

Recommendations for Improving
Prevention of Hepatitis C Infection in
Taranaki

Bree-Anna Langton

Medical Student

January 2018

Abstract

Background: Taranaki has a high notification rate of hepatitis C compared with the national average.

Aim: The purpose of this project is to reduce the morbidity and mortality of hepatitis C, in Taranaki, as well as reduce health inequities associated with the disease.

Methods: The two major components of the research were an independent literature review and interviews with key stakeholders. The interviews consisted of five questions regarding potential hepatitis C interventions that would better the health outcomes for people with hepatitis C. This project was completed in a nine week time frame, from the beginning of November 2017 to the end of January 2018.

Results: Point of care testing was the most common theme, with 84% of stakeholders discussing it. This is the one-stop shop approach; implementing rapid testing, fibroscanning and treatment referrals, at a clinic run in conjunction with and out of the Needle Exchange Programme. The other highly common themes were: improving patient and GP education, taking the service to the community and addressing the stigma attached to HCV.

Conclusion: Ten recommendations have been developed according to the results. The findings show there is currently work being done to combat the rates of hepatitis C in Taranaki. There are still many areas of potential intervention that can help to further reduce the morbidity and mortality of hepatitis C.

Introduction

The rates of notifiable hepatitis C virus (HCV) infection are disproportionately high in the Taranaki region, compared to the national average (Public Health Surveillance Data). It has been estimated that more than 50,000 people in New Zealand are living with chronic HCV, and that approximately half of them have not been diagnosed (Upton, 2016). The number of New Zealanders living with established cirrhosis is expected to double over the next decade due to the low treatment uptake (Gane, 2015). It is also predicted that by 2030 more than 400 New Zealanders will die from HCV related complications per year (Gane, 2015). This has prompted the need for action and investigation into a population-based prevention plan in Taranaki.

The development of HCV infection is due to immune mediated damage to the hepatocytes of the liver as a result of *hepacivirus* (an enveloped RNA virus). *Hepacivirus* is apart of the *flaviviridae* family and was discovered in 1989 (Tilyard, 2016). It has an abnormally high replication rate allowing it to produce up to 108 mutations per day (Gane, 2015). This has negative implications for the development of vaccines and post-exposure prophylaxis, unlike hepatitis B, which is more genetically stable. The acute infection is mostly asymptomatic and if not cleared, becomes chronic. The complications of chronic infection result in a burden of disease on the individual and the health system. Chronic HCV infection can progress to hepatic fibrosis, cirrhosis and hepatocellular carcinoma (HCC). It is also a leading cause of liver transplantation (Organ Donation NZ). The majority of patients with HCV infection have not been treated, which increases the risk of developing complications as well as transmitting the virus. There is also significant morbidity associated with the extrahepatic manifestations of HCV (Gane, 2015).

HCV is different to other viruses; it doesn't integrate into the host genome and has no hidden reservoirs, therefore clearance of the virus can be achieved. Treatment of HCV has amplified over the recent years; there are interferon-based regimens and direct-acting antivirals (DAA's). DAA's are the preferred choice of treatment, as their tolerability and efficacy is better than the interferon treatments. However, the DAA's are only funded in New Zealand for eligible patients (those with the major genotypes such as 1a and 1b) and is otherwise expensive for patients to access (Tilyard, 2016).

This HCV research will be beneficial to the Taranaki community. It will provide the means for intervention and change. The project will therefore reduce hepatitis C morbidity and mortality as well as reduce health inequities associated with the disease.

Research Design and Method

This research took a population health approach; which is a unifying force for the entire spectrum of health system interventions. It takes into account prevention, promotion, health protection, diagnosis, treatment and care. Population health works to integrate and balance action between each of these themes (Health Canada, 1998). A qualitative approach was also required because the project aimed to ascertain ideas for HCV prevention and intervention, which could only be achieved by drawing on the evidence base for best practice and current knowledge from people in this field.

- Participants – this research involved talking to internal and external stakeholders relevant to HCV.
- Data Collection – there were 14 potential stakeholders to contact and request an interview. These stakeholders were initially contacted via email (the template and questionnaire is Appendix 1). They elected to meet for an interview, be interviewed by phone or complete an online questionnaire. (Note that additional stakeholders were contacted throughout the process, according to the recommendations of some respondents).
- Data Analysis and Discussion – once the interviews were conducted and the information had been gathered, it was analysed for themes, summarised and discussed.
- Limitations – There was potential for some of the stakeholders to be difficult to contact. A few required a follow up phone call or email. The response rate shows that three stakeholders were unable to be contacted at all, regardless of follow up. Hepatitis C can also be perceived as a taboo subject and some people may have felt uncomfortable talking about it. Not interviewing patients was a major limitation because their perspective was not fully ascertained.

Data Analysis and Results

16 stakeholders were contacted and 13 of them responded, giving a response rate of 81%. Respondents included:

- Two members of the team at the Hepatitis Foundation
- A general practitioner and a GP liaison
- Hepatitis C Project Manager
- A hepatology nurse

- An advocate for generic hepatitis C medication
- A member of the Hepatitis C Peer Support NZ Community
- A Member of the National Hepatitis C Implementation Committee (MOH)
- A Public Health Physician with a special interest in hepatitis C
- Members of the team at the Taranaki DHB Alcohol and Drug Service.
- Coordinator at the Needle Exchange Programme.
- One Gastroenterologist

Below are the results from all the stakeholders that were interviewed. They have been collated to recognize themes. Responses have been paraphrased to maintain anonymity.

Table of Results – showing the number of stakeholders that discussed each theme (n=13)

Questionnaire Themes	1. Most important interventions	2. Taranaki application	3. Disparities/ inequities	4. Prevention	5. Additional comments	Total
Identification/screening	6					6
Treatment uptake	6		1			7
Harm Reduction (NEP)	5			1	1	7
Peer Organisations	1		1			2
Primary Care Access	3			1		4
Improved Dr/Patient information	4	1	1	2	1	9
Coding and Processes	6	1			3	10
Education of IUDs		1				1
Service to Community		6	1		1	8
GP compensation		1				1
Patient recall						1
FixHepC		1		1		2
Audit NEP		1				1
GP champions		3			2	5
Access to Health Services		2	4			6
Ask the marginalized groups			1			1
Point of Care testing	3	3	5		1	11
Utilize services already used		1	3			4
Addressing stigma	2	1	3	1	1	8
Education/ awareness	1			6		7
Harm reduction (NEP in prisons)			2	4		6
Dual Diagnosis/comorbidities			1	3		4

1. What do you believe are the most important interventions to reduce the morbidity and mortality of hepatitis C?

Identification and Screening – six respondents said that there is a need to identify the people who have HCV early on in the disease process, through targeted screening. Examples of this include the prison system, people on the methadone maintenance programme and Needle Exchange Programmes (NEP). Once the anti-HCV antibody test has come back positive there needs to be a rapid clinical pathway for treatment. Injecting drug users (IDUs) are still the highest risk group. Other at-risk groups include those who have lived in Eastern Europe, South East Asia, the Middle East or the Indian Subcontinent. These people need to be found and screened as well. The antibody test is \$25 which should encourage screening for anyone who is indicated (LabCare Base, 2017).

Ensuring Treatment Uptake – seven stakeholders mentioned the importance of treatment. Not only does it prevent the long term complications of chronic hepatitis which causes unnecessary strain on the health sector, it also helps with prevention. Treatment will decrease the pool of infected people and therefore increase herd immunity.

Harm Reduction Strategies - reduce new infections by implementing a needle exchange programme in prisons. Seven respondents discussed harm reduction strategies including helping the Needle Exchange Programme to build its capacity and work towards the programme being able to test and treat patients. This would enable patients to get a free, rapid test on the spot with immediate results, helping to prevent loss to follow up. For patients who are receiving drug treatment, it is also important to manage their takeaway doses to prevent any potential problems and help to maintain their treatment regimen.

Peer Organisations – two interviewees emphasised utilizing the Hepatitis Foundation and NZ Hepatitis C Peer Support, to engage with members of the public who are affected by HCV and collaboratively design an intervention that is deemed appropriate by them. A regional approach with a generic model could be developed. It needs to be modified with a co-design for certain client groups such as prisoners, and IDUs.

Primary Care Access - payment is a huge barrier for many patients. Free primary care was recommended by four stakeholders as free GP visits would allow patients to access testing and treatment. Even though the treatment is free, many can't afford to go back to the doctors to have the appropriate monitoring. HCV and its treatment are not priorities for these patients due to their lifestyles and other comorbidities.

Improved Patient Information – educating patients on how to access testing and treatment. Nine respondents discussed improved patient information and GP education. Increasing the education of people at risk would minimise new infections of HCV in Taranaki. Education of health smart literacy could help to remove the stigma of HCV. GP education on this silent epidemic, could encourage GPs to know what to ask and how to ask it (sometimes it may be better to avoid questions asking how they have contracted the disease). Working hard to reduce stigma and discrimination surrounding drug use and HCV are big components of improved education.

Streamline Coding and Processes – Majority of respondents (77%) wanted some changes to the current system. They wanted closer links between primary and secondary care, working especially to

engage those patients who don't have a GP. Access to the hepatology clinic would be better if patients were able to self-refer. Many HCV patients also need to be referred to Community Alcohol and Drug Services (CADS); otherwise sometimes it's too risky for them to receive treatment. The number of accredited pharmacies and doctors that are able to monitor the patients' treatment regimen and progress should also be considered. This is made difficult with the high proportion of locums. The prevalence of HCV in Taranaki should be ascertained for surveillance, to develop a baseline for measuring the success of interventions. This should be repeated to monitor progress on reducing HCV.

2. What do we need to do in Taranaki to reduce the impact of this disease?

Education – one stakeholder emphasised the need to educate people on how to use needles safely. IDUs are receiving clean needles but there is still needle use that isn't done in a clean or safe environment. IDU's need to be taught how HCV is spread and that it's about more than just picking up clean needles.

Deliver the Service in the Community: eight respondents wanted the service to be taken to the people.

- Fibroscan at GP practices and enable point of care testing at the GP practice. Potentially enable testing at pharmacies (particularly for patients collecting methadone)
- Run mobile clinics (e.g. vans) in the rural communities and outlying areas such as Patea, Waitara and Opunake that usually have to travel. Could run the clinics out of places like pubs, clubs, marae etc
- Rapid spot testing at needle exchange locations
- Engage with key stakeholders to make this happen, such as the kaumātua and elders of a marae
- Mobile needle exchange programme
- Finger stick blood draw or mouth swab accessibility is important for protecting patient's veins.

GP Compensation – one interviewee explained how HCV patients are usually put in the “too-hard basket”. They take up a lot of time and tend to forgo paying for their consultation. This opportunity cost adds up. GPs need to be compensated for their qualifications and time to allow them to spend more time with the patient and ensure their treatment follow up. It's about empowering the GPs and encouraging them to ask the right questions. One idea is to fund treatment through big practices. The practice would be paid an enrolment and a completion fee for every patient they follow up with HCV.

FixHep C Clinical Trial – Two stakeholders suggested making Taranaki, or a prison in Taranaki [would have to be Whanganui Prison], part of the global clinical trial for generic treatments. FixHepC allows everyone to be cured for a few hundred, not tens of thousands of dollars.

Audit the NEP – one stakeholder said that auditing the NEP will check for gaps in their service such as geographical, capacity, capability and limitations to access. This may help to increase their funding and find out the service can be assisted. Community pharmacists should receive training resources to increase their participation in the Needle Exchange Programme. They can also offer HCV testing

with blood prick rapid tests, distribute HCV medicine and monitor compliance in people they may see every day as part of methadone or drug substitution programs.

Find GP Champions – five respondents suggested finding GP champions. One option is to organise targeted screening education via the PHO CME (Primary Health Organisation, Continued Medical Education). Having GP champions helps to encourage practices to screen. GP champions can liaise with local needle exchanges and CADS. Engaging with these services will allow health providers to be very aware of the stereotypes about IDUs, so privacy and non-judgmental approaches are maintained. Using peers of IDUs can assist to gain trust and confidence in the services.

3. *Injecting drug users are at high risk of hepatitis C and can find that traditional health services are sometimes hard to reach. What can we do to help these people and provide them with the best possible treatment?*

Easier Access to Health Services – six respondents said access is a key component. These people need to be found, referred and provided with a subsidy. The biggest factor for them is finances and lack of having a GP, which needs to be worked around. People also have to be referred from the GP to the hepatology clinic to be funded. It would be beneficial if Community Alcohol and Drug Services could directly refer to the clinic, instead of having to find a GP to refer their patients.

Ask Them What They Want – one respondent states that “all the research from around the world reinforces the fact that you have to involve peer organisations from the ground up when considering different intervention strategies.” Strategies that are often acceptable are the build up of trust with a hepatitis nurse and that organisation, to the point that the nurse can do testing and treatment out at their organisation, with support from doctors and gastroenterologists. There was also mention of working to empower the patient; if someone on the methadone programme asks their case worker to change their dose, the patient should be empowered to make decisions for themselves.

Point of Care Testing – this was the highest discussed theme, with 84% of stakeholders recommending it. Work is being done to implement a Targeted Testing Project at main Needle Exchange Programme outlets. This project will involve running clinics out of the Needle Exchange for a “one-stop shop” approach. It will use rapid testing via mouth swab (*OraQuick*) and a finger prick (*Bioline*) test to identify those that have anti-HCV antibodies. Clients will then receive a fibroscan if required and referred on for treatment as appropriate. Trials of this have been done and have produced positive results.

Utilize Services They Already Use – four respondents suggested this. Consultation with local iwi may be an important strategy to develop programmes targeted at Māori who are at risk of infection. Other examples include: drug treatment programs, correctional facilities and needle exchanges.

Addressing Stigma – eight stakeholders believe that stigma is an issue that needs to be addressed. Training staff, by peers, on stigmatising language and behaviour is crucial. The recent antibody testing pilot carried out at needle exchanges by Dr Geoff Noller of Otago Medical School, shows that this can be done in community settings effectively. There is a lot of stigma for patients, especially for those who haven't got HCV from IDU. It is important to show care to these patients and build rapport, which can't be done without time. Therefore, free primary care for vulnerable and marginalized groups is becoming more necessary.

4. It is said that prevention is better than cure. Do you have any suggestions about ways to reduce the number of people becoming infected with hepatitis C?

Education – encourage use of the Methadone Programme to help with addiction management. Also education of GPs and their awareness is important. Make HCV a part of their peer education requirements. Aim to build rapport with patients for a less judgmental and more effective doctor-patient relationship. An awareness campaign will also increase access and funding for more free needles.

Harm Reduction – implement a Needle Exchange Programme in prisons. This has been proven to reduce new infections. It is recommended that generic treatment for prisoners could be the biggest, most cost effective difference to be made in public health. It is predicted that at least 30% of the prison population have HCV. Without early diagnosis and treatment each intravenous drug user contracting HCV is likely to infect around 20 other people. Advocating for genotypes 2-6 to receive funded treatment in another step, as only genotype 1 is funded at present (which is about 60% of clients). FixHep C allows patients with genotypes 2-6 to pay for treatment from Australia, which is substantially cheaper than the cost of treatment here. Supervised injecting rooms have been proved to work in Vancouver and Australia.

Dual Diagnosis – four stakeholders recognized that comorbidities are common for people who are diagnosed with HCV. Patients often have unmet mental health needs or experienced trauma, which exacerbated the need to begin their addictive behaviours in the first place. It should be ensured that counselling and psychiatric referrals are available for young people, especially those from difficult social circumstances. Confronting people about the consequences of injecting drug use will help them make informed decisions. For some people their first time trying injectable drugs may be borrowing them from someone else at a party for example, which is inevitably sharing unsanitary needles from the beginning. How do we target these people? Educating and teaching kids at school about IV drugs and how to manage their mental health are potential target areas.

5. Do you have any additional comments?

- We need to get more people tested by increasing public awareness via posters and social media. WHO has a goal of complete eradication of the HCV by 2030, which should be realistic for Taranaki and New Zealand.
- Recommendations:
 - Agree on standardised coding so that patients aren't lost to follow up
 - Lab result should include the genotype test
 - Standardise results in a meaningful manner to make it easier to find the patient later
- It is important to direct efforts to the whole community who are at risk not just a portion of the community that may be more visible such as intravenous drug users.

Discussion

There are key themes that have been emphasized in the results. To help organise the information, it has been split into levels using the stages of prevention methodology. Prevention is “actions aimed at eradicating, eliminating, or minimizing the impact of disease or disability. The concept of prevention is best defined in the context of levels, traditionally called primary, secondary and tertiary prevention” (Last JM, 2001).

Primordial Prevention

This stage of prevention is about preventing a healthy person entering a high-risk population for becoming infected with HCV. The major risk factor in New Zealand is injecting drug use (IDU) (Gane, 2015).

Methods of primordial prevention include education of high school students and mental health awareness. It is important to recognise why people decide to inject drugs in the first place, and that it tends to come down to some deeper mental health issue sometimes as a result of poor social circumstance or trauma. The members at Community Alcohol and Drug Services said that approximately 50% of their patients have some kind of mental health disorder. Counsellors and nurses should be available to high school students and promoted in schools. Should we be educating high school students about drug use and the associated risks? Students could be taught about the risks of recreational drugs and how to cope with stress so to prevent them from turning to illicit drugs. These ideas have not been directly assessed in the literature but are important nevertheless, for the general health of our community.

Primary Prevention

This stage of prevention is about targeting people who are in a high-risk population to prevent transmission and infection with HCV. This is about improving prevention services for IDUs, providing them with education and counselling, referral to Community Alcohol and Drug Services (CADS) and involvement in the Methadone Maintenance Programme.

The main form of primary prevention is the Needle Exchange Programme (NEP). There are seven outlets in the Taranaki region. The NEP website describes the effectiveness of the programme and how it has prevented the spread of blood borne diseases to many at-risk New Zealanders. Data analysis showed a statistically significant reduction in anti-HCV prevalence in the early 1990s, which correlates with the implementation of the NEP. The cost-effectiveness of the Needle Exchange Programme was estimated to save \$3 653 AUD million in treatment costs (Wright, 2005).

Implementation of a needle exchange service in prisons is another additional harm reduction strategy. This would be applicable for Taranaki residents that have been sent to Whanganui Prison. People who are incarcerated are able to have the HCV antibody tests upon entry into the prison and although are not regularly screened, are able to have the test again if applicable. A needle exchange service in the prison would be beneficial as a high proportion of needles are shared due to the nature of the environment. One study discusses how HCV is particularly prevalent among those incarcerated (23.1%-39.4%), so prevention and treatment is particularly needed for this population.

They have also been shown to re-engage in risk behaviours following incarceration (Ward, July 2012).

Another point is increasing the number of needle exchange outlets. Some places that have a needle exchange service only operate for a few days of the week. It should be considered whether access to these services around the clock is important. The practicality of this is limited but encouraging more pharmacies to adopt the needle exchange service would be beneficial for many people in small communities. Normalizing the needle exchange and encouraging the programme, will help to reduce the stigma. Auditing the NEP will identify areas for improvement in the service, which would be applicable in considering whether more needle exchange locations need to be implemented. Increasing access to local syringe services programmes is recommended in the literature (Ward, July 2012).

A radical idea is implementing a supervised injecting programme. This has been proved in places such as Vancouver and Australia to reduce the use of unsafe injecting practices. It encourages people off the streets and into a safe environment, where they are comfortable and not judged. There are many papers that discuss the use of supervised injecting rooms. One study in particular indicates that these facilities were well-accepted by IDUs and that they were frequently utilized by people associated with homelessness and high-intensity drug use. The supervised injecting programme in this study was associated with improved public order and reduced syringe sharing (Wood, 2006). Another survey produced similar results showing that high-risk users utilize the centres and report significant reduction in transmission risk behaviour (Wright, 2005).

Secondary Prevention

Secondary prevention is about early detection of infection with HCV to prevent development of complications through treatment, to eradicate the virus. The more patients that receive treatment, the less chance other people can become infected.

High-risk populations include people who inject drugs (IDU's) or who have ever injected drugs, people with tattoos or body piercings, people who received a blood transfusion or organ transplant (before 1992 in New Zealand) and vertical transmission to a baby from an infected mother (Upton, 2016) (Ward, July 2012). Other at-risk groups include those who have lived in countries with a high prevalence of HCV such as Eastern Europe, Middle East, North Africa, Central Asia and the Indian subcontinent. It is especially relevant if they've received medical treatment in any of these places. Also people who are incarcerated are at an increased risk of contracting HCV. Sexual transmission is thought to play a minor role in the spread; the population greatest at risk is men who have sex with men and sex workers (Tilyard, 2016).

Due to the asymptomatic nature of the infection, there is a silent epidemic of HCV occurring. At-risk groups need to be able to access primary health care. This allows them to be screened, receive treatment and be followed up appropriately. This is very difficult for GPs at the moment because HCV patients take up a lot of time and many of them can't afford the follow up appointments.

Important aspects of prevention are education and awareness. The health literacy of the general public needs to be improved to help reduce the stigma associated with the disease, as well as encourage people to get tested. This can be done through advertising and education. One example is

using social media as a means of advertising. Most of the population have access to some form of social media; almost three of every four New Zealanders have a laptop, notebook and/or a smartphone (Research NZ). Therefore, regular advertising on Facebook about the risks of HCV infection and how to access testing could be very beneficial. Facebook advertising can be used to target specific audiences and is priced accordingly.

Other awareness campaigns include posters and pamphlets that are available from the Ministry of Health. They are informative and use lay terms to describe the causes and consequences of HCV. In Taranaki Base Hospital, the main advertising of HCV that could be found was in Alcohol and Drug Services. These posters should be hung up in all General Practices around Taranaki, as well as the pamphlets, in order to raise awareness and inform mechanisms of testing. This aligns with the literature recommending improved community awareness and provider education as mechanisms to induce positive change (Ward, July 2012).

Education of GPs is an important aspect of prevention. GPs need to be aware of the causes of HCV and what questions to ask to ensure opportunistic screening. This can be taught through their continuing professional education programme. Perhaps not asking how patients how they contracted the disease, is a way to take a no-blame stance, so that patients feel comfortable and are able to have a relationship with their doctor. There are recommendations to get “GP Champions”. This would involve training up particular GPs who have an interest in hepatitis C. These GPs would then function as “GPs with a special interest” (GPSIs) in HCV prevention and treatment. This would allow more patients with HCV to be referred to them or enroll in their practice to ensure continuity of care and treatment adherence.

Another area to consider is the uprising of injecting steroids. There has been some research into the fact that the rates of anabolic steroid use is on the rise, as the art of body building shifts towards a more normalised and mundane practice (Sear, 2015). It doesn't take many injectors who are unaware of the risks to begin the spread of HCV around the gym-goer community. “There is some evidence of sharing among people who inject steroids” says a research agenda report (Sear, 2015). For this reason, doctors could make one simple change to their questioning of “have you ever injected drugs?” to “Have you ever injected drugs including recreational drugs, performance enhancing drugs or steroids?”

Patients can be found by doing HCV screening at needle exchange outlets. The Needle Exchange Programme are working on implementing a “one-stop-shop” HCV clinic, so that patients can get rapid testing and potentially start treatment in an environment that is more comfortable for them. Rapid testing is important because either a mouth swab or finger prick tests (*OraQuick* and *Bioline*) are much preferable to regular venipuncture. The Targeted Testing Project has been rolled out in Christchurch and Dunedin already, and it shows very positive results. Some 63% of the 211 people tested within a 3 week timeframe, were antibody positive (Noller, 2017).

Another idea to implement is taking the service into the community to deliver it to the people. The recommendation is to run mobile clinics, especially in the outlying communities such as Patea, Waitara and Opunake. The clinic could include a needle exchange service, an anti-HCV antibody test, a fibroscanner, and a hepatology nurse. It would be recommended to work with significant people within the community, to find the best place to run the clinics. An example would be working with a

kaumātua to run clinics out of a marae and use free food as an incentive for people to come. It is important to engage with programmes and communities that the at-risk groups are already apart of.

Providing an incentive for GPs to get compensated for the time they spend with HCV patients, would allow them to ensure their diagnosis and treatment follow up. Paying for an enrolment and completion fee for every HCV patient would ensure their diagnosis and appropriate follow up. The other option is to fund GP champions or GPs with a special interest, as mentioned before. This would work by finding GPs in the community that have a particular interest in HCV and work collaboratively with them.

Direct acting anti-virals are the current preferred option for treatment of HCV. They have a success rate of over 90% (Tilyard, 2016). The problem with treatment that was raised during data analysis is that patients need to be appropriately monitored. This is made difficult by the high proportion of GP locums and patients that don't show up to appointments. There are also only particular pharmacies that are accredited to administer the treatment, which is hard for people that live in rural areas. Therefore, work needs to be done towards getting more pharmacies certified to deliver *Viekira Pak* and the other HCV treatments, to make it easier for patients to access them.

An advocate for FixHepC, which is an organisation that helps patients access the new medications, believes that we should involve a prison in the global clinical trial of generic hepatitis C treatment. This will cure everyone as it's pan-genomic and only costs a few hundred dollars opposed to the thousands that we are paying for the other treatments such as the *Viekira Pak* medication. Education of injecting drug users about how to use needles safely is another important objective. Its one thing having clean needles, using them safely is another. So information should be provided to them regarding how HCV is transmitted and what they can do to prevent spread.

One other consideration is the administrative side of hepatitis C and the coherency between secondary and primary care. The importance of having a standardised, streamlined coding system to prevent patients being lost to follow up has been emphasized. One study recommends improving surveillance data (Ward, July 2012). Also the connection between primary care and secondary care; make it easier for patients to connect between both sectors and engage those that don't have a GP. Patients should be able to self-refer to the hepatology clinic and Community Alcohol and Drug Services should have the ability to complete their own funded referrals.

A major limitation of this project was the lack of time to interview people who have HCV. Co-design is an emerging theme in improving patient outcomes. It is a way of advancing healthcare services through patient involvement. It allows a better understanding of how to improve the patient's experience of the services and the services themselves (www.healthcodesign.org.nz/about.html). Experience-based co-design is a method for partnering with the patients from the beginning, to ensure closer alignment of service delivery with what will work best for service users. Peer organisations can engage with the people affected by HCV to develop a generic model with a co-design feature, which can be applied to certain client groups. Streamline the model for a whole of system approach. It would be recommended for the Hepatitis Foundation and Hepatitis C Peer Support to work collaboratively with marginalized groups and HCV patients to design an intervention that is deemed appropriate by them. It is about building trust between the patients and people within the healthcare sector.

For people with HCV, stigma is an over-arching theme, especially as they seek healthcare. A study published in 2007 reviewed 21 research papers on stigmatisation and found two themes: (1) HCV related stigmatisation in health care settings arises mainly from practitioner's negative views of injecting drug use and (2) their lack of awareness and/or information about the disease or injecting drug use (Paterson, 2007). Stigma needs to be addressed as it has severe consequences and influences people's decision making regarding testing and treatment. One way to help is to ensure that health providers are using non-stigmatising language and a non-judgmental approach; this will help build rapport and stronger relationships. One systematic review suggested a variety of methods to help address stigma; therapeutic interventions for self stigma, motivational interviewing and sharing positives stories for social stigma and contact-based educational programmes for targeting stigma at a health provider level (Livingston, 2012).

Recommendations

1. Implement a Targeted Testing Project/“one-stop shop” within the Needle Exchange Programme. Also focus on education of IDUs. Consider auditing the NEP so that further outlets may be developed.
2. Start up a mobile clinic that travels around Taranaki monthly or attends events as appropriate. Suggestions are to take a nurse (particularly a hepatology nurse), a fibroscanner and complete rapid testing and then follow up as required. Focus on communities that are isolated.
3. Focus on public awareness by distributing posters and pamphlets to appropriate outlets such as general practices around Taranaki. Start a monthly advertising campaign through the DHB, on Facebook to reach those who are unaware of what HCV is and how it is spread.
4. Find GP champions, GPSIs or fund GPs to take on HCV patients and maintain their treatment regimen or refer to secondary care as appropriate. Also ensure HCV prevention, diagnosis and treatment are important parts of the GP peer training programme and get them to consider the relevance of asking about injecting steroid use.
5. Focus on cohesion between primary and secondary care by encouraging those patients who haven't, to get enrolled in their local general practice. Allow patients to self refer directly to the hepatology clinic and provide funding for direct referrals through Community Alcohol and Drug Services.
6. Consider involving Whanganui Prison in the FixHepC project which will allow many people who are incarcerated to receive pan-genomic treatment for a substantially lower price. Also implement a needle exchange programme at the Whanganui prison.
7. Address self and social stigma through health provider education and awareness.
8. Develop a register to track the diagnosis, treatment and other relevant follow up of patients in Taranaki with HCV.
9. Utilize peer organisations to collaborate with people in at-risks groups to develop a model with a co-design approach to have a clear clinical pathway and plan of how to eradicate HCV by 2030.
10. Consider the education of high school students and counselling services in marginalized community groups to improve their knowledge of recreational drug use and mental health.

Acknowledgements

The author would like to thank Dr Jonathan Jarman for supervising this project, all the stakeholders that participated in the survey, and the staff at the Public Health Unit at the Taranaki District Health Board for their support.

Appendix 1

Stakeholder Email Draft

Kia ora _____,

My name is Bree-Anna Langton and I'm a third year medical student at the University of Otago. I'm working with the Public Health Unit of the Taranaki District Health Board over summer. My project is to develop a hepatitis C prevention plan for Taranaki which will reduce the morbidity and mortality associated with the disease as well as reduce disparities and inequities. Taranaki has higher rates of hepatitis C notifications compared with the national average.

I am hoping to meet with key people involved with hepatitis C patients and their treatment. Are you available to answer some questions about hepatitis C? I can visit you or can send you the questions by email, whichever is easiest. All results collected will remain anonymous.

Dr. Jonathan Jarman (Taranaki Medical Officer of Health – Jonathan.Jarman@tdhb.org.nz) is my supervisor for this project.

Thanks in advance for your help.

Ngā mihi,

Bree-Anna Langton

Hepatitis C Research Questionnaire

The purpose of this project is to develop a prevention plan against the abnormally high rates of hepatitis C that are occurring in Taranaki. I am interviewing various stakeholders to get a picture of what is currently being done to combat this disease and develop ideas of what interventions can be implemented.

All information provided will remain strictly confidential and used only for this project. The data will be collated and summarised to develop recommendations. No participating organisations or individuals will be identified.

1. What is your role/position?
2. What do you believe are the most important interventions to reduce the morbidity and mortality of hepatitis C?
3. What do we need to do in Taranaki to reduce the impact of this disease?
4. Injecting drug users are at high risk of hepatitis C and can find that traditional health services are sometimes hard to reach. What can we do to help these people and provide them with the best possible treatment?
5. It is said that prevention is better than cure. Do you have any suggestions about ways to reduce the number of people becoming infected hepatitis C?
6. Do you have any additional comments?

References

- Gane, E. 2015. How to Treat Chronic Hepatitis C. *New Zealand Doctor*, 8 July, pp. 1-7.
- Health Canada (1998). Taking Action on Population Health - A Position Paper For Health Promotion and Programs Branch Staff. Ottawa: Health Canada.
- Last JM (Ed) (2001). A Dictionary of Epidemiology. 4th Edition. New York: Oxford University Press
- Livingston, J. D., Milne, T., Fang, M. L. and Amari, E. (2012), The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review. *Addiction*, 107: 39–50. doi:10.1111/j.1360-0443.2011.03601.x
- Noller, G. Leafe, K. 2017. NZNEP: Update on the NEP Targeted Testing Project, Christchurch: NZNEP
- Organ Donation New Zealand*. [Online]. 30 July 2015.
Available at: <https://www.donor.co.nz/facts-and-myths/statistics/>
[Accessed 15 November 2017].
- Paterson, BL et al (2007). The Depiction of Stigmatization in Research about Hepatitis C. *Int J Drug Policy* 18(5):364-373.
- Research New Zealand, 2015. *A Report on a Survey of New Zealanders' Use of Smartphones and other Mobile Communication Devices 2015*, Wellington: 2015 Research New Zealand.
- Tilyard, M. 2016. The Treatment of Hepatitis C has Changed. *Best Practice Journal (BPJ)*, September, SE(77), pp. 1-26.
- Seear, K. Fraser, S. Moore, D. Murphy, D. 2015. *Understanding and responding to anabolic steroid injecting and hepatitis C risk in Australia: A research agenda*, Victoria, AUS: informa healthcare.
- Upton, A. Gane, E. 2016. GPs can talk with many of their HCV patients about new options. *New Zealand Doctor*, 6 July.
- Ward, J. Valdiserri, R. Koh, H. July 2012. Hepatitis C Virus Prevention, Care, and Treatment: From Policy to Practice. *Clinical Infectious Diseases*, 55(15), pp. S58-S63.
- Wright, NMJ. Millson, C.E. Tompkins, CNE. 2005. *What is the evidence for the effectiveness of interventions to reduce hepatitis C infection and the associated morbidity?*, Copenhagen: WHO Regional Office for Europe.
- Wood, E. Tyndall, M. Qui, Z. Zhang, R. Montaner, J. Kerr, T. 2006. Service Uptake and Characteristics of Injection Drug Users Utilizing North America's First Medically Supervised Safer Injecting Facility. *American Journal of Public Health*, 96(5), pp. 770-773.