

# Hepatitis C infection among drug users attending general practice

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## Abstract

**Background** The prevalence of hepatitis C (HCV) infection among injection drug users is high and addiction-related care is increasingly being provided by GPs in Ireland.

**Aims** To determine the prevalence and associated factors of HCV infection among injecting drug users attending general practice.

**Methods** The records of 571 patients attending 42 general practices in the Eastern Regional Health Authority (ERHA) area for methadone maintenance treatment were reviewed.

**Results** The HCV status was recorded in 380 cases (67%). Of these, 193 had a test performed by their GP, 74 had been tested by another service and 113 had no evidence of being tested, but HCV status was recorded based on information provided by the patient himself. A total of 276 cases were identified as being HCV positive (prevalence 73%), with no difference in prevalence between the three sources of information ( $p=0.12$ ). A history of injecting drug use was the major determinant of testing for HCV.

**Conclusions** While a large proportion of drug users attending GPs for methadone maintenance treatment are known to be HCV positive, a considerable number have not been tested. Barriers to testing need to be explored to facilitate comprehensive screening.

## Introduction

HCV is an important emerging problem for both general practice and public health.<sup>1</sup> Since its identification in 1989,<sup>2</sup> its epidemiology has been investigated in many populations. The major groups at risk of infection are people who inject illicit drugs or who have received contaminated blood products.<sup>3,4</sup> Of those exposed to HCV, it is estimated that at least 80% will become chronic carriers<sup>5</sup> with an increased risk of developing cirrhosis and hepatocellular carcinoma,<sup>6,7</sup> at a substantial cost to the health service.<sup>8</sup>

Dublin's problem with drug misuse began in the late 1970s. In 1996, it was estimated that 13,460 people in the Dublin area were using opiates.<sup>9</sup> The facilities for treating drug misuse have expanded over the last five years,<sup>10</sup> with GPs becoming increasingly involved in treatment services, as in other countries.<sup>11</sup>

The increased role for general practice was first suggested in 1992,<sup>12</sup> with a formal protocol for the prescribing of methadone by GPs being published in 1993.<sup>13</sup> This protocol, which was given statutory authority by legislation introduced in October 1998,<sup>14</sup> recommends that "a person in difficulty with his/her drug use should be referred to the local addiction services or to the local community drug team for a full assessment, including a psychiatric evaluation" and "after stabilisation as drug-free or on a methadone programme, be introduced to a local doctor who had agreed to continue medical care and/or methadone maintenance at a level agreed between the doctor, the patient and the addiction services".

Antiviral therapies are effective in improving prognosis among people infected with HCV,<sup>15</sup> yet are costly. In the UK, the National Institute for Clinical Excellence has therefore recently recommended that "therapy is not in general recommended for

patients who are continuing intravenous drug use ... only where the prescribing clinician can be reliably assured that re-infection, compliance and drug interactions pose no problems, should patients be considered for therapy ... former intravenous drug users on oral maintenance therapy should not be excluded from therapy".<sup>16</sup> The soon to be published guidelines for the management of HCV among drug users attending general practice in Ireland recommends that patients be at least six months free from non-prescribed opiate drug use before being considered for antiviral therapy.<sup>17</sup>

According to the 'Protocol for the Prescribing of Methadone' therefore, patients attending general practice for methadone maintenance treatment should represent a relatively stable cohort where opiate addiction is concerned and, if infected with HCV, should at least be considered for antiviral therapy.

In Ireland, while the prevalence of HCV among drug users attending specialist addiction treatment centres and prisons has been comprehensively documented,<sup>18-20</sup> little data exist on HCV prevalence among those attending general practice. Our aim therefore was to determine the prevalence of, and the factors associated with, known HCV infection among drug users attending general practice in the ERHA area.

## Methods Setting

The area under study is the ERHA area, the largest health region in the Irish Republic, with a population of 1.3 million people (36% of the national population).<sup>21</sup>

## Subjects

A central register of drug users in treatment, the Central Methadone Treatment List (CMTL) is held by the ERHA. Each

patient's name is accompanied by the name of the GP and pharmacist that the patient attends. To protect the confidentiality of GPs, pharmacists and patients, one member of the research team had access to the register. All GPs who were registered with the local area health board as providing methadone maintenance treatment were invited to participate in the study. A second member of the research team visited the practice of each GP who agreed to participate in the study.

### Data collection

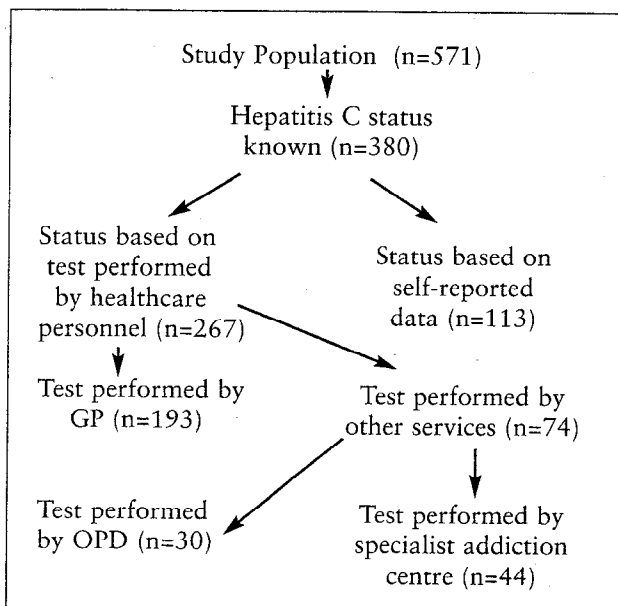
The participating GPs were asked to provide the clinical records of all patients attending their practice for methadone maintenance treatment. Each clinical record was examined on-site by one of the authors, there was no direct contact with patients and no alternative data source examination occurred. Data were collected on bloodborne virus infections, demography and drug use, with the latter two reported separately.<sup>22</sup> HCV status (and HIV and hepatitis B status) was based on one of three sources of information: a blood test performed by the GP, communication of a result from another service (e.g. hospital or specialist addiction treatment centre), or the patient's self-reported data (see Figure 1).

### Data analysis

Statistical analysis was performed using 'EpiInfo' version 6.04c. Analytical techniques included Pearson's chi squared test and Fisher's exact test statistic (used in the case of small sample sizes) to determine the significance of associations between categorical variables. Odds ratios and their 95% confidence intervals (CI) were used to describe the relationship between subject characteristics and both HCV testing rates and known HCV prevalence. Multivariate analyses were performed using logistic regression, and variables found to be significant on univariate testing were entered into the regression equation.

### Ethics

The Research Ethics Committee of the Irish College of General Practitioners granted approval for this study.



**Figure 1. Recording of HCV status among study population.**

## Results

### Population characteristics

Forty-two (out of 89 invited) GPs participated in the study (47% participation rate), with data collected from 571 patient records, which represents 62% of the total population attending GPs for methadone maintenance at the time of the study. GPs who participated had significantly more patients on methadone treatment than those who did not (mean of 19 compared to 4,  $t$ -statistic=4.1,  $p<0.001$ ).

The mean age of the sample was 28 years and the male:female ratio was 2.5:1. Forty-nine per cent were unemployed, and 30% had a note in their medical records indicating they had spent time in prison. The sample had been attending general practice for methadone maintenance treatment for a mean of 14 months. Whereas 97% had used heroin previously, only 16% were currently using the drug. The mean age of first using drugs was 15.5 years and the mean age of first injecting was 19.4 years.

### Prevalence of known HCV infection

A total of 107 (19% of total) had no record of their HCV status being documented or of testing being offered. In a further 79 (14%) cases, testing had been offered to the patients but had been refused and in five cases (1%) a test had been performed by the GP, but the result was outstanding. The HCV status was recorded in the remaining 380 cases (67% of total). Of these, HCV status was indicated by a blood test arranged by the GP in 193 cases, was indicated by a blood test performed by a specialist clinic in 74 cases, and was indicated on the basis of the patient reporting his own status to the GP in 113 cases (see Figure 1). The difference in prevalence of HCV between these three sources of information was not statistically significant (see Table 1).

Of the 276 cases that were known to be HCV positive, 26 (9%) were also HIV positive while 41 (15%) had also been infected with HBV at one stage.

### Factors associated with HCV testing (see Table 2)

On univariate analysis, patients were significantly more likely to have been tested (or offered a test) for HCV if they had previously injected, if they were known to be HIV negative and if there was a note in their medical records indicating they had spent time in prison, with the former being the only factor significantly associated on multivariate analysis ( $r=0.2065$ ,  $p<0.05$ ).

### Factors associated with HCV positivity (see Table 3)

On univariate analysis, patients were significantly more likely to be HCV positive if they: were older than 26 years; were known to have injected drugs; began using drugs prior to 1989; were HBV positive; were HIV positive, and if there was a note in their medical records indicating they had spent time in prison. Once again, a history of injecting drugs was the only factor significantly associated with being HCV positive on multivariate analysis ( $r=0.2796$ ,  $p<0.0001$ ).

## Discussion

This report represents a sample of drug users attending general practice in the ERHA area in early 1999. It is with some caution that the results can be extrapolated to the entire population of drug users in the area. A potential bias is introduced by the fact that while data are presented on 62% of the total population of patients attending GPs for methadone maintenance at the time of the study, only 47% of GPs who were invited to participate actually did so. Participation in the study involved GPs being

Table 1. Difference in HCV prevalence between different sources of information

Source of information	Total number of cases	HCV positive	HCV prevalence (95% CI)
Self reported data	113	75	66% (57%-75%)
Tested by GP	193	142	74% (68%-80%)
Tested by other service (OPD, specialist addiction treatment centre)	74	59	79% (70%-88%)
Total	380	276	73% (69%-77%)

Note:  $\chi^2=4.19$ , two degrees of freedom,  $p=0.12$ .

Table 2. Factors associated with having been tested for or offered a HCV test

Factor	n	% Offered test or actually tested	Odds ratio	95% C.I.	$\chi^2$ (p value)
Gender					
Female	162	85	1.46	0.86-2.49	2.29 (>0.05)
Male	409	80	1.0		
Age					
26 or under	289	80	0.77	0.49-1.21	1.49 (>0.05)
27 or over	274	84	1.0		
Age began injecting					
18 or under	130	88	0.92	0.41-2.09	0.05 (>0.05)
19 or over	131	89	1.0		
Age began using drugs					
15 or under	113	91	1.19	0.42-3.39	0.13 (>0.05)
16 or over	87	90	1.0		
Current heroin use					
None	444	85	0.94	0.46-1.86	0.04 (>0.05)
Using	91	86	1.0		
Previous route of use					
Injected	311	89	2.95	1.83-4.75	23.51 (<0.0001)
Other routes	250	73	1.0		
Year of first drug use					
Pre 1989	97	95	2.89	0.91-9.74	4.14 (=0.06)
Post 1988	67	73	1.0		
HBV status <sup>a</sup>					
Positive	44	98	0.31	0.02-9.10	0.98 (>0.05)
Negative	276	99	1.0		
HIV status					
Positive	32	91	0.22	0.05-1.15	5.34 (<0.05)
Negative	316	98	1.0		
History of spending time in prison					
Yes	172	89	2.28	1.32-4.11	9.57 (<0.005)
No	399	78	1.0		

<sup>a</sup>Fisher's exact test used as cell content was less than or equal to 5.

visited by a member of the research team and allowing the researcher access to some clinical records. No incentive was offered.

A recent review of health services research studies involving large community-based samples of individual physicians where the participation burden exceeds that of merely completing a survey, described participation rates of between 3% and 97%, and concluded that personal contact and friendship networks are powerful tools for recruitment.<sup>23</sup> In view of these findings,

a participation rate of 42% is understandable, although it is clear that further work may be necessary to foster the development of research networks in primary care, particularly in specialised areas such as this.

Nonetheless, the sample reported here has a similar demographic and drug using profile when compared to all other populations of drug users in Ireland reported previously.<sup>9,19,24,25</sup> Although only 34% had been tested for HCV by their GP, a further 13% had evidence of being tested for

Table 3. Factors associated with being HCV positive

Factor	n	% HCV pos	Odds ratio	95% C.I.	$\chi^2$ (p)
Gender					
Female	112	70	0.86	0.51-1.46	0.35 (>0.05)
Male	268	74	1.0		
Age					
26 or under	180	65	0.48	0.29-0.78	9.86 (<0.005)
27 or over	195	79	1.0		
Age of first injecting					
18 or under	103	85	1.43	0.63-3.25	0.86 (>0.05)
19 or over	92	80	1.0		
Age of first drug use					
15 or under	86	83	1.21	0.48-3.06	0.19 (>0.05)
16 or over	59	79	1.0		
Current heroin use					
None	313	72	0.71	0.34-1.45	1.02 (>0.05)
Using	59	78	1.0		
Previous route of use					
Injected	243	81	3.39	2.05-5.62	26.81 (<0.0001)
Other routes	131	56	1.0		
Year of first drug use					
Pre 1989	78	88	2.82	1.07-7.52	5.59 (<0.05)
Post 1988	67	73	1.0		
HBV status					
Positive	43	95	10.94	2.48-67.77	15.87 (<0.0001)
Negative	273	65	1.0		
HIV status					
Positive	27	96	12.11	1.69-247.45	9.39 (<0.005)
Negative	299	68	1.0		
History of spending time in prison					
Yes	126	79	1.70	0.99-2.94	4.30 (<0.05)
No	254	69	1.0		

HCV by a specialist clinic in their records and 19% had a note indicating that the patient had told his HCV status to the GP. The proportion that had been tested for HCV therefore is comparable with the baseline figures reported as part of an audit of bloodborne viruses among injecting drug users attending a general practice in Edinburgh.<sup>26</sup>

The problem of HCV testing not comprehensively being performed among drug users has been observed among other populations of injecting drug users in Ireland.<sup>18,24</sup> In this sample, a history of injecting drug use and spending time in prison were more common among those who had been tested for HCV. Further research is necessary if we are to fully understand this issue. It is possible, however, that barriers to testing for HCV may be similar to those that have been described where HIV infection is concerned. A recent study, classified barriers as either client-centred or structural, and described them as operating in the context of constraints on individual behaviour, provider resources, and service delivery.<sup>27</sup>

This is the first study to estimate the prevalence, either known or actual, of HCV in general practice in Ireland. It is slightly higher than has been reported in primary care-based studies from other countries,<sup>20,28,29</sup> perhaps reflecting the relatively high prevalence of HCV among other populations of heroin users in Ireland.<sup>18,29,30</sup> A worrying finding to emerge from this study is the level of co-infection with HIV (9%) and HBV (15%), both of which are known to be associated with a poorer prognosis in HCV infected individuals.<sup>31-34</sup>

Known HCV infection was associated with: age, injecting drug use, heroin use prior to 1989, and being HIV or HBV positive, findings which agree with much of our prior understanding of determinants of HCV infection.<sup>19,20,29,35,39</sup> In addition, having spent time in prison was also found to be significantly associated with HCV infection, an issue that has been recently highlighted as an independent risk factor for HCV infection among drug users in Ireland.<sup>20</sup>

Although the proportion of patients attending GPs for methadone maintenance treatment who have had the issue of HCV addressed is high, there may be some scope for improvement in testing procedures. For this to happen, it is necessary to identify the barriers preventing comprehensive testing and to identify potential strategies that can overcome such barriers.

The observed prevalence of known HCV infection (73%) indicates that this is as important an issue for GPs as for other healthcare professionals involved in the care of injecting drug users. Ways of reducing HCV-related morbidity and mortality in general practice need to be explored as a priority. Shared care protocols, training materials and studies of the natural history of HCV should all be explored in further research.

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