate of ≤1% should be offered sexual health screening as appropriate for their sexual history All people with symptoms of an STI	All migrants from countries where prevalence of TB disease is known to be ≥40 cases per 100,000 population as per the national TB guidelines 2010 Follow the assessment algorithm in section 5.11

2/Background to the guidelines

2.1 Introduction

In 2010 it was estimated that there were 215 million migrants in the world and that number continues to increase.[1] In April 2011 the number of non-Irish nationals in Ireland was recorded as 544,357.[2] The migrant population in Ireland has been changing in recent years. Many migrants now are young healthy adults who have chosen to come to Ireland to study or work[2] while the number of migrants entering the country seeking asylum has declined significantly in recent years.[3] To reflect the changing needs of this diverse group, the Health Service Executive (HSE) Population Health Directorate requested the Health Protection Surveillance Centre (HPSC) Scientific Advisory Committee (SAC) to review and update the national guidelines on communicable disease screening for migrants.[4] The original 2004 guidelines referred only to asylum seekers.[4]

2.2 Terms of reference

1. To review the current guidelines for "*Communicable disease screening for asylum seekers" (Department of Health and Children, October 2004*)
2. To update and further develop these guidelines to include the health assessment, in relation to infectious diseases, of all entrants to the Irish healthcare system

Migrant assessment should be offered if considered necessary on clinical or public health grounds. It is offered on a voluntary basis and persons should be encouraged to avail of the assessment and any recommended vaccination. Assessment may be offered in any medical setting where migrants present for healthcare.

2.3 Purpose and scope

The purpose of these guidelines is to give appropriate guidance in relation to assessment of common infectious diseases in migrants. The committee acknowledges that migrant health is a complex, multifaceted area which includes infectious and chronic diseases, mental health and socioeconomic considerations. However, the scope of these guidelines is focused primarily around infectious disease assessment. The term '*assessment*' is used instead of '*screening*' to avoid any confusion that these migrant consultations are formal population screening programmes that fulfil the narrow screening criteria such as those outlined by the UK National Screening Committee (NSC).[5]

The guidelines are intended for use as follows:

Intended Audience: Any healthcare professional involved in consultation with migrants.

Setting: Any medical setting where migrants present for healthcare, for example, primary care, specialist services for migrants, antenatal clinics, prison medical services or hospitals.

Patient Population:
In this document, the term 'migrant' is taken to include:

- any person who was not born in Ireland but who is currently living here temporarily or permanently
- migrant workers, people who migrated to this country voluntarily for whatever reason
- all other persons who have migrated to this country voluntarily for whatever reason, including foreign students
- international adoptees
- returned emigrants
- those who have been compelled to leave their original country of nationality or residence for whatever reason and have come to this state to seek its protection as asylum seekers or refugees
- undocumented or irregular migrants including those who are trafficked

The use of the term migrant in this document excludes those who are voluntarily in this country for a short period of time as tourists or on business.

In general, these guidelines are most applicable to migrants from countries where the prevalence of certain infectious diseases is higher than in Ireland.

Note:
Migrants may travel back and forth between Ireland and their country of origin where they may be re-exposed to certain infectious diseases.

These guidelines are not proposing a formal screening programme but offer best practice advice for infectious disease assessment in migrants. As stated above, the guidelines facilitate opportunistic assessment, and participation on the part of the migrant is on a voluntary basis. In using these guidelines consideration should be given to the individual migrant, their needs and their country of origin. The guidelines are intended to benefit both migrants and the host population. A suggested health assessment form is included in the guidelines which may be used or adapted for use by clinicians. However, it is not envisaged that these questionnaires would be collected or collated nationally.

Primary objectives of assessing the target populations:

- to identify infections requiring clinical or public health follow-up
- to identify opportunities for vaccination
- to ensure appropriate follow up and referral of cases
- to ensure contact tracing
- to prevent onward transmission and further cases by providing medical advice to cases and contacts and vaccination/prophylaxis for contacts
- to identify local outbreaks
- to inform local vaccination priorities

Outside the scope of these guidelines
The guidelines are intended to be used opportunistically across a wide range of health services. The guidelines do not advise on how migrants might access health services, nor make recommendations on the type of services that should be made available to migrants.

The guidelines provide a comprehensive assessment of infectious diseases. They do not take into account or offer guidance on other aspects of health and social needs of the migrant population in Ireland. Further information on these complex issues can be found in the HSE National Intercultural Health Strategy.[6]

The following infectious diseases are included in the recommended assessment programme:

- Chickenpox/Varicella zoster virus
- Hepatitis B
- Hepatitis C
- HIV
- Intestinal parasites
- Malaria
- Measles
- Polio
- Rubella
- Sexually transmitted infections (STI)
- Tuberculosis

Notifiable Infectious Diseases: All medical practitioners, including clinical directors of diagnostic laboratories, are required to notify the Medical Officer of Health (MOH)/Director of Public Health (DPH) of certain diseases. Further information is available from: http://www.hpsc.ie/NotifiableDiseases

A summary of recommended immunisations is also included in the document.

These guidelines are current as of January 2015. There are a number of websites of reputable public health

organisations that also provide information on infectious diseases and infectious disease assessments in migrants including:

Public Health England. Migrant Health Guide:
http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

TravelHealthPro: http://travelhealthpro.org.uk/

Centers for Communicable Disease Control and Prevention: www.cdc.gov

2.4 Outline of the document

The content of the document is arranged as follows:

- Migrant population overview
- Assessing migrant patients
- Disease specific considerations
  - Disease and epidemiology
  - Rationale for assessment
  - Recommendations
- Assessment criteria for choosing recommendations
- Appendices

2.5 Methods

Working Group

The working group that developed the guidelines is a sub-committee of the Scientific Advisory Committee (SAC) of the Health Protection Surveillance Centre (HPSC), and included professionals with the relevant expertise and experience, and also target users of the guidelines. The members of the committee and the organisations that they represent are listed below.

Search Protocol

The basis of the guidelines was the previously published 2004 Department of Health guidelines 'Communicable Disease Screening for Asylum Seekers'.[4] In developing the recommendations in these guidelines various Irish and international sources of guidance were reviewed. The Immunisation Guidelines for Ireland,[7] Public Health England's Migrant Health Guide[8] and Canada's Evidence-based Clinical Guidelines for Immigrants and Refugees[9] were considered to be comprehensive, reliable and appropriate guidelines on which to base our recommendations. Additional information where necessary was sought from international literature and is referenced where used. In each section the rationale for assessment, testing, vaccination and other actions is outlined.

Consultation

A consultation exercise was carried out as follows: The draft document was approved by HPSC SAC and then posted on the HPSC website for general consultation from July to September 2014. A notice about this posting appeared in the HPSC monthly on-line bulletin, Epi-Insight, in August 2014. An email message linking to the document was also sent to various relevant professional groups, healthcare agencies and managers, public service departments and agencies, and non-governmental agencies, inviting feedback.

Submissions received were discussed at the final meeting of the sub-committee in October 2014 and incorporated as appropriate into the final document which was submitted to SAC in January 2015.

Migrant Health Assessment Sub-Committee

Lelia Thornton	HSE Health Protection Surveillance Centre (Chair from May 2013)
Agnes Bourke	RDO nominee HSE South (to August 2012)
PJ Boyle	Balseskin Reception Centre
Anne Brophy	Infection Prevention Society
Martin Collum	HSE Area Manager Cavan/Monaghan (to August 2012)
Concepta de Brun	RDO nominee HSE Dublin Mid Leinster (DML)
Fiona Donnelly	Occupational Health Physician
Noel Dowling	Reception & Integration Agency
Sarah Doyle	Faculty of Public Health Medicine, Royal College of Physicians of Ireland
Kate Egan	A DPHN, HSE (to August 2012)
Richard Ennis	Irish College of General Practitioners
Margaret Fitzgibbon	Academy of Medical Laboratory Scientists
Paula Gilvarry	Senior Medical Officer, HSE Sligo/Leitrim
Lorraine Hickey	HSE Health Protection Surveillance Centre (to August 2012)
Ronan Leahy	Faculty of Paediatrics, Royal College of Physicians of Ireland
Sam McConkey	Infectious Disease Society of Ireland
Sinead McGuinness	Reception & Integration Agency
Helena Murray	HSE National Immunisation Office
Tonya Myles	CAIRDE
Diane Nurse	HSE Social Inclusion
Lois O'Connor	HSE East, Department of Public Health (Medical Secretary from December 2013)
Joanne O'Gorman	National Virus Reference Laboratory
Aidan O'Hora	HSE Health Protection Surveillance Centre (Chair to August 2012)
Mary O'Riordan	HSE Health Protection Surveillance Centre (Medical Secretary May-September 2013)
Patrick O'Sullivan	HSE Intercultural Committee
Tony Quilty	RDO nominee, HSE West
Mary Sayers	Irish Naturalisation and Immigration Service
Camille Staunton	RDO nominee, HSE Dublin North East (to August 2012)
Aoibheann O'Malley	HPSC Secretariat

2.6 References

(1) The World Bank. Migration and Remittances Factbook 2011. Second edition, 2011

(2) CSO Ireland 2011 [cited 2013 Jun 12];
Available from: http://www.cso.ie/en/census/census2011reports/census2011profile6migrationanddiversity-aprofileofdiversityinireland/

(3) Reception and Integration Agency. RIA Annual Report 2011.
Available from: www.ria.gov.ie

(4) Department of Health and Children. Communicable Disease Screening for Asylum Seekers 2004.

(5) National Screening Committee NHS UK. UK Screening Portal 2013 [cited 2013 Jun 12];
Available from: http://www.screening.nhs.uk/

(6) Health Service Executive. National Intercultural Health Strategy 2007-2012. Ireland: HSE; 2009.
Available from: http://www.hse.ie/eng/services/Publications/SocialInclusion/National_Intercultural_Health_Strategy_2007_-_2012.pdf

(7) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013.
Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

(8) Public Health England. Migrant Health Guide [Internet]. UK: Public Health England. 2013 May 30th.
Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

(9) Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, et al, and co-authors of the Canadian Collaboration for Immigrant and Refugee Health. Evidence-based clinical guidelines for immigrants and refugees. CMAJ [Internet]. 2011 September 6th; 183(12):E824-E925.
Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3168669/pdf/183e933.pdf

3/Migrant population overview

3.1 Background

With an increasing world population, globalisation of the world's economy, climate change and other socio-political factors, more people migrate today than at any other time.[1] This movement has implications for the health of both the individual and the population. It has been documented in the *2009 United Nations Human Development Report* that migration benefits people in terms of increased educational and economic opportunities.[2] However, people who move country can also face challenges when accessing local health and social services.

Migrants are a diverse group with varying health needs. Many are healthy, young adults from countries with low prevalence of infectious diseases who travel to work or study.[3] Others come from regions with a high burden of infections and continue to be at risk of these diseases due to return visits to their country of origin or due to adverse conditions such as overcrowding in their country of arrival.[3] These migrants may have more extensive health needs. When assessing their health needs the following broad questions are helpful to consider:

- What were their life experiences before migration, for example, their family life, education, employment and healthcare access?
- What were the circumstances of their migration? This may have been a voluntary choice for education or economic purposes or the person may be more vulnerable, for example, if they have been trafficked.
- What was their experience during the process of migration?
- What are their current living circumstances in Ireland? How are they integrating into their new community? What are the social structures that they have in place?

Healthcare professionals also need to be aware of specific diseases that are more prevalent in certain ethnic or migrant groups.

3.2 Migrant population and demography

Overall, the size of the Irish population is increasing. Data from Census 2011 suggest that the annual average growth since the 2006 census was 1.6%.[4] The number of non-Irish nationals in Ireland in April 2011 was recorded as 544,357*.[3] In 2011, the percentage of residents who were non-Irish nationals was 12% compared with 5.8% in 2002.[3]

Between 2006 and 2011 there has been an increase of 124,624 in non-Irish nationals living in Ireland.[3] Table 3.1 compares the numbers of non-Irish nationals living in Ireland in 2002, 2006 and 2011. The nationality with the largest increase between 2006 and 2011 was the Polish nationality.[3] Of note, the migrant population in Ireland in 2011 showed a peak single year of age of 30 years with an average age of 32.6 years. Sixty percent of all non-Irish nationals were in the 22-44 age range compared with 32 per cent of Irish nationals.[3]

In non-Irish nationals living in Ireland in April 2011, a remarkable diversity of nationalities existed, representing 199 different nations. Figure 3.1 and Table 3.2 show the country of origin of non-Irish nationals living in Ireland in April 2011.

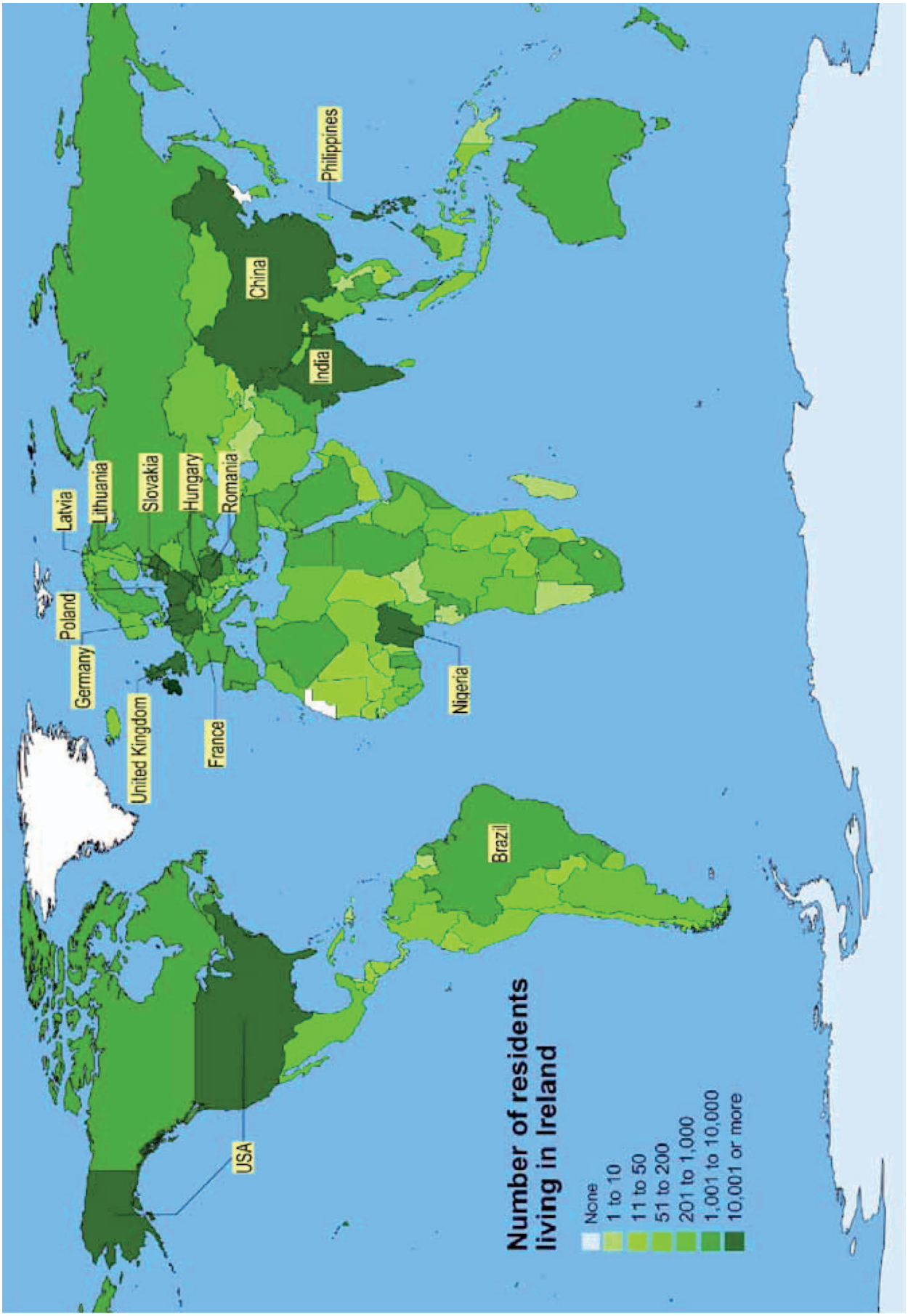
**The committee is aware that census data may not capture the full extent of the migrant population in Ireland, particularly in terms of vulnerable migrants such as undocumented migrants, those who were trafficked or unaccompanied minors.*

Table 3.1 Census population results compared for 2002, 2006 and 2011

Nationality	2002	2006	2011	Change 2002-2011	% change
Poland	2,124	63,276	122,585	120,461	5,671.4
UK	103,476	112,548	112,259	8,783	8.5
Lithuania	2,104	24,628	36,683	34,579	1,643.5
Latvia	1,797	13,319	20,593	18,796	1,046.0
Nigeria	8,969	16,300	17,642	8,673	96.7
Romania	4,978	7,696	17,304	12,326	247.6
India	2,534	8,460	16,986	14,452	570.3
Philippines	3,900	9,548	12,791	8,891	228.0
Germany	7,216	10,289	11,305	4,089	56.7
USA	11,384	12,475	11,015	-369	-3.2
China	5,842	11,161	10,896	5,054	86.5
Slovakia	297	8,111	10,801	10,504	3,536.7
France	6,363	9,046	9,749	3,386	53.2
Brazil	1,087	4,388	8,704	7,617	700.7
Hungary	409	3,440	8,034	7,625	1,864.3
Italy	3,770	6,190	7,656	3,886	103.1
Pakistan	2,939	4,998	6,847	3,908	133.0
Spain	4,436	6,052	6,794	2,358	53.2
Czech Republic	1,103	5,159	5,451	4,348	394.2
South Africa	4,185	5,432	4,872	687	16.4
Other non-Irish	45,348	77,217	85,390	40,042	88.3
Total non-Irish	224,261	419,733	544,357	320,096	142.7

Source
http://www.cso.ie/en/media/csoie/census/documents/census2011profile6/Profile,6,Migration,and,Diversity,Commentary.pdf

Figure 3.1 Non-Irish nationals living in Ireland by country of origin, 2011



Source
http://www.cso.ie/en/media/csoie/census/documents/census2011profile6/Profile,6,Migration,and,Diversity,Commentary.pdf

Table 3.2 Non-Irish Nationals Living in Ireland Census 2011

Number of nationals					
1 – 10	**11 – 50**	**51 – 200**	**201 – 1,000**	**1,001 – 10,000**	**Over 10,000**
Andorra	Bahrain	Armenia	Afghanistan	Algeria	China
Anguilla	Benin	Azerbaijan	Albania	Australia	Germany
Antigua and Barbuda	Bhutan	Bolivia	Angola	Bangladesh	India
Aruba	Burkina Faso	Burundi	Argentina	Belgium	Latvia
Bahamas	Cambodia	Chechnya	Austria	Brazil	Lithuania
Barbados	Chad	Chile	Belarus	Bulgaria	Nigeria
Belize	Costa Rica	Colombia	Bosnia & Herzegovina	Canada	Philippines
Bermuda	Dominica	Cuba	Botswana	Congo	Poland
Brunei	Ecuador	Cyprus	Cameroon	Czech Republic	Romania
Cape Verde	El Salvador	Eritrea	Croatia	Eqypt	Slovakia
Cayman Islands	Fiji	Gambia	Democratic Republic of Congo	Estonia	United Kingdom
Central African Republic	Guyana	Guatemala	Denmark	France	USA
Comoros	Honduras	Guinea	Ethiopia	Ghana	
Djibouti	Kyrgyzstan	Hong Kong	Finland	Hungary	
Dominican Republic	Lesotho	Iceland	Georgia	Iraq	
East Timor	Luxembourg	Indonesia	Greece	Italy	
Equatorial Guinea	Mali	Jamaica	Iran	Malaysia	
Faroe Islands	Mauritania	Lebanon	Israel	Mauritius	
Gabon	Mozambique	Macedonia	Ivory Coast	Moldova	
Gibraltar	Nicaragua	Malta	Japan	Netherlands	
Grenada	Panama	Niger	Jordan	New Zealand	
Guam	Paraguay	Oman	Kazakhstan	Pakistan	
Guinea-Bissau	Qatar	Palestine	Kenya	Portugal	
Haiti	Senegal	Peru	Kuwait	Russia	
Laos	Seychelles	Rwanda	Liberia	Saudi Arabia	
Liechtenstein	Swaziland	Singapore	Libya	Somalia	
Madagascar	Tonga	Slovenia	Malawi	South Africa	
Maldives	Yemen	Taiwan	Mexico	Spain	
Marshall Islands		Tanzania	Mongolia	Sudan	
Martinique		Trinidad and Tobago	Morocco	Sweden	
Micronesia		United Arab Emirates	Myanmar Burma	Thailand	
Monaco		Uruguay	Nepal	Turkey	
Montenegro		Uzbekistan	Norway	Ukraine	
Namibia		Zambia	Serbia	Zimbabwe	
Netherlands Antilles			Sierra Leone		
Papua New Guinea			South Korea		
Puerto Rico			Sri Lanka		
Samoa			Switzerland		
San Marino			Syria		
Solomon Islands			Togo		
St Helena			Tunisia		
St Kitts and Nevis			Uganda		
St Lucia			Venezuela		
St Vincent			Vietnam		
Surinam					
Tajikistan					
Turkmenistan					

Source
http://www.cso.ie/en/media/csoie/census/documents/census2011profile6/Profile,6,Migration,and,Diversity,Commentary.pdf

3.3 Profile of recent immigrants

The migrant population continues to be a diverse group with changing needs. They are a growing and economically important segment of Irish society.[3] There were 268,180 non-Irish nationals at work in Ireland in April 2011 accounting for 15.1 per cent of the workforce.[3]

Polish and UK nationals dominated the migrant work force; however, there were 187 different nationalities at work in Ireland in April 2011.[3]

Of the 33,340 non-Irish nationals who arrived in Ireland in the year prior to April 2011, over a third of those were aged between 25 and 34 years and most were single (59.7%). Students accounted for 23.4 per cent of those who arrived in the year prior to April 2011.[3]

3.4 Vulnerable migrants

Because of adverse experiences before, during or after migration, certain migrant groups are classified as vulnerable migrants. Vulnerable migrants include:[5]

- Asylum seekers and refugees
- Low paid migrants
- Undocumented migrants
- Unaccompanied children
- People who have been trafficked
- Members of the Roma community (estimated population 3,000). (Source: Presentation to the British Irish Parliamentary Assembly. Inquiry into the Traveller and Roma population. January 2014. Personal communication Diane Nurse, Social Inclusion, HSE)

Applications for asylum

The number of non-Irish nationals entering the country seeking asylum has declined significantly in recent years. The number peaked in 2003 with 11,634 applications. (Figure 3.2) The number of applicants in 2013 was 946.[6]

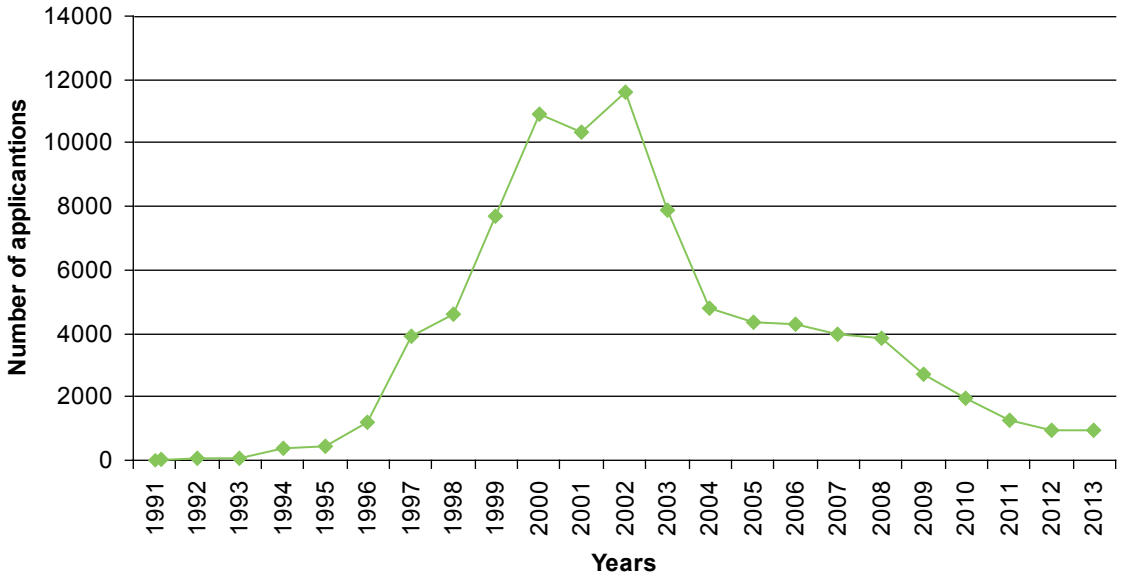


Figure 3.2 Applications for declaration as a refugee, 1991 to end of December 2013
Adapted from: **Reception & Integration agency Annual Report 2013**

Further information on refugees and asylum seekers can be found in Appendix F

3.5 Mapping of current asylum seeker services

In 2010, the Royal College of Surgeons in Ireland (RCSI) carried out a mapping study to ascertain the structures and processes in asylum seeker assessment services in Ireland.[7] It found that an infectious diseases assessment service for asylum seekers was in place in 53.9% (14/26) of local health offices (LHO) with Reception and Integration Agency (RIA) dispersal accommodation. The study also identified that there was a significant degree of heterogeneity in service provision throughout the LHO regions with a lack of assessment services most notable in Dublin (with the exception of Balseskin), Galway and the South East. The author of the study also noted that in areas with no dedicated assessment programme, the work would fall to primary care services that may be under-resourced to manage some of the more complex health needs of the migrant population.[7]

3.6 References

(1) The world migration report 2008: managing labour mobility in the evolving global economy. Geneva: International Organization for Migration; 2008.

(2) United National Development Program. Human development report. Overcoming barriers: human mobility and development. New York: Human Development Report Office; 2009.

(3) CSO Ireland. Census 2011 Profile 6 Migration and Diversity – A profile of diversity in Ireland [Internet]. 2011 [cited 2013 Jun 12]. Available from: http://www.cso.ie/en/census/census2011reports/census2011profile6migrationanddiversity-aprofileofdiversityinireland/

(4) CSO. Census 2011 Reports [Internet]. 2011. Available from: http://www.cso.ie/en/census/census2011reports/

(5) Public Health England. Migrant Health Guide. [Internet]. UK: Public Health England. 2013 May 30th. Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

(6) Reception and Integration Agency. Annual Report. 2013. Available from: www.ria.gov.ie

(7) Smith G. Communicable disease screening for asylum seekers and refugees in Ireland. A mapping study. Dublin: Royal College of Surgeons; 2010.

4/Assessment of migrant patients

4.1 Migrant health assessment

As with any other new patient, the migrant will require a baseline new patient check, including history and examination. However, migrant patients may also have other health concerns that need to be explored. Particular factors to be considered in the migrant patient consultation include:

- Their experiences before migration such as education, employment, family circumstances and access to healthcare
- Their experiences during the migration process
- The circumstances they are currently experiencing in Ireland in terms of social and economic support
- The underlying potential hazards that they may have been exposed to in their country of origin

The following questionnaire is a helpful guide to follow when assessing a migrant patient. This questionnaire has been adapted from two sources; *Migrant Health Guide – Assessing new patients from overseas: Public Health England 2013* http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide and the questionnaire from the Asylum Seeker Health Screening Centre, Balseskin, Dublin.

Note 1:
This checklist is only a guideline and may need to be adapted according to the setting that the migrant attends.

Note 2:
As with any new patient, it may take time to develop trust. Some more sensitive topics may not be divulged in the initial meetings but it is important that the healthcare provider be aware of these areas that are more pertinent to the migrant population so that as trust is established the more difficult issues can be addressed.

Note 3:
If the migrant is unwell at first visit they should be assessed as a patient with symptoms. This is beyond the scope of this guidance document.

Note 4:
Healthcare providers should bear in mind that some migrants may have limited proficiency in English. The use of appropriately trained interpreters is recommended.

Health Assessment Form for Migrants

Private and Confidential

Affix ID Label Here

General

What is your place of birth? _____

What is your ethnic or cultural background?

White:	Irish	☐
	Irish Traveller	☐
	Any other white background	☐
Black or Black Irish:	African	☐
	Any other black background	☐
Asian or Asian Irish	Chinese	☐
	Any other Asian	☐
Other including mixed background: (describe)	_____	

Date Last Travelled Abroad ☐☐/☐☐/☐☐☐☐

Primary Language _____

Interpreter required **Yes** ☐ **No** ☐

Reason for Attending

Existing Medical Conditions

Medications

Allergies

Family History

Affix ID Label Here

Conditions around migration

Current circumstances in Ireland

How long have you been in Ireland? _____

Living Arrangements? _____

Where do you live? _____

_____

With whom do you live? _____

_____

How many people are in the household? _____

Reason for migration?

- Study ☐
- Work ☐
- Forced ☐
- Asylum ☐
- Other _____

_____

Previous circumstances in country of origin

Socio-economic group/ occupation _____

Other relevant information e.g. torture, rape _____

_____

Experience during migration process (optional)

	Hours	Days	Weeks	Months
Length of time to get to Ireland from country of origin	☐	☐	☐	☐

Other comments

Affix ID Label Here

Infectious Disease Assessment

Tuberculosis

	Yes	No
Have you ever been told you have had TB?	☐	☐
Have you ever taken medicine to treat or prevent TB?	☐	☐
Have you ever been in contact with a person sick with TB?	☐	☐
Have you had a persistent cough for more than two weeks?	☐	☐
Do you cough up phlegm or blood?	☐	☐
Have you lost weight recently?	☐	☐
Do you sweat more than usual at night?	☐	☐

Bloodborne viruses

Hepatitis

	Yes	No
Have you ever been diagnosed with viral hepatitis?	☐	☐

If yes, which type? **A** ☐ **B** ☐ **C** ☐ **E** ☐

HIV

	Yes	No
Have you ever been diagnosed with HIV?	☐	☐
If yes, when: _____		
Are you on treatment for HIV?	☐	☐

Childhood Infectious Diseases

	Yes	No
Measles	☐	☐
Mumps	☐	☐
Rubella	☐	☐
Chickenpox	☐	☐

Other

	Yes	No
Have you ever had malaria?	☐	☐
If yes, when: _____		
Were you treated for malaria?	☐	☐
Have you ever been diagnosed with a parasite infection such as schistosomiasis, strongyloides?	☐	☐
If yes, when: _____		
Did you receive treatment?	☐	☐

Sexual History

	Yes	No
Are you currently sexually active?	☐	☐
If yes, when was the last time you had sex? _____		

Do you have sex with: **Men** ☐ **Women** ☐ **Both** ☐

Have you noticed any symptoms such as:

	Yes	No
1. Pain on urination	☐	☐
2. Penile/vaginal discharge	☐	☐
3. Abdominal/pelvic pain	☐	☐
4. Ulceration on the genital area	☐	☐

Affix ID Label Here

Immunisation history

	Yes	No/unknown	No. of doses received	Date of last dose
BCG	☐	☐		
Measles	☐	☐		
Mumps	☐	☐		
Rubella	☐	☐		
Diphtheria	☐	☐		
Tetanus	☐	☐		
Pertussis	☐	☐		
Polio	☐	☐		
Haemophilus Influenzae (B)	☐	☐		
Chickenpox/varicella	☐	☐		
Hepatitis A	☐	☐		
Hepatitis B	☐	☐		
Meningococcal C	☐	☐		
Pneumococcal	☐	☐		
Human papilloma virus	☐	☐		

Record of investigations and results

	Test requested Yes	Test requested No	Result Pos	Result Neg
TB				
Mantoux	☐	☐	_____	
IGRA	☐	☐	_____	
CXR	☐	☐	_____	
Hepatitis B			**Pos**	**Neg**
HBsAg	☐	☐	☐	☐
Anti-HBs	☐	☐	☐	☐
Anti-HBc	☐	☐	☐	☐
HBeAg	☐	☐	☐	☐
Anti-HBe	☐	☐	☐	☐
Hepatitis C				
Anti-Hep C	☐	☐	☐	☐
HCV Antigen	☐	☐	☐	☐
HCV RNA	☐	☐	☐	☐
HIV Ab/Ag	☐	☐	☐	☐
Other (name)	_____			
Women of Childbearing Age				
Rubella	☐	☐	**Immune** ☐	**Non-immune** ☐
Varicella	☐	☐	**Immune** ☐	**Non-immune** ☐
Pregnancy	☐	☐	**Pos** ☐	**Neg** ☐

Record of vaccines administered

Name of vaccine	Batch no.	Manufacturer	Site used	Dose administered	Date given	Dose no.	Date next dose due	Signature

Specialist referrals requested after consultation (please indicate which specialty)

5/Disease specific assessment guidelines

5.1 CHICKENPOX/VARICELLA-ZOSTER VIRUS (VZV)

NOTIFIABLE (hospitalised cases only)

RECOMMENDATIONS

Offer test to:

- All healthcare workers (HCWs), unless known to be immune
- Migrant women of childbearing age
- Immunocompromised individuals and their household contacts

Vaccinate non-immune:

- HCWs
- Non-pregnant women of childbearing age
- Healthy close household contacts of immunocompromised individuals
- Some immunocompromised people may be vaccinated, e.g. those with lymphocytic leukaemia in remission, transplant recipients and some children and adults with HIV infection.

Non-immune individuals in specific groups should seek urgent medical advice (as soon as possible after exposure and ideally within 96 hours) if exposed to varicella or zoster as varicella-zoster immunoglobulin (VZIG) may be indicated:

- Non-immune women who have been exposed to varicella or zoster during pregnancy.
- Infants born to non-immune mothers who have been exposed to maternal varicella from 7 days before to 7 days after delivery.
- Non-immune infants exposed to varicella or zoster (other than in the mother) during the first 7 days of life.
- Non-immune infants of any age in Special Care Baby Unit (SCBU) exposed to varicella or zoster.
- Non-immune immunocompromised individuals who have been exposed to varicella or zoster.

Chickenpox is caused by the varicella-zoster virus (VZV). A primary infection results in chickenpox which is an acute exanthematous disease of childhood. The virus may reactivate in later years resulting in the clinical syndrome of herpes zoster (shingles). In September 2011, chickenpox (hospitalised cases only) became notifiable in Ireland. Outbreaks are notifiable since January 2004.

Epidemiology

The mean age at which people are infected with varicella in tropical countries tends to be older (10-15 years) than in colder countries (4-5 years). In certain tropical regions (such as Sri Lanka and the Caribbean) adults over 35 years of age may still be susceptible to varicella.

In Ireland sentinel data from 2012 showed that 54% of chickenpox cases occurred in children under five years of age.[1]

Rationale for assessment

The rationale for assessment of VZV status in migrants is as follows:

- Rates of immunity to VZV are lower in some migrant countries of origin, leaving migrants from these countries vulnerable to infection. This is particularly the case in tropical countries like Sri Lanka, the Caribbean and Singapore.[2]
- Close living conditions, especially for asylum seekers in direct provision, facilitate transmission.
- There are risks of serious consequences in pregnant women and immunocompromised people.[3]
- Chickenpox is preventable by vaccination.[4]
- VZV immunoglobulin is available for post-exposure prophylaxis.[1]

Assessment

The following indications for VZV assessment and vaccination are based on NIAC guidelines.[1]
Antibody testing for VZV should be offered to:

- Healthcare workers (HCW) including laboratory staff unless known to be immune i.e. immunise those without a definite history of chickenpox, proof of immunity or vaccination status. HCWs from outside Ireland and Western Europe are less likely to be immune.
- All migrant women of childbearing age.
- Other at-risk groups e.g. those who are immunocompromised (including HIV infected children and adults) and their household contacts.

All pregnant women who are antibody negative for VZV should be given their result in writing with appropriate advice on exposure to chickenpox during pregnancy such as:

- They should avoid contact with people with a febrile rash illness during their pregnancy.
- If contact has occurred with a person with chickenpox they should immediately notify their GP or obstetrician of the contact.
- They should not attend routine antenatal clinics between days 10 and 28 following exposure to prevent further exposure of other non-immune pregnant women. If the visit is essential they should be seen in a single room.
- If contact of the new-born with a person with chickenpox occurs within the first seven days of life, or more than seven days for premature or low birth-weight infants in SCBU, the woman should notify their GP or paediatrician immediately.

Accommodation centres with cases of chickenpox should not admit non-immune pregnant women **until 28 days after the onset of the last case.**

Immunocompromised persons may be at risk of serious varicella infection (e.g. those who have primary and acquired immune-deficiency disorders, neoplastic diseases, and those receiving immunosuppressive treatment) and therefore specific accommodation requirements should be informed by a risk assessment. The Reception and Integration Agency (RIA) retains the services of an Independent Medical Referee to adjudicate on requests for particular arrangements for a resident in direct provision (based on medical need).

Vaccination

- Non-immune HCWs including laboratory staff.
- All women of childbearing age without a history of varicella infection should have their immunity checked. Women with negative serology should be vaccinated prior to or after pregnancy. Pregnancy should be avoided for three months following either dose.
- Non-immune household contacts of immunocompromised persons at risk of serious varicella infection should be vaccinated against VZV.
- Some immunocompromised patients may be vaccinated, e.g. those with lymphatic leukaemia in remission and transplant recipients – see Chapter 3 Immunisation Guidelines for Ireland 2013. NIAC.[1]
- Non-immune HIV infected children aged >12 months with asymptomatic or mildly symptomatic HIV infection and CD4 count ≥15% -see Chapter 3 Immunisation Guidelines for Ireland 2013. NIAC.[1]
- Non-immune HIV infected adults if CD4 count ≥400 cells x 10^6/L give 2 doses (1 month interval). If CD4 count is ≥200 but <400x 10^6/L patients can receive varicella vaccine if stable on antiretroviral therapy. If CD4 count is <200x $10^{6/L}$ varicella is contraindicated -see Chapter 3 Immunisation Guidelines for Ireland 2013 NIAC.[1]

Note: Women of childbearing age should be advised to avoid pregnancy for three months after vaccination.

If a post-vaccination rash occurs they should avoid contact with persons who are at risk for severe complications. At-risk are:

- immunocompromised individuals
- non-immune pregnant women
- infants of non-immune mothers in the first week of life
- non-immune infants in a Special Care Baby Unit (SCBU).

Post exposure prophylaxis with varicella zoster immunoglobulin (VZIG)

The aim of post exposure prophylaxis is to protect individuals at high risk of developing severe varicella disease and those who may transmit infection to those at high risk (such as healthcare workers or household contacts). VZIG provides short-term protection. Antiviral agents may be indicated in those at high risk of complications, e.g. immunocompromised. Expert opinion e.g. Obstetric, Infectious Diseases, Public Health Medicine, should be sought in these cases.

VZIG prophylaxis is recommended for individuals who fulfil all of the following three criteria:
1. Have had significant exposure to varicella or zoster (see Table 5.1.1)
and
2. Have a clinical condition that increases the risk of severe varicella (e.g. immunocompromised, pregnant women, neonates in the first week of life born to non-immune women, babies in Special Care Baby Units)
and
3. Are non-immune (no antibodies to VZ virus).

Significant exposure is defined based on the following:
1. Type of VZV infection in the index case.
2. Timing of exposure in relation to the onset of rash in the index case.
3. Proximity and duration of contact.

Table 5.1.1 Defining significant exposure[1]

Criteria for defining significant exposure		
Type of VZV infection in index case	**Timing of exposure in relation to onset of rash in index case**	**Proximity and duration of contact (any of the following)**
Varicella	From 48 hours before onset of rash until crusting of lesions	Household contact Contact in same room* for significant period (usually 1 hour or more) Face to face contact such as when having conversation (usually >5 minutes)
Disseminated zoster or extensive exposed lesions in an immunocompetent individual	From 48 hours before onset of rash until crusting of lesions. For zoster, from appearance of vesicles until crusting	
Localised exposed zoster Localised or disseminated zoster in an immunosuppressed person	Day of onset of rash until crusting of lesions	

**An example of 'same room' is a classroom or 2-4 bedded hospital bay. However, because airborne transmission at a distance has been reported in large open wards, the need of giving VZIG to all susceptible high-risk contacts should be considered, particularly in paediatric wards where the degree of contact may be difficult to define.*

Source: Immunisation Guidelines for Ireland 2013

Non-immune individuals in specific groups should seek urgent medical advice (as soon as possible after exposure and ideally within 96 hours) if exposed to varicella or zoster as varicella-zoster immunoglobulin (VZIG) may be indicated:

- Non-immune women who have been exposed to varicella or zoster during pregnancy.
- Infants born to non-immune mothers who have been exposed to maternal varicella from 7 days before to 7 days after delivery.
- Non-immune infants exposed to varicella or zoster (other than in the mother) during the first 7 days of life.
- Non-immune infants of any age in Special Care Baby Unit (SCBU) exposed to varicella or zoster.
- Non-immune immunocompromised individuals who have been exposed to varicella or zoster.

For detailed algorithms on the use of VZIG see the Varicella-Zoster Chapter 23 in the Immunisation Guidelines for Ireland 2013 edition available from:
http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

References

(1) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013 [Internet]. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

(2) Christiansen D, Barnett ED. Comparison of varicella history with presence of varicella antibody in refugees. Vaccine. 2004;22:4233-7.

(3) Pastuszak AL, Levy M, Schick B, et al. Outcome after maternal varicella infection in the first 20 weeks of pregnancy. N Engl J Med. 1994;330:901-5.

(4) Seward JF, Marin M. Varicella vaccine effectiveness in the US vaccination program: a review. J Infect Dis. 2008;197 Suppl 2:S82-9.

5.2 HEPATITIS B

NOTIFIABLE

RECOMMENDATIONS

Offer test (HBsAg and anti-HBc) to:

- All new migrants originating from countries with a HBsAg prevalence of ≥2%
- Household and sexual contacts of identified acute or chronic cases
- All women attending antenatal services
- Sex workers and those who have been trafficked
- People who inject drugs (PWID)
- Men who have sex with men (MSM)

Vaccinate:

- All infants according to the routine childhood immunisation schedule, 6 in 1 at 2, 4 and 6 months
- All children aged 12 months to <10 years according to the "late entrants catch-up schedule"

Vaccinate if non-immune (vaccination not required if anti-HBc positive):

- All migrants originating from countries with a prevalence of ≥2%
- Children born to parents from countries with a prevalence of ≥2%
- Persons at risk of occupational exposure to blood or blood contaminated environments
- Household and sexual contacts of persons with acute or chronic infection
- Families adopting/fostering children from countries with a prevalence of ≥2%
- Babies born to mothers who have HBV infection (they should receive a complete course of vaccine at 0, 2, 4 and 6 months and also HBIG within 24 hours of birth and have serological testing 2 months after vaccination completed)
- HIV exposed and HIV infected infants should be given hepatitis B vaccine at birth and then continue with the routine childhood schedule
- Sex workers and those who have been trafficked
- Those deemed at risk following an assessment of their health needs
- PWID and their contacts
- MSM

Refer all HBsAg positive cases to specialist services for review.

People who are HBsAg negative, anti-HBc positive should be referred for specialist care if they become immunosuppressed (including that due to chemotherapy or transplantation).

Hepatitis B virus is an important cause of serious liver disease including acute and chronic hepatitis, cirrhosis and liver cancer. The virus is transmitted by infected blood or body fluids. Transmission mainly occurs by sexual contact with an infected person, from an infected mother to her baby around the time of birth or horizontal transmission in early childhood, sharing of needles and other drug paraphernalia by people who inject drugs (PWID), and accidental sharps injuries.[1]

Epidemiology

WHO has categorised countries based upon the prevalence of hepatitis B surface antigen (HBsAg) into:[2]

- High endemicity (≥8%): Sub-Saharan Africa, South-East Asia, the Eastern Mediterranean countries, South and Western Pacific Islands, the interior of the Amazon basin and the Caribbean.
- Intermediate endemicity (2-7%): South-Central and South-West Asia, Eastern and Southern Europe, the Russian Federation and most of central and South America.
- Low endemicity (<2%): Australia, New Zealand, Northern and Western Europe, and North America. (Figure 5.2.1)

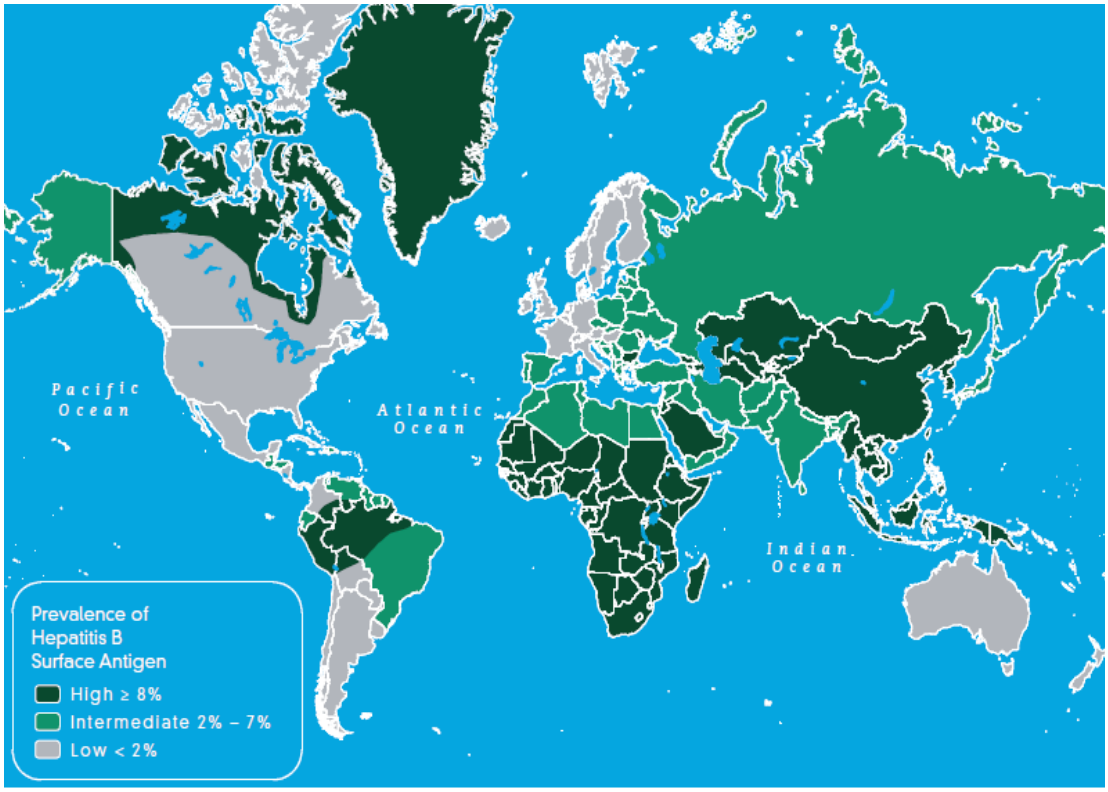


Figure 5.2.1 Geographic distribution of HBV endemicity

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press; 2012

There are >350 million people chronically infected worldwide. Hepatitis B is 50-100 times more infectious than HIV. Chronic HBV infection develops in 90% of those infected as infants and 1-10% infected as adults. Premature death from liver disease occurs in 15-25% of chronically infected people.

In Ireland, 91% of cases notified between 2004 and 2013 were chronically infected. There were 5,915 notifications of cases of chronic hepatitis B in this time period (annual average: n=592) with a peak in 2008 (n=772).[3]

Available data indicate that most cases of chronic hepatitis B were born and infected outside of Ireland, mostly in Sub-Saharan Africa, Asia, Central and Eastern Europe. It is likely that most became infected at birth or in early childhood and they have been infected for decades.

Trends in chronic cases are heavily influenced by trends in immigration to Ireland.

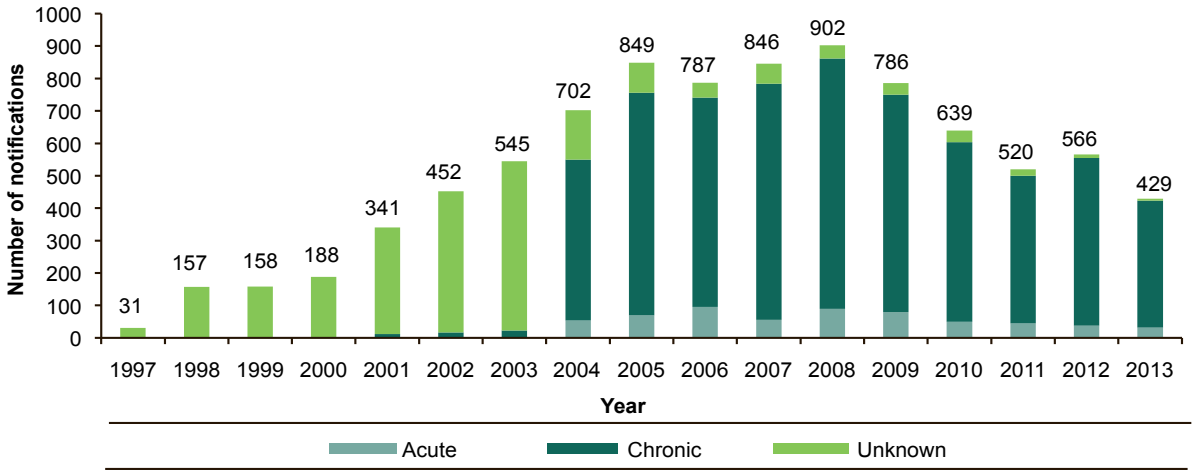


Figure 5.2.2 Number of hepatitis B notifications by acute/chronic status, 1997-2013

Source: HPSC Annual Epidemiological Report 2013. Hepatitis B chapter. Available from: http://www.hpsc.ie/AboutHPSC/AnnualReports/ [3]

Rationale for assessment

Hepatitis B is a condition with often debilitating consequences. However, it is vaccine preventable, there are simple tests available for diagnosis and there are effective treatments available to improve the outcome of infection. The following are the main points behind the rationale for assessing migrants for hepatitis B.

- There is a high probability of developing chronic infection if hepatitis B is acquired in infancy (approx. 90%) and when aged under 5 years (approx. 30%).[1]
- Between 15 and 40% of people with chronic infection develop cirrhosis, liver failure or hepatocellular carcinoma.[1]
- Hepatitis B is a vaccine preventable disease; therefore those identified as non-immune can be offered vaccination to prevent infection.[2]
- For those identified with infection, specialist services and treatments are available to improve disease prognosis and prevent ongoing spread.[1]

Assessment

The SAC sub-committee endorses the following recommendations of hepatitis B assessment from Public Health England Migrant Health Guide for the assessment of hepatitis B in migrants and the National Immunisation Advisory Committee (NIAC).[2,4]

Hepatitis B assessment should be offered to:

- All migrants from areas of high and intermediate endemicity, that is, from a country with a prevalence of HBsAg of greater than or equal to 2%. This includes countries in Sub-Saharan Africa, Asia, Eastern Mediterranean region, Eastern and Southern Europe, Central and South America, the Caribbean and South and West Pacific Islands.
- Contact tracing is recommended for household and sexual contacts of acute and chronic cases and vaccine offered to those who are not immune.

In addition it is recommended that:

- All women who attend for antenatal services should have their hepatitis B status assessed.

Blood should be taken for hepatitis B surface antigen (HBsAg) and anti-hepatitis B core antigen (anti–HBc). A guide to the interpretation of serological results is shown in table 5.2.1.

Table 5.2.1 A guide to interpretation of hepatitis B serological markers

HBsAg	HBeAg	Anti-HBe	Anti-HBc IgM	Total anti-HBc	Anti-HBs	Interpretation	Action
Negative	Negative	Negative	Negative	Negative	Negative	Susceptible to HBV	HBV vaccine if infant or member of 'at risk' group^
Positive	Positive	Negative	Pos/Neg	Pos/Neg	Negative	Acute HBV infection	Notify to Medical Officer of Health Seek immediate specialist advice if clinically unwell Refer for specialist review Screen and vaccinate (if appropriate) relevant contacts
Negative	Negative	Negative	Positive	Positive*	Negative	Recent HBV infection (HBsAg window)	Notify to Medical Officer of Health Screen and vaccinate (if appropriate) relevant contacts
Positive	Positive	Negative	Weak Pos/ Neg	Positive	Negative	Chronic HBV infection**	Notify to Medical Officer of Health Refer for specialist review Screen and vaccinate (if appropriate) relevant contacts
Positive	Negative	Pos/Neg	Weak Pos/ Neg	Positive	Negative	HBeAg neg chronic infection***	Notify to Medical Officer of Health Refer for specialist review Screen and vaccinate (if appropriate) relevant contacts
Negative	Negative	Pos/Neg	Negative	Positive	Pos/Neg	Past HBV infection†	Should be referred for specialist care if they become immunosuppressed
Negative	Negative	Negative	Negative	Negative	Positive	Response to HBV vaccine	No action required

^ See targeted immunisation programme below for 'at risk' groups

*Anti-HBc detected in 2 assays

**Follow-up sample required to confirm chronic HBV infection

***Follow-up sample required and also HBV DNA viral investigations may be required

†Infection can reactivate in the case of immunosuppression, chemotherapy, transplantation

Source: Adapted from EMI Guidelines – Appendix 10 Interpretation of HBV results[5]

Vaccination

In 2008, universal infant hepatitis B virus (HBV) vaccination was introduced in Ireland. This runs in parallel with the pre-existing targeted immunisation programme for those individuals who are at increased risk of HBV because of their occupation, lifestyle or other factors (e.g. close contact with a case or carrier).

The following recommendations on hepatitis B vaccination are from the Immunisation Guidelines for Ireland 2013.[2]

Universal immunisation

All infants should be offered HBV vaccine as part of the routine childhood immunisation schedule (6 in 1) at 2, 4 and 6 months.

Targeted immunisation programme

The following groups are at increased risk of HBV infection and should receive HBV vaccine if non-immune:

- Immigrants from areas with a high or intermediate prevalence of HBV.
- Children born to parents from high or intermediate prevalence of HBV.
- Persons with occupational exposure to blood or blood-contaminated environments.
- Family and household contacts. The spouses, sexual partners, family and household contacts of acute cases and individuals with chronic infection. Where testing for markers of current or past infection is clinically indicated, this should be done at the same time as the administration of the first dose. Vaccination should not be delayed while waiting for results of the tests. Further doses may not be required in those with clear evidence of past exposure.
- Families adopting or fostering children from countries with a high or intermediate prevalence of hepatitis B. These children should be tested for evidence of current or past hepatitis B infection and the household contacts offered immunisation if required, preferably before adoption/fostering. If the status of the child is unknown these families should be recommended vaccination.
- Babies born to mothers who are HBV infected (HBsAg positive). Perinatal transmission of HBV infection can be prevented in approximately 95% of infants born to HBsAg positive mothers by early active and passive immunoprophylaxis of the infant. Routine screening of all antenatal patients for HBsAg is essential for identifying women whose infants will require post-exposure immunoprophylaxis beginning at birth. All babies born to these mothers should receive a complete course of vaccine at 0, 2, 4 and 6 months and also hepatitis B specific immunoglobulin (HBIG) within 24 hours of birth. The doses at 2, 4 and 6 months may be given as the routine 6 in 1. Following the administration of HBIG and the first dose of vaccine, arrangements should be made to follow up the child for serological assessment and subsequent doses of vaccine. Infants born to mothers who are HBV infected should be tested 2 months after completing HBV immunisation to determine HBV status and post-vaccination response.
- HIV exposed and HIV infected infants should be given hepatitis B vaccine at birth and then continue with the routine childhood schedule.
- Those deemed at risk following an assessment of their health needs.
- People who inject drugs (PWID) and their contacts
- Men who have sex with men (MSM)
- Sex workers including those that have been trafficked

Hepatitis B specific immunoglobulin (HBIG) is available for passive protection and, when indicated, is normally used in combination with hepatitis B vaccine to confer passive/active immunity after exposure. It should be administered according to the manufacturer's guidelines and should ideally be given within 48 hours of exposure but not later than a week after exposure. HBIG provides short-term protection (3-6 months).[2]

Post-vaccination serological testing

Routine post-vaccination testing for hepatitis B surface antibodies (anti-HBs) is recommended 2 months after completing the course of vaccination for persons who are at continuing risk of HBV exposure, e.g. healthcare workers, sexual partners of HBsAg positive persons. This does not apply to children receiving routine childhood immunisation with hepatitis B vaccine. Following primary vaccination, it is preferable to achieve anti-HBs levels greater than 100 mIU/ml, although levels greater than 10 mIU/ml are generally accepted as protecting against infection. Anti-HBs titre often declines post-vaccination but a rapid anamnestic response develops after exposure to the virus.

References

(1) Heymann D. Control of communicable diseases manual. 19th ed. Washington: American Public health Association; 2008.

(2) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

(3) HPSC. Annual Epidemiological Report 2013 [Internet]. Chapter 5.1 Hepatitis B. Dublin: 2012. Available from: http://www.hpsc.ie/AboutHPSC/AnnualReports/

(4) Public Health England. Migrant Health Guide Hepatitis B. [Internet]. 2013. Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

(5) HPSC. EMI Toolkit - Guidelines for the Emergency Management of Injuries [Internet]. 2012. Available from: http://www.emitoolkit.ie.

5.3 HEPATITIS C
NOTIFIABLE

RECOMMENDATIONS

Offer test for anti-HCV to:

- All migrants who originate from countries with a prevalence of chronic hepatitis C of 3% or higher
- Those with a history of hepatitis C risk exposure/behaviour including people who inject drugs (PWID) and men who have sex with men (MSM)

Offer test for HCV RNA:

- All those who have a positive anti-HCV result

Refer all positive cases to specialist services for review.
Vaccinate those who are non-immune to hepatitis A and/or hepatitis B with hepatitis A and/or hepatitis B vaccine.

Epidemiology

Worldwide, chronic hepatitis C infection is a major cause of chronic liver disease and death. About 3% of the world's population is infected with hepatitis C (figure 5.3.1).[1] Egypt has the highest reported prevalence at 22%.[2] Hepatitis C is transmitted by blood and primarily occurs through sharing of needles and drug paraphernalia by people who inject drugs (PWID), and to a lesser extent through sex with an infected partner, occupational exposure and maternal-foetal transmission.[3] In developing countries transmission may be more likely to occur due to unsafe therapeutic injections and transfusions.[2]

In Ireland the prevalence of chronic hepatitis C infection is estimated to be 0.5-1.2% which is a similar level to that found in most northern European countries.[4] A prevalence of anti-HCV of 1.5% was found in asylum seekers screened in reception centres in the former Eastern Regional Health Authority (ERHA) area in the period 1999-2003.[5]

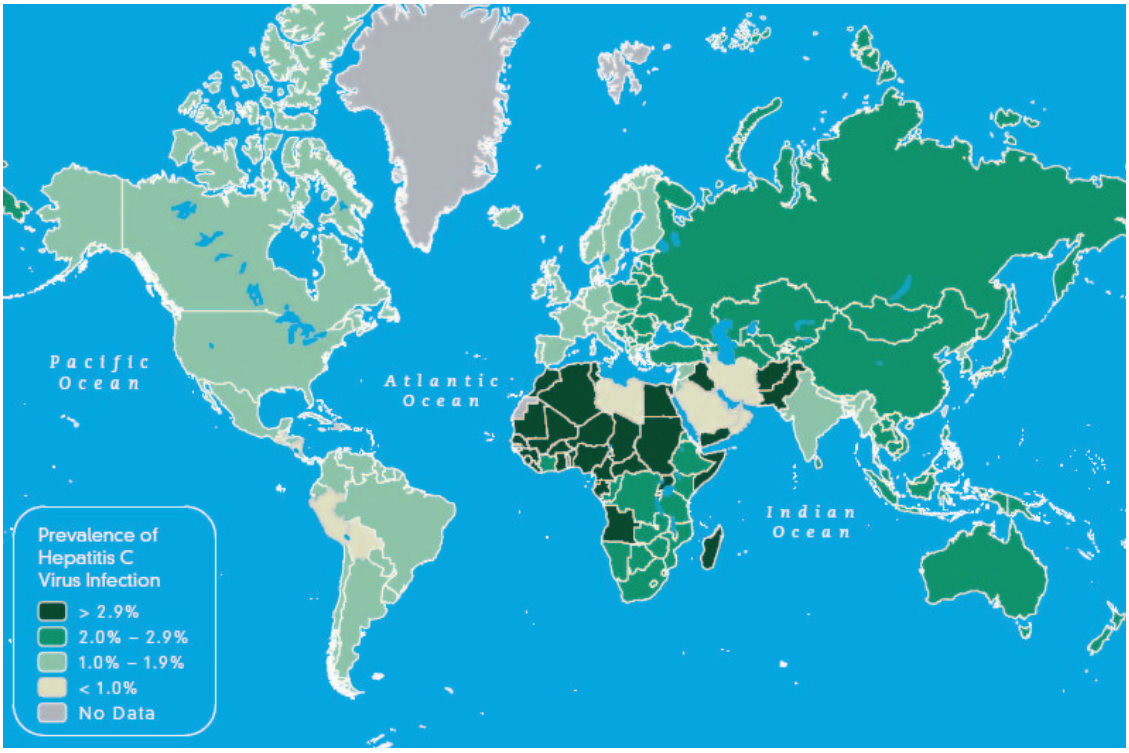


Figure 5.3.1 Prevalence of hepatitis C worldwide

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press; 2012

Rationale for assessment

Hepatitis C is a condition with often debilitating consequences. Although currently there is no effective vaccine for the prevention of hepatitis C, there are simple tests available for diagnosis and there are effective treatments available which can clear the virus in the majority of cases. The following are the main points behind the rationale for assessing migrants for hepatitis C.

- Many migrants may come from developing countries that use unsafe injection practices or blood transfusions putting them at risk of hepatitis C infection.[2]
- Migrants may also be at increased risk of co-infection with HIV and/or hepatitis B, increasing the chances of progression to cirrhosis or hepatocellular carcinoma.[6]
- It is a disease with serious consequences. Chronic infection develops in approximately 75% of those who are infected. Between 5% and 20% of those who are chronically infected will develop cirrhosis after approximately 20 years of infection. Of those with cirrhosis approximately 4% progress to decompensated liver disease annually and 1.6% develop hepatocellular carcinoma annually.[7]
- For those identified with infection, specialist services and treatments are available to improve disease prognosis and prevent ongoing spread.
- Treatment with a combination of peginterferon and ribavirin induces sustained virologic response (SVR) rates of 40-50% in those with genotype 1 and of 80% or more in those with genotypes 2 and 3 infections. New treatment regimens which include protease inhibitors have greatly improved SVR rates for genotype 1. Interferon free, all oral combinations which have recently become available have been shown to be capable of SVR rates exceeding 90%.[8] An SVR is regarded as a virologic cure and is associated with improved morbidity and mortality.[9]

Assessment

The SAC sub-committee endorses the following recommendation on hepatitis C assessment from the Canadian guidelines for immigrants and refugees.[10]

Hepatitis C assessment by testing antibody to hepatitis C virus (anti-HCV) should be offered to:

- All migrants who arrive from countries with an estimated prevalence of hepatitis C virus infection of ≥3%. These countries are mainly in Central and East Asia, North Africa and the Middle East.

The SAC sub-committee also recommend that hepatitis C assessment by testing antibody to hepatitis C virus (anti-HCV) should also be offered to the following at risk groups:

- People at risk of hepatitis C exposure, especially PWID, men who have sex with men (MSM) and those exposed to unsafe therapeutic injections.

The anti-HCV test has a high sensitivity (97%) and specificity (99%). The presence of anti-HCV indicates current or past infection. Anyone found to be positive for anti-HCV should have a follow-up test for HCV RNA and the person should be referred to a specialist service if RNA positive. A positive RNA test indicates viraemia, either due to acute or chronic infection.

Vaccination

At present there is no vaccine available to prevent hepatitis C infection. However, people with chronic hepatitis C infection who are non-immune to hepatitis A and/or B should be offered hepatitis A and/or B vaccine.[11]

References

(1) Centers for Disease Control and Prevention. CDC Health Information for International Travel [internet]. New York: Oxford University Press; 2012. Available from: http://wwwnc.cdc.gov/travel/page/yellowbook-2012-home.htm.

(2) Shepard CW, Finelli L, Alter MJ. Global epidemiology of hepatitis C virus infection. Lancet infect Dis. 2005;5(9):558-67.

(3) Lauer GM, Walker BD. Hepatitis C virus infection. N Engl J Med. 2001;345(1):41-52

(4) Thornton L, Murphy N, Jones L, Connell J, Dooley S, Gavin S, et al. Determination of the burden of hepatitis C virus infection in Ireland. Epidemiol Infect. 2012;140:1461-8.

(5) Doyle S. An evaluation and audit of the asylum seeker communicable disease screening service in the Eastern Region. Thesis submitted for Membership of the Faculty of Public Health Medicine: RCPI; 2006

(6) Missiha SB, Ostrowski M, Heathcote EJ. Disease progression in chronic hepatitis C: modifiable and nonmodifiable factors. Gastroenterology. 2008;134:1699-714

(7) Global burden of hepatitis C working group. Global burden of disease (GBD) for hepatitis C. J Clin Pharmacol. 2004;44:20-29

(8) Chung RT, Baumert TF. Curing chronic hepatitis C – the arc of a medical triumph. N Engl J Med. 2014; 370:1576-1578

(9) Ghany MG, Nelson DR, Strader DB, Thomas DL, Seeff LB. An update on treatment of genotype 1 chronic hepatitis C virus infection: 2011 practice guideline by the American Association for the Study of Liver Diseases. Hepatology. 2011;54(4):1433-4.

(10) Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, et al, and co-authors of the Canadian Collaboration for Immigrant and Refugee Health. Evidence-based clinical guidelines for immigrants and refugees. CMAJ [Internet]. 2011; 183(12):E824-E925. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3168669/pdf/183e933.pdf

(11) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

5.4 HIV INFECTION
NOTIFIABLE

RECOMMENDATIONS

Offer test for HIV Ag/Ab to:

- All women attending antenatal services
- All those with risk factors for HIV including but not limited to
  - From high HIV prevalence countries (>1%)
  - Concurrent sexually transmitted infection
  - People who inject drugs (PWID)
  - Sex workers and those who have been trafficked
  - Men who have sex with men (MSM)
- Concurrent TB infection

Refer all positive cases to specialist services for review

Human immunodeficiency virus (HIV) is a virus that infects cells of the human immune system and destroys or impairs their function.[1] HIV became notifiable in Ireland in September 2011.

Epidemiology

Data on the prevalence of HIV among adults aged 15 to 49 years by country is available from the World Health Organization, Global Health Observatory Data Repository at http://apps.who.int/gho/data/node.main.622?lang-en Figure 5.4.1 maps the global distribution of HIV in 2012.

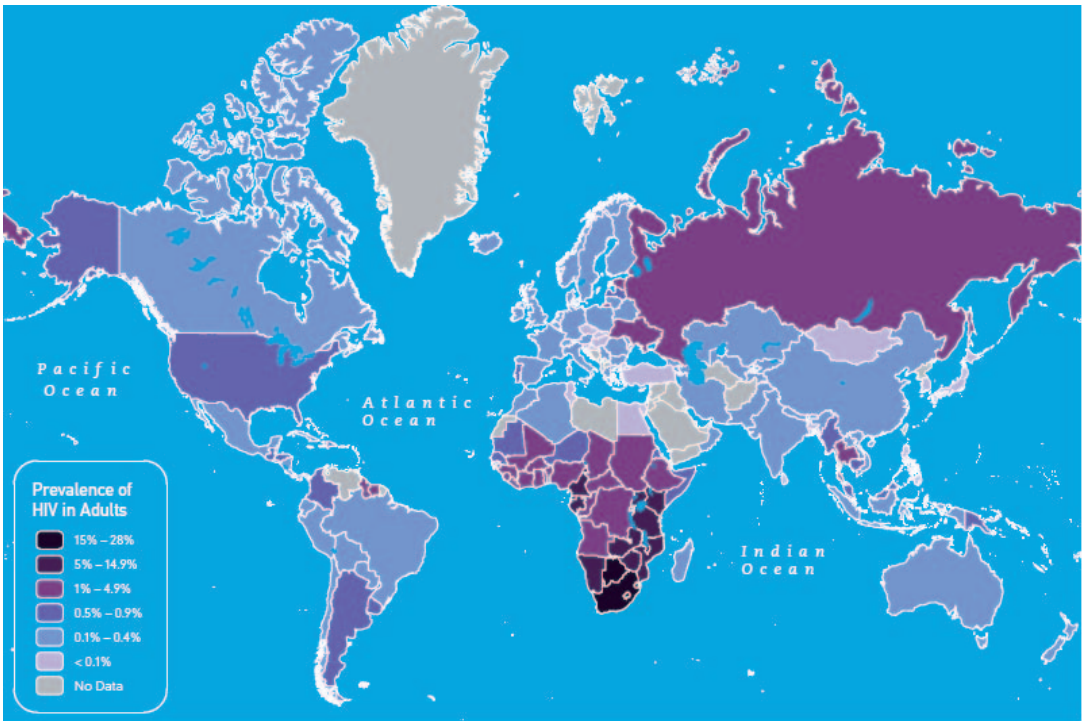


Figure 5.4.1 The global distribution of HIV infection 2012

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press; 2012

The following information on HIV infection in Ireland is from *HIV in Ireland 2013 Report, HPSC.*[2] In 2013, 344 people were newly diagnosed with HIV in Ireland. Half of the new HIV diagnosed cases in 2013 were in people born abroad. Of these, 43% were born in Sub-Saharan Africa, 20% born in Latin America, 19% born in central and eastern Europe and 9% born in western Europe.

Rationale for assessment

- Many migrants coming to Ireland are from countries with generalised HIV epidemics. This is where greater than 1% of the general population is HIV positive.[2]
- HIV is a significant cause of morbidity and mortality worldwide.[1]
- Treatment improves HIV disease outcomes.[3]
- Prevention and treatment of HIV reduces the spread of disease.[3]
- Advice on prevention of transmission can be given to those identified as HIV positive.

Assessment

The SAC sub-committee endorses the following indications for HIV assessment based on Public Health England Migrant Health guidelines.[4]

HIV testing should be offered to the following groups:

- All women who attend for antenatal services.
- Those deemed at risk following an assessment of their health needs e.g. persons from high HIV prevalence countries (>1% in the general population – broadly these countries are in Sub-Saharan Africa, eastern Europe, central Asia, and the Caribbean), persons diagnosed with a sexually transmitted infection, people who inject drugs (PWID), sex workers and those who have been trafficked, and men who have sex with men (MSM).
- Assessment for TB should include voluntary testing for HIV as TB is the most common opportunistic infection in HIV-infected individuals.

Note: Anyone with a positive HIV test needs to be referred to a specialist infectious diseases service. They may need culturally sensitive counselling.

Vaccination

People with HIV infection should generally receive all routine (except BCG) and some additional vaccines (see Table 5.4.1). The timing of immunisation depends on the type of vaccine and the level of immune suppression. The decision to use live viral vaccines depends on the degree of immunosuppression. For those who are severely immunosuppressed, live viral vaccines should be delayed until immune recovery. **BCG is contraindicated regardless of CD4 count.**

Table 5.4.1 Vaccination schedule for HIV exposed and infected children[5]

	HIV exposed but uninfected infants	HIV infected infants & children
Birth	Hep B	Hep B
>6 weeks	BCG if 2 HIV PCR tests, one at ≥6 weeks of age, are negative	**Do not give BCG**
2, 4 and 6 months	Routine schedule	
Annually (from 6 months of age)		Influenza vaccine
12 months	PCV Hepatitis A vaccine (if HCV or HBV infected)	
	MMR	MMR (if on treatment and CD4 count >15%)
13 months	MenC, Hib	
15 months		Varicella (if CD4 count is ≥15%) MenACWY
18 months		Varicella
24 months		PPV
4-5 years	DTaP/IPV	
4-5 years	MMR	MMR (if on treatment and CD4 count >15%)
12 years	HPV **girls** (3 doses)	HPV **girls and boys** (3 doses)
11-14 years	Tdap	

Source: Immunisation Guidelines for Ireland 2013, Chapter 3

NIAC recommends that inactivated vaccines can be given to all **HIV infected children**, even those who are significantly immunosuppressed.[5] However, as responses may be blunted, revaccination after recovery of immune function is recommended. If antiretroviral treatment is being initiated, to optimize the vaccine response, delay vaccination until the child has had 6 months of undetectable viraemia and the % CD4 is ≥15%. The decision to delay vaccination must be balanced against the urgency of attaining protection.

MMR is contraindicated for those who are severely immunosuppressed (see Table 5.4.2) but can be given when the patient is on specific HIV therapy and the % CD4 is ≥15%.

Varicella vaccine is recommended for susceptible HIV infected children ≥12 months with asymptomatic or mildly symptomatic HIV infection and % CD4 ≥15%. BCG is contraindicated. For specific recommendations see Table 5.4.1.

Table 5.4.2 CD4 counts indicative of severe immunosuppression[5]

If aged:	%CD4	CD4 count ($x10^6$/L)
<1 year	<15%	<750
1-5 yrs	<15%	<500
≥1-5 yrs	<15%	<200

Source: Immunisation Guidelines for Ireland 2013, Chapter 3

The NIAC recommendations for vaccinating adults with HIV infection are:[5]

- Ensure that the primary DTaP vaccine course has been completed. Give a booster Tdap if none was received within 10 years and repeat Td every 10 years.
- Pneumococcal:
  - For those who have never received PCV13 or PPV, give a single dose of PCV followed by PPV after a minimum interval of 8 weeks.
  - For those who have received 1 or more doses of PPV, give a single dose of PCV at least 1 year after PPV.
  - A once only booster dose of PPV can be given at least 5 years after the previous dose.
- MenACWY, 1 dose. For those who have received Men C, give 1 dose MenACWY after an interval of at least 4 and preferably 8 weeks.

- Influenza: Give annually.
- Hepatitis A: Give to susceptible patients, 2 dose schedule.
- Hepatitis B: Give to susceptible patients, 3 dose schedule (combined Hepatitis A/ Hepatitis B vaccines may be used).
- HPV: 3 dose schedule at appropriate intervals to male and female patients <26 years.
- MMR (unless laboratory evidence of immunity or documented prior vaccination):
  - If CD4 count ≥200 cells x10^6/l: 2 doses (1 month interval).
  - If CD4 count <200 cells x 10^6/l: MMR is contraindicated.
- Varicella for susceptible patients:
  - If CD4 count ≥400 cells x10^6/l: give 2 doses (1 month interval).
  - If CD4 count ≥200 but <400 x10^6/l: patients can receive varicella vaccine if stable on antiretroviral therapy
  - If CD4 count <200 cells x10^6/l: varicella vaccine is contraindicated.
- **BCG is contraindicated for all HIV infected persons.**

More detailed information on the immunisation of HIV infected adults can be found from the British HIV Association website.[6]

References

(1) Heymann D. Control of communicable diseases manual. 19th ed. Washington: American Public health Association; 2008.

(2) Health Protection Surveillance Centre. HIV in Ireland 2013 Report. Ireland: HPSC; 2014.
Available from: http://www.hpsc.ie/A-Z/HIVSTIs/HIVandAIDS/SurveillanceReports/File,14651,en.pdf

(3) World Health Organization. WHO Fact Sheet on HIV no 360 [Internet]. 2012.
Available from: http://www.who.int/mediacentre/factsheets/fs360/en/

(4) Public Health England. Migrant Health Guidelines for HIV Assessment [Internet]. Public Health England; 2012.
Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

(5) National Immunisation Advisory Committee.Immunisation Guidelines for Ireland 2013.
Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

(6) British HIV Association. British HIV Association guidelines for immunisation of HIV-infected adults [Internet]. 2008; 9:795-848.
Available from: http://www.bhiva.org/documents/Guidelines/Immunisation/Immunization2008.pdf

5.5 INTESTINAL PARASITES/HELMINTHS

RECOMMENDATIONS

Offer test (ova, cysts and parasites) to:

Symptomatic migrants only, particularly those who have:

- Lived or travelled in endemic regions
- Migrated from Southeast Asia or Sub-Saharan Africa
- Eosinophilia

Note: Healthcare professionals should also be aware that those with concurrent immunosuppression are at increased risk of developing disseminated parasitic infections, especially strongyloides, as this auto-infects and disseminates widely in those who are immunosuppressed.

Note: a raised eosinophil count (>0.4 x 109/l) may be the only indication of a parasitic infection

Epidemiology

It has been estimated that approximately one third of the world's population is infected with intestinal parasites.[1] It has been estimated that up to 20% of migrants arriving to the UK from endemic countries may have helminth infections.[2] (See Figure 5.5.1). As most of these infections are due to repeated exposure to the parasite cycle in the environment, the infection generally resolves itself once the person moves to another parasite free region. As a result, routine assessment for intestinal parasitic infection is not indicated in the absence of symptoms.

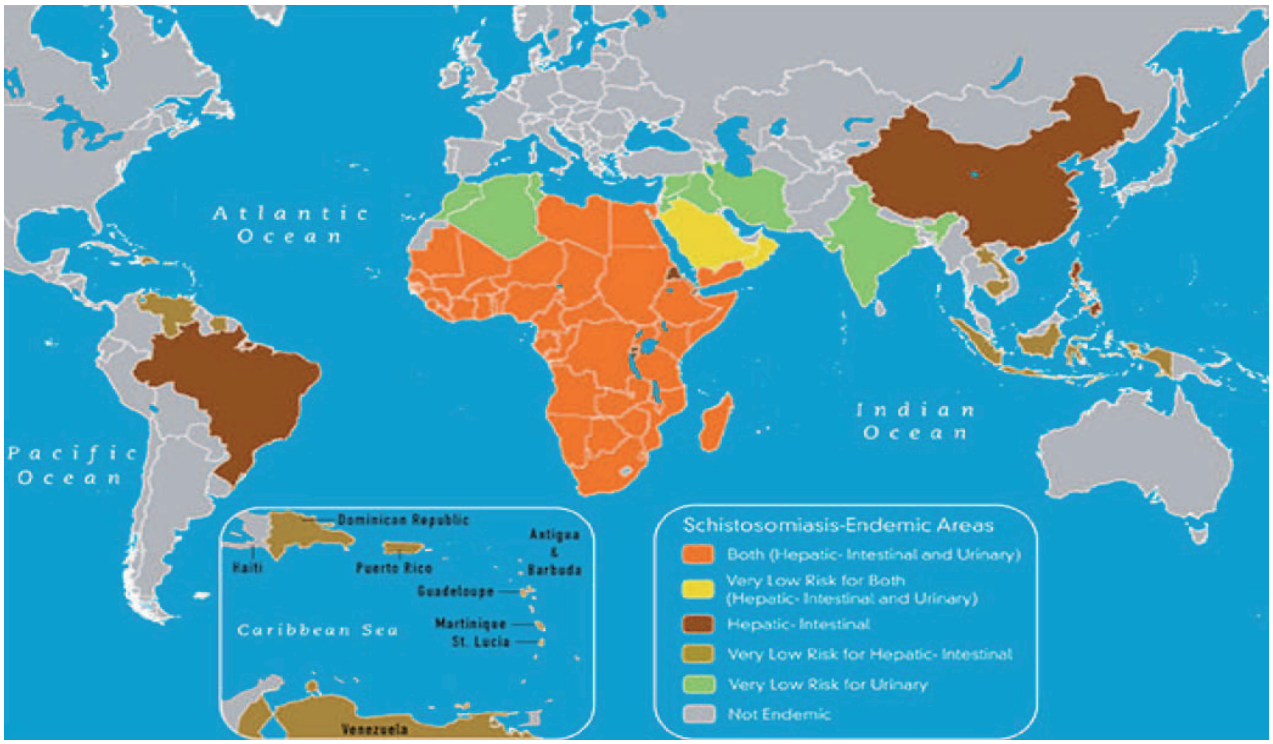


Figure 5.5.1 Global distribution of schistosomiasis

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press; 2012

Assessment

Assessment for parasites is only considered if the migrant presents with symptoms suggestive of infection including:

Abdominal pain	Tenesmus
Diarrhoea	Haematemesis
Nausea	Bloody stool
Acute vomiting	Melaena
Bloating	Sighting a 'worm'
Excessive flatulence	Failure to thrive (as per growth percentiles)
Constipation	Fatigue
Anorexia	Anaemia
Insatiable appetite	Oedema
Food intolerance	

Note: Healthcare professionals should also be aware that those with concurrent immunosuppression are at increased risk of developing disseminated parasitic infections, especially strongyloides, as this auto-infects and disseminates widely in those who are immunosuppressed.

Note: a raised eosinophil count (>0.4 x 10^9/l) may be the only indication of a parasitic infection.(2)

All helminthic (worm) infections such as strongyloides and schistosoma infections are considered pathogenic except light infections by hookworm species *(Ancylostoma duodenale or Necator americanus)* and whipworm *(Trichuris trichura).* These light infections do not need treatment unless associated with symptoms.

References

(1) World Health Organization. The prevention and control of schistosomiasis and soil transmitted helminthiasis [Internet]. Geneva; 2002. Available from: http://whqlibdoc.who.int/trs/WHO_TRS_912.pdf

(2) Public Health England. Migrant Health Guide. [Internet]. UK: Public Health England. 2013 May 30th. Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

5.6 MALARIA
NOTIFIABLE

RECOMMENDATIONS

Offer test (thick and thin malaria films) to:

Symptomatic migrants only, particularly those who have:

- Fever
- Lived or travelled in malaria-endemic regions within the previous 12 months, particularly in Sub-Saharan Africa

Refer all positive cases to specialist hospital services for review

Note: Migrants returning to malaria endemic countries of origin to visit family and friends are at risk of contracting malaria. Effective chemoprophylaxis, taken correctly, reduces the risk of malaria by approximately 90%.

Malaria is a serious disease that occurs when an infected anopheles mosquito bites a person and injects malaria parasites into the blood. Although five species of malaria parasites can infect humans and cause illness (*Plasmodium falciparum, P. malariae, P. vivax, P. ovale and P. knowlesi*), only falciparum malaria is potentially life-threatening.[1]

Epidemiology

Malaria occurs in most of Sub-Saharan Africa, southern and Southeast Asia, Mexico, Haiti, the Dominican Republic, Central and South America, Papua New Guinea, Vanuatu, and the Solomon Islands. Major cities in Asia and South America are nearly malaria free; cities in Africa, India, and Pakistan are not.[1] Cases are occasionally seen in Saudi Arabia and Yemen. It should be borne in mind that high incidence countries such as those in Sub-Saharan Africa and East Timor experience malaria at very high rates and so the likelihood of encountering malaria in migrants from such areas is high (for example, Nigeria with a population of 162,000,000, sees an estimated 100 million malaria cases with over 300,000 deaths per year).[2]

Figures 5.6.1 and 5.6.2 show the global distribution of malaria

Figure 5.6.1 Malaria endemic countries in the Western hemisphere

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press; 2012

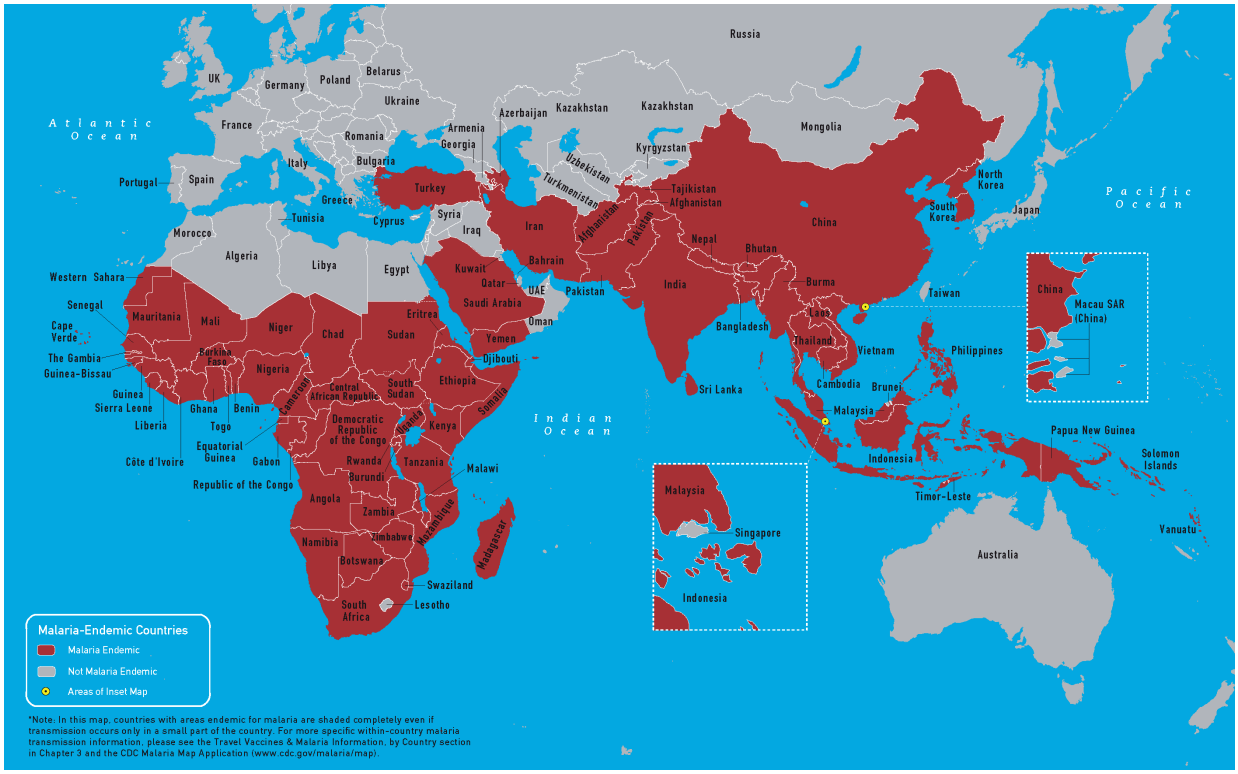


Figure 5.6.2. Malaria endemic countries in the Eastern hemisphere

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press; 2012

The following epidemiological information is from HPSC.[3]

Ireland had the third highest incidence rate of imported malaria among EU member states in 2010. In 2013, the number of malaria notifications in Ireland increased by 9% compared with 2012 (figure 5.6.3), with an incidence rate of 1.55 per 100,000. The group affected most were African immigrants and their families. (Table 5.1.1) Migrants returning to malaria endemic countries of origin to visit family and friends are at risk of contracting malaria. The view that this group is relatively protected is a dangerous myth. Effective chemoprophylaxis, taken correctly, reduces the risk of malaria by approximately 90%.[4] Nigeria was the country most frequently visited. *P. falciparum* infection made up 89% of cases in 2013. (Table 5.6.2)

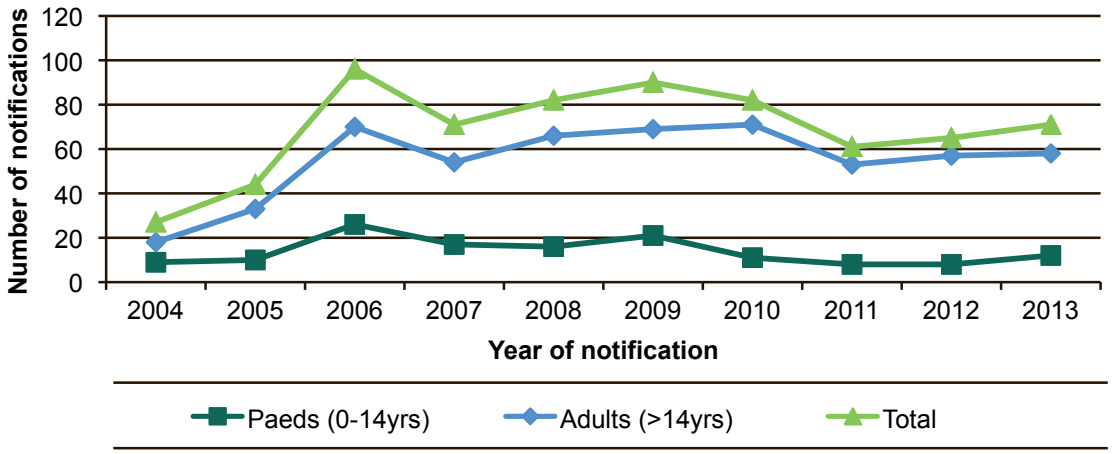


Figure 5.6.3 Annual number of malaria notifications by age group, Ireland 2004-2013[3]

Table 5.6.1 Number of malaria notifications by reason for travel and country of birth, Ireland 2013[3]

Reason for travel	Country of Birth					
	Nigeria	Ireland	Other Africa	Oceania	Not reported	**Total**
Visit family country origin	21	5	6	0	1	**33**
Foreign visitor ill in Ireland	3	0	0	0	0	**3**
Business/Professional travel	0	2	0	1	0	**3**
Other	1	1	0	0	0	**2**
Holiday travel	0	1	0	0	1	**2**
New entrant to Ireland	0	0	0	0	1	**1**
Child visiting parents	0	1	0	0	0	**1**
Irish citizen living abroad	0	1	0	0	0	**1**
Reason for travel not reported	1	0	2	0	22	**25**
Total	**26**	**11**	**8**	**1**	**25**	**71**

Table 5.6.2 Number of malaria notifications by infecting species and country of infection[3]

Organism	Nigeria	Other African country[1]	Not reported	Total
Plasmodium falciparum	31	16	16	**63**
Plasmodium ovale	0	1	0	**1**
Plasmodium vivax	1	0	0	**1**
Plasmodium	3	0	2	**5**
Malarial parasites	0	0	1	**1**
Total	**35**	**17**	**19**	**71**

[1]n=1 each from Angola, Congo DR, Egypt, Ivory Coast, Mozambique, Papua New Guinea, Sierra Leone, South Africa, Sudan and Tanzania
n=2 each from Cameroon, Ghana and Uganda.

Assessment

Malaria should be suspected in a patient presenting with a febrile illness who has travelled to a malarious area within the past 12 months.

Asymptomatic screening is not recommended for malaria. However, it is important that the assessing healthcare professional is aware of the symptoms of malaria. These are flu-like and may include fever, chills, muscle aches, headache and sometimes vomiting, diarrhoea and coughing.[1] Patients with severe falciparum malaria may develop liver failure, convulsions, and coma. Although infections with *P. vivax* and *P. ovale* may cause less severe illness, parasites may remain dormant in the liver for many months, causing a reappearance of symptoms months or even years later.[1]

Malaria should be considered in anyone with a fever, or history of a fever, who has recently returned from or previously visited a malaria endemic area in the last year, regardless of whether they have taken prophylaxis or not.[5] In all settings, clinical suspicion of malaria should be confirmed with a parasitological diagnosis. **A blood sample should be sent urgently** to check for malaria parasites. Immediate treatment of falciparum malaria is critical and thus urgent referral for treatment is advised.

References

(1) World Health Organization. WHO Fact Sheet Malaria No 94 [Internet]. 2013. Available from: http://www.who.int/mediacentre/factsheets/fs094/en/

(2) US Embassy Nigeria Malaria Fact Sheet [Internet]. Available from: http://photos.state.gov/libraries/nigeria/231771/Public/December-MalariaFactSheet2.pdf

(3) Jackson S, McKeown P. World Malaria Day April 2014 – Irish malaria surveillance data. Epi-Insight [Internet]. 2014;15(4). Available from: http://ndsc.newsweaver.ie/epiinsight/sk2vu4rndzm?a=1&p=46147915&t=17517774

(4) Public Health England. Guidelines for malaria prevention in travellers from the UK 2014. UK: Public Health England; 2014. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337761/Guidelines_for_malaria_prevention_in_travellers_UK_PC.pdf

(5) Public Health England. Migrant Health Guide. [Internet]. UK: Public Health England. 2013 May 30th. Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/MigrantHealthGuide/HealthTopics/InfectiousDiseases/Malaria/

5.7 MEASLES

NOTIFIABLE

RECOMMENDATIONS

Assess all migrants for previous measles vaccination.

Vaccinate (MMR):
All migrants without documented evidence of previous measles vaccination should be offered MMR vaccination as follows:

- All children at 12 months of age should receive an MMR vaccine, with a second dose at 4-5 years of age. If protection is urgently required, the second dose can be given four weeks after the first.[1]

- All others according to the National Immunisation Office Advisory Committee (NIAC) "late entrants catch-up schedule" for children and adults, as follows:[2]
  - 12 months to 4 years; 1 dose MMR
  - *4-9 years; 2 doses MMR ≥28 days apart (*One dose if not yet in primary school; second dose will be given in junior infants)
  - 10-17 years; 2 doses MMR ≥ 28 days apart
  - 18 years and over; 2 doses MMR ≥ 28 days apart

Measles is an acute viral illness caused by a morbillivirus of the paramyxovirus family. Humans are the only known host. It spreads by coughing and sneezing, close personal contact or direct contact with infected nasal or throat secretions. The virus remains active and contagious in the air or on infected surfaces for up to two hours. It can be transmitted by an infected person from four days before rash onset to four days afterwards. It is very infectious –one case of measles can infect 12-18 unvaccinated people.[1]

Epidemiology

Measles incidence in Ireland reduced dramatically with the introduction of a monocomponent measles vaccine in 1985. In 1988 combined measles, mumps, rubella (MMR) vaccine was introduced for children aged 12-15 months; in 1992 a second dose of MMR was recommended, now given at 4-5 years of age. Local and national outbreaks have occurred, predominantly affecting sub-groups of the population with low vaccination coverage.[1]

The World Health Organisation's (WHO) latest measles and rubella elimination country profile for Ireland in 2018 confirmed that Ireland has achieved measles and rubella elimination status in 2018.[3] A vaccine uptake rate of 95% with two doses of measles vaccine is required to halt endemic transmission of the virus and thus eliminate measles.[2]The uptake of the MMR vaccine in Ireland is below optimum levels. According to HPSC data, the uptake rate for both the first and second doses of the MMR vaccine is <90%,[4] which is below the 95% recommended by WHO

Rationale for assessment

The rationale for assessing the vaccination status of new entrants is:

- Measles is preventable by vaccination.[1]
- Approximately 30% of measles cases suffer one or more complications.[1]
- Close living conditions facilitate transmission and the occurrence of outbreaks, putting those who are nonimmune at risk.

- To maintain measles elimination status in Ireland

Assessment

The following indications for measles assessment and vaccination are based on the Immunisation Guidelines for Ireland 2022.[1]

A history of measles or measles vaccination should be requested of all migrants. Without documented evidence of measles vaccination migrants should be offered MMR vaccination as outlined below.

Vaccination

- All children at 12 months of age should receive an MMR vaccine, with a second dose at 4-5 years of age. If protection is urgently required, the second dose can be given four weeks after the first.[1]

- All others according to the NIAC "late entrants catch-up schedule" for children and adults, as follows:[2]

o 12 months to 4 years; 1 dose MMR
o *4-9 years; 2 doses MMR ≥28 days apart (*One dose if not yet in primary school; second dose will be given in junior infants)
o 10-17 years; 2 doses MMR ≥ 28 days apart
o 18 years and over; 2 doses MMR ≥ 28 days apart

Note A: MMR vaccine can be given to those who have a history of measles, mumps or rubella infection.
Note B: Pregnancy should be avoided for 1 month after MMR vaccine.

Human normal immunoglobulin (HNIG)

The use of HNIG has proven effective in preventing or reducing the severity of measles if given early following exposure. A risk assessment should be undertaken by a public health doctor prior to its administration.[2]

References

(1) National Immunisation Advisory Committee. Chapter 12. Measles. Updated February 2024. Available at: https://rcpi.access.preservica.com/uncategorized/IO_3a9e3acb-949b-48e5-a2b5-d353f88bde37/
(2) National Immunisation Advisory Committee. Chapter 2. General Immunisation Procedures 2022; Delayed immunisation / late entrants to Irish health-care system. Available at: https://rcpi.access.preservica.com/uncategorized/IO_812f584c-e1b8-4dd0-9aab-a4370f9b9f83/
(3) World Health Organization. Measles and rubella elimination country profile Ireland. 2018. Available at: https://iris.who.int/bitstream/handle/10665/337779/WHO-EURO-2020-1421-41171-55983eng.pdf?sequence=2&isAllowed=y
(4) HSE Health Protection Surveillance Centre. DTaP-IPV & MMR vaccine uptake in Junior Infants & children aged 4-5 years in Ireland, 2021/2022. Available at: https://www.hpsc.ie/a-z/vaccinepreventable/vaccination/immunisationuptakestatistics/immunisationuptakestatisticsforjuniorinfants/DTaPIPV%20and%20MMR%20vaccine%20uptake%202021-2022%20v3.0.pdf

5.8 Polio
NOTIFIABLE

RECOMMENDATIONS

Assess all migrants for previous polio vaccination.

- Be aware that acute cases of polio can present from countries where polio is endemic.
- Consider post-polio syndrome in patients who may have been infected in childhood.

Vaccinate

- All children according to the routine childhood immunisation schedule 6 in 1* at 2, 4 and 6 months with booster dose at 4-5 years old
- All others according to the "late entrants catch-up schedule" for children and adults as follows:
  - 12 months to <4 years, three doses of 6 in 1* at two month intervals with booster dose at 4-5 years old
  - 4 to <10 years, three doses of 6 in 1* at two month intervals with booster dose at least 6 months and preferably 3 years after primary course
  - 10 to <18 years, three doses of Tdap/IPV^ at one month intervals with booster dose 5 years
  - 18 years and older, one dose of Tdap/IPV^, followed by two doses of Td/IPV# at one month intervals

*6 in 1: DTaP/IPV/Hib/HepB

^Tdap/IPV: Tetanus, reduced dose diphtheria vaccine, reduced dose pertussis vaccine/ IPV

#Td/IPV: Tetanus, reduced dose diphtheria vaccine/IPV

Poliomyelitis is an acute illness which may result from invasion of the gastrointestinal tract by one of three types of polio virus (1, 2 and 3). The virus has a high affinity for nervous tissue.[1]

Transmission is through contact with the faeces or pharyngeal secretions of an infected person. The incubation period ranges from 3-21 days, but may be longer. Cases are most infectious from about 10 days before to 7 days after the onset of symptoms. However, carriers and some immunocompromised persons may shed virus in the faeces for longer than 6 weeks.[1]

Most infections are clinically inapparent. Clinical disease may range in severity from a non-paralytic fever to aseptic meningitis or paralysis. Symptoms include headache, gastro-intestinal disturbance, malaise and stiffness of the neck and back, with or without paralysis. The proportion of inapparent to paralytic infections may be as high as 1,000:1 in children and 75:1 in adults. A case-fatality rate of more than 50% can occur in young adults with paralytic polio.[1]

Post-polio syndrome is a neurological condition that can occur in people who have had polio previously. After a period of years with minimal symptoms, people can develop symptoms such as: new muscle weakness, muscle/joint pain, muscle atrophy, general reduction in stamina, breathing, sleeping or swallowing difficulty, cold intolerance.[2] Post-polio may be difficult to diagnose as there is no single diagnostic test and patients may also not know that they have had polio previously.[2,3]

An active world-wide surveillance system for acute flaccid paralysis has been in operation since 1998. In any case of acute flaccid paralysis, it is essential to obtain two faecal samples 24-48 hours apart for viral culture, as soon as possible after the onset of paralysis.

Epidemiology

Worldwide, polio cases have decreased by over 99% since 1988, from an estimated 350,000 cases then, to 223 reported cases in 2012. The reduction is the result of the global effort to eradicate the disease. However in 2013 the number of reported cases globally had increased again to 416.[4]

Since 2008, however, more than 20 countries (in Europe, Africa and South Asia) have experienced outbreaks of polio imported from endemic countries—some of them multiple times. Up to November 2013, cases of wild polio have been reported from Afghanistan, Cameroon, Ethiopia, Kenya, Nigeria, Pakistan, Somalia, and Syria. This shows the ongoing threat of wild polio virus and the need to maintain high immunisation levels and to report cases of acute flaccid paralysis (AFP).

Rationale for assessment of vaccination status

The rationale for assessment of new entrants is:

- The risk of serious consequences of the disease.[1]
- Polio is preventable by vaccination.[1]
- Polio has been targeted for global elimination.[1]

Assessment

The following indications for polio assessment and vaccination are based on Immunisation Guidelines for Ireland 2013.[1]

A history of polio vaccination should be requested of all migrants.

Without documented evidence of polio vaccination migrants should be offered polio vaccination as outlined below.

Vaccination

- All children at 12 months of age should be offered polio containing vaccine according to the childhood immunisation schedule at 2, 4 and 6 months with a booster dose at 4-5 years of age.
- All others according to the "late entrants catch-up schedule" for children and adults as follows;
  - 12 months to <4 years, 3 doses of 6 in 1* at two month intervals with booster dose at 4-5 years old
  - 4 to <10 years, 3 doses of 6 in 1* at two month intervals with booster dose at least 6 months and preferably 3 years after primary course
  - 10 to <18 years, 3 doses of Tdap/IPV^ at one month intervals with booster dose 5 years after primary course
  - 18 years and older, one dose of Tdap/IPV^, followed by two doses of Td/IPV# at one month intervals.

*6 in 1: DTaP/IPV/Hib/HepB

^Tdap/IPV: Tetanus, reduced dose diphtheria vaccine, reduced dose pertussis vaccine/ IPV

#Td/IPV: Tetanus, reduced dose diphtheria vaccine/IPV

Enteroviral surveillance

- Routine enterovirus/poliovirus surveillance for asymptomatic refugees is not recommended.
- The role of environmental and enterovirus surveillance among these population groups is currently under discussion at the EU/EEA-level with a view to agreeing on common standards and indicators.[2]

References

(1) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Available from:http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

(2) Public Health England. Migrant Health Guide. [Internet]. UK: Public Health England. 2013 May 30th. Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide

(3) British Polio Fellowship. Post-polio syndrome [Internet]. UK: British polio Fellowship; [undated] [cited 2014 January 1st]. Available from: http://www.britishpolio.org.uk/polio-and-post-polio-syndrome/post-polio-syndrome/

(4) World Health Organization. WHO Fact Sheet on Poliomyelitis no 114 [Internet]. 2014 October. Available from: http://www.who.int/mediacentre/factsheets/fs114/en/

5.9 RUBELLA
NOTIFIABLE

RECOMMENDATIONS

Offer test for rubella immunity to:

- All women of childbearing age

Vaccinate (MMR):

- All children (two doses)
- Non-pregnant seronegative women of childbearing age (one dose)
- All children and non-pregnant adults from low income countries without documented evidence of rubella vaccination should be offered one dose of MMR vaccine; two doses may be required to fully protect against measles and mumps

Rubella is usually a mild disease caused by the toga virus. It is important because of its potential to cause serious congenital defects in the developing foetus.[1]

Epidemiology

Most rubella infections occur in winter or early spring. Individuals with rubella are most infectious from 1 week before to 1 week after onset of the rash. In Ireland, rubella notification rates have decreased since the introduction of rubella vaccine in 1971. In order to prevent rubella transmission, all children are recommended vaccination with a rubella containing vaccine.

Rationale for assessment

The rationale for assessing vaccination status of new entrants is:

- Rates of immunity to rubella are lower in some countries from which migrants originate.[2]
- Close living conditions facilitate transmission.[2]
- The risk of serious consequences in pregnant women.[1]
- The test is simple and reliable.
- Rubella has been targeted for elimination from Ireland.[3]
- Rubella is preventable by vaccination.[4]

Assessment

The following indications for rubella assessment and vaccination are based on the Immunisation Guidelines for Ireland 2013.[3]

Rubella assessment should be offered to:

- All women of childbearing age. Satisfactory evidence of protection would include documentation of having received at least one dose of rubella containing vaccine or a positive antibody test (IgG level >10IU/mL) for rubella.

Vaccination

- All children at 12 months of age should be offered MMR vaccine with a second dose at 4-5 years of age.
- Children and adults of migrant or ethnic communities, or coming from low-income countries are less likely to have received rubella vaccination. Without documented evidence of rubella vaccination they should be offered one dose of MMR vaccine. Two doses may be needed for protection against measles and mumps.[5]
- All seronegative non-pregnant women of childbearing age should be offered 1 dose of MMR vaccine. Two doses may be needed to protect against measles and mumps.

- Healthcare workers who are non-immune should be offered 1 dose of MMR vaccine. Two doses may be needed to protect against measles and mumps.

Note A: MMR vaccine can be given to those who have a history of measles, mumps or rubella infection.[6]

Note B: Pregnancy should be avoided for 1 month after MMR vaccine.[6]

References

(1) Rubella and congential rubella. In: Heymann D, editor. Control of communicable diseases manual. 18th ed. Washington: American Public health Association; 2004. P. 464-8.

(2) World Health Organization. WHO vaccine-preventable diseases: monitoring system. Global summary. Geneva; 2004.

(3) National Immunisation Advisory Committee. Irish Immunisation Guidelines 2013. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

(4) Heymann D. Control of communicable diseases manual. 19th ed. Washington: American Public health Association; 2008.

(5) National Immunisation Advisory Committee. Irish Immunisation Guidelines 2013. Chapter 20 Rubella. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html (accessed 09/01/2014).

(6) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Chapter 12 Measles. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html (accessed 21/12/2013).

5.10 SEXUALLY TRANSMITTED INFECTIONS

RECOMMENDATIONS

Offer testing:

- All sexually active people who are from countries with a HIV rate of >1% (available from: http://apps.who.int/gho/data/node.main.622?lang-en) should be offered a full sexual health assessment. A high HIV rate in a country can be taken as an indicator of likely high rates of other STIs as well.

The following sexually transmitted infections should be screened for at a minimum, in sexually active asymptomatic individuals from these countries:

  - Serology for HIV
  - Syphilis serology
  - Urinary nucleic acid amplification test (NAAT) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*

- Sexually active people from countries with an HIV rate of ≤1% should be offered sexual health screening as appropriate for their sexual history.
- All people with symptoms of an STI should be offered a clinical assessment, STI testing and treatment

Further information on what is involved in a sexual health assessment can be found at the British Society for Sexual Health and HIV website (http://www.bashh.org/).

Offer Vaccine (Human Papilloma Vaccine – HPV)

- Females at 12-13 years of age as part of the national vaccination programme
- HPV vaccine may be given to females aged 9 to 26 years.
- Vaccination with the quadrivalent HPV vaccine should be considered for HIV positive males and females from 9 to 26 years.
- Hepatitis B vaccine should be considered as per section 5.2

Health promotion

- All sexually active people. This should include safer sex and contraceptive advice for both males and females and information for women about cervical screening.

Refer to specialist STI services if more specialist services are required.

Epidemiology

WHO estimates that more than 340 million new cases of curable sexually transmitted infections (STIs), namely syphilis, gonorrhoea, chlamydia and trichomoniasis, occur every year throughout the world in men and women aged 15–49 years, with the largest proportion in the region of south and south-east Asia, followed by sub Saharan Africa, Latin America and the Caribbean. Millions of viral sexually transmitted infections also occur annually, attributable mainly to HIV, human herpes viruses, human papillomaviruses and hepatitis B virus.[1]

Rationale for Assessment

- STIs have serious consequences[1]
- Many STIs are curable[2]
- Ongoing transmission is preventable[2]

Assessment

All sexually active people who are from countries with a HIV rate of >1% (available from: http://apps.who.int/gho/data/node.main.622?lang-en) should be offered a full sexual health assessment. A high HIV rate in a country can be taken as an indicator of likely high rates of other STIs as well.

The following sexually transmitted infections should be screened for at a minimum in asymptomatic sexually active individuals from these countries:[3, 4]

- Serology for HIV
- Syphilis serology
- Urinary nucleic acid amplification test (NAAT) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*

Sexually active people from countries with an HIV rate of ≤1% should be offered sexual health screening as appropriate for their sexual history.

In Ireland, there is universal antenatal screening for syphilis, HBV and HIV.[5] Refer to specialist STI services if more specialist services are required. A sexual history is an important part of an overall health assessment. STIs may be asymptomatic but may have serious health consequences.

Vaccination

- All females at 12-13 years of age should receive HPV vaccine as part of the national HPV vaccination programme.
- HPV vaccine may be given to females aged 9 to 26 years.
- Vaccination with the quadrivalent HPV vaccine should be considered for HIV positive males and females from 9 to 26 years.

Hepatitis B vaccine should be considered as per section 5.2

Female genital mutilation

It is currently believed that approximately 3,780 women in Ireland have undergone female genital mutilation (FGM).[6] Complications of FGM include local infection, septicaemia and an increased risk of bloodborne viruses.[7,8]

A service for women who have undergone FGM has been established by the Irish Family Planning Association. Details are available from: http://www.ifpa.ie/Hot-Topics/Female-Genital-Mutilation

References

(1) World Health Organization. WHO Fact Sheet on Sexually Transmitted Infections no 110 [Internet]. 2013. Available from: http://www.who.int/mediacentre/factsheets/fs110/en/index.html

(2) British Association for Sexual Health and HIV Guidelines for assessment and treatment of STI Available from: http://www.bashh.org/

(3) Australian Society for Infectious Diseases. Diagnosis, management and prevention of infections in recently arrived Refugees [Internet]. Sydney. 2009 [cited 2013 December 20th]. Available from: http://www.asid.net.au/images/Documents/Guidelines/RefugeeGuidelines.pdf.

(4) Lazaro, N. RCGP Sex, Drugs, HIV and Viral Hepatitis Group/ British Association for Sexual Health and HIV (BASHH). Sexually Transmitted Infections in Primary Care. 2013: 2nd edition. Available from: http://www.bashh.org/documents/Sexually%20Transmitted%20Infections%20in%20Primary%20Care%202013.pdf

(5) Surveillance of sexually transmitted infections (STIs) in Ireland: A report by the Scientfic Advisory Group of the HPSC. Health Protection and Surveillance Centre 2005 Available from: http://www.hpsc.ie/hpsc/A-Z/HIVSTIs/SexuallyTransmittedInfections/Publications/File,1437,en.pdf

(6) Female Genital Mutilation, Information for Healthcare Professionals working in Ireland [Internet]. AkiDwA, 2nd Edition, June 2013. Available from: http://www.ifpa.ie/sites/default/files/documents/resources/2nd_edition_fgm_handbook_for_healthcare_professionals_in_ireland_2013.pdf .

(7) Eliminating female genital mutilation [Internet]. World Health Organisation. Department of Reproductive Health and Research. Geneva. 2008. Available from: http://whqlibdoc.who.int/publications/2008/9789241596442_eng.pdf?ua=1

(8) Female Genital Mutilation and its Management [Internet]. Green-top guideline no. 53. Royal College of Obstetricians and Gynaecologists. 2009. Available from:https://www.rcog.org.uk/globalassets/documents/guidelines/greentop53femalegenitalmutilation.pdf

5.11 TUBERCULOSIS
NOTIFIABLE

RECOMMENDATIONS

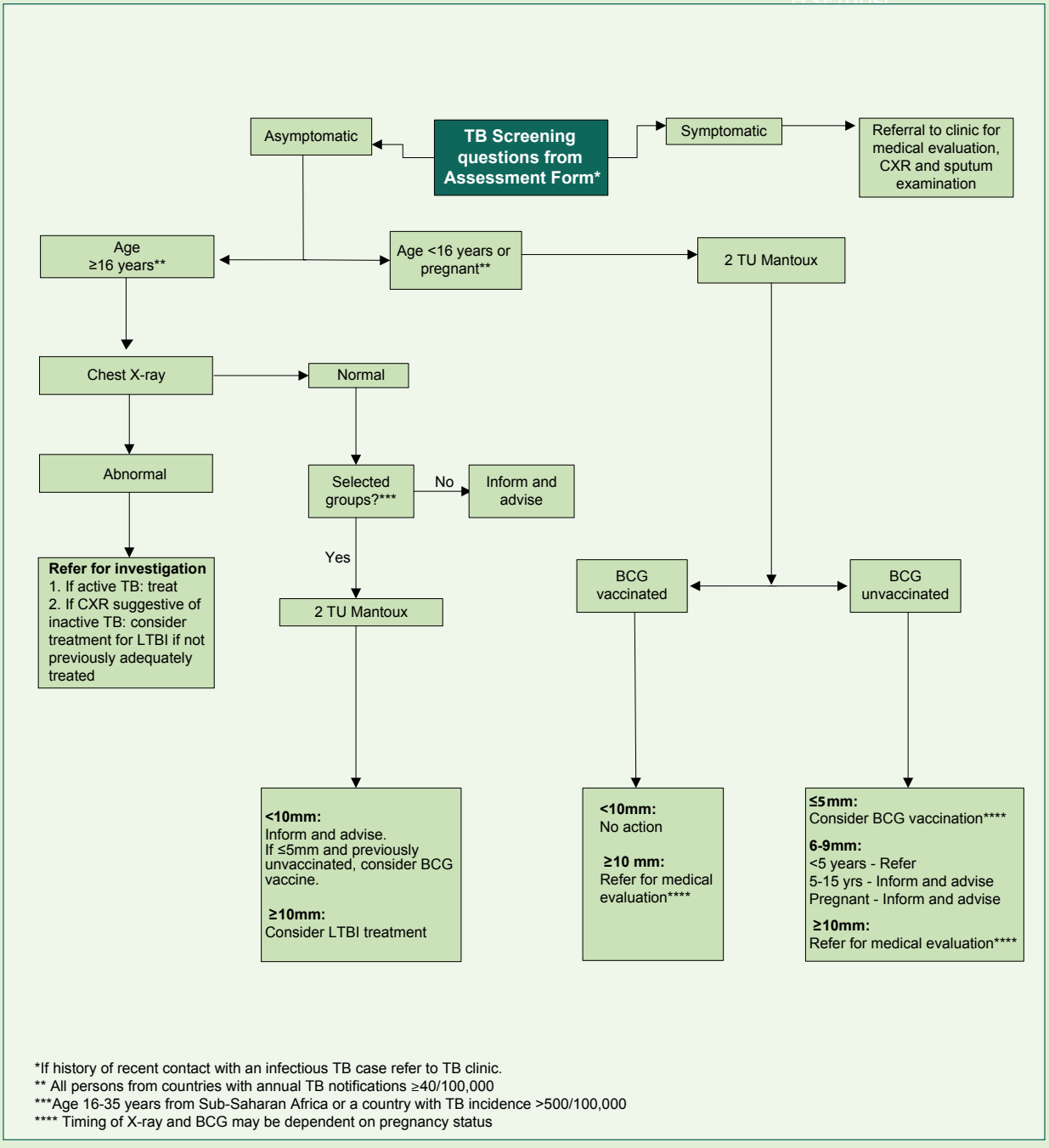
Risk assess:

All migrants from countries where prevalence of TB disease is known to be ≥40 cases per 100,000 population, as per the National TB guidelines 2010.

See Appendix F for current list of countries

Algorithm for assessing all migrants from countries with ≥40 cases of TB per 100,000 pop.

TB Screening Questions from Assessment Form*



*If history of recent contact with an infectious TB case refer to TB clinic.
** All persons from countries with annual TB notifications ≥40/100,000
***Age 16-35 years from Sub-Saharan Africa or a country with TB incidence >500/100,000
**** Timing of X-ray and BCG may be dependent on pregnancy status

Source: Adapted from HSE HPSC Guidelines on the prevention and control of tuberculosis in Ireland 2010.[5]

Epidemiology

The incidence of TB disease in immigrant groups is high particularly within the initial years following arrival, principally due to the reactivation of latent infection.[1] Immigrants are at increased risk of disease if they originate from countries with a high incidence of TB (see appendix F) and HIV. Overcrowded living conditions, poverty and migration from a war zone also contribute to the spread of TB.[1]

Ireland

The following information on the notification rate of tuberculosis (TB) in Ireland is contained in the HPSC Report on the Epidemiology of Tuberculosis in Ireland 2012.[2]

In Ireland, the notification rate of TB has started to decrease since 1998 (11.7/100,000 population in 1998 and 7.8/100,000 population in 2012). However, during this period the rate in the foreign-born population increased significantly from 8.7/100,000 in 1998 to 20.9/100,000 in 2012, while the rate in the Irish-born population decreased from 11.2/100,000 in 1998 to 5.2/100,000 in 2012. The notification rate in foreign-born cases reached a peak in 2008 (Figure 5.11.1).

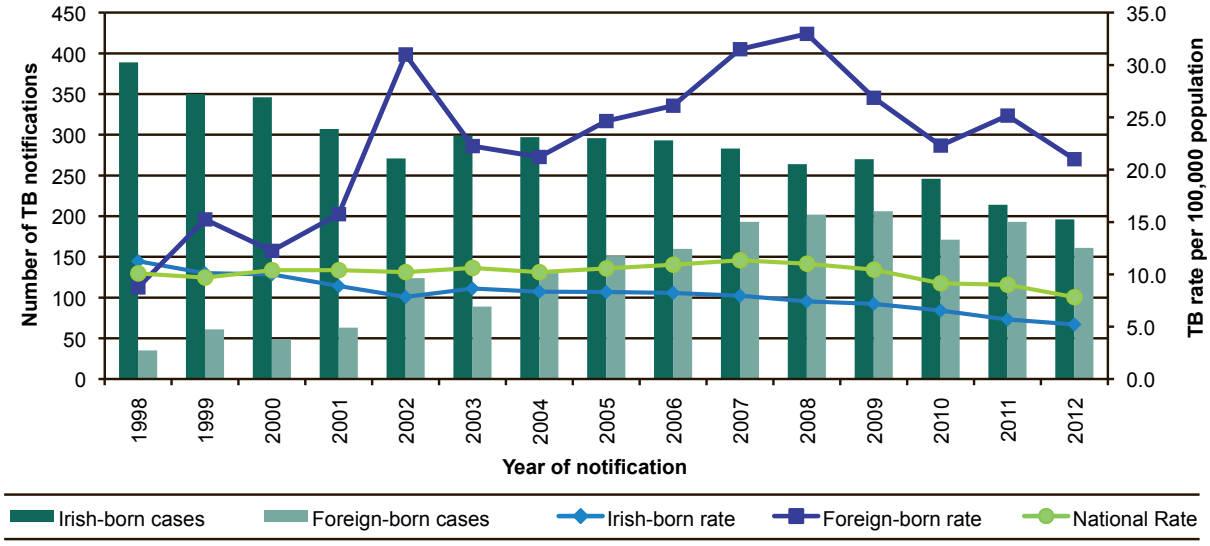


Figure 5.11.1. TB cases and rates per 100,000 population by geographic origin, 1998 to 2012.

Source: Report on the Epidemiology of Tuberculosis in Ireland 2012, HPSC.[2]

In 2012, the majority (76.1%) of cases born outside Ireland were aged between 15 and 44 years compared to 35.7% of Irish cases occurring in this age range. The median age of foreign-born cases was 33 years compared to 51 years among Irish-born cases.

The majority of foreign-born cases were from Asia, followed by Africa and Europe.

The percentage of drug resistant TB cases is still low in Ireland although it has been increasing in recent years. Between 2002 and 2012 there were 30 multi-drug resistant (MDR) TB cases in Ireland; 24 (80%) were foreign-born and 6 (20%) were Irish-born (Personal communication Dr Joan O'Donnell, HPSC, 2015).

Worldwide

There were an estimated 9 million new TB cases globally in 2013. Approximately 1.5 million people died from TB in 2013.[3] The estimated TB incidence rate by country in 2013 is shown in figure 5.11.2. Globally, 13% of new TB cases were co-infected with HIV in 2013 (figure 5.11.3).

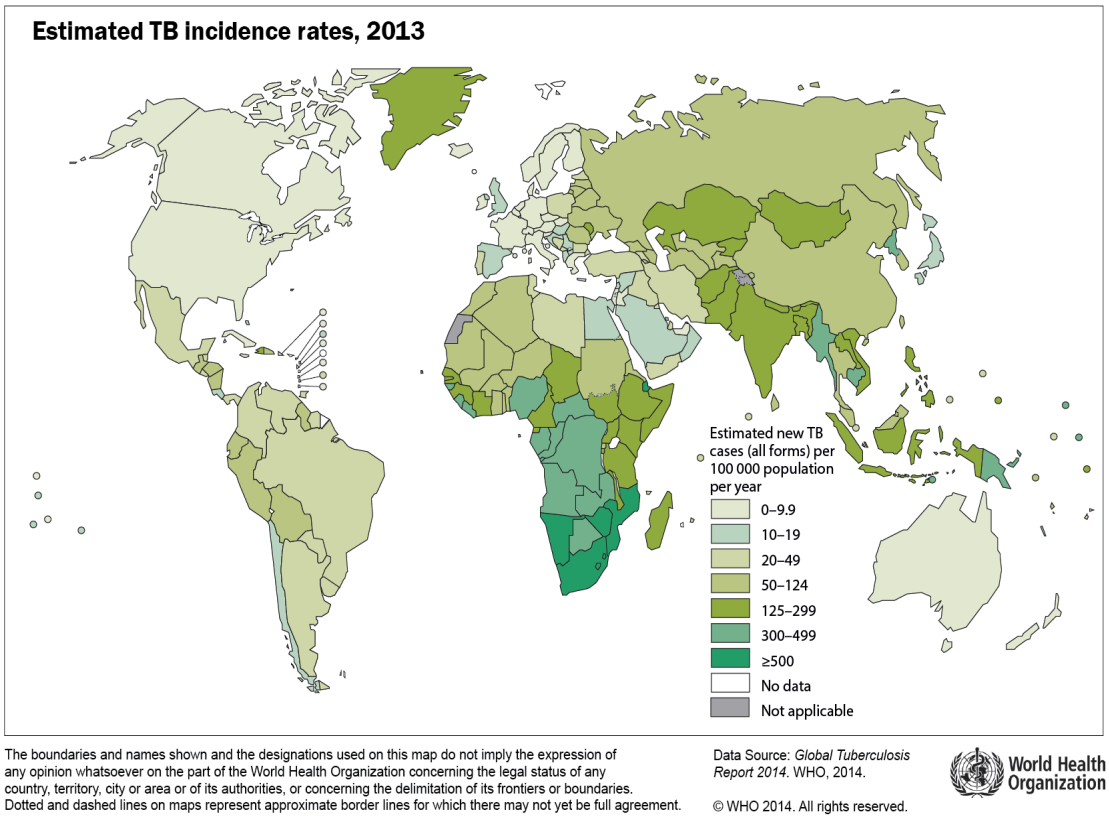


Figure 5.11.2 Estimated TB incidence rate by country, 2013

Source: WHO Global TB report 2014 (3)

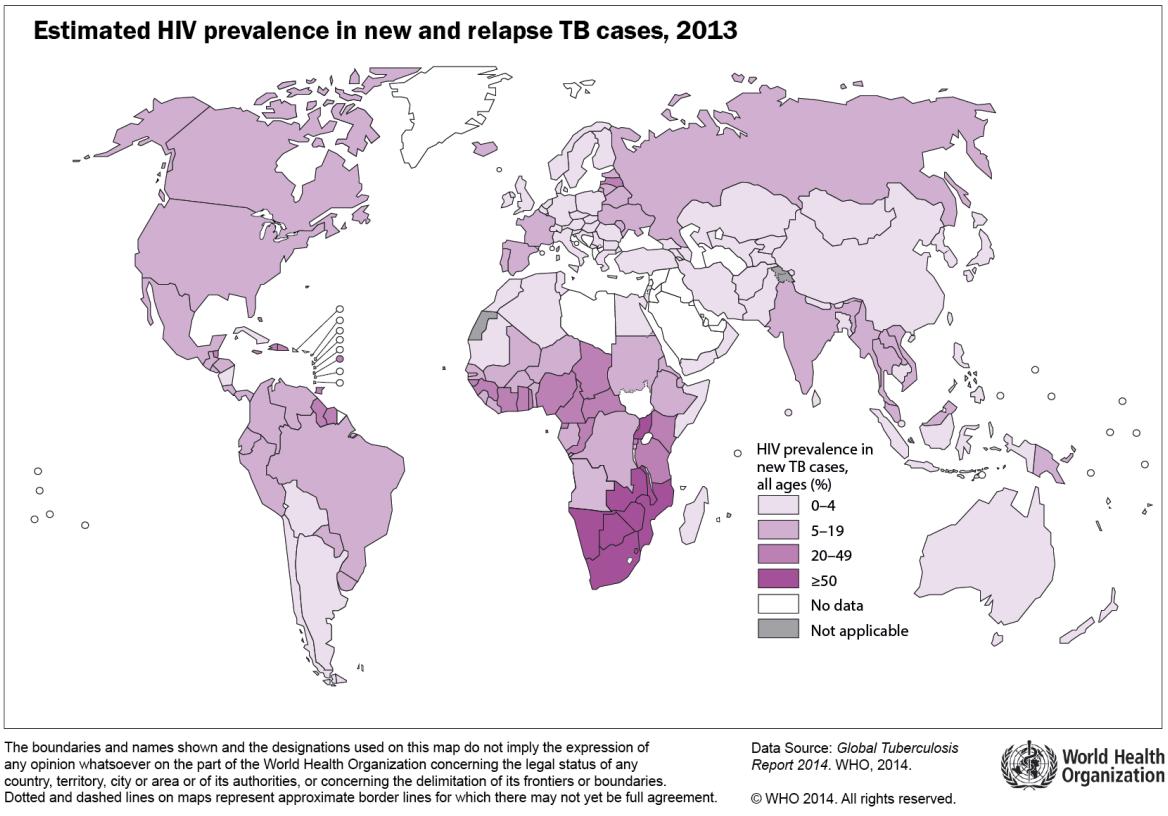


Figure 5.11.3 Estimated HIV Prevalence in new and relapse TB cases, 2013

Source: WHO Global TB report 2014 (3)

Rationale for assessment

- TB is a significant cause of morbidity and mortality worldwide.
- Many migrants coming to Ireland are from countries with a high incidence of TB.[4]
- TB is a curable disease.[5]
- The tests for diagnosing TB are simple and well established (Mantoux, IGRA, chest X-ray, sputum analysis)
- Effective treatment regimens are available.[5]
- Latent TB (LTBI) is curable.[5]
- Treatment of TB and LTBI reduces the spread of disease.[5]

Assessment

The following guidelines for assessment are derived from the *Guidelines on the Prevention and Control of Tuberculosis in Ireland (2010)*.[5]

- All new migrants to Ireland who originate from a country with a high incidence of TB should be provided with an opportunity to be assessed for TB. Those include people who have recently arrived or returned from a country with an incidence of TB ≥40 cases per 100,000 population per year.[5] Countries with an incidence of ≥40 cases per 100,000 population per year are mainly located in Africa, the Eastern Mediterranean, Central and Eastern Europe, South East Asia, the Western Pacific and Central and South America. A list of current high incidence countries can be found in **Appendix F**.
- Every effort should be made to identify candidates either at reception centres for asylum seekers or in other clinical settings.
- TB screening for active disease and LTBI should be encouraged.
- Voluntary assessment for HIV should be offered to those with diagnosed TB as co-infection with HIV is common.[5]

Health assessment

A full history and examination should be undertaken for all new entrants to enquire into past history of TB and BCG status, current symptoms, and recent contact with a TB case. Those with symptoms should be urgently referred to a respiratory clinic for further clinical assessment.

Chest X-ray

Chest X-rays should be offered to all new migrants aged ≥16 years who are from a country with a high incidence of TB (provided they are not pregnant). All those with abnormal chest X-ray results suggestive of active disease or of inactive TB should be referred for medical evaluation. Treatment of LTBI should be considered in those with radiological evidence of inactive TB, if not previously treated.

Tuberculin Skin Test (TST) (Mantoux test)

Individuals ≥16 years

Asymptomatic individuals with a normal chest X-ray in a selected group i.e. those aged 16 to 35 years from Sub-Saharan Africa or a country with a TB incidence greater than 500 per 100,000* should be offered a TST (2TU Mantoux test) regardless of BCG vaccination status. Pregnant females (no chest X-ray, see above) should also have a TST (2TU Mantoux test), regardless of BCG vaccination status.

*These countries include Botswana, Cambodia, Djibouti, Lesotho, Namibia, Sierra Leone, South Africa, Swaziland, Timor-Lest, Zambia and Zimbabwe.

Those with TST results ≥10mm should be referred for further medical evaluation and considered for LTBI treatment. Individuals with TST results <10mm should be informed and advised of the signs and symptoms of TB disease and asked to seek medical care if they experience these symptoms. Consider BCG vaccination for all those aged ≤35 years with TST results <6mm who are previously unvaccinated (*see TB disease algorithm above*).

While all age groups should be considered for treatment of LTBI, care should be taken when prescribing LTBI therapy for those with co-morbidities which increase the likelihood of hepatotoxicity. The use of Directly Observed Therapy (DOT) should also be considered in this population on a case by case basis if resources allow.

Individuals <16 years

All new entrants aged 0 to 15 years should be screened initially by health questionnaire and TST (2TU Mantoux test).

Unvaccinated (BCG)

All those under 16 years of age with a negative TST result (<6mm) should be offered BCG vaccination after consideration has been given to the individual's HIV status.

Unvaccinated children under five years of age with a Mantoux reading of 6-9 mm should be referred to a TB clinic where treatment for LTBI should be considered if the chest X-ray is normal.

Unvaccinated children aged five to 15 years with a Mantoux reading of 6-9mm and without a history of recent contact with a TB case should be advised of the signs and symptoms of TB.

All unvaccinated children (aged 0 to 15 years) with a Mantoux reading of ≥10mm should be referred to a clinician with experience in the management of LTBI and chemoprophylaxis should be considered if the chest X-ray is normal.

Vaccinated with BCG

Vaccinated children should be referred for a chest X-ray and chemoprophylaxis considered if the Mantoux reading is ≥10mm. If the result is <10mm, no further action is required.

Interferon Gamma Release Assay (IGRA) testing

Foreign-born individuals can have a higher incidence of LTBI and may be more likely to have clinical conditions that increase the likelihood of reactivation of LTBI, such as HIV infection. Evidence from international studies suggests that IGRA tests have a higher specificity than tuberculin skin tests and have less potential for false positive results.[6-9]

It is recommended that the TST should be used initially to detect LTBI and a person with a positive result should be considered to have LTBI. False negative results are not uncommon in immunodeficient individuals; therefore if a clinician is concerned about the possibility of such a TST result, an IGRA can be conducted. LTBI can be considered if an IGRA test is positive, while indeterminate results should be repeated. Indeterminate results may indicate laboratory error or anergy, therefore a person's history, clinical features and laboratory findings must be taken into account when diagnosing LTBI using an IGRA.[5]

The use of IGRA can be considered:

- As a confirmatory test in those individuals with a positive TST.
- In screening new entrants with concomitant conditions that increase the individual's risk of reactivation of LTBI.

Contacts

Contacts of cases of active TB that are notified to public health will be followed up through Departments of Public Health following notification.

TB/HIV

The management of patients with TB and HIV is complex. Cases of TB/HIV should always be referred to physicians with expertise in treating both TB and HIV. See Chapter 10 of Guidelines on the prevention and control of tuberculosis in Ireland 2010.[5]

References

(1) Tuberculosis at the end of the 20th century in England and Wales: results of a national survey in 1998. Thorax 2001;56:173-9.

(2) Health Protection Surveillance Centre. Report on the Epidemiology of Tuberculosis in Ireland 2012 [Internet]. [cited August 2015]. Available from: http://www.hpsc.ie/A-Z/VaccinePreventable/TuberculosisTB/Epidemiology/AnnualReports/2012/File,15063,en.pdf

(3) World Health Organization. Global Tuberculosis control 2014. Geneva: WHO; 2014. http://www.who.int/tb/publications/global_report/en/

(4) CSO Ireland 2011 [cited 2013 Jun 12]; Available from: http://www.cso.ie/en/census/census2011reports/census2011profile6migrationanddiversity-aprofileofdiversityinireland/

(5) Health Protection Surveillance Centre. Guidelines on the prevention and control of tuberculosis in Ireland 2010. Dublin; 2010. http://www.hpsc.ie/AboutHPSC/ScientificCommittees/Publications/File,4349,en.pdf

(6) Public Health Agency of Canada. An advisory committee statement (ACS) by the Canadian Tuberculosis Committee on Interferon Gamma Release Asseys for Latent TB Infection. Canada Communicable Disease Report 2007;33(10):1-18.

(7) Tuberculosis: Clinical diagnosis and management of tuberculosis, and measures for its prevention and control. March 2011. Available from: http://www.nice.org.uk/nicemedia/live/13422/53638/53638.pdf

(8) Centers for Disease Control and Prevention. Guidelines for using the Quantiferon-TB test for detecting *Mycobacterium tuberculosis* infection, United States. *Morbidity and Mortality Weekly Report* 2005; 54 (RR15)(December 16):49-55.

(9) Pai M, Dheda K, Cunningham J, Scano F, O'Brien R. T-cell assays for the diagnosis of latent tuberculosis infection: moving the research agenda forward. *Lancet Infect Dis* 2007;7(6):428-438.

Appendix A. Immunisation Guidelines

RECOMMENDED IMMUNISATION SCHEDULES

The immunisation schedules below may be updated from time to time. To check on updates and for more details on immunisation please go to the National Immunisation Office website at http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

New migrants should be asked about their vaccine history. In the absence of information/documentation to the contrary, individuals should be assumed to be unimmunised and started on the Irish immunisation schedule as indicated below for the different categories of new entrants:

Infants <4 months of age

Infants <4months of age should commence the routine childhood immunisation schedule as shown in table A1.

Table A1 Routine childhood immunisation schedule

Age	Immunisations	Comment
Birth	BCG	1 injection
2 months	DTaP/Hib/IPV/Hep B + PCV	2 injections
4 months	DTaP/Hib/IPV/Hep B + MenC	2 injections
6 months	DTaP/Hib/IPV/Hep B + PCV	2 injections
12 months	MMR + PCV	2 injections
13 months	MenC + Hib	2 injections
4 to 5 years	DTaP/IPV + MMR	2 injections
11 to 14 years	Tdap	1 injection
12 years	Men C	1 injection
12 to 13 years (girls only)	HPV x 2 doses at 0 and 6 months	2 injections

Source: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/

BCG *Bacille Calmette Guerin vaccine*
DTaP *Diphtheria, Tetanus and acellular Pertussis vaccine*
Hib *Haemophilius influenzae b vaccine*
IPV *Inactivated Polio Virus vaccine*
Hep B *Hepatitis B vaccine*
PCV *Pneumococcal Conjugate Vaccine*
MenC *Meningococcal C vaccine*
MMR *Measles, Mumps and Rubella vaccine*
Tdap *Tetanus, low-dose diphtheria and low-dose acellular pertussis vaccine*

Table A2 Catch-up immunisation schedule for children and adults (NIAC)

Vaccine	4 months to <12 months	12 months to <4 years	4 to <10 years	10 to <18 years	18 years and older
BCG	1 dose	1 dose	1 dose	1 dose (up to 15 years of age if in low risk group or up to 35 years of age if in high risk group)	1 dose (up to 35 years of age if in high risk group)
6 in 1 (DTaP/IPV/Hib/Hep B)[1]	3 doses 2 months apart	3 doses 2 months apart	3 doses 2 months apart		
Men C	1 dose	1 dose	1 dose	1 dose (if given after 10 years of age, adolescent Men C booster not required)	1 dose (up to 23 years of age)
PCV	2 doses 2 months apart	1 dose (omit if >2 years of age[2])			
MMR[3]		1 dose	2 doses 1 month apart	2 doses 1 month apart	2 doses 1 month apart[4]
Tdap/IPV				3 doses 1 month apart	1 dose[5]
Td/IPV					1 month after Tdap/IPV 2 doses at 1 month intervals
NOTE	*Continue with routine childhood immunisation schedule from 12 months.*	*Continue with routine school immunisations [4 in 1 (DTaP/IPV) at least 6 months and preferably 3 years after primary course, MMR at least 1 month after previous dose]*	*Continue with routine school immunisations [4 in 1 (DTaP/IPV) at least 6 months and preferably 3 years after primary course]*	*Boosters of Tdap/IPV 5 years after primary course and Tdap 10 years later*	

Source: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/

[1] One dose of single Hib vaccine may be given to children over 12 months of age and up to 10 years of age if this is the only vaccine they require

[2] Unless at increased risk

[3] The second dose of MMR is recommended routinely at 4-5 years but may be administered earlier. Children vaccinated before their first birthday in the case of an outbreak should have a repeat MMR vaccination at 12 months of age, at least one month after the first vaccine with a further dose at 4-5 years of age. If a child aged <18 months receives a second MMR vaccine within 3 months of the first MMR a third MMR should be given at 4-5 years of age

[4] For healthcare workers born outside of Ireland and for adults from low resource countries, without evidence of two doses of MMR vaccine

[5] Only one dose of Tdap/IPV is required due to likely previous exposure to pertussis infection

Infants >4 months of age, children and adults

Infants >4 months of age, children and adults should follow the catch-up immunisation schedule as shown in Table A2.

If an immunisation course has been interrupted, it should be resumed as soon as possible. It is not necessary to repeat doses or restart the course regardless of the time interval from the previous incomplete course. The course should be completed with the same brand of vaccine if possible.

Immunisation of late entrants to Irish healthcare system

Children and adults who are not immunised or who are incompletely immunised and are older than the recommended age range should be immunised as soon as possible according to the schedules in Table A2.

Once a child is back on schedule, the optimal recommended ages and intervals should be followed for the remainder of the routine scheduled vaccines.

Immunisation records of children (adopted or immigrant) from some countries may not be accurate, and should be accepted with caution. Lack of protection against vaccine-preventable diseases may be due to improper storage or handling of vaccines or to immune defects such as those that can occur during severe malnutrition.

In the absence of reliable information/documentation to the contrary children should be assumed to be unimmunised and started on a catch-up programme.

Children resident in Ireland should be given vaccines according to the recommended Irish schedule.

Decisions regarding whether to give or withhold vaccines are based on a number of factors, including the slight risk of over-vaccinating children.

The following guidelines may help the decision making process:[1]

BCG

BCG should be given to low risk children up to 15 years of age and specified high risk children and adults up to 35 years of age who:

a. do not have documented evidence of BCG vaccination

and

b. do not have a characteristic BCG scar

and

c. are tuberculin or interferon-gamma negative.

Diphtheria, tetanus, pertussis

If a child is aged 10 years or more low-dose diphtheria and pertussis vaccines should be used.

Polio

Adverse reactions to IPV are extremely rare. It is recommended that 4 doses of IPV containing vaccine be given, preferably before the age of 6 years.

Hib

Hib vaccine should be given to unvaccinated children up to 10 years of age. A single dose of Hib vaccine can be given if this is the only vaccine required.

Hepatitis B

A 3-dose series may be given to unvaccinated children up to the age of 10 years and to at-risk persons aged 10 years and older at 0, 1 and 6 months.

Meningococcal C

A single dose of Men C vaccine should be given to unvaccinated persons aged 1 to 23 years.

MMR

Two doses should be given, the first dose ideally at 12 months and the second dose at 4-5 years of age. An interval of at least one month should be left between doses. If in doubt, it is preferable to give MMR vaccine. Adverse reactions to repeat MMR vaccines are rare.

Pneumococcal

A single dose of pneumococcal conjugate vaccine should be given to unvaccinated children between 1 and 2 years of age.

Further detail on the optimal and minimum recommended ages for vaccinations and intervals between vaccine doses is available in Chapter 2 of the Immunisation Guidelines for Ireland 2013.[1]

References

(1) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html

Appendix B. Glossary of abbreviations

Ab	Antibody
Ag	Antigen
AIDS	Acquired immunodeficiency syndrome
Anti-HBc	Antibody to hepatitis B core antigen
Anti-HBe	Antibody to hepatitis B e antigen
Anti-HBs	Antibody to hepatitis B surface antigen
Anti-HCV	Antibody to hepatitis C virus
BCG	Bacillus Calmette–Guérin
CDC	Centers for Disease Control and Prevention (Atlanta, USA)
DTaP	Diphtheria, tetanus and acellular pertussis vaccine
DPH	Director of Public Health
DNA	Deoxyribonucleic acid
ECDC	European Centre for Disease Prevention and Control
EIA	Enzyme-linked immunoassay
EU	European Union
GP	General practitioner
GUM	Genitourinary medicine
HBeAg	Hepatitis B e antigen
HBIG	Hepatitis B specific immunoglobulin
HBsAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCC	Hepatocellular carcinoma
HCV	Hepatitis C virus
HCW	Healthcare worker
Hib	Haemophilus influenzae b
HIV	Human immunodeficiency virus
HPSC	Health Protection Surveillance Centre
HPV	Human Papillomavirus
HSE	Health Service Executive
ICGP	Irish College of General Practitioners
ID	Infectious diseases
IGRA	Interferon Gamma Release Assay
INIS	Irish Naturalisation and Immigration Service
IPV	Inactivated polio virus vaccine
IU	International units
Men ACWY	Meningitis ACWY
Men C	Meningitis C
MMR	Measles Mumps Rubella
MSM	Men who have sex with men
n/a	not available; not applicable

NIAC	National Immunisation Advisory Committee
NVRL	National Virus Reference Laboratory
ORAC	Office of the Refugee Applications Commissioner
PCR	Polymerase chain reaction
PCV	Pneumococcal conjugate vaccine
PEP	Post-exposure prophylaxis
PPV	Pneumococcal polysaccharide vaccine
PWID	People who inject drugs
RCPI	Royal College of Physicians of Ireland
RIA	Reception and Integration Agency
RNA	Ribonucleic acid
ROI	Republic of Ireland
SATU	Sexual Assault Treatment Unit
SCBU	Special care baby unit
STD	Sexually transmitted disease
STI	Sexually transmitted infection
TB	Tuberculosis
Td	Tetanus, low-dose diphtheria
tdap	Tetanus, low dose diphtheria and low-dose acellular pertussis vaccine
TST	Tuberculin skin test
UNAIDS	Joint United Nations Programme on HIV/AIDS
VZV	Varicella zoster virus
WHO	World Health Organization

Appendix C. Acknowledgements

In developing the guidelines Infectious Disease Assessment for Migrants, the sub-committee would like to acknowledge in particular the information provided in guidance documents from the National Immunisation Advisory Committee in Ireland, Public Health England and from the Canadian Collaboration for Immigrant and Refugee Health namely:

- National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Available from: http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html
- Public Health England. Migrant Health Guide. 2011. Available from: http://webarchive.nationalarchives.gov.uk/20140714084352/http:/www.hpa.org.uk/MigrantHealthGuide/
- Pottie K, Greenway C, Feightner J, Welch V, Swinkels H, Rashid M et al, Canadian Collaboration for Immigrant and Refugee Health. Evidence-based clinical guidelines for immigrants and refugees. CMAJ 2011; 183(12):E324-E925.

Where used, these and other guidance documents are appropriately referenced.

We would like to acknowledge Gemma Smith from Public Health England's Migrant Health Division and Kevin Pottie from the Canadian Task Force on Preventive Health Care for their advice and assistance.

Sincere thanks also to Niamh Murphy and Kirsty MacKenzie, HPSC, for their assistance in the preparation of this document, and to Darina O'Flanagan, Derval Igoe, Joan O'Donnell, Paul McKeown and Suzanne Cotter for their advice on disease-specific sections.

The feedback received during the consultation exercise was extremely helpful and the sub-committee is most grateful to all those who took the time to read the draft document and send their comments.

Appendix D. Useful contact information

Consultants in Infectious Diseases/ Genitourinary Medicine

Dr Busi Mooka
Mid West Regional Hospital
Limerick
Tel: 061 301111

Dr Catherine Fleming
Dr Helen Tuite
University College Hospital
Galway
Tel: 091 544544

Professor Mary Horgan,
Dr Arthur Jackson
Cork University Hospital
Co Cork
Tel: 021 454 6400

Dr Susie Clarke,
Dr Fiona Lyons,
Professor Colm Bergin,
Professor Fiona Mulcahy
St James's Hospital GUIDE Dept
James's St
Dublin 8
Tel: 01 4162315, 01 4162316

Dr Jack Lambert,
Dr Paddy Mallon,
Dr Gerard Sheehan
Mater Misericordiae University Hospital,
Eccles Street,
Dublin 7
Tel: 01 803 2000

Professor Sam McConkey
Beaumont Hospital
Dublin 9
Tel: 01 809 3006

Dr Eoin Feeney
St Vincent's University Hospital,
Elm Park, Dublin 4
Tel: 01 221 4000

Dr Justin Low,
Louth County Hospital,
Dundalk
Tel: 086 8241847

Paediatric Infectious Diseases

Professor Karina Butler
Our Lady's Children's Hospital
Crumlin
Dublin 12
Tel: 01 4096100

Dr Paddy Gavin
Children's University Hospital
Temple Street
Dublin 1
Tel: 01 8784200

Sexually Transmitted Infection/ Genitourinary Medicine Clinics

Youth Health Service,
73 Shandon Street,
Cork City
Tel: 021-4220490/1

Gay Men's Health Service,
Baggot Street Clinic,
19 Haddington Road,
Dublin 4
Tel: 01 6699553

St James's Hospital,
GUIDE Clinic,
James's Street,
Dublin 8
Tel: 01 4162315/6

Mater Misericordiae Hospital,
Eccles Street,
Dublin 7
Tel: 01 8032063

Louth County Hospital,
Dublin Road,
Dundalk
Tel: 086 8241847

Waterford Regional Hospital,
STI clinic,
Waterford
Tel: 051 842646

South Tipperary General Hospital,
Clonmel,
Co Tipperary
Tel: 051 842 646

Carlow District Hospital,
STI clinic,
Athy Road,
Carlow
Tel: 051 842 646

South Infirmary Victoria University Hospital,
GUM clinic,
Old Blackrock Road,
Cork
Tel: 021 4966844

Kerry General Hospital,
Tralee,
Co Kerry
Tel: 021 4966844

Mid Western Regional Hospital,
STI clinic,
Dooradoyle,
Limerick
Tel: 061 482382

General Hospital,
Nenagh,
Co Tipperary
Tel: 061 482382

Ennis General Hospital,
Ennis,
Co Clare
Tel: 061 482382

Mayo General Hospital,
Castlebar,
Co Mayo
Tel: 094 9021733 (Extn 3501)

University Hospital Galway,
Merlin Park,
Galway
Tel: 091 525200

Portiuncula Hospital,
Ballinasloe,
Co Galway
Tel: 090 9648372 (Extn 676)

Sligo General Hospital,
The Mall,
Sligo
Tel: 071 9170473

Sexual Assault Treatment Units (SATUs)

Dublin
Rotunda Hospital,
Parnell Square,
Dublin 1
01 817 1736 SATU@rotunda.ie
Out of hours:
Phone hospital 01 8171700 ask for SATU

Waterford
Waterford Regional Hospital,
Dunmore Road,
Waterford
051 84215 wrh.satu@hse.ie
Out of hours:
Phone Hospital 051 848000
Nurse Manager on duty for hospital

Cork
South Infirmary Victoria University Hospital (SIVUH)
Old Blackrock Rd.,
Cork.
021 4926297
satu@sivuh.ie
Out of hours:
Phone Hospital 021 4926100
Nurse Manager on duty for hospital

Galway
Hazelwood House,
Parkmore Rd.,
Galway
091 765751 / 087 6338118
satugalway.hsewest@hse.ie
Out of hours:
Phone 091757631
Nurse Manager on duty for Merlin Park Hospital

Donegal
Letterkenny General Hospital
NoWDOC Premises,
Oldtown,
Letterkenny,
Co. Donegal
074 9104436 Bleep 777

Departments of Public Health

HSE East
Dr Steevens' Hospital
Dublin 8
Tel: 01 6352145

HSE Midlands
Area Office,
Arden Road,
Tullamore
Co. Offaly
Tel: 057 9359891

HSE North-East
Railway Street,
Navan,
Co Meath
Tel: 046 9076412

HSE West
Finance Building,
Merlin Park,
Galway
Tel: 091 775200

HSE North-West
Iona House,
Upper Main Street,
Ballyshannon,
Co. Donegal
Tel: 071 9852900

HSE South
Floor 2, Block 8,
St Finbarr's Hospital,
Douglas Road
Cork
Tel: 021 4927601

HSE South-East
HSE Offices,
Lacken,
Dublin Road,
Kilkenny
Tel: 056 7784142

HSE Mid-West
Mount Kennett House,
Henry Street,
Limerick
Tel: 061 483337

Balseskin Reception Centre

Balseskin Reception Centre
St Margaret's Road,
Finglas,
Dublin 11
Tel: 01 8110705

HSE Health Protection Surveillance Centre

25-27 Middle Gardiner St,
Dublin 1
Tel: 01 8765300

National Virus Reference Lab

UCD National Virus Reference Laboratory
University College Dublin
Belfield
Dublin 4
Tel: 01 7164401

Appendix E. Hepatitis C prevalence by region and country

Prevalence of anti-HCV by Global Burden of Disease Regions

Region	Anti-HCV prevalence estimates (%)	95% Confidence Interval
Central Asia	3.8	3.0-4.5
East Asia	3.7	3.1-4.5
North Africa & Middle East	3.6	3.2-4.1
South Asia	3.4	2.6-4.4
Eastern Europe	2.9	2.3-3.5
West Sub-Saharan Africa	2.8	2.4-3.3
Australasia	2.7	2.2-3.2
Oceania	2.6	2.1-3.1
Central Europe	2.4	2.0-2.8
Western Europe	2.4	2.2-2.7
Central Sub-Saharan Africa	2.3	1.6-3.1
Caribbean	2.1	1.6-2.6
South Sub-Saharan Africa	2.1	1.7-2.5
Andean Latin America	2.0	1.4-2.7
East Sub-Saharan Africa	2.0	1.6-2.4
South East Asia	2.0	1.7-2.3
Central Latin America	1.6	1.3-1.9
Southern Latin America	1.6	1.1-2.2
High income Asia Pacific	1.4	1.2-1.5
High Income North America	1.3	1.1-1.6
Tropical Latin America	1.2	1.0-1.4

Source: Mohd Hanafiah K, Groeger J, Flaxman AD, Wiersma ST. Global epidemiology of hepatitis C virus infection: new estimates of age-specific antibody to HCV seroprevalence. Hepatology 2013;57:1333-1342.

List of countries with estimated anti-HCV prevalence ≥3% (2010)

Country	Anti-HCV (%)
Angola	5
Armenia	4
Azerbaijan	4
Bolivia	4.7
Burkina Faso	5.2
Burundi	11.3
Cambodia	4.1
Cameroon	13.8
Cape Verde	3
Chad	5
Congo	5.5
Democratic Republic of Congo	6.4
Egypt	14
Estonia	5
Gabon	9.2
Georgia	6.7
Grenada	5
Guinea	5.5
Guinea-Bissau	4.7
Haiti	4.4
Indonesia	3.9
Iraq	3.21
Italy	3.2
Ivory Coast	3.3
Kazakhstan	3.2
Kuwait	3.1
Kyrgyzstan	4
Liberia	3
Malawi	6.8
Mali	3.3
Mongolia	10.7
Mozambique	3.2
Niger	3.2
Pakistan	5.9
Romania	4.5
Russia	4.1
Rwanda	4.9
Sao Tome and Principe	10
Senegal	3
Tajikistan	4
Togo	3.3
Trinidad and Tobago	3.9
Turkmenistan	4
Uganda	6.6
Ukraine	4
United Republic of Tanzania	3.2
Uzbekistan	6.5
Western Sahara	3

Source: Lavanchy D. Evolving epidemiology of hepatitis C virus. Clin Microbiol Infect 2011;17:107-115.

Appendix F. List of countries with a TB incidence of ≥40/100,000 population

Country	WHO region	Estimated rate of TB per 100,000 population
Swaziland	Africa	1349
South Africa	Africa	1003
Sierra Leone	Africa	674
Namibia	Africa	655
Lesotho	Africa	630
Djibouti	Eastern Mediterranean	620
Marshall Islands	Western Pacific	572
Zimbabwe	Africa	562
Mozambique	Africa	552
Timor Leste	South-East Asia	498
Kiribati	Western Pacific	429
Gabon	Africa	428
Zambia	Africa	427
Cambodia	Western Pacific	411
Democratic People's Republic of Korea	South-East Asia	409
Botswana	Africa	408
Congo	Africa	381
Myanmar (Burma)	South-East Asia	377
Central African Republic	Africa	367
Mauritania	Africa	350
Papua New Guinea	Western Pacific	348
Democratic Republic of Congo	Africa	327
Angola	Africa	316
Liberia	Africa	304
Somalia	Africa	286
Gambia	Africa	284
Kenya	Africa	272
Philippines	Western Pacific	265
Ethiopia	Africa	247
Guinea-Bissau	Africa	242
Tuvalu	Western Pacific	241
Cameroon	Africa	238
Madagascar	Africa	234
Pakistan	Eastern Mediterranean	231
Bangladesh	South-East Asia	225
Mongolia	Western Pacific	223
Haiti	The Americas	213
Lao People's Democratic Republic	Western Pacific	204
Micronesia (Federated States of)	Western Pacific	194
Afghanistan	Eastern Mediterranean	189
Indonesia	South-East Asia	185
Bhutan	South-East Asia	180
Uganda	Africa	179
Guinea	Africa	178
India	South-East Asia	176
Cote d'Ivoire	Africa	172
Greenland	Europe	170
United Republic of Tanzania	Africa	165
Malawi	Africa	163
Nepal	South-East Asia	163
Republic of Moldova	Europe	160
Chad	Africa	151
Vietnam	Western Pacific	147
South Sudan	Eastern Mediterranean	146
Cape Verde	Africa	144
Kyrgyzstan	Europe	141
Equatorial Guinea	Africa	139
Kazakhstan	Europe	137
Senegal	Africa	137

Burundi	Africa	130
Bolivia	The Americas	127
Thailand	South-East Asia	119
Georgia	Europe	116
Sudan	Eastern Mediterranean	114
Guyana	The Americas	109
Nigeria	Africa	108
Republic of Korea	Western Pacific	108
Tajikistan	Europe	108
Niger	Africa	104
Morocco	Eastern Mediterranean	103
Solomon Islands	Western Pacific	97
Azerbaijan	Europe	95
Peru	The Americas	95
Romania	Europe	94
Eritrea	Africa	93
Sao Tome and Principe	Africa	93
Ukraine	Europe	93
Russian Federation	Europe	91
Algeria	Africa	89
Rwanda	Africa	86
China, Macao SAR	Western Pacific	83
Malaysia	Western Pacific	80
Uzbekistan	Europe	78
China, Hong Kong SAR	Western Pacific	77
Turkmenistan	Europe	75
China	Western Pacific	73
Togo	Africa	73
Ghana	Africa	72
Belarus	Europe	70
Benin	Africa	70
Northern Marianna Islands	Western Pacific	69
Brunei	Western Pacific	68
Lithuania	Europe	66
Sri Lanka	South-East Asia	66
Vanuatu	Western Pacific	65
Wallis and Futuna Islands	Western Pacific	65
Dominican Republic	The Americas	62
Guatemala	The Americas	60
Mali	Africa	60
Equador	The Americas	59
Burkina Faso	Africa	54
Honduras	The Americas	54
Nauru	Western Pacific	54
Latvia	Europe	53
Armenia	Europe	52
Singapore	Western Pacific	50
Bosnia Herzegovina	Europe	49
Yemen	Eastern Mediterranean	49
Guam	Western Pacific	48
Panama	The Americas	48
Brazil	The Americas	46
Iraq	Eastern Mediterranean	45
Paraguay	The Americas	45
Maldives	South-East Asia	41
Qatar	Eastern Mediterranean	41
Suriname	The Americas	40
Belize	The Americas	40
Libya	Eastern Mediterranean	40

Source: Public Health England.
Available from: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Tuberculosis/TBWorldwideSurveillanceData/.
Accessed 26/01/2014.

Appendix G. Refugees and asylum seekers

In 2013, 44.1% of asylum seekers originated from Nigeria, Pakistan, Democratic Republic of Congo, Zimbabwe and Malawi. The remaining 55.9% originated from a wide range of countries.[6]

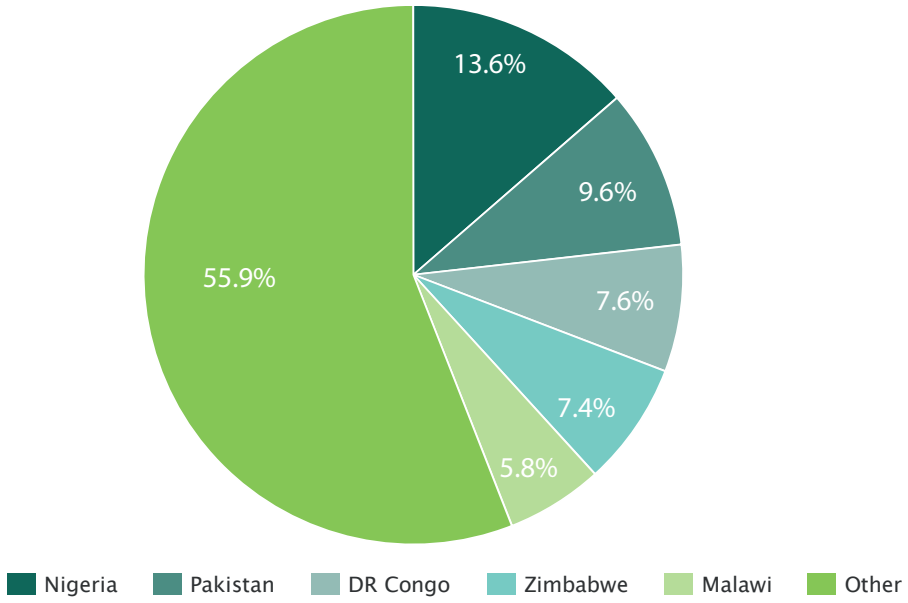


Figure 1 Applications for declaration as a refugee; top 5 countries of origin, to end of December 2013
Adapted from: Reception & Integration Agency Annual Report 2013

Provision for asylum seekers

The Reception and Integration Agency (RIA) is a functional unit of the Irish Naturalisation and Immigration Service (INIS), a division of the Department of Justice and Equality. RIA is responsible for providing asylum seeker residents with full board accommodation free of utility and other costs.

Although the number of applications to the Office of the Refugee Applications Commissioner (ORAC) has declined significantly in recent years, a significant number of applicants are reliant on the directly provided services offered by RIA. In 2013, 4,360 were resident in the 34 RIA accommodation sites located in 17 counties.[6]

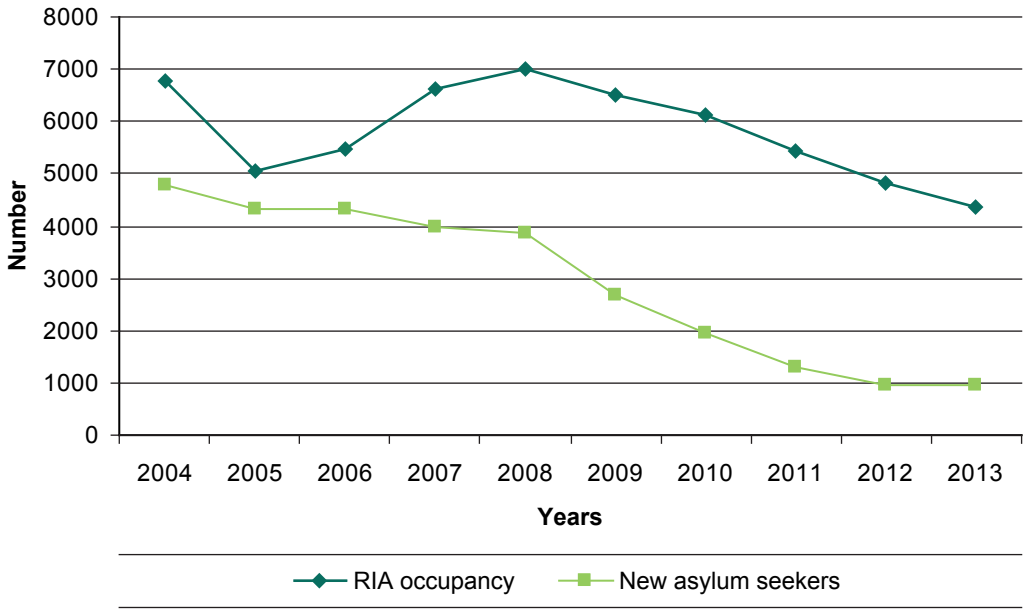


Figure 2 Trends in Asylum applications and RIA Occupancy 2004-2013
Adapted from: Reception & Integration Agency Annual Report 2013

The nationality of RIA residents is outlined below. Of the total number of residents, (n=4,360), over 70% of residents originate from the continent of Africa.[6]

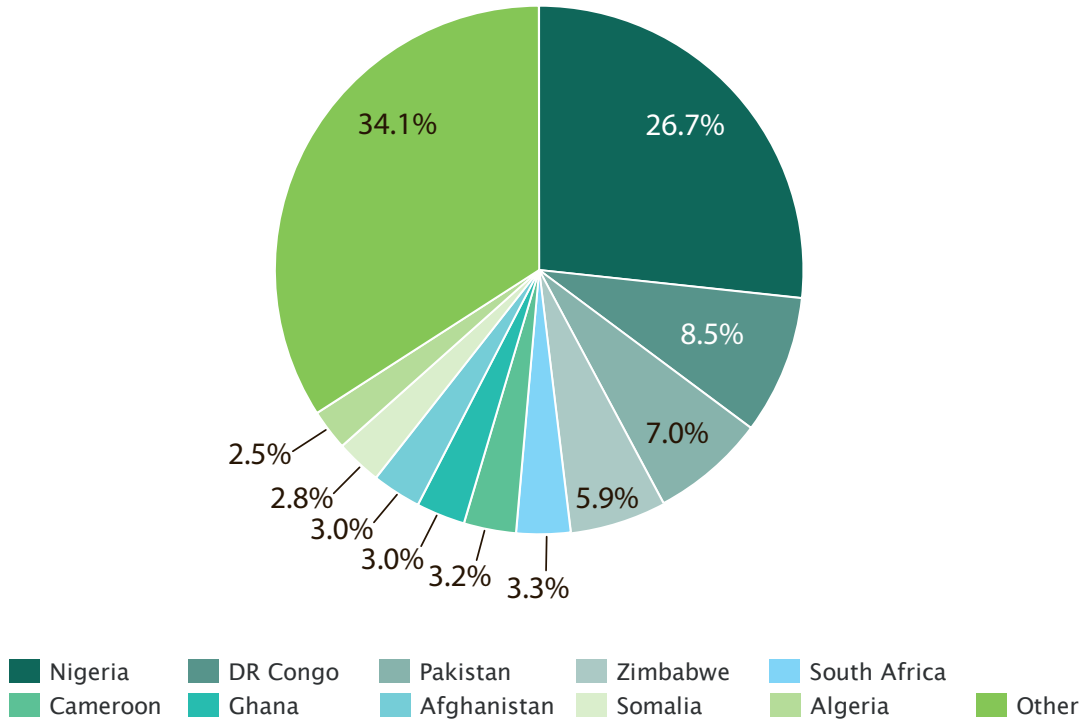


Figure 3 Nationality of RIA residents, end of December 2013
Adapted from: Reception & Integration Agency Annual Report 2013

RIA residents are mainly young, single adults aged 26-35 years. However there is also a significant number of children (male and female) under the age of 12 years (n=1,523).[6]

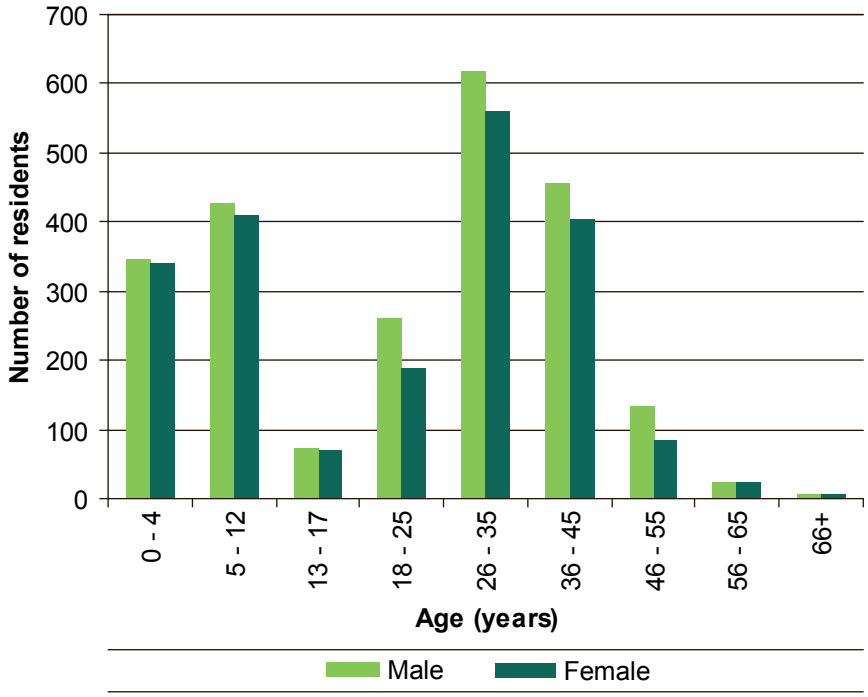


Figure 4 Gender and Age profile of RIA residents, December 2013
Adapted from: Reception & Integration Agency Annual Report 2013

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

hpsc

Health Protection Surveillance Centre

25-27 Middle Gardiner Street Dublin 1 Ireland
Tel +353 1 **876 5300** **Fax** +353 1 **856 1299**
Email hpsc@hse.ie www.hpsc.ie

This report is also available to download on the HPSC website at www.hpsc.ie