

A Case Management Approach to Support Services for People Living with HIV/AIDS (PHAs)

Assessing the Effectiveness and Costs

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Library and Archives Canada Cataloguing in Publication

A case management approach to support services for people living with HIV/AIDS (PHAs) : assessing the effectiveness and costs / Winston Husbands ... [et al.].

Includes bibliographical references.
ISBN 0-921918-36-4

1. AIDS (Disease)--Patients--Services for--Ontario--Toronto--Case studies.
2. HIV-positive persons--Services for--Ontario--Toronto--Case studies.
I. Husbands, Winston II. AIDS Committee of Toronto

RC606.6.C38 2005

362.196'9792'009713541

C2005-907292-X

This research was supported by a grant from the
Wellesley Central Health Corporation awarded to:

Winston Husbands, Ph.D, AIDS Committee of Toronto
Gina Browne, Ph.D., R.N, McMaster University
Donna Braybrook, AIDS Committee of Toronto
Eliud Cruz-Barrera, AIDS Committee of Toronto
Robin Rhodes, AIDS Committee of Toronto
John Gaylord, AIDS Committee of Toronto
Jacqueline Roberts, BScN, MSc., R.N, McMaster University

The views expressed in this report do not necessarily represent
the official policy of Wellesley Central Health Corporation.

Acknowledgements

Special thanks to the individuals
who participated in this study.

Liz Nabi interviewed many of the
participants.

Thanks also to the staff of the
CLEAR Unit for their diligence and
patience throughout the study.

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EXECUTIVE SUMMARY

Background

People living with HIV/AIDS (PHAs) access practical assistance from the AIDS Committee of Toronto's (ACT) support program either on their own initiative or through referral from another program or agency. ACT staff began considering whether a case management approach to support services might not be more beneficial to presenting PHAs who often require assistance with a variety of needs that could not be addressed through self-directed access to services. ACT staff also wanted to determine who would benefit most from case management compared to standard self-directed access to services.

Objectives

The objectives of this prospective randomized trial of 78 PHAs were to (1) assess who, with what characteristics and circumstances, benefited most from self-directed access to support services versus case management at ACT, and (2) to compare health and social costs associated with these two approaches from a total societal perspective.

Methods

New clients and those who had been receiving support services were prognostically stratified on their homelessness (yes/no) and being a youth (29 years and younger; older than 29). PHAs from each strata were randomized to receive either self-directed use of any ACT support services and any other helping service or self-directed care plus strengths-based case management for a 6-month period.

Results

Being female and/or very depressed at baseline were the important characteristics of PHAs who benefited from case management. Strength-based proactive case management compared to usual self-directed care markedly improved the physical, social, and mental health function of very depressed PHAs and women, and reduced the risk behaviours of very depressed PHAs. The greater use of ACT services by the case management participants was associated with an economically important, though not statistically significant, \$3,300 per person per annum lower expenditure for the use of all direct health and social services. Of interest was that income, street involvement, coping skills, age category, or living alone status were not important factors as clients did not show statistically significant differences in quality of life improvement scores between those with and without these characteristics who directed their own use of services or this care augmented by case management.

Conclusions and implications

Case management is more effective and somewhat less expensive than self-directed use of support services by PHAs with severe depression and female PHAs. Though more research is warranted, this research demonstrates that ASOs and funders ought to seriously consider implementing a case management approach to practical assistance for PHAs.

INTRODUCTION AND BACKGROUND

The AIDS Committee of Toronto (ACT) offers support services¹ with or without individual counselling to people with HIV/AIDS (PHAs). Assistance can be accessed on-demand through self-referral or prompted as the result of a referral from a counsellor at ACT, another AIDS Service Organization (ASO), or community agency. However, need for support services may simply be a marker for even more serious problems such as poor problem-solving or organizing abilities that can accompany a PHA's depression and anxiety (Williams et al., 2005b; Williams et al., 2005c).

Though PHAs can access support services from a number of ASOs, there are no systematic guidelines supporting this allocation of resources using some standard or criteria. At the same time, while there are numerous process measures of the number of people served and type of assistance requested, there is little formal documentation of the outcomes of these services on PHAs' quality of life, reported un-met needs, and use of all other societal resources.

Since 1999, four CLEAR projects have identified that frequent users of ASO services in Ontario are more depressed, disabled, have lower incomes, and in poorer health compared with less frequent users of or those who have never used ASO services (Lush, Weir, Browne, Roberts, & Robinson, 2002; Randall-Wood et al., 2003; Oliver, Crook, Browne, & Roberts, 2003; Williams et al., 2005a). These PHAs with poorer health are lower users of medication, lower users of community-based health promotion services, and higher users of crises services such as the emergency department or hospital.

While there are community services to assist with PHAs' poverty, medication management, poor health, depression, and disability, there is a need to proactively link PHAs with these services by either bringing the services to the PHAs at the ASO or accompanying the PHAs to the service. PHAs with major depression may not have the energy to navigate a complicated set of fragmented health, social, and housing agencies. Though ACT is a key participant in several local and national HIV-related networks, the development of a case management approach presents opportunities for enriching current networks and developing new ones with health and social service organizations.

Objectives

PHAs access support services at ACT in a self-directed manner. Clients come to ACT, either on their own initiative or through referral from another agency, and request specific services that are available on demand. However, in 2002, service staff at ACT began considering whether a case management approach to support services might not be more beneficial to presenting PHAs. Part of the reason for thinking about a case management approach lay in the fact that PHAs who requested practical assistance most likely also require assistance with a variety of needs that could not be addressed through self-directed access to services. However, ACT staff wanted to determine who would benefit most from case management compared to standard self-directed

¹ Buddies, Drives, TCC Tokens, Moves, Medical Equipment, Furniture, Insurance Clinic, Income Tax Clinic, Hot Lunches, Social Support Network, and Good Food Box.

access to services. Therefore, the objectives of this prospective randomized trial of clients requesting support services were:

1. To assess who, with what characteristics and circumstances, benefited most from self-directed access to support services versus case management at the AIDS Committee of Toronto (ACT), and
2. To compare health and social costs associated with these two approaches from a total societal perspective.

Answers to these questions would help ASOs more carefully target their scarce resources, in various intensities and combinations, based on the likelihood of improving PHAs' quality of life. At the same time, this study would identify the characteristics of a person whose quality of life stayed the same or deteriorated and who was in need of another approach to treatment.

Based on these objectives, we hypothesized that:

1. ASO support services augmented by case management would result in improvements in PHAs' quality of life and lower expenditures for their use of all human services compared with self-directed use of support services.
2. PHAs with multiple needs (comorbid illnesses, depression, poorer coping capacity) would most benefit from support services and case management whereas PHAs with fewer needs would benefit from self-directed use of support services alone.

Present State of the Literature

There is a growing body of randomized trials documenting the cost and effectiveness of offering earlier comprehensive services to vulnerable populations as they present to a community service. Ontario evidence with other vulnerable populations illustrates that when a person has co-existing risk factors (lives alone, is poor, unable to problem solve, has several illnesses), proactive comprehensive care such as case management can result in one of four types of effects and efficiencies (Browne et al., 1999; Browne et al., 2001):

- (a) improved quality of life and somewhat increased expense if they were a low user of mainstream health and social services to begin with;
- (b) improved quality of life with no greater expense to society;
- (c) similar quality of life outcomes achieved for less expense;
- (d) improved quality of life achieved at a lower cost to society.

Research on key characteristics of primary/medical care, accessibility, continuity, coordination, and comprehensiveness of service, are each associated with better HIV/AIDS patient outcomes (Hecht, Wilson, Wu, Cook, & Turner, 1999b). The greatest source of research on HIV models of care comes from the Special Projects of National Significance (SPNS), U.S. Health Resources and Services Administration (HRSA) which has funded many HIV service delivery projects since 1993. Overall, many diverse projects across the U.S. have shown the effectiveness of

active HIV case management providing a full continuum of care integrating medical care, psychosocial support, and prevention activities² in many HIV communities³ (Marx, Hirozawa, Chu, Bolan, & Katz, 1999; Forrest & Starfield, 1998; Kobayashi & Standridge, 2000; Woods, 1998b; Huba & Melchior, 1998a; Friedmann, D'Aunno, Jin, & Alexander, 2000b; Skolnick, 1998b). A tightly linked network of providers also appears to be essential in case management. Network links also create the potential for supporting community-based prevention activities. Additionally, many of these HRSA projects stress the necessary prerequisite requirements for case management to be successful; these include such determinants of health as housing, nutrition, transportation, to name only a few. If these needs are not attended to, regular medical treatment and follow up is difficult to maintain.

PHAs from diverse communities rate case management as a high priority need and high satisfaction ratings were given by PHAs in a system of case management (Cherin et al., 2001; Brown et al., 2001). Economic studies have also been conducted on case management models of HIV care and have shown that they can reduce total costs without a corresponding adverse effect on patient outcomes (Le, Winter, Boyd, Ackerson, & Hurley, 1998). Articles now document the issues in implementing various case management based models of HIV care and provide guidance on successful model development (Meredith et al., 1998). As noted by Abramowitz and Obten (Abramowitz & Obten, 2000), in HIV case management it is not enough to coordinate care; collaborative links between organizations and learning to overcome difference in organizational cultures are necessary. In the Canadian setting, case management, or shared care between a primary care physician and HIV specialist, has been suggested (Tsasis, 2001). Economic evaluations in a Canadian context and setting on any model of HIV prevention and service delivery would be a contribution to the literature.

In the U.S., randomized trials of case management (as one model of providing comprehensive care) document improved outcomes associated with case management. Few of these studies conducted an economic evaluation (Hecht, Wilson, Wu, Cook, & Turner, 1999a; Kobayashi et al., 2000; Woods, 1998a; Huba & Melchior, 1998b; Friedmann, D'Aunno, Jin, & Alexander, 2000a; Skolnick, 1998a). None of the studies identified subgroups of PHAs that responded more or less favourably to the intervention.

Strength-Based Case Management

The key propositions of strength-based case management are outlined in Table 1. The goal is to strengthen or improve the quality of a person's living situation, financial status, vocational/educational situation, social supports, health, leisure and daily living situation as directed by the client. The case manager works in partnership with the client to identify, secure and sustain resources that are both external (social relations, opportunities, tangible aid) and internal (the individual's aspirations, competencies, and confidence) rather than focus only on

² For example many delivery systems included access to mental health care, addictions treatment, housing, financial assistance, food, self care and support, risk reduction counselling, HIV test counselling, physical and occupational rehabilitation, community and in-home supports and many other services.

³ Projects settings: urban, rural, adolescents, women, children, people of colour, homeless, impoverished, injection drug users, incarcerated are a few examples.

external resources (the brokerage model) or only internal resources (psychotherapy or skills development).

Table 1: Key Propositions of the Strengths Model (Rapp, 1998)

-
1. The quality of niches people inhabit determines their achievement, quality of life, and success in living.
 2. People who are successful in living have goals and dreams.
 3. People who are successful in living use their strengths to attain their aspirations.
 4. People who are successful in living have the confidence to take the next step toward their goal.
 5. At any one point in time, people who are successful in living have at least one goal, one relevant talent, and confidence to take the next step.
 6. People who are successful in living have access to the resources needed to achieve their goals.
 7. People who are successful in living have a meaningful relationship with at least one person.
 8. People who are successful in living have access to opportunities relevant to their goals.
 9. People who are successful in living have access to resources and opportunities and meaningful relationship.
-

Strengths-based case management embodies the following principles (Rapp, 1998):

1. Focus on individual strengths (aspirations, competencies, and confidence) in obtaining resources to fulfil goals, and emphasizes assets versus problems; motives versus passions.
2. The community is viewed as an Oasis of Resources – normal, natural resources/opportunities, and not always formal services.
3. Interventions are based on client self determination.
4. The Case Manager-client relationship is primary and essential.
5. Aggressive outreach is the preferred mode of intervention.
6. People suffering from major mental illness can continue to learn, grow, and change.

STUDY DESIGN AND STUDY QUESTIONS

Case Management Intervention

The mode of intervention used in this study differed slightly from the principles of strengths-based case management laid out by Rapp (1998), as some of these principles were not appropriate for the study's target population. The intervention offered client-centred services that linked clients with health and social services in a manner that ensured timely, coordinated access to appropriate programs and services. There were six steps followed in this model:

1. Intake
2. Assessment and Reassessment
3. Service Planning
4. Coordination and Referral
5. Monitoring and Follow-up
6. Discharge and Transition Planning

Assessment was completed using the strengths-based assessment template provided by Rapp (1998). This assessment tool allowed the case manager and client to together explore what the client has done in his/her life, what s/he currently is involved with and where s/he would endeavour to be in the future. The clients were assessed based on six domains:

1. Life Domain (Daily Living Situation)
2. Financial/Insurance
3. Vocational/Educational
4. Social Supports
5. Health
6. Leisure/Recreational Supports

Design

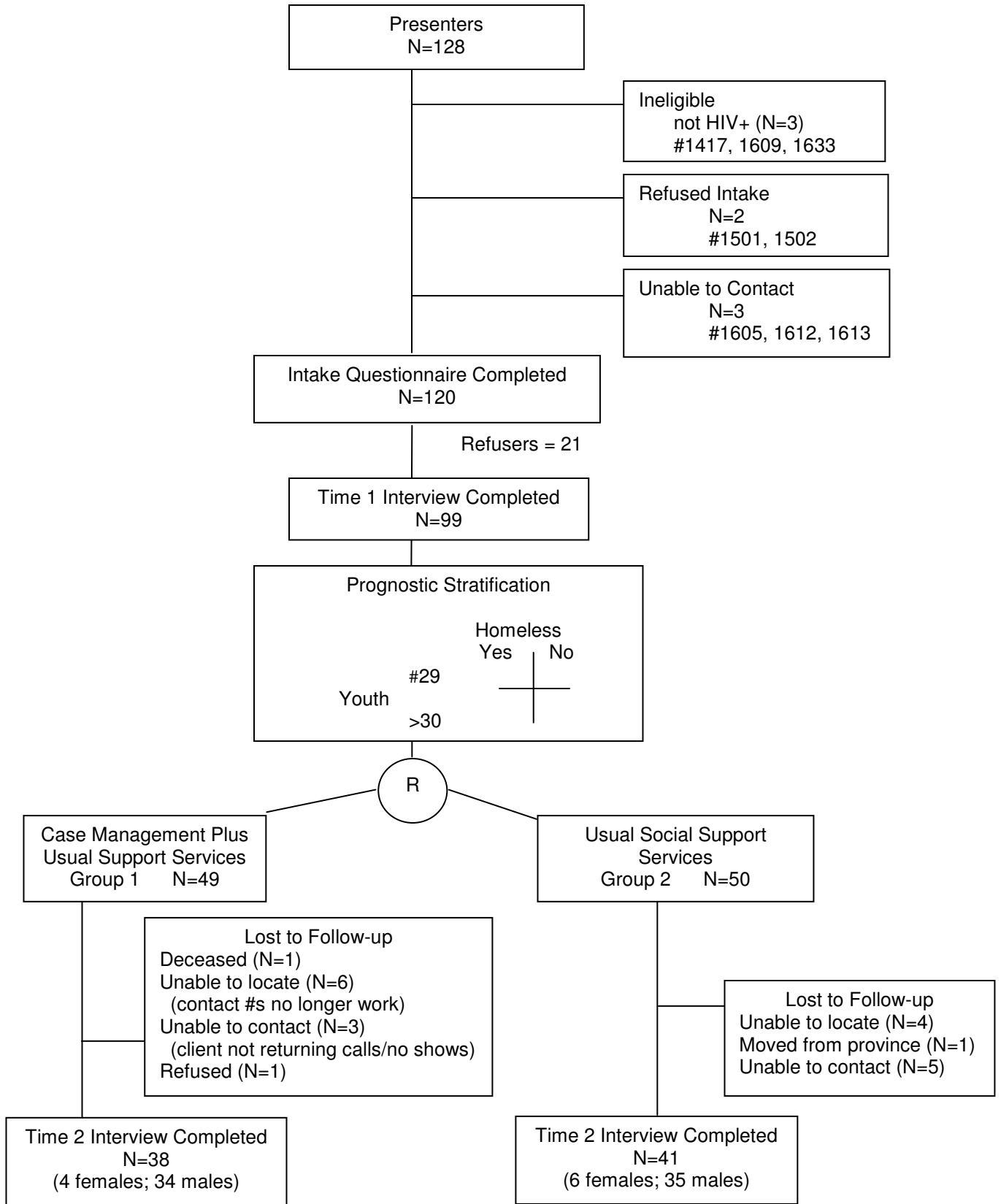
Figure 1 represents the procedures in this prospective single blind randomized trial. The two study groups required a sample size of 40 participants per group (see sample size calculation in Appendix A), made up of new and current users of support services at ACT. Potential participants had to meet the following criteria in order to be included in the study:

- a. Be 16 years or older.
- b. Be able to understand spoken English themselves or with an interpreter.
- c. Be in touch with reality (persons not meeting these criteria will be helped but will not be approached to participate in the study).
- d. Be HIV+.

All eligible persons presenting to one of two case managers completed a common intake form describing their sociodemographic characteristics, were given urgent assistance if needed, and were informed of two ways of providing support services by ACT. Verbal consent to provide intake information and written consent for the questionnaire were obtained by the case manager (Appendix B).

Eligible and consenting persons completed the baseline measures administered by a trained interviewer. The project co-ordinator opened an ordered, numbered, opaque envelope for each strata (homeless [yes/no] and youth [29 years or less; older then 29]) where 1 = usual support services program (i.e., self-directed use of support services) and 2 = usual support services augmented by case management. The computer generated concealed random numbers and were randomly blocked after every 2nd and 4th subject. The numbers were arranged sequentially in opaque envelopes by the CLEAR Unit.

**Figure 1
Trial Flow Diagram**



The two study groups were as follows:

1. **Self-directed Use of Support Services Program** (6 months). The Support Services Program includes psycho-social counselling, employment counselling, social support and support groups with or without practical assistance as needed (e.g., meals, furniture, good food box, buddies, drives to medical appointments, congregate dining, referrals to other agencies). These services are provided if a PHA asks; that is, services are provided on demand or at the request of the PHA.
2. **Self-directed Use of Services Augmented by Case Management** (6 months). Self-directed use of support services was augmented by a strength-based model of case management. This service not only assists PHAs to access natural supports, but also through the system of human services (health, social, leisure, housing, employment, and volunteerism) to actively link the PHAs with the range of services as needed. A strengths-based model of case management was used (Rapp, 1998). It incorporates principles of normalization, whole systems or an ecological perspective, resilience, hope, environmental strengths, and recovery. The case manager works with the client to assess and prioritize the range and mix of their challenges and strengths in the areas of daily living, housing, finances, social supports, vocation, health, leisure or meaningful activity. Strengths-based case management empowers the individual to achieve their goals and acquire the competencies, assets, and confidence to fulfil these through the use of social relations, opportunities, and resources. A manual was available and used when training case managers in the use of this model. Case management records for each client served as evidence that strength-based case management for each domain of life was indeed provided.

STUDY DATA

Intervention, mediating, and outcome variables (Table 2) were assessed at baseline after consent and prior to randomization, and at six months (i.e., after they had used either type of assistance for six months). The data collection instruments are available in Appendix C.

Demographic Questionnaire

The following demographic information was obtained for all PHAs currently using services or presenting for service at ACT: age, gender, language, ethnic background, education, income, type of living arrangement, employment status and background, and membership or identity with marginalized groups (injection drug user, immigrant or refugee status, etc), and current or prior use of ACT services. Those lost to follow-up were compared to participants retained in the follow-up using these baseline variables so as to assess the representativeness of study subjects compared to support services program clientele as a whole.

Table 2. Intervention, mediating and outcome variables

Characteristics	6 months Intervention	Mediating	Outcomes
<ul style="list-style-type: none"> - sociodemographic questionnaire - open ended question re: unmet needs - Current or prior users of ACT services (yes/no) 	<ul style="list-style-type: none"> - dates of CBAO service use (day, month, year) - type and amount of use of ACT Support and Practical Assistance Services, number of visits, site of visit - home/office), type of visit (direct/telephone/ email), purpose (support, information, tangible aid) 	<ul style="list-style-type: none"> - living arrangement - ways of coping questionnaire - depression (CES-D) - social support - adherence to medication 	<ul style="list-style-type: none"> - risk behaviours - quality of life of clients (MOS-HIV Health Survey), current outcomes (health, symptoms, emotion, support, vitality) of clients - satisfaction with services - expenditures for the use of all health, social housing, and complementary services

Needs Survey

As part of the demographic intake information, consenting eligible clients were asked structured yes/no questions about their needs for housing, tangible resources, financial assistance, mental and physical health, health care, and support services (Wilkin, Hallam, & Doggett, 1992).

Intervention Variables

Number and type of support services, case management, and other ACT services used by each person was captured by the ACT database. Services used other than ACT were captured on the utilization questionnaire.

Satisfaction With ACT Services During the Six-Month Period of Intervention

Satisfaction was measured using the Client Satisfaction Questionnaire (CSQ) (Attkisson et al., 1990). This eight-item questionnaire is answered on a scale from one to four indicating dissatisfaction or satisfaction with ACT services. The questionnaire can be given a total score. Content, construct and predictive validity have been reported as good and split-half reliability and internal consistency are high. This questionnaire was administered at follow-up as a measure of satisfaction with two approaches to ACT's Support Services alone or augmented by case management services (Wilkin, Hallam, & Doggett, 1992).

Health Related Quality of Life, Coping Ability, and Depression

Research has shown that a person's ability to cope with HIV infection can be influenced by a multitude of psychosocial variables (Grassi, Righi, Sighinolfi, Makoui, & Ghinelli, 1998) including depression and quality of life. We were interested in examining whether or not use of support services with and without case management influenced a client's sense of support, coping ability, the occurrence or remission of depression, and adherence to the medication regime, as these variables mediate the outcomes of improved quality of life, reduced risk behaviour (Gasiorowicz, Llanas, DiFranceisco, Benotsch, Brondino, Catz, Hoxie, Reiser, &

Vergeront, 2005; Gordon, Forsyth, Stall, & Cheever, 2005) and reduced expenditure for use of other services (Gore-Felton, Rotheram-Borus, Weinhardt, Kelly, Lightfoot, Kirshenbaum, Johnson, Chesney, Catz, Ehrhardt, Remien, Morin, & NIMH Healthy Living Project Team, 2005; Godin, Côté, Naccache, Lambert, & Trottier, 2005; Ciesla, & Roberts, 2001; Schackman, Finkelstein, Neukermans, Lewis, Eldred, Centre for Adherence Support and Evaluation (CASE) Team 2005; Knowlton, Hua, & Latkin, 2005; Katz, Cunningham, Fleishman, Anderson, Kellog, Bozzette, & Shapiro, 2001).

Mediating Variables

Social Support

Social Support has been proposed to serve as a buffer or modifier of the effects of psychosocial and physical stress on the emotional and physical health of the individual (Broadhead et al., 1983; Cohen & Wills, 1985). The Social Support Questionnaire is an 8 item instrument scored from 1 (as much as I would like) to 6 (much less than I would like) and measures two components of perceived emotional support: confidant support (scored 5-30), reflecting a “confidant relationship where important matters in life are discussed and shared”, and affective support (scored 3-18), reflecting a “more emotional form of support of caring”. Construct validity, concurrent validity and discriminate validity have been demonstrated for the two scales (Broadhead, Gehlbach, deGruy, & Kaplan, 1989).

Depression

Depression was assessed for clients using the Centre for Epidemiological Studies Depression Scale (CES-D Scale). This is a 20-item, four-point Likert summative scale, rated from zero (rarely) to three (most of the time), with a range of a total score from zero to 60. Clinically meaningful scores have been demonstrated, with a score of 21 or higher indicative of a major depression. Ratings are summed for a total score. The CES-D Scale has been widely used as a short, easily administered indicator of depression in non-psychiatric populations (Radloff, 1977; Radloff & Locke, 1986). Time to complete the instrument is estimated to be approximately 15 minutes. Scores were divided at the mean (≥ 28) dividing subjects into very depressed or less depressed.

Coping Ability

Ways of coping were measured using Moos, et al (Moos, Cronkite, Billings, & Finney, 1984) Indices of Coping Responses Questionnaire that focuses on the cognitive and behavioural coping responses that individuals use when a stressful event has occurred. Participants were asked to rate their frequency of use of 33 different coping responses on a four-point scale. Responses are categorized into cognitive, behavioural and avoidance methods of coping and problem solving, logical analysis, emotional distress, affective regulation and information seeking foci of coping. Internal consistency has been demonstrated for the different scales with alpha scores ranging from .51 to .74. Construct validity has been demonstrated (Moos et al., 1984).

Adherence to Medical Regimes

Adherence to HIV/AIDS Medication Regime was measured using the AACTG Adherence questionnaire (Chesney et al., 2000). This questionnaire asks about current medications, doses missed and possible reasons why medications were missed in the past three days. This questionnaire takes about 10 minutes to complete.

Outcome Measures

Risk Behaviours

The questionnaire used in this study was drawn primarily from tools developed with the Centers for Disease Control and Prevention's HIV-STD Behavioral Surveillance Working Group (Rietmeijer, Lansky, Anderson, & Fichtner, 2001). This 6-item questionnaire measures an individual's risk for HIV/AIDS. It codes major issues of HIV risk and retransmission risk due to sexual contact, injection drug use, and other means. It codes number of sexual partners in past 30 days, sex acts with and without latex protection, and intravenous drug use. A total score was calculated for this 7-item instrument. Questions 1 and 5 were scored: 1 for yes, 0 for no. Question 2 was scored: 1 for 1 partner, 2 for 2-4 partners, 3 for 5-10 partners, and 4 for 11 or more. Questions 3, 4 and 7 were scored: 0-4, question 6 was scored: 0 for 0 days, 1 for 1 day and 2 for more than 1 day. Thus higher numbers indicated greater risk.

Quality of Life

The Medical Outcomes Study HIV Health Short form (MOS-HIV-SF-36) is a brief, comprehensive measure of health-related quality of life (HRQoL) used extensively in diverse groups including human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) (Wu, Revicki, Jacobson, & Malitz, 1997). The 36-item short form (SF) questionnaire includes ten dimensions (health perceptions, pain, physical, role, social and cognitive functioning, mental health, energy, health distress and quality of life (QOL) and takes approximately 15 minutes to complete. Subscales are scored on a 0-100 scale (a higher score indicates better health) and physical and mental health summary scores can be generated. The MOS-HIV has been shown to be internally consistent, correlate with concurrent measures of health, discriminate between distinct groups, predict future outcomes and be responsive to changes over time. Limited experience suggests acceptable reliability and validity in women, injection drug users and African-American and lower socioeconomic status patients. The MOS-HIV is available in 14 languages and has been included as a secondary outcome measure in numerous clinical trials for all states of disease.

Health and Social Service Utilization Questionnaire (HSSUQ)

The use of all other health and social services besides ACT services for the client was documented. The health and social service utilization outcome variable was measured by an inventory developed by Browne and colleagues (Browne, Arpin, Corey, Fitch, & Gafni, 1990) based on Spitzer's methodology. It consists of questions about the respondent's use of categories of direct health services/primary care, emergency room, specialists, hospital episodes

and days (irrespective of episode), use of other health and social professionals, and laboratory services. Inquiries are “*restricted to the reliable duration of recall span: six months for remembering a hospitalization, two weeks for a visit to a physician, and two days for the consumption of a prescription medication*” (Spitzer, Roberts, & Delmore, 1976). To calculate annual utilization measures, the various spans of time are extended to yield an annual rate of utilization per category of health and social service and multiplied by the 2001 dollar value of the service to yield a measure of costs of health and social services. Browne and colleagues (Browne et al., 1990) added questions to the health service utilization inventory, designed to assess the direct out-of-pocket expenditures, indirect costs, cash transfer effects of illness and other social costs. The additional approaches to the measure of out-of-pocket expenditures and the assignment of dollar values for direct and indirect costs are described more fully elsewhere (Browne et al., 1990). This measure has been previously tested and consistently demonstrates discriminant validity (Browne et al., 1999; Browne et al., 2001). High levels of observed agreement (.72-.99) between the patients’ report and the clinic record have been reported (Browne et al., 1990).

Scores were compared (using analysis of variance or Kruskal Wallis tests) between those receiving self-directed use of services with and without case management. Individuals were classified according to gender, more or less depressed, poverty, homelessness, greater or less problem-solving skill using analysis of variance techniques, which examines interactions of these variables with the approach to treatment and their relationship to costs associated with utilization of health and social services.

ETHICS AND PROJECT GOVERNANCE

Participation in the study was voluntary. The name of the study contact person at the AIDS Committee of Toronto was provided to the participants so that their questions could be answered. Participants were assured that confidentiality and anonymity would be maintained. A sheet with names and identification numbers was kept in a separate location from questionnaires, and codes were used on data collection forms. The master list was only used to link with the codes on post-test and then destroyed. Intake interviews were conducted and then consent was obtained for participation in the trial. Clients could refuse to answer specific questions or could withdraw from the study at any time. Ethics committee approval was obtained from McMaster University (Appendix C). Clients were assured by the study coordinator at ACT that their participation or refusal was confidential and would have no effect on their present or future care provided by ACT.

Project implementation and interpretation were overseen by an advisory committee consisting of a representative from CLEAR, from ACT, and a representative from ACT support services.

DATA ANALYSIS

Descriptive statistics using means, medians, standard deviations, proportions and confidence intervals were used to describe clients and their characteristics and circumstances and use of different ACT support services with and without case management (Appendix D). At six months, follow-up mean sociodemographics, depression, coping, quality of life-change scores, and expenditures for service utilization scores were compared between completers (i.e., those who completed the study) and non-completers (i.e., those who did not complete the study), and between study groups using chi square or T-tests as appropriate in case comparability at baseline was affected by dropouts after randomization. Certain client characteristics (baseline depression, coping, living arrangement scores, gender, poverty, homelessness or youth) were examined for interactions with study group for their effect on outcome measures as these variables have been previously found to be important predictors of treatment responsiveness (Browne et al., 1999; Browne et al., 2001).

RESULTS

Representativeness and Comparability at Baseline

All PHAs presenting to ACT services or responding to recruitment posters were approached for the study. Ninety-nine consented and were eligible (Figure 1), and 79 of these completed the study for a completion rate of 80%. Appendix E shows the demographic status of the sample as a whole and the two study groups, and confirms that in sociodemographic terms the two study groups were similar. PHAs who completed the study (N=79) were compared on baseline demographics, services used and other factors to those who did not complete the study (N=20) using chi square analysis. In demographic terms, there were no significant differences between PHAs who completed the study and those who did not.

Completers were similar to non-completers in their prior use of ASO services. Ninety-one percent of the completers had used ACT services and 93.7% had used People with AIDS (PWA) services; 83.8% having used these services within the last two months. Sixty-four percent of completers were also users of other ASO services within the past two months, and 78.5% were current users of at least one other ASO.

At baseline 35% of participants identified as a person with a mental health problem (largely current depression, 16.5%), 41.8% identified as having a physical health issue, 38% were already receiving medication management, 34.2 % were receiving counselling or psychotherapy, and 13.9 % were receiving substance abuse programming. There were no significant differences between completers and non-completers of the study in terms of the above categories. At baseline some completers were current recipients of job or volunteer training (27.8%), involved in a meaningful activity (21.5%), receiving social/recreational services (20.3%), receiving housing support (49.4%), receiving financial assistance (70.9%), receiving rights protection or legal advocacy (22.8%), and / or receiving correction/probation/court services (12.7%).

At baseline, very few completers in either study group (as true of non-completers) said they needed additional services: 20.3% needed job/volunteer training or searching, 11.4% needed

school, 10.1% needed a meaningful activity, 11.4% needed social/recreational services, 10.1% needed housing support, 12.7% needed financial assistance such as food banks or tokens for transportation and 6.3% needed disability/welfare benefits.

At baseline completers recorded a mean age of 42.27 [\pm 8.92] years, mean depression (CES-D) score of 28.4 [\pm 13.08], and mean years since HIV/AIDS diagnosis of 8.72 [\pm 7.0]. There were no differences between completers and non-completers. Completers scored 16.19 (\pm 5.85) in confident support (out of a score of five to thirty) and 9.03 ± 3.87 in affective support (out of a score range of three to eighteen), but were not statistically different from non-completers. The baseline mean coping behaviour and MOS-HIV quality of life scores of completers were the middle of the range and statistically similar to non-completers. However, completers had, on average, a clinically significant eight to ten point higher (better) MOS-HIV quality of life score. This retention of “better off” PHAs made it more difficult to detect an important impact of case management. Any observed impact of case management is an under-estimate of its effect.

Consistent with study participants scoring clinically better in physical and mental health quality of life, completers had, in comparison to non-completers, a statistically significant higher:

- per person per annum expenditures for the use of HIV specialist physicians, ($\$621 \pm 850$ versus $\$346 \pm 608$, $p=.03$),
- CD₄ / CD₈ T-cell tests ($\$597 \pm 477$ versus $\$356 \pm 371$, $p=.02$), and
- Viral load tests ($\$372 \pm 293$ versus $\$196 \pm 205$, $p=.002$)

These results indicate that completers showed greater adherence to medical care. Completers recorded statistically significant lower per person per annum use of expenditures for:

- 911 calls ($\$0$ versus $\$5 \pm 21$, $p=.05$),
- Counselor services ($\$0$ versus $\$189 \pm 617$, $p=.005$),
- Children’s aid worker ($\$0$ versus $\$36 \pm 162$, $p=.05$),
- EMG tests ($\$8 \pm 68$ versus $\$60 \pm 185$, $p=.04$),
- MRI tests ($\$0$ versus $\$40 \pm 124$, $p=.005$),
- Shelters ($\$1167 \pm 4059$ versus $\$2330 \pm 5456$, $p=.009$), and
- Complementary therapies ($\$5 \pm 43$ versus $\$38 \pm 117$, $p=.04$)

In short, completers recorded less use of crises services. This lower use of services by participants made it difficult to illustrate further reductions in use of services by the case management group.

Comparability of Study Groups

With respect to risk behaviour at baseline (Table 3), approximately 60% of both study groups had oral, vaginal, or anal sex in the previous 30 days. Of those who had any type of sex in the previous 30 days, 18.8% had sex with more than one person in the past 30 days, and 62.6% occasionally or never used protection in the past 30 days during in oral sex. There were no differences between study groups concerning these risk behaviours. However, 34.8% of participants in the case management group who had sex in the past 30 days had, at baseline, occasionally to never used protection with anal or vaginal sex compared to 4% in the usual care group ($p=.008$).

A similar proportion of participants in each study group had ever used a needle to inject a drug. Among the five participants who had injected drugs in the 30 days prior to baseline, four (80%) had always used a new needle. Only 21% of IDUs had injected drugs in the 30 days prior to baseline.

There were no differences between groups at baseline (Table 4 and Appendix F) for quality of life, social support, coping behaviours and depression. The differences between study groups at baseline were that a greater proportion of people allocated to receive case management said they currently needed volunteer training or job searching compared with those in self-directed care (36.8% vs. 4.9%, $p=.001$), whereas those allocated to self-directed care had already received job/volunteer training or searching compared to those allocated to case management (36.6% vs. 18.4%, $p=.07$).

At baseline 86.1% of study participants had used ASO services in the month prior to the study, 12.7% were receiving counselling, 13.9% were using support groups, 11.4% were using financial services, 5.1% were using housing services, 6.3% were using employment related services, 26.6% were receiving practical assistance, and 26.6% were receiving the same amount or frequency of services. There were no significant differences in these variables when comparing case management and usual care groups.

Study groups were similar at baseline in the use of most of 106 of 110 other different types of health, pharmaceutical, and social services with the following four exceptions that could have been due to chance in a situation of multiple testing.

At baseline, those allocated to receive case management services demonstrated statistically significant lower per person per annum expenditures for use of:

- Ear/Nose/Throat specialist (\$0 versus \$31 ± 98, $p=.05$),
- Neurologists (\$0 versus \$143 ± 421, $p=.008$),
- Surgeons (\$0 versus \$41 ± 127, $p=.03$), and
- Psychologists (\$0 versus \$539 ± 1587, $p=.03$).

Whether due to chance or not, more of the self-directed group received the services of psychologists and this could have been attention equivalent to the use of a case manager, thus reducing the chances of detecting a difference between groups at follow-up.

Test of Hypotheses: Main Effects

For the 40% of each study group with risk behaviours, there was little change in these seven risk behaviours by the six month follow-up (Table 3). At follow-up, of the 51 (65%) subjects on HIV medication, 44 (86%) missed no medicines in the last 4 days. Three in the case management group and four in the self-directed group missed medication. Thus, there was no difference in risk behaviour scores at 6-month follow-up nor adherence to HIV medication between study groups.

Table 4 illustrates that although study groups were similar in scoring in the depressed range of the CES-D at baseline, and three quarters of the participants scored in the depressed range, there was minimal yet similar improvement in both groups by the six month follow-up, yet on average, the groups continued to score as depressed. Neither study group improved in their low levels of confident or affective support, nor in any of the coping behaviours. Also, there was no significant difference between groups in the change in CES-D scores at 6 month follow-up.

The MOS-HIV quality of life scores are shown in Appendix F. Although study groups were comparable at baseline in their low levels of quality of life, neither group improved a great deal nor were there differences between groups in their improvement at the six month follow-up.

At the six-month follow-up, there were no statistically significant differences between groups on per person per annum expenditures for most of the other health, pharmaceutical and social services. However, there was a difference between the type ($p=.001$) and amount ($p=.007$) of CBAO services used at the 6 month follow-up. Those allocated to the case management group used more case management services (Appendix G) but not more of other services (Appendices G and H) indicating the six month intervention occurred.

This greater use of case management services by the case management group was associated after 6 months with an economically important (not statistically significant) \$3,300 per person per annum lower expenditure for the use of other direct health services ($0=\$16885\pm 13998$ versus $\$20185\pm 14868$) when compared to PHAs receiving self-directed care alone (Appendix I).

Table 3: Risk Behaviours

	Total		Case Management		Usual Care	
	N	%	N	%	N	%
1. Oral/Vaginal/Anal Sex in past 30 days						
Yes						
Baseline	48	60.8	23	60.5	25	61.0
6-month follow-up	49	61.5	23	60.5	25	62.2
2. If yes, number of partners						
1 Partner						
Baseline	29	60.4	16	69.6	13	52.0
6-month follow-up	20	41.7	12	52.2	8	32.0
2 Partners						
Baseline	2	4.2	0	0.0	2	8.0
6-month follow-up	12	2.5	5	21.7	7	28.0
3 Partners						
Baseline	2	4.2	0	0.0	2	8.0
6-month follow-up	2	4.2	0	0.0	2	8.0
4 Partners						
Baseline	5	10.4	3	13.0	2	8.0
6-month follow-up	3	6.3	1	4.3	2	8.0
3. Oral sex without protection in last 30 days						
Occasionally						
Baseline	3	6.3	2	8.7	1	4.0
6-month follow-up	5	10.4	2	8.7	3	12.0
Never						
Baseline	27	56.3	15	65.2	12	48.0
6-month follow-up	27	56.3	15	65.2	12	48.0
4. Anal or vaginal sex without protection in last 30 days						
Sometimes						
Baseline	3	6.3	2	8.7	1	4.0
6-month follow-up	3	6.3	2	8.7	1	4.0
Never						
Baseline	6	12.5	6	26.1	0	0.0
6-month follow-up	8	16.7	3	13.0	5	20.0
5. Ever used a needle to inject any drug						
Yes						
Baseline	29	36.7	13	34.2	16	39.0
6-month follow-up	31	39.2	15	39.5	16	39.0
6. If yes, how many days in the past 30 days did you use a needle						
Baseline						
None	23	79.3	11	84.6	12	75.0
One	3	10.3	0	0.0	3	18.8
Two	2	6.9	2	15.4	0	0.0
Refused to Answer	1	3.4	0	0.0	1	6.3
6-month Follow-up						
None	27	87.1	13	86.7	14	87.5
One	1	3.2	0	0.0	1	6.3
Two	1	3.2	0	0.0	1	6.3
Four	1	3.2	1	6.7	0	0.0
Fourteen	1	3.2	1	6.7	0	0.0
7. Use a new needle every time in last 30 days						
Yes						
Baseline	4	80.0	2	100.0	2	66.7
6-month follow-up	4	100.0	2	100.0	2	100.0

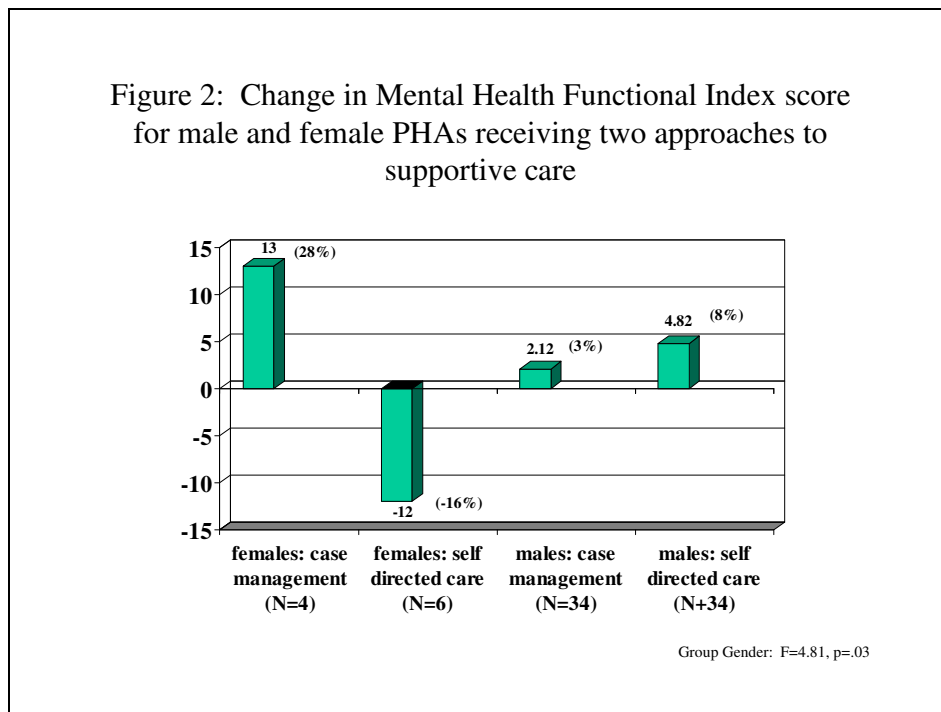
Table 4. Changes in Depression, Social Support and Coping Behaviours

	Total			Group						Test Statistics	
	N	Mean	S.D.	Case management			Usual group			T-test	p-values
Depression Score (CES-D)											
Baseline	79	28.11	13.08	38	26.13	13.99	41	29.95	12.06	-1.302	0.197
6 month Follow-up	79	23.05	11.04	38	22.11	11.13	41	23.93	11.01	-0.731	0.467
Baseline-6 month F. Up	79	5.06	12.13	38	4.03	14.1	41	6.02	10.05	-0.729	0.468
Social Support											
Confidant Support (5-30)											
Baseline	79	16.19	5.85	38	15.95	6.18	41	16.41	5.59	-0.353	0.725
6 month Follow-up	79	14.68	5.74	38	13.79	6.03	41	15.51	5.4	-1.34	0.184
Baseline-6 month F. Up	79	1.51	5.94	38	2.16	6.71	41	0.9	5.13	0.938	0.351
Affective Support (3-18)											
Baseline	79	9.03	3.87	38	8.36	4.01	41	9.66	3.67	-1.508	0.136
6 month Follow-up	79	8.68	3.66	38	8.34	3.38	41	9	3.92	-0.796	0.428
Baseline-6 month F. Up	79	0.2	3.49	38	0.07	3.22	41	0.32	3.76	-0.321	0.749
Coping											
Cognitive Coping (0-33)											
Baseline	79	20.26	5.57	38	19.85	5.8	41	20.64	5.4	-0.627	0.533
6 month Follow-up	79	20.91	4.86	38	20.11	4.8	41	21.66	4.86	-1.428	0.157
Baseline-6 month F. Up	79	-0.65	5.51	38	-0.26	4.92	41	-1.02	6.04	0.613	0.541
Active Behavioral Coping (0-39)											
Baseline	79	22.05	5.99	38	22.28	5.77	41	21.84	6.24	0.329	0.743
6 month Follow-up	79	21.68	5.69	38	22.37	5.26	41	21.05	6.05	1.031	0.306
Baseline-6 month F. Up	79	0.37	6.86	38	-0.09	7.09	41	0.79	6.7	-0.563	0.575
Avoidance Coping (0-24)											
Baseline	79	7.54	3.7	38	7.21	3.66	41	7.85	3.77	-0.769	0.444
6 month Follow-up	79	6.97	3.64	38	7.00	3.88	41	6.95	3.45	0.059	0.953
Baseline-6 month F. Up	79	0.57	3.53	38	0.21	3.58	40	0.9	3.5	-0.868	0.388
Logical analysis (0-12)											
Baseline	79	7.81	2.68	38	8.05	3.06	41	7.59	2.28	0.774	0.441
6 month Follow-up	79	8.3	2.19	38	8.32	2.03	41	8.29	2.35	0.047	0.963
Baseline-6 month F. Up	79	-0.49	2.77	38	-0.26	2.69	41	-0.71	2.86	0.71	0.480
Information Seeking (0-21)											
Baseline	79	10.12	4.13	38	10.39	4.3	41	9.87	4.01	0.557	0.579
6 month Follow-up	79	10.35	3.91	38	10.79	3.88	41	9.95	3.94	0.952	0.344
Baseline-6 month F. Up	79	-0.23	4.9	38	-0.4	5.5	41	-0.08	4.34	-0.286	0.775
Problem Solving (0-15)											
Baseline	79	9.63	2.5	38	9.53	2.58	41	9.73	2.45	-0.363	0.717
6 month Follow-up	79	9.87	2.64	38	9.84	2.56	41	9.9	2.74	-0.101	0.920
Baseline-6 month F. Up	79	-0.24	3.02	38	-0.32	3	41	-0.17	3.07	-0.212	0.833
Emotional discharge (0-18)											
Baseline	79	6.03	3.42	38	6.05	3.3	41	6	3.56	0.068	0.946
6 month Follow-up	79	5.44	3.21	38	5.61	3.41	41	5.29	3.04	0.431	0.668
Baseline-6 month F. Up	79	0.58	3.27	38	0.45	3.3	41	0.71	3.27	-0.351	0.726

Characteristics of Clients that Determine Usefulness of Case Management

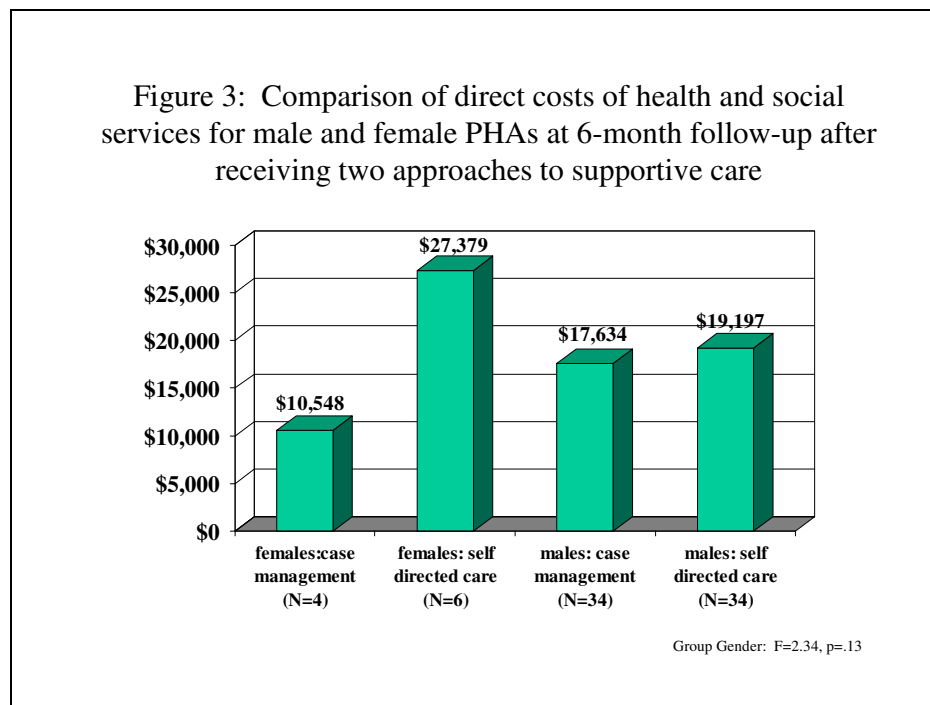
Of the clinical and demographic factors examined for interactions with the type of care (usual care or usual care augmented by case management), most were not important factors in determining whether clients improved differently on quality of life outcome measures with case management or usual care groups. Of interest was that income, street involvement, coping skills, age category, or living alone status were not important factors as clients did not show statistically significant differences in quality of life improvement scores between those with and without these characteristics in usual care or usual care augmented by case management.

However, gender was an important factor in determining whether case management or usual care was more or less beneficial in improving mental health (Figure 2). Female clients improved their mental health by 28% in case management compared to those females directing their own use of services who decreased their mental health by 16% at follow-up. For males there was no significant difference in mental health whether they directed their own use of services or received case management. In addition, for females receiving case management, their expenditures for use of all health and social services (Figure 3) were lower by \$17,000 per person per annum or less than half the costs of those females in usual care (\$10,548 versus \$27,379). Unfortunately, there were only a small number of female clients with only four receiving case management and six directing their own use of services.



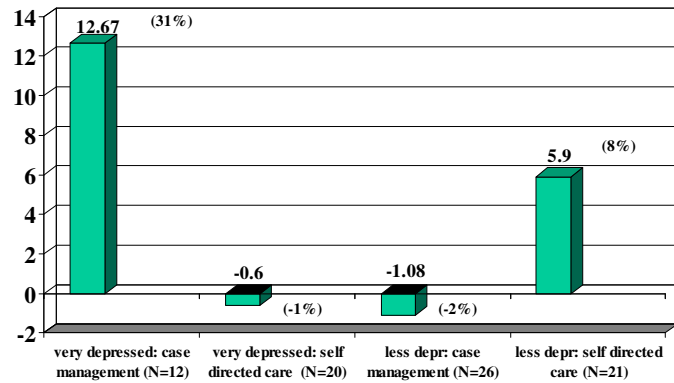
One other factor that determined if clients improved was whether they had more or less depression at baseline. Clients were divided at the mean CES-D depression score of 28.0. Those very depressed PHAs with CES-D Scores ≥ 28 who received case management had a 31%

improvement in their mental health index score compared to a 1% deterioration by very depressed PHAs receiving usual self-directed use of services ($p=.015$) (Figure 4).



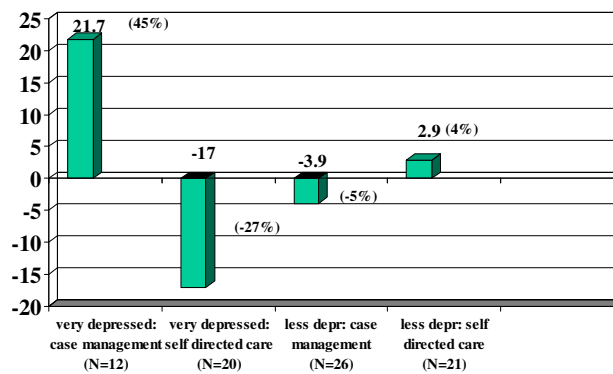
These same very depressed PHAs receiving case management had a 48% improvement in social function compared with 27% deterioration by very depressed PHAs directing their own use of services ($p=.001$) (Figure 5); a 16% improvement in physical function summary score compared to 7% deterioration in physical function summary score ($p=.006$) (Figure 6); a 30% improvement in mental health summary (versus index) score compared to a 4% deterioration in mental health summary score ($p<.0001$) (Figure 7). Finally, those very depressed PHAs receiving case management had almost 50% less risk behaviour (Figure 8). These improvements in physical, social, mental function and lower risk behaviour for PHAs with the most depression that resulted from the case management approach to supportive care was associated with no further cost to society compared to the usual self-directed approach to use of services ($p=.19$) (Figure 9).

Figure 4: Change in Mental Health Function Index scores for very and less depressed PHAs receiving two approaches to supportive care



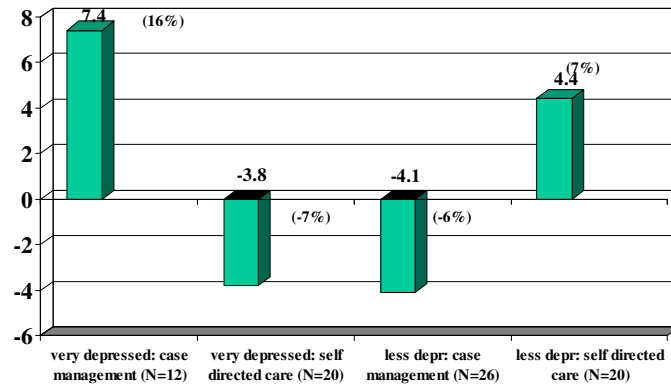
Group . 28 CES-D: F=5.60, p=.015

Figure 5: Change in Social Function Index scores for very and less depressed PHAs receiving two approaches to supportive care



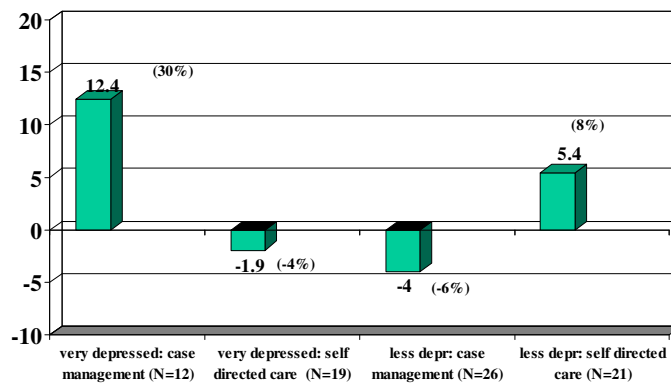
Depressed . 28 Group: F=12.38, p=.001

Figure 6: Change in Physical Health Summary score for very and less depressed PHAs receiving two approaches to supportive care



Depressed . 28 Group: F=7.31, p=.009

Figure 7: Change in Mental Health Summary score for very and less depressed PHAs receiving two approaches to supportive care



Depressed . 28 Group: F=12.21, p<.001

Figure 8: Comparison of risk behaviours at 6-month follow-up for very and less depressed PHAs receiving two approaches to supportive care.

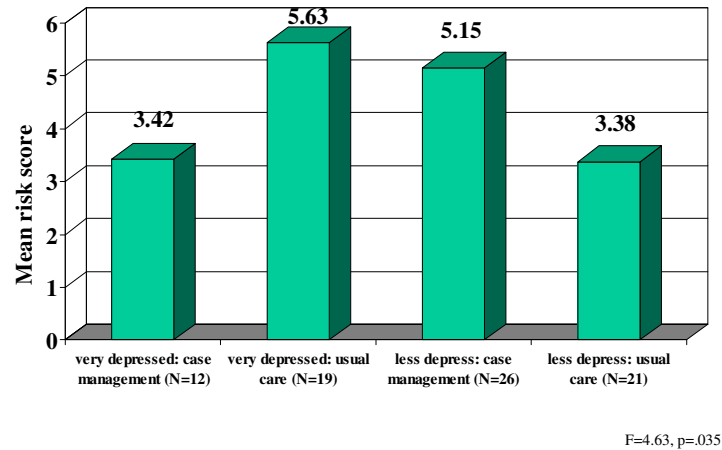
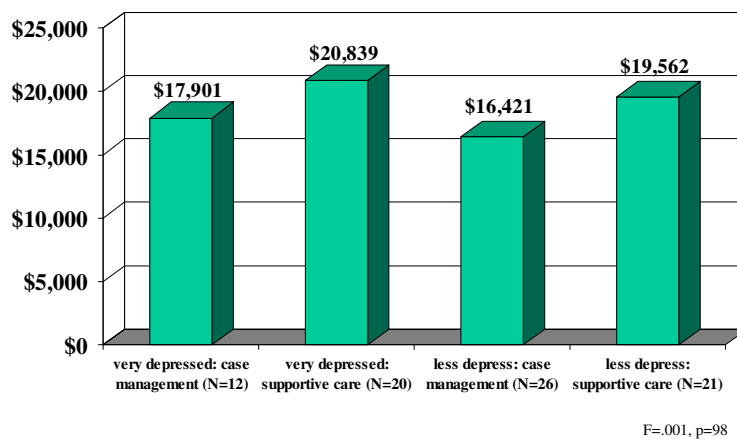


Figure 9: Comparison of direct costs of health and social services at 6-month follow up for very and less depressed PHAs receiving two approaches to supportive care



DISCUSSION

The results of this study show that case management for PHAs can be an effective way to increase access to available services and to improve the quality of life for women living with HIV and very depressed PHAs, in particular, without additional costs to the health care system. This study also supports the notion that case management does contribute to reducing risk-taking behaviours in PHAs.

Although the number of female participants involved in this research trial was relatively small when compared to larger studies, the results show that females benefited significantly from case management during the course of their involvement in this study. Female clients receiving case management improved their mental health by 28% compared to a 16% deterioration in the mental health score of females directing their own use of services. Female clients also had roughly 40% less health and social service expenditures than those female clients in usual care. These findings require, and provide promising opportunities for, further testing and research with a larger group of females living with HIV/AIDS, but suggest that women may especially benefit from case management services, possibly due to a greater amount of, and complexity in, their everyday needs.

Participants who were very depressed benefited greatly from the introduction of case management services. Case management provided to PHAs who were very depressed (CES-D scores ≥ 28) at baseline resulted in a 31% improvement in their mental health index score after six months compared to a 1% deterioration in the mental health index score among those very depressed PHAs directing their own use of services. Case management provided to very depressed PHAs at baseline also resulted in a 48% improvement in social function score at 6 months, compared to a 27% deterioration among those very depressed PHAs directing their own use of services. In addition, a 16% improvement in the physical function summary score for very depressed PHAs in case management compared to a 7% deterioration for very depressed participants directing their own use of services was noted.

Lastly, we found that there was a remarkable 39% reduction in risk taking behaviour for very depressed case management participants compared to very depressed participants directing their own use of services. These improvements in physical, mental and social function scores coupled with a reduction in risk behaviour among very depressed PHAs receiving case management were associated with no statistically significant difference in per person per annum costs to society. However, no statistically significant difference in per person per annum costs to society was noted for all PHAs in general, irrespective of the level of depression they face, further confirming similar findings noted by Knowlton et al (2005).

It should be noted that the significant differences found for very depressed PHAs who collectively scored eight to ten points higher (better) on the MOS-HIV quality of life scores (compared to those lost to follow-up) is an underestimate of the magnitude of the differences that could have been found had those more vulnerable PHAs not dropped out of the study.

The findings concerning very depressed study participants suggest that less depressed clients, who may be more functional in their day-to-day lives, may receive better care from directing their own use of services, due to the increased freedom and control that self-directed care can

create in their lives. Less depressed clients may need assistance in feeling empowered and independent in their use of services, whereas more depressed, and possibly less functional, clients may require assistance in becoming functional before they can progress to a stage where they are ready to become independent in their day-to-day activities and use of health and social services. Thus, agencies that are looking to effectively use their limited resources may consider strategically placing clients who are more depressed with a case manager over other less depressed clients, in order to ensure that a case management program is utilized in the most effective way and that clients who require the most support, receive the services that are most appropriate for providing that support.

Although the provision of case management services in this research trial did not focus directly on reducing the risk-taking behaviours of PHAs, it is important to again note that case management resulted in a 39% reduction in unsafe behaviours among very depressed PHAs in the case management group. This finding, similar to others (Gasiorowicz, et al., 2005), supports the recommended direction of targeted HIV/AIDS secondary prevention work noted in recent HIV research (Gordon, et al., 2005; Gasiorowicz, et al., 2005). Therefore, high quality support services achieved through case management is, as others have demonstrated (Gore-Felton, et al., 2005), also prevention work.

Our analyses have found that there was an economically important, though not statistically significant, \$3,300 per person per annum lower expenditure for all services used by PHAs who received case management that more than offset the cost of the case managers ($\$3,300 \times 38$ PHAs = \$125,400 per year on average in lower expenditures among the 38 PHAs receiving case management). The increased costs for discrete services among PHAs receiving case management (such as viral load and CD4 tests), should be considered a measure of better adherence to medical care, as opposed to a drain on resources. This research shows that an investment in a case management program such as the one described in this work would pay for itself within six months when run under a system of national health care insurance. Thus, government and health care funders and policy makers must note that AIDS Service Organizations should be compensated for the savings their case management services create within the provision of services to PHAs and within the entire health care system.

The study also revealed that participants who use case management also increased their use of community-based ASO social services. The significant improvements found among very depressed PHAs already well connected to ASO services indicate that present ASO services could be improved for this subgroup by making case management services available. Additionally, these findings indicate that case management services can potentially improve the accessibility and utilization of social and health related services in ASO settings and in the larger community as a whole. Thus, case management programs and initiatives need to become a priority for policy-makers, funders and agencies that service communities affected by HIV, particularly those who service vulnerable groups such as women and very depressed PHAs.

The findings of this study further indicate that case management should become a priority for policy makers and government funders when considering issues that will affect the delivery of social and health-related services to communities affected by HIV. This supports the idea that government-funded ASOs should invest in professionally prepared case managers to augment

existing support staff. However, in order for a case management program to be successful, agencies must also provide adequate resources for case managers, and enough case managers in general, to handle the long-term investment involved in establishing the significant client relationships that an extended case management program would require.

Although this study supports the notion of case management programs in ASOs, especially for women and very depressed PHAs, the measures used in this study to capture the effects of case management within the quality of life of PHAs do not completely describe the full benefits of case management for this vulnerable population. The qualitative comments provided by participants involved in this study are even more compelling than the numbers supporting the implementation of case management programs. These comments provide a human voice that sheds light on the value and the marketable improvement in the general quality of life of PHAs involved in case management. Subsequently, these comments, along with the quantitative data, give us reason to believe that the continuation of case management in ASOs is of great benefit to PHAs. On the whole, the study findings suggest agencies, policy makers and funders should work to ensure that case management is available for PHAs who could benefit from it.

We have noted that it is clear from this research that case management can be an effective instrument for improving the quality of social and health-related care for PHAs, however, further research on case management is needed to assess the long-term effects it can have for PHAs who choose to continue, and who avoid continuing, with case management follow-up sessions. In addition to the study of larger samples of other vulnerable groups, the effects of case management on a larger sample of women must also be made a priority in current and future research due to the fact that they represent one of the fastest growing populations affected by HIV/AIDS.

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APPENDIX A

Sample size calculations

A clinically important improvement in the MOS-HIV Mental Health or Physical Health Summary Score is equal to 10. A difference of 10 divided by a standard deviation of 15 yields a delta of .65. A delta of .65 in an independent t-test table where alpha = .05 (2 tailed) and beta = .20 requires 40 subjects per group. We anticipated a 30% loss to follow-up so we attempted to enrol 60 subjects per group = 120 PHAs. Our calendar allowed for six months of recruitment of current, former, or new users of ACT services.



Appendix B



Information Sheet AIDS Committee of Toronto

The Impact of Two Ways of Providing Practical Assistance on the Quality of Life of PHAs

Who is doing the survey?

You, along with 120 other PHAs coming to the AIDS Committee of Toronto are being invited by the AIDS Committee of Toronto, and the Community-Linked Evaluation AIDS Resource (CLEAR) Unit at McMaster University to participate in a research project about our of Practical Assistance Program.

The CLEAR Unit was initiated by the AIDS Bureau, Ontario Ministry of Health and Long Term Care to provide evaluative services for Community-based AIDS Service Organizations (CBAOs) across the province. CLEAR assists CBAOs with their evaluation practices using what they learn from fellow organizations within the Ontario AIDS Network. CLEAR derives its direction from CBAOs and a Steering Committee made up of AIDS Community people.

Why are we doing this study?

To determine the value of two ways of providing practical assistance to our clients either by practical assistance alone or with case management for any other concerns. We want to identify if there are better ways of providing services to enhance the quality of life of our clients. The number of sessions with the practical assistance worker and the case manager will be determined by your needs.

What are we asking participants to do?

You will be asked to take part in a 50-60 minute interview now or at a time that is convenient to you. The interview consists of questions related to your health and well being, and will be re-administered after six months of your receiving ACT Services. You will be compensated \$20 for each completed interview and subway tokens as needed to come to ACT to participate in the study.

Confidentiality

All answers that you give in the interview are confidential. Your name will not be recorded with your answers. Your anonymity and privacy will be protected. Your participation in this survey will be confidential and will not affect your present or future use of ACT Services. No one except the interviewer and possibly case manager will know whether or not you participated in this survey. The results of the study will be made available to ACT and their affiliated CBAOs in grouped form so that no individual can be identified.

Participation

Regardless of your participation, you will receive the practical assistance that we can provide. You are free to decline participation or to withdraw from the study at any time. A refusal to participate in the study will in no way affect the care you wish to receive from ACT or any other service agency. If you have further questions, please feel free to contact the Project Coordinator at the CLEAR Unit, (905) 525-9140 Ext. 22293 or at ACT (416) 340-8484.

A summary of the results will be available to study participants at the completion of the study on request to the Project Manager.

APPENDIX C

Questionnaires

APPENDIX D

Summary Analyses

MENTAL HEALTH INDEX SCORE AT BASELINE

Descriptive Statistics

Dependent Variable: lmental12

Group	Gender	Mean	S.D.	N
Case management	Male	-2.12	19.00	34
	Female	-13.00	12.81	4
	Total	-3.26	18.62	38
Usual care	Male	-4.82	17.91	34
	Female	12.00	19.27	6
	Total	-2.30	18.87	40
Total	Male	-3.47	18.37	68
	Female	2.00	20.68	10
	Total	-2.77	18.63	78

Descriptive Statistics

Dependent Variable: Mental Health Index score at baseline

Group	1. Gender	Mean	S.D.	N
Case management	Male	63.53	21.34	34
	Female	47.00	8.25	4
	Total	61.79	20.93	38
Usual care	Male	59.76	18.84	34
	Female	74.67	16.72	6
	Total	62.00	19.11	40
Total	Male	61.65	20.07	68
	Female	63.60	19.55	10
	Total	61.90	19.89	78

% improvement

-3.33%	-ve better
-27.66%	
-5.28%	
-8.07%	
16.07%	
-3.71%	
-5.63%	
3.14%	+ve Worse
-4.47%	

Tests of Between-Subjects Effects

Dependent Variable: lmental12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1885.376(a)	3.00	628.46	1.872	0.14
Intercept	132.626	1.00	132.63	0.395	0.53
group	1045.295	1.00	1045.30	3.113	0.08
Gender	74.234	1.00	74.23	0.221	0.64
group * Gender	1614.367	1.00	1614.37	4.808	0.03
Error	24844.471	74.00	335.74		
Total	27328	78.00			

Corrected Total 26729.846 77.00

a R Squared = .071 (Adjusted R Squared = .033)

DIRECT COST INCLUDING HOSPICE AND HOSPITAL COST AT 6-MONTH FOLLOW-UP BY GENDER

Descriptive Statistics

Dependent Variable: Direct cost including hospice and hospital cost at 6 month followup

Group	Gender	Mean	S.D.	N
Case management	Male	17634.11	14468.03	34
	Female	10548.24	7365.87	4
	Total	16888.23	13998.22	38
Usual care	Male	19197.25	13435.66	34
	Female	27379.06	22137.13	6
	Total	20424.52	14977.53	40
Total	Male	18415.68	13879.16	68
	Female	20646.73	19127.92	10
	Total	18701.71	14523.86	78

Tests of Between-Subjects Effects

Dependent Variable: Direct cost including hospice and hospital cost at 6 month follow-up

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	764796298.225(a)	3	254932099.4	1.219	0.309
Intercept	11753886541	1	11753886541	56.196	0
group	711556105.7	1	711556105.7	3.402	0.069
Gender	2525982.597	1	2525982.597	0.012	0.913
group * Gender	490235522.6	1	490235522.6	2.344	0.13
Error	15477780536	74	209159196.4		
Total	43523396289	78			
Corrected Total	16242576834	77			

a R Squared = .047 (Adjusted R Squared = .008)

MENTAL HEALTH FUNCTION CHANGE SCORE

Descriptive Statistics

Dependent Variable: Change in Mental health Index score From Baseline - 6 month follow-up

Group	CES_D	Mean	S.D.	N
Case management	28 & Up	-12.67	18.20	12
	Less depressed (CES-D < 28)	1.08	17.47	26
	Total	-3.26	18.62	38
Usual care	28 & Up	0.60	19.00	20
	Less depressed (CES-D < 28)	-5.90	18.57	21
	Total	-2.73	18.83	41
Total	28 & Up	-4.38	19.53	32
	Less depressed (CES-D < 28)	-2.04	18.12	47
	Total	-2.99	18.61	79

Descriptive Statistics

Dependent Variable: Mental Health Index score at baseline

Group	CES_D	Mean	S.D.	N	% improvement
Case management	28 & Up	41.33	18.40	12	-30.65%
	Less depressed (CES-D < 28)	71.23	14.36	26	1.51%
	Total	61.79	20.93	38	-5.28%
Usual care	28 & Up	52.20	15.49	20	1.15%
	Less depressed (CES-D < 28)	71.24	17.28	21	-8.29%
	Total	61.95	18.87	41	-4.41%
Total	28 & Up	48.13	17.20	32	-9.09%
	Less depressed (CES-D < 28)	71.23	15.55	47	-2.87%
	Total	61.87	19.76	79	-4.83%

Tests of Between-Subjects Effects

Dependent Variable: lmental12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1989.865(a)	3.00	663.29	1.987	0.123
Intercept	1300.85	1.00	1300.85	3.897	0.052
group	180.03	1.00	180.03	0.539	0.465
cesdsc28	238.82	1.00	238.82	0.716	0.4
group * cesdsc28	1868.60	1.00	1868.60	5.598	0.021
Error	25033.12	75.00	333.78		
Total	27728.00	79.00			
Corrected Total	27022.99	78.00			

a

R Squared = .074 (Adjusted R Squared = .037)

SOCIAL FUNCTION INDEX CHANGE SCORE

Descriptive Statistics

Dependent Variable: Social Function Index change score (Baseline - 6 month follow-up)

Group	CESDsc28	Mean	S.D.	N
Case management	28 & Up	-21.67	19.92	12
	Less depressed (CES-D < 28)	3.85	23.34	26
	Total	-4.21	25.11	38
Usual care	28 & Up	17.00	28.49	20
	Less depressed (CES-D < 28)	-2.86	34.23	21
	Total	6.83	32.74	41
Total	28 & Up	2.50	31.62	32
	Less depressed (CES-D < 28)	0.85	28.58	47
	Total	1.52	29.66	79

Descriptive Statistics

Dependent Variable: Social Function index score

Group	CESDsc28	Mean	S.D.	N	% Change
Case management	28 & Up	48.33	27.58	12	-44.83%
	Less depressed (CES-D < 28)	80.77	19.17	26	4.76%
	Total	70.53	26.60	38	-5.97%
Usual care	28 & Up	64.00	32.83	20	26.56%
	Less depressed (CES-D < 28)	69.52	27.29	21	-4.11%
	Total	66.83	29.87	41	10.22%
Total	28 & Up	58.13	31.46	32	4.30%
	Less depressed (CES-D < 28)	75.74	23.57	47	1.12%
	Total	68.61	28.23	79	2.21%

Tests of Between-Subjects Effects

Dependent Variable: Social Function Index change score (Baseline - 6 month follow-up)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11787.099(a)	3	3929.033	5.185	0.003
Intercept	61.642	1	61.642	0.081	0.776
group	4656.3	1	4656.3	6.145	0.015
cesdsc28	145.782	1	145.782	0.192	0.662
group * cesdsc28	9381.509	1	9381.509	12.381	0.001
Error	56830.623	75	757.742		
Total	68800	79			
Corrected Total	68617.722	78			

a R Squared = .172 (Adjusted R Squared = .139)

MEAN PHYSICAL HEALTH SUMMARY CHANGE SCORE

Descriptive Statistics

Dependent Variable: Mean Physical Health Summary Index change Score (Baseline - 6 Month follow-up)

Group	CESDsc28E	Mean	S.D.	N
Case management	28 & Up	-7.35	12.68	12
	Less depressed (CES-D < 28)	4.09	15.78	26
	Total	0.47	15.66	38
Usual care	28 & Up	3.75	14.87	20
	Less depressed (CES-D < 28)	-4.41	16.77	20
	Total	-0.33	16.18	40
Total	28 & Up	-0.41	14.91	32
	Less depressed (CES-D < 28)	0.39	16.59	46
	Total	0.06	15.83	78

Descriptive Statistics

Dependent Variable: Mean Physical Health Summary Index score at baseline

Group	CESDsc28E	Mean	S.D.	N	% change
Case management	28 & Up	45.10	15.27	12	-16.30%
	Less depressed (CES-D < 28)	65.51	15.28	26	6.24%
	Total	59.07	17.88	38	0.80%
Usual care	28 & Up	53.01	16.61	20	7.07%
	Less depressed (CES-D < 28)	61.03	17.00	20	-7.23%
	Total	57.02	17.08	40	-0.58%
Total	28 & Up	50.05	16.34	32	-0.83%
	Less depressed (CES-D < 28)	63.56	16.03	46	0.62%
	Total	58.02	17.39	78	0.11%

Tests of Between-Subjects Effects

Dependent Variable: Mean Physical Health Summary Index change Score (Baseline - 6 Month follow-up)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1753.214(a)	3.00	584.41	2.466	0.069
Intercept	69.571	1.00	69.57	0.294	0.59
group	30.587	1.00	30.59	0.129	0.72
cesdsc28	48.439	1.00	48.44	0.204	0.653
group * cesdsc28	1732.271	1.00	1732.27	7.309	0.009
Error	17538.367	74.00	237.01		
Total	19291.874	78.00			
Corrected Total	19291.581	77.00			

a

R Squared = .091 (Adjusted R Squared = .054)

MEAN MENTAL HEALTH SUMMARY CHANGE SCORE

Descriptive Statistics

Dependent Variable: Mean Mental health Summary Index change Score (baseline - 6 month follow-up)

Group	CESDsc28	Mean	S.D.	N
Case management	28 & Up	-12.35	9.13	12
	Less depressed (CES-D < 28)	3.96	13.46	26
	Total	-1.19	14.36	38
Usual care	28 & Up	1.93	16.06	20
	Less depressed (CES-D < 28)	-5.39	16.26	21
	Total	-1.82	16.38	41
Total	28 & Up	-3.43	15.40	32
	Less depressed (CES-D < 28)	-0.22	15.34	47
	Total	-1.52	15.35	79

Descriptive Statistics

Dependent Variable: Mean Mental Health Summary index score at baseline

Group	CESDsc28	Mean	S.D.	N	% change
Case management	28 & Up	41.45	15.87	12	-29.81%
	Less depressed (CES-D < 28)	70.35	11.29	26	5.62%
	Total	61.22	18.61	38	-1.95%
Usual care	28 & Up	51.71	14.30	20	3.73%
	Less depressed (CES-D < 28)	66.04	15.47	21	-8.16%
	Total	59.05	16.42	41	-3.08%
Total	28 & Up	47.86	15.50	32	-7.16%
	Less depressed (CES-D < 28)	68.43	13.34	47	-0.32%
	Total	60.10	17.43	79	-2.53%

Tests of Between-Subjects Effects

Dependent Variable: Mean Mental health Summary Index change Score (baseline - 6 month follow-up)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2740.342(a)	3.00	913.45	4.382	0.007
Intercept	640.707	1.00	640.71	3.073	0.084
group	111.193	1.00	111.19	0.533	0.467
cesdsc28	368.453	1.00	368.45	1.767	0.188
group * cesdsc28	2544.404	1.00	2544.40	12.205	0.001
Error	15634.809	75.00	208.46		
Total	18557.296	79.00			
Corrected Total	18375.151	78.00			

a

R Squared = .149 (Adjusted R Squared = .115)

DIRECT COST INCLUDING HOSPICE AND HOSPITAL COST AT 6 MONTH FOLLOW-UP

Descriptive Statistics

Dependent Variable: Direct cost including hospice and hospital cost at 6 month follow-up				
Group	CESDsc28	Mean	Std. Deviation	N
Case management	28 & Up	17901.11	19112.23	12
	Less depressed (CES-D < 28)	16420.75	11338.63	26
	Total	16888.23	13998.22	38
Usual care	28 & Up	20839.48	16733.44	20
	Less depressed (CES-D < 28)	19561.64	13240.01	21
	Total	20184.97	14868.45	41
Total	28 & Up	19737.59	17416.12	32
	Less depressed (CES-D < 28)	17824.12	12189.34	47
	Total	18599.20	14459.20	79

Descriptive Statistics

Dependent Variable: Direct cost including hospital at baseline

Group	CESDsc28	Mean	Std. Deviation	N
Case management	28 & Up	16849.55	13001.44	12
	Less depressed (CES-D < 28)	15837.87	12998.07	26
	Total	16157.35	12831.08	38
Usual care	28 & Up	20887.56	13687.11	20
	Less depressed (CES-D < 28)	27809.66	39280.97	21
	Total	24433.03	29542.40	41
Total	28 & Up	19373.31	13369.57	32
	Less depressed (CES-D < 28)	21186.97	28264.53	47
	Total	20452.32	23301.91	79

Tests of Between-Subjects Effects

Dependent Variable: Direct cost including hospice and hospital cost at 6 month follow-up

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	249063880.491 (a)	3.00	83021293.50	0.388	0.762
Intercept	25447438704	1.00	25447438703.57	118.852	0
group	168436666.4	1.00	168436666.42	0.787	0.378
cesdsc28	34672827.55	1.00	34672827.55	0.162	0.689
group * cesdsc28	186932.357	1.00	186932.36	0.001	0.977
Error	16058272515	75.00	214110300.20		
Total	43635819050	79.00			
Corrected Total	16307336395	78.00			

a R Squared = .015 (Adjusted R Squared = -.024)

Appendix E. Demographic status, service use and needs: case management group and usual (self-directed) care group

	Total		Group				Test Statistics ¹	
	N	%	Case management		Usual Care		Chi-square	p-values
			N	%	N	%		
Gender								
Male	68	86.1	34	89.5	34	82.9	1.288	.525(a,b)
Female	10	12.7	4	10.5	6	14.6		
Transgender	1	1.3			1	2.4		
Total	79	100	38	100	41	100		
Age								
< 30 year old	7	8.9	3	7.9	4	9.8	6.775	.238(a)
30-34	9	11.4	4	10.5	5	12.2		
35-39	11	13.9	7	18.4	4	9.8		
40-44	21	26.6	7	18.4	14	34.1		
45-49	19	24.1	8	21.1	11	26.8		
50 & Up	12	15.2	9	23.7	3	7.3		
Total	79	100	38	100	41	100		
Highest level of education								
Grade School	9	11.4	3	7.9	6	14.6	5.226	.265(a,b)
High School or equivalent	19	24.1	6	15.8	13	31.7		
Some/complete college	22	27.8	12	31.6	10	24.4		
Some/complete university	28	35.4	16	42.1	12	29.3		
Other	1	1.3	1	2.6				
Total	79	100	38	100	41	100		
Relationship status								
Single	50	63.3	24	63.2	26	63.4	1.008	.604(a)
Divorced/Separated	11	13.9	4	10.5	7	17.1		
Married/Common-law/Partner	18	22.8	10	26.3	8	19.5		
Total	79	100	38	100	41	100		
Citizenship status								
Canadian	70	88.6	36	94.7	34	82.9	3.281	.512(a,b)
Landed Immigrant	4	5.1	1	2.6	3	7.3		
Refugee/Refugee Claimant	3	3.8	1	2.6	2	4.9		
Temporary Resident	1	1.3			1	2.4		
Dual Citizen Canadian/US	1	1.3			1	2.4		
Total	79	100	38	100	41	100		
Ethnoracial background								
Black/African Canadian	7	8.9	1	2.6	6	14.6	6.121	.410(a,b)
Asian(Chinese, Filipino, Vietnamese etc)	1	1.3			1	2.4		
South Asian (Indian, Pakistan, Bangladeshi, Sri Lankan etc)	3	3.8	2	5.3	1	2.4		
Hispanic/Lation	2	2.5	1	2.6	1	2.4		
Caucasian/white	55	69.6	30	78.9	25	61		
First Nations (Aboriginal)	5	6.3	2	5.3	3	7.3		
Other	6	7.6	2	5.3	4	9.8		

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Total	79	100	38	100	41	100		
Mother tongue								
English	66	83.5	31	81.6	35	85.4	7.806	.350(a,b)
French	1	1.3	1	2.6				
Arabic	1	1.3	1	2.6				
German	1	1.3	1	2.6				
Portuguese	1	1.3	1	2.6				
Spanish	2	2.5	1	2.6	1	2.4		
Other	6	7.6	1	2.6	5	12.2		
Zulu	1	1.3	1	2.6				
Total	79	100	38	100	41	100		
Living arrangements								
Your house/apartment	30	38	14	36.8	16	39	1.832	.767(a)
Transitional housing (e.g. single room, hotel, shelter)	6	7.6	3	7.9	3	7.3		
Homeless/street	6	7.6	2	5.3	4	9.8		
Someone else's house/apartment	9	11.4	6	15.8	3	7.3		
Residential housing supportive	28	35.4	13	34.2	15	36.6		
Total	79	100	38	100	41	100		
Geographic location								
City Core	71	89.9	34	89.5	37	90.2	0.013	.910(a)
City suburbs	8	10.1	4	10.5	4	9.8		
Total	79	100	38	100	41	100		
Living arrangements								
Live Alone	40	50.6	19	50	21	51.2	5.946	.429(a,b)
Spouse or partner	11	13.9	7	18.4	4	9.8		
Friend or friends	12	15.2	5	13.2	7	17.1		
Children	2	2.5			2	4.9		
Other Family member (parents, siblings)	5	6.3	4	10.5	1	2.4		
Shelter	6	7.6	2	5.3	4	9.8		
Community Living/Half way hosue/hostel	3	3.8	1	2.6	2	4.9		
Total	79	100	38	100	41	100		
Employment status								
Employed/Self employed Full Time	6	7.6	2	5.3	4	9.8	6.58	0.254(a,b)
Employed/Selfemployed part time	2	2.5	2	5.3				
Unemployed	10	12.7	5	13.2	5	12.2		
On Disability*	57	72.2	28	73.7	29	70.7		
Student	1	1.3	1	2.6				
Ontario Work	3	3.8			3	7.3		
Total	79	100	38	100	41	100		
* 5 on Disability and also retired, 4 on Disability and homemaker, 3 on disability and part time student								
Learned about ACT from:								
Partner/family memebers/friends	22	27.8	12	31.6	10	24.4	0.507	.476(a)
ASO	18	22.8	7	18.4	11	26.8	0.793	.373(a)
HIV testing site	5	6.3	4	10.5	1	2.4	2.176	.140(a)
Social Service agency	1	1.3	1	2.6			1.093	.296(a,b)
Physicians	15	19	5	13.2	10	24.4	1.618	.203(a)
Other	23	29.1	10	26.3	13	31.7	0.278	.598(a)

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Annual income								
Under \$5,000	5	6.32911	2	5.26316	3	7.3170732	8.438	0.208(a,b)
\$5,000 - \$9,999	15	18.9873	8	21.0526	7	17.073171		
\$10,000 - 19,999	42	53.1646	21	55.2632	21	51.219512		
\$20,000 - 29,999	11	13.9241	3	7.89474	8	19.512195		
\$30,000 - 39,999	2	2.53165	2	5.26316				
\$40,000 - 49,999	2	2.53165	2	5.26316				
\$50,000 - 59,999	2	2.53165			2	4.8780488		
Total	79	100	38	100	41	100		
HIV positive?								
Yes	79	100	38	100	41	100		
Total	79	100	38	100	41	100		
Used ACT services previously								
Yes	72	91.1	35	92.1	37	90.2	0.085	.771(a)
No	7	8.9	3	7.9	4	9.8		
Total	79	100	38	100	41	100		
Think of yourself as:								
1. Male	66	83.5	33	86.8	33	80.5	0.579	0.447
2. Female	10	12.7	4	10.5	6	14.6	0.044	0.834
3. MSM	2	2.5	1	2.6	1	2.4	0.000	1.000
4. IDU	8	10.1	3	7.9	5	12.2	0.068	0.795
5. HIV endemic countries	2	2.5			2	4.9	0.439	0.508
6. Heterosexual	13	16.5	4	10.5	9	22	1.134	0.287
7. Bisexual	12	15.2	7	18.4	5	12.2	0.209	0.648
8. Transgender	1	1.3			1	2.4	0.000	1.000
9. HIV-T (transfusion)	1	1.3			1	2.4	0.000	1.000
10. Gay	48	60.8	26	68.4	22	53.7	1.803	0.179
12. Aboriginal	6	7.6	2	5.3	4	9.8	0.108	0.743
13. Visual Minority	16	20.3	7	18.4	9	22	0.152	0.696
14. Street Involved	8	10.1	2	5.3	6	14.6	1.013	0.314
15. Youth	7	8.9	5	13.2	2	4.9	0.806	0.369
16. A Person with Mental Health Issues	29	36.7	10	26.3	19	46.3	3.404	0.065
17. A person with Physical Health Issues	33	41.8	16	42.1	17	41.5	0.003	0.954
Depressed at baseline (CES-D > 20)								
Depressed (CES-D > 20)	58	73.4	25	65.8	33	80.5	2.183	0.140
Not Depressed (CES-D < 21)	21	26.6	13	34.2	8	19.5		
Total	79	100	38	100	41	100		
Depressed at 6-month follow-up								
Depressed (CES-D > 20)	42	53.2	21	55.3	21	51.2	0.130	0.719
Not Depressed (CES-D < 21)	37	46.8	17	44.7	20	48.8		
Total	79	100	38	100	41	100		
Change in depression status from baseline to follow-up								
No change	51	64.6	24	63.2	27	65.9	3.461	0.177
Worsed	6	7.6	5	13.2	1	2.4		
Better	22	27.8	9	23.7	13	31.7		

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Total	79	100	38	100	41	100		
Depressed at baseline (CES-D > 15)								
Depressed (CES-D > 15)	61	77.2	27	71.1	34	82.9	1.581	0.209
Not Depressed (CES-D < 16)	18	22.8	11	28.9	7	17.1		
Total	79	100	38	100	41	100		
Depressed at 6-month follow-up								
Depressed (CES-D > 15)	58	73.4	26	68.4	32	78	0.937	0.333
Not Depressed (CES-D < 16)	21	26.6	12	31.6	9	22		
Total	79	100	38	100	41	100		
Change in depression status								
No change	60	75.9	27	71.1	33	80.5	1.079	0.583
Worsed	8	10.1	5	13.2	3	7.3		
Better	11	13.9	6	15.8	5	12.2		
Total	79	100	38	100	41	100		

1 Results are based on nonempty rows and columns in each innermost subtable.

a More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid.

b The minimum expected cell count in this subtable is less than one. Chi-square results may be invalid.

Appendix F. Quality of Life Index

	Total			Group						Test Statistics	
	N	Mean	S.D.	Case management			Usual group			T-test	p-values
	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	T-test	p-values
Quality of Life Index Score (0-100)											
Overall Health Perception											
Baseline	79	45.21	22.94	38	45.95	24.50	41	44.51	21.67	0.277	0.782
6 month Follow-up	79	50.19	23.55	38	50.00	22.06	41	50.37	25.13	-0.069	0.946
Baseline-6 month F. Up	79	-4.98	19.50	38	-4.05	20.96	41	-5.85	18.27	0.409	0.683
Physical Function											
Baseline	78	78.1	21.24	38	79.17	18.86	40	77.08	23.48	0.431	0.668
6 month Follow-up	79	74.58	22.68	38	74.12	22.74	41	75.00	22.90	-0.171	0.865
Baseline-6 month F. Up	78	3.21	24.77	38	5.04	25.74	40	1.46	24.01	0.636	0.526
Role Function											
Baseline	78	40.38	44.91	38	47.37	44.94	40	33.75	44.42	1.346	0.182
6 month Follow-up	79	40.51	40.88	38	44.74	41.57	41	36.59	40.35	0.884	0.379
Baseline-6 month F. Up	78	-0.64	42.25	38	2.63	43.41	40	-3.75	41.43	0.664	0.509
Social Function											
Baseline	79	68.61	28.23	38	70.53	26.60	41	66.83	29.87	0.579	0.564
6 month Follow-up	79	67.09	28.65	38	74.74	25.33	41	60.00	30.00	2.349	0.021
Baseline-6 month F. Up	79	1.52	29.66	38	-4.21	25.11	41	6.83	32.74	-1.672	0.099
Cognitive Function											
Baseline	79	65.13	23.40	38	64.61	21.23	41	65.61	25.50	-0.189	0.850
6 month Follow-up	79	67.09	22.95	38	65.92	23.16	41	68.17	22.99	-0.433	0.666
Baseline-6 month F. Up	79	-1.96	20.92	38	-1.32	17.66	41	-2.56	23.75	0.263	0.793
Pain function											
Baseline	78	62.96	27.72	38	66.08	24.91	40	60.00	30.17	0.968	0.336
6 month Follow-up	79	59.49	26.39	38	63.74	26.05	41	55.56	26.41	1.386	0.170
Baseline-6 month F. Up	78	3.70	27.78	38	2.34	20.37	40	5.00	33.57	-0.421	0.675
Mental Health											
Baseline	79	61.87	19.76	38	61.79	20.93	41	61.95	18.87	-0.036	0.971
6 month Follow-up	79	64.86	19.00	38	65.05	17.34	41	64.68	20.63	0.086	0.932
Baseline-6 month F. Up	79	-2.99	18.61	38	-3.26	18.62	41	-2.73	18.83	-0.126	0.900
Energy/Fatigue											
Baseline	79	55.57	20.19	38	55.26	22.72	41	55.85	17.82	-0.129	0.898
6 month Follow-up	79	53.80	21.00	38	52.89	21.52	41	54.63	20.75	-0.366	0.716
Baseline-6 month F. Up	79	1.77	20.29	38	2.37	19.62	41	1.22	21.12	0.250	0.803
Health Distress											
Baseline	79	70.57	25.84	38	76.18	25.64	41	65.37	25.23	1.889	0.063
6 month Follow-up	79	70.51	24.37	38	75.66	20.21	41	65.73	27.05	1.856	0.067
Baseline-6 month F. Up	79	0.06	24.85	38	0.53	22.53	41	-0.37	27.10	0.158	0.875
Quality of Life											
Baseline	79	57.91	21.39	38	60.53	19.82	41	55.49	22.72	1.047	0.298
6 month Follow-up	79	58.86	22.30	38	56.58	22.27	41	60.98	22.39	-0.874	0.385
Baseline-6 month F. Up	79	-0.95	25.46	38	3.95	25.68	41	-5.49	24.69	1.664	0.100
Health Transition											
Baseline	79	60.44	27.03	38	60.53	24.41	41	60.37	29.57	0.026	0.979
6 month Follow-up	79	58.23	28.23	38	55.92	31.53	41	60.37	24.98	-0.697	0.488
Baseline-6 month F. Up	79	2.22	39.67	38	4.61	42.26	41	0.00	37.50	0.513	0.609
Physical Health Summary											
Baseline	78	58.02	17.39	38	59.07	17.88	40	57.02	17.08	0.516	0.607

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	Total			Group						Test Statistics	
	N	Mean	S.D.	Case management			Usual group			T-test	p-values
				N	Mean	S.D.	N	Mean	S.D.		
6 month Follow-up	79	57.74	19.65	38	58.59	19.65	41	56.96	19.86	0.367	0.715
Baseline-6 month F. Up	78	0.06	15.83	38	0.47	15.66	40	-0.33	16.18	0.223	0.824
Mental Health Summary											
Baseline	79	60.10	17.43	38	61.22	18.61	41	59.05	16.42	0.552	0.583
6 month Follow-up	79	61.61	18.33	38	62.42	16.68	41	60.87	19.92	0.373	0.710
Baseline-6 month F. Up	79	-1.52	15.35	38	-1.19	14.36	41	-1.82	16.38	0.179	0.858

Appendix G. ACTs Services Used between Baseline and 6-month Follow-up (From ACT's System)

	Total		Group				Test Statistics		
			Case management		Usual Care				
	N	%	N	%	N	%	Mann-Whitney U	Z	p-values
Case management service in person from baseline to 6-month follow-up									
0	40	51.3			40	100			
1	6	7.7	6	15.8					
2	4	5.1	4	10.5					
3	5	6.4	5	13.2					
4	10	12.8	10	26.3					
5	3	3.8	3	7.9					
6	1	1.3	1	2.6					
7	4	5.1	4	10.5					
8	1	1.3	1	2.6					
10	2	2.6	2	5.3					
12	2	2.6	2	5.3					
Total	78	100	38	100	40	100			
Mean	2.18		4.47		0		0.0	-8.183	<0.0001
S.D.	3.05		2.97		0				
Case management service by phone from baseline to 6-month follow-up									
0	44	56.4	4	10.5	40	100			
1	8	10.3	8	21.1					
2	7	9	7	18.4					
3	4	5.1	4	10.5					
4	5	6.4	5	13.2					
5	2	2.6	2	5.3					
6	2	2.6	2	5.3					
7	2	2.6	2	5.3					
8	2	2.6	2	5.3					
10	1	1.3	1	2.6					
13	1	1.3	1	2.6					
Total	78	100	38	100	40	100			
Mean	1.65		3.39		0		80.0	-7.514	<0.0001
S.D.	2.69		2.99		0				
Case management service through email from baseline to 6-month follow-up									
0	68	87.2	28	73.7	40	100			
1	5	6.4	5	13.2					
2	1	1.3	1	2.6					
3	2	2.6	2	5.3					
5	1	1.3	1	2.6					
15	1	1.3	1	2.6					
Total	78	100	38	100	40	100			
Mean	0.42		0.87				560.0	-3.443	<0.001

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	S.D.	1.85		2.59						
Couselling service from baseline to 6-month follow-up										
0	61	78.2	30	78.9	31	77.5				
1	12	15.4	5	13.2	7	17.5				
2	2	2.6	2	5.3						
7	1	1.3			1	2.5				
8	1	1.3			1	2.5				
13	1	1.3	1	2.6						
Total	78	100	38	100	40	100				
Mean	0.56		0.58		0.55		753.5	-0.090	0.928	
S.D.	1.9		2.14		1.66					
Group session from baseline to 6-month follow-up										
0	68	87.2	32	84.2	36	90				
1	5	6.4	2	5.3	3	7.5				
2	3	3.8	2	5.3	1	2.5				
3	1	1.3	1	2.6						
4	1	1.3	1	2.6						
Total	78	100	38	100	40	100				
Mean	0.23		0.34		0.13		710.0	-0.861	0.389	
S.D.	0.7		0.91		0.4					
Employment Action services from baseline to 6-month follow-up										
0	62	79.5	32	84.2	30	75				
1	1	1.3	1	2.6						
2	6	7.7	2	5.3	4	10				
3	1	1.3	1	2.6						
4	1	1.3	1	2.6						
5	2	2.6			2	5				
6	1	1.3			1	2.5				
7	1	1.3			1	2.5				
11	1	1.3	1	2.6						
21	1	1.3			1	2.5				
22	1	1.3			1	2.5				
Total	78	100	38	100	40	100				
Mean	1.24		0.61		1.85		680.0	-1.134	0.257	
S.D.	3.8		1.95		4.91					
Meet and Eat services used from baseline to 6 month Followup										
0	50	64.1	19	50	31	77.5				
1	2	2.6	2	5.3						
2	2	2.6	1	2.6	1	2.5				
3	1	1.3	1	2.6						
4	1	1.3	1	2.6						
5	2	2.6	1	2.6	1	2.5				
6	2	2.6	1	2.6	1	2.5				
8	3	3.8	2	5.3	1	2.5				
9	5	6.4	2	5.3	3	7.5				
10	1	1.3	1	2.6						
12	1	1.3	1	2.6						
13	1	1.3	1	2.6						

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16	2	2.6	1	2.6	1	2.5			
17	2	2.6	2	5.3					
23	1	1.3	1	2.6					
26	1	1.3	1	2.6					
27	1	1.3			1	2.5			
Total	78	100	38	100	40	100			
Mean	3.6		5		2.28		551.5	-2.429	0.015
S.D.	6.43		7.14		5.43				
Good Food program used from baseline to 6-month follow-up									
0	61	78.2	26	68.4	35	87.5			
1	2	2.6	2	5.3					
2	1	1.3	1	2.6					
3	3	3.8	1	2.6	2	5			
4	1	1.3	1	2.6					
7	2	2.6	2	5.3					
9	2	2.6	1	2.6	1	2.5			
10	1	1.3	1	2.6					
11	2	2.6	1	2.6	1	2.5			
12	1	1.3	1	2.6					
15	1	1.3			1	2.5			
21	1	1.3	1	2.6					
Total	78	100	38	100	40	100			
Mean	1.65		2.32		1.03		620.0	-1.938	0.053
S.D.	4.03		4.69		3.21				
Social Support service used from baseline to 6-month follow-up									
0	69	88.5	32	84.2	37	92.5			
1	7	9	4	10.5	3	7.5			
2	1	1.3	1	2.6					
3	1	1.3	1	2.6					
Total	78	100	38	100	40	100			
Mean	0.15		0.24		0.08		694.0	-1.191	0.234
S.D.	0.49		0.63		0.27				
PYO from baseline to 6 month Followup									
0	78	100	38	100	40	100			
Total	78	100	38	100	40	100			
Furniture Bank service used from baseline to 6-month follow-up									
0	37	47.4	20	52.6	17	42.5			
1	5	6.4	2	5.3	3	7.5			
2	6	7.7	1	2.6	5	12.5			
3	5	6.4	2	5.3	3	7.5			
4	5	6.4	2	5.3	3	7.5			
5	5	6.4	3	7.9	2	5			
6	4	5.1	2	5.3	2	5			
7	2	2.6	2	5.3					
8	3	3.8	1	2.6	2	5			
9	2	2.6	1	2.6	1	2.5			
10	1	1.3	1	2.6					
11	1	1.3			1	2.5			

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	12	2	2.6	1	2.6	1	2.5			
	Total	78	100	38	100	40	100			
	Mean	2.59		2.58		2.6		726.5	-0.355	0.723
	S.D.	3.34		3.44		3.3				
Advocacy Services used from baseline to 6-month follow-up										
	0	74	94.9	34	89.5	40	100			
	1	3	3.8	3	7.9					
	2	1	1.3	1	2.6					
	Total	78	100	38	100	40	100			
	Mean	0.06		0.13		0		680.0	-2.093	0.036
	S.D.	0.29		0.41		0				
Drives program used from baseline to 6-month follow-up										
	0	72	92.3	34	89.5	38	95			
	1	2	2.6	1	2.6	1	2.5			
	2	3	3.8	2	5.3	1	2.5			
	5	1	1.3	1	2.6					
	Total	78	100	38	100	40	100			
	Mean	0.17		0.26		0.08		716.5	-0.941	0.347
	S.D.	0.69		0.92		0.35				
Women's Coffee night from baseline to 6-month follow-up										
	0	75	96.2	38	100	37	92.5			
	1	3	3.8			3	7.5			
	Total	78	100	38	100	40	100			
	Mean	0.04		0	0	0.08		703.0	-1.711	0.087
	S.D.	0.19				0.27				
Clinics used from baseline to 6-month follow-up										
	0	69	88.5	33	86.8	36	90			
	1	8	10.3	4	10.5	4	10			
	2	1	1.3	1	2.6					
	Total	78	100	38	100	40	100			
	Mean	0.13		0.16		0.1		734.0	-0.469	0.639
	S.D.	0.37		0.44		0.3				
Buddy match from baseline to 6-month follow-up										
	0	78	100	38	100	40	100			
	Total	78	100	38	100	40	100			
Moves service used from baseline to 6-month follow-up										
	0	77	98.7	38	100	39	97.5			
	1	1	1.3			1	2.5			
	Total	78	100	38	100	40	100			
	Mean	0.01		0		0.03		741.0	-0.975	0.330
	S.D.	0.11		0		0.16				
Total ACTs Services used from baseline to 6-month follow-up										
	0	6	7.7			6	15			
	1	4	5.1	2	5.3	2	5			
	2	5	6.4			5	12.5			
	3	5	6.4	1	2.6	4	10			
	4	4	5.1	1	2.6	3	7.5			
	5	2	2.6			2	5			

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6	4	5.1	2	5.3	2	5			
7	3	3.8	3	7.9					
8	1	1.3	1	2.6					
10	4	5.1	3	7.9	1	2.5			
11	5	6.4	2	5.3	3	7.5			
12	2	2.6	1	2.6	1	2.5			
13	2	2.6	1	2.6	1	2.5			
14	1	1.3			1	2.5			
16	2	2.6			2	5			
18	2	2.6	1	2.6	1	2.5			
19	2	2.6	1	2.6	1	2.5			
20	1	1.3	1	2.6					
21	1	1.3			1	2.5			
22	2	2.6	2	5.3					
23	1	1.3	1	2.6					
26	2	2.6	2	5.3					
27	2	2.6	1	2.6	1	2.5			
28	2	2.6	1	2.6	1	2.5			
29	2	2.6	1	2.6	1	2.5			
32	1	1.3	1	2.6					
35	3	3.8	3	7.9					
36	1	1.3	1	2.6					
37	1	1.3			1	2.5			
39	1	1.3	1	2.6					
43	1	1.3	1	2.6					
45	1	1.3	1	2.6					
51	1	1.3	1	2.6					
58	1	1.3	1	2.6					
Total	78	100	38	100	40	100			
Mean	14.71		20.95		8.78		355.5	-4.048	0.000
S.D.	13.72		14.83		9.45				

* 1 died

Appendix H. Use of any community-based health and Social Services in the last month at 6-month Follow-up (Patients as Informant)

	Total (N=79)		Group				Test Statistics	
			Case management		Usual Care			
	N	%	N	%	N	%	Chi-square	p-values
1c. Have you seen any community-based health and social service providers such as AIDS Service Organisation (ASO) in the last month?								
Yes	66	83.5	33	86.8	33	80.5		
No	13	16.5	5	13.2	8	19.5	0.579	0.447
Total	79	100	38	100	41	100		
Food bank visits								
None	43	54.4	22	57.9	21	51.2		
1	6	7.6	3	7.9	3	7.3		
2	19	24.1	10	26.3	9	22	2.966	.705(a,b)
3	1	1.3			1	2.4		
4	8	10.1	2	5.3	6	14.6		
5	2	2.5	1	2.6	1	2.4		
Total	79	100	38	100	41	100		
Counselling								
None	69	87.3	34	89.5	35	85.4		
1	4	5.1	1	2.6	3	7.3		
2	4	5.1	3	7.9	1	2.4	3.906	.419(a,b)
4	1	1.3			1	2.4		
6	1	1.3			1	2.4		
Total	79	100	38	100	41	100		
Addictions Counselling visit								
None	74	93.7	36	94.7	38	92.7		
1	3	3.8	1	2.6	2	4.9		
2	1	1.3	1	2.6			2.277	.517(a,b)
4	1	1.3			1	2.4		
Total	79	100	38	100	41	100		
Needle Exchange program								
None	76	96.2	36	94.7	40	97.6		
1	1	1.3			1	2.4		
2	1	1.3	1	2.6			3.101	.376(a,b)
4	1	1.3	1	2.6				
Total	79	100	38	100	41	100		
Support Group/Peer Support								
None	61	77.2	30	78.9	31	75.6		
1	1	1.3			1	2.4		
2	2	2.5	1	2.6	1	2.4	3.908	.790(a,b)
3	4	5.1	2	5.3	2	4.9		
4	6	7.6	3	7.9	3	7.3		
5	2	2.5	1	2.6	1	2.4		
8	1	1.3	1	2.6				
20	2	2.5			2	4.9		

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Total	79	100	38	100	41	100		
Health Education / Prevention talks								
None	74	93.7	35	92.1	39	95.1		
1	5	6.3	3	7.9	2	4.9	0.303	.582(a)
Total	79	100	38	100	41	100		
Legal Services (e.g. HALCO)								
None	71	89.9	33	86.8	38	92.7		
1	6	7.6	4	10.5	2	4.9	2.909	.406(a,b)
3	1	1.3	1	2.6				
15	1	1.3			1	2.4		
Total	79	100	38	100	41	100		
Financial Services (food vouchers, tokens etc)								
None	65	82.3	33	86.8	32	78		
1	6	7.6	1	2.6	5	12.2	3.106	.376(a)
2	3	3.8	1	2.6	2	4.9		
4	5	6.3	3	7.9	2	4.9		
Total	79	100	38	100	41	100		
Housing Services								
None	72	91.1	36	94.7	36	87.8		
1	5	6.3	1	2.6	4	9.8		
2	1	1.3			1	2.4	3.691	.297(a,b)
3	1	1.3	1	2.6				
Total	79	100	38	100	41	100		
Employment Related Services								
None	68	86.1	33	86.8	35	85.4		
1	6	7.6	2	5.3	4	9.8		
2	2	2.5	1	2.6	1	2.4		
4	1	1.3	1	2.6			3.617	.606(a,b)
5	1	1.3	1	2.6				
15	1	1.3			1	2.4		
Total	79	100	38	100	41	100		
Translation / Interpretation Services								
None	79	100	38	100	41	100		
Total	79	100	38	100	41	100		
Specify Other Community-based health and social service used								
None	55	69.6	19	50	36	87.8		
Case management	15	19	15	39.5				
Food for Life - PWA	4	5.1	2	5.3	2	4.9	23.174	.001(*,a,b)
Nurse at health bus	2	2.5	1	2.6	1	2.4		
PWA-Trillium application	1	1.3			1	2.4		
benefits & assist PWA	1	1.3			1	2.4		
cleaning@dental schl \$10	1	1.3	1	2.6				
Total	79	100	38	100	41	100		
Number of times Other Community-based health and social service used								
0	55	69.6	19	50	36	87.8		
1	12	15.2	10	26.3	2	4.9		
2	4	5.1	4	10.5			17.699	.007(*,a,b)
3	1	1.3	1	2.6				

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4		5	6.3	3	7.9	2	4.9		
5		1	1.3	1	2.6				
15		1	1.3			1	2.4		
Total		79	100	38	100	41	100		
Specify 2nd Other Community-based health and social service									
None		76	96.2	35	92.1	41	100		
CNIB-metropass, mag glass		1	1.3	1	2.6			3.365	.186(a,b)
Case management		2	2.5	2	5.3				
Total		79	100	38	100	41	100		
Number of times Other Community-based health and social service used									
0		75	96.2	34	91.9	41	100		
1		2	2.6	2	5.4				
2		1	1.3	1	2.7			3.457	.178(a,b)
Total		78	100	37	100	41	100		
Section 2: Did you receive any help from a community support service or friends/family in the last month?									
Yes		11	13.9	4	10.5	7	17.1		
No		68	86.1	34	89.5	34	82.9	0.705	0.401
Total		79	100	38	100	41	100		
1. Personal care (bathing, companion) time in hours									
0		79	100	38	100	41	100		
Total		79	100	38	100	41	100		
2. Cooking, house cleaning, groceries, etc time in hours									
0		71	89.9	35	92.1	36	87.8		
1		2	2.5			2	4.9		
3		2	2.5	1	2.6	1	2.4		
6		1	1.3	1	2.6			5.909	.433(a,b)
20		1	1.3	1	2.6				
28		1	1.3			1	2.4		
168		1	1.3			1	2.4		
Total		79	100	38	100	41	100		
3. House management (grass cutting, repair etc) time in hours									
0		79	100	38	100	41	100		
Total		79	100	38	100	41	100		
4. Financial support (advice/assist with budgeting, bankingetc) in hours									
0		77	97.5	38	100	39	95.1		
1		1	1.3			1	2.4	1.902	.386(a,b)
4		1	1.3			1	2.4		
Total		79	100	38	100	41	100		
5. Stress/relaxation support/recreation/leisure time in hour									
0		78	98.7	37	97.4	41	100		
5		1	1.3	1	2.6			1.093	.296(a,b)
Total		79	100	38	100	41	100		
6. Organizing/reminding/planning support time in hours									
0		79	100	38	100	41	100		
Total		79	100	38	100	41	100		
7. Transportation (to appointments, visits and social activities)									
0		77	97.5	37	97.4	40	97.6		
10		1	1.3			1	2.4	2.006	.367(a,b)

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	20	1	1.3	1	2.6				
Total		79	100	38	100	41	100		

Results are based on nonempty rows and columns in each innermost subtable.

* The Chi-square statistic is significant at the 0.05 level.

a More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid.

b The minimum expected cell count in this subtable is less than one. Chi-square results may be invalid.

**Appendix I. Annual Expenditure on Health and Social Services Utilization:
6-month follow-up**

	Total (N=79)		Group				Test Statistics			
			Case management (N=38)		Usual Care (N=41)					
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mann-Whitney U	Z	p-values	
Direct Cost excluding Hospital, hospice										
Family Physician/Walkin Clinic (Primary care)										
Baseline	207.20	518.55	154.95	222.60	255.63	688.12	767.5	-0.125	0.900	
6 month Followup	195.27	355.73	198.33	324.07	192.44	386.78	730.5	-0.541	0.589	
Infectious Disease / HIV Specialist										
Baseline	621.35	849.74	598.90	882.02	642.15	829.15	770.5	-0.085	0.932	
6 month Followup	607.23	853.69	657.62	1114.93	560.52	516.37	736.0	-0.429	0.668	
911 calls										
Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000	
6 month Followup	5.90	27.31	2.45	15.13	9.10	34.93	742.0	-0.956	0.339	
Ambulance Service										
Baseline	12.15	108.01	25.26	155.73	0.00	0.00	758.5	-1.039	0.299	
6 month Followup	72.91	335.81	25.26	155.73	117.07	439.67	741.5	-0.969	0.333	
Emergency Room visits										
Baseline	284.18	948.88	118.16	307.63	438.05	1271.90	703.0	-1.124	0.261	
6 month Followup	193.24	550.77	70.89	245.40	306.63	713.04	698.5	-1.368	0.171	
Allergist										
Baseline	33.94	272.82	70.57	392.75	0.00	0.00	738.0	-1.478	0.139	
6 month Followup	27.16	164.04	42.34	220.66	13.08	83.76	757.0	-0.652	0.514	
Dermatologist										
Baseline	19.89	68.41	22.97	72.29	17.03	65.39	754.5	-0.488	0.626	
6 month Followup	28.73	102.46	41.35	137.27	17.03	52.45	767.0	-0.225	0.822	
Ears/Nose/Throat Specialist										
Baseline	15.98	71.85	0.00	0.00	30.79	97.98	703.0	-1.963	0.050	
6 month Followup	20.55	86.58	0.00	0.00	39.59	117.66	684.0	-2.209	0.027	
Gastroenterologist (stomach & bowel specialist)										
Baseline	14.55	78.36	0.00	0.00	28.04	107.64	722.0	-1.689	0.091	
6 month Followup	25.47	196.30	7.56	46.63	42.06	269.34	778.0	-0.036	0.971	
Gynaecologist / Obstetrician										
Baseline	11.54	102.54	23.98	147.84	0.00	0.00	758.5	-1.039	0.299	
6 month Followup	8.65	43.83	6.00	36.96	11.11	49.69	761.5	-0.519	0.604	
Hematologist or Oncologist										
Baseline	33.48	182.18	38.67	238.37	28.67	110.06	744.0	-0.904	0.366	
6 month Followup	7.44	46.46	0.00	0.00	14.34	64.09	741.0	-1.370	0.171	
Neurologist										
Baseline	74.37	310.13	0.00	0.00	143.30	421.23	646.0	-2.648	0.008	
6 month Followup	11.16	56.51	0.00	0.00	21.49	77.45	722.0	-1.689	0.091	
Ophthalmologist										
Baseline	13.96	54.04	11.61	49.90	16.14	58.14	763.0	-0.372	0.710	
6 month Followup	8.37	42.42	11.61	49.90	5.38	34.44	757.0	-0.652	0.514	
Pediatrician										
Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000	
6 month Followup	4.02	35.71	0.00	0.00	7.74	49.56	760.0	-0.963	0.336	
Psychiatrist										
Baseline	308.55	970.50	517.80	1350.88	114.61	261.67	707.0	-0.962	0.336	
6 month Followup	282.53	776.21	378.69	1037.55	193.40	402.73	704.5	-0.996	0.319	
Respirologist										
Baseline	7.28	45.47	7.57	46.66	7.02	44.92	777.5	-0.054	0.957	
6 month Followup	3.64	32.36	0.00	0.00	7.02	44.92	760.0	-0.963	0.336	
Rheumatologist										
Baseline	7.44	46.46	0.00	0.00	14.34	64.09	741.0	-1.370	0.171	
6 month Followup	7.44	46.46	7.73	47.67	7.17	45.90	777.5	-0.054	0.957	

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Surgeon										
	Baseline	21.45	93.48	0.00	0.00	41.33	127.28	684.0	-2.209	0.027
	6 month Followup	32.18	136.06	16.72	103.09	46.50	160.72	724.5	-1.267	0.205
Rehabilitation doctor										
	Baseline	7.46	46.59	0.00	0.00	14.37	64.27	741.0	-1.370	0.171
	6 month Followup	3.73	33.15	0.00	0.00	7.19	46.02	760.0	-0.963	0.336
Other Specialist										
	Baseline	49.24	205.67	51.92	125.48	46.76	260.60	695.5	-1.565	0.118
	6 month Followup	172.66	628.10	181.16	655.73	164.79	609.46	756.0	-0.409	0.682
Chiropractor										
	Baseline	83.62	408.57	143.69	556.92	27.94	178.90	716.0	-1.465	0.143
	6 month Followup	19.58	136.19	0.00	0.00	38.18	189.45	722.0	-1.387	0.165
Psychologist										
	Baseline	279.75	1168.68	0.00	0.00	539.04	1587.47	684.0	-2.209	0.027
	6 month Followup	193.68	902.35	0.00	0.00	373.18	1232.51	684.0	-2.209	0.027
Physiotherapist										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Occupational Therapist										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Nurse Practitioner										
	Baseline	68.35	336.74	29.61	149.53	104.27	444.62	743.0	-0.769	0.442
	6 month Followup	25.63	113.86	17.76	61.49	32.93	147.21	776.0	-0.064	0.949
Visiting Nurses										
	Baseline	68.56	302.63	38.87	176.66	96.07	384.85	761.5	-0.407	0.684
	6 month Followup	18.70	166.18	0.00	0.00	36.03	230.68	760.0	-0.963	0.336
Homemaker (home care)										
	Baseline	19.34	127.49	13.41	82.64	24.85	159.11	778.0	-0.036	0.971
	6 month Followup	9.67	85.97	0.00	0.00	18.64	119.33	760.0	-0.963	0.336
Family/School Counsellor										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Social Worker										
	Baseline	660.96	1912.38	687.05	2152.32	636.78	1686.78	739.5	-0.567	0.571
	6 month Followup	312.12	1265.12	343.53	1140.29	283.01	1384.37	753.0	-0.518	0.605
Children's Aid Worker										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Dentist										
	Baseline	676.56	1144.81	661.89	1191.70	690.15	1114.28	749.5	-0.354	0.723
	6 month Followup	835.75	1442.42	744.63	1354.60	920.20	1531.21	745.0	-0.402	0.688
Optometrist										
	Baseline	106.33	433.09	22.11	136.27	184.39	579.30	685.0	-1.873	0.061
	6 month Followup	85.06	255.03	66.32	229.55	102.44	278.29	745.5	-0.629	0.529
Meals on wheels										
	Baseline	23.61	209.81	0.00	0.00	45.48	291.23	760.0	-0.963	0.336
	6 month Followup	25.18	190.04	3.27	20.17	45.48	263.00	760.5	-0.548	0.584
Probationary Officer										
	Baseline	30.28	189.08	31.47	194.02	29.17	186.79	777.5	-0.054	0.957
	6 month Followup	484.47	4037.93	31.47	194.02	904.32	5602.15	761.0	-0.533	0.594
Police										
	Baseline	318.99	1434.20	94.74	584.00	526.83	1898.29	723.0	-1.302	0.193
	6 month Followup	273.42	1259.29	189.47	1167.99	351.22	1348.17	743.5	-0.917	0.359
Laboratory test										
	Baseline	1488.25	1132.56	1461.98	1154.55	1512.60	1125.61	737.5	-0.407	0.684
	6 month Followup	1835.27	1675.28	1585.00	1078.28	2067.24	2069.45	687.5	-0.899	0.369
Blood works cost (Blood count, Chemistry, HIV screening, CD4/CD8 T cell, Viral load, kidney Function test, liver function test etc)										
	Baseline	1215.75	986.48	1181.60	930.07	1247.41	1046.59	705.0	-0.730	0.465
	6 month Followup	1375.64	1297.60	1245.45	800.01	1496.30	1631.04	744.0	-0.346	0.729
Urine analysis										
	Baseline	30.37	112.92	41.36	160.33	20.18	29.42	746.5	-0.375	0.707

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	6 month Followup	69.63	418.32	28.30	52.76	107.94	579.25	764.0	-0.175	0.861
Stool test										
	Baseline	9.27	29.59	7.71	28.44	10.72	30.90	746.5	-0.610	0.542
	6 month Followup	8.34	31.00	7.71	37.27	8.93	24.26	727.5	-1.026	0.305
Throat swab										
	Baseline	8.06	22.20	6.10	18.01	9.89	25.58	745.0	-0.579	0.563
	6 month Followup	7.33	23.40	3.05	18.79	11.30	26.60	669.5	-2.054	0.040
Other swab/culture										
	Baseline	0.79	6.98	1.63	10.07	0.00	0.00	758.5	-1.039	0.299
	6 month Followup	0.79	6.98	1.63	10.07	0.00	0.00	758.5	-1.039	0.299
TB skin test										
	Baseline	20.74	53.94	10.78	37.31	29.97	64.84	687.0	-1.504	0.133
	6 month Followup	20.73	58.19	17.96	56.50	23.30	60.29	748.0	-0.527	0.598
Hepatitis test										
	Baseline	14.96	34.62	14.64	40.11	15.26	29.13	735.5	-0.627	0.530
	6 month Followup	14.08	28.12	16.47	29.95	11.87	26.48	727.5	-0.726	0.468
Pap Smear										
	Baseline	4.20	18.32	0.00	0.00	8.10	24.95	703.0	-1.964	0.050
	6 month Followup	3.15	15.97	2.19	13.47	4.05	18.11	761.5	-0.519	0.604
Sexually transmitted disease test										
	Baseline	15.08	38.40	15.67	42.95	14.52	34.19	770.0	-0.137	0.891
	6 month Followup	11.31	26.89	9.79	25.50	12.71	28.36	748.5	-0.481	0.630
Xray										
	Baseline	26.37	61.95	23.49	54.99	29.03	68.35	766.0	-0.198	0.843
	6 month Followup	67.81	194.74	35.24	111.75	97.99	245.88	634.0	-1.941	0.052
Breathing test										
	Baseline	4.14	18.06	4.31	18.52	3.99	17.85	776.0	-0.078	0.938
	6 month Followup	8.29	50.07	0.00	0.00	15.97	69.01	722.0	-1.689	0.091
ECG										
	Baseline	5.01	19.41	6.25	21.64	3.86	17.27	755.5	-0.547	0.585
	6 month Followup	5.01	19.41	6.25	21.64	3.86	17.27	755.5	-0.547	0.585
EEG										
	Baseline	2.85	25.31	5.92	36.49	0.00	0.00	758.5	-1.039	0.299
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
EMG										
	Baseline	7.61	67.61	0.00	0.00	14.66	93.85	760.0	-0.963	0.336
	6 month Followup	7.61	67.61	0.00	0.00	14.66	93.85	760.0	-0.963	0.336
Ultrasound										
	Baseline	47.08	140.50	71.18	178.53	24.74	89.15	710.0	-1.229	0.219
	6 month Followup	59.92	185.67	35.59	131.29	82.47	224.03	724.5	-0.970	0.332
Biopsy										
	Baseline	38.10	192.97	26.40	162.74	48.94	218.78	761.5	-0.519	0.604
	6 month Followup	76.19	312.00	105.60	389.55	48.94	218.78	754.5	-0.570	0.569
Scope with a tube										
	Baseline	22.85	99.56	23.75	102.10	22.01	98.40	776.0	-0.078	0.938
	6 month Followup	17.13	86.79	23.75	102.10	11.00	70.47	757.0	-0.652	0.514
Lumbar puncture										
	Baseline	2.91	25.90	0.00	0.00	5.61	35.94	760.0	-0.963	0.336
	6 month Followup	5.83	51.79	0.00	0.00	11.23	71.89	760.0	-0.963	0.336
Blood gases										
	Baseline	2.47	15.44	2.57	15.85	2.38	15.26	777.5	-0.054	0.957
	6 month Followup	4.95	26.63	7.71	35.05	2.38	15.26	756.5	-0.667	0.505
MRI										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	30.54	107.22	21.17	91.01	39.24	120.81	744.0	-0.748	0.454
other diagnostic tests										
	Baseline	9.65	46.62	18.62	65.91	1.33	8.53	714.5	-1.500	0.134
	6 month Followup	40.99	125.19	17.14	78.63	63.10	154.28	686.0	-1.516	0.129
Special treatment (Vitamin B12, chemotherapy, antibiotic etc)										
	Baseline	191.33	607.93	256.91	844.72	130.54	229.68	778.5	-0.005	0.996
	6 month Followup	15.60	73.34	2.96	11.43	27.31	100.37	686.0	-1.413	0.158
Medication										

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	Baseline	10060.39	9502.28	9227.28	9192.19	10832.55	9830.69	701.0	-0.766	0.443
	6 month Followup	11013.70	9009.74	10687.62	8700.99	11315.93	9384.47	764.0	-0.147	0.883
Prescription Drugs										
	Baseline	1323.85	2611.94	1780.11	3441.14	900.97	1403.18	756.5	-0.223	0.823
	6 month Followup	923.56	2166.11	785.88	1115.28	1051.18	2822.09	658.0	-1.215	0.225
Over-the-counter drugs										
	Baseline	26.00	104.57	24.16	67.00	27.71	131.01	727.0	-0.817	0.414
	6 month Followup	6.89	31.04	12.18	43.29	2.00	9.69	729.0	-0.937	0.349
Antiviral drugs										
	Baseline	8424.49	8670.37	7110.90	7623.07	9641.97	9469.98	677.5	-1.038	0.299
	6 month Followup	9631.62	8272.91	9343.44	8524.59	9898.73	8129.55	735.0	-0.442	0.659
Antidepressant drugs										
	Baseline	286.05	555.68	312.12	556.98	261.89	560.29	764.5	-0.165	0.869
	6 month Followup	451.62	793.71	546.13	894.56	364.03	686.93	643.0	-1.448	0.148
Specialty items Purchased/leased										
	Baseline	115.29	714.42	37.57	231.59	187.32	966.74	760.5	-0.548	0.584
	6 month Followup	182.28	923.31	63.16	389.33	292.68	1223.19	742.0	-0.956	0.339
Shelter cost										
	Baseline	1166.74	4058.51	1138.97	4279.81	1192.48	3895.52	714.0	-1.104	0.270
	6 month Followup	371.04	2360.64	105.46	458.30	617.18	3247.03	726.0	-1.055	0.291
Day Surgery										
	Baseline	36.00	101.04	24.95	86.36	46.24	113.08	726.5	-0.936	0.349
	6 month Followup	64.00	178.04	24.95	86.36	100.20	228.30	682.5	-1.575	0.115
Direct cost excluding hospice and hospital cost										
	Baseline	17138.36	11521.68	15512.86	10831.55	18644.92	12062.37	664.0	-1.128	0.259
	6 month Followup	17483.18	12436.52	15513.32	10109.62	19308.89	14140.67	672.0	-1.050	0.294
Hospice										
	Baseline	151.90	1350.11	0.00	0.00	292.68	1874.09	760.0	-0.963	0.336
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Hospital Stay cost										
	Baseline	3162.06	17102.62	644.49	3210.65	5495.43	23435.80	703.0	-1.291	0.197
	6 month Followup	1116.02	5872.51	1374.91	7949.11	876.08	2945.60	726.0	-1.055	0.291
Direct cost including hospital										
	Baseline	20452.32	23301.91	16157.35	12831.08	24433.03	29542.40	634.0	-1.423	0.155
	6 month Followup	18599.20	14459.20	16888.23	13998.22	20184.97	14868.45	674.0	-1.030	0.303
Out of pocket cost										
Total Out of pocket cost										
	Baseline	1118.05	3599.76	1414.54	4778.42	843.26	1996.74	766.0	-0.133	0.894
	6 month Followup	867.96	1697.48	1320.37	2298.31	448.66	598.43	700.0	-0.778	0.437
Use of complementary therapises										
	Baseline	4.82	42.82	10.02	61.74	0.00	0.00	758.5	-1.039	0.299
	6 month Followup	78.84	322.94	123.16	441.56	37.76	139.36	750.5	-0.567	0.571
Specialty items Purchased/leased by family, friends and patient										
	Baseline	162.84	896.55	133.26	570.26	190.24	1124.73	774.0	-0.107	0.915
	6 month Followup	142.50	851.00	189.47	1167.99	98.96	382.44	725.5	-1.244	0.214
Total Medications cost										
	Baseline	180.81	860.08	267.68	1124.48	100.30	508.97	777.5	-0.024	0.980
	6 month Followup	160.76	633.67	245.20	858.11	82.51	298.05	725.0	-0.627	0.531
Prescription Drugs										
	Baseline	15.20	92.40	26.87	131.58	4.38	19.62	772.0	-0.150	0.881
	6 month Followup	72.01	442.78	103.11	592.53	43.19	236.16	765.0	-0.325	0.745
Over-the-counter drugs										
	Baseline	60.25	370.76	24.84	95.55	93.07	507.25	774.0	-0.094	0.925
	6 month Followup	42.42	117.17	45.77	137.06	39.32	96.82	769.0	-0.119	0.905
Antiviral drugs										
	Baseline	79.97	710.77	166.25	1024.82	0.00	0.00	758.5	-1.039	0.299
	6 month Followup	45.59	405.24	94.78	584.29	0.00	0.00	758.5	-1.039	0.299
Antidepressant drugs										
	Baseline	25.40	201.65	49.72	290.15	2.85	18.24	757.0	-0.652	0.514
	6 month Followup	0.74	6.57	1.54	9.47	0.00	0.00	758.5	-1.039	0.299
Received Household help										

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	Baseline	117.69	1046.06	0.00	0.00	226.77	1452.04	760.0	-0.963	0.336
	6 month Followup	7.36	65.38	0.00	0.00	14.17	90.75	760.0	-0.963	0.336
Received Babysitting										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Wages lost from work due to treatment										
	Baseline	447.59	3005.38	821.05	4278.87	101.46	649.68	756.0	-0.681	0.496
	6 month Followup	185.62	1161.52	385.89	1662.75	0.00	0.00	738.0	-1.478	0.139
Family wages lost from work due to patient's treatment										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	77.01	684.50	160.11	986.96	0.00	0.00	758.5	-1.039	0.299
Travel to receive treatment for health-related problems										
	Baseline	200.31	398.66	176.11	347.18	222.15	443.20	743.0	-0.168	0.867
	6 month Followup	209.65	310.43	212.75	310.16	206.78	314.50	741.0	-0.380	0.704
Parking Fees to receive treatment										
	Baseline	6.53	37.60	11.05	51.92	2.34	14.99	756.0	-0.681	0.496
	6 month Followup	6.23	37.55	3.79	23.36	8.49	47.26	761.5	-0.519	0.604
Cash transfer Cost										
Total Cash transfer Cost										
	Baseline	10418.94	6332.35	10185.12	5839.02	10635.66	6823.13	736.0	-0.423	0.673
	6 month Followup	11545.87	5998.65	11224.05	5883.64	11844.15	6160.99	762.0	-0.167	0.868
a) Employment insurance										
	Baseline	177.22	1575.12	368.42	2271.10	0.00	0.00	758.5	-1.039	0.299
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
b) Workplace Safety and Insurance Information Board										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
c) Ontario Disability Support Program (ODSP)										
	Baseline	6113.55	6356.67	5747.33	5927.24	6452.97	6786.13	772.0	-0.071	0.943
	6 month Followup	6769.95	6687.62	5922.38	6763.19	7555.51	6602.06	685.0	-0.946	0.344
d) Disability Pension, Private										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	861.87	3166.20	1292.53	3991.12	462.73	2115.32	733.0	-0.983	0.326
e) Canada Pensions										
	Baseline	145.82	1296.10	303.16	1868.79	0.00	0.00	758.5	-1.039	0.299
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
f) Canada Pension, disability										
	Baseline	2142.57	3948.37	2165.73	4098.83	2121.10	3854.67	775.5	-0.046	0.963
	6 month Followup	2161.39	3836.50	2485.63	4043.69	1860.88	3658.41	726.0	-0.681	0.496
g) Old Age Security										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	23.85	211.97	0.00	0.00	45.95	294.23	760.0	-0.963	0.336
h) GAINS (Ontario Guaranteed Annual Income System)										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	2.94	26.10	0.00	0.00	5.66	36.23	760.0	-0.963	0.336
Veterans' Benefit										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
Survivor Benefits										
	Baseline	26.89	238.97	0.00	0.00	51.80	331.71	760.0	-0.963	0.336
	6 month Followup	26.13	232.22	0.00	0.00	50.34	322.34	760.0	-0.963	0.336
Family Benefits Allowance (e.g. CTB)										
	Baseline	72.15	641.26	0.00	0.00	139.02	890.13	760.0	-0.963	0.336
	6 month Followup	185.92	1190.46	0.00	0.00	358.24	1643.24	741.0	-1.370	0.171
Ontario Child Care Supplement for Working Families										
	Baseline	0.00	0.00	0.00	0.00	0.00	0.00	779.0	0.000	1.000
	6 month Followup	44.20	392.88	0.00	0.00	85.17	545.36	760.0	-0.963	0.336
Welfare (social Assistance, Ontario Works) - Full benefits										
	Baseline	341.70	1511.46	77.21	475.96	586.83	2029.10	722.5	-1.314	0.189
	6 month Followup	306.96	1364.84	528.42	1836.14	101.71	651.24	735.0	-1.136	0.256

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Welfare (social Assistance, Ontario Works) - Partial benefits										
Baseline	82.78	537.97	110.53	681.33	57.07	365.45	777.0	-0.072	0.943	
6 month Followup	206.61	917.08	61.32	265.50	341.27	1239.43	760.0	-0.442	0.659	
Other income										
Baseline	305.92	1651.72	204.21	1025.29	400.20	2080.54	776.5	-0.053	0.957	
6 month Followup	468.06	1502.91	344.89	955.78	585.06	1887.87	744.0	-0.199	0.843	
Private Insurance										
Baseline	1010.35	3551.20	1208.53	4222.00	826.67	2833.93	770.5	-0.169	0.866	
6 month Followup	348.56	2166.18	393.05	2387.87	307.32	1967.79	757.0	-0.652	0.514	

26/07/2005



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