

# Audit of Hepatitis C Testing and Referral

## Addiction Treatment Centres, Community Health Organisation Area 7

### 1. Introduction

#### *1.1 Hepatitis C infection*

Hepatitis C is a major cause of liver disease worldwide. The overall prevalence of chronic hepatitis C in Ireland is comparable to other Northern European countries, and is estimated to be between 0.5% and 1.2%.<sup>1</sup> Most cases fall into defined risk groups such as people who inject drugs, people who received unscreened blood or blood products in the past and people who were born in hepatitis C endemic countries.

Hepatitis C is a notifiable disease in Ireland. There has been a steady downward trend in notifications in recent years, with 710 notifications received in 2014 compared to a high of 1,539 in 2007.<sup>2</sup> Over two thirds of cases are male and the majority of cases reported are young to middle aged adults. Where risk factor information is reported, 80% are reported to have a history of injecting drug use. Data from Irish studies published in 1998 to 2007 indicate that the prevalence of hepatitis C infection among injecting drug users ranges from 62% to 81%.<sup>3</sup>

Hepatitis C infection is initially asymptomatic in most cases, but approximately 75% of those infected fail to clear the virus and develop chronic infection. Between 5 and 20% of chronically infected individuals develop cirrhosis of the liver after 20 years of infection. Of those with cirrhosis, 1.5% to 2.5% will go on to develop hepatocellular carcinoma each year.<sup>4</sup>

There have been major advances in the treatment of hepatitis C in recent years with the arrival of all-oral interferon-free regimens. Sustained virological response (SVR) rates of 90% to 100% have been reported. SVR is regarded as a virological cure and is associated with improved morbidity and mortality.<sup>5</sup>

#### *1.2 Standard of care in addiction treatment centres*

The standard of care for patients presenting for treatment at addiction treatment centres in Ireland involves offering an antibody test for hepatitis C. If found to be antibody positive, a test for hepatitis C antigen or PCR is carried out. If hepatitis C antigen or PCR is positive, the patient is referred for assessment at a hepatology or infectious diseases clinic. If the patient initially tests negative, a repeat test is offered every 6-12 months if the patient continues with risk-taking behaviour. This standard of care is outlined to all doctors working in the Addiction Treatment Centres in an algorithm which has been circulated to them (Appendix 1). Their contract of service (Appendix 2) also specifies that they will be required to "Screen patients for relevant viral diseases, evaluate the results, treat and refer to specialist services where appropriate".

### **1.3 The audit**

In 2014-2015, an audit was carried out of hepatitis C testing and referral in Addiction Treatment Centres in HSE Community Health Organisation (CHO) Area 7 (formerly HSE Dublin Mid-Leinster). CHO Area 7 covers Dublin 2, 4 (part of), 6, 6W, 8, 10, 12, 16 (part of), 22, 24. The audit was not carried out in the satellite clinics or in West Wicklow and Kildare as services there are in community-based general practice. The number of patients attending the addiction treatment centres in CHO7 at the time of starting the audit was 1,255.

The purpose of this audit was to inform the Audit Sub-Group of the Addiction Treatment Clinical Governance Committee of CHO7 of compliance with the expected standard of care in relation to hepatitis C and to make recommendations for improvement where necessary. A secondary aim of the study was to collect and collate data on the prevalence of hepatitis C infection in this cohort of patients.

## **2. Methods**

A customised audit form was developed (Appendix 3). One form was to be completed for each patient attending the centre. Data were requested on age, sex, and whether or not the patient was tested for hepatitis C. Risk factors for infection, co-infection with HIV, referral to a specialist clinic (hepatology or infectious diseases), attendance at specialist clinic and what level of treatment, if any, was provided were also requested. No personally identifiable information was collected on patients. In order to encourage cooperation and to avoid making comparisons between centres, the form did not contain the name of the doctor or the treatment centre.

A letter (Appendix 4) accompanied by the audit form was sent by Dr Margaret Bourke as Chairperson of the Audit Sub-Group to 20 GPs in 11 addiction treatment centres in CHO 7 outlining the audit project and requesting their assistance in completing the forms. The letters were sent on 26 November 2014. A reminder letter was sent 3 months later, followed by personal phone calls from MB to each doctor to encourage participation. Audit forms were to be returned to Margaret Bourke.

Data entry and analysis was carried out by the HSE Health Protection Surveillance Centre (HPSC). An MS Excel database was developed and the data were entered by an administrator. Once entered, the data was then cleaned and analysed by a surveillance scientist at the HPSC. Descriptive analyses were carried out including frequencies and cross tabulations.

## **3. Results**

### **3.1 Response**

A total of 319 audit forms were returned. This represents 25% of the patients attending the services at that time. It is not possible to determine how many doctors or treatment centres participated as the study was anonymous, as stated above.

### 3.2 Age and sex

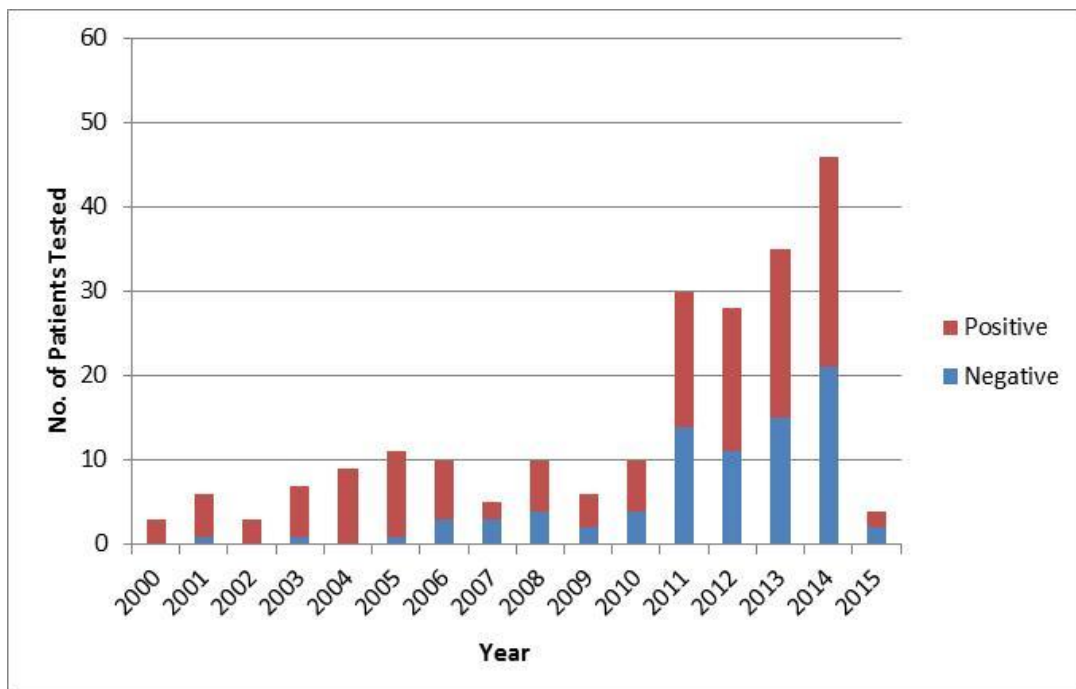
Where data were available, 63% (198/315) of the population were male and the age range was 24 years to 65 years. The median age for males was 38 years, and the median age for females was 36 years. The majority of patients (81%) were between the ages of 25 and 44 years.

### 3.3 Risk factors

Data on possible risk factors for infection were available for 65% (208/319) of patients. Eighty five percent (177/208) of patients had a history of injecting drug use, 10.5% (22/208) had non-injecting drug use risk factors and 4.5% (9/208) had no known risk factor. Of those with non-injecting drug use risk factors (n=22), 17 reported cocaine use, four reported unprotected sex with a hepatitis C positive person and one reported both cocaine use and unprotected sex with a hepatitis C positive person.

### 3.4 Hepatitis C testing

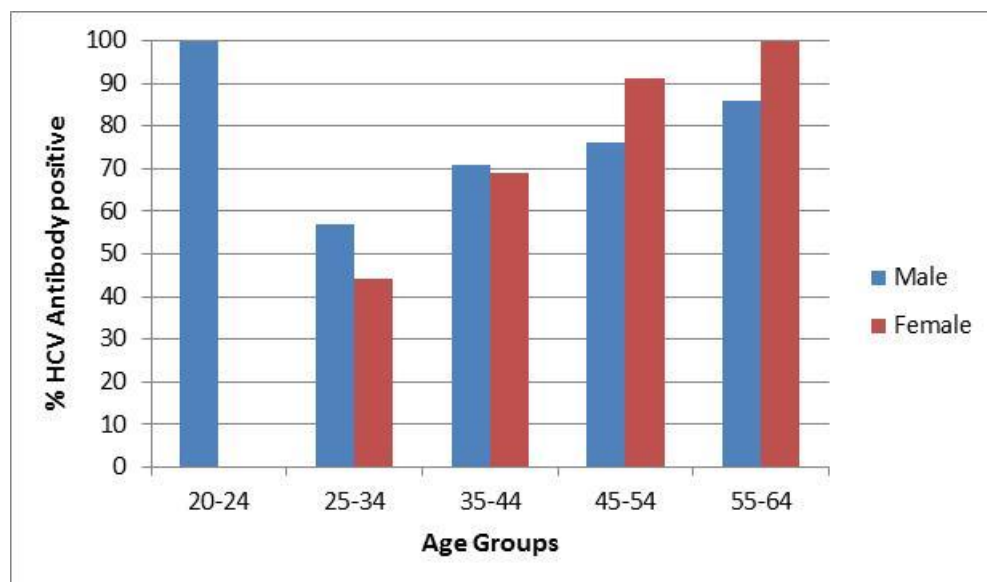
Data on testing for hepatitis C in drug treatment centres were available for 98% (313/319) patients. Of these, 300 (96%) had been tested and 13 (4%) had not been tested. Where data was available, 23% (57/251) of those tested were tested since the beginning of 2014 and just over 70% (177/251) were tested since the beginning of 2010 (figure 1).



**Figure 1:** Year of most recent hepatitis C test by result, 2000-2015 (n=251)

Hepatitis C antibody result was reported for 90% (269/300) of those who had been tested. Of these, 67% (181/269) were positive for hepatitis C antibodies and 33% (88/269) were negative. Seventy one percent (128/181) of those who were hepatitis C antibody positive had a history of injecting drug use. The mean age of hepatitis C antibody positive patients was slightly higher than that of hepatitis C negative patients at 40 years compared to 36 years. Figure 2 describes the proportion of hepatitis C antibody positive results by age group and sex.

Data on antigen or PCR testing were available for 96% (174/181) of patients. Of these, 95% (165/174) had had antigen or PCR tests carried out. Of the 5% that did not have the test carried out, an inability to provide blood was reported as the reason for one case. Of antibody positive patients, 60% (105/174) were antigen or PCR positive. Seventy four percent (78/105) of those who were hepatitis C antigen or PCR positive had a history of injecting drug use. Females were more likely than males to have cleared the virus, with just 54% of antibody positive females also testing positive for the antigen or PCR, compared to 70% of males.



**Figure 2:** Percentage hepatitis C antibody positive by age group and sex

Of the 177 patients who had a history of injecting drug use, 72% (128) were hepatitis C antibody positive and 44% (78) were hepatitis C antigen or PCR positive. In those with hepatitis C antigen or PCR positive results, the age range was 24 years to 56 years, with a median age of 40 years. The likelihood of having hepatitis C increased with age in those with a history of injecting drug use, with 63% (10/16) of 25-34 year olds testing positive for hepatitis C antigen or PCR compared to 68% (45/66) of 35-44 year olds and 80% (20/25) of 45-54 year olds.

Eighteen patients who did not have a history of injecting drug use reported cocaine use as a possible risk factor for hepatitis C. Data on hepatitis C testing was available for 14 patients, of whom five were positive for hepatitis C antibodies. Two of these five patients were also hepatitis C antigen or PCR positive.

Genotype was available for 88 patients. Genotype 3 was the most common (41/88, 46.5%), followed by genotype 1 (40/88, 45.5%), then genotype 2 (5/88, 6%). Genotype for the remaining 2% was recorded as “other”.

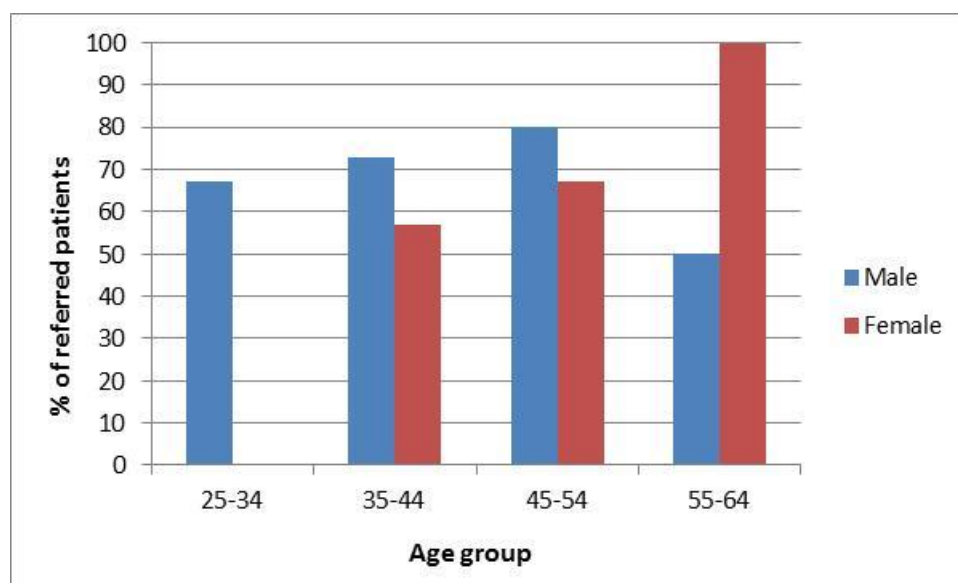
### **3.5 HIV Infection**

HIV status was recorded on 242 patients of whom 39 (16%) were HIV positive. The median age of HIV positive patients was 39 years (range 31 to 56 years). Of these, 37 were also hepatitis C antibody positive; 20 of these were hepatitis C antigen or PCR positive. The majority (70%) of those co-infected with HIV were male. Where data was available, 97% (34/35) of all HIV positive patients

were reported to have a history of injecting drug use. Overall, 19% (34/177) of those with a history of injecting drug use were HIV positive.

### **3.6 Referral and attendance at hepatology or infectious diseases clinics by gender**

Where data were available, 86% (88/102) hepatitis C antigen or PCR positive patients were referred to specialist clinic and, of those, 66% (52/79) attended. Males were more likely than females to attend a specialist clinic following referral with a 74% (39/53) attendance rate, compared to just 50% (13/26) of females. The likelihood of attendance at a specialist clinic also increased with age, with just 36% (4/11) of those in the 25-34 years age group having attended following referral, compared to 68% (30/44) of 35-44 year olds and 76% (16/21) of 45-54 year olds. Figure 3 shows the percentage of patients who attended specialist clinics following referral, by age group and sex.



**Figure 3:** Attendance at specialist clinic among those referred by age group and sex

Where data were available, 97% of all patients referred to specialist clinics had a history of injecting drug use. Similarly, 98% of all those who attended had a history of injecting drug use.

### **3.7 Treatment uptake and completion**

Data were collected on whether or not treatment was offered, accepted, completed and successful in antigen positive patients. Out of 105 patients who tested positive for the hepatitis C antigen or PCR, data were available on offer of treatment for 57. Of those, 28 patients (49%) were recorded as having been offered treatment and 29 were not offered treatment.

Of the 28 patients who were offered treatment, six were awaiting treatment at time of audit, three were still in treatment, four had refused treatment, seven had completed treatment and there was no further information on the remaining eight patients. Of the seven patients who had completed their treatment, it was successful in four, and no information was provided on the remaining three.

#### 4. Discussion

The primary purpose of this study was to audit hepatitis C screening and referral in addiction centres with a view to identifying areas for improvement. The response to the study was sub-optimal with information being provided on just one quarter of patients so the findings may not be representative of the entire patient population in addiction treatment in CHO7. In addition, there was a substantial amount of missing data on the forms that were completed.

The poor level of response and poor completeness of data may be explained by a number of factors: It is well recognised that the clinics are under-resourced in terms of medical personnel and therefore the doctors may not have had time to complete the audit forms. Not all doctors work full-time and all work on a sessional basis. The clinics are not computerised, thus data recording may be incomplete and all the data extraction had to be done manually.

Among those patients for whom audit forms were completed and where data were available, there was a very high level of compliance with the recommendation to test for hepatitis C (98%). The data collection form did not allow for collection of information on the practice of repeat testing for those who initially tested negative. A high proportion (95%) of those who were antibody positive were then tested for antigen or PCR (as per standard of care). Compliance was also moderately high with referral of antigen/PCR positive patients for specialist assessment at 86%.

Once referred for assessment, approximately one third of patients did not actually attend the specialist appointment. Non-attendance was higher in younger patients. The reasons for this cannot be determined from this audit and would require further study.

Information on hepatitis C treatment was poor. However, it was not the main focus of this study. The lack of information may be partly explained by poor information flow between the specialist hospital services and the referring addiction services. Where information on hepatitis C treatment was available, only half of those with active hepatitis C infection had been offered treatment. The World Health Organization (WHO) has stated that treatment for HCV infection is both efficacious and cost-effective in people who inject drugs and therefore WHO recommends that all adults and children with chronic HCV infection, including people who inject drugs, should be assessed for antiviral treatment. Treatment may also be effective as prevention, due to a reduction in transmission.<sup>6</sup> The European Association for the Study of the Liver (EASL) also recommends that hepatitis C treatment can be considered for patients actively using drugs, provided they wish to receive treatment and are able and willing to maintain regular appointments.<sup>7</sup>

A secondary aim of the study was to provide information on the current prevalence of hepatitis C infection in patients attending addiction treatment clinics. Two thirds (67%) of patients who had been tested were positive for hepatitis C antibodies. This figure is in keeping with previous studies among injecting drug users which found the prevalence to be 62% to 81%. The prevalence was slightly higher (72%) in those with a history of injecting drug. The prevalence of hepatitis C markers was higher in older patients – this may reflect their longer injecting history and opportunity for exposure to hepatitis C, or may indicate a reduction in incidence in recent years. Data from nationally collated notifications of hepatitis C infection show a substantial downward trend in notifications and rising age at diagnosis since peak levels in 2007.<sup>3</sup> However, it must be borne in

mind that, given the overall low response rate to this audit, the findings may not be representative of the population of patients attending the addiction treatment services in the region.

## 5. Conclusions and recommendations

1. A computerised patient management system for addiction treatment clinics is urgently needed. This would improve the efficiency of the clinics and make better use of staff resources, and would improve quality of care for patients.
2. The under-resourcing of clinics is an ongoing cause for concern and should continue to be highlighted on the HSE Risk Register.
3. Improved communication from specialist hospital clinics to the referring doctors in the addiction treatment clinics regarding patients who have been offered treatment would be helpful to patient care. In particular, it would be useful for the referring doctor to have timely information on uptake of treatment and response to treatment, and also to know if the patient has refused treatment. The hepatitis C liaison nurses may have a role to play in improving this information flow.
4. Individual doctors and clinics should be supported in maintaining compliance with hepatitis C testing and referral.
5. Attendance at specialist hepatology and infectious diseases clinics, particularly for younger patients, should be encouraged by referring doctors and by the hepatitis C liaison nurses. The reasons for poor attendance should be investigated.
6. Addiction treatment doctors and hepatitis C liaison nurses have a role in educating patients about the risks and prevention of bloodborne virus transmission, and about the availability of new antiviral treatments.
7. The results of this audit will be sent to
  - The Clinical Governance Committee
  - All doctors working in the addiction treatment clinics in CHO7
  - Local primary care management
  - The HSE Directorate for Primary Care
8. This audit should be repeated in 2016. It is recommended that the next audit should explore the practices in relation to retesting those patients who initially test hepatitis C negative but have ongoing risk-taking behaviour. It should also seek to gather more detailed information about treatment uptake and outcome. A repeat study in 2016 would be helpful in indicating if the recently observed increase in incidence of HIV infection in drug users has been mirrored by a rise in hepatitis C infection. It is hoped that the circulation of this report may encourage a better response rate for the next audit. A better response would allow for more confidence in the representativeness of the findings and more clearly indicate opportunities for improvement.

## **Acknowledgements**

Sincere thanks to the following:

All doctors who responded to the audit.

Ciara Nolan, Administrative Officer, Castle St Clinic.

Niamh Murphy and Kasia Piotrowska, HSE Health Protection Surveillance Centre

## **References**

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7. European Association for the Study of the Liver. EAS Clinical practice guidelines: management of hepatitis C virus infection. *J Hepatol* 2014;60:392-420.

## **Report prepared by:**

Dr Margaret Bourke, Chairperson of Audit Sub-Group, Addiction Treatment Clinical Governance Committee, CHO7.

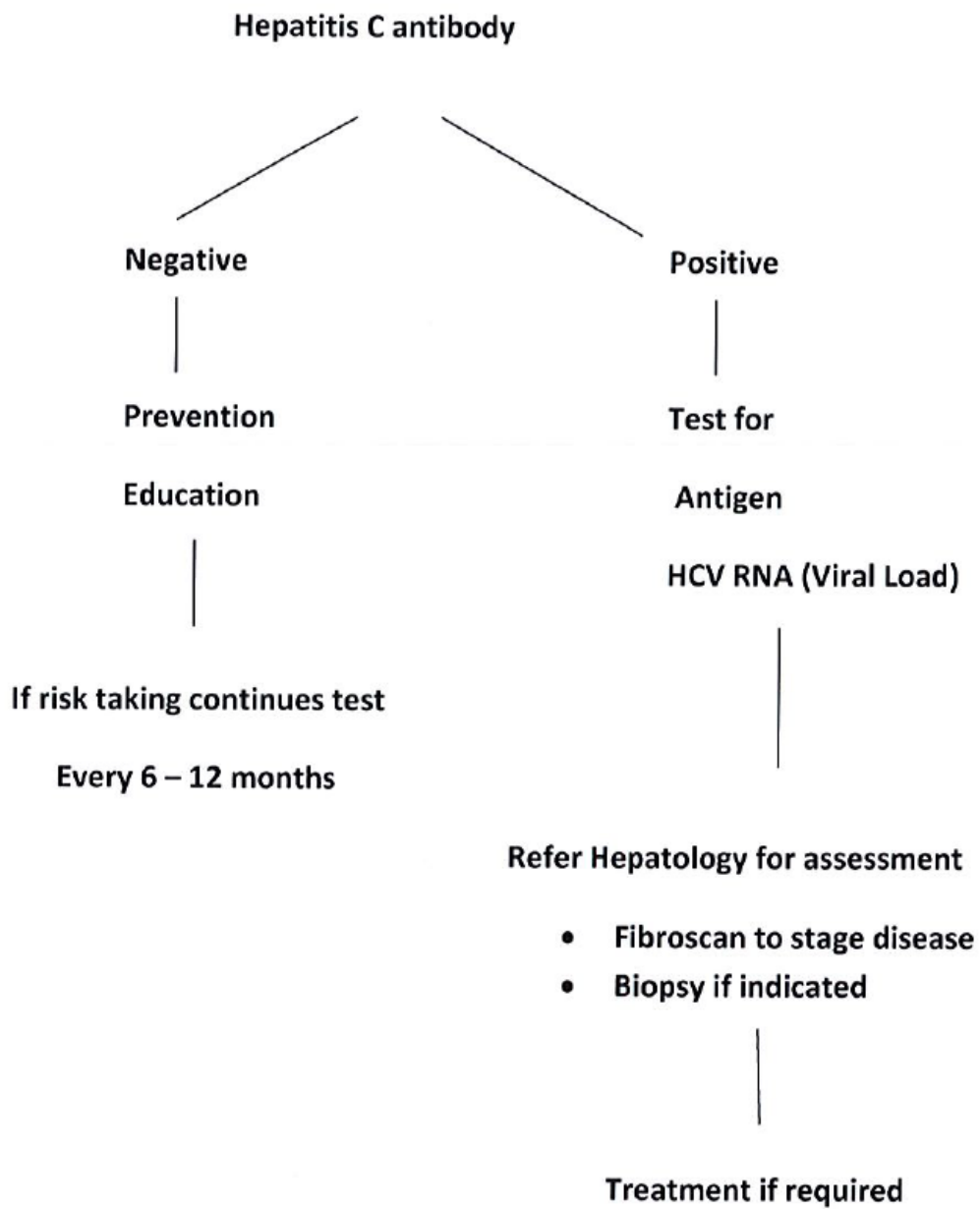
Sarah Hennessy, Surveillance Scientist, HSE Health Protection Surveillance Centre.

Dr Lelia Thornton, Specialist in Public Health Medicine, HSE Health Protection Surveillance Centre.

Date: 9 November 2015



## Appendix 1: Hepatitis C Testing and Referral Algorithm



## Appendix 2: GP Service Contract

### *HSE, Dublin Mid-Leinster Employment Agreement – GPs Specialising in Substance Abuse*

This employment agreement is between the HSE, Dublin Mid-Leinster, Addiction Services and Dr \_\_\_\_\_ of \_\_\_\_\_.  
Dr. \_\_\_\_\_ is employed as a GP specialised in the treatment of substance abuse problems.

#### **1. Qualification**

The GP must be registered other than provisionally on the General Register of the Medical Council. In the event that for whatever reason the GP ceases to be registered, the contract will as a consequence cease to have effect. Training in addiction treatment will have been completed in the service to a minimum standard of Level 2 GP under the Methadone Protocol Scheme and will take place over a period of at least one year.

#### **2. Service**

The GP will ensure that provision of service under this agreement with the HSE, Dublin Mid-Leinster, Addiction Services is carried out to a satisfactory standard and complies with HSE, Dublin Mid-Leinster policies, procedures and standards.

The GP shall not sign, transfer or sub contract, this agreement or any portion thereof without the prior consent in writing of the HSE, Dublin Mid-Leinster, Addiction Services.

#### **3. Principal Duties**

The GP will be required to:

- As part of a multidisciplinary team, provide treatment for addiction to clients who present or are referred to HSE, Dublin Mid-Leinster, Addiction Services clinics with substance use problems. Locations, times, dates and duration of clinic to be agreed between the GP, GP Co-ordinator and Area Operations Manager.
- Assess clients on presentation (medical and addiction assessment), prescribe a course of treatment and monitor that treatment for its duration.
- Screen clients for relevant viral diseases, evaluate the results, treat and refer to specialist services where appropriate.
- Provide appropriate vaccination programs to clients under their care.
- Provide primary medical care in emergency situations to clients who do not yet have medical card cover. 24 hr primary care cover is not provided
- Be wholly responsible for the medical treatment he/she initiates and carry medical indemnity to cover his/her practice.
- Address issues such as absenteeism, punctuality, and IR issues through the GP Co-ordinator.
- Attend clinical team meetings where clients' cases will be discussed and treatment plans developed with the care team.
- Participate in quarterly meetings of GPs working in the service at which GPs' views on policy, operational issues and service development will be discussed and consensus positions developed.
- Participate in continuing medical education to update skills in treating addiction problems.
- Participate in peer review of his/her practice on a regular basis.

Appendix 3: Hepatitis C Audit


Draft 1 MB/NG/DOD Dec 2013

<b>AUDIT OF HEPATITIS C TESTING</b>	
Date of audit: _____	
Age: _____ Sex: Male <input type="checkbox"/> Female <input type="checkbox"/>	
<b>Ever Tested</b> Yes <input type="checkbox"/> No <input type="checkbox"/> If yes date of most recent results ____/____/____ If negative retested Yes <input type="checkbox"/> No <input type="checkbox"/> Date: ____/____/____	<b>Risks</b> IV Use <input type="checkbox"/> Cocaine use <input type="checkbox"/> Unprotected sex with Hepatitis Positive person <input type="checkbox"/> Unknown <input type="checkbox"/>
<b>HCV Antibody</b> Pos <input type="checkbox"/> Neg <input type="checkbox"/> Date: ____/____/____ <b>Was Antigen or PCR done</b> Yes <input type="checkbox"/> No <input type="checkbox"/> If yes pos <input type="checkbox"/> <sup>No</sup> <input type="checkbox"/> Date: ____/____/____	<b>Co Infected HIV</b> Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Genotype</b> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> other <input type="checkbox"/>	Refused Referral Date: ____/____/____ Refused Treatment Date: ____/____/____
<b>Referred to Hepatology</b> Yes <input type="checkbox"/> No <input type="checkbox"/> Date: ____/____/____	
<b>Offered Treatment</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>Completed Treatment</b> Yes <input type="checkbox"/> No <input type="checkbox"/>	<b>Currently in Treatment</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>Treatment Successful</b> Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Attended Hepatology</b> Yes <input type="checkbox"/> No <input type="checkbox"/> Date: ____/____/____	

Audit Committee Dec 2013

Appendix 4: Letter to GP re Audit

101 0000 0012 101TV

  
Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive

101 0000 0012 101TV

Addiction Services  
Castle Street Clinic  
37 Castle Street  
Dublin 2

Tel: (01) 476 7010  
Fax: (01) 677 8139

To: All Doctors

From: Dr Margaret Bourke, GP Coordinator

Date: 26<sup>th</sup> November 2014

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Please find enclosed copy of the Audit of Hepatitis C Testing and Referral. The purpose of the audit is to confirm the numbers of people tested and referred.

Please use November 30<sup>th</sup> as the reference date.

This audit can be used to fulfil part of the requirements for registration with the Medical Council.

Please contact me if you have any queries.

Thank you

Dr Bourke  
MCRN 02848