

**A Collaborative Care Model:  
Nurse practitioner-managed care of the client with  
hepatitis C and addictions in a community setting**

**By**

**Ruth Elinor Hadden**

**A practicum project  
Submitted to the Faculty of Graduate Studies  
in Partial Fulfillment of the Requirements  
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**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of  
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## **ABSTRACT**

This practicum project examines a model of care for clients dually afflicted with hepatitis C and addictions. This population, which comprises a majority of hepatitis C positive individuals, has traditionally been underserved in current models of care. Although there is treatment which can eradicate the virus, a large proportions of these individuals do not receive antiviral treatment – for reasons that are numerous (including system, treatment, and client-related factors).

The approach described in this paper suggests that treatment must simultaneously target both substance use and hepatitis C. Such a holistic approach is well-suited to management by a nurse practitioner in the setting of a supportive community health clinic, involving collaboration with hepatology physician specialists. Components that are integral to the successful implementation of this model are discussed. Central to the model is application of Prochaska's Stages of Change theory, or the Transtheoretical Model of Change.

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## **Dedication**

To Sandra Henry, my dearest support and constant, loving presence when the going got tough. Your input was a tremendous help, and sustained me in more ways than you will ever know. Thank you for your patience and unwavering belief in me.

## Foreword

Living with hepatitis C is a challenge on many levels. Similar to being diagnosed with any other illness, there are many emotions that surface –from shock and denial to anger and blame. What is unique about the diagnosis of hepatitis C is the added social stigmatization that often accompanies these feelings. Traditionally, hepatitis has been regarded as a disease of the poor and those who abuse illicit drugs and alcohol, and these stereotypes have outlived the progression of hepatitis into the population at large. The feelings and emotions that emerge with a diagnosis of hepatitis C infection can add long-term stress to an individual, their family and their community.

Advances in the understanding and ability to manage this disease have resulted in the development of a sub-specialty of hepatology medicine and nursing that provides management for hepatitis C. This treatment successfully eradicates the virus in approximately 50% of all those who are treated. Although this is a substantial improvement to the previous treatment that was available, there are still a large number of people for whom hepatitis C is a chronic illness that they must learn to live with and adapt their lives to. For some, treatment is not an option due to the chaotic nature of their lives and the fact that they are mired in the slough of addictions and mental “un-health”. These people can and often do fall between the cracks of the non-seamless health care system. It has been recognized for some time that uptake of hospital-based services by the community of people struggling with addictions is poor, especially among the intravenous drug user (Moriarty, Kemp, & Robinson, 2001). Experts in the fields of public health and urban health studies, such as Edlin (2002), have highlighted the

importance of future research on such issues as how to assess and manage mental health conditions in drug users with hepatitis C, improve treatment readiness and rates of treatment initiation, optimize treatment adherence, and manage the side effects (particularly the psychological side effects of interferon). Because many ex- or current drug users interact poorly with hospital treatment services, good clinical practice requires an adjustment of care provision to take into account the sub-culture of those with drug use disorders.

It is my aim and ambition to work for and with these individuals. Recognizing that this is not going to be an easy task, I am taking the first small step towards realizing this goal, by putting into words what I envision a model of care to look like. The following is what I have learned about those affected by hepatitis C, those that are involved in their care, and the larger system of which both are a part. What follows is a synthesis of both practical and personal experience working with these people, as well as a review of a wide array of literature on the subjects of hepatitis C, addictions, mental health/behavioral change, and primary/secondary/tertiary services.

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## CHAPTER 1

### INTRODUCTION

Hepatitis C is a disease of the liver that is caused by the hepatitis C virus (HCV). It is a health problem that has received considerable attention over the past few years since it was first identified (1989). In order to understand the significance of hepatitis C, one does not need to look far beyond a few statistics. World-wide there are an estimated 170 million people infected with HCV, according to the World Health Organization. In Canada, between 210,000 and 275,000 individuals are currently infected and likely only 30% of them are aware of this fact (Health Canada, 2003). There are more than 5000 Canadians (mostly young people) infected every year (Health Canada, 2003). Studies of the natural history of hepatitis C indicate that 70% to 85% of those infected will develop chronic hepatitis C, and of those individuals approximately 20% will progress to liver cirrhosis, or liver failure (Hoofnagle, 1997). A proportion of those who are chronically infected will develop liver cancer (approximately 4%). There is no vaccine available for this disease to date. Whether or not our already overburdened health care system is able to respond to the challenges presented by this virus remains to be seen.

After extensive review of the literature, it is evident that although there is a wealth of information existing on the epidemiology, course, outcome, and treatment of this disease, less information exists regarding novel clinical management strategies for what is a complex patient population. The majority of individuals afflicted by hepatitis C are those who have used or are currently using injection drugs.

The purpose of this practicum project is to examine a community/tertiary collaborative care model for management of the HCV client population (particularly

focusing on those with the co-occurring disorders of hepatitis C and addictions). This model will incorporate the key components of shared care between nurse practitioners and physicians in the community, and hepatology specialists in tertiary care settings.

## **BACKGROUND INFORMATION**

### **Setting the stage**

In 2002, Health Canada initiated a plan to increase access to treatment/health care management for Canadians affected by HCV. As part of this initiative, the Hepatology Nurses Education Fellowship resulted, with the goal to encourage enrollment of nurses in a program of studies that would prepare them to function as Hepatology Nurse Practitioners. To date, there are three nurses in Canada that are functioning as Hepatology Nurse Practitioners, practicing primarily in tertiary care settings. A description of their roles will follow (in a latter section of this chapter).

In Manitoba, it is difficult to find a source giving the total number of HCV-infected individuals. There are estimates of between 5,000 and 10,000 individuals infected, according to one source (Hepatitis C Society of Canada, 2002). In 2002 there were 532 newly reported cases of HCV, and in 2003 there were 461 new cases (Manitoba Health, 2004). Services that currently exist for the management of individuals with hepatitis C are primarily located in Winnipeg, at the Health Sciences Center (HSC) – the largest health care referral, teaching and research centre serving residents of Manitoba, Northwestern Ontario and Nunavut. The Viral Hepatitis Investigative Unit (VHIU) at the HSC is staffed with two hepatologists, two full-time nurses, and one part-time nurse. As well as this tertiary-based clinic, there are a few community-based clinics that provide varying levels of service for HCV clients. These community clinics provide mainly

primary care services, although there is some co-management with the VHIU (involving patients being treated with the current HCV treatment protocol – see below). Co-management also occurs with a few rural physicians. The current waiting list for treatment of HCV in Manitoba is 12 to 18 months on average. The reasons for this long waiting period to receive treatment are because there are a large number of people needing antiviral therapy, with a relatively small number of hepatitis specialist nurses who can establish and follow those who are on treatment.

### **The HCV virus**

HCV is an enveloped, single stranded RNA virus which belongs to the Flaviviridae family (Doucette & Kaita, 2002). Like many other RNA viruses, it has a high mutation rate, which results in considerable genetic heterogeneity. There are six major genotypes worldwide and more than 50 subtypes. In Canada types 1a and 1b are the most prevalent, with types 2 and 3 also being commonly found. It is believed that the genetic diversity of the virus contributes to the difficulty of treating HCV infection, as well as the unsuccessful attempts at vaccine development to date.

### **HCV risk factors**

The most important risk factor for acquisition of HCV is injection drug use (IDU). An estimate of the prevalence of HCV in the IDU population is between 60% and 90% (Manitoba Health, 2003). Other risk factors commonly cited include: transfusion of blood or blood products before 1992 (when blood and blood products began to be routinely screened for HCV in Canada), intranasal cocaine use, tattooing or body piercing, unsafe medical practices in countries with a high prevalence of HCV, occupational exposure to blood or blood products, and having other sexually transmitted

infections (Lauer & Walker, 2001; Lemberg & Shaw-Stiffel, 2002; NIH, 2002).

Maternal-fetal transmission occurs but is infrequent and often associated with human immunodeficiency virus (HIV)-coinfection (Lauer & Walker, 2001). Sexual transmission with an HCV-infected individual is also rare. Terrault (2002) states that sexual transmission is possible, but is much less frequent than the transmission of either HIV or hepatitis B virus (HBV).

### **Spectrum of the disease**

Acute HCV infection has a spontaneous clearance rate of approximately 15% to 30%, and the remainder of infections become chronic. Chronic hepatitis C is typically a slowly progressive disease, with many people being unaware that they are infected. Approximately 20% to 30% of those with chronic hepatitis C will develop severe disease, resulting in liver cirrhosis (NIH, 2002). The remaining 70% to 80% of people will have mild to moderate liver disease, with symptoms ranging from none to such non-specific symptoms as fatigue, arthralgias, abdominal discomfort, and pruritis. The severity of symptoms, such as fatigue, does not necessarily correlate with the severity of liver damage. In the case of progression to cirrhosis, possible sequelae are jaundice, ascites, variceal hemorrhage, and hepatic encephalopathy (Doucette & Kaita, 2002). There is also an estimated 4% risk of developing hepatocellular carcinoma (Doucette & Kaita, 2002).

It is very difficult to predict who will have a mild course of disease, with few symptoms, and who will progress to develop severe liver disease. However, certain factors have been strongly associated with progression, including older age at infection (over 40), daily alcohol consumption ( $\geq 30$  grams/day for men, or 2 drinks;  $\geq 20$

grams/day for women, or approximately 1 and 1/2 drinks), male gender, and an immunosuppressed state such as that associated with HIV infection (Doucette & Kaita, 2002; NIH, 2002).

### **HCV treatment**

The goals of treatment for this disease are essentially threefold: prevention of further complications (cirrhosis and hepatocellular carcinoma), reduction of extrahepatic manifestations (such as rheumatoid symptoms, keratoconjunctivitis sicca, lichen planus, glomerulonephritis, lymphoma, and essential mixed cryoglobulinemia), and prevention of transmission to others (NIH, 2002; Poynard, Yuen, Ratziu, & Lai, 2003). HCV infected individuals who are eligible for treatment must undergo a complex treatment regime that involves significant lifestyle adjustments. The current treatment of HCV entails combination therapy with twice daily oral ribavirin and once weekly subcutaneous pegylated interferon. The duration of treatment depends on the particular HCV genotype that an individual is infected with. A person with genotype 1 infection requires treatment for 48 weeks, whereas treatment duration for types 2 and 3 is 24 weeks. It is generally agreed that treatment is most effective when given early in the course of disease, prior to the development of advanced fibrosis (CASL, 2004).

Response to treatment is indicated by viral eradication at 24 weeks after the end of treatment. This is referred to as sustained viral response (SVR), and is defined by the absence of detectable HCV RNA in the serum as shown by a qualitative HCV RNA assay (NIH, 2002). Research has shown that approximately 95% of individuals with a negative HCV RNA 24 weeks after treatment is complete will remain virus-free for an indefinite period of time – that is, they are considered “cured” (Doucette & Kaita, 2002). Although

they require no specific follow-up, it is generally recommended that they have liver enzymes tested with their yearly routine assessments. Overall SVR (all genotypes) for individuals treated with the above described combination therapy is reported to be approximately 56% (based on initial clinical trials) (NIH, 2002). Some experts in the field have noted, however, that most data on therapy for the treatment of HCV applies to a very select group of 'ideal' patients. DiBisceglie & Hoofnagle (2002) state that those with a variety of confounding medical and psychiatric illnesses have been excluded from the pivotal trials, and that it is not clear how these data apply to determining optimal therapy for the general population with hepatitis C (such as those with active substance use, who represent the majority of HCV-infected individuals).

According to the most recent guidelines published by the Canadian Association for the Study of the Liver (CASL) every patient with HCV is a potential candidate for antiviral therapy, no matter what the apparent state of their liver disease, and consideration for treatment should be made on an individual basis (CASL, 2004). This recommendation is quite different than the previous recommendations, which considered ALT levels to be important (measurements of greater than 1.5 times the normal value on two occasions over a 6 month period) and histology of a minimum of grade 2/4 inflammation and stage 2/4 fibrosis (Doucette & Kaita, 2002; Manitoba Health, 2003). However, before a decision can be made about whether or not to treat, it is essential to consider factors such as the risk for liver disease progression, likelihood of response to treatment, risk of adverse events, patient symptoms, and the patient's wishes (CASL, 2004).

In 2000, the CASL guidelines included contraindications for treatment with

interferon and ribavirin, based on the available research evidence at that time. The updated 2004 guidelines do not specify groups of patients who should or should not be treated. The uptake of any new recommendations generally take some time, and the fact is that the 2000 recommendations still tend to guide practice to this date. Factors that may predispose to a higher risk of adverse events (and therefore considered 'relative' contraindications) include: major psychiatric disorders, cardiovascular diseases such as significant arrhythmias, major congestive heart failure, uncontrolled hypertension or ischemic heart disease, active autoimmune diseases, poorly controlled seizure disorders, non-hepatic solid organ transplant, unstable diabetes mellitus, and those who have neutrophils  $\leq 1.0 \times 10^9/l$  and platelets  $\leq 80 \times 10^9/l$  (CASL, 2000; Doucette & Kaita, 2002). Renal dysfunction may be a relative contraindication, depending on the type of pegylated interferon that is used, and caution must be exercised with the use of ribavirin in this population due to the risk of severe anemia (CASL, 2004). Pregnancy remains an absolute contraindications to treatment (due to the teratogenicity of ribavirin), and therefore sexually-active patients - both male and female - must agree to use a highly effective method of contraception during therapy and for 6 months following completion of therapy (CASL, 2004). Many involved in the treatment of HCV infected individuals exclude those involved in active injection use.

### **Addictions**

Individuals with addictions live within a social fabric that weaves threads of isolation, loneliness, poverty, conflict, and mental and physical illness. There are various approaches toward intervening at the preventive and health promotion levels. What these approaches generally have in common with each other is the emphasis on the need for a



holistic, integrated approach that considers not only the health needs, but also the social and environmental milieu wherein people live. Individuals who struggle with addictions require comprehensive and intensive support from care-givers who develop a sustained relationship with them. They need acknowledgement as worthy human beings who have the potential to change their behaviors. They need patience as they struggle with inevitable relapses. They need doors that are open and people who will welcome them at whatever stage of their struggle that they are in. They need empathy, a non-judgmental attitude, and respect.

Currently, the services that are provided to those addicted individuals with hepatitis C fall short of these ideals. Among other short-falls, they have a lack of comprehensiveness, coordination and integration. For a number of reasons, the principal treatment center for hepatitis C in Winnipeg does not currently provide services to those who are actively involved in substance abuse. One of these reasons is the long waiting list for treatment (currently approximately 12 to 18 months on average). The other major reason is that the VHIU operates according to the recommendation that clients need to be free of drug and alcohol misuse for a period of at least 6 months before HCV combination therapy can be initiated. They base their decision on recommendations that came from consensus statements in the late 1990s (CASL, 1997; European Association for the Study of the Liver or EASL, 1999; NIH, 1997). Justifications for this approach were that drug use poses a more significant short-term risk to health than does HCV, there is an increased risk of adverse events associated with antiviral treatment, and adherence is expected to be poor (Davis & Rodrigue, 2001).

In the VHIU, when a client who is still ‘actively using’ is referred for assessment of his or her hepatitis C, this individual is generally referred back to the primary care provider with recommendations that treatment will be deferred until the client is able to stop using drugs and/or alcohol. The problem with this approach is that many of these people are either not receiving health care on a regular basis, or are receiving care by other agencies – such as Methadone Maintenance Programs (if they are fortunate) or various primary care physicians, who may have limited experience and knowledge of both hepatitis C and addictions. Some attempts have been made by the VHIU to educate primary care providers about hepatitis C, but there seems to have been less of an effort to disseminate information regarding management of addictions at the primary care level. Initial attempts at integrating addictions care (such as methadone maintenance services) with the VHIU have thus far been unsuccessful. Although the reasons are likely many, issues of impenetrable intersectoral boundaries seem to play a role.

Addiction is a chronic illness; therefore, waiting until addiction is ‘cured’ before initiating HCV treatment is unrealistic and places patients at risk for significant progression of liver disease (Taylor, Costella, Alt, Yates, & Tashima, 2002). It is obvious what happens to those who don’t have any primary health care – nothing! As for the other dually affected individuals that do have primary care physicians, if they are tested for HCV at all, what typically happens is that they are referred to the VHIU for assessment of their chronic hepatitis. During this visit, they are informed about their disease as much as possible and questioned about the use of alcohol and illicit drugs. If they are found to be actively using, they are informed that they can not have treatment until they are off their particular substance and may be scheduled back for a visit in 3 to 6

months – or they may be sent back to their primary care provider with a consult letter that indicates the hepatologist will see the patient on re-referral when he or she has stopped using.

What happens to the majority of these individuals? Some individuals will actually go back to their primary care provider and will be referred to get help for their addiction problem. Who will these people be referred to? There are few addictions specialists in the city. The Addictions Foundation of Manitoba (AFM) is the largest center in Winnipeg, and provides the majority of addiction-related services, but currently does not provide management of hepatitis. While their addiction problem is being addressed – which may take months to years – their hepatitis C may not be receiving attention. In some individuals, putting off treatment may not be problematic. However, in others – those whose liver disease is more advanced – there may be significant consequences, such as progression to cirrhosis and/or complications from decompensated liver disease. As mentioned previously (see HCV treatment), hepatitis C is much more successfully treated when it is managed in its early stages - before advanced fibrosis.

Others of this group of dually diagnosed individuals, who are sent back to their primary care provider, may fall between the cracks because they become discouraged that their hepatitis C is not being addressed and that they are not treatment candidates. These people may not return to their primary care provider after being assessed by the hepatologist, because of this discouragement. Being informed that they must stop using drugs or alcohol in order to receive hepatitis treatment in the future, requires a ‘future-oriented’ mindset that many, if not most, people with addictions simply don’t possess at that particular time. Without the support of a concerned health care provider to help keep

them engaged and focused on what needs to be done in the 'here and now', these people will often be caught in the web of addictions and experience further deterioration of their health.

More recently, studies have been done that have reported successful outcomes with IDUs (Dalgard et al, 2002; Sylvestre, 2002a). A pivotal study done in Germany showed that IDUs were successfully treated for hepatitis C and maintained a high level of adherence, despite the fact that they were not completely abstinent from illicit drug use (Backmund, Meyer, Von Zielonka, & Fichenlaub, 2001). The SVR was similar to the SVR in other populations treated for hepatitis C at that time (36%), even though 80% of the patients returned to using injection drugs during the study period. The investigators concluded that HCV-infected drug addicts can be successfully treated with interferon and ribavirin if they are closely supervised by specialists in both hepatology and addiction medicine. The implications for prevention of spread of this virus are significant, as one way to control HCV infection is to treat IDUs (who make up the majority of those infected).

There has also been much published on the subject of alcohol abuse and hepatitis C. Studies consistently reveal that alcohol has an important role to play in accelerating the progression of liver disease among those who have hepatitis C (Corrao & Arico, 1998; Pessione et al, 1998; Regev & Jeffers, 1999; Wiley, McCarthy, Breidi, & Layden, 1998). According to Zhang et al (2003), alcohol consumption accelerates liver damage, inhibits the anti-HCV effect of interferon therapy, and increases the rate of hepatocellular carcinoma in patients with HCV infection. Efforts to clarify the level of safe alcohol consumption have thus far been unsuccessful.

### **Needs of the HCV community**

In order to develop a model of care for the HCV client population, it is necessary to examine the existing services that cover the complete spectrum of the three levels of prevention (i.e. primary, secondary, and tertiary). Some of this work has been attempted in the past by various levels of government in Canada. In 2000, the Manitoba Hepatitis C Needs Assessment was commissioned by the Hepatitis C Society of Canada, Manitoba Branch, Health Canada. This information is now somewhat dated; however, it provides a starting point for assessment of service provision and identification of some of the gaps that exist in service delivery.

The Manitoba Hepatitis C Needs Assessment (conducted from August to December of 2000) was completed in order to “identify needs of infected and affected persons with HCV in Manitoba and to determine the needs of service providers...” (p. 5). The methodology incorporated focus groups, key-informant ‘in-person’ interviews, telephone interviews, and responses from the HepCan chat line to the key focus group questions (Health Canada, 2000). A total of 102 participants took part in the needs assessment (62 ‘infected persons’, 7 ‘affected persons’, and 33 service providers).

This particular needs assessment found that there were many (twelve) identified needs for each of the above ‘groups’. Particularly noteworthy are the need for co-ordination and liaison among service providers, the need for consistent and accurate hepatitis C information dissemination, the need to have treatment available in community health centers as well as hospitals, and the need for programs and resources for the IDU community. There was also an identified gap in the provision of counseling support for

HCV-infected and affected persons – this was actually described as a “critical shortage” (Health Canada, 2000, p. 50).

Although it has been four years since this project was undertaken, and some progress has been made in a few of the areas of identified need, it has been my observation that the above mentioned areas are still ‘in need’. Many of the same issues regarding service coordination and the need for a more integrated approach to management of HCV exist today. Manitoba does not seem to be unique in the struggle to meet the spectrum of needs presented by hepatitis C, as this is a common theme that emerges globally on review of the existing literature on this topic.

That the needs are many and complex is quite obvious. It is evident that there have been large amounts of energy and resources expended in attempts to address these needs. The ‘gaps’ that still exist may be in part due to the difficulty in achieving the ideal of a seamless service delivery system. Using the analogy of a city infrastructure, rather than having thoroughfares and connecting roads between the various sectors there are numerous cul-de-sacs – at times making navigation and progress easier said than done. Regardless of the label given or the analogy used, the issue is that ‘collaboration’, ‘integration’, ‘shared-care’, and ‘coordination of services’ are much more difficult to achieve than they are to discuss.

Although there is no easy solution to the problem of how best to manage HCV infection among those with active substance use disorders, there is widespread acknowledgement in the literature that more research is needed on this subject. As Sullivan & Fiellin (2004) suggest, the data regarding approaches to treatment of IDUs

with chronic HCV infection (either successful or not successful) is scarce – this in part because IDUs have been excluded from the many clinical trials of HCV treatment.

The most recent guidelines from both the NIH (2002) and CASL (2004) suggest a more hopeful approach to this problem, and arguably a more humanitarian approach, that promotes vital linkages between health professionals. No longer is active substance use listed as a contraindication to antiviral treatment, with little room for flexibility. The recommendation now encourages a “comprehensive approach to promote the collaboration among health professionals concerned with management of addictions, primary care physicians, and specialists involved in various aspects of HCV – to deal with the complex societal, medical, and psychiatric issues of IDUs afflicted by the disease” (p. S14). With regards to the specific issue of alcohol use, while NIH (2002) recommends alcohol abstinence before and during antiviral treatment, they suggest that “efforts to diagnose and treat alcohol abuse or dependence should be performed in conjunction with treatment of HCV” (p. S10). Others have suggested that clinicians should use an individualized approach that considers issues such as “compliance” (or adherence) on a case-by-case basis, rather than making assumptions that all drug users are unlikely to comply with the treatment regime (Davis & Rodrigue, 2001).

### **Nursing management of the hepatitis C client**

According to the Canadian Nurses Association (CNA, 2002), “nursing care of people with hepatitis C and their families requires a holistic approach through which nurses help their clients meet their physical, psychological, emotional, spiritual and socioeconomic needs” (p. 19).

Clinical nursing responsibilities involved in the care of the HCV client include aspects of prevention, health promotion, and health maintenance. A lot of time is spent initiating and monitoring those who are on antiviral therapy, as previously described. Full time nurses typically follow up to 50 clients on treatment and assume responsibility for the majority of care, in collaboration with the hepatologists. Initiating a client on treatment involves performing an initial history and brief physical examination, and detailed education regarding all aspects of the treatment regime with the client (including management of side effects, the importance of strict adherence, and actual medication administration). A treatment protocol is followed which provides guidance for frequency of follow-up visits and monitoring of blood tests. Clients are seen by the nurse for clinical assessment and blood tests at weeks 1, 2, 4, 8 and whenever necessary, as deemed by the nurse. Frequently they must be seen more often due to side effects – especially blood test abnormalities.

Side-effects most commonly associated with pegylated interferon and ribavirin combination therapy are as follows: ‘flu-like’ symptoms (including chills, fever, night sweats, nausea, and occasionally diarrhea), anemia, neutropenia, thrombocytopenia, weight loss, fatigue, dehydration, muscle aches, sleeplessness, loss of libido, headache, neuropsychiatric symptoms (most notably depression and irritability), skin irritation at the injection site, skin rashes and/or itchiness, hair loss, nasal stuffiness, sinusitis, and cough (Leone, 2002; NIDDK, 2003). According to the NIH (2002) significant side effects result in discontinuation of treatment in approximately 10% to 14% of patients. Occasionally a reduction in the dose of one of the medications for a temporary time period will be all that is needed. Because of these side effects and the potential of



discontinuation or disruption in treatment, education of patients and their family members/caregivers about side effect management is an integral aspect of the nursing role.

From the client's perspective, side effects of treatment often overshadow the goal of treatment (i.e. viral eradication). Anticipation of the side effects through thorough pre-treatment education, and vigilant nursing care and prompt intervention when symptoms emerge, can minimize the likelihood that the client will stop treatment when 'the going gets tough'. There are a number of different interventions that can be very helpful while navigating through the treatment 'terrain', and the experience of the nurse can be an invaluable resource and source of support. For example, suggestions such as encouraging clients to drink plenty of water, eat well-balanced meals, and exercise as regularly as possible can help prevent a number of potential side effects.

As well as monitoring patients on treatment, other general nursing responsibilities include education of other health care professionals through in-services (e.g., within the hospital for other nursing departments, and occasionally involving speaking to practitioners in community clinics who are caring for clients with HCV), participation in research trials which are an ongoing occurrence within the hepatitis field, and collaboration with other professionals in an attempt to coordinate services for HCV clients (e.g. psychiatrists, dietitians, social workers, physicians, and public health nurses).

### **Role of the hepatology nurse practitioner**

As previously mentioned, there are currently three hepatology nurse practitioners in Canada. These three individuals are master's prepared nurses with a clinical focus in hepatology. Their roles are quite varied, with each role being created in response to the

identified needs of the health setting of which they are a part. However, all three practice in tertiary care settings – two specializing in hepatitis care, and one in liver transplant. Being based in hospital settings, they divide their time between both inpatient and outpatient services.

One of these individuals is responsible for the care of hepatology and transplant patients at the London Health Sciences Center. She graduated from a Master of Science in Nursing Program in 2002, and has functioned as an advanced practice nurse since this time. She practices under ‘medical directives’, defined by Doyle-Pettypiece et al (2000) as “written protocols with specific criteria that allow nurses with appropriate knowledge, skill, and judgment to perform actions not authorized to nursing” (Dale, 2003). Her work incorporates skill and knowledge from both nursing and medical disciplines, and encompasses roles of the clinical nurse specialist, acute care nurse practitioner, nurse consultant, and ever-evolving “new roles” (Dale, 2003).

The second of these nurse practitioners works in the Ambulatory Care Hepatology Program at a large tertiary center in Toronto. She graduated from the Master of Nursing program (nurse practitioner stream) in 2001, and had 16 years of nursing experience in the viral hepatitis field prior to that. She runs a collaborative practice hepatitis clinic with the staff physicians (hepatologists), seeing new referrals and follow-up cases and reviewing these with the physicians. Her role, also functioning under medical directives in the case of interventions that are beyond the scope of nursing, incorporates the following: performing complete health histories and physical examinations, identification of medical/nursing issues, confirming diagnoses, ordering diagnostic tests, making referrals to other disciplines as necessary, and deciding on treatment/management

plans for her patients. She states that she is not as involved with 'administration of treatment', as there are 3.5 treatment/research nurses looking after patients who are on treatment for their hepatitis. She liaises with general practitioners regarding patient issues. She describes her 'scope of practice' as being mostly limited to compensated patients with viral hepatitis (as opposed to patients with decompensated liver disease), but is knowledgeable about other types of liver disease in order to know differential diagnoses. During one clinic per week, she performs abdominal paracenteses for out-patients. Aside from her clinical practice, as an advanced practice nurse she is also involved in other activities such as education and leadership within the hospital (personal communication, C.Yim, February, 2003).

The third hepatology nurse practitioner works at the Queen Elizabeth II Health Sciences Center in Nova Scotia, in the hepatology department. As part of this practicum experience, one week was spent 'shadowing' this individual and learning about her role. Although much of her time is spent in clinical practice, she is also a lecturer at Dalhousie University School of Nursing (Nurse Practitioner section). She sees all the new patients with chronic liver diseases presenting to the ambulatory care hepatology clinic. Her scope of practice includes such disorders as hemochromatosis, autoimmune hepatitis, Wilson's disease, fatty liver disease, and viral hepatitis. After an initial assessment, during which she performs a comprehensive health history and physical examination, she consults with the hepatologist and outlines her management plan. She subsequently follows these clients through ongoing monitoring, independently ordering and interpreting diagnostic tests and communicating the results to the client and family. Once a week, she performs paracenteses on clients who require this treatment. For her viral

hepatitis clients, when antiviral treatment is decided on, she has the help of a registered nurse who teaches the client how to self inject the interferon and educates regarding side effects. From this point, she independently monitors the client during treatment – including evaluating their routinely scheduled blood work and making medication dosage adjustments as needed. To this date, her practice is limited by the inability to prescribe medications. However, she is currently working on a collaborative practice agreement which will detail a list of drugs that she will be able to prescribe in the near future. Other role functions include collaborating with hepatitis C outreach efforts and support groups. She occasionally travels to a low threshold methadone program (Directions 180), providing education and offering opportunities for involvement in hepatitis C treatment to this group of infected individuals.

### **SUMMARY**

This chapter has examined some important background information regarding hepatitis C, including the spectrum of the disease, antiviral treatment, and needs of the population of those with HCV infection and the disorder of addictions. Some of the current services that exist in the delivery of hepatology/hepatitis care – particularly nurse and nurse practitioner-led initiatives – have also been described.

## **CHAPTER 2**

### **OVERVIEW**

The creation of this model of collaborative care was born out of the recognition that there is an unmet need for a substantial number of individuals infected with hepatitis C. The information provided to this point has given some clear evidence that the time is ripe for innovative ideas regarding management of the needs of those with the co-occurring disorders of addictions and hepatitis C. A program that addresses both their mental health/addictions and their hepatitis C simultaneously has the potential to make a difference for these people.

It is the aim of this particular practicum project to introduce a new model of care that focuses on these dually diagnosed individuals – a framework which incorporates three main components: 1) Prochaska's transtheoretical model (also called the Stages of Change model); 2) collaborative practice between health professionals; and 3) nurse practitioner managed care of the HCV client. In this chapter, a literature review will present some examples of management strategies in existence for those with HCV and HIV (a population with many of the same issues), as well as a detailed discussion of perspectives on substance abuse. Chapter 3 will then follow with a discussion regarding how the various components of the model can be integrated into a comprehensive whole that has the ability to guide practice with HCV-infected clients. It is my opinion that this conceptual framework has potential for a high level of clinical utility – an important criteria for a model that attempts to guide practice. It is also my hope that this framework will be utilized in the near future as a type of pilot project and that it will one day hold up favorably to actual outcome studies.

## **LITERATURE REVIEW**

### **Integrating the treatment of addictions and hepatitis C**

There are very few detailed descriptions of actual models of care which integrate addictions treatment and hepatitis C management. It is much easier to find papers and publications that proclaim the idea, and say that the time is ripe for this type of approach. However, the following are a few approaches that were found.

One approach that was discovered on review of the literature, is a program which increases the proportion of patients eligible for HCV treatment to HIV-HCV coinfecting individuals with psychiatric illness and drug dependence (Taylor, Schwartzapfel, Allen, Jacobs, & Mitty, 2003). Treatment is facilitated through attempts to stabilize psychiatric illness and addiction prior to and throughout treatment for HCV infection. Individualized care plans involving an HIV specialist, hepatologist, nurse and psychiatrist are created. Partnership with a community agency permits provision of coordinated psychiatric care, counseling, and case management. A nurse administers pegylated interferon, packs ribavirin in pill boxes, and helps to manage side effects of the medication. Incorporated into this program are home visits by case managers, which allows for rapid identification and management of adverse effects. Those adverse events that are unable to be managed by the nurse are referred to the physician.

The description of this program left many unanswered questions. There was no detailed information given about the community agency that was mentioned, the nature of the collaboration that occurred with it and the specific services provided. It would also have been helpful to know such information as who the case managers were (i.e. what

discipline they came from), and what type of organization the case management took place in (hospital or community clinic).

This intensive approach had 11 patients on treatment at the time that the authors presented this model. Outcomes reported included increased patient quality of life during treatment, 100% adherence to therapy, and decreased discontinuation of treatment due to mood disturbance or a substance-related issue. The authors of this investigation reported that it is feasible, safe, and effective to treat HIV positive patients with mental illness and/or addiction for HCV with individualized intensive psychosocial and medical support. Notably, their sample size was small and unfortunately, an attempt to find a subsequent publication of end of treatment outcomes – most notably SVR, as well as a cost analysis – was unsuccessful.

A second example of a comprehensive program that reaches out to those with hepatitis C and addictions is O.A.S.I.S. (located in San Francisco, California). The acronym stands for the Organization to Achieve Solutions in Substance Abuse. Its mission is to provide low-cost, subsidized medical care, clinical research studies, and provision of and/or access to social and vocational rehabilitation services for medically marginalized former or current drug and alcohol users (OASIS, 2003).

A telephone discussion with Dr. Sylvestre, the executive director, provided some useful information about her services which were not provided in the literature (personal communication, June, 2004). Specifically, of interest was who makes up the team of care-givers and whether or not there is a connection to or collaboration with a hospital based treatment program. The team consists of a very few health professionals – including herself (an internist physician with a certification in addictions medicine), a

physician assistant, and a medical assistant (administrative position). There are no nurses employed.

A large component of their services involves assistance for substance using individuals using peer support. Clients are treated in a group model, bringing together users with hepatitis C and those who have successfully gone through treatment (including addictions treatment). The group initially draws people in through offering hepatitis C education and the possibility of future treatment. Dr. Sylvestre notes that what typically happens as a result of this 'bringing together' is that a network of support is developed between people, and they are able to develop trust and honesty which they have often not been able to do in other 'traditional' health care environments.

In the five years that this program has been functioning, OASIS has screened approximately 2000 people for hepatitis C. According to Dr. Sylvestre, the success of the program in attracting clients is in part due to the fact that this is a place where they can receive HCV treatment at no cost because OASIS has a very large component of clinical research, with considerable sponsorship/funding from the large pharmaceutical companies. In the United States, if one does not have insurance the options for HCV treatment are scarce, which means that many (if not most) caught in the web of addictions are unable to receive the treatment that they need. In addition to the suffering on an individual level, the public health implications are staggering.

When asked what approach to hepatitis C treatment is taken with those who are actively using drugs, Dr. Sylvestre stated that the main criteria is that they must show up reliably for appointments on a weekly basis for at least 3 months before treatment will be considered. When asked regarding concerns about reinfection due to continued use, she



indicated that the studies are ongoing with respect to monitoring long-term outcomes, therefore this remains to be determined. She did point out that needle exchange programs are very widespread in San Francisco, and that this has been very effective in decreasing the number of people who share equipment. She also reported a real concern that during treatment, due to the psychiatric side effects such as depression and irritability, clients may go back to using substances to cope. However, so far the data from one of her studies indicates that among those that were abstinent from substance using for less than 6 months (30% of all that were being treated) only 4% relapsed to using again.

The program essentially 'stands alone', having no real collaboration with hospital services. Addictions are managed under one roof. In contrast to the delivery of HCV treatment in Manitoba, a hepatologist does not need to be involved. Interestingly, Dr. Sylvestre pointed out that gastroenterologists and/or hepatologists don't typically *want* to be involved with HCV treatment because there is "not enough money in it", considering the time and energy that these clients consume due to their high needs.

A report summarizing a few presentations on special populations infected with HCV at the 2002 American Association for the Study of Liver Disease (AASLD) conference described one of the studies completed by Sylvestre (2002b). Dr. Sylvestre studied IDUs on methadone maintenance in her clinic, who were treated with HCV therapy and received intense support services. She examined the individual and cumulative effect of pre-existing psychiatric illness, intervening drug or alcohol use, and limited length of drug sobriety on sustained viral response (SVR) rated in recovering IDUs who received hepatitis C treatment in a supportive setting that could address their unique needs (as already described).

In this study, sixty six recovering heroin users stabilized on methadone chose to undergo therapy for HCV. Thirty percent used hard drugs during treatment and 21% drank alcohol. Overall, the dropout rate was 24% and the SVR was 29% (compared to 40% in the non drug-using population). Drug use while on treatment was highly correlated with limited length of prior sobriety. Sylvestre concluded that psychiatric illness, drug use, and alcohol use during hepatitis C treatment is relatively common in a 'real world' sample of IDUs stabilized on methadone treatment. On the other hand, in any of the clinical research trials that have been done (which show a higher sustained viral response) the population that is studied is not representative of the real world because these people are specifically excluded from the studies. She notes that reasonably successful outcomes can be expected in a setting where the special needs of this group of individuals can be accommodated. However, she also makes the point that the cumulative impact of multiple risk factors may substantially reduce treatment outcomes, necessitating consideration of delaying hepatitis C treatment until these issues can be appropriately addressed.

In the United Kingdom, an innovative nurse-led initiative developed when two teams – one from primary care and one from secondary care – came together to solve a problem that had been identified (Tiffen & Sheridan, 2002). The problem is one that has been noted by many who attempt to provide services to the community of HCV-infected individuals – that of non-attendance at hepatology appointments. Each team designated a nurse-care coordinator to ensure efficient communication and collaboration.

The primary care team, which has a long history of working with people who misuse drugs, is composed of six general practitioners, a practice nurse, and a nurse-

trained addiction therapist. The secondary care team is made up of nurses, a clinical nurse specialist, and physicians in the hepatology department of St. James's Hospital. With a spirit of enquiry and consideration of feedback from their clients, the two teams got together to come up with a solution. Out of this meeting of minds, it was decided that part of the problem was the clients' lack of information and subsequently not knowing what to expect at the hepatology clinic (creating a certain amount of fear). Given this lack of information, it was felt that the clients were 'disempowered' and unable to make informed decisions.

The response to this new awareness was to create interorganizational guidelines for the referral and management of clients who tested positive for HCV in the community clinic. A stepped approach, which included structured visits initially to the primary care clinic and then to the hospital, was implemented and clients were given more detailed information in verbal and written form (pamphlets on hepatitis C and the hepatology clinic). In addition, in order to increase the efficiency of the visit at the hepatology clinic, the nurse at the primary care clinic ensured that the appropriate blood work was drawn and sent to the first appointment with the specialist.

The outcome of this initiative was that attendance rates increased significantly, from 63% that attended their hospital appointment before the initiative to 89% attendance after the initiative. It was concluded that the collaboration between the two practice environments contributed to more client-centered care, and also resulted in benefit to the providers.

Finally, another example of the integration of hepatitis services with addictions management is described by Moriarty et al (2001). This Hepatitis Outreach Clinic is a

community-based, collaborative project between the Wellington (New Zealand) Drugs and Health Development Project (DHDP) and the Gastroenterology Unit at Wellington Hospital. The DHDP is a non-governmental public health provider which operates a community needle exchange, health information services, and peer support for IDUs in Wellington. The request for a Hepatitis Outreach Clinic came from staff and clients of the DHDP, as they identified a need for accessible, empathetic advice and management of viral hepatitis and related health issues for past and current IDUs reticent to access hospital-based services or general practitioners. The premises of the DHDP were used as the location of the outreach clinic because the local IDU community already accessed this site for needle exchange, as well as a sexual health clinic.

Specialist physicians at the gastroenterology unit of Wellington Hospital assisted in the development of the clinic proposal, approved protocols for the investigation and treatment of HCV, and provided back-up support. The senior physician of the Wellington Alcohol and Drug Clinic (a general practitioner) provided supervision of the outreach and hepatitis C treatment. A medical officer attended the clinic for two hours a week. These physicians had expertise in opiate substitution services and sexual health. The blend of services combined public health and personal health activities, crossing inter-disciplinary boundaries, and the primary/secondary health care interface.

Those individuals previously assessed at the hospital hepatology services were encouraged to re-establish that connection for their hepatitis management. Those who could not or would not access conventional hospital services were offered treatment at the outreach clinic. At the time of submission of the article for publication, which was after over 2 years of operation of the outreach clinic, 51 HCV positive patients had been

identified. Nineteen had expressed interest in pursuing treatment, and five had actually received treatment (four at the community clinic and one at the hospital). Three clients had successfully cleared the virus. One patient had to stop treatment due to a 'relapse' (which is presumed to be a relapse into drug use, although this is not entirely clear). Supportive addiction counseling was provided throughout the treatment period, with three patients having received methadone maintenance during the hepatitis treatment.

In summary, the authors express that the single most important ingredient of the clinic is the establishment of rapport and goodwill with the clients. Many of the clients were reported to have had prior negative experiences with the medical profession and were therefore reluctant to engage with mainstream health service providers. They seemed to harbor a mistrust of authority figures, and felt that they were being pre-judged by health professionals due to their association with illicit activities. However, they also note that once trust was established in the outreach clinic, it proved to be transferable to other services, as they attended local hospitals for liver scans, biopsies, and specialist clinical management.

The authors expressed some disappointment in the actual numbers of patients that had proceeded to hepatitis treatment after 27 months of operation. However, they explain that the slow uptake of treatment may be due in part to client disenchantment with the reported negative side effects of interferon and its low sustained response rate. At the time of the project, interferon monotherapy was the only treatment available, which had approximately half the SVR rate of combination therapy, or roughly 20% (Carithers & Emerson, 1997). Having said this, the outreach clinic is doing what many claim to be an

answer to reaching the HCV infected ‘hard-to-reach’ – offering clients a seamless service across the medical disciplines of specialists in addiction and gastroenterology services.

### **Lessons learnt from HIV treatment approaches**

Having examined a few examples of integrated addictions/hepatitis C treatment models, it seemed appropriate to look as well at other client populations to see what can be learned. HIV programs are well suited to study for obtaining insight into management strategies that are effective – both HCV and HIV populations share definite commonalities, meaning that similar approaches can be used. In addition, HIV programs have been in existence for a longer period of time than HCV services, and therefore may have some practical strategies in use that have survived the test of time and experience.

Many HIV-infected individuals, like those with hepatitis C, have psychiatric disorders and addictions. There have been a wealth of publications written on the effect that these disorders have on the adherence to antiretroviral treatment. It is well known that adherence to HIV is critical to the suppression of the virus, and that any interruption in therapy can have detrimental effects. Adherence to antiretroviral therapy must approach 100% to be most effective (Douaihy, Jou, Gorske, & Salloum, 2003). Clients who are too disturbed by mental illness and/or addictions are much less likely to be able to take their often complex medication regime correctly (Treisman, Angelino, & Hutton, 2001). Treisman et al (2001) suggest that patients infected with HIV benefit from ‘therapeutic optimism’ and aggressive treatment of the *whole* person. They strongly support the approach to management that involves consultation and liaison relationships between specialties, and must include those directed at mental health. “With

comprehensive care, the toughest patients can surprise even the most jaded clinicians” (Treisman et al, 2001).

Integrated substance abuse, psychiatric, and medical treatment of HIV-infected individuals is necessary for many of the same reasons that it is necessary in managing hepatitis C. Both patient populations often have multi-system disease, complicated therapies, and complex psychosocial issues. An additional concern in the management of HIV is that the consequences of delaying treatment among HIV-infected drug users are more detrimental. Delaying antiretroviral treatment allows viral replication to continue unchallenged which may lead rapidly to AIDS and death (Inungu, Beach, & Skeel, 2003). This means that health care providers must resist the tendency to delay treatment while waiting for them to change their harmful behavior; rather, they must attempt to foster healthy behavior *while* initiating and maintaining antiretroviral therapy. A multidisciplinary approach which recognizes the interplay between substance abuse, mental illness and HIV is strongly recommended in this population. Many authors have come to the same conclusion – that models of integrated health care must continually be developed using innovative approaches to address the complex needs of those with the triple diagnoses of substance abuse, mental illness, and HIV.

Components of integrated treatment considered important include a collaborative relationship with various medical services involved in the patient’s care, psychotherapeutic interventions tailored to the patient’s readiness for change and incorporating motivational strategies, attention to psychosocial needs, strong emphasis on psychoeducation, and psychopharmacologic management (Douaihy et al, 2003). Research on integrated treatment has suggested such positive outcomes as decreased

hospital use, reduced substance use, increased utilization of community resources, and decreased homelessness (Mueser, Drake, & Miles, 1997; Daley, Salloum, Zuckoff, Kirisci, & Thase, 1998).

Such an approach, with those already infected with HIV, has the potential to impact on the three levels of prevention – primary, secondary, and tertiary. At the level of primary prevention, drug abuse treatment can help to reduce transmission to those who are HIV-negative by reducing needle sharing as well as the number of impulsive, and possibly unsafe, sex acts associated with the intoxication and disinhibition that results from drug use. Also, at the primary prevention level, drug abuse treatment along with ancillary services enhances the medical care that HIV positive individuals receive – resulting in prevention of other morbidities, which may be unrelated to HIV. At the secondary prevention level, drug abuse treatment and early identification of HIV allows people to get access to care and treatment at the earliest possible stage in the disease (which minimizes damage and prevents the disease from getting out of control) (Bognar, 2002). Provision of psychosocial care (involving attention to such needs as counseling, housing, and spiritual care to name a few), crosses the secondary/tertiary prevention interface (Heller & Nostlinger, 2000). Bognar (2002) provides a good explanation of tertiary prevention in the context of HIV – it focuses “on treating a health problem to lessen its effects, to maximize quality of life, and to prevent further deterioration” (p. 15). Tertiary prevention involves medical treatment to prevent opportunistic infections such as pneumocystis carinii, counseling, information about and access to nutrition, and income advocacy (Bognar, 2002).



What follows are two examples found in a review of the literature regarding comprehensive programs for HIV-infected individuals, as described by Meredith and colleagues (1998). Both programs were funded as part of an initiative to develop and evaluate innovative HIV service delivery models.

The first is based out of the University of Vermont, and it serves all persons with HIV/AIDS living throughout rural Vermont by developing three specialty clinics which are housed in community hospitals. They are staffed by an HIV physician, infectious disease specialist (who travels to the clinics on a monthly basis), a nurse practitioner trained in HIV care, a hospital social worker, and regional AIDS Service Organization (ASO) representatives. Ancillary service providers include visiting nurses as well as regional mental health and substance abuse counselors. The clinics also serve an important function through education of local primary care providers.

This project's innovation is to reduce barriers by offering clients "state-of-the-art" health services at a single location in their rural communities. A major benefit of this model is that patients are able to avoid long distance travel to receive their HIV care, which substantially improves access and may encourage patients to seek care earlier in their illness. As an additional benefit in the wider realm of public health, the project raises awareness about the HIV epidemic through news coverage and press releases about clinic services and events. All clients receive complete medical diagnostics and therapeutics, prophylaxis and screening, psychosocial case management, and transmission risk reduction services. Women receive complete gynecologic care, and all HIV-infected pregnant women are strongly encouraged to take antiretroviral medications. Patients are able to have primary care and HIV specialist services received in a

coordinated and collaborative manner; for some, under the same roof and for others, very close by within their community (Meredith et al, 1998).

The second program operates as an integrated system of care for women with HIV in the St. Louis metropolitan area. The Helena Hatch Special Care Center (HHSCC) began as a five-year, federally funded demonstration project to find underserved women with HIV and bring them into medical care (HHSCC, 2004). Since the completion of the demonstration project, the Helena Hatch Special Care Center has continued as a university-based HIV program for adolescent and adult women within the Division of Infectious Diseases HIV Clinic at the Washington University School of Medicine.

Described as a “one-stop, one-shop” model of care, it allows for integrated service delivery and a program with high rates of patient satisfaction and low rates of vertical (mother to child) transmission of HIV. They recognize that access to and retention in HIV medical care is often made more complex than it is for men due to competing priorities (e.g., child care, sustenance needs ), lower education, barriers to care (e.g., lack of transportation, especially with young children or in rural areas, mental health issues, substance abuse), and insurance problems. Their services include: HIV specialty care, obstetric/gynecologic services focused on perinatal HIV prevention, cervical cancer screening and the screening and treatment of sexually transmitted diseases, patient education, medication monitoring, support from professional case management and social workers, adolescent services, mental health/substance abuse counseling and referral, family planning, and support with medication adherence. This multidisciplinary approach to women with HIV also includes on-site childcare, transportation, and bagged lunches to facilitate attending scheduled medical visits (HHSCC, 2004).

On evaluation of the program in 1999, some impressive statistics were presented. Between 1995 and 2000, perinatal transmission rates were found to be 1.7% at the HHSCC, in contrast to 9.8% in other Missouri sites that provided health care to HIV positive women (HHSCC, 2004).

What these and other successful models of HIV care - and in fact any health care services that serve the marginalized and 'hard-to-reach' - have in common are intensive ancillary support services. Ancillary services are support services such as case management, child care, housing, food, transportation, mental health treatment, and substance abuse treatment (Conviser & Pounds, 2002). Sherer et al (2002) did a study analyzing the effect of ancillary support services on HIV care outcomes. They performed a retrospective analysis of clinical data sets on 2,647 patients at the HIV Primary Care Center (CORE Center) in Cook County Hospital, Chicago from 1997 – 1998, to investigate the relationship between four support services (case management, transportation, mental health, and chemical dependency) and access to and retention in HIV primary care. They found that clients who received each of these services were considerably more likely to receive primary care, and that retention increased by 15% to 18% (Sherer et al, 2002).

Specifically, regarding case management, mental health, and transportation, regular care was significantly more likely in those for whom the identified need for service was met. However, clients identified with a need for chemical dependency services, in which the need was met, were slightly less likely to receive regular primary care (27% vs. 37%). The authors provided a possible explanation for this. There was some difficulty with the 'need for service' documentation, and data collection regarding

need was incomplete. The investigators speculated that the need identification process selected and documented on patients with the most severe need - rather than the broad spectrum of chemical dependency need - and thus selected those that were most unlikely to remain in care. Had more detailed information been provided regarding the specifics of the chemical dependency services, other reasons for this result may have been apparent (for example, addiction treatment may not have been readily available or located too far away, and type of services provided may have been a barrier if they were strict abstinence-type programs rather than harm reduction-type programs).

### **Perspectives on substance abuse**

The model that is being proposed in this paper examines the client with HCV from the perspective of readiness for antiviral treatment. A key component of this readiness for treatment involves looking at where the client is with his or her addiction. Therefore, it is important to understand some principles of substance abuse and its treatment.

In a thoughtful discussion of addiction principles by Dr. Sharon Cirone, a fellow of addictions medicine, to the 2003 Canadian Association of Hepatology Nurses Conference, addiction was defined as a chronic relapsing brain disorder (Cirone, 2003). She suggested a paradigm shift in the way that addiction is viewed – that it should be considered to be similar to other chronic diseases like diabetes and coronary artery disease. In her view, abused drugs do to the brain what HIV does to the immune system: they attack the cells that could stop the disease process. However, she proposes that if it is properly managed, those with the disease of addiction can and do lead a normal life.

Substance dependence and substance abuse both present as problematic to the treatment of clients with hepatitis C. According to Noordsy, McQuade, & Mueser (2003), substance abuse refers to “a pattern of substance use which results in significant problems in one or more area of functioning, such as work, school, family, personal care, legal status, or the use of substances in hazardous situations, such as driving” (p. 165).

Substance dependence involves the use of substances in a manner that meets criteria for abuse, but additionally meets the criteria for either psychological or physical dependence.

According to Cirone (2003) these include 3 or more of the following in a 12 month period: tolerance; withdrawal; substance taken in larger amounts or over longer periods of time than what was intended; persistent desire or unsuccessful efforts to cut down or control use; significant amount of time spent in activities necessary to obtain or recover from the substance; giving up important social, occupational, or recreational activities; and substance use continuation despite persistent physical and psychological problems.

In either disorder, the client is engaging in activity that often results in significant harm – either by directly placing themselves in situations that pose physical risk, or indirectly by the negative effects on relationships, employment/finances, self care etc. Clients with hepatitis C who are actively using drugs are doing themselves the additional harm of putting off a treatment that has the ability to halt the progression of liver disease and prevent cirrhosis.

### **Overview of dual disorders**

Sources have estimated the prevalence of co-morbid psychiatric and substance use disorders in the general population to be as high as 50% - i.e. 50% of those with a substance use disorder also have mental illness, and vice versa (Kessler, McGonagle, &

Zhao, 1994; Skinner, 2003). A few of the commonly cited psychiatric disorders are schizophrenia, bipolar disorder, personality disorders, and major depression. Given this high prevalence rate, it can be expected that a similar proportion of hepatitis C-infected drug users will be dually diagnosed, and the author has found this to be the case. In fact, being dually diagnosed is considered to be responsible for higher rates of hepatitis C than either disorder alone (Torrey et al, 2002). Therefore, a model that focuses on care of hepatitis C-infected individuals must take into consideration the needs of this special population.

When searching the literature for information regarding dual disorders, it was found that different countries have different nomenclature for this phenomenon. While the United States uses the term 'dual diagnosis', Canada uses the term 'concurrent disorders'. Both terms describe the combination of mental health and substance use disorders. For consistency, this discussion will use the single term dual diagnosis.

Numerous sources agree that people with dual diagnoses are inadequately served (Health Canada, 2002; Substance Abuse and Mental Health Services Administration, or SAMHSA, 2003;). The reasons are likely as diverse as the complex needs of these individuals, but most sources cite that a significant cause for the inadequate services is the fact that there is generally a separation of the two specialty areas – mental health and addiction services. Those services that are available for these patients are divided by such issues as funding sources, admission criteria, treatment methods, staff training and philosophy. Philosophical differences result in major problems with regards to management. For example, addiction professionals may believe that mental illness is a symptom or manifestation of substance abuse; mental health professionals may believe

that substance abuse is a symptom of mental illness. Neither group is therefore likely to provide effective treatment for multiply diagnosed patients in their usual treatment setting. Few professionals are trained to treat both types of disorders. Cross-training between the two disciplines could help to rectify this type of problem, but unfortunately thus far there seems to have been little success in achieving this. Inevitably, the consequence of this is considerable clinician discomfort, as attempts are made to provide care that is beyond the scope of their specific training (SAMHSA, 2003).

In 1999 Health Canada, as part of Canada's Drug Strategy, published "Best Practices: Substance Abuse Treatment and Rehabilitation" (Health Canada, 1999). In this document, a recommendation was made that "providing integrated services for people with co-occurring substance use and mental health problems holds more promise than offering services in sequence or parallel" (Health Canada, 1999, p. 46). It was recognized that cross-training was crucial for staff of the respective specialized services. In 2002 another publication was released, which built on the previous 1999 document (Health Canada, 2002). "Best Practices: Concurrent Mental Health and Substance Use Disorders" represents a more recent synthesis of research information, specifically about concurrent disorders, and makes detailed recommendations for screening, assessment, and treatment/support for this 'in-need' population. Progress in integrating mental health and substance use disorders seems to have been slow, as suggested by the statement in this latter publication that "the prevalence of co-morbidity is high in the general and treatment-seeking populations and has largely been ignored in planning, implementing and evaluating both mental health and substance abuse services" (Health Canada, 2002, p. viii).

According to Mueser, Drake & Miles (1997), clients with dual diagnoses tend to be more likely to exhibit the following: increase in relapse and rehospitalization rates; increase in depression, suicide, and violence; greater housing instability and homelessness; non-compliance with medication regimes and other treatments; increased vulnerability to HIV infection; increased family burden; and higher service utilization and costs. Because of their mixed and often overlapping symptoms and the great individual variation in underlying problems, the diagnosis of dual disorders can be a puzzle, and deciding on management strategies can be an enormous challenge (Harvard Medical School, 2003). Distinguishing those symptoms that are induced by substance use from those caused by mental illness is important in order to optimize therapy. This can really only be accomplished in the setting of a therapeutic relationship that develops over time. However, typically these individuals receive fragmented care from multiple care providers with varying levels of experience (if any) with either or both disorders. Sorting out the underlying problem after meeting with the client infrequently is almost impossible. People with psychiatric disorders may deny and conceal their drug use, and those in drug and alcohol programs often resent and resist any suggestion that they are mentally ill. Some physicians hesitate to prescribe psychiatric medications for substance abusing patients because they suspect that the substance use is the cause of the psychiatric symptoms, expect no improvement as long as the substance abuse continues, or fear toxic drug interactions (Harvard Medical School, 2003).

### **Behavior Change**

Having thus far described some of the characteristics of individuals living with hepatitis C, as well as a description of their health service needs, the next step is to



discuss the theoretical underpinnings of behavior change. There are many models in existence that attempt to describe why and how people make positive health choices. Some of those are: the social cognitive/social learning theory; the community organization/building theory; the social marketing theory; the health belief model; the theory of reasoned action/theory of planned behavior; and the stages of change/transtheoretical model. What they all have in common is the attempt to explain the biological, cognitive, behavioral, and psychosocial/environmental determinants of health-related behaviors. In addition, they define interventions to produce changes in knowledge, attitudes, motivations, self-confidence, skills, and social supports required for behavior change and maintenance (Whitlock, Orleans, Pender, & Allan, 2002).

The Transtheoretical Model has been found to be particularly useful in working with the substance using population and has formed the basis of a large number of research studies within the addiction field, including the area of dual disorders (Finnell, 2003). This model has been chosen to guide the interventions that are being proposed in this nurse practitioner-managed, collaborative care approach to working with clients with HCV and substance use disorders.

### **The Transtheoretical Model of Change: stages of change**

The transtheoretical model of change (also known as the stages of change model) grew out of work in the area of smoking cessation, and is now a widely applied approach to substance use. James Prochaska and Carlo DiClemente's first published work on this model was in 1982, beginning what would develop into a lifetime of research (DiClemente & Prochaska, 1982).

This model defines five discrete stages that individuals pass through during the process of change. Inherent in the model is a recognition that patients fit along a continuum of motivation to accept our advice about elimination of behavior that has been identified as harmful. A key point is the *identification* of the behavior as harmful. Although the care provider has identified it as such, the client may not yet have come to this same realization. This is felt to be an important reason for resistance toward behavior change. It is thought that the key to success is to identify the stage that clients are in and then to select an intervention that will help move them along the subsequent stages and closer to the ultimate goal of behavior change. Specific cognitive, emotional, and behavior processes are associated with movement from one stage to the next (Prochaska, DiClemente, & Norcross, 1992). In this conceptual framework, lack of success is attributed to a mismatch between the provider's perception and the patient's stage of change (Sylvestre, 2003).

The following is a brief description of the five stages of change that make up the core of this model.

### ***Precontemplation***

Precontemplation is the stage clients are in when they have no intention to change their behavior in the foreseeable future. They are often unaware, or 'under-aware' of the fact that their substance use is a problem (Sylvestre, 2003). Some in this stage have tried to change their behavior in the past, perhaps many times, and have become demoralized at their inability to do so (Prochaska & Velicer, 1997). These individuals tend to avoid reading, thinking, or talking about their high risk behaviors, and are often characterized by those who are trying to help them as unmotivated or resistant (Prochaska & Velicer,

1997). Attempts on the part of the provider to coerce people to change at this stage is destined for failure.

### ***Contemplation***

During the stage of contemplation, individuals are aware that a problem exists and are seriously considering making a change, but are ambivalent and not yet able to make a commitment to take action (Lawrence, 1999; Sylvestre, 2003). People may be 'stuck' in this stage for some time, although if asked they will often assert that they are intending to change within the next six months (Prochaska & Velicer, 1997). They often vacillate between the difficulties created by the substance use and the challenges that are required to stay substance-free (Sylvestre, 2003). This stage may be characterized as behavioral procrastination, or chronic contemplation (Prochaska & Velicer, 1997). Action-oriented programs are not appropriate for these individuals.

### ***Preparation***

Preparation represents the stage during which there is a commitment to change in the near future, often within the next month. Individuals in this stage have determined that the adverse costs outweigh any perceived benefits that result from their substance use. A decision has been made in favour of change and they have a plan of action, despite the continued use of drugs (Sylvestre, 2003). Often, people have started to reduce substance use during this stage.

### ***Action***

During the action stage, the behavior change is observable, and the person is attempting to stop using drugs. This is a stage during which time the client may be going

through physiologic withdrawal, and there may be an emergence of previously unrecognized anxiety or other psychiatric symptomatology ( Sylvestre, 2003).

### ***Maintenance***

This is the stage in which the client has successfully negotiated the action stage and is now working to prevent relapse. There is a focus on making lifestyle modifications in order to avoid relapse, developing new coping patterns for emotions and relationships, and laying the foundations for more lengthy sobriety (Sylvestre, 2003). However, relapse is common and can even be a product of success, as the client feels dramatically better after a sustained period of abstinence and may feel that he or she can return to 'occasional' or controlled use while maintaining other gains (Sylvestre, 2003). Relapse is viewed as part of the learning process, rather than failure. During relapse individuals return to earlier stages of change, and often recycle through the process. According to DiClemente & Scott (1997), most substance users will require several revolutions through the stages of change in order to achieve successful recovery.

### **Transtheoretical Model of Change: processes of change**

Processes of change are the covert and overt activities that people use to progress through the stages of change (Prochaska & Velicer, 1997). Ten processes have been identified that facilitate movement through the stages. Five of these processes are cognitive or experiential (ie. they are internally mediated factors that are associated with a person's emotions, values and cognitions) and the other five are behavioral (Shinitzky & Kub, 2001).

The cognitive/experiential processes, as described by Prochaska & Velicer (1997) and Shinitzky & Kub (2001) are:

- 1) consciousness raising – gaining insight about the causes, consequences, and cures for the problem behavior.
- 2) dramatic relief – experiencing and expressing feelings about one's problems.
- 3) self re-evaluation – assessing how one feels and thinks about oneself ( i.e. self image) in relation to the problem (may involve imagery and visualization).
- 4) environmental re-evaluation – assessing how the problem behavior affects the environment (both physical and social), and may involve such techniques as empathy training and family interventions.
- 5) social liberation – self empowerment or increasing alternatives for non-problem behaviors available in society (eg. advocating for the rights of the oppressed and attempting to influence social policy).

The behavioral processes are:

- 1) counter-conditioning - substituting alternatives for problem behaviors (eg. using meditation when unpleasant emotions surface).
- 2) helping relationships – being open and trusting about problems within a social support system (eg. self-help groups, therapeutic relationship, buddy systems).
- 3) reinforcement management – rewarding oneself or being awarded by others for making positive changes.
- 4) stimulus control – restructuring the environment so that triggers for the problem behavior are controlled.
- 5) self-liberation – believing in oneself that the problem behavior can be changed, and making the commitment to act on that belief (eg. making a public testimony).

### **Assessing readiness to change**

'Readiness' is a conscious awareness that a certain behavior is desired and beneficial (Fowler, 1998). Some researchers are of the opinion that readiness is an antecedent of change (Fleury, 1991). It has been hypothesized that a major reason for failure of substance use treatment programs to help a client break free from the clutches of substance abuse is a critical omission at the start of the process – assessment of what stage of readiness the client is in. Research into prediction of HIV medication adherence has shown that clinician judgement is correct in only approximately 50% of cases (Tsasis, 2001). Given this, there are several tools that have been developed to assist the practitioner in making this assessment. A Consensus Panel of the Center for Substance Abuse Treatment, or CSAT (CSAT, 1999), has endorsed several of these instruments as valuable and psychometrically sound (see Appendix A for an example).

Previous research on estimating stage distribution among those who abuse substances has found that typically 40% of a population would be categorized in the precontemplation stage, 40% would fall in the contemplation stage, and 20% would self-assess in the preparation stage (Cunningham, Sobell, Sobell, Agrawal, & Toneatto, 1993; Dijkstra, DeVries, & Bakker, 1996; Fava, Velicer, & Prochaska, 1995). If this data is accurate, then professionals approaching communities with only action-oriented programs are likely to under serve the majority of their target population. Indeed, applying intensive effort to the 20% that are in the preparation stage may mean that little (if any) effort is left to work with the other 80%. Successful programs must recognize the client's stage of readiness to participate in an intervention, and then match strategies that attempt to engage and maintain them in treatment. Some examples of such strategies

are: motivational techniques, brief intervention, cognitive strategies, and peer-driven interventions.

Assessment of readiness is helpful with HCV-infected substance users for a number of reasons. It may assist a care provider to decide whether or not a client is likely to adhere to medication and/or engage in a therapeutic regime, and it may also provide guidance for the type and intensity of support (e.g. brief intervention and/or identification of barriers vs active engagement in treatment). The process of answering the questionnaire and then discussing the results with a care giver includes the client in decision making, and may even provide some clarity to the client that was previously not there.

Carey, Carey, Maisto, and Purnine (2002) examined the feasibility of enhancing readiness to change (substance use) among outpatients with severe and persistent mental illness. Many of these individuals lack the insight to recognize their substance use as problematic. Known for their poor treatment attendance/adherence and increased tendency to relapse (Jerrell, 1996; Ries, 1994), it has been suggested that a great deal of attention needs to be paid to problem recognition and treatment engagement.

The investigators of this study designed, used, and evaluated a brief motivational intervention for persons with dual diagnoses who were not participating in drug abuse treatment, but were assessed (using validated self report readiness-to-change scales) to be in the precontemplation, contemplation, or preparation stages of change (Carey et al, 2002). The intervention consisted of four individual sessions that were guided by the therapeutic principles of motivational interviewing. Preintervention, one-week postintervention, and three-months postintervention assessments were performed to

assess substance use, treatment involvement, and attitudes toward substance use and cessation. The results indicated that patients became engaged in discussion about their substance use, improved their recognition of substance use as problematic, progressed in readiness to change, and demonstrated increased involvement in substance-related treatment (Carey et al, 2002). A limitation of this study was the fact that clients were not subsequently engaged in treatment, therefore were unable to maintain changes. The authors recognized this limitation and suggested that future efforts might be able to enhance the integration of motivational intervention with ongoing treatment to help facilitate maintenance.

### **Client Engagement in Drug Treatment**

In the addictions field, much research has focused on attempts to understand why some who abuse substances become involved in treatment and others do not. Engagement in behavior change has been viewed in terms of both intensity and duration of treatment participation. High engagers are clients who participate frequently in counseling and other activities (intensity), and they complete treatment – or at least stay in treatment for a significant length of time (duration) (Fiorentine, Nakashima, & Anglin, 1999).

Fiorentine et al (1999) examined a wide array of client characteristics and treatment experiences potentially associated with engagement. They discovered that the perceived utility of treatment and ancillary services to address life problems (such as family, financial, health and legal), along with the client-counselor relationship, are the strongest predictors of treatment engagement. Other researchers have stressed the importance of the client-counselor relationship. Maisto et al (1999) collected qualitative



data to assist in identifying techniques that help to change patterns of substance use in the severely mentally ill. They found that the factor most commonly cited as beneficial was the relationship that the individual developed with his or her therapist, as well as other group members (Maisto et al, 1999).

Two key concepts are especially integral to the client-provider relationship as it influences engagement. These are the concept of empowerment and motivation.

### ***Empowerment***

Empowerment has been defined as a process by which people, organizations, and communities gain mastery over their own lives (Rappaport, 1984), and a social process of recognizing, promoting and enhancing clients' abilities to meet their own needs, solve their own problems, and mobilize the necessary resources in order to feel in control of their own lives (Gibson, 1991). Empowerment requires client-care provider collaboration and a philosophy that values participation, autonomy, and freedom of expression (Curtis & Harrison, 2001). This is in direct contrast to the uneven power relationship of expert provider and passive recipient that has historically dominated the medical world.

An empowerment perspective provides a framework for honest, nonjudgmental, and meaningful exploration into the reality of the person who struggles with substance abuse. Empowerment is critical both in the early stages of change in order to actively engage the client, as well as in the later stages, in order to retain the individual. It provides opportunities for involvement in the development and delivery of services through such initiatives as peer counseling and support systems, and self-help groups. An excellent example of this is found in Vancouver. VANDU (Vancouver Area Network of Drug Users) is a group of users and former users who work to improve the lives of

people who use illicit drugs through user-based peer support and education (Vancouver Area Network of Drug Users, 2004). Formed in 1998, the membership has grown to over 500 people. VANDU challenges traditional client/provider relationships and empowers people who use drugs to design and implement harm reduction interventions. This group organizes social action by working at the local, regional, and national governmental levels to influence policies and programs that affect drug users. Ultimately, this group gives a voice to users and enables an otherwise 'marginalized' group to move from the periphery to the hub of health-related decision making.

Nine Circles Community Health Center (NCCHC) in Winnipeg provides community based health services to individuals living with HIV/AIDS, those at-risk for HIV/AIDS, as well as gay, lesbian, transgendered, and two-spirited persons (the term for aboriginal homosexual individuals). A large component of service provision involves volunteer peer programs, such as advocacy, counseling, buddy support, drop-in, outreach and education activities (Nine Circles Community Health Center, 2004). The NCCHC Peer Involvement Research Project took place in 2002 and was reported in a publication by Ibanez-Carrasco, Ormand, and Bond (2003). The project analyzed peer involvement (peer identity, motivations for peer involvement, key elements of a peer program, and peer functions) using focus groups and key informant interviews. The document by Ibanez-Carrasco and colleagues (2003) outlines their findings regarding common motivations for participating in volunteer peer programs. These were: self-interest, altruism, acquisition of particular skills (computer literacy), general learning (including life lessons), activism, socialization and networking, empowerment (e.g. finding role

models), and acceptance and accommodation by what is perceived as a legitimate organization (a space to meet/things to do) (Ibanez-Carrasco et al, 2003).

As a care provider, client empowerment can be fostered in many ways. For example, by maintaining a non-judgmental attitude, encouraging client participation in as many ways as possible, using non-threatening/non-invasive approaches, being supportive regardless of the stage of readiness that the client is in, being sensitive to cultural differences, and sharing responsibility for defining issues and decision making (Miejer, 1990).

Through fostering client empowerment, trust is more likely to develop. Trust is an important concept in clinical interpersonal relationships, and has been shown to be a factor in patient acceptance of treatments (Semmes, 1991). Carr (2001), in a grounded theory study, explored long term interpersonal relationships between patients and their health care providers (including physicians and nurse practitioners) in an urban outpatient HIV/AIDS clinic. Their findings suggested that trust is not a static condition. On the contrary, trust is “a state of mutuality that is dynamic, volatile, capable of rupture, and may be negotiated and renegotiated at various times during the process of creating and maintaining the relationship” (Carr, 2001, p.41). With an awareness of the complex and variable course of the nature of trust, health care providers may be in a better position to maintain their commitments to, and empathy for, patients when the relationship is difficult and frustrating (Carr, 2001).

### ***Motivation and motivational interventions***

Motivational intervention involves a non-confrontational approach to substance abuse treatment that relies on therapist empathy and acceptance of the client, even if he or

she is ambivalent about change (Douaihy et al, 2003). Being non-confrontational is a critical component of this approach, as confrontation typically is met with defensiveness and psychological resistance to change. As with empowerment, it also emphasizes mobilizing the client's own resources to effect change rather than prescribing a specific course of action.

Discussions of behavioral change, readiness to change, engagement and empowerment of substance users are incomplete without consideration of the concept of motivation. It makes intuitive sense that client motivation influences subsequent treatment engagement and retention. Once thought to be a static trait that a client either had or did not have, motivational intervention is now thought to be a key method by which the care provider becomes a *partner* in the change process.

Motivational interviewing emerged from the addictions field many years ago, largely as a result of research by a well-known professor of psychology, William R Miller (Miller, 1985). Key principles in motivational interviewing include: 1) building rapport with a therapeutic interviewing style that uses skills such as open-ended questions and reflective listening; 2) strategies for minimizing resistance; and 3) exploring ambivalence and encouraging client-generated decisions about why and how to move ahead with change (Emmons & Rollnick, 2001). As previously mentioned (see Assessing Readiness to Change), motivational interviewing has been found to be beneficial in those who are in the earliest stages of readiness to change behavior (Carey et al, 2002). Recognizing that motivation is not necessarily fixed, i.e. that ambivalence is common even as clients move through the stages, motivational interventions are believed to be useful throughout all the levels of change. In fact, research has shown that

motivation-enhancing interventions are effective for encouraging clients to return for another clinical consultation, return to treatment following a missed appointment, stay involved in treatment, and be more adherent (CSAT, 1999). Motivational interventions can include counseling, client assessment, multiple sessions, or a 30 minute brief intervention (CSAT, 1999).

### **Brief intervention**

Brief intervention is a strategy that is often teamed with the Transtheoretical Model, or stages of change, as well as motivational interventions. Spanning the continuum from simple advice to multiple short-term counseling sessions, it includes introducing issues in the context of the client's health, screening and evaluation of current substance use, assessing readiness to change, provision of feedback about risks of continued use, talking about change, and setting realistic goals (Hyman & Carter, 2002). Brief interventions expand the possibilities to increase positive outcomes by using these modalities independently, as stand-alone interventions or treatments, and as supplementary to other forms of addiction and mental health treatment (CSAT, 1999).

Brief interventions for substance-using individuals may take place in a variety of settings – as many settings as the clients are found. Advantages to this form of intervention are: 1) it can be used outside of traditional substance use treatment settings (referred to as opportunistic settings), where clients are not seeking help for a substance use disorder but have come for some other medical or non-medical reason; 2) it may be delivered by care providers who do not necessarily have addictions training, as it requires minimal training; and 3) it can target a diverse array of goals (CSAT, 1999).

According to CSAT (1999), brief interventions have been widely tested with both general clinical and substance-abusing populations and have shown great promise in changing client behavior. Motivational enhancement therapy (MET) is a type of brief intervention which draws on the work of William Miller and colleagues in motivational interviewing (Miller, 1983, 1985; Miller & Rollnick, 1991). It has been delivered in 'low doses', typically four sessions or less, and 'high doses' of up to 16 sessions (Polcin, Galloway, Palmer, & Mains, 2004). Support exists for the effectiveness of this approach for both alcohol and other drug related disorders. It has been used with success as preparation for more intensive treatment (Brown & Miller, 1993), enhancing treatment adherence and retention among cocaine-dependent/dual diagnosis clients in day treatment settings (Martino, Carroll, O'Malley, & Rounsaville, 2000), and as a stand-alone approach to reduce alcohol use (sustained at 3 year follow-up) among alcohol dependent clients (Sellman, Sullivan, Dore, Adamson, & MacEwan, 2001).

### **The FRAMES approach**

The FRAMES approach is considered to be an important element of both motivational interviewing and brief interventions. It consists of the following components (CSAT, 1999): 1) **feedback** – after assessing the substance use (including a detailed history and physical exam), the care provider gives the 'hard facts' relating to its health and effects (such as liver dysfunction, hypertension, gastrointestinal problems, etc); 2) **responsibility** for the choice to change behavior is placed with the individual; 3) **advice** - about changing substance use is clearly given in a nonjudgmental manner; 4) a **menu** – of self-directed change options and treatment alternatives are offered; 5) **empathic** counseling – showing warmth, respect, and understanding through the use of

such approaches as reflective listening; and 6) **self-efficacy** or optimistic empowerment is fostered in order to encourage change.

### **SUMMARY**

This chapter has presented an in-depth examination of various approaches to the integration of hepatitis C management and addictions treatment. Actual examples of programs that are attempting to meet the multiple needs of those with hepatitis C (as well as HIV) and substance use disorders have been provided. The difficulties that are inherent in reaching out to this complex client population have been discussed. The concept of dual disorders, with simultaneous consideration of psychiatric needs as well as addictions, has also been introduced and the special needs of the dually diagnosed client highlighted. Practical approaches to addressing substance use problems, primarily involving the Stages of Change model and motivational interventions, have been presented. Through this literature review, insight has been attained that has been instrumental in helping with the 'construction' of the collaborative care model that will be described in the following chapter.

## CHAPTER 3

### A COLLABORATIVE CARE MODEL

Against the backdrop of the treatment themes that have thus far been articulated, this chapter will discuss the actual model that is being proposed as an approach to working with clients with HCV and addictions.

#### **The setting**

Nine Circles Community Health Center, as described briefly previously in chapter 2, is the proposed setting for the provision of this nurse practitioner-managed hepatitis C/addictions clinic. This clinic already provides care to an estimated 100 clients who have HCV – both mono-infected and HIV co-infected. The staff and volunteers are experienced in working with individuals with addictions. The clinic is multidisciplinary, with nurses, physicians (both generalist and specialist - including psychiatry and infectious diseases), advocates (social workers), volunteers, counselors, and support staff (clerical). The care provided to their ‘high-risk’ clients (HIV-infected and at-risk, HCV infected and at-risk, and those with substance use disorders) is holistic and comprehensive. Many programs are run out of the center, such as ‘Nine Sisters Catering’ – a service run by women with HIV that provides catering both within and outside the walls of NCCHC; transportation services; a drop-in (Sunshine House) that provides a weekly community supper to people in the local area; and a food bank service.

#### **Implementation of the model: the plan**

See Appendix B for a diagram of the model: Transtheoretical Model of Change and the Upward Spiral.



Working collaboratively with the physician specialists in hepatology at the VHIU, as well as the general practitioners at NCCHC, the hepatitis nurse practitioner will see all mono-infected HCV clients who are under the care of one of the primary care physicians at the clinic. At the time of the writing of this practicum project, it will not be the mandate of the hepatitis nurse practitioner to provide care to HIV/HCV co-infected individuals. Co-infected clients are currently cared for by Infectious Disease Specialists in collaboration with the hepatologists.

When a client is referred to the nurse practitioner, a complete health history and focused physical examination will be performed. During the initial visit, screening questionnaires will be used in order to assess alcohol and other drug use (see Appendix C). Specific instruments that may be used include the AUDIT (Alcohol Use Disorders Identification Test) and DAST (Drug Abuse Screening Test), as they have been found to have validity as psychometric tools (Bradley, Bush, McDonnell, Malone, & Fihn, 1998; Gavin, Ross, & Skinner, 1989). A thorough psychiatric history will be completed, and any psychiatric illnesses noted. When a client is found to have a psychiatric diagnosis, the severity/acuity of this diagnosis will need to be assessed. In order to identify clients with clinically significant psychological distress a screening instrument such as the General Health Questionnaire-12 (GHQ-12) is helpful. The GHQ-12 has been studied fairly extensively for its ability to detect mood and anxiety disorders in particular, and has been found to be reliable and accurate (Cano et al, 2001; Goldberg et al, 1997). It is also user-friendly due to its brevity, having only 12 questions. Some have suggested that follow-up with the longer, more comprehensive Symptom Checklist (SCL-90) is beneficial for reducing false positives, and therefore increases accuracy in screening for

mental disorders (Schmitz, Kruse, & Tress, 2001). Further inquiry and research into the optimal use of screening tests would likely be required, as well as input from a psychiatrist.

NCCHC has a psychiatrist that spends one afternoon every other week assessing HIV-positive clients who have a primary care provider at the clinic. This psychiatrist is also involved with the VHIU, seeing HCV-positive clients who are being considered for antiviral treatment as well as following a few of them while they are receiving treatment (due to the negative neuropsychiatric effects of the interferon). As an already valuable resource for NCCHC and the VHIU, he would be a potential resource for the hepatitis nurse practitioner. This would need to be negotiated in advance, as it will likely require that he increase his hours of availability for the additional workload. Those clients who have psychiatric disorders that are more severe and result in significant behavioral difficulties would be best managed collaboratively, with an initial assessment by the psychiatrist (if not already being followed by another) and subsequent co-management as appropriate. Clients who are assessed as being depressed, and/or those with anxiety, would be within the scope of the nurse practitioner to care for independently. In Manitoba, although nurse practitioners are not yet legislated to prescribe medication, progress is being made between the College of Registered Nurses of Manitoba and the Manitoba government towards this end. There are hopes that the legislation issues will be complete by the beginning of 2005 (College of Registered Nurses of Manitoba, 2004). Nurse practitioners will be allowed to prescribe from parts 1 and 2 of the Manitoba Drug Formulary. Antidepressants and anxiolytic medications are included in these sections of the formulary (Manitoba Drug Formulary, 1995).

All clients will be assessed for stage of readiness to receive HCV antiviral treatment. Those who are judged to have no obvious contraindications to treatment, ie they have none of the medical or other contraindications as previously discussed (see Chapter 1 – HCV Treatment - for a complete list of contraindications) will be educated thoroughly about hepatitis C and ‘worked up’ in terms of the appropriate blood tests and other investigations such as abdominal ultrasound. In some cases, a liver biopsy will be necessary (genotype 1 primarily) in order to help make the decision to treat.

Other clients, particularly those who have been the focus of this paper – individuals with a history of substance abuse – will receive a different approach. These individuals will be screened to determine where they are in the five stages of change with regards to their substance use, utilizing a screening instrument such as the example given in Appendix A. The nurse practitioner can then use a stepwise approach to discussion and involvement in antiviral treatment ‘workup’ and eventual initiation.

For those assessed to be in the earliest stage of precontemplation, the nurse practitioner – acting as change agent - will interact with clients in a counseling style that helps them to resolve ambivalence towards decreasing substance use. As described in detail in chapter 2, interventions that may be used include brief motivational interviewing and working to decrease barriers such as difficulties with housing and other social concerns. At this point, working together with advocates at the clinic will be essential, in order to address the many social concerns and intervene during inevitable crises. Of great importance during this stage will be the nurse practitioner’s ability to focus on empathically listening to the client rather than ‘telling’ him or her what to do. This is a relationship building period, and is a critical first step towards changing substance use

patterns. Forging a therapeutic alliance and trust may take a long time, and specific strategies to establish a working relationship will likely include providing medications, assistance in obtaining entitlements, and continued symptom management while the client is still using drugs and/or alcohol. There must be a conscious effort to avoid prematurely focusing on what the care provider perceives to be the problems (i.e. addictions and/or hepatitis C), rather than starting with the client's own concerns. This provides an environment that is safe and open, and therefore conducive to examining the issues that the client presents with.

During the precontemplation stage, clients may be seen by the nurse practitioner only for brief visits, but long enough to receive some simple information such as the fact that continued alcohol use accelerates the progression of liver damage or that drug use may increase the risk of infections. There may well be more time spent with the advocates, attempting to deal with many of the social concerns the client has, and less time spent with 'medical' issues. However, during the visits at this stage, the nurse practitioner is helping the client to connect alcohol and substance use to specific negative consequences in his or her life (Sylvestre, 2004). When medical concerns arise, whether or not directly related to hepatitis C, the nurse practitioner may 'opportunistically' use these occasions to point out how substance use may be contributing (if not causing) the particular problem. For example, if the client presents with a complaint of stomach pain, the nurse practitioner can encourage speculation about the causal relation to alcohol use. Or perhaps, the client has bouts of increased anxiety which appears to be temporally related to cocaine use. A brief discussion about cocaine-induced physical and psychological changes may be appropriate and timely. It may take much repetition of the

same points, but eventually the client will learn that many of the difficulties that he or she experiences are the result of the use of alcohol or other drugs.

There are many advantages to establishing a peer-based intervention in order to assist clients who are in the earliest stages of readiness to change. Such an approach has been used with success by Sylvestre (2004). Through setting up a support group of those who have successfully beaten their addiction as well as received antiviral treatment for their hepatitis, the person who is still ambivalent (and not yet engaged) may be educated at the same time as encouraged to move forward. Sylvestre (2004) has found that clients tend to respond much more receptively to peers, often because they have had lengthy histories of being treated badly by authority figures. Education by peers about hepatitis C and the treatment may help alleviate fears, knowing that someone similar to them has gone through the experience and lived to tell the story! In addition, peer-based education seems less threatening than education by a health professional, and is often easier to understand as it conveyed without the medical jargon. Given all of this, the hepatitis nurse practitioner will attempt to establish a peer-based support/education group at NCCHC.

Another major advantage to involvement of 'substance-free' peers is that clients will be encouraged to avoid friends and acquaintances that continue to abuse substances, and being involved with a supportive peer group will help them to form new friendships. It is highly unlikely that recovery can be maintained if the client continues to associate with individuals who drink or use drugs (Carey, 1996).

As clients move to the next stage (contemplation), and are beginning to talk about changing their substance use, the nurse practitioner may want to bring up the issue of

hepatitis treatment again, and move the person forward in pre-treatment workup. For example, during initial assessment only bloodwork will likely have been done – now, an abdominal ultrasound may be performed in order to assess for the presence of hepatoma and/or cirrhosis. This will potentially help the client to feel that something is being done with regards to his or her hepatitis, provide further information that can be used as education, and enhance engagement in the hepatitis C treatment process.

When clients have started to reduce substance use, they are in the process of moving to the next stage of change, preparation. These are individuals who should be receiving much positive reinforcement for any and all changes they have made, no matter how small. The nurse practitioner needs to focus on increasing the clients' commitment to change, through such strategies as helping them to explore and set goals, and encouraging a recognition of discrepancies between 'where they are' and 'where they want to be' (CSAT, 1999). A referral to the hepatologist would be appropriate if the client is motivated to move ahead with antiviral treatment, in order to further enhance engagement. At this time, if a liver biopsy is necessary, the hepatologist will stress the need to be off alcohol and/or other drugs for at least 3 months before the biopsy will be considered. This will hopefully be a motivating factor for the client, and the nurse practitioner can help the client to determine if this is what he or she wishes. Setting a 'quit date' may be appropriate at this stage. However, it will be important not to rush the clients into decision making (which will engender resistance) but to help them reach a decision and stick with their resolve. It is common for fluctuations to occur in the client's commitment to change during this stage. Additionally, the decrease in substance use may cause underlying psychological disorders to become more evident, such as

depression and/or anxiety, as well as difficult to manage personality disorders. These disorders may need treatment, which may or may not be able to be managed by the nurse practitioner. Consultation with the psychiatrist may be required. There may be a need for many visits during this period of time (perhaps weekly sessions), as the nurse practitioner 'checks in' with the client's commitment to the change process and acts as a 'coach' to keep him or her motivated and focused.

It should be mentioned that involvement of an addiction specialist may be necessary at any stage in the process of change. For clients who are addicted to opiates, methadone treatment may be appropriate. There are at least two options for referral to methadone treatment in Winnipeg. One of those is CARI (Clearview Addiction Rehabilitation Institute), and the other is the Addictions Foundation of Manitoba (AFM). Ideally, there would be an addiction specialist available at NCCHC – in order to provide 'one-stop-shopping' - but this is currently not the situation. However, should clients need to be referred to a methadone treatment center, the nurse practitioner would continue to follow them and be in close communication regarding both medical and psychosocial issues – acting as a case manager. As mentioned previously, patients on methadone maintenance therapy have been successfully treated for their hepatitis C. Once the client has been stabilized on methadone, and no longer struggles with cravings, hepatitis C treatment could be initiated.

The nurse practitioner must be alert for signs that the client is moving from preparation to action. These may include decreased resistance, making statements that are self-motivational reflecting an openness to change (such as "I have to do something", or optimistic statements such as "I am going to beat this"), more questions about change,

envisioning what life might be like off drugs, and experimenting with possible change approaches (such as going to Alcoholics Anonymous or Narcotics Anonymous groups) (CSAT, 1999). When it seems evident that the client is becoming committed to change, the nurse practitioner may initiate negotiating a plan for change. This may involve such approaches as involving social supports (perhaps an individual from the peer support group or a concerned significant other), anticipating and working to lower potential barriers to action (such as a change in family dynamics which can be very unsettling and may result in crises), and developing a behavior contract which may involve rewards (CSAT, 1999). It may be appropriate to discuss options or treatment alternatives during this stage. This requires that the nurse practitioner be aware of treatment facilities that are available within the community, and their eligibility criteria (such as outpatient and inpatient programs – eg. St. Norbert Foundation, various AFM programs, and the River House Residential Program for women). Again, the nurse practitioner must be alert to signs of physiological withdrawal and help manage the emergence of whatever may ‘come up’ during this stage (anxiety, depression, panic attacks).

Clients who have been able to maintain sobriety or abstinence for at least 3 months (action stage) need to be reassessed for readiness to move forward with HCV treatment. This may mean having a liver biopsy, in which case the client will be informed of how severe the liver damage is. Depending on the result, the nurse practitioner and hepatologist will make a recommendation to treat sooner than later (in the case of moderate to severe scarring) or to defer treatment for the time being because liver damage is minimal. In the latter case, the client will be followed up by the nurse



practitioner on a regular basis in order to provide ongoing support for the substance use as well as monitoring of the progression of chronic liver disease.

Most sources cite that the optimal duration of sobriety prior to starting antiviral treatment for hepatitis C is six months. However, Sylvestre (2004) has pointed out that there is nothing 'magical' about the six month period, and that some clients with more limited sobriety do better than others who have been drug free for years. The decision must be individualized, and the nurse practitioner who has been involved with the patient throughout his or her process and has built a strong therapeutic alliance, is likely to be able to make a solid recommendation regarding the readiness of the client. Ultimately of course, the client needs to be able to make the final decision about his or her readiness. Sylvestre (personal communication, June 3, 2004), in deciding whether or not the client would be suitable to start on antiviral treatment, has used the criteria of the ability of the client to show up reliably and frequently for appointments for at least 3 months. If this has been possible, then the client is more likely to successfully adhere to the HCV therapeutic regime, with the many appointments that are needed to monitor blood work etc. This seems a reasonable approach, and one that the nurse practitioner could use in her practice.

Clients who are deemed ready for HCV treatment may be in either the action or maintenance stages. The reality is that they may experience relapse at any time, and the nurse practitioner and client needs to be aware of this and prepared for it. An upfront discussion about the possibility of relapse, and what way it will be handled, needs to take place before the client initiates treatment. Sylvestre (2004) reports that the HCV treatment, with its associated psychiatric side effects, contributed to relapse of hard drug

use in 7% of clients in one of her studies. In 4% of cases the drug use became regular, and none of these patients had a virologic response (Sylvestre, 2004). This may have been because the client missed doses of the medication. The best approach with a client who relapses during HCV treatment is to intervene as quickly as possible and refer the individual to a drug treatment program. According to Sylvestre (2004) there is no need to discontinue treatment unless the substance use becomes regular (data from her studies suggests that drug use during HCV treatment does not adversely affect virologic response rates unless it becomes regular). However, the client does need to know that there is harm associated with using substances during treatment, especially alcohol, and that there is a possibility that treatment will have to be discontinued.

In preparing the client for treatment, the nurse practitioner must inform the client that there are numerous potential side effects related to the medications (see Chapter 1 – nursing management of the hepatitis C client). They must also be aware that there are helpful interventions that can ameliorate the side effects, and that adherence to the suggestions of the nurse practitioner will help them get through these. It must be emphasized that the client take their medication as prescribed, as the response rate significantly lowers as more doses are missed. McHutchison and colleagues (2002) studied adherence, and discovered that when 80 % of interferon and 80 % of ribavirin is given at least 80 % of the time, sustained response is much better. This is now widely accepted, and termed the 80/80/80 rule. Close follow-up and monitoring is essential, especially during the first few weeks, when side effects can be worst. Dose adjustments may be necessary due to more serious side effects such as neutropenia, thrombocytopenia, and anemia. Depression may also warrant dose reduction of

interferon if it is significantly affecting the client, due to the risk of suicide as well as substance use relapse. Consideration must be given to initiating antidepressant medication several weeks before starting HCV treatment for those that have a history of depression and/or for those that are found to be at high risk on screening prior to initiation of treatment.

If a client is having difficulty taking the medications, a thorough assessment needs to be performed in order to uncover the cause, and creative solutions need to be sought by the nurse practitioner and client to resolve the problem. If the problem is remembering to take them, then setting a timer may be helpful or enlisting the support of a reliable friend or significant other to remind the client. Involving this significant other when being educated about the treatment and learning how to self-administer the injection is a helpful strategy. If the problem is running out of medication, then it may be beneficial to arrange for the pharmacy to drop off the medication to the client's home.

HCV treatment can last as long as one year. This can seem like a very long time even in the best scenario, with few side effects, but with many side effects the stamina required can be very difficult. Peer support should be enlisted as much as possible, and clients should be encouraged to come to see the nurse practitioner and/or whatever other supports they need (counselors etc) whenever they feel their motivation is dropping and they feel like quitting. Frequent telephone support is often necessary and helpful. For genotype 1 infections, a 12 week HCV-RNA test is performed, which is a significant 'milestone'. If the result is negative, or there has been at least a 2-log drop (deemed Early Virological Response, or EVR), then the client has a 65% – 72% chance of developing a sustained response, or SVR (Strader, Wright, Thomas, & Seef, 2004). If the

result is still positive at 12 weeks (with less than a 2-log drop) then treatment is usually discontinued at this point, as the chance of a SVR is approximately 3% or less (Strader et al, 2004). Clients need to be educated about this 12 week test, so that they are well aware of the consequences of the different outcomes. If they are still positive at week 12 but have at least a 2-log drop, they need to know that there is still a good chance of being negative at the end so that they do not become discouraged.

Having successfully completed the full course of treatment (24 weeks for genotypes 2 and 3, and 48 weeks for genotype 1), clients are again tested for the presence of HCV virus. If they are negative, they are considered to have an end-of-treatment (EOT) response, and have a very good chance of maintaining this response and becoming a sustained virological responder (ie. negative HCV RNA 24 weeks after the completion of therapy). Clients should have it explained to them that approximately 95% of individuals with a SVR will remain virus-free for an indefinite period of time, i.e. they are considered 'cured' (Doucette & Kaita, 2002). It is important to make all of this very clear to the client so that there are no surprises in the event that the virus does return.

Ideally, the client who has made it through HCV treatment and has been successful at not only completing a difficult treatment regime, but has also stopped using substances for a sustained period of time (i.e. in the maintenance stage), will continue to make positive choices in the future and avoid substance use and other high-risk activities. However, it is well known that people with addictive disorders have a chronic brain disease that can predispose the individual to a lifelong tendency to relapse (Sylvestre, 2004). Clients need to have supports in place that will help them stay the long course of addictions rehabilitation. Although the nurse practitioner will eventually become less

involved with the client after successful completion of HCV treatment, transfer of care to another primary care provider (preferably knowledgeable and experienced with people with addictive disorders) should take place. In anticipation of future temptations to re-engage in substance use, the nurse practitioner will have discussed lower risk forms of use (consistent with a harm reduction model) that will lessen the chance that the client could be reinfected with a blood-borne pathogen.

### **CONCLUSION**

This practicum project has presented a model of care for hepatitis C infected individuals with the co-occurring disorders of substance abuse and/or psychiatric illness. The potential benefits of this model are the following (to name just a few): offering hope to a group of too often hopeless individuals; creating linkages and building bridges where both have been lacking; and bringing tertiary, secondary, and primary care together in a promising working relationship that provides 'one-stop-shopping' to clients who desperately need it.

While it has been encouraging to see that attempts have been made to provide the type of care that this model suggests – with some success – it remains to be determined whether this model will be supported at the multiple levels that are required to take it from the realm of an 'academic' exercise to the 'real-world' setting. Many system-level changes will be necessary, and there will certainly be challenges to overcome. The type of care and provision of services being proposed necessitate a paradigm shift for some health professionals. There are likely to be those who wonder if the costs outweigh the benefits, as the support required by this model is intensive. By starting with a relatively small group of clients and collecting outcomes data, time and experience will reveal the

evidence regarding the feasibility and effectiveness of this endeavour. No doubt, the clients will be the teachers, and the model will go through a number of metamorphoses before it becomes what it needs to be. This is just the beginning.

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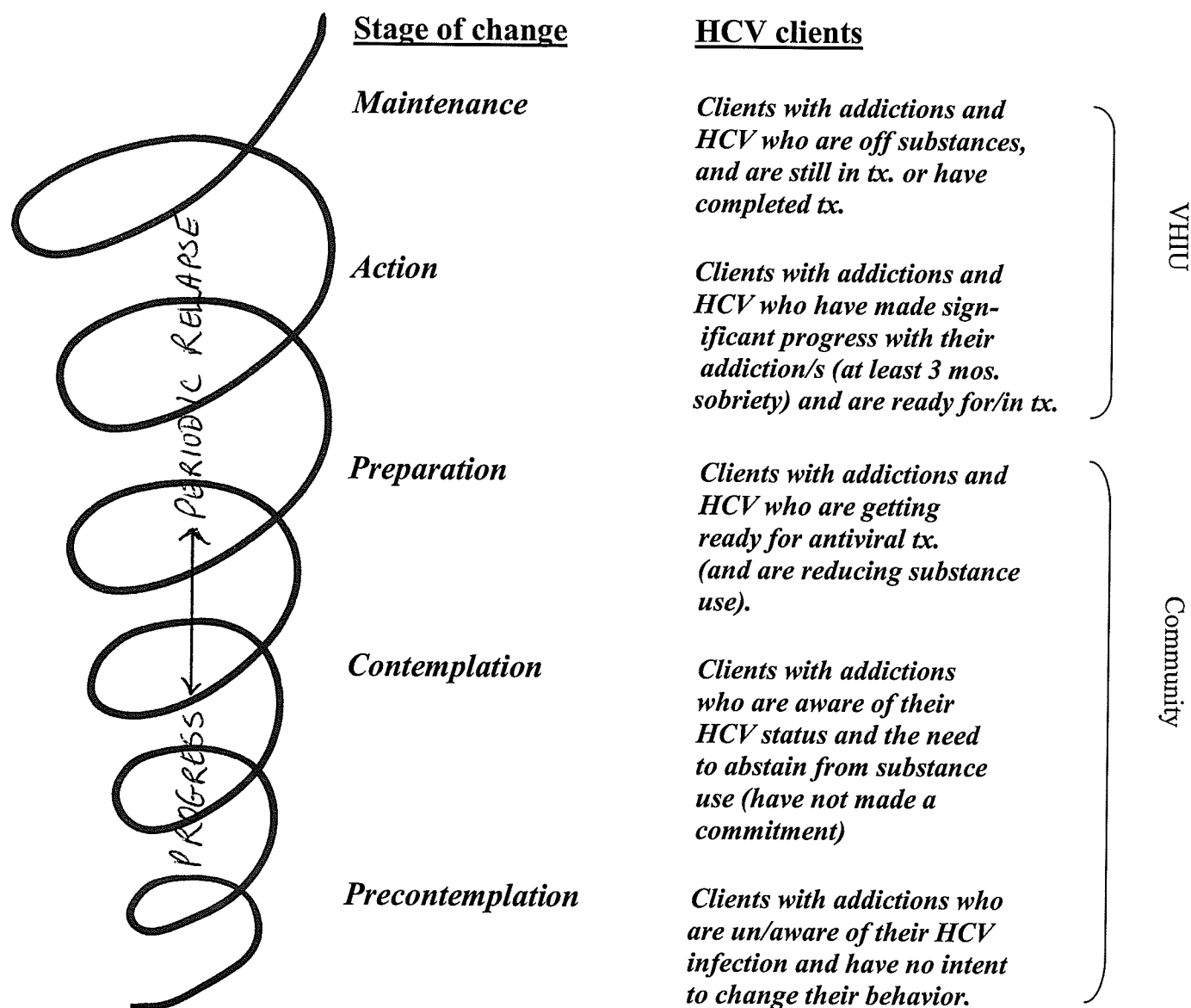
## APPENDIX A

UNIVERSITY OF RHODE ISLAND CHANGE ASSESSMENT SCALE (URICA)  
(CSAT, 1999)

	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1. As far as I'm concerned, I don't have any problems that need changing.	1	2	3	4	5
2. I think I might be ready for some self-improvement.					
3. I am doing something about the problems that had been bothering me.					
4. It might be worthwhile to work on my problem.					
5. I'm not the problem one. It doesn't make much sense for me to consider changing.					
6. It worries me that I might slip back on a problem I have already changed, so I am looking for help.					
7. I am finally doing some work on my problem.					
8. I've been thinking that I might want to change something about myself.					
9. I have been successful in working on my problem, but I'm not sure I can keep up the effort on my own.					
10. At time my problem is difficult, but I'm working on it.					
11. Trying to change is pretty much a waste of time for me because the problem doesn't have to do with me.					
12. I'm hoping that I will be able to understand myself better.					
13. I guess I have faults, but there's nothing that I really need to change.					
14. I am really working hard to change.					
15. I have a problem, and I really think I should work on it.					
16. I'm not following through with what I had already changed as well as I had hoped, and I want to prevent a relapse of the problem.					
17. Even though I'm not always successful in changing, I am at least working on my problem.					

## APPENDIX B

# Transtheoretical Model of Change and The Upward Spiral



Adaptation of Prochaska's  
Transtheoretical Model (1992)

## APPENDIX C

### Alcohol Use Disorders Identification Test (AUDIT) (CSAT, 1999)

Q1	<ul style="list-style-type: none"> <li>○ Never</li> <li>○ Monthly or less</li> <li>○ 2-4 times per month</li> <li>○ 2-3 times per week</li> <li>○ 4+ times per week</li> </ul>	How often do you have a drink containing alcohol?
Q2	<ul style="list-style-type: none"> <li>○ 1 or 2</li> <li>○ 3 or 4</li> <li>○ 5 or 6</li> <li>○ 7 to 9</li> <li>○ 10 or more</li> </ul>	How many drinks containing alcohol do you have on a typical day when you are drinking?
Q3	<ul style="list-style-type: none"> <li>○ Never</li> <li>○ Less than monthly</li> <li>○ Monthly</li> <li>○ Weekly</li> <li>○ Daily or almost daily</li> </ul>	How often do you have six or more drinks on one occasion?
Q4	<ul style="list-style-type: none"> <li>○ Never</li> <li>○ Less than monthly</li> <li>○ Monthly</li> <li>○ Weekly</li> <li>○ Daily or almost daily</li> </ul>	How often during the last year have you found that you were not able to stop drinking once you had started?
Q5	<ul style="list-style-type: none"> <li>○ Never</li> <li>○ Less than monthly</li> <li>○ Monthly</li> <li>○ Weekly</li> <li>○ Daily or almost daily</li> </ul>	How often in the last year have you failed to do what was normally expected of you because you were drinking?
Q6	<ul style="list-style-type: none"> <li>○ Never</li> <li>○ Less than monthly</li> <li>○ Monthly</li> <li>○ Weekly</li> <li>○ Daily or almost daily</li> </ul>	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
Q7	<ul style="list-style-type: none"> <li>○ Never</li> <li>○ Less than monthly</li> <li>○ Monthly</li> <li>○ Weekly</li> <li>○ Daily or almost daily</li> </ul>	How often during the last year have you had a feeling of guilt remorse about drinking?

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Q8	<ul style="list-style-type: none"><li>○ Never</li><li>○ Less than monthly</li><li>○ Monthly</li><li>○ Weekly</li><li>○ Daily or almost daily</li></ul>	How often during the last year have you been unable to remember what happened the night before because you had been drinking?
Q9	<ul style="list-style-type: none"><li>○ No</li><li>○ Yes, but not in the last year</li><li>○ Yes, during the last year</li></ul>	Have you or someone else been injured as a result of your drinking?
Q10	<ul style="list-style-type: none"><li>○ No</li><li>○ Yes, but not in the last year</li><li>○ Yes, during the last year</li></ul>	Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested that you cut down?

## APPENDIX C

**Drug Abuse Screening Test (DAST)** (retrieved June 20, 2004 from <http://kc.vanderbilt.edu/addiction/dast.html>)

The following questions concern information about your involvement and abuse of drugs. Drug abuse refers to:

1. the use of prescribed or "over the counter" drugs in excess of the directions
2. any non-medical use of drugs

The questions DO NOT include alcoholic beverages. The DAST does not include alcohol use.

Note: The questions refer to the past 12 months. Carefully read each statement and decide whether your answer is yes or no. Please give the best answer or the answer that is right most of the time. Click on the box for Yes or No

1. Have you used drugs other than those required for medical reasons?	<input type="radio"/> Yes <input type="radio"/> No
2. Have you abused prescription drugs?	<input type="radio"/> Yes <input type="radio"/> No
3. Do you abuse more than one drug at a time?	<input type="radio"/> Yes <input type="radio"/> No
4. Can you get through the week without using drugs?	<input type="radio"/> Yes <input type="radio"/> No
5. Are you always able to stop using drugs when you want to?	<input type="radio"/> Yes <input type="radio"/> No
6. Have you had "blackouts" or "flashbacks" as a result of drug use?	<input type="radio"/> Yes <input type="radio"/> No
7. Do you ever feel bad or guilty about your drug use?	<input type="radio"/> Yes <input type="radio"/> No
8. Does your spouse (or parents) ever complain about your involvement with drugs?	<input type="radio"/> Yes <input type="radio"/> No
9. Has drug abuse created problems between you and your spouse or your parents?	<input type="radio"/> Yes <input type="radio"/> No
10. Have you lost friends because of your use of drugs?	<input type="radio"/> Yes <input type="radio"/> No
11. Have you neglected your family because of your use of drugs?	<input type="radio"/> Yes <input type="radio"/> No
12. Have you been in trouble at work because of your use of drugs?	<input type="radio"/> Yes <input type="radio"/> No
13. Have you lost a job because of drug abuse?	<input type="radio"/> Yes <input type="radio"/> No
14. Have you gotten into fights when under the influence of drugs?	<input type="radio"/> Yes <input type="radio"/> No



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15. Have you engaged in illegal activities in order to obtain drugs?	<input type="radio"/> Yes <input type="radio"/> No
16. Have you been arrested for possession of illegal drugs?	<input type="radio"/> Yes <input type="radio"/> No
17. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	<input type="radio"/> Yes <input type="radio"/> No
18. Have you had medical problems as a result o your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	<input type="radio"/> Yes <input type="radio"/> No
19. Have you gone to anyone for help for a drug problem?	<input type="radio"/> Yes <input type="radio"/> No
20. Have you been involved in a treatment program especially related to drug use?	<input type="radio"/> Yes <input type="radio"/> No