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BEST PRACTICE GUIDELINES



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Caring for clients who are at risk for or living with HIV/AIDS

GREETINGS FROM CANAC

It is with pride that the Canadian Association of Nurses in AIDS Care releases this guideline, *Caring for Clients Who are At Risk For or Living With HIV/AIDS*, to acute care and community nurses across Canada. Evidence-based practice supports the excellence in care that nurses are committed to providing in their day to day practice. We are delighted to provide this key resource.

CANAC would like to acknowledge the Registered Nurses Association of Ontario, whose best practice guidelines provided a template for

us to use to prepare this document. In particular, we would like to acknowledge the team of nurses who took the time to put this document together. Successful uptake of these guidelines requires a concerted effort from front line nurses and their health care colleagues, from other disciplines, nurse educators and administrators in both practice and academic settings, and employers. These guidelines will only come to life if nurses have healthy and supportive work environments that help translate these guidelines into action.

TABLE OF CONTENTS

How to use this document	4
Purpose and Scope	5
Summary of Recommendations	6
Interpretation of evidence	11
Development Panel Members	12
Stakeholder Acknowledgement	13
Background Context	14
Practice Recommendations	16
Evaluation/Monitoring of the Guideline	60
Implementation Strategies	68
Process for Update/Review of Guidelines	70
References	71
Appendix A: Search Strategy for Existing Evidence	78
Appendix B: Glossary of Terms	79
Appendix C: Social Determinants of Health (SDOH)	84
Appendix D: Drug Interactions with HAART	89
Appendix E: Routes of Elimination of Antiretroviral Agents and Effects on CYP450	91
Appendix F: Educational Resources	92

HOW TO USE THIS DOCUMENT

This best practice guideline is designed to provide an overview of the skills that are expected of a nurse who is caring for a client who is living with HIV/AIDS. It contains recommendations for practice and includes an overview of the resources necessary to support evidence based nursing practice. It is designed to be a resource tool for nurses who deliver HIV care in either an acute care or community setting. It is expected that nurses will use it to enhance effective decision making in the provision of client care.

This is a guideline. It is not meant to replace or supercede existing policies and procedures but to complement them.

This document is useful for those people who lead or facilitate practice change. It can be utilized in the development of:

- Policies, procedures and protocols;
- Educational sessions;
- Assessment tools, and;
- Documentation tools.

Organizations may use this guideline in a number of ways. They may:

- Assess current nursing practices using the recommendations in the guidelines.
- Identify recommendations that address identified needs or gaps in services.
- Systematically develop a plan to implement recommendations using associated tools and resources.

CANAC is interested in hearing how you have implemented this guideline. Please contact us to share your experiences at www.canac.org.



CANAC would like to thank Gilead for their support in the production of these guidelines

PURPOSE & SCOPE

Best practices are emerging guidelines – collected from key experts perspectives and client focus groups, and substantiated by evidence found in the literature- on the approaches and elements of practice that result in best outcomes for client care. Best practice guidelines are an accepted method of providing current evidence for nurses to use to guide their practice. These guidelines synthesize the evidence and recommend best practices based on the evidence. They offer nurses a reliable source of information on which to make decisions regarding practice.

This guideline will focus on recommendations for any child, adult or older adult who is living with HIV/AIDS. Particular attention will be paid to priority populations. The clinical questions to be addressed by the guidelines include:

1. What do nurses need to be aware of to do an appropriate assessment of clients who present to their practice setting who are living with HIV/AIDS?
2. What do nurses need to know about HIV/AIDS?
3. What is the role of the nurse in the care and treatment of clients who are living with HIV/AIDS?
4. How do nurses support a client living with HIV/AIDS who presents for care?

The goal of this document is to provide nurses with recommendations, based on the best available evidence, on caring for clients who are living with HIV/AIDS. The document contains recommendations that address assessment, development of a collaborative treatment plan, health promotion, and on-going follow-up. These recommendations are for Registered Nurses, Advanced Practice Nurses and Licensed Practical Nurses. The document is intended for nurses who are not necessarily experts in the field of HIV/AIDS and who work in a variety of practice settings, including addictions, corrections, acute care, community care, mental health, maternity and pediatrics and public health.

It is expected that individual nurses will perform only those aspects of assessment and intervention for which they have acquired the necessary skill sets, whether through education or work related experience. It is also expected that they will seek appropriate support and education in instances where the client's care needs exceed their ability to act independently.

It is acknowledged that nurses do not act alone in providing HIV/AIDS care to their clients but that it in fact care delivery depends on a coordinated, interdisciplinary approach that incorporates communication between health-care professionals and clients and their caregivers/families

SUMMARY OF RECOMMENDATIONS

Practice Recommendations

RECOMMENDATION	**TYPE OF EVIDENCE
1 Nurses incorporate specific skills and knowledge about HIV infection and AIDS into their everyday practice.	IV
a) Nurses incorporate knowledge of maternal and child health, elder care, addiction care, harm reduction, and the impact of stigma.	IV
2 Nurses have knowledge of the impact of the social determinants of health on people who are living with HIV/AIDS.	1b-IV
a) Nurses consider the holistic needs of their patients when delivering care.	IV
3 Nurses practice reflectively to maintain a continued awareness of their current and evolving perceptions, attitudes and biases, values and beliefs when working with patients who are infected with HIV.	IV
a) Nurses provide care in keeping with the principles of cultural safety.	IV
4 Nurses inform their patients of available treatment options for HIV infection on an ongoing basis.	IV
a) Nurses will provide education to their patients on possible side effects, importance of adherence and scheduling of medications.	1a-IV
b) Nurses will ensure that their patients are partnered with a primary care provider who can provide treatment.	IV

RECOMMENDATION****TYPE OF EVIDENCE**

5 Nurses have an understanding of the efficacy of highly active antiretroviral therapy (HAART) in treating HIV infection.	IV 1b-IV 1b-IV
a) Nurses have knowledge of the side effects and drug to drug interactions associated with HAART	1b-IV
b) Nurses understand the importance of adherence in minimizing resistance and an awareness of the strategies that they can use to support adherence in their patients.	IV
6 Nurses have knowledge of the common opportunistic infections that are a result of a declining CD4 count and an AIDS diagnosis.	1b-IV IV
a) Nurses are knowledgeable about the treatment options for common opportunistic infections.	IV
7 Nurses are able to interpret the lab tests that are specific to an AIDS diagnosis, including CD4, CD4 fraction and viral load.	IV
8 Nurses are able to interpret the diagnostic tests for HIV antibody testing and provide informed care to persons who present for HIV testing.	IV
9 Nurses are knowledgeable about the process of providing HIV testing.	IV IV IV
a) Nurses understand what factors make persons vulnerable to HIV infection.	IV
b) Nurses understand how to offer HIV testing to vulnerable clients.	IV
c) Nurses understand the process of providing HIV testing either by point of care or ELISA.	IV

RECOMMENDATION****TYPE OF EVIDENCE**

10 Nurses understand the importance of pre and post test counselling for patients who are receiving an HIV test	IV
a) Nurses can explain the difference between nominal, non-nominal and anonymous testing	IV
b) Nurses can support clients through the process of partner notification.	IV
c) Nurses will support clients to get appropriate follow-up, including support groups and primary care.	
11 Nurses will identify clients who are at risk for HIV infection and will provide prevention education.	IV
a) Nurses will incorporate the principles of harm reduction into the care of vulnerable clients.	1b-IV
b) Nurses will be able to identify the gender, ethnicity, lifestyle and socio-economic issues that put clients at risk for HIV infection.	1b-IV
12 Nurses will have an understanding of how to prevent vertical transmission for pregnant women who are living with HIV.	IV
a) Nurses will have knowledge of the antiretroviral options that are used in pregnancy and during labour.	IV
b) Nurses have an understanding of the issues that this often marginalized population are confronting and how to support these women throughout their pregnancy.	1a-III

RECOMMENDATION****TYPE OF EVIDENCE****EDUCATION RECOMMENDATIONS**

13 Nurses understand that not all Aboriginal communities are ready to face the issues around HIV and need to be able to build HIV awareness and readiness in Aboriginal communities. IV

a) Nurses will provide quality end of life care to patients who are dealing with end stage cancer or irreversible AIDS defining illness

14 Schools of nursing will integrate principles of HIV/AIDS care into undergraduate curriculum IV

a) Undergraduate curriculum will support evidence based training and practice in the field of HIV/AIDS. IV

15 Nurses will incorporate knowledge of HIV/AIDS into their ongoing everyday practice and continuing education. IV

16 Nurses working in the field of HIV/AIDS have access to formal training and education to achieve competencies in practice and standards of practice in HIV/AIDS. IV

ORGANIZATION AND POLICY RECOMMENDATIONS

17 Nurses advocate with policy makers for improved access to HIV/AIDS care and treatment modalities, including HAART, as part of holistic, primary health care for all populations. IV

18 Health care organizations have policies that reflect uniform approaches to the management of clients living with HIV/AIDS in all facilities, including seamless coordination of transfer and discharge between facilities for clients living with HIV/AIDS. IV

RECOMMENDATION****TYPE OF EVIDENCE**

-
- | | |
|---|----|
| <p>19 Health care organizations provide mechanisms of support for nurses through orientation programs and ongoing professional development opportunities regarding care and treatment options for HIV/AIDS.</p> | IV |
| <p>20 Nursing best practice guidelines can only be successfully implemented when there are adequate planning, resources, organizational and administrative support, as well as appropriate facilitation. Organizations may wish to develop a plan for implementation that includes:</p> <ul style="list-style-type: none"> • An assessment of organizational readiness and barriers to implementation. • Involvement of all members (whether in a direct or indirect supportive function) who will contribute to the implementation process • Dedication of a qualified individual to provide the support needed for the education and implementation process • Ongoing opportunities for discussion and education to reinforce the importance of best practice • Opportunities for reflection on personal and organizational experience in implementing guidelines. | IV |

INTERPRETATION OF EVIDENCE

TYPES OF EVIDENCE

- 1a Evidence obtained from meta-analysis or systematic review of randomized controlled trials.
- 1b Evidence obtained from at least one randomized controlled trial.
- IIa Evidence obtained from at least one well-designed controlled study without randomization.
- IIb Evidence obtained from at least one other type of well-designed quasi-experimental study, without randomization.
- III Evidence obtained from well designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.
- IV Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.

Evidence to support nursing care of clients who are living with HIV/AIDS is organized with respect to the type of evidence rather than the level of evidence. The randomized controlled trial has traditionally been considered to be the gold standard of evidence used to guide practice. As such, randomized controlled trials have become the benchmark for the establishment of a hierarchy of levels of evidence against which all other ways of knowing is of lesser value. However, multiple, alternative ways of knowing and understanding of a phenomenon are commonly acknowledged and valued. Qualitative investigations, emic perspectives of a culture, clinical expertise, promising practices, and clients' knowledge all contribute to the evidence of what it means to provide safe care for clients living with HIV/AIDS. As such, types of evidence provide guidance for practice.

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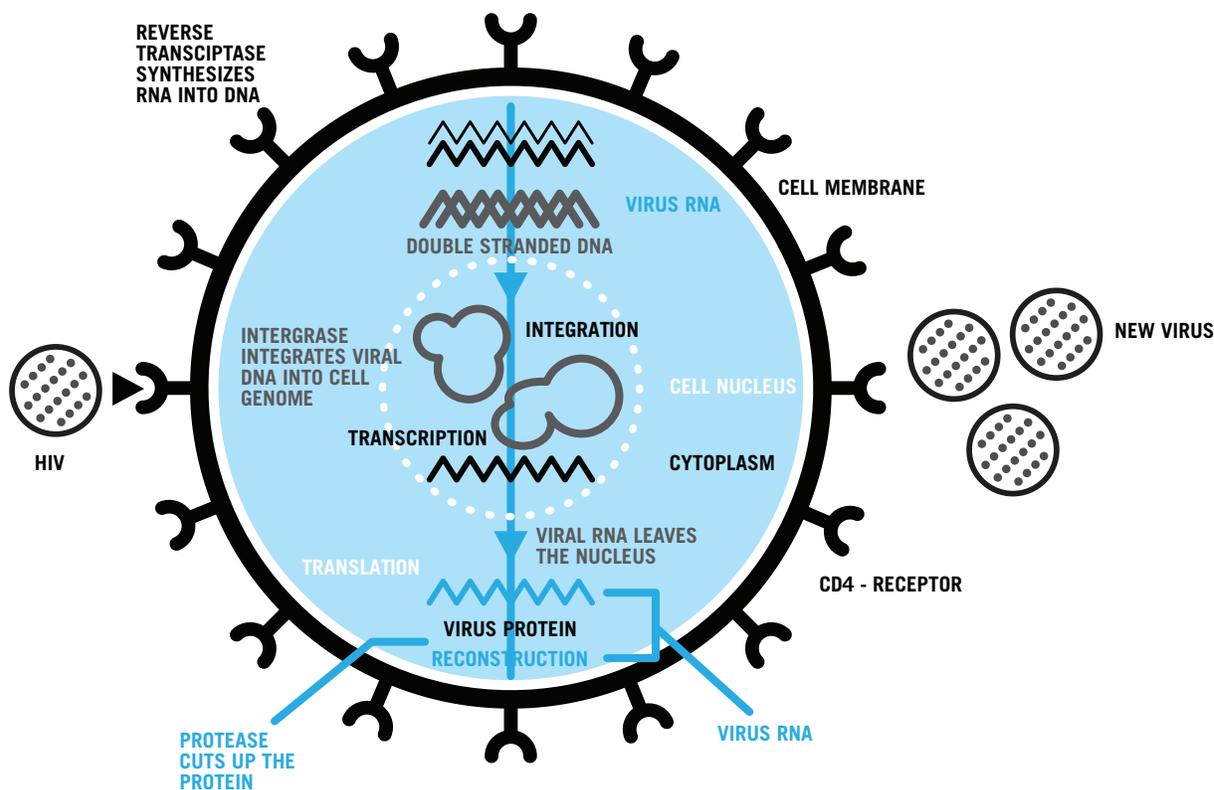
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BACKGROUND CONTEXT



Human immunodeficiency virus (HIV) is a transmissible organism which infects the human host via the T-helper cell. The infection leads to a progressive decline in immune function and subsequently to a state of immune compromise. As a result of a compromised immune system, persons who are infected with HIV become susceptible to a variety of opportunistic infections which are known as AIDS defining illnesses. In an infected individual who does not get treatment, HIV infection inevitably leads to death.

HIV is a retrovirus. It is an RNA virus that has the ability to transform its RNA into DNA during the replication process. Due to its rapid replication, it is a highly variable virus, which is one of the reasons why it has been so difficult to develop a vaccine. Retroviruses are very fragile and do not survive outside of the host cell environment.

HIV enters the T-helper cell by attaching itself to a receptor site on the cell membrane known as CD4. The RNA is released into the cytoplasm of the T-helper cell and with the assistance of an enzyme known as reverse transcriptase it reverse transcribes the RNA into DNA. The DNA integrates into the T-helper cell genome with the aid of an enzyme called integrase. The HIV DNA essentially hijacks the reproductive machinery of the T-helper cell with the cell producing new copies of HIV RNA. Another enzyme called protease assists in packaging up the new RNA strands into new viral particles which are released from the T-helper cell and go on to infect more T-helpers.

The natural history of HIV infection in the human host is generally about 8 to 10 years. When an individual is first infected with HIV they will have a viremic response. Initially, they will have high levels of circulating virus. The T-helper (or CD4 count) will

drop in response to this viremia, but as the human host mounts an antibody response, the viremia will be controlled, the amount of virus or viral load will decline, and the T-helper cell count will recover close to baseline. Over the next 8 to 10 years, there is essentially a competition between the virus and the immune system to gain control. As a result of the direct destruction of the T helper cells by the virus and the chronic inflammatory response that is the result of the chronic HIV infection, the immune system will decline and eventually the infected individual will become immune compromised. At this point they will become susceptible to opportunistic infections, also called AIDS defining illnesses.

There are three tests that are associated with HIV that are routinely followed in patients who are living with HIV. T-helper or CD4 count, measures the state of the immune system. A baseline CD4 count lies between 410-1330/uL. In addition to absolute CD4 the CD4 fraction is also performed. A normal CD4 fraction is 27-60%. As HIV infection progresses there is a steady decline in CD4. A patient is considered to be immune compromised when their CD4 drops below 200 and their CD4 fraction is below 15%. Viral load is a measure of the viral burden in an HIV infected patient. It is reported as <40 copies/ml, a number between 40 and 10,000,000 or > 10,000,000. In general, following an initial viremic response and high viral load, the viral load remains relatively suppressed until the patient develops immune compromise, at which point the viral load increases again.

HIV is primarily transmitted by human to human contact with blood, semen, vaginal fluids and breast milk, although it is also found in inflammatory exudates, CSF, amniotic, pleural, pericardial, peritoneal and synovial fluids. The most common routes of transmission are unprotected vaginal and anal intercourse, needle sharing, blood transfusions, mother to child transmission during labour and delivery, and breast feeding.

In Canada, men who have sex with men are the

population who are most likely to acquire HIV. In 2005 they accounted for 45% of new infections in Canada. Heterosexuals from a non-endemic population accounted for approximately 21% of new infections. Heterosexuals from an endemic population accounted for about 16% of new infections. Endemic populations are defined as those groups of persons who come from countries where HIV is endemic. Injection drug users accounted for about 14% of new infections in 2005. Persons over the age of 50 comprised just over 12% of all new infections. Aboriginal persons, who comprise about 3% of the population, accounted for over 27% of new infections in 2005. Most concerning of all, about 27% of persons who are infected with HIV are unaware of their status (Public Health Agency of Canada, 2007).

Nurses cannot consider HIV/AIDS without addressing a wide range of socio-economic issues. HIV infection does not occur in isolation. Persons with HIV infection often have significant concurrent issues including mental health problems, addiction, poverty, and marginalization. Persons living with HIV are often highly stigmatized, both as a result of their HIV diagnosis and the other issues that they are dealing with. It is important for nurses to consider the broad range of issues that their HIV+ clients present with and ensure that they address them in a holistic manner.

NURSES INCORPORATE SPECIFIC SKILLS & KNOWLEDGE ABOUT HIV INFECTION & AIDS INTO THEIR EVERYDAY PRACTICE.

DISCUSSION OF EVIDENCE:

With the exception of specialty programs which are scattered across the country, HIV+ clients are usually managed within the context of a general medical program. This has little regard for the needs that are specific to this client population. It is essential that nurses have the skills and knowledge to effectively care for persons who are living with HIV.

Nurses must be able to assess all clients for their risk of HIV infection. Many patients with HIV are very late to diagnosis which can have a potentially negative impact on their response to treatment. It is important that all nurses are able to identify the specific risk factors that put people at risk for infection and that they are able to intervene on behalf of their clients to ensure that they get testing.

For clients who present with HIV infection, nurses need to be able to assess for signs of immune compromise, including baseline bloodwork. They also need to be able to determine the client's status, including whether or not they are on treatment and if they are getting routine primary care follow-up.

KEY PRACTICE

Completing a general nursing assessment of clients who are living with or at risk for HIV infection

- Physical assessment of all body systems for signs of:
 - Immune compromise
 - AIDS defining illnesses
 - Indicator illnesses such as oral candidiasis, herpes zoster or vaginal candidiasis
- Baseline assessment including:
 - use of illicit drugs/alcohol/tobacco
 - mental health history
 - primary care follow-up
 - baseline blood-work including CD4 and CD4 fraction and viral load
 - risk behaviours such as unsafe injecting drug use and unprotected sexual activity
- Comprehensive drug history:
 - includes a list of prescribed, over the counter, herbal supplements, etc.
 - if taking additional medications, the nurse will quantify
 - drug allergies

CLINICAL VIGNETTE

Scenario: Natalie, a 33 year old, heterosexual woman, is comes to your clinic with a complaint of a recurrent vaginal yeast infection. She tells you that she has bought an over the counter antifungal medication numerous times in the past few months but “it keeps coming back.”

Nurse's reflection: The nurse understands that recurrent vaginal yeast infections are a common indicator illness in women living with HIV infection. The nurse is aware that Natalie has probably not considered the probability that she could be infected with HIV.

Nurse's response: The nurse has an open ended discussion with Natalie to determine her risk factors for acquiring an HIV infection. After carefully explaining to her why her risk factors are a concern, the nurse offers to arrange HIV testing for Natalie

NURSES INCORPORATE KNOWLEDGE OF MATERNAL & CHILD HEALTH, ELDER CARE, ADDICTION CARE, HARM REDUCTION, & THE IMPACT OF STIGMA.

DISCUSSION OF EVIDENCE:

Women of childbearing age comprise the largest proportion of women who are living with HIV in Canada (Public Health Agency of Canada, 2007). They have particular needs around pregnancy and breastfeeding that must be addressed (McCall, Vicol & Tsang, 2009). HIV+ children are a relatively small population in Canada but they have particular needs around antiretroviral therapy and development that require expert nursing care.

With the help of antiretroviral therapy people with HIV are living longer lives and the issues of aging are becoming an increasing concern. Nurses must incorporate considerations of aging into their care of HIV+ clients.

Many persons living with HIV have an addiction issue, whether it is nicotine, alcohol or street drugs. Harm reduction strategies are an important component of HIV care. Nurses need to routinely assess their clients in terms of their substance use and discuss with them appropriate harm reduction strategies and services that they can access.

Stigma is a very real concern for many people who are living with HIV infection. Nurses need to be sensitive to the experience of stigma that many people with HIV live with and plan their interventions accordingly.

KEY PRACTICE

Caring for specific populations who are living with HIV

The nurse, in collaboration with the health care team, will:

- Reflect on his/her own values and beliefs
- Understand the perspective of their client
- Understand the impact of pregnancy and breastfeeding for the HIV+ woman
- When necessary, support the woman in working with child protection agencies
- Understand the client's support systems
- Understand the implications of the aging process on the treatment and care of HIV+ clients
- Support the client who is actively using substances, particularly illicit drugs
- Provide information about harm reduction strategies and support the client in making choices that are relevant to them
- Provide continuous support through ongoing positive reinforcement
- Ensure processes are in place for follow-up e.g. primary care and public health supports
- Ensure clients have access to support services

CLINICAL VIGNETTE

Scenario: A 34 year old Aboriginal patient is admitted to the medical unit. He has a cellulitis associated with unsafe injecting that needs to be treated with IV antibiotics. He tells the admitting nurse that he is HIV and hepatitis C positive. He is unaware of his immunological status, telling her that he hasn't seen a family doctor in over 2 years.

Nurse's reflection: The nurse knows that if the patient has cellulitis he has likely not been engaging in harm reduction practices. She also knows that injection related infections are strongly associated with an HIV diagnosis. She is concerned that the patient is not getting primary care follow-up because he cannot manage his HIV and hepatitis C infection without it.

Nurse's response: The nurse explores with the patient the harm reduction strategies he can engage in to avoid getting injection related infections. She reminds him of the importance of swabbing any injection sites with an alcohol swab prior to injecting because she knows that this basic strategy reduces the potential for infection. Before the patient is discharged the nurse liaises with the medical team and the social worker to get the patient hooked up with a family physician.

NURSES HAVE KNOWLEDGE OF THE IMPACT OF THE SOCIAL DETERMINANTS OF HEALTH ON PEOPLE WHO ARE LIVING WITH HIV/AIDS.

DISCUSSION OF EVIDENCE:

In recognition of the powerful impact of the social determinants of health in shaping health care, the World Health Organization (WHO) Commission on the Social Determinants of Health (SDOH) was initiated in 2005 to: 1) support policy change in countries by promoting models and practices that effectively address SDOH; 2) support countries in placing health as a shared goal to which many government departments and sectors of society contribute; and 3) help build a sustainable global movement for action on health equity and social determinants, linking governments, international organizations, research institutions, society and communities (Public Health Agency of Canada, 2006).

When nurses care for persons who are living with or at risk for HIV infection they see the impact of social determinants of health and client well-being every day. Nursing assessments and interventions need to take into account the contextual factors that influence client health including housing, early childhood education and care, education, income, employment and job security, working conditions, food security and social policy; these factors all contribute to social inclusion (Health Canada, 2003). Good health and well-being enables people to participate fully in society.

There is a wealth of literature that makes the connection between deprived socioeconomic circumstances and HIV infection (Zieler & Krieger, 1997; Wood et al, 2002; Williams, 1990; Tramarin, Campostrini, Tolley & De Lalla, 1997; Schechter et al, 1994). People living with HIV are disproportionately likely to be poor, drug addicted, insecurely housed, and lacking in social support. Additionally they are likely to come from groups that are already marginalized as a result of lifestyle or ethnicity. HIV infection is a challenge to manage for even the most stable of individuals. For many people living with HIV, the challenges of day to day life can far outweigh the demands of coping with their infection (McCall, Browne & Kirkham Reimer, 2009).

The evidence indicates that nurses must have the knowledge and skills to manage all the issues that support health. They must understand how the social determinants impact on the health and well-being of individuals and possess the skills that allow them to advocate for practices and approaches that support equity.

KEY PRACTICE

Questions to consider concerning the determinants of health when assessing a client:

- Does he/she have access to health care?
- What is the state of his/her health?
- Does he/she have stable housing?
- Does he/she have access to food?
- Does he/she have an adequate income?
- What is contributing to his/her stress?
- Are there health social supports in his/her life?
- Early life considerations: What factors had an effect on his/her early life?

CLINICAL VIGNETTE

Scenario: Deborah is admitted to your unit with a diagnosis of PJP, an opportunistic infection. She is short of breath, has an O₂ sat of 82% on room air and is complaining of chest discomfort. She was diagnosed with HIV 8 years ago but has never had any primary care follow-up and is not on antiretroviral therapy. She tells you that she has lost her housing and has been couch surfing at the homes of various friends and acquaintances. She has been struggling with a heroin addiction for more than 10 years.

Nurse's reflection: The nurse's first priority is to deal with the symptoms that Deborah is experiencing as a result of her PJP infection. In addition, she is concerned by Deborah's history and how it has impacted on her ability to manage her HIV infection.

Nurse's response: The priority is to manage her symptoms but once those are under control the nurse begins to talk to Deborah about her social situation. She makes a referral to a social worker to begin looking into housing options. She also looks into the possibility of arranging primary care follow-up for Deborah once she is released from hospital

NURSES CONSIDER THE HOLISTIC NEEDS OF THEIR PATIENTS WHEN DELIVERING CARE.

DISCUSSION OF EVIDENCE:

The holistic needs of a client are integral to their success at managing their HIV infection, as many clients experience a variety of psychosocial and health problems which impact on their overall health. It is important that nurses understand their client's current health issues, treatment plan, available support and other contextual factors that impinge on their ability to stay well.

In general, people living with HIV infection have a quality of life that is below average (Van Rensberg, 2009). In particular, symptom and stigma experiences have been associated with lower quality of life scores (Holzemer et al, 2009) but quality of life issues are also associated with socio-economic issues (Bratstein et al, 2005). Greatest improvements in quality of life was found in individuals who changed from using drugs to not using drugs, not using antiretroviral therapy to using antiretroviral therapy (ART) and from being unstably housed to stably housed (Chin, Botsko, Behar & Finkelstein, 2009).

There is a clear link between the physical and mental aspects of health. Nurses need to assess their clients for physical, mental and social functioning. In general, when interventions address all aspects of care including treatment, counselling and social services clients show a greater improvement in their health status (McLellan, Weinstein, Shen, Kendig & Levine, 2005; Sorensen, Masson & Delucchi, 2006).

KEY PRACTICE

Tips for ensuring the holistic needs of clients are part of their treatment plan:

- Conduct a comprehensive physical and psychosocial assessment
- Document the physical, psychosocial and emotional issues that are related to the client's HIV infection
- Determine the client's perception of his/her health
- Prepare a comprehensive treatment and care plan with input from the interdisciplinary team and the client
- Ensure the plan includes strategies that will address the determinants of health that are impacting on the client
- Ensure that the treatment/care plan includes mechanisms for collaboration for other members of the care team and the health care community at large (eg. Public health, primary care, support services)

CLINICAL VIGNETTE

Scenario: Douglas, a 35 year old gay man who was diagnosed with HIV infection 8 years ago has just been advised by his family doctor at your clinic that he needs to start antiretroviral therapy. When you speak to Douglas before he leaves he tells you that he is very anxious about starting treatment stating that he has just broken up with his long term partner and is struggling to find affordable housing that he can afford on his own. He is concerned that he will have difficulty adhering to treatment when he has so many other things going on in his life.

Nurse's reflection: The nurse knows that he/she needs to explore with Douglas the social, physical and emotional barriers that he is experiencing that could make it difficult for him to manage a complex antiretroviral regimen.

Nurse's response: The nurse explores with Douglas his readiness for treatment and his understanding of treatment efficacy and side effects. He/she helps him identify the issues in his life that could make it difficult for him to manage his treatment regimen and helps him determine strategies to deal with these issues both on his own and with support from others.

NURSES PRACTICE REFLECTIVELY TO MAINTAIN A CONTINUED AWARENESS OF THEIR CURRENT AND EVOLVING PERCEPTIONS, ATTITUDES AND BIASES, VALUES AND BELIEFS WHEN WORKING WITH PATIENTS WHO ARE INFECTED WITH HIV.

DISCUSSION OF EVIDENCE:

Nurses need to consciously and frequently examine their personal values, beliefs and attitudes about HIV infection and issues that are concurrent to HIV such as addiction and mental illness in order to foster a therapeutic relationship with their clients and to improve client outcomes. Negative attitudes and judgements adversely affect the care of clients with HIV infection and can also negatively impact on nurse job satisfaction (Jemmott, Freleicher & Jemmott, 1992).

KEY PRACTICE

Nurses understand how their values and beliefs can impact on their relationship with their clients.

- Nurses routinely examine their own values and beliefs and identify how they can potentially impact on their approach to their clients.
- Nurses ensure that their colleagues are also aware of how their values and beliefs shape their behaviour and their practice.
- Nurses frame their nursing care with a social justice perspective.

CLINICAL VIGNETTE

Scenario: Adam, a 44 year old street involved man, is admitted to the nursing unit with a diagnosis of community acquired pneumonia. He is dishevelled, thin, poorly groomed, and admits to a 10 year history of injection drug use. He was diagnosed with HIV five years ago and has had poor primary care follow-up since then.

Nurse's reflection: The nurse is aware of the clinical and psychosocial issues that are related to injection drug use, marginalization and HIV infection. She/he knows that it is likely that this patient has experienced significant stigma and judgement from the health care workers he has come into contact with. She/he is also aware that she/he must examine her own values and beliefs about addiction and HIV infection so she/he is to be able to provide good care to this client.

Nurse's response: The nurse establishes a relationship with the patient beginning with a reflection on his/her own beliefs and assumptions. The nurse develops a therapeutic alliance with the patient, ensuring that he is involved in the decision making regarding his care. The nurse ensures that the patient's principal issues are dealt with promptly and respectfully.

NURSES PROVIDE CARE IN KEEPING WITH THE PRINCIPLES OF CULTURAL SAFETY.

DISCUSSION OF EVIDENCE:

Both nurses and their clients bring their own culturally derived attitudes, beliefs and values to the therapeutic relationship. Cultural safety is about recognizing the positioning of certain groups within a society. The goal of cultural safety is to counter tendencies in health care that create cultural risk or lead to a sense of un-safety for patients.

It is important that nurses analyse their cultural selves and the impact of the culture that they bring to the therapeutic relationship. It also necessitates recognition of the power imbalance that exists between the nurse and the client. There is a tendency to perceive our own beliefs and practices as the norm and to see others as different. However, it is important to remember that our beliefs form the basis of our judgement about other people and events. The concept of cultural safety prompts nurses to reflect on the structures, discourses and assumptions that frame the delivery of health care (Browne et al, 2009). In a culturally safe relationship, the client is given the power to say when they feel an encounter is safe (or not). Cultural safety is a concept that can be used to operationalize equity and social justice (Browne et al).

KEY PRACTICE

Nurses understand how the innate power differential experienced by patients in the mainstream health care system can adversely affect their experiences.

- Nurses acknowledge that there is a power imbalance between health care providers and the users of the system.
- Nurses understand that it is important to determine what constitutes safe care from the patient's point of view.
- Nurses can identify how their values and beliefs frame their judgement of people and events.

CLINICAL VIGNETTE

Scenario: Jeanette is a 33 year old First Nations woman who lives in a single room occupancy hotel in the city centre. She has been admitted to your unit for the past few weeks for treatment of an opportunistic infection and it has become apparent that she will not be able to live independently in the hotel. The social worker has been trying to arrange assisted living accommodation for Jeanette but Jeanette has made it clear that she is not interested in supportive housing. She wants to go back to the hotel where her friends are, even though you are concerned that she will once again start using drugs and her health will quickly deteriorate.

Nurse's reflection: The nurse understands that for Jeannette, the concept of living in an assisted living facility is frightening. She is a survivor of the residential school system and she has great difficulty coping with the institutional environment. In addition, she has experienced repeated judgment and stigma at the hands of health care staff and she is unwilling to live in an environment where she may experience this on an ongoing basis.

Nurse's response: The nurse confers with the social worker to determine the best course of action. You decide to offer Jeannette the opportunity to tour the facility and meet with the staff so that you can allay her fears. In addition, the unit educator meets with the facility staff to address their questions and concerns about admitting a patient with HIV and addiction issues.

NURSES INFORM THEIR PATIENTS OF AVAILABLE TREATMENT OPTIONS FOR HIV INFECTION ON AN ONGOING BASIS.

DISCUSSION OF EVIDENCE:

Highly active antiretroviral therapy (HAART) has made a significant difference in the lives of HIV+ patients. Despite the overwhelming evidence for its efficacy however, patients are often reluctant to start treatment or to continue it when their condition warrants due to fears of side effects and a lack of confidence in its efficacy (Alfonso et al, 2006; Rudy et al, 2009). For this reason, it is important that patients receive ongoing education on treatment including efficacy, adherence issues and potential side effects.

KEY PRACTICE

Nurses are knowledgeable about treatment options, the efficacy of treatment, adherence issues and potential side effects.

- Nurses can advise their patients on the best options for their lifestyle and needs.
- Nurses can explain the importance of adherence in treatment success.
- Can assess and explore their patient's values, beliefs and attitudes about treatment.

CLINICAL VIGNETTE

Scenario: Robert has just been admitted to your unit with a diagnosis of PJP. Upon assessment, it is noted that his CD4 is only 140 and his CD4 fraction is 9%. He is severely immune compromised and he has never been on treatment. When the nurse asks him why he tells her that he doesn't believe it works and the side effects are too severe to cope with.

Nurse's reflection: Robert is fearful of going on HAART because of potential side effects and because he doesn't have a good understanding of the effectiveness of the treatment. She/he knows that Robert will need some education and an opportunity to ask questions in order to support him in making a good decision.

Nurse's response: The nurse plans to ask Robert some questions about his treatment beliefs so that she can address his concerns. She/he also arranges a meeting with the pharmacist so that Robert's issues about treatment can be addressed. She/he also advises Robert about the availability of treatment information support from the local ASO and encourages him to call them.

NURSES WILL PROVIDE EDUCATION TO THEIR PATIENTS ON POSSIBLE SIDE EFFECTS, IMPORTANCE OF ADHERENCE AND SCHEDULING OF MEDICATIONS.

DISCUSSION OF EVIDENCE:

It has become clear that patients make decisions about whether to start treatment as a result of the information that they receive. Patients have access to many resources to aid in their decision making but research reveals that they primarily look to health care professionals to assist them in this process. Research by Gellaitry et al (2005) revealed that decisions about treatment uptake are influenced by personal beliefs and perceived need for HAART relative to concerns about adverse effects but uptake was influenced by the quality of information that they received from health care professionals. Patients who were dissatisfied with the information that they were provided with were much less likely to start treatment (Gellaitry et al).

KEY PRACTICE

Nurses are knowledgeable about potential side effects, importance of adherence and scheduling of medications.

- They can provide their patients with information about potential side effects, likelihood of occurrence and availability of treatment/support to manage any adverse effects.
- Nurses can explain the role of resistance in causing treatment failure and how adherence will prevent the development of resistance
- Nurses can plan and enact strategies that will support their patient's adherence.
- Nurses will provide their patients with information about HAART and associated treatments in a variety of formats that are within the cognitive and literacy abilities of their patients.

CLINICAL VIGNETTE

Scenario: Collette has presented to the outpatient clinic for her scheduled appointment. She tells the nurse that her counts are declining and the doctor wants her to start HAART. She confides that she is terrified of starting on treatment because she is fearful of the side effects.

Nurse's reflection: The nurse understands that Collette's reaction is not unusual. Many patients have difficulty with the decision to start treatment. S/he decides to engage Collette in conversation to find out precisely what it is that is making her fearful with the understanding that many of the side effects that Collette is potentially fearful of are relatively rare and are usually treatable.

Nurse's response: The nurse gathers together treatment related information from the local ASO, CATIE and the clinic pharmacist. S/he reviews the information with Collette, giving her lots of time and space to ask questions. The nurse also asks the pharmacist to meet with Collette.

NURSES WILL ENSURE THAT THEIR PATIENTS ARE PARTNERED WITH A PRIMARY CARE PROVIDER WHO CAN PROVIDE TREATMENT.

DISCUSSION OF EVIDENCE:

There is a wealth of evidence that demonstrates that HIV positive patients are much more likely to manage their HIV infection well if they are partnered with a primary care provider with an expertise in HIV care. Uptake of HAART is independently predicted by patient-provider engagement and more primary care visits (Knowlton et al, 2010). Data repeatedly demonstrates that people who use health care services on a regular basis are more likely to access HAART, have better indicators of health status, survive longer and use acute care services less frequently (Sohler et al, 2009). It is also important to understand the impact of social and economic marginalization on the use of primary care. People who are socially and economically vulnerable are much less likely to utilize primary care (Sohler et al).

KEY PRACTICE

Nurses assess their patients to determine if they have adequate primary care follow-up.

- Nurses work with their patients to hook them up with primary care practitioners.
- Nurses ensure their patients are engaged with their primary care practitioners and understand the importance of routine follow-up (every three to six months).

CLINICAL VIGNETTE

Scenario: Justine has come into the ER for treatment of an abscess on her arm. She tells the nurse that she is HIV positive but she doesn't know her counts.

Nurse's reflection: The nurse knows that if Justine is unaware of her immune status she probably is not getting adequate primary care follow-up for her HIV infection.

Nurse's response: The nurse asks Justine what she does to manage her HIV infection. When Justine tells her she hasn't seen a doctor for her HIV in over a year the nurse asks her if she would like a referral. The nurse consults with the pharmacist, who can access records of HAART prescribing physicians and a physician is located who agrees to look after Justine.

NURSES HAVE AN UNDERSTANDING OF THE EFFICACY OF HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART) IN TREATING HIV INFECTION.

DISCUSSION OF EVIDENCE:

The development of highly active antiretroviral therapy has arguably transformed HIV infection from a lifethreatening condition to a chronic, manageable disease. The goal of HAART is complete suppression of viral replication with subsequent reduction of viral load levels to undetectable. With control of replication there is an opportunity for recovery of a functional immune system.

There are five classes of drugs that are used to control viral replication. Nucleoside reverse transcriptase inhibitors (NRTIs) are considered the backbone of HAART. These drugs work by blocking reverse transcriptase enzyme, which is instrumental in assisting the virus to transform from its original RNA form into DNA. Drugs in this class include Abacavir (ABC), Didanosine (ddi), Lamivudine (3TC), Stavudine (d4T), Zalcitabine (ddC), Zidovudine (AZT), Emticitabine (FTC), Tenofovir (TDF), Trizivir (ABC+3TC+AZT), Combivir (AZT+3TC), Truvada (FTC+TDF), Kivexa (3TC+ABC) and Atripla (TDF+FTC+EFV). Non-nucleoside reverse transcriptase inhibitors (NNRTIs) have the same mechanism of action but are a distinctively different class of drugs. Drugs in this class include Efavirenz (EFV), Nevirapine (NVP), Etravirine (TMC125) and Atripla. Protease inhibitors (PIs) work by blocking the protease enzyme, which assists viral replication by chopping up the long strands of viral protein into viral particles. Drugs in this class include Indinavir (IDV), Nelfinavir (NFV), Ritonavir (RTV), Saquinavir (SQV), Lopinavir (LPV), Amprenavir (APV), Kaletra (LPV+RTV), Atazanavir (ATV), Tipranavir (TPV), Fosamprenavir (FPV) and Duranavir (TMC145). There is one integrase inhibitor, Raltegravir, which acts by blocking integration of the virus into the host cell nucleus. Lastly there are fusion inhibitors. These drugs work by blocking the fusion of the virus onto either the CD4 or CCR5 receptor site. There are two drugs in this class: Enfuvirtide (T20), which blocks the CD4 receptor, and Maraviroc, which blocks the CCR5 co-receptor.

It became clear early on that in order to have successful suppression of viral activity, there has to be sufficient drug pressure exerted to control replication. A minimum of three drugs, preferably from different classes, is necessary to achieve suppression. For first line treatment of HIV infection, patients are placed on two NRTIs and a PI or two NRTIs and an NNRTI. Additionally, if the patient is on a PI regimen, it should be boosted with Ritonovir. In other words, they should receive a small dose of RTV (100 mg) in addition to another PI. Boosting the selected drug increases its availability and half-life which means that patients can be put on an easier to tolerate dosing schedule and take a lower dose of the selected PI (Hammer et al, 2008).

The international guidelines for treatment of HIV infection state that for asymptomatic disease, patients should be started when their CD4 count drops to 500 cells/mm³ or their fraction drops below 15% (Thompson et al, 2010). Patients with symptomatic disease should start treatment regardless of CD4 counts. Patients with a history of cardiovascular disease, renal disease, Hep B or C co-infection or pulmonary hypertension should also start earlier (Hammer et al, 2008) as should older adults and pregnant women. Consideration for early starts should also be given to sero-discordant couples.

KEY PRACTICE

Nurses are knowledgeable about the various classes of anti-retrovirals and their mechanism of action.

- Can identify the various drugs in each class.
- Understand the importance of combination regimens
- Can identify common first line regimens
- Know when the optimal start time is

CLINICAL VIGNETTE

Scenario: Justine has been admitted to your medical unit with an opportunistic infection. She has been HIV+ for 10 years. Her blood-work reveals that her CD4 is 110, her CD4 fraction is 8% and her viral load is 1,300,000.

Nurse's reflection: Based on Justine's blood-work, the nurse expects the team to plan to start Justine on HAART while she is in hospital.

Nurse's response: The nurse asks Justine to tell her what she knows about HAART. Based on her response, the nurse plans some educational sessions for Justine that will help her make a decision about starting treatment. The nurse also accesses on-line treatment information from the Canadian Treatment Information Exchange (catie.ca) so that she can provide Justine with some patient specific literature.

NURSES HAVE KNOWLEDGE OF THE SIDE EFFECTS AND DRUG TO DRUG INTERACTIONS ASSOCIATED WITH HAART.

DISCUSSION OF EVIDENCE:

Side effects have always been an issue with HAART, although the newer generation of drugs seem to be less toxic to patients. In general, any of the drugs can cause GI upset, including nausea, vomiting and diarrhea, although these side effects are often self-limiting and can resolve over time. The NRTIs have been associated with anemia and neutropenia (AZT), peripheral neuropathy (DDI, D4T, DDC), lactic acidosis, liver toxicity, anaphylaxis (ABC) and renal toxicity (TDF). The side effect of most concern is liver toxicity, given that up to half of all people with HIV are also infected with hepatitis C. NNRTIs are also associated with liver toxicity as well as rash (usually self-limiting) and CNS effects such as nightmares, hallucinations, insomnia, difficulty processing thoughts and vivid dreams. Protease inhibitors are more likely to cause long term GI upset, particularly diarrhea, as well as osteopenia and osteoporosis, elevated lipid levels, kidney stones (IDV), drug interactions, altered glucose metabolism leading to insulin resistance, lipodystrophy, liver toxicity and an increased risk for coronary artery disease. Lipodystrophy is a disturbance in fat metabolism that leads to fat loss in the face, arms and legs with fat accumulation in the abdomen and on the back. Integrase inhibitors are associated with diarrhea, headache, fever and nausea. Fusion inhibitors can cause injection site reactions (enfuvirtide) as well as peripheral neuropathy, insomnia, headache, upper respiratory tract infections and GI upset.

One of the biggest challenges of treating people with HAART is the complex problem of drug interactions. Further increasing the risk is the concurrent treatment of co-morbid disease states and therapies for prevention and/or treatment of opportunistic infections. The vast majority of drug interactions encountered in the treatment of HIV are pharmacokinetic in nature and occur as a result of a change in absorption, distribution, metabolism or elimination of either the HAART medication itself or the concurrently administered medication (Faragon & Piliero, 2004). Drug interactions associated with NRTIs are minimal and most of the interactions occur as a result of the use of ddi and AZT. These older drugs are seldom used at this point so should not be an issue.

NNRTIs are prone to drug interactions because they are extensively metabolized via CYP3A4 and act as either inducers or inhibitors of CYP3A4. Both EFV and NVP, for example, increase the metabolism of methadone. When these drugs are given concurrently, withdrawal symptoms may occur as a result of reduced methadone levels. NVP increases the metabolism of oral hormonal contraceptives, which can lead to contraceptive failure. EFV can inhibit CYP3A4, which can lead to increased drug concentrations and potential toxicity of certain drugs such as Midazolam.

PIs are all potent inhibitors of CYP3A4 and as a result, drug interactions are very complex. As a result of CYP3A4 inhibition, medication levels of agents also metabolized by the same isoenzyme have the potential to be markedly increased by the PI, potentially leading to an increased incidence of adverse effects. Among the agents that should be used with caution in conjunction with PIs are the benzodiazepines midazolam and Triazolam, statins, rifampin and rifabutin, herbal therapies such as St. John's Wort and garlic supplementation, sildenafil, vardenafil and tadalafil, anticonvulsants, ketoconazole, proton pump inhibitors and antacids. (Faragon & Piliero, 2004). For a more complete review of drug interactions, see table 1.

KEY PRACTICE

Nurses will anticipate the potential side effects of HAART.

- Understand the complexity and significance of side effects that can occur
- Understand the potential for interactions with other medications
- Assess and monitor for side effects and toxicities related to HAART

CLINICAL VIGNETTE

Scenario: Tamara is a 39 year old woman with an 8 year history of HIV infection and a long-standing opiate addiction. She has been on methadone for the past 4 years. It has recently been decided to start her on HAART because of her declining CD4 count. She has been started on kivexa and boosted atazanavir. She presents to your clinic today in an agitated state complaining of nausea, joint pain, abdominal pain and muscle cramps.

Nurse's reflection: As the nurse, you are aware that these are signs and symptoms of opiate withdrawal. On reviewing her record you note that her methadone dose was not increased when she was started on HAART.

Nurse's response: The nurse contacts her addictions physician to arrange an appointment so that Tamara's methadone dosing can be reviewed. In the meantime the nurse obtains an order for long acting morphine to minimize the acute symptoms of withdrawal that Tamara is experiencing.

NURSES UNDERSTAND THE IMPORTANCE OF ADHERENCE IN MINIMIZING RESISTANCE AND AN AWARENESS OF THE STRATEGIES THAT THEY CAN USE TO SUPPORT ADHERENCE IN THEIR PATIENTS.

DISCUSSION OF EVIDENCE:

Resistance is the most common reason for failure of HAART. Resistance can occur due to poor tolerance, inadequate dosing or insufficient regimens but the most common reason for resistance is lack of adherence. It is estimated that patients need to take their medications more than 95% of the time in order to achieve suppression of viral replication (Chesney, 2003). If viral replication is insufficiently suppressed, the virus will replicate and mutate into drug resistant forms and the treatment will fail.

It is difficult to achieve such a high level of adherence. Numerous studies report that no more than 50% of patients are adherent to prescribed medication (Cooper et al, 2009) and people who are prescribed self-administered medications typically take less than half of the prescribed doses (Haynes et al, 2008). Adherence can be improved if patients are put on less onerous regimens. Patients on a once daily regimen, as opposed to BID or TID, are more likely to be adherent (Saini et al, 2009). Patients with good but not perfect adherence (80 to 90%) are at greatest risk of developing resistance to HAART (Tam et al, 2008).

There are a number of measures that can be taken to improve adherence including medication education, written information, disease education, self-administration programs such as blister packs and electronic reminders, motivational counselling, social supports and symptom monitoring (Ruppar & Conn, 2008). All of these strategies have some impact on improving adherence. However, a common reason that people do not take their pills is because they simply forget (Ruppar & Conn). Adherence strategies must be developed to assist patients in remembering to take their pills.

Resistance is determined by the use of a genotyping test. This test provides an indirect measure of resistance and is utilized to determine which drugs will be effective in suppressing the virus. Generally, resistance testing is conducted before the patient starts their first regimen because it is estimated that approximately 8 to 10% of people will acquire primary resistance despite having never been on treatment.

KEY PRACTICE

Nurses will understand the importance of adherence to the success of HAART.

- Nurses will assess their patients for potential barriers to adherence.
- Nurses will provide their patients with the information and education they need to knowledgeably take their medications.
- Nurses will develop the strategies that are needed to support adherence.
- Nurses will work collaboratively with other members of the health care team to ensure that adherence is supported.

CLINICAL VIGNETTE

Scenario: Alan has come into the clinic for his regular three month check-up. Upon reviewing his blood-work the nurse notes that after several years of a suppressed viral load his most recent result is 5100 copies/ml. When you talk to Alan about what has been going on in his life he tells you that he is “sick” of taking his meds because they give him chronic diarrhea. He is presently on Kivexa and Kaletra.

Nurse’s reflection: The nurse knows that one of the barriers to adherence is uncontrolled/untreated side effects. She also knows that Kaletra is particularly bad for causing chronic diarrhea.

Nurse’s response: The nurse refers Alan to the physician and the pharmacist to discuss his medication regimen and to determine what changes can be made. She lets him know that he will undergo resistance testing to determine what drugs are likely to be the most effective in controlling viral replication. She also reviews with him strategies that he can adopt to help him remember to take his pills.

NURSES HAVE KNOWLEDGE OF THE COMMON OPPORTUNISTIC INFECTIONS THAT ARE A RESULT OF A DECLINING CD4 COUNT AND AN AIDS DIAGNOSIS.

DISCUSSION OF EVIDENCE:

There are a large number of opportunistic infections that are associated with HIV infection and immune-compromise. For patients who are not on HAART, opportunistic infections are an inevitable consequence of HIV infection and because the average CD4 at which HAART is started in Canada is 180 even patients who are on treatment are at risk for opportunistic infections. These infections can be categorized into five general classes – fungal, protozoal, viral, bacterial and cancer.

Among the common fungal infections are oral candidiasis, vaginal candidiasis, esophageal candidiasis, cryptococcal meningitis and pneumocystis jiroveci pneumonia. Oral candidiasis or thrush and vaginal candidiasis are early indicator illnesses that can occur even with a relatively intact immune system. Esophageal candidiasis on the other hand is usually associated with a CD4 below 100. Patients present with complaints of retrosternal pain and dysphagia. It is diagnosed with an endoscopy. Cryptococcal meningitis is a serious and life threatening infection that is associated with severe immune compromise. Patients will present with headaches, stiff neck, fever and elevated ICP. Pneumocystis jiroveci pneumonia commonly occurs when the CD4 count drops below 200. It is often the first serious AIDS related illness that patients present with and is not uncommon in patients who have not had an HIV diagnosis. Patients will present with shortness of breath, chest wall pain, cough and fever. They are often severely ill, with low oxygen saturation. Intubation and ventilation is not unusual in this group. This infection is diagnosed with a bronchoscopy and biopsy.

Protozoal infections of concern include cryptosporidium, toxoplasmosis and microsporidiosis. Cryptosporidium is a water borne organism which is commonly found in tap and well water. It causes significant watery diarrhea, abdominal pain and dehydration. Toxoplasmosis is an organism that is commonly transmitted via raw meat or cat feces. The lesions usually impact the brain, causing encephalitis and neurological issues. Microsporidiosis infects the small intestine, causing acute diarrhea and abdominal pain. It is spread by feces, generally in food or water that is ingested.

There are a number of viral infections associated with HIV including cytomegalovirus (CMV), herpes simplex, herpes zoster, oral hairy leukoplakia, and progressive multifocal leukoencephalopathy (PML). CMV is a virus that is common in the human population but in immune compromised individuals it becomes activated. It usually causes damage to the retina due to inflammation although it can also infect the lungs and the intestine. CMV retinitis is a serious condition that will lead to blindness if not treated. Herpes simplex and herpes zoster are both common in the HIV+ population. Oral hairy leukoplakia is caused by the Epstein Barr virus. It results in hairy, white patches on the tongue or sides of the mouth that resembles thrush. PML is a devastating neurological disease that is caused by the JC virus. It is characterized by progressive damage to the white matter of the brain. Symptoms include weakness or paralysis, vision loss, impaired speech and cognitive deterioration. It progresses rapidly and most HIV+ patients who get PML will not survive 6 months past diagnosis.

There are numerous bacterial infections that are common in immune compromised HIV+ patients including tuberculosis, pneumonia, mycobacterium avium complex (MAC), bacillary angiomatosis, listeria monocytogenes and salmonellosis. Tuberculosis (TB) is common in HIV+ patients. It is important that all patients who have a positive HIV test have a skin test for TB to determine if they need prophylaxis because TB is readily activated in immune compromised patients. Community acquired pneumonia (CAP) is also common and if an HIV+ patient has CAP more than 3 times in a 12 month period it is considered to be AIDS defining. MAC is an infection that tends to appear in patients with severe immune compromise, generally with a CD4 of less than 50. Patients will present with lymphadenopathy, fever, fatigue and weight loss. If they have gastrointestinal involvement they will also have diarrhea and abdominal pain. The bacteria that causes bacillary angiomatosis (BA) is transmitted either via a cat scratch or bite. It is characterized by the presence of lesions either on or under the skin which can be red, papular, non-blanching nodules, purplish nodules, a purplish lichenoid plaque or a subcutaneous nodule

that may have ulceration. Cutaneous BA is the most common but it can also affect the brain, bone, bone marrow, lymph nodes, gastrointestinal tract, respiratory tract, spleen and liver. *Listeria monocytogenes* and salmonellosis are both food borne illnesses although *Listeria* has a much higher mortality rate. Stomach cramps, nausea, vomiting, diarrhea and fever are common symptoms for both.

It has become clear that there are a number of HIV related cancers that are associated with an infectious organism. Common among them are Kaposi's sarcoma (KS), cervical cancer and lymphoma. KS is a tumour caused by human herpes virus type 8. It is usually sexually transmitted. KS lesions are red, purple, brown or black nodules or blotches that are usually papular. Typically found on the skin but also in the mouth, gastrointestinal or respiratory tract. Growth can range from slow to excessively fast and is associated with significant mortality and morbidity. Cervical cancer is usually associated with human papilloma virus. Symptoms of advanced cervical cancer may include: loss of appetite, weight loss, fatigue, pelvic pain, back pain, leg pain, single swollen leg, heavy bleeding from the vagina, leaking of urine or feces from the vagina, and bone fractures. HIV+ women are very prone to developing cervical cancer and should get regular PAP smears. HIV associated lymphoma is very common with 5 to 10% of HIV+ individuals developing it (Grogg, Miller & Dogan, 2007). Non-Hodgkin's B-cell lymphoma is the most likely although Hodgkin's lymphoma may also occur. It is thought to be associated with Epstein Barr virus.

Opportunistic infections tend to appear at different points along the HIV trajectory, with more serious and life threatening infections generally appearing as the CD4 count declines.

KEY PRACTICE

Assessment criteria for immune compromised patients:

- Nurses should be aware of the signs and symptoms of common opportunistic infections
- Nurses should understand the trajectory of HIV infection and the points at which common infections can be anticipated
- Nurses need to inform their patients of the signs and symptoms to be aware of and when to seek medical attention
- Nurses need to be able to manage the symptoms that are associated with opportunistic infections

CLINICAL VIGNETTE

Scenario: Crystal, a 34 year old female who was diagnosed with HIV 8 years ago presents in the ER with fever, cough and chest wall pain. On examination, her chest sounds relatively clear but her O2 sat on room air is only 82%. She tells you that her last CD4 was 180.

Nurse's reflection: Given Crystal's immune compromise it is likely that she has an opportunistic infection. There are a number of things it could be but TB cannot be ruled out. The nurse knows that Crystal should be put on airborne precautions until her status is verified.

Nurse response: Crystal is placed on O2 by nasal prongs to titrate her sat to 92%. She is placed on airborne precautions and the nurse prepares her for the likelihood of several diagnostic tests, including a CXR, a CT chest and a bronchoscopy.

NURSES ARE KNOWLEDGEABLE ABOUT THE TREATMENT OPTIONS FOR COMMON OPPORTUNISTIC INFECTIONS.

DISCUSSION OF EVIDENCE:

Although many of the opportunistic infections that HIV+ patients present with have high morbidity and mortality rates, most of them can be treated. Ultimately the best treatment for opportunistic infections is highly active antiretroviral therapy but there are disease specific treatment regimens for most of the opportunistic infections that HIV+ patients present with.

For oral and vaginal candidiasis, topical agents such as clotrimazole or nystatin may be helpful but in general moderate to severe infections require systemic agents such as fluconazole or itraconazole. These agents are also used in the treatment of esophageal candidiasis. Cryptococcal meningitis should initially be treated with amphotericin B with a step down to fluconazole as the patient responds to treatment. Patients with cryptococcal meningitis may also be treated with therapeutic lumbar punctures to reduce intracranial pressure. The first line agent for PJP is oral or IV trimethoprim-sulfamethoxazole (TMP-SMX). For patients with a TMP-SMX sensitivity some alternative treatments include dapsone, clindamycin, atovaquone or aerosol pentamidine. Patients with a CD4 below 200 should be on PJP prophylaxis, either TMP-SMX, dapson, atovaquone or pentamidine.

For cryptosporidium the best treatment is HAART. There are no proven antiparasitic drugs although nitoxoxanide and paramomycin have shown some efficacy. The drug of choice for microsporidiosis is HAART as well as albendazole. For ocular infections fumagillin eye drops are recommended. Toxoplasmosis should be treated with sulfadiazine or clindamycin plus pyrimethamine plus leukovorin. Prophylaxis should be considered for patients with a CD4 below 100. First line is TMP-SMX, followed by dapsone plus pyrimethamine plus leukovorin or atovaquone plus pyrimethamine plus leukovorin.

CMV retinitis can be treated with IV ganciclovir with a step down to oral valganciclovir. Alternatives include ganciclovir implants and foscarnet. Treatment must be maintained until there is an immune reconstitution with HAART. Herpes simplex should be treated with acyclovir IV or po valacyclovir and if the infection is acyclovir resistant foscarnet or cidofovir can be used. For herpes zoster acyclovir is once again the first line treatment although famcyclovir or valacyclovir can also be used. HAART is the only treatment that has been shown to be effective in PML. There are no effective antiviral agents for this condition.

For the cancers, standard chemotherapy and radiology interventions are applicable. It should be noted that in terms of prevention HIV+ patients should be counselled to continue to use condoms with sexual partners even if those partners are positive themselves (Phillips, 2007)

KEY PRACTICE

Issues to consider in the treatment of opportunistic infections.

- Nurses understand the treatment guidelines for opportunistic infections
- Nurses are aware of the doses of the various treatment modalities.
- Nurses assess their patients for potential adverse effects from treatment.

CLINICAL VIGNETTE

Scenario: Robert is a 31 year old gay man who has just been admitted with complaints of a headache, stiff neck and visual blurring. His CD4 is 50 and his CD4 fraction is 8%. An LP reveals that he has an elevated CSF pressure of 45. A provisional diagnosis of cryptococcal meningitis is made pending a CT scan.

Nurse's reflection: The nurse knows that based on his presentation and state of immunocompromise Robert likely has cryptococcal meningitis. She anticipates that he will be treated with amphotericin B, 1.0 mg/kg/day IV and flucytosine 100mg/kg/day orally.

Nurse's response: The nurse administers the medications on a daily basis. She is aware that amphotericin is nephrotoxic and she monitors the patient's BUN and creatinine, as well as other baseline bloodwork, on a routine basis. She administers a NS bolus prior to the amphotericin infusion to protect his kidneys. She prepares the patient for adverse effects from the amphotericin infusion, including fever, chills and rigors, headache, nausea and vomiting. She pre-medicates the patient with acetaminophen and diphenhydramine to moderate the side effects.

NURSES ARE ABLE TO INTERPRET THE LAB TESTS THAT ARE SPECIFIC TO AN AIDS DIAGNOSIS, INCLUDING CD4, CD4 PERCENTAGE AND VIRAL LOAD.

DISCUSSION OF EVIDENCE:

The progression of HIV disease or an AIDS diagnosis can be determined, along with clinical assessment, by certain blood work results. The blood tests that are specific to HIV include CD4 count, CD4 percentage and HIV viral load. These lab results also help determine when to initiate, as well as, the effectiveness of treatment.

CD4 cells are a type of lymphocyte or white blood cell that are most often entered, infected and destroyed by the HIV virus. The normal range for a CD4 count in a non-infected person is between 410-1330 uL. As HIV disease progresses the CD4 decreases. Ideally treatment should be initiated before the CD4 count falls below 500uL. An infected person is considered to have AIDS when the CD4 falls below 200uL, as the risk of developing opportunistic infections rarely seen outside of AIDS increases significantly.

Many factors, including, illness and vaccinations can cause the absolute CD4 count to fluctuate. Therefore, CD4 percentage is also calculated. The CD4 percentage calculates the total number of circulating lymphocytes and determines what percentage of those cells are CD4 cells. CD4 percentage is easier to measure and can be a more consistent predictor of immune deterioration because the discrepancy of measurement of CD4 percentage is about half than the CD4 absolute count (Pirzada, Khuder & Donabedian, 2006). A normal CD4 percentage of an HIV negative individual is forty percent. In an HIV positive individual the percentage is less than twenty five percent. When the CD4 percentage drops below fifteen percent it is a strong predictor of mortality in HIV positive individuals (Moore et al, 2006).

Left untreated HIV will replicate indefinitely. Plasma viral load testing serves two purposes. Firstly, it shows the burden of the HIV virus in blood plasma. Although viral load itself does not determine the progression of HIV disease, studies show that an increased viral load increases risk of progression to symptomatic disease and AIDS (AIDS Education and Training Centres, 2009). Viral load can be tested up to >10,000,000 copies/ml. The second function of viral load testing is to determine the effectiveness of antiretroviral therapy. The goal of therapy is to reduce and maintain the viral load at undetectable, or <40 copies/mL, as the HIV virus can not be eliminated completely (BC Centre for Excellence in HIV/AIDS, 2009). A decrease in plasma viral load allows the CD4 count to recover, as well as reducing the risk of an HIV+ person transmitting the virus.

KEY PRACTICE

Looking at the whole picture of bloodwork results:

- Nurses understand that bloodwork alone does not determine the progression of HIV
- Nurses recognize that clinical symptoms in the absence of low CD4 and high viral load can verify the progression of HIV
- Nurses are aware that clinical assessment with bloodwork results are used to determine progression as well as timing for ARV treatment initiation
- Nurses recognize that a falling CD4 count is one indication that ARV treatment needs to be discussed and initiated soon
- Nurses can identify that opportunistic infections in the absence of poor bloodwork results should initiate discussion about treatment
- Nurses understand that if a patient is on ARV treatment and does not have a decreasing viral load that treatment could be failing

CLINICAL VIGNETTE

Scenario: Melissa is a 27 year old woman who has just been admitted to the ER with SOB, cough and an O2 sat of 72%. She tells the nurse that she is HIV positive and her last known blood-work was a CD4 of 120, CD4 fraction of 8% and a viral load of 650,000. She is not on ART or prophylaxis.

Nurse's reflection: The nurse understands that Melissa's blood-work reveals severe immunocompromise which puts Melissa at risk for opportunistic infections.

Nurse's response: The nurse prepares Melissa for several upcoming diagnostic tests including a CXR and a bronchoscopy because s/he is anticipating that Melissa will be diagnosed with either pneumonia, TB or PJP. S/he talks to Melissa to try and understand why she is not on ART and liaises with other health care professionals to address the barriers that she is dealing with that are preventing her from taking treatment.

NURSES ARE ABLE TO INTERPRET THE DIAGNOSTIC TESTS FOR HIV ANTIBODY TESTING AND PROVIDE INFORMED CARE TO PERSONS WHO PRESENT FOR HIV TESTING.

DISCUSSION OF EVIDENCE:

In HIV testing, the window period refers to the time interval between the point when a person is infected with HIV and the point when testing can detect HIV infection. Understanding the window period of HIV tests is important for health care providers. The window period influences timing of testing and interpretation of negative results.

The most common HIV tests, the ELISA and the Western Blot, referred to as 3rd generation tests, are designed to detect HIV antibodies and are performed on venous blood samples. The ELISA is a very sensitive test and in the laboratory testing process is performed first. The ELISA is able to detect HIV antibodies as early as 3 weeks after infection occurred. The sensitivity of the ELISA also means it can produce false positive results. For this reason, all blood specimens which are ELISA reactive (positive) are then tested using a Western Blot which is a very specific laboratory test. The Western Blot rules out false positive ELISA results. Point of Care HIV tests are ELISA tests and are therefore unable to provide a confirmed true positive result. For this reason confirmatory testing using western blot testing is critical when using Point of Care HIV test kits.

In rare circumstances a Western Blot test is unable to determine if a specimen is reactive or non reactive and the result is described as indeterminate and needs to be repeated.

Testing technologies are always advancing. An RNA NAAT (Nucleic Acid Amplification Test) can be used when there is a weak signal on ELISA testing and the Western Blot is non –reactive or indeterminate. A negative RNA NAAT result can rule out HIV infection. A positive RNA NAAT when the Western Blot is non reactive is an indicator of acute HIV infection. It is advantageous to be able to diagnose persons when in the acute phase of an HIV infection. During this 2 month period they will have a very high HIV viral load, may be unaware of being infected with HIV and may pass HIV more easily to others when having unprotected sex or sharing drug injecting equipment.

When an ELISA is non reactive, or negative, this means HIV antibodies were not detected. If the person has not had any possible exposures to HIV in the window period (the 3 months preceeding the test) the negative result can be regarded as a true negative.

KEY PRACTICE

Nurses understand the following when facilitating HIV testing and providing results:

- They understand the significance of the Window period when interpreting Elisa and WB results
- They understand and can explain what a non reactive, reactive and in determinant result means
- They understand the indications for the use of NAT testing
- They understand the implications for a diagnosis of acute HIV
- There is a certain amount of information about a test which is required to be discussed as part of informed decision making (informed consent)
- There is a lot of very specific information about the capabilities of each test which is important for nurses to know. A nurse's clinical judgment should determine how much information a client requires to make an informed decision to test or not to test.
- Interpretation of HIV results (non reactive, reactive, indeterminate) needs to be clear.
- When results are non reactive, establishing a time for a re test is critical when client is in the window period.
- When delivering reactive, indeterminate and acute HIV results assess degree of education, follow up and support which might be needed.

- When delivering reactive results it is important to assess the client's ability to cope with the diagnosis, provide supports as necessary, to discuss prevention, counselling of other persons who may need testing and to emphasize next steps such as access to clinical assessment and treatment.
- Respect the client's reaction to positive and negative results
- It is important for persons delivering HIV positive results to realize that there can be a potential impact for the nurse. Debriefing is recommended.

CLINICAL VIGNETTE

Scenario: An 18 year old gay man came into the clinic to request HIV testing. He has not tested for HIV before. He tells the nurse he had unprotected, receptive anal sex with an HIV positive partner over a 30 day period while on vacation. His last sexual contact with this person was two weeks ago. He described flu like symptoms over the past two weeks. The client decided to test immediately and to retest until he was out of the window period.

Nurses Reflection: The client was not known to the nurse so building a nurse-client relationship was important. The client identified a recognized risk but since his last exposure was quite recent, retesting would be necessary if result of antibody testing was negative. When the nurse enquired about any flu like symptoms experienced in the past 30 days, as this could be an indication of seroconversion illness, the client had said he had to take time off work the previous week when he had "the flu". The nurse wanted to establish the client's knowledge of HIV to identify gaps in his knowledge- particularly the nurse wanted to review the possible results one could expect from HIV antibody testing. The possible seroconversion illness plus the described exposure flagged for the nurse the need to find out what the client knew about acute HIV infection.

The client history and window period of antibody tests indicated that a series of HIV test would be likely be necessary if the first HIV test was negative. It was important for the nurse to enquire about what the client's expected result would be, how the client might predict he might respond should he be diagnosed with HIV and what kind of personal and professional supports he could count on.

Nurse Response: The first antibody test result was ELISA non reactive. As the client could be in the window period, had experienced flu like symptoms the nurse suggested re testing in two weeks. The nurse and client discussed protection of self and of partner while waiting for a second test.

The second HIV antibody test, performed two weeks later was ELISA reactive, Western Blot, indeterminate. The lab did a NAAT test based upon the patterns in the WB. The NAAT identified HIV RNA. . The nurse explained the results, telling the client that even though the Western Blot was indeterminate, the NAAT test identified HIV which meant he had HIV. The nurse wanted to provide time and space for the client to process this result.

The lab results suggest this is an acute HIV infection. The nurse spent time explaining what this meant and reminded the client that the level of HIV in his body would be very high for several months making it more likely he could pass HIV on to an HIV negative person during unprotected sex or when sharing drug injection equipment. The client asked about treatment for HIV. The nurse briefly discussed the success of ARV therapy and recommended a clinical assessment by a physician to explore this option.

The nurse suggested a confirmatory test, which the client agreed to. When the results came back the nurse suggested they would plan next steps, which would include a discussion about partners. The nurse told the client that a nurse from public health could help him to notify any partners that he did not want to tell in person. In closing the nurse and client talked about the supportive persons in the client's life and about the specific community organizations which are available if he wants to speak with someone in the next few days.

NURSES ARE KNOWLEDGEABLE ABOUT THE PROCESS OF HIV TESTING.**A) NURSES UNDERSTAND WHAT FACTORS MAKE PERSONS VULNERABLE TO HIV INFECTION.****B) NURSES UNDERSTAND HOW TO OFFER HIV TESTING TO VULNERABLE CLIENTS.****C) NURSES UNDERSTAND THE PROCESS OF PROVIDING HIV TESTING EITHER BY POINT OF CARE OR ELISA.****DISCUSSION OF EVIDENCE:**

With the exception of a few outreach programs and some STI clinics, HIV testing is most commonly initiated in clinical settings. Testing in STI clinics or physician's offices is often either recommended by a health care professional or is performed at the request of the client. Many individuals state they feel unwelcome in some traditional healthcare settings and they will not return for care. Restricting testing to clinics and medical offices means vulnerable people may not get access to services. It is essential that programs meet the needs of vulnerable populations. Nurses must have the awareness and confidence to advocate for programs that can deliver services outside of traditional settings. Along with establishing outreach programs, nurses need skills and judgment to effectively engage underserved and marginalized people in HIV prevention services.

In order to ensure informed consent nurses must be able to :

- discuss the benefits of HIV testing with clients.
- explore reasons why a person may not wish to test
- be sensitive and respectful of clients right to give what personal information they are comfortable with.
- articulate both the capabilities of the HIV test and the next steps should the test be positive
- identify risks to address client concerns. Lack of a disclosed risk should never be a deterrent to providing HIV testing.

Nurses who are able to provide laboratory and point of care testing for HIV need to have the skills to assess which test would be most effective and safest to use in a situation.

Nurses take the opportunity to offer STI screening at the same time as HIV testing.

KEY PRACTICE

Nurses providing HIV testing should:

- Use creative thinking to determine how best to engage marginalized populations about HIV and HIV testing
- Determine what information about HIV and HIV testing a client needs. This requires active listening
- Assess client’s coping skills and support systems
- Determine the need to involve the client in planning and implementing STI/HIV prevention strategies
- Understand that HIV testing is to be performed after informed consent has been obtained.
- Use judgement to determine appropriate method for testing – laboratory or point of care testing
- Be sensitive to client’s needs, values and choice. Respect client’s dignity
- Address client’s fears and concerns about HIV testing
- Determine need for referrals
- Acknowledge that HIV testing can be stressful

CLINICAL VIGNETTE

Scenario: Following an HIV 101 presentation to an ESL group of students, the nurse was approached by Miyuki, age 18, who asked to speak with the nurse in private. Behind a closed door, Miyuki said she wanted to find out where she could get tested for HIV. She said she thinks someone she “was with” has HIV. She said she always uses condoms. She had a therapeutic abortion a few months ago.

Nurses Reflection: The nurse identifies several challenges:

- Does the terminology ‘was with a person who has HIV’ mean risky contact.
- to determine if a language barrier exists and an interpreter is needed. Miyuki is Japanese and English is her 2nd language. –
- to determine Miyuki’s level of knowledge about HIV and HIV testing
- to determine what support network Miyuki has since she is away from home.
- To further explore Miyuki’s statement that she always uses condoms, yet she got pregnant.
- The nurse decides a lab test would be preferable to a POC test.

Nurses Response:

1. Find a place to continue to talk privately to Miyuki – where a blood test could be drawn if necessary. If she will come to a clinic, that would be the first choice.
2. Determine what Miyuki’s working level of English is around HIV and find out what she knows. If comprehension is not good, the nurse asked Miyuki how she felt about working with the nurse plus a telephone interpreting service.
3. The nurse explained the HIV lab test – she was able to determine that Miyuki had a close friend who she could talk to about getting tested.
4. The nurse determined by reflective listening and asking Miyuki direct questions that Miyuki understood the test, was consenting, could provide a contact telephone number and had a friend who would be supportive.

NURSES UNDERSTAND THE IMPORTANCE OF PRE AND POST TEST COUNSELLING FOR PATIENTS

WHO ARE RECEIVING AN HIV TEST:

- A) NURSES CAN EXPLAIN THE DIFFERENCE BETWEEN NOMINAL, NONNOMINAL AND ANONYMOUS TESTING**
- B) NURSES CAN SUPPORT CLIENTS THROUGH THE PROCESS OF PARTNER NOTIFICATION.**
- C) NURSES WILL SUPPORT THEIR CLIENTS TO GET APPROPRIATE FOLLOW UP, INCLUDING REFERRALS TO SUPPORT GROUPS AND PRIMARY CARE.**

DISCUSSION OF EVIDENCE:

Pre and post test counselling have been the standard for HIV testing since testing was first initiated in 1985. It has been widely recognized since the late 1980s that pre and post test counselling should be provided (Canadian HIV/AIDS Legal Network, 2007a). Pre test counselling is essential in ensuring that the patient is able to provide informed consent for testing. Additionally, it is acknowledged that people who receive pre and post test counselling are less likely to suffer adverse psychological effects such as depression and suicidality if they are found to be HIV+ (Canadian HIV/AIDS Legal Network, 2007b).

KEY PRACTICE

When providing pre and post test support:

- Nurses are able to reassure clients that their confidentiality will be maintained throughout the testing and partner notification process
- Nurses are sensitive to client's needs, values and choices.
- Nurses are aware of the importance of support for clients who are undergoing HIV testing

CLINICAL VIGNETTE

Scenario: A twenty three year old woman who has recently moved home to her First Nations community in Northern BC and has come to the clinic with a sore throat. She checks in at the front desk and recognizes the clerk, it is her cousin. In the waiting room, she reads a poster advertising an HIV education session that is happening in the community called “Around the Kitchen Table (ATKT)” and it draws her curiosity. Her cousin calls her name to tell her the community health nurse (CHN) is ready to see her. During the appointment, her nurse notices that she has not had a PAP for many years and suggests a follow up appointment for the next day for a “well woman” check up. After the physical exam the following day, she is offered an HIV test. Her CHN said that because she is sexually active, she may consider having blood work for certain diseases that do not have symptoms such as HIV and Hepatitis C. Rather embarrassed, she responds, “I don’t know about that, how do I know it is confidential?” The CHN says “like all health care services in BC, HIV testing is a confidential process. We receive your results on a confidential fax machine located in a locked office and your results are reported to the Medical Health Officer. A public health nurse will confidentially follow up with you.” She then provides a copy of the HIV and HIV tests BC Health File for her to read on the benefits of testing for HIV and asks her to read it and will return in a few minutes. When she returns, she is curious about voluntary follow up. Her CHN states that voluntary follow up will be offered through the public health office to ensure that she is offered any support, access to treatments and follow up.

Nurse’s Reflection: The CHN is aware that the client is sexually active and had unprotected sex and has never had an HIV test. Also, she is aware of the sensitivity of HIV testing in small communities.

Nurse’s Response: The CHN provides a copy of the BC Health File, obtains consent, and conducts a nonnominal HIV test following her HIV pre-test discussion. Results are faxed 10 days later and the CHN schedules her client for an appointment for post test discussion.

A) NURSES WILL INCORPORATE THE PRINCIPLES OF HARM REDUCTION INTO THE CARE OF VULNERABLE CLIENTS.

B) NURSES WILL BE ABLE TO IDENTIFY THE GENDER, ETHNICITY, LIFESTYLE AND SOCIOECONOMIC ISSUES THAT PUT CLIENTS AT RISK FOR HIV INFECTION.

DISCUSSION OF EVIDENCE:

The Public Health Agency of Canada (PHAC) estimates that approx 65,000 individuals are living with HIV with approximately 2300-4300 incident infections occurring annually (2008). All incident cases of HIV represent a population at risk. Nationally, new cases of HIV are over-represented in the following exposure categories: Men who have sex with men (MSM), Injection drug users (IDU), and people from HIV endemic countries (heterosexual/endemic). Additionally, due to complex biological and social vulnerabilities commercial sex workers, people of Aboriginal heritage, women, youth, incarcerated peoples and those with mental health illnesses are increasingly vulnerable to HIV infection. (UNAIDS, 2007). International bodies, such as the United Nations and the World Health Organization recognize that the interplay of complex social determinants of health affect one's vulnerability for HIV acquisition. Factors such as poverty, income inequality, low literacy and education status, gender inequities, a lack of knowledge and skills to prevent HIV infection and social or cultural norms that enforce social marginalization/ discrimination and stigma can all "disempower certain populations, limiting their ability to access or use HIV prevention, treatment, care and support services" (UNAIDS, 2007). Nurses must be able to identify most at risk populations within their local context and act to provide timely and non-judgemental care.

Harm reduction is an evidence based, public health approach, involving a range of non-judgemental policies, programmes and practices which aim to reduce the adverse health, social and economic consequences of harmful behaviour. Although commonly associated with addressing drug related harm, harm reduction practices can take a broad approach to address a wide array of public health issues including drug and sex related harms. The primary tenant of the harm reduction philosophy is to meet clients "where they are at" while focusing on preventing harm, rather than on the prevention/elimination of the harmful behaviour (International Harm Reduction Association, 2011). Harm reduction practicing nurses not only "accept people as they are" but they also "acknowledge the significance of any positive change that individuals make in their lives" (International Harm Reduction Association, 2011).

The core values and principles of a harm reduction approach, as outlined above are also consistent with existing Canadian professional and ethical standards of nursing practice (Griffiths, 2002; Pauly, Goldstone, McCall, Gold, & Payne, 2007; Wood, Zettel, & Stewart, 2003).

Specific harm reduction services supported within Canada include:

- Needle and Syringe Exchange Programmes (NSP) – have been officially operating in Canada since the late 1980s and offer not only clean supplies of injection equipment and condoms but also offer health education related to safer injecting practices. There are over 200 NSPs operating in the country, however access to clean injection supplies remains limited in most rural areas of the country and no NSPs are available in prison settings.
- Safe Injecting Facilities (SIF) – North America's first and only legal facility was sanctioned in 2003 in Vancouver's Downtown Eastside. Numerous scientific evaluations from the British Columbia Center for Excellence in HIV/AIDS have highlighted positive outcomes such as a reduction in the amount of sharing equipment (both by individuals users and the wider community) as well as a reduction in the number of individuals injecting in public spaces.

- Safer Crack Kits – A number of Canadian cities have initiated safer crack kit distribution in response to the risk of Hepatitis C transmission among people who smoke crack. Kits typically include health information, glass pipe stems, rubber mouthpieces, metal screens, condoms, lip balm and alcohol swabs. The kits prevent pipe sharing and help to minimize mouth injuries, which may facilitate the transmission of blood borne pathogens.
- Opioid Substitution Therapy (OST) - In Canada, both Methadone and buprenorphine are approved for OST purposes. However strict regulation of methadone, high barrier assessment procedures/rules, under funding, a lack of licensed prescribing physicians and dispensing pharmacies has seen the number of opiate dependent individuals accessing methadone remain low.
- Condom Distribution and safer sex education: Canada has implemented wide scale distribution of free condoms across settings and sectors in order to prevent the transmission of HIV and all other sexually transmitted infections. Confidential and voluntary counselling and testing (VCTs) for HIV is also available throughout Canada, with some provinces offering anonymous testing options. Community based outreach programmes offering wrap around services (NSP, condom distribution, VCT etc.) for marginalized populations have been shown to address gaps related to stigma, discrimination and disclosure concerns related to identifying as a person who uses drugs. (International Harm Reduction Association, 2010).

KEY PRACTICE

Issues to consider in relation to active drug use:

- Nurses understand the importance of responding to their patients' drug use with a non-judgemental approach
- Nurses are aware of the harm reduction services that are available in their community and ensure that their patients are aware of the resources
- Nurses look for opportunities to provide teaching on safe drug use

CLINICAL VIGNETTE

Scenario: Roy is a 33 year old male who has been injecting drugs for 8 years but has only recently moved into Vancouver' Downtown Eastside from Alberta. An outreach RN encounters Roy at a health clinic in a single resident occupancy (SRO) hotel, where he discloses to the RN that he occasionally shares injection equipment with other residents living on the same floor of his SRO. He is not aware of his HIV or Hepatitis status and the RN takes notice of his brightly inflamed abscess to his right forearm.

Nurses Reflection: Front line Nurses working with clients who present with risks for HIV transmission (whether drug or sex related) should work with clients to assess and address:

- What are the specific risks and harms associated with a particular risk behaviour
- What causes those risks and harms?
- What can be done to reduce these risks and harms?

(International Harm Reduction Association, 2011).

Nurses Response: The nurse is aware to address the above points and:

1. Counsel the client as to where he can consistently access clean injection supplies to avoid sharing with other residents
2. To discuss whether the client is interested in a serology screen for HIV, Hepatitis and other relevant items (Hepatitis B if not vaccinated, syphilis etc.)
3. Educate the client regarding safer injection practices (cleaning injection sites, preparing/cooking drugs, rotating veins, preventing drug over doses, retaining a vein for medical use, etc.)
4. Offers the client a referral to a primary care facility for on-going primary care management and assessment/treatment for the abscess

NURSES WILL HAVE AN UNDERSTANDING OF HOW TO PREVENT VERTICAL TRANSMISSION FOR PREGNANT WOMEN WHO ARE LIVING WITH HIV.

DISCUSSION OF EVIDENCE:

Since 1995, there has been a 3% vertical transmission rate to the fetus, and 0% in ARV treated women. It is vital that nurses engage HIV positive pregnant women in care in a non judgmental manner, so that women will engage in care and the use of antiretroviral therapy during pregnancy. It is also very important to be able to assess risk and offer prophylactic therapy to women who present in labour with an unknown HIV status and a history of high risk behaviours.

a) Nurses will have knowledge of the antiretroviral options that are used in pregnancy and during labour.

ART has transformed the care of pregnant women and their infants. Prior to ART, pregnant women who were HIV infected had a 25% chance of transmitting virus to their newborns. With ART, the rate of transmission has declined to less than 2%. All HIV+ women should be placed on HAART for the second and third trimester of their pregnancy. ART is continued during labour and delivery and the newborn is given ART for the first six weeks post partum. In general, pregnant women are given a combination of nucleoside reverse transcriptase inhibitors and protease inhibitors. Efavirenz is contraindicated because it is teratogenic. Nevirapine cannot be given to women with a CD4 of greater than 250 because of an increased risk of liver failure. In addition to oral ART, a zidovudine infusion is started at the commencement of labour. All pregnant women with HIV start HAART, regardless of their CD4 count. The objective is to reduce their viral load to undetectable, which will significantly reduce the potential for viral transmission. Newborns are given zidovudine syrup for the first six weeks post partum. If the women was not virologically suppressed at the time of labour she will receive a dose of nevirapine at the onset of labour and the newborn will also receive nevirapine at the time of delivery.

KEY PRACTICE

- Nurses understand that ART can prevent vertical transmission of HIV in pregnant women.
- The nurse will educate herself on the preferred medications used to treat HIV in pregnant women.
- The nurse will ensure that her female HIV infected patients understand that they can safely become pregnant and deliver a healthy baby free of HIV infection.
- The nurse will ensure that HIV infected women who are pregnant get adequate prenatal follow up.

CLINICAL VIGNETTE

Scenario: Tyfanny arrives on the maternity unit in labour. She is 3 cm dilated. Her history indicates that she is an injection drug user. She has not been engaged in prenatal care and has not been on ART. She does not know her HIV status.

Nurses reflection: The nurse understands that there is a potential that Tyfanny is infected with HIV. Because she has not been on ART she might have a very high viral load. This would put her baby at risk of acquiring HIV.

Nurses response: The nurse talks to the physician about starting Tyfanny on AZT and nevirapine in the absence of an HIV test. She knows that although the chances of reducing transmission are less than if she had been on ART throughout her pregnancy it will still reduce her risk of transmission to about 8%. The nurse and physician talk to Tyfanny and obtain her consent to start treatment.

NURSES WILL HAVE AN UNDERSTANDING OF HOW TO PREVENT VERTICAL TRANSMISSION FOR PREGNANT WOMEN WHO ARE LIVING WITH HIV.

B) NURSES HAVE AN UNDERSTANDING OF THE ISSUES THAT THIS OFTEN MARGINALIZED POPULATION ARE CONFRONTING AND HOW TO SUPPORT THESE WOMEN THROUGHOUT THEIR PREGNANCY.

DISCUSSION OF EVIDENCE:

In Canada, 10,799 women are estimated to be HIV positive (UNAIDS, 2008). At least 24% of new infections are in women, and most are of reproductive age. Aboriginal and immigrant women are over represented in these statistics. A compounding problem is the lack of appropriate low barrier services for pregnant substance using women, and the negative and punitive attitudes towards women who use substances. This discrimination and stigma manifests in difficulty in finding health care providers, being judged and not having access to counseling, treatment, health care and HIV care.

KEY PRACTICE

The nurse, in collaboration with the health care team will:

- Understand the need for a welcoming, non-threatening, non-judgmental environment for care.
- Understands that non attendance does not mean “non compliance”
- Understand the need to work with other team members in order to coordinate care
- Understand that HIV management and antiretroviral therapy is the best care but that prescribing does not equal taking medication.
- Understands that some women’s lives are in chaos and may need daily observed therapy if at all possible.
- Understands that help with funding for medications may be necessary
- Understands the need to help with managing side effects of therapy such as nausea
- Understands that women may feel guilt and shame, and will experience fear for outcome for infant.
- Understands the need for adequate nutritional intake and the difficulties for some women.

CLINICAL VIGNETTE

Scenario: Heather is a 30 year old First Nations woman, G4/A1/P2. Neither of her two children are in her care. She is HIV + and Hep.C positive (4 years). She presents at 20 weeks gestation. No prenatal care. Actively using IV heroin and cocaine. No fixed address. She has been started on methadone in the hospital but wants to leave.

Nurses reflection: The nurse understands that the hospital is a hostile environment for Heather. She also understands the importance of engaging Heather, getting consent for some blood work and starting ARV medications. She is also aware of the need for improved nutrition and prenatal care, and housing. However, Heather is adamant that she wants to leave.

Nurses response: The nurse talks to Heather and asks about her wishes for this pregnancy. She asks if she would like the chance to have housing, prenatal care, and discusses the options of ARV and how this will essentially eliminate transmission to the baby. The nurse encourages Heather to stay in hospital to stabilize, but when Heather insists on leaving, gives Heather information on places in the community where she can access free meals, and also some community agencies that she is able to connect to. She asks if Heather is open to an outreach worker coming to bring her to another appointment and where she may be able to be found. She also asks if she is open to help in finding a bed in a shelter.

NURSES UNDERSTAND THAT NOT ALL ABORIGINAL COMMUNITIES ARE READY TO FACE THE ISSUES AROUND HIV AND NEED TO BE ABLE TO BUILD HIV AWARENESS AND READINESS IN ABORIGINAL COMMUNITIES.

DISCUSSION OF EVIDENCE:

Aboriginal people make up a disproportionate percentage of all new HIV diagnoses. While Aboriginal people make up approximately 5% of the total population in British Columbia, they make up 16% of all new HIV diagnoses in 2009 (BCCDC, 2011). Furthermore, Aboriginal women make up 24% of all new HIV diagnoses in women (BCCDC, 2011). These alarming statistics lend themselves to the need for greater awareness/education, prevention, and care in Aboriginal communities.

There are multiple factors that are associated with the high rates of HIV in Aboriginal communities including, but not limited to, poverty, lower levels of education, lack of food security, access to health care, homelessness, high unemployment, addiction, and past residential school experiences. As well, given the limited HIV education in schools, and the stigma associated with HIV, myths are common in communities. The stigma and myths combine to create resistance and misinformation regarding the infection.

HIV is a highly stigmatized infection that carries a multitude of myths and misinformation. Thus community members are discouraged to engage in discussion around the topic of HIV. Nurses can be a part of building readiness in Aboriginal communities, and to dispel the myths and misinformation around HIV.

“A guide to Wise Practices for HIV/AIDS Education and Prevention Programs” Chee Mamuk. (2009).

KEY PRACTICE

Tips to ensure a community is ready for HIV awareness.

- Check the level of readiness in your community
- Decide who your target group is and get to know them.
- Focus on the key risk factors for that group.
- Bring key “opinion leaders” into the effort.
- Check out the resources in your community and use them.
- Plan a variety of approaches.
- Put a personal face on it.
- Embed your strategy in Aboriginal culture.
- Take your time or be creative as attitudes will need to shift.
- Make sure you have the facts.

CLINICAL VIGNETTE

Scenario: A nurse, new to a small, northern, First Nations community, decides to hold a HIV information night in the community. She invests a lot of time, and works very hard to gather resources, invite speakers, organize the venue, advertise and promote the event, and arranged for food and prizes. The nurse feels disheartened when only 3 people attend the evening. She wonders what went wrong.

Nurses Reflection: The nurse realizes that HIV is not something that anyone in the community is ready to talk about. She checks the Community Health Plan, and realizes that HIV awareness is not a part of it. She asks around, and finds out that HIV education is not happening at the school. Most people in the community believe that HIV is a “city” disease. The nurse is concerned that the community members have false information about HIV.

Nurses Response: The nurse utilizes the Community Readiness Model (2006) to assess where the level of readiness in her community is at in relation to HIV and realizes that the community was not ready for an information night about HIV. She also realizes that she needs to create awareness of the HIV epidemic before asking people to participate in an event about HIV. Over the next 12 months, the nurse hangs an HIV poster in her clinic, puts information about HIV in the community newsletter, and she provides a supply of condoms. She goes to the local school to talk to the students about safer sex. She meets with the local Chief and Council to bring awareness to HIV and brings up HIV at the health centre meeting. As well, the nurse attends community events to chat with people about the ongoing HIV battle. Over time, she is able to bring more awareness about HIV to the community, and host another HIV information night with an existing group that is more receptive to learning about HIV. She realizes she can reach more people by talking about HIV at existing groups such as the Elders, Youth, or Mothers groups rather than trying to put on a stand-alone HIV workshop.

NURSES WILL PROVIDE QUALITY END OF LIFE CARE TO PATIENTS WHO ARE DEALING WITH END STAGE CANCER OR IRREVERSIBLE AIDS DEFINING ILLNESS.

DISCUSSION OF EVIDENCE:

Despite the advent of HAART in 1996, many people with HIV continue to present late for treatment. A significant number of patients are not diagnosed with HIV infection until their CD4 count is below 200 and they have experienced an opportunistic infection. There are also some patients, who, due to lifestyle, socioeconomic issues and co-morbidities are unable to adhere to treatment. These patients will inevitably progress to life-threatening AIDS defining illness. Palliation and end of life care planning become crucial elements in the care of these patients.

KEY PRACTICE

The nurse, in collaboration with the patient, will ensure that end of life planning meets the goals of the patient. It is important to take cultural beliefs and practices into consideration. The nurse will ensure that appropriate referrals are made to palliative care in a timely manner.

CLINICAL VIGNETTE

Scenario: David is a 36 year old First Nations patient who has been admitted to the unit with a diagnosis of lymphoma. He is treated with chemotherapy but it becomes clear that his lymphoma is too advanced to be successfully treated. David is aware that he is dying and he asks that his family be contacted. He has not seen his mother in several years but he is anxious to see her before he dies.

Nurses Reflection: The nurse is aware that family is extremely important in Indigenous culture and that David needs to make a connection with his family if he is to have a peaceful death.

Nurses Response: The nurse contacts the social worker and asks her to look for David's family and make the necessary arrangements for them to come to the hospital. She asks David if there are any traditional practices that he would like to engage in and if he would like an Elder contacted for support and ceremony.

UNDERGRADUATE CURRICULUM WILL SUPPORT EVIDENCE BASED TRAINING AND PRACTICE IN THE FIELD OF HIV/AIDS

DISCUSSION OF EVIDENCE:

Schools of nursing across Canada in collaboration with regulatory bodies will support students in their preservice training programs to achieve the minimal standards set forth in this document. This will include didactic training and opportunities for clinical practice relevant to the development of the knowledge, skills and attitudes necessary for the care and management of persons living with HIV/AIDS, their families, friends, and communities. These training opportunities will include the perspectives of the recipient of nursing care (the client or patient) and content related to interprofessional health care standards set forth by international, federal and provincial guidelines (Canadian Interprofessional Health Collaborative, 2010; Interprofessional Network of BC & College of Health Disciplines, 2008; WHO, 2010).

NURSES WILL INCORPORATE KNOWLEDGE OF HIV/AIDS INTO THEIR ONGOING EVERYDAY PRACTICE AND CONTINUING EDUCATION.

DISCUSSION OF EVIDENCE:

HIV/AIDS continues to have an impact in Canada with over 65,000 people living with HIV/AIDS and over 2300 to 4300 new infections occurring annually (Health Canada, 2008). Nurses in all areas of health care, from community to public health to acute care to residential are likely to care for people at risk for and living with HIV. For this reason it is important that all nurses have a basic knowledge of HIV/AIDS and how to provide HIV care. All nurses, in all settings, can play an integral role in identifying, supporting, and providing care to those who are at risk for or who have HIV infection.

There is overwhelming evidence in the literature that persons who are living with HIV have much better outcomes when they have positive therapeutic relationships with members of the health care team. When nurses develop therapeutic relationships with their HIV+ clients the result is better adherence, decreased stigma experience and better quality of life indicators. (Goode, Harrod, Wales & Crisp, 2004; Eubanks, 2009; Gardenier, Andrews, Thomas, Bookhardt-Murray & Fitzpatrick, 2010). In order to develop therapeutic relationships nurses need to inform themselves of the issues related to HIV/AIDS and to incorporate this knowledge into their ongoing everyday practice.

KEY PRACTICE

Reflection on translating evidence to practice

- Make it a practice to review the literature routinely to determine if there is new information that should be integrated into your practice.
- Bring your findings to the team to determine if the new information should be integrated into your program.
- Become involved with any research projects that are initiated within your program. Research may be as simple as keeping statistics or having clients complete satisfaction questionnaires, or a complex as large studies funded by outside agencies. The key is that the findings should be used to achieve the best possible outcomes.
- Work with the client to achieve his/her goal.
- Consider a harm reduction approach.
- Prepare for the long haul.
- Make it fun.
- Evaluate as you go along and modify your approach as necessary.

CLINICAL VIGNETTE

Scenario: A nurse working in an Extended Care facility has a new admission of a younger HIV positive man with HIV Associated Neurological Disorder, requiring ongoing care and support. Her experience is working with older adults but is interested to learn more about HIV and realizes that many colleagues hold outdated views about caring for people with HIV/AIDS.

Nurses Reflection: The nurse realizes that HIV is not clearly understood by herself or her colleagues and recognizes that in order to give holistic and patient centred care, she needs to educate herself and others about both HIV and the long term effects on the individual.

Nurses Response: The nurse attends an HIV education day and spends time talking to her Clinical Nurse Leader and Clinical Nurse Educator, about how to translate the information into her everyday practice. With help from the Nurse Educator, she holds a 'Lunch and Learn' session on HIV and engages her colleagues in a 'Myth Busting' activity about HIV/AIDS. She finds out best practice guidelines for HIV/AIDS care and works with the patient to develop his care plan. She notices that other staff are less worried about HIV transmission and that the patient is becoming more integrated into everyday activities on the unit.

NURSES WORKING IN THE FIELD OF HIV/AIDS HAVE ACCESS TO FORMAL TRAINING AND EDUCATION TO ACHIEVE COMPETENCIES IN PRACTICE AND STANDARDS OF PRACTICE IN HIV/AIDS.

DISCUSSION OF EVIDENCE:

The purpose of educating nurses in interactive model of learning would be 3 fold:

1. Bring forward new information or skills build on past knowledge and experience
2. To encourage growth and development of a skilled nursing professional
3. Learn both in interdependent, connected and collaborative ways as well as in independent and self-reliant modes.

Education and training programs would be delivered through in-house programs (such as seminars, workshops, computer-based instruction, job-embedding learning) and off-site programs (such as conferences (CANAC) and institutes). Both formally designed educational programs and self-directed learning activities are considered legitimate ways for participants to learn.

Education topics could include but not limited to the latest evidence based research on:

- a) HIV testing and counseling
- b) Chronic Disease Management
- c) Disease prevention
- d) Acute Care Symptom Management
- e) Palliative Care
- f) Medication Teaching
- g) Nutrition
- h) Spiritual and Psychosocial support
- i) Adherence counseling
- j) Patient support/advocacy
- k) Mental Health support
- l) Referral management
- m) Health Promotion
- n) Family teaching
- o) Documenting Care (i.e. findings/interventions)

Nurses are an active team member of the interdisciplinary setting and advocate on behalf of the patient to raise issues related to improving service delivery and are there as a support to their fellow colleagues.

Nurses would be guided by their purpose in providing comprehensive care for increasing the quality of life of people at risk for HIV and those affected by the disease. The goals would be achieved through a focus on assessment and implementation of interventions including education on both prevention and care.

Guidelines for organizing the training content will be:

- Acknowledging and reviewing what participants know about the content of HIV/AIDS
- Give participants a framework to use in organizing what they are to learn and understand how this learning could be transferred into their own setting
- Introduce key concepts, ideas and terms early and revisit them throughout the instructional period
- Learning can take place through reflective practice and discussion; audio and video conferencing; problem-based learning or the use of suggestion circles whereas participants provide high-quality stated solutions to specific problems.*

As with all training/education improvement is sought through feedback and evaluation of the experience. Nurses would be guided by their purpose in providing comprehensive care for increasing the quality of life of people at risk for HIV and those affected by the disease. The goals would be achieved through a focus on assessment and implementation of interventions including education on both prevention and care.

Nurses are recognized in the fact they make time for their patients; use an open, supportive, nonjudgmental approach; maintain current knowledge and training; and strongly believe in the importance of their role.*

NURSES ADVOCATE WITH POLICY MAKERS FOR IMPROVED ACCESS TO HIV/AIDS CARE AND TREATMENT MODALITIES, INCLUDING HAART, AS PART OF HOLISTIC PRIMARY HEALTH CARE FOR ALL POPULATIONS.

DISCUSSION OF EVIDENCE:

While treatment to HIV/AIDS care is widely available in urban centers, there are many areas in Canada and especially in developing nations where HIV/AIDS care and access to treatment is unobtainable. Nurses have a unique roll to play in advocating for patients/clients to access treatments and services as they may be able to critically examine the reasons that patients/clients are unable to access services and target their efforts to address these discrepancies. According to WHO (2005), advocacy is a combination of individual and social actions designed to gain political and community support for a particular goal. Action may be taken by, or on behalf of, individuals and groups to create living conditions which promote health (p.4).

Nurses can take action in a number of ways both as individuals and as a professional group. Nursing organizations such as the Canadian Nurses Foundation often have a mandate to provide position statements regarding inequities in health care and to take these statements forward to governmental agencies and the public to gain support. The Canadian Association of Nurses in AIDS Care (CANAC) also has such a mandate, and have produced several position statements on issues such as criminalization of HIV exposure and human rights of those infected or affected by HIV.

Nurses can advocate for patients/clients by understanding the social determinants of health and determining when clients are at risk for inadequate access to services. There are many barriers to health care which are not geographical in nature, which indicates that issues related to housing and poverty must also be addressed as part of advocacy. (Bryant, Raphael, Schrecker & Labonte, 2011).

HEALTH CARE ORGANIZATIONS PROVIDE MECHANISMS OF SUPPORT FOR NURSES THROUGH ORIENTATION PROGRAMS AND ONGOING PROFESSIONAL DEVELOPMENT OPPORTUNITIES REGARDING CARE AND TREATMENT OPTIONS FOR HIV/AIDS.

DISCUSSION OF EVIDENCE:

Risk perception and attitudes about HIV/AIDS can affect the care provided by nurses, as well as job satisfaction (Jemmott, Frelicher & Jemmott, 1992). Offering basic HIV and AIDS education in clinical orientation for nurses, and providing varied opportunities for continual training will help ensure quality care, improve client outcomes and enhance job satisfaction. Nurses are notoriously busy, so ensuring time within their busy schedules for training can be challenging, but must be considered an important priority.

Including basic HIV/AIDS information in clinical orientation programs is essential to ensure persons living with HIV/AIDS receive quality nursing care. HIV and AIDS are not consistently covered in undergraduate nursing programs across Canada. Addressing modes and risks of transmission for HIV during orientation can increase comfort for nursing staff and help dispel cultural myths with respect to working with persons living with HIV/AIDS.

Organizational support for training opportunities in HIV/AIDS care for nurses is important due to the complex nature of the HIV virus and its treatment modalities, as well as frequent updates to HIV/AIDS care and treatment. Through consultation with local experts and ASOs (AIDS Service Organizations), health care organizations can offer in-services, mentorship and access to online and written resources. If local HIV expertise is not easily accessible, nurses can access external training programs and educate their peers. Specialized training in HIV care, such as HIV Rounds and preceptorship, exist within large urban centers.

Nurses and health care organizations must work together to:

- Ensure nurses have access to orientation and training.
- Help identify knowledge gaps, and assess personal comfort levels.
- Use evidence to guide and provide quality patient care.

HEALTH CARE ORGANIZATIONS PROVIDE MECHANISMS OF SUPPORT FOR NURSES THROUGH ORIENTATION PROGRAMS AND ONGOING PROFESSIONAL DEVELOPMENT OPPORTUNITIES REGARDING CARE AND TREATMENT OPTIONS FOR HIV/AIDS.

DISCUSSION OF EVIDENCE:

Offering orientation programs that address health care staffs perceptions and attitudes, as well as the care and treatment of clients who are living with HIV/AIDS, will foster a positive work environment for the implementation of the best practice guidelines. There are a number of organizational benefits that arise from offering orientation programs and professional development opportunities. Developing and maintaining a cohort of nurses who have an expertise in HIV treatment and care improves the continuity and overall quality of care that clients receive in the organization. Providing nurses with opportunities for ongoing education and professional development assists with staff recruitment and retention by providing staff with a sense of accomplishment and organizational commitment. Stimulating an environment of inquiry provides an opportunity for research. As the field of HIV/AIDS is continuously evolving, organizations must recognize the need for ongoing education and professional development and provide nursing with opportunities such as involvement in policy revisions.

NURSING BEST PRACTICE GUIDELINES CAN ONLY BE SUCCESSFULLY IMPLEMENTED WHEN THERE ARE ADEQUATE PLANNING, RESOURCES, ORGANIZATIONAL AND ADMINISTRATIVE SUPPORT, AS WELL AS APPROPRIATE FACILITATION.

DISCUSSION OF EVIDENCE:

A critical initial first step in the implementation of the best practice guidelines is formal adoption by the health care agency. The recommendations need to be incorporated into the policy and procedure structure of the organization. It is also vital that the adoption of the guidelines be evaluated on an ongoing basis. Monitoring the impact of best practice guidelines on both staff and patients is a key step in the evaluation process. Evaluation indicators are provided in the following section.

New initiatives such as best practice guidelines require strong leadership from nurses who are able to transform evidence-based recommendations into tools and strategies that will transform practice and care delivery. There are a number of resources for assisting in this process, including the Registered Nurses of Ontario toolkit for the implementation of clinical practice guidelines (RNAO, 2010) and a resource from the National Health and Medical Research Council in Australia (1998).

EVALUATION/MONITORING OF THE GUIDELINE

Organizations implementing the recommendations in this nursing best practice guideline are advised to consider how the implementation and its impact will be monitored and evaluated. The following table, based on a framework outlined in the RNAO Toolkit: Implementation of Best Practice Guidelines (2010), illustrates some specific indicators for monitoring and evaluation of the guideline Caring for Clients who are Living With or At Risk for HIV/AIDS.

LEVEL OF INDICATOR

STRUCTURE

System

Support for clients living with and at risk for HIV/AIDS is included in all parts of health care.

Educational opportunities are available for all health care professionals around HIV/AIDS.

Environments support health care professionals in providing safe client care.

System

Supports available to reduce inequity for clients who are living with HIV/AIDS (Intersectoral collaboration and integration of policies and services).

PROCESS**OUTCOME**

Creation of environments to support health care professionals in providing safe client care.

Increased access to quality HIV/AIDS quality care across the country.

Advocacy to ensure that the multidisciplinary team gets the education they need to provide safe client care.

Increased understanding of, acceptance of, and level of support for clients living with HIV/AIDS in Canada.

Develop partnerships between organizations offering services to clients with HIV/AIDS.

Increased coordination between organizations offering services to clients who are living with HIV/AIDS.

LEVEL OF INDICATOR**STRUCTURE**

System

Nursing programs across the country embed HIV/AIDS within the curriculum.

System

Harm reduction (secondary prevention) approaches are utilized in the planning and delivery of all aspects of health care.

Organization

Supports are available in the organization that allow nurses to participate in the development and management of HIV/AIDS care and treatment programs.

PROCESS**OUTCOME**

Curricula content development includes all the issues related to HIV/AIDS including epidemiology, treatment, opportunistic infections, psychosocial issues, addiction, harm reduction.

Engagement in dialogue between schools of nursing and programs that deliver HIV/AIDS care.

Inclusion of HIV/AIDS in nurse education programs.

Increased partnerships between schools of nursing and programs that deliver HIV/AIDS care.

Promoting the development of the role of nurses in HIV/AIDS care, including advanced practice.

Decrease mortality and morbidity related to the appropriate use of antiretroviral treatment.

Improved access to inpatient care for clients with HIV/AIDS.

Improved access to urgent care for clients with HIV/AIDS.

Decreased mortality and morbidity related to untreated HIV infection.

Increased number of nurses working with HIV+ clients with knowledge and skills about HIV/AIDS, including the advanced practice role.

Increased recruitment and retention of nurses working in the field of HIV/AIDS.

Nurses, interdisciplinary colleagues, and clients are involved in the creation of policies.

Develop partnerships between organizations offering services to clients participating in HIV/AIDS care and treatment programs.

Develop a strategy to evaluate the changes in practice that lead to improved care.

Development opportunities for organizational implementation of best practice guidelines.

Evidence that policies and procedures related to best practice strategies are consistent with this guideline.

Evidence that policies and practices reflect recognition of HIV/AIDS as a chronic, manageable disease, HAART as a treatment option and organizational support for antistigma and anti-discrimination.

Improved collaboration between organizations.

Referral processes between agencies are in place, eg. Between inpatient units and outpatient units, corrections and community, etc. -->more

LEVEL OF INDICATOR

STRUCTURE

Organization

Nursing

Nursing competencies related to HIV/AIDS are established and documented.

Nursing

Development of nursing research programs in HIV/AIDS.

PROCESS**OUTCOME**

Evaluation process in place that examines outcomes such as: referral processes; IT processes; medication variances.

Evidence of improved client care outcomes in relation to HIV/AIDS programs (eg. Improved client satisfaction; improved quality of life; retention in programs; improved health status).

Increased number of nurses with membership in the Canadian Association of Nurses in AIDS Care.

Nurses access educational opportunities.

Increased advocacy for clients who are living with and at risk for HIV/AIDS.

Nurses include the client in decision making in developing plans of care.

Nurses demonstrate increased knowledge and skill and associated competencies related to HIV/AIDS care.

Inclusion of HIV/AIDS in nurse education programs.

Nurses display increased knowledge and ability to care for all clients living with and at risk for HIV/AIDS.

Engaging with knowledge dissemination and exchange activities/strategies.

Building partnerships with existing research programs.

Integrates best/promising practices to determine the most effective ways to address the needs of diverse client/patient groups.

Number of research programs in HIV/AIDS supported by national and provincial funding bodies.

LEVEL OF INDICATOR**STRUCTURE**

Nursing

Availability of educational opportunities related to HIV/AIDS. Nursing leadership.

Client

Support groups available that reflect differences (eg. Language, sexual orientation, gender, ethnicity).

Financial costs

Provision of adequate financial and human resources for guideline implementation.

PROCESS**OUTCOME**

Development of opportunities in HIV/AIDS for mentorship and leadership roles.

Increased number of nurse preceptors in HIV/AIDS programs.

Increased percentage of nurses attending and completing educational sessions related to caring for persons living with and at risk for HIV/AIDS.

Participation in support programs.

Collaborates in the planning and management of care.

Client satisfaction with care received.

Seamless care.

Improved overall health status.

Increased engagement and retention of clients in HIV/AIDS care and treatment programs.

Decreased morbidity/mortality

Development of evaluation process for resource allocation.

Creation of partnerships/strategies for cost sharing.

Process is created for inclusion of stakeholders regarding resource allocation.

Costs for education, other interventions and on the job supports.

Optimal investment of resources related to the care of the client living with and at risk for HIV/AIDS.

IMPLEMENTATION STRATEGIES

The Canadian Association of Nurses in AIDS Care and the guideline development panel have compiled a list of implementation strategies to assist health care organizations and health care disciplines that are interested in implementing this guideline. A summary of these strategies are as follows:

- Have at least one dedicated person – such as an advanced practice nurse or a clinical resource nurse – who will provide support, clinical expertise and leadership. The individual should also have good interpersonal, facilitation and project management skills.
- Conduct an organizational needs assessment related to HIV/AIDS to identify current knowledge base and further educational requirements.
- Initial needs assessment may include an analysis approach, survey and questionnaire, group format approaches (eg. Focus groups), and critical incidents.
- Establish a steering committee composed of key stakeholders and interdisciplinary members who are committed to lead the change initiative. Identify short and long term goals. Keep a work plan to track activities, responsibilities and timelines.
- Create a vision to help direct the change effort and develop strategies for achieving and sustaining the vision.
- Program design should include:
 - target population;
 - goals and objectives;
 - outcome measures;
 - required resources (human resources, facilities, equipment; and
 - evaluation activities.
- Design educational sessions and ongoing support for implementation. The education sessions may consist of presentations, facilitator's guide, handouts and case studies. Binders, posters and pocket cards may be used as ongoing reminders of the training. Plan education sessions that are interactive, include problem solving, address issues of immediate concern

and offer opportunities to practice new skills (Davies & Edwards, 2004).

- Provide organizational support such as having the structures in place to facilitate the implementation, eg. hiring replacement staff so participants will not be distracted by concerns about work and having an organizational philosophy that reflects the value of best practices through policies and procedures. Develop new assessment and documentation tools (Davie & Edwards)
- Identify and support designated best practice champions on each unit to promote and support implementation. Celebrate milestones and achievements, acknowledging work well done (Dave & Edwards).
- Organizations implementing this guideline should adopt a range of self learning, group learning, mentorship and reinforcement strategies that, over time, will build the knowledge and confidence of nurses in implementing this guideline.
- Teamwork, collaborative assessment and treatment planning with the

client and family and interdisciplinary team are beneficial in implementing guidelines successfully. Referral should be made as necessary to services or resources in the community or within the organization.

In addition to the strategies mentioned above there are other resources that are available. The RNAO has a toolkit for implementing guidelines which is available in PDF format at www.rnao.org/bestpractices. The Canadian AIDS Treatment Information Exchange (CATIE) hosts a nursing link on their website, www.catie.ca, that has information on a variety of HIV/AIDS related topics. In addition, nurses can look to the Canadian Association of Nurses in AIDS Care (CANAC) for support with their practice concerns.

PROCESS FOR UPDATE/ REVIEW OF GUIDELINE

The Canadian Association of Nurses in AIDS Care proposes to update this best practice guideline as follows:

1. Each nursing best practice recommendation will be reviewed by a team of specialists (Review Team) in the topic area every three years following the last set of revisions.
2. During the three year period between development and revision, CANAC volunteers will regularly monitor for new systematic reviews, randomized controlled trials and other relevant literature in the field.
3. Based on the results of the monitor, CANAC volunteers will recommend an earlier revision period as necessary. Appropriate consultation with members of the original panel and other specialists in the field will help inform the decision to review the guidelines earlier than the three year milestone.
4. Three months prior to the three year review milestone, CANAC volunteers will commence the planning of the review process by;
 - a) Inviting specialists in the field to participate in the review team. The review team will be composed of members of the original panel and other recommended specialists.
 - b) Compiling feedback received, questions encountered during the dissemination phase, as well as other comments and experiences of implementation sites.
 - c) Compiling new clinical practice guidelines in the field, systematic reviews, meta-analysis papers, technical reviews, randomized control trial research, and other relevant literature.
 - d) Developing a detailed work plan, including target dates and deliverables.

The revised guideline will undergo dissemination based on established structures and processes.

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APPENDIX A: SEARCH STRATEGY FOR EXISTING EVIDENCE

The search strategy utilized during the development of this guideline focussed on two key areas:

- 1) Identification of clinical practice standards published on the topic of nursing care of clients living with and at risk for HIV/AIDS; and
- 2) identification of systematic reviews and primary studies published in this area from 2000 to 2011.

STEP 1 – DATABASE SEARCH

A database search for existing evidence related to HIV/AIDS care was conducted by the review panel. An initial search of the MEDLINE, CINAHL and Cochrane Library databases for guidelines, primary studies and systematic reviews published from 2000 to 2011 was conducted using the following search terms “Addiction”, “Adherence”, “Antiretroviral therapy”, “Antiretroviral therapy side effects”, “AIDS defining illnesses”, “Child health”, “Cultural Safety”, “Elder care”, “Harm reduction”, “HIV”, “HIV prevention”, “HIV testing”, “Maternal health”, “Opportunistic infections”, “Pregnancy”, “Resistance”, “Social determinants of health”, “Stigma”, “Vertical transmission”. As directed by the panel, supplemental literature searches were conducted as needed.

This search was conducted to answer the following questions:

1. What do nurses need to be aware of to do an appropriate assessment of clients who are living with or at risk for HIV/AIDS?

2. What do nurses need to know about HIV/AIDS care (including assessment, treatment, adherence, etc.)?
3. What is the role of the nurse in HIV/AIDS care?
4. How do you support a client who presents for care?

STEP 2 – SEARCH ENGINE WEB SEARCH

A website search for existing practice guidelines related to HIV/AIDS was conducted via the search engine google (www.google.ca), using key search terms. Results of the search were noted and websites were reviewed.

STEP 3 – HAND SEARCH/PANEL CONTRIBUTIONS

Panel members were asked to review their personal archives to identify guidelines not previously found via the search strategies noted above.

STEP 4

In addition panel members sourced additional information (existing evidence – articles, peer reviewed and grey literature) to support and refine recommendations.

APPENDIX B:

GLOSSARY OF TERMS

Addiction: a primary, chronic disease, characterized by impaired control over the use of a psychoactive substance and/or behaviour. Clinically, the manifestations occur along biological, psychological, sociological, and spiritual dimensions. Common features are change in mood, relief from negative emotions, provision of pleasure, pre-occupation with the use of substance(s) or ritualistic behaviour(s), and continued use of the substance(s) and/or engagement in behaviour(s) despite adverse physical, psychological, and/or social consequences. Like other chronic diseases, it can be progressive, relapsing and fatal (Canadian Society of Addiction Medicine, 1999).

Adherence: treatment adherence means adhering to (following) a prescribed drug regimen – taking the correct dose at the correct time and exactly as prescribed.

Antiretroviral therapy: antiretroviral drugs are medications for treatment of infection by retroviruses, primarily HIV. When several such drugs, typically three or four, are taken in combination, the approach is known as highly active antiretroviral therapy.

Client: a client is a person with whom the nurse is engaged in a therapeutic relationship. In most circumstances a client is an individual but may also include family members, significant others and/or substitute decision makers.

Competency: is the ability of an individual to perform a job properly. It is a combination of knowledge, skills and behaviour used to improve performance. It is the state or

quality of being qualified and of having the ability to perform a specific role.

Critical cultural perspectives: is the critical consideration of ‘difference’ as it relates to culture. This is particularly important in nursing because if culture is understood too narrowly, ie. as simply beliefs, attitudes, knowledge and practices or equated with ethnicity/nationality, the focus of health and health care may be too narrow, ie. the social, political and historical contexts of peoples’ lives that shape health and health care may be ignored and/or not adequately addressed (Hartrick Doane & Varcoe, 2005). For a critical cultural perspective, culture is ever changing. It is a relational aspect of ourselves that shifts over time depending on our history, past experiences, social, professional and gendered location and our perception of how we are viewed by others in society (Browne & Varcoe, 2006).

Cultural safety: is a concept which began in nursing education in Aotearoa, New Zealand with Maori nurses in recognition of the inequities in health status and health care for Maori related to continuing colonizing processes and practices (Ramsden, 1993, 2000; Smye & Browne, 2002). It is a concept that has been taken up by several organizations in Canada to address inequities in health and health care (eg. National Aboriginal Health Organization). Cultural safety begins with the nurse/health care provider – with selfreflection. The nurse needs to recognize that both the client (as individual, family and/or community) and the provider are “bearers of culture” and that the 1:1 relationship is always bicultural, ie. influence by the culture(s) of both the nurse and the client. In

APPENDIX B: GLOSSARY OF TERMS

addition, nurses need to understand that health and health care are shaped by historical, social, economic and political processes and practices and power and structural inequities (Ramsden, 1993, 2000). Culturally safe practice entails addressing power differentials that create inequities affecting health and health care. It also demands that nurses engage with policies and practices that impact health and health care, to shift the status quo, ie. to change those policies and practices that put people at risk of not having their health care needs met or that create ‘unsafety’. Cultural safety is both a process and an outcome. Notably, culturally safe services and care are defined as such by the client.

Evidence: is information that comes closest to the facts of the matter. The form it takes depends on context. The findings of high quality, methodologically appropriate research provides the most accurate evidence. Because research is often incomplete and sometimes contradictory or unavailable, other kinds of information are necessary supplements to or stand-ins for research. The evidence base for a decision is the multiple forms of evidence combined to balance rigor with expedience while privileging the former over the latter (Canadian Health Services Research Foundation, 2006).

- **Evidence-based learning:** requires us to measure our own performance – to understand how well our learning interventions are working and build continuous cycles of improvement into our practices. After gathering and analyzing the evidence, we act on it and begin the cycle again – evaluating and analyzing.

- **Evidence-based practice:** the integration of knowledge of the best available research, client preferences, resources and clinical expertise when making decisions with a client about achieving the best possible health care.

- **Evidence-informed practice:** is an approach to nursing practice in which the nurse is aware of the research evidence relevant to his/her clinical practice and the strength of that evidence (College of Nurses of Ontario, 2005b; Dobbins, 2008).

- **Best practice:** refers to “the clinical practices, treatments and interventions that result in the best possible outcomes for the patient and the health care facility providing those services” (Lippincott, Williams & Wilkins, 2007, p.1). Promising practices: the terms ‘lessons learned’, ‘good practices’ and ‘promising practices’ are all terms used to describe useful practices. These terms are often used to indicate practices or approaches that have not been evaluated as rigorously as ‘best practices’ but that still offer ideas about what works best in a given situation (Information & Knowledge for Optimal Health, 2007) – often reported by experts in the field as beneficial (Walker & Bruns, 2006).

Harm reduction: is a continuum of services that represent a philosophical, pragmatic approach to providing care while minimizing the negative consequences associated with substance use. The focus is goal oriented, humanistic and in keeping with a cost benefit awareness (Pauly, Goldstone, McCall, Gold & Payne, 2007).

Interdisciplinary: refers to a range of collaborative activities undertaken by a team of two or more

APPENDIX B: GLOSSARY OF TERMS

individuals from different disciplines applying the methods and approaches of their respective disciplines (Canadian Collaborative Mental Health Initiative, 2005). Approaches that analyze, synthesize and harmonize links between disciplines into a coordinated and coherent plan of care (Choi & Pak, 2006).

Opportunistic infection: is an infection caused by pathogens (bacterial, viral, fungal or protozoan) that usually do not cause disease in a healthy host. A compromised immune system however, presents an “opportunity” for the pathogen to infect.

Primary health care: “. . . is about equity in access to health and health care through the provision of community-based health services that emphasize disease prevention and health promotion (MacDonald, 2002, p.30). “It is essential care (promotive, preventive, curative, rehabilitative and supportive) that is focussed on the prevention of illness and promoting health (Canadian Nurses Association, 1995, p.1).

Resistance: is the reduction in effectiveness of a drug such as an antiretroviral, antimicrobial or antineoplastic in curing a disease or condition.

Stigma: “Stigma is typically a social process, experienced or anticipated, characterized by exclusion, rejection, blame or devaluation that results from experience or reasonable anticipation of an adverse social judgement about a person or group.” (Martin & Johnston, 2007, p. 8). In relation to HIV infection, it is a negative attitude most often based on prejudice, misinformation, and fear that is triggered by an association made between HIV and socially unacceptable behaviour

such as injection drug use, homosexuality, and promiscuity and the perception that people have a choice, based on people’s previous experience – often people make moral judgements. The presence of stigma is problematic because it leads to ongoing discrimination and marginalization with detrimental effects for clients, families and communities of people (decreased self esteem, increased isolation and vulnerability, higher likelihood that people will not access services). Discrimination occurs when actions are taken (or not taken) on the basis of stigma.

Intersecting stigmas: This is when there are intersecting oppressive forces that mutually construct stigma. For example, a person living with HIV may be stigmatized, if that person is also using drugs, a different stigma may be created, and/or if that person is racialized in some way, and/or poor, yet another stigma is created – this is not a cumulative process, rather, as noted above, stigma is coconstructed through these forces. Associative stigma: the process of being stigmatized based on a close association with a person with HIV, typically a family member – as if the family member was somehow tainted by the relationship. Similarly, a health care worker may also be stigmatized based on a work relationship (Halter, 2008).

Systematic review: the application of a rigorous scientific approach to consolidate the research evidence on a specific topic. “Systematic reviews establish where the effects of health care are consistent and research results can be applied across populations,

APPENDIX B: GLOSSARY OF TERMS

settings and differences in treatment (eg. dose); and where effects may vary significantly. The use of explicit, systematic methods in reviews limits bias (systematic errors) and reduces chance effects, thus providing more reliable results upon which to draw conclusions and make decisions (Clarke & Oxman, 1999).

Therapeutic relationship: is a purposeful, goal directed relationship that is directed at advancing the best interest and outcome of the client. The therapeutic relationship is grounded in an interpersonal process that occurs between the nurse and the client(s) (RNAO, 2006).

APPENDIX C: SOCIAL DETERMINANTS OF HEALTH (SDOH)

There is a wealth of evidence from Canada and other countries to support the idea “that the socioeconomic circumstances of individuals and groups are equally or more important to health status than medical care and personal health behaviours, such as smoking and eating patterns (Evans, Barer & Marmor, 1994; Health Canada, 2003). Evidence suggests that SDOH “have a direct impact on the health of individuals and populations, are the best predictors of individual and population health, structure lifestyle choices, and interact with each other to produce health” (Health Canada, 2003, p.2). “In terms of the health of populations, it is well known that the size of the gap or inequality in social and economic status between groups within a given population greatly affect the health status of the whole. The larger the gap, the lower the health status of the overall population.” (Health Canada, 2003, p. 2). The following nine SDOH are presented in Health Canada (2003, pp. 11-12) document titled: *The social determinants of health: An overview of the implications for policy and the role of the health sector. An overview in response to papers presented at the Social Determinants of Health Across the Lifespan Conference, Toronto, November, 2002.* Other additional social determinants of health include: peace, social support and family violence.

Early childhood education and care: Access to early childhood education and care for all – child care centres and other regulated care services, for example, family child care in

private homes so mothers can participate in the work force. It also includes schooling, where the primary purpose is early childhood education such as kindergartens and preschools (Friendly, 2002).

Education: Higher education is associated with better health and outcomes, and lower education with poorer health and outcomes.

Employment and job security: The ability to have meaningful work (as perceived by the person) to meet individual, family and/or community need. Higher rates of unemployment are associated with poorer health and premature death.

Food security: The ability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways with the certainty that this is possible. Limited availability of safe foods is contingent on the availability of money to purchase them and the availability of foods in geographically isolated communities.

Housing: The ability to access affordable, suitable and adequate accommodation (Layton, 2000).

Income: Income is thought to impact health in a number of important ways: material deprivation acts as a barrier to adequate shelter, food, warmth and the ability to participate in society – all prerequisites for healthy development; the lack of adequate income leads to psychosocial stress which can lead to poorer health; and people’s choices are limited (Raphael, 2004).

Social economy: Empowering services provided

APPENDIX C: SOCIAL DETERMINANTS OF HEALTH (SDOH)

to members and community that are not profit oriented (Vaillancourt, Aubrey, Tremblay & Kearney, 2002).

Social inclusion and exclusion: The ability for all people to participate fully in Canadian life. Due to structural inequalities in access to social, economic, political and cultural resources, some people are not able to do so. These inequalities arise out of oppression related to race, class, gender, ability/disability, sexual orientation, immigrant status, age, religion and so on.

Working conditions: Jackson (2002) has identified the following working conditions as central to whether a job is healthy or not: job and employment security; physical conditions at work; work pace, control and stress; working time (number of hours); opportunities for self expression and individual development at work; participation and relationships at work; and, work-life balance.

In addition to the above SDOH there are several other social determinants of health offered by the CNA (2005) from the World Health Organization.

Economic inequality: The gap between rich and poor may be an even more significant social determinant of health than absolute poverty – “as the gap between rich and poor widens, health status declines.” (CNA, p.3).

Social status: People of lower social standing run at least twice the risk of serious illness or premature death as those with more – this extends across all strata in society (CNA).

Stress: Long term and cumulative stress is associated with poorer health, eg. chronic disease, infections and mental health issues (CNA).

In addition to the social determinants of health, there are other basic determinants of health including: genetic endowment and physical environment (Health Canada, 2003).

APPENDIX D: DRUG INTERACTIONS WITH HAART

The cytochrome P450 (CYP450) enzyme system is responsible for the biotransformation of drugs from active to inactive metabolites that are readily excreted by the body. Given the effects of the protease inhibitor (PI) and non-nucleoside reverse transcriptase inhibitor (NNRTI) classes on the CYP450 system, metabolism drug interactions are common and problematic when prescribing HAART (Faragon & Piliero, 2004).

Drugs to avoid with NNRTI-based HAART regimens

DRUG	INTERACTION	RECOMMENDATION
Ciprofloxacin, tetracycline, doxycycline	Didanosine (ddi) buffered tablets chelate the antibiotic and reduce the absorption	Didanosine should be administered two hours after or six hours before the antibiotic. Concurrent use of ddi-buffered tablet may also impair the absorption of atazanavir. Use of the enteric coated formulation is an options.
Oral contraceptives	Concurrent nevirapine use and oral contraceptives may lead to contraceptive failure	Alternative methods of birth control
Rifabutin, rifampin	Reduce nevirapine trough levels significantly	Rifabutin is preferable to rifampin as reduction in trough level is 16% as opposed to 37%

APPENDIX D: DRUG INTERACTIONS WITH HAART

DRUG	INTERACTION	RECOMMENDATION
Midazolam, triazolam, ergotamine	Concurrent use with efavirenz can lead to increased drug concentrations of midazolam, triazolam and ergotamine	Concurrent use is contraindicated
Clarithromycin	If used concurrently with efavirenz the clarithromycin AUC and Cmax decreased by 39% and 26% respectively	Use arithromycin instead
Rifampin	Reduces AUC and Cmax of efavirenz by 26% and 20% respectively	Increase efavirenz dosage or use rifabutin instead
Phenytoin, carbamazepine, Phenobarbital	Can reduce drug levels of delavirdine, efavirenz and nevirapine	Potential alternative is levetiracetam
Protease inhibitors	As NNRTIs are known inducers of the CYP3A4 system, significant reductions in PI levels may occur when using these drugs concurrently	To offset this interaction, providers need to increase the PI dosage
Ergot alkaloids such as dihydroergotamine, ergonovine, ergotamine, methylergonovine	Impaired hepatic metabolism from PI reported to increase risk of ergotamine toxicity	Avoid concurrent uses with PI therapy. Consider alternative drugs such as sumatriptan.

APPENDIX D: DRUG INTERACTIONS WITH HAART

DRUG	INTERACTION	RECOMMENDATION
Simvastatin, lovastatin, high dose atorvastatin	HMG CoA reductase inhibitor levels markedly increased	Select pravastatin or low dose atorvastatin during concurrent PI therapy as alternatives
Phenytoin, carbamazepine, phenobarbital	Potential for increased metabolism of PI, leading to virologic failure	Avoid concurrent use if possible. Consider alternative anticonvulsant during PI therapy
Alprazolam, midazolam, triazolam	Potential for prolonged or increased sedation or respiratory depression	Avoid concurrent use. Consider zolpidem or lorazepam
GI motility agents	Cisapride	Contraindicated due to marked increase in cisapride levels and potential for QT prolongation
St. John's wort	Significant decrease in PI (IDV studied) levels, potentially leading to virologic failure or resistance	Avoid concurrent use during PI therapy
Garlic	Significant decrease in PI (SQV studied) levels, potentially leading to virologic failure or resistance	Avoid concurrent use during PI therapy

APPENDIX D: DRUG INTERACTIONS WITH HAART

DRUG	INTERACTION	RECOMMENDATION
Pimozide	Potential increased risk of cardiac toxicity with concurrent ritonavir use	Avoid concurrent use with ritonavir-based regimens, including lopinavir/ritonavir
Rifampin	Significant decrease in PI concentrations, potentially leading to virologic failure. May use with full dose ritonavir	Consider rifabutin as an alternative
Amiodarone, propafenone, bepridil, quinidine, flecainide	Potential increased risk for severe cardiac arrhythmias with concurrent ritonavir use	Avoid concurrent use with ritonavir based regimens, including lopinavir/ritonavir
Proton pump inhibitors such as omeprazole, esomeprazole, lansoprazole, rabeprazole, pantoprazol	Significant reductions in atazanavir plasma concentrations	Avoid concurrent use with atazanavir; consider use of an H ₂ receptor antagonist separated by at least 12 hours from atazanavir administration
Antacids	Reduction in atazanavir plasma concentrations	Should be separated by at least 2 hours from atazanavir administration

APPENDIX D: DRUG INTERACTIONS WITH HAART & METHADONE

DRUG	EFFECT OF ANTIRETROVIRAL THERAPY ON METHADONE	EFFECT OF METHADONE ON ANTIRETROVIRAL THERAPY
Abacavir	Decreased methadone clearance 25%	Decreased abacavir peak concentration 34%
Didanosine, buffered tablet	Unknown	Decreased didanosine AUC 57%
Didanosine, enteric coated capsule	Unknown	No significant change in didanosine AUC
Lamivudine	Unknown	No significant change when given as zidovudine-lamivudine
Stavudine	Unknown	Decreased stavudine AUC 23%
Tenofovir	Unknown	No significant change in tenofovir
Zalcitabine	Unknown	Unknown
Zidovudine	Unknown	Increased zidovudine AUC 41%
Delavirdine	Unknown, although potential increased methadone effect	No change in delavirdine or Ndelavirdine
Efavirenz	Decreased methadone levels 57%	Unknown
Nevirapine	Decreased methadone levels 51%	Unknown
Etravirine	No clinically significant effect	No clinically significant effect

APPENDIX D: DRUG INTERACTIONS WITH HAART & METHADONE

DRUG	EFFECT OF ANTIRETROVIRAL THERAPY ON METHADONE	EFFECT OF METHADONE ON ANTIRETROVIRAL THERAPY
Amprenavir	Decreased methadone AUC 35%	Decreased amprenavir AUC, cmax, cmin
Indinavir	No significant change in methadone AUC	Insignificant change in indinavir AUC. Increased indinavir Cmin 50 to 100%. Decreased indinavir Cmax 1 to 36%
Lopinavir-ritonavir	Decreased methadone AUC 36%	Unknown
Nelfinavir	Decreased methadone AUC 40%	Decreased nelfinavir metabolite AUC 53%; clinical significance unknown
Ritonavir	Decreased methadone AUC 36%	Unknown
Saquinavir, hard gel capsule	Unknown with saquinavir as the sole PI	Unknown with saquinavir as the sole PI
Saquinavir, soft gel capsule	Unknown with saquinavir as the sole PI; unbound methadone concentrations unchanged when saquinavir and ritonavir used concurrently	Unknown with saquinavir as the sole PI; potential reduction in saquinavir Cmin when using saquinavir and ritonavir concurrently
Duranavir	Decreased methadone AUC	Unknown
Fosamprenavir	Decreased methadone AUC	Decreased fosamprenavir AUC
Atazanavir	No clinically significant effect	No clinically significant effect

AUC, area under the concentration time curve; Cmax, maximum drug concentration or peak level; Cmin, minimum concentration or trough level

APPENDIX E: ROUTES OF ELIMINATION OF ANTIRETROVIRAL AGENTS AND EFFECTS ON CYP450

DRUG	ELIMINATION	EFFECT ON CYP450 SYSTEM
Zidovudine (AZT, ZDV)	Hepatic metabolism with renal secretion	None
Didanosine (ddi)	Renal secretion 50%	None
Zalcitabine (ddC)	Renal secretion 70%	None
Stavudine (d4T)	Renal secretion 50%	None
Lamivudine (3TC)	Renal secretion 70%	None
Tenofovir (TDF)	Renal secretion 70-80%	None
Abacavir (ABC)	Hepatic	Insignificant
Emtricitabine (FTC)	Renal secretion 86%	None
Nevirapine (NVP)	Hepatic	CYP3A4 inducer
Efavirenz (EFV)	Hepatic	CYP3A4 inducer/inhibitor
Saquinavir (SQV)	Hepatic	CYP3A4 inhibitor
Ritonovir RTV)	Hepatic	CYP3A4 inhibitor
Indinavir (IDV)	Hepatic	CYP3A4 inhibitor
Nelfinavir (NFV)	Hepatic	CYP3A4 inhibitor
Amprenavir (APV)	Hepatic	CYP3A4 inhibitor
Lopinavir/ritonavir (LPV/rtv)	Hepatic	CYP3A4 inhibitor
Atazanavir (ATV)	Hepatic	CYP3A4 inhibitor
Fosamprenavir (FPV)	Hepatic	CYP3A4 inhibitor
Enfuvirtide (ENF)	Hepatic	None

(Faragon & Piliero, 2004)

APPENDIX F: EDUCATIONAL RESOURCES

The following educational resources have been compiled by the development panel as a resource for nurses and their clients in learning more about HIV/AIDS. It is not intended to be an inclusive listing.

RELEVANT JOURNALS:

AIDS - <http://www.journals.lww.com/aidsonline/pages/default.aspx>

AIDS Care - <http://www.tandf.co.uk/journals/titles/09540121.asp>

AIDS Education and Prevention - http://www.guilford.com/cgi-bin/cartscrip.cgi?page=pr/jnai.htm&dir=periodicals/per_pub&cart_id=

AIDS Patient Care and STDs - <http://www.liebertpub.com/products/product.aspx?pid=1>

International Journal of STD and AIDS - <http://www.rsmppress.co.uk/std.htm>

Journal of AIDS - <http://www.journals.lww.com/jaids/pages/default.aspx>

Journal of the Association of Nurses in AIDS Care - <http://www.janacnet.org>

WEBSITE RESOURCES:

AIDS Vancouver - <http://www.aidsvancouver.org>

BC Centre of Excellence in HIV/AIDS - <http://www.cfenet.ubc.ca>

Canadian AIDS Treatment Information Exchange - <http://www.catie.ca>

Canadian HIV/AIDS Legal Network - <http://www.aidslaw.ca>

Positive Living Society of BC - <http://www.positivelivingbc.org>

Positive Women's Network - <http://www.pwn.bc.ca>

The Body - <http://www.thebody.com>

Youthco AIDS Society - <http://www.youthco.org>



www.canac.org