Hepatitis C Screening Guideline Development Group
Background to recommendation 10: Migrants

The purpose of this document is to provide the background information to the formulation of recommendations by the Guideline Development Group (GDG).

Not all evidence in this document is presented in the National Clinical Guideline.

The National Clinical Guideline is available from: http://health.gov.ie/national-patient-safetyoffice/ncec/national-clinical-guidelines/

Please note, that this document is being made available for information purposes only. It should not be reproduced or cited. Please refer to the National Clinical Guideline for the final evidence analysis, value judgements and recommendations.

Contents

History of development of the recommendation 1
Considered judgement process 2
Review by GDG 7
Consultation feedback and review by GDG 7
Final recommendation 7
Appendices 8
Appendix 1: Briefing paper 8
Decisions required by the GDG 8
Appendix 2: Evidence search and results 16
International and national guidelines 16
Grey literature 16
Primary literature 16

History of development of the recommendation

Date	Process	Outcome
02/06/2015	Recommendations from quality appraised national and international guidelines reviewed	Agreed to address this questions a review of the epidemiology of HCV amongst migrants is needed
02/02/2017	GDG subgroup meeting to undertake considered judgement process	Formulation of recommendation
23/02/2017	Review of subgroup recommendation by GDG	Recommendation accepted
25/04/2017	Consultation feedback reviewed by GDG	No changes to recommendation
June – July 2017	Editing	Recommendation reworded in final editing process

Considered judgement process

The considered judgment form completed by the GDG subgroup in formulating the recommendations is presented below. Please note the final wording of the recommendation may have changed after review of the GDG, after the consultation process, or during the editing process.

Date: 02/2/2017
Attendees: Lelia Thornton, Paula Flanagan, Eve Robinson, Shay Keating, Orla Ennis, Colm Bergin

Table 1: Considered judgement form

1. What is the question being addressed? Present PICO if relevant
Q2. Who should be offered screening for Hepatitis C? b. Should the following specified groups be offered screening? i. **Migrants**
2. What evidence is being considered to address this question and why? (This section will explain the approach taken to address this question and what GDG members are being asked to consider)
Literature on screening of migrants in other countries was considered to be of limited value given the heterogeneity between migrant populations in different countries. Further information was considered necessary to address this question. In order to address the question we considered the following: • Any literature on screening of migrants in Ireland • Data on notifications of HCV from the national surveillance system • Literature on the prevalence of HCV in migrants compared to their country of origin • Estimates of the number of migrants in Ireland with HCV The findings of the above are outlined in the attached briefing paper.
3. What is the body of evidence? Source of evidence: (tick all that apply) Guidelines √ Primary literature □ Other √ ; specify: ECDC systema□c review and country of origin es□mates; demographic data on migrant population in Ireland; estimates of number of migrants with HCV in Ireland
See attached briefing paper.
4. What is the quality of the evidence? To be considered if primary literature was reviewed.
4.1. How reliable are the studies in the body of evidence? If there is insufficient evidence to answer the key question go to section 11. Comment here on any issues concerning the quantity of evidence available on this topic and its methodological quality.
Not applicable
4.2. Are the studies consistent in their conclusions – comment on the degree of consistency within the available evidence. Highlight specific outcomes if appropriate. If there are conflicting results highlight how the group formed a judgement as to the overall direction of the evidence
Not applicable

4.3. Generalisability – are the patients in the studies similar to our target population for this guideline? is it reasonable to generalise

Not applicable

4.4. Applicability - Is the evidence applicable to Ireland? Is the intervention/ action implementable in Ireland?

Not applicable

4.5. Are there concerns about publication bias? Comment here on concerns about all studies coming from the same research group, funded by industry etc

Not applicable

5. Additional information for consideration

5.1. Additional literature if applicable e.g. Irish literature

See attached briefing paper.

5.2. Relevant national policy

See attached briefing paper.

5.3. Epidemiology in Ireland if available and applicable

See attached briefing paper.

The HCV treatment database may give information on migrant patients. Could also compare fibroscan level of migrants to non migrants. to see if presenting late.

6. Potential impact of recommendation

6.1. Benefit versus harm

What factors influence the balance between benefit versus harm? Take into account the likelihood of doing harm or good. Do the desirable effects outweigh the undesirable effects?

Benefits:

- Recent advances in treatment options make treatment more acceptable and more successful. Treatment with the new DAAs which are now available results in cure in the majority of patients with shorter duration of treatment and less side effects compared to previous treatments.
- Linkage to care and treatment will result in improved quality of life for detected cases.
- The offer of screening also provides an opportunity to raise awareness and educate on hepatitis C.
- Promotion and further normalisation of testing may improve uptake overall and reduce stigma around hepatitis C.
- Detection and treatment of undiagnosed cases will reduce the risk of transmission to others

Harms:

- If there are clear pathways to care and treatment available, there is limited foreseeable direct harm for a person knowing they are infected.

- Migrants, particularly if undocumented, may not be eligible for HCV treatment or other healthcare under the public health system.
- There would be an opportunity cost. The resources could be spent on other aspects of HCV screening and care to possibly greater benefit.
- False positives. The rate of false positive screening results depends on the population being screened. In high risk populations false positive rates are acceptable. However, in low risk populations the positive predictive value of the screening test decreases and may not be acceptable. False-positive test results incur costs and can also cause psychological harm. Confirmatory testing reduces the false-positive rate but increases the cost.
- Detected cases may suffer from stigmatisation.
- It may lead to stigmatisation of migrant populations.

6.2. What are the likely resource implications and how large are the resource requirements? Consider cost effectiveness, financial, human and other resource implications

This will partly depend on the country of origin prevalence level chosen for screening as this will determine the number potentially eligible for screening.
The offer of screening to migrants seeking asylum in reception centres is current practice and will likely not have any additional resource requirements. However, the majority of migrants to Ireland come through other channels and there is no migrant health screening programme in place. Facilitating this group of migrants to access screening will have resource implications. A migrant health service may be needed, or screening could occur through GPs which would require reimbursement. Novel methods to facilitate migrants to be screened will be required.

6.3. Acceptability – Is the intervention/ option acceptable to key stakeholders?

It is likely to be largely acceptable depending on the proposed method of implementation. Some migrants from endemic countries may not find it acceptable as it may lead to stigmatisation. There also may be negative attitudes towards hepatitis C in some migrant populations or cultural barriers to screening. The acceptability will be dependent on how the recommendation is presented, communicated and implemented.

6.4. Feasibility - Is the intervention/action implementable in the Irish context?

Depending on the prevalence rate in the country of origin which is selected for screening there could be between 95,000 and 150,000 migrants eligible for screening. This is based on the number of migrants from these countries resident in Ireland in the 2011 census. A proportion may have already been screened e.g. if originally arrived as an asylum seeker or as part of antenatal screening. Also there will be arriving migrants from high prevalence countries each year.
Implementation of the recommendation will be difficult. An opportunistic approach to screening alone may not reach those most likely to be infected. Novel approaches may be required to reach certain migrant populations.

6.5. What would be the impact on health equity?

The principle of proportionate universalism[1] should underpin the recommendations and the implementation of the guideline in order to have a positive impact on health equity.
Migrants can be a vulnerable population and some migrant populations are poorly reached by health services. Improving access to testing and linkage to care in this group would have a positive impact on health equity.

If some migrants are not elibigble for treatment this will impact of health equity.

7. What is the value judgement? How certain is the relative importance of the desirable and undesirable outcomes? Are the desirable effects larger relative to undesirable

Migrants from high prevalence countries may be more likely to have been infected at a younger age and may now be at the stage of chronic liver disease and, if not already diagnosed and in care, will present with health care needs in the near future. Detection and treatment will prevent further deterioration in their health.
Many migrants are vulnerable populations and are poorly reached by healthcare services. Efforts to reach these populations and offer screening followed by linkage to care for those who are infected is considered desirable.
While, any recommendation on screening must be cognisant of stigmatising migrants, if communicated and implemented in an appropriate and culturally sensitive manner this should be limited.
While the number of people eligible for screening will be large the potential number of chronic infections which will be identified may be high

8. Final Recommendations

√ Strong recommenda□on
□ Condi□onal/ weak recommenda□on

Text:
Migrants from a country with a prevalence of antibody to hepatitis C of greater than or equal to 2% should be offered screening.
Level of evidence: low

9. Justification

Migrants from high prevalence countries can have a prevalence of hepatitis C comparable to their country of origin. There is some evidence that even when the prevalence is lower than the prevalence in the country of origin it is still higher than that of the general population of the country of residence. It is estimated that 20% of the burden of chronic hepatitis C in Ireland occurs in migrants. While the recommendation will result in a large number of people being eligible for screening, given the increased risk of chronic infection in migrants, it is considered appropriate to screen those from a country with a prevalence greater than 2%. Implementation of this recommendation will be difficult as many migrants may be poorly reached by health services. Innovative approaches to reaching these populations will be required.

10. Implementation considerations

Implementation will be difficult. There is no dedicated health service for screening of migrants except for those who are asylum seekers. Many migrants may have poor access to health services due to language,financial or legal barriers.
Awareness raising campaigns amongst migrants and healthcare workers will be needed. Any such campaign must be culturally sensitive. A list of high prevalence countries will need to be available to assist healthcare workers in assessing the need for screening.
Innovative ways of reaching particular migrant populations will be needed.
Language services will also be required to ensure that the disease information, screening offer and results are

[1] Proportionate universalism is the resourcing and delivering of universal services at a scale and intensity proportionate to the degree of need.
http://www.healthscotland.com/documents/24296.aspx

understood.Linkage to care will need to be supported for those who are diagnosed through screening. Some migrant populations may need a tailored support service which takes account of their particular needs. Treatment for migrnats.
11. Recommendations for research List any aspects of the question that have not been answered and should therefore be highlighted as an area in need of further research.

Review by GDG

Date: 23/02/2017

The recommendation was accepted as proposed. The group discussed that implementation of this will be difficult as there is no specific health service for migrants available, and some may not have access to primary care services. Also if undocumented they may not be eligible for treatment.
The recommendation should reflect these difficulties by acknowledging in the short term this will be implemented on an opportunistic basis for those coming into contact with health services but that in the medium to long term specialist services may be needed to reach certain migrant groups.
While the number of migrants eligible for screening will be large, it is thought that there is a significant burden of disease within this cohort. It is important that cases within this cohort are identified and linked to treatment. MT will prepare a statement to outline how the recommendation links with the aims of the treatment programme and the strategy for treatment.

Consultation feedback and review by GDG

Please see *Report of the consultation process* for feedback received.

No material change to recommendation.

Final recommendation

Recommendation 9

9.1. Migrants from a country with an intermediate to high prevalence of HCV (anti-HCV ≥ 2%*) should be offered one-off HCV screening.

*Please refer to Appendix 2 for a list of countries with an anti-HCV prevalence ≥ 2%.

Quality/level of evidence: low to moderate
Strength of recommendation: strong

Appendices

Appendix 1: Briefing paper

Should migrants be screened for hepatitis C?

A key question the guideline is to address is if migrants should be screened for hepatitis C.
At present in Ireland, apart from screening being offered to asylum seekers and screening of migrants attending some antenatal services, offering screening to migrants is not routine.
Two guidelines which were reviewed recommended screening of migrants from medium or intermediate to high prevalence countries (1, 2).
Given the heterogeneity between the migrant population of different countries some further information was considered necessary to address this question. Literature on screening of migrants in other countries was considered to be of limited value given the heterogeneity between migrant populations in different countries.
In order to address the question we considered the following:

- Any literature on screening of migrants in Ireland
- Data on notifications of HCV from the national surveillance system
- Literature on the prevalence of HCV in migrants compared to their country of origin
- Estimates of the number of migrants in Ireland with HCV

Decisions required by the GDG

The GDG needs to make a determination on the following:

- Should migrants be screened based on the prevalence of HCV in their country of origin?
- If so, at which prevalence rate will screening be recommended?
- What source of prevalence data for country of origin should be used?

1. Recommendations from other guidelines

Two guidelines contain recommendations specific to screening of migrants (1, 2).
SIGN recommend that testing be offered to migrants from countries with a medium or high prevalence of HCV (1). This recommendation has been given a GRADE D rating. Although they do not specify what a medium or high prevalence rate is within their guidance document they do refer to NICE guidance for risk groups which has defined intermediate prevalence to be 2%.
NICE list people born or brought up in a country with an intermediate or high prevalence of chronic hepatitis C as a risk group for hepatitis C (2). They specify intermediate prevalence to be a prevalence of at least 2%. They state that, as data is not available for all countries, that for practical purposes this includes all countries in Africa, Asia, the Caribbean, Central and South America, Eastern and Southern Europe, the Middle East and the Pacific islands.
The American Association for the Study of Liver Disease (AASLD) guideline comments that the US Centers for Disease Control and Prevention (CDC) and US Preventive Services Task Force hepatitis C testing guidelines do not specifically recommend testing immigrants from countries with a high prevalence of hepatitis C virus infection, but such persons should be tested if they were born from 1945 through 1965 or if they have risk factors for infection (3) .
A WHO guideline on hepatitis B and C testing which is awaiting publication state that migrant populations represent a heterogeneous group and HCV seroprevalence estimates vary widely (4). They recommended that adults and adolescents from populations most affected by HCV be offered testing and in a footnote state that this would include some migrant populations from high/intermediate endemic countries.

2. Recommendations and policy in Ireland

Infectious Disease Assessment for Migrants (5) developed by the Migrant Health Assessment Sub-committee of the Health Protection Surveillance Centre Scientific Advisory Committee recommends to offer a test for anti-HCV to:

- All migrants who originate from countries with a prevalence of chronic hepatitis C of 3% or higher

And to offer a test for HCV RNA to:

- All those who have a positive anti-HCV result

Voluntary health screening, including screening for hepatitis C, is offered to asylum seekers in Reception Centres operated by the Reception and Integration Agency of the Department of Justice and Equality. Arrangements are in place in various parts of the country to offer health screening to those who did not avail of it in a reception centre.

3. Hepatitis C in migrants in Ireland

3.1. Outcome of screening of migrants in Ireland

There is limited data available on the prevalence of HCV among migrants living in Ireland or screening of migrants in Ireland.

The Direct Provision Reception Centre in Balseskin has reported on the outcome of a voluntary screening programme (6). Between 2004 and 2012, of 15,687 asylum seekers or refugees accommodated in the centre, 13,673 were offered voluntary screening, with 10,014 accepting. Ninety six screened positive for chronic HCV giving an overall prevalence of 0.95%. Only one country specific prevalence rate was calculable from the information presented: the prevalence amongst those from Pakistan was 3.3%.

An audit of screening services provided to asylum seekers presenting to reception centre clinics in what was previously the Eastern Region Health Authority (ERHA) determined that between 1999 and 2003 the case detection rate of hepatitis C amongst those screened was 1.5% (antibody prevalence) (7). Breakdown by country of origin was not reported. From a review of 100 case notes, the author also estimated that 79% of adult attendees to reception centre clinics were screened for HCV at a centre or referred to antenatal services for screening.

3.2. Surveillance data

Hepatitis C has been a notifiable disease in Ireland since 2004. Notifications and enhanced surveillance data are collected using the national Computerised Infectious Disease Reporting (CIDR) system (8).

Information on country of birth for notifications of hepatitis C is limited. On a review of notifications received between 2004 and 2015[2], of the 13,476 total notifications, country of birth is known for 2228 (16.5%) Information of country of birth is more complete in recent years. Up to 2010 it was only available for 12% of notifications. This increased to 34% in 2014 and 33% in 2015.

Where country of birth is known, 1032(46%) are Irish born. However, this is likely to underrepresent Irish born people as country of birth may be less likely to be completed when Irish born. The country of birth of migrants is listed in table 1, along with their percentage contribution to migrant cases. A crude notification rate per country, based on migrant numbers from the 2011 census, is also given. **Please note that this data does not reflect the incidence or prevalence in migrants from these countries living in Ireland, only the number of diagnosed and notified cases specifying the country of birth.**

[2] Data extracted from CIDR on 04/08/2016. Please note CIDR is continuously being updated and numbers may differ from those previously reported elsewhere

Table 2: Countries of birth of notifications of hepatitis C in Ireland between 2004 and 2015; percentage contribution of each country of birth to migrant cases notified in Ireland; and the crude notification rate in Ireland by country of birth (countries with less than 5 cases are not listed)[2]

Country of birth	Number of notifications	% of notifications amongst migrants	Crude notification rate per 100,000 population*
Poland	113	16.3%	98
Lithuania	81	11.7%	232
Pakistan	78	11.2%	936
Latvia	72	10.4%	360
United kingdom	46	6.6%	16
Romania	34	4.9%	189
Russian Federation	27	3.9%	455
Georgia	21	3.0%	-
Egypt	20	2.9%	-
Estonia	13	1.9%	524
Moldova, Republic of	13	1.9%	380
Mongolia	12	1.7%	-
France	11	1.6%	109
Italy	10	1.4%	140
Portugal	10	1.4%	445
United states	10	1.4%	36
Ukraine	8	1.2%	194
Brazil	6	0.9%	65
Congo	6	0.9%	264
Spain	6	0.9%	86
Congo, The Democratic Republic of the	5	0.7%	-
Hungary	5	0.7%	67
India	5	0.7%	28
Nigeria	5	0.7%	25

***Number of notifications in Ireland with this country of birth per 100,000 people in Ireland with the country of birth. Population size based on country of birth data from the 2011 Irish census.**

4. Prevalence of HCV amongst migrants and comparison with prevalence in their country of origin

The European Centre for Disease Prevention and Control (ECDC) undertook a project comparing the anti-HCV prevalence in migrants to the prevalence in the country of origin (in-country): *Epidemiological assessment of hepatitis B and C among migrants in the EU/EEA* (9). Systematic reviews were undertaken to identify estimates of anti-HCV prevalence by country of origin and among migrant populations in the EU/ EEA.

These were then compared to determine if they were higher, lower, or comparable. For the prevalence of migrants within the EU/EEA a pooled estimate was used when multiple prevalence studies were available. Results were stratified by the source of sampling of migrants (health centre, antenatal, refugee centres) where available.

They compared 43 estimates of anti-HCV prevalence among migrant population in the EU/ EEA to an in-country or regional estimate. Studies included migrants from 38 countries. They found that 18 estimates were lower, 15 were comparable, and 10 were higher than the in-country estimate. Comparisons are summarised in appendix 1. There was heterogeneity in the populations from which the migrant estimates in the EU/EEA were determined making it difficult to clearly determine if the prevalence differs in migrants compared to the country of origin.
Ten estimates were from the general migrant population which the report suggests is the most valid comparison**. Of these 70% were comparable to the in-country prevalence, and 30% are lower.**
Of note there were no comparisons available from the high endemicity countries that contribute most to migrant chronic hepatitis C (CHC) numbers in Europe - Romania, Russia and Italy.
The report does highlight that the prevalence in migrant populations in Europe was generally higher than the prevalence in the general population of the new country.

5. Sources of national prevalence rates

If the GDG decides to offer screening to migrants based on the prevalence in their country of origin then country level prevalence data will be required. A comprehensive picture of worldwide country level prevalence rates has been limited by factors such as the lack of national prevalence studies. Sources for country level data used by the HPSC to date have included reviews by Lavanchy in 2011 Mohd Hanafiah et al in 2013, and Gower et al in 2014 (10-12).
As part of the project described above ECDC undertook a systematic literature review in 2015 to determine the prevalence rate of hepatitis C in the general population worldwide at country level. They included studies published in English between 2009 and 2014. When multiple estimates for a country were available they assessed the scope and quality of included studies to determine which estimate was the most robust and relevant.
ECDC determined that the most comprehensive review was that published by Gower et al (13). They selected the estimate within this review for the majority of countries. For ten countries (Albania, Egypt, France, Germany, Italy, Pakistan, Poland, Sweden, and Turkey) ECDC determined that more robust estimates than that reported by Gower were available.
The anti-HCV prevalence estimates by country selected by ECDC can be reviewed in their report (Annex 5.7; page 64 to 69) available here:
http://ecdc.europa.eu/en/publications/Publications/epidemiological-assessment-hepatitis-B-and-C-among-migrants-EU-EEA.pdf

6. Estimate of the number of migrants in Ireland with HCV

6.1. ECDC project

The ECDC project described previously also estimated the burden of HBV and HCV among migrants in the EU/ EEA (9). Estimates on the country of origin prevalence of anti-HCV were applied to demographic data on the migrant population in EU/ EEA countries. CHC was estimated by assuming that 70% of those who are anti-HCV positive are viraemic. Demographic data for the majority of countries, including Ireland, was sourced from Eurostat 2013.
High endemicity was defined as a prevalence of anti-HCV greater than or equal to 1%.
It was estimated that of the 643,083 foreign born adult-population in Ireland, 321,771 are from high endemic countries. This constituted 9% of the adult population of Ireland, and 54% of the migrant adult population.
The average prevalence of CHC in the migrant population in Ireland was estimated to be 1.7%, with an estimated 5,485 migrants affected (lower and upper estimates of 2,932 and 8,188 respectively)
It was estimated that adult migrants contributed to 20% (lowest to highest estimate: 7- 47%) of the total number of CHC cases in Ireland.
The top ten high endemicity countries contributing most to the number of CHC cases in Ireland are listed in table 1.

Table 3: Migrant populations estimated to be contributing most to migrant CHC cases in Ireland. (Adapted from *Epidemiological assessment of hepatitis B and C among migrants in the EU/EEA*, Annex 5.10, page 80 to 85 (9))

Country of origin	Adult pop >15 years	Anti-HCV prevalence estimate (%)			Estimated number of CHC (based on 70% of Anti-HCV being viraemic)		
		%	lower limit	upper limit	CHC cases	lower range	upper range
Nigeria	20819	8.4	3.9	12.8	1224	568	1865
Poland	93763	1.1	0.6	1.9	722	394	1247
Lithuania	28152	2.9	0.7	3	571	138	591
Romania	15106	3.2	2.9	3.6	338	307	381
Pakistan	8887	5	4.4	5.5	311	274	342
Latvia	16249	2.4	1.7	3.3	273	193	375
Italy	6276	4.4	1.6	7.3	193	70	321
Egypt	1539	15.7	13.9	17.5	169	150	189
Russia	5437	4.1	1.2	5.6	156	46	213
United States	17094	1.3	1.2	2.4	156	144	287

6.2. In-house estimated number of migrants in Ireland from high prevalence countries

We estimated the number of migrants in Ireland which would be eligible for screening based on a recommendation to screen at a country of origin prevalence rate of 1%, 2% or 3%. Country prevalence estimates were calculated using the country of origin prevalence rates selected by ECDC. Country of origin prevalence estimates were applied to migrant numbers from the 2011 Census to estimate the number of migrants in Ireland from countries with prevalence rates of 1%, 2%, 3% or greater. CHC was estimated based on 75% of those who are anti-HCV positive being viraemic.
Please note that the estimate differs from ECDC estimates for the following reasons:

- ECDC used demographic data obtained from the European statistical database (Eurostat) in 2013 while we used Census 2011 data.

- ECDC used an assumed viraemic rate amongst anti-HCV positive of 70% while we used a viraemic rate of 75%

The estimated number of migrants in Ireland for whom screening would be recommended based on the prevalence in their country of origin and the three different cut-off levels chosen is presented in table 3.
If a prevalence rate of 3% is used it is estimated that approximately 90,000 people (12% of the migrant population) would be eligible for screening. At a prevalence rate of 2%, 146,000 people would be eligible for screening (19% of the migrant population).
A major limitation of these estimates is that for a number of countries the migrant numbers were not available in Census 2011, and only regional numbers were provided. Regions were not well defined in data available from the CSO e.g. 'Other Africa', 'Other Asia'. In these instances the averaged prevalence rate from the countries in the region was applied to the regional number. However, the prevalence rates of countries, or sub-regions within these large regions were very heterogeneous. The number of migrants in Ireland from the higher prevalence countries or sub-regions in the region may be very low and the methodology may overestimate the number of anti-HCV cases from these regions.
It should also be noted that a number of migrants may already have been screened or are known to be infected and therefore would not warrant screening.

Table 4: Estimated number of migrants who are anti-HCV positive and with CHC in Ireland if country-of-origin prevalence applied.

Criteria	N
Total migrants	766,770
Total migrants anti-HCV positive	11,415
Total migrants CHC	8,561
Countries with prevalence >=3%	
Number of migrants	90,023
Number Anti-HCV positive	4,285
Number of CHC cases	3,213
Countries with prevalence >=2%	
Number of migrants	145,682
Number Anti-HCV positive	5,795
Number of CHC cases	4,346
Countries with prevalence >=1%	
Number of migrants	398,901
Number Anti-HCV positive	9,123
Number of CHC cases	6,843

7. Summary

Data on hepatitis C in migrants in Ireland is limited. It is estimated that migrants do contribute significantly to the burden of hepatitis C in Ireland and other European countries. It is estimated that around 146,000 migrants in Ireland are from countries with a HCV prevalence rate greater than 2%, and approximately 90,000 are from countries with a prevalence rate greater than 3%.

There is limited evidence on the comparability of prevalence rates in migrants versus their country of origin. A review by ECDC found that in 70% of comparisons made the prevalence rate was similar and in 30% it was lower in migrants. However, even when the prevalence rate in migrants is lower than that in their country of origin it is usually higher than the prevalence rate in their country of residence.

Screening of migrants from countries with a prevalence rate of 2% or greater is recommended by the UK and Scotland. Worldwide country-level prevalence data are not comprehensive and reviews available do have limitations. Recognising this, the NICE guideline does state regions to which the recommendation should apply for practical purposes. However, the regions stated are broad. If these regions were used to make a recommendation from Ireland, the majority of migrants would likely be eligible for screening. Also there are variations in prevalence rates in countries within these regions.

Since the NICE guideline was published there have been further reviews published of country-level prevalence rates. ECDC have reviewed published reviews and determined that for the majority of countries estimates by Gower et al are the most robust. For a number of countries they have selected alternative more robust estimates.

Using the ECDC prevalence data, it is estimated that if a recommendation is made to screen migrants based on a prevalence of 2% or greater in their country of origin then 146,000 migrants would be eligible for screening. If all were screened it is estimated that 4346 cases of CHC would be detected. If the recommendation is based on a prevalence of 3% or greater then approximately 90,000 migrants would be eligible for screening, and 3,213 cases of CHC detected.

References

1. Scottish Intercollegiate Guidelines Network. Management of hepatitis C; A national clinical guidance. Edinburgh: SIGN; 2013. Available from: http://www.sign.ac.uk/assets/sign133.pdf.
2. National Institute for Health and Care Excellence. Hepatitis B and C: ways to promote and offer testing to people at increased risk of infection. NICE Public Health Guidance 43. NICE; 2012. Available from: https://www.nice.org.uk/guidance/ph43.
3. American Association for the Study of Liver Disease. HCV guidance: recommendations for testing, managing, and treating hepatitis C. AASLD; 2016. Available from: http://www.hcvguidelines.org/full-report/website-policies.
4. World Health Organization. Guidelines on hepatitis B and C testing. Geneva: WHO; 2017. Available from: http://www.who.int/hepatitis/publications/guidelines-hepatitis-c-b-testing/en/.
5. Migrant Health Subcommittee of the HSE HPSC Scientific Advisory Committee. Infectious disease assessment for migrants. Dublin: HSE HPSC; 2015. Available from: http://www.hpsc.ie/a-z/specificpopulations/migrants/guidance/.
6. Brennan M, Boyle P, O'Brien A, Murphy K. Health of asylum seekers - are we doing enough? Forum. Irish College of General Practitioners; 2013.
7. Doyle S. An evaluation and audit of the aymlum seeker communicable disease screening service in the eastern region. A report submitted for membership of the Faculty of Public Health Medicine in Ireland. Dublin: Royal College of Physicians of Ireland; 2006. Available from: http://www.lenus.ie/hse/handle/10147/263872.
8. Health Protection Surveillance Centre. CIDR Frequently Asked Questions: Health Protection Surveillance Centre; [updated 26 May 2015; cited 2016 8 August]. Available from: http://www.hpsc.ie/CIDR/FrequentlyAskedQuestions/.
9. European Centre for Disease Prevention and Control. Epidemiological assessment of hepatitis B and C among migrants in the EU/EEA. Stockholm: ECDC; 2016. Available from: http://ecdc.europa.eu/en/publications/Publications/epidemiological-assessment-hepatitis-B-and-C-among-migrants-EU-EEA.pdf.
10. Lavanchy D. Evolving epidemiology of hepatitis C virus. Evolving epidemiology of hepatitis C virus. 2011;17(2):107-15.
11. 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. Global epidemiology of hepatitis C virus infection: new estimates of age-specific antibody to HCV seroprevalence. 2013;57(4):1333-42.
12. Gower E, Estes C, Blach S, Razavi-Shearer K, Razavi H. Global epidemiology and genotype distribution of the hepatitis C virus infection. J Hepatol. 2014;61(1 Suppl):S45-57.
13. Bruggmann P, Berg T, Ovrehus AL, Moreno C, Brandao Mello CE, Roudot-Thoraval F, et al. Historical epidemiology of hepatitis C virus (HCV) in selected countries. Historical epidemiology of hepatitis C virus (HCV) in selected countries. 2014;21 Suppl 1:5-33.

Appendix : Comparison of anti-HCV prevalence estimates from studies among migrants in Europe to country-of-origin prevalence. Adapted from ECDC report

Country of origin	Population type	Anti-HCV prevalence	95% CI	In country prevalence	Limits	Comparison
Egypt	Residents	2.4	1.2-4.2	15.7	13.9-17.5	Lower
Iraq	Residents	0.3	0-1.9	3.2	0.3-3.2	Comparable
	Refugees	0.2	0-0.9	3.2	0.3-3.2	Lower
Iran	Residents	0.7	0-3.6	0.5	0.2-1	Comparable
Morocco	General population	0.9	0.2-2.6	1.6	0.6-1.9	Comparable
	Pregnant women	0	0-0.8	1.6	0.6-1.9	Lower
	Health service users	3.3	0.7-9.3	1.6	0.6-1.9	Higher
Turkey	General population	0.2	0-0.8	1.0	0.7-1.1	Lower
	Pregnant women	0.5	0-2.5	1.0	0.7-1.1	Lower
	Health service users	0.8	0.3-1.0	1.0	0.7-1.1	Comparable
	Refugees	0	0-1.0	1.0	0.7-1.1	Lower
Afghanistan	Residents	1	0.2-3.0	1.1	0.6-1.9	Comparable
Bangladesh	Residents	0.4	0.1-1.1	1.3	0.2-2.2	Comparable
	PHC attendees	0	0-1.8	1.3	0.2-2.2	Lower
India	Residents	0.4	0.2-1.0	0.8	0.4-1.0	Comparable
	PHC attendees	0	0-16.9	0.8	0.4-1.0	Lower
Pakistan	Residents	2.8	2.3-3.4	5.5	4.4-5.5	Lower
	Health service users	9.1	6.5-12.4	5.5	4.4-5.5	Higher
Vietnam	Residents	1.6	0.2-5.6	1	0.8-1.8	Comparable
Philippines	PHC attendees	0.6	0.02-3.5	0.9	0.3-2.0	Comparable
Albania	Refugees	1.3	0.0-7.1	2.4	2.0-2.8	Lower
Former USSR	Residents	3.1	0.4-10.7	3.3	1.6-4.5	Comparable
Poland	GP attendees	7.1	0.2-33.9	1.1	0.6-1.9	Higher
Russia	GP attendees	6.9	0.9-22.8	4.1	1.2-5.6	Higher
Kazakhstan	GP attendees	9.3	2.2-22.1	3.3	1.0-6.7	Higher
Argentina	PHC attendees	0	0-6.9	1.5	0.5-2.5	Lower
Bolivia	PHC attendees	0	0-6.3	0.9	0.4-1.3	Lower
Colombia	PHC attendees	1.5	0-8.2	1	0.8-1.4	Higher
Dominican Republic	PHC attendees	0	0-9.0	0.8	0.2-1.3	Lower
Dutch Antilles	Residents	2.6	0.1-13.8	0.8	0.2-1.3	Higher
Ecuador	PHC attendees	1.2	0.3-3.1	0.9	0.4-1.3	Comparable
Peru	PHC attendees	0	0-10.6	1.2	0.4-1.6	Lower
Suriname	Residents	2.4	0.5-7.0	0.8	0.2-1.3	Higher
Equatorial Guinea	International/ tropical medicine units	17.3	15.4-19.3	4.2	2.4-9.2	Higher
Eritrea	Refugees	3.3	0.1-17.2	1	0.6-3.1	Higher
Ghana	Refugees	3.3	0.1-17.2	5.3	2.9-9.1	Comparable
Nigeria	Refugees	6.1	2.9-10.9	8.4	3.9-12.8	Comparable
Somalia	Refugees	0.2	0-0.9	1	0.6-3.1	Lower

Appendix 2: Evidence search and results

International and national guidelines

HCV guidelines identified, reviewed, and quality appraised as described in the National Clinical Guideline.

Grey literature

The following grey literature identified by expert members of the GDG was included for review:

- Infectious Disease Assessment for Migrants Dublin: Migrant Health Subcommittee of the HPSC Scientific Advisory Committee. HSE Health Protection Surveillance Centre; 2015.
- Epidemiological assessment of hepatitis B and C among migrants in the EU/EEA. European Centre for Disease Prevention and Control.

Primary literature

A systematic search for primary literature was not undertaken. the following primary literature was identified by expert members of the GDG was included for review:

- Brennan M, Boyle P, O'Brien A, Murphy K. Health of Asylum seekers - are we doing enough? . Forum. Irish College of General Practitioners; 2013.
- Doyle S. An evaluation and audit of the aymlum seeker communicable disease screening service in the eastern region. 2006.
- Lavanchy D. Evolving epidemiology of hepatitis C virus. Evolving epidemiology of hepatitis C virus. 2011;17(2):107-15.
- 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. Global epidemiology of hepatitis C virus infection: new estimates of age-specific antibody to HCV seroprevalence. 2013;57(4):1333-42.
- Gower E, Estes C, Blach S, Razavi-Shearer K, Razavi H. Global epidemiology and genotype distribution of the hepatitis C virus infection. Global epidemiology and genotype distribution of the hepatitis C virus infection. 2014;61(1 Suppl):S45-57.