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QUALITY OF CARE PROVIDED TO HIV-INFECTED CLIENTS
BY NURSE PRACTITIONERS AT A SPECIALIZED NURSING CENTER

Deborah A. Griggs BSN, RN, ACRN



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**Quality of Care Provided To HIV-Infected Clients
by Nurse Practitioners at a Specialized Nursing Center**

By

Deborah A. Griggs BSN, RN, ACRN

**A Thesis Submitted to the Faculty
of the College of Graduate Studies**

At Georgia Southern University

in Partial Fulfillment of the

Requirements of the Degree

Master of Science in Nursing

Statesboro, Georgia

1998

Quality of Care Provided To HIV-Infected Clients
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By

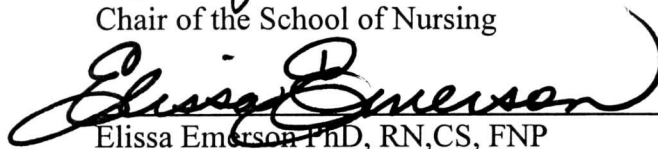
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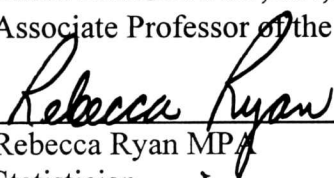
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ABSTRACT

This study evaluates the quality of care provided by nurse practitioners HIV-infected clients in a specialized nursing center in Georgia. Quality of care is evaluated using Donabedians' Structure-Process-Outcome domains as presented in the Unifying Model of Quality Health Care. Structure is evaluated as the nurse practitioners in this clinic providing health care. The interpersonal aspect of the process of quality health care is measured by the researcher developed Outpatient Client Satisfaction Survey. The technical aspect of the process of quality health care is measured by the researcher developed Provider Adherence Measurement Tool which measures adherence to current clinical practice guidelines. Reliability and validity information is provided on both tools. The outcome of the health care provided is measured by the rate of pneumocystis carinii pneumonia (PCP).

A literature review is included which describes related studies. The data analysis includes a description of the demographics of the clients in this clinic, and compares the data to national statistics. The adherence of the nurse practitioners care to the current clinical practice guidelines is analyzed against the client characteristics of age, CD4 cell count, education completed, gender, race, income, risk factor and insurance coverage. A favorable statistically significant difference is found: as the clients CD4 cell count decreases, the providers' adherence increases.

The outcome of care is determined by active cases of PCP, of which there are none in this sample. Client satisfaction is measured against the client characteristics of age, CD4 cell count, education completed, gender, income, wait time, race, risk factor, and insurance coverage. A statistically significant difference is found in the satisfaction of the nonwhite clients.

The study is summarized with the conclusion that the nurse practitioners in this clinic are providing quality health care to these HIV-infected clients. The limitations of the study are described as well as recommendations for future research. A reference list and the actual data collection tools are also included.

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CHAPTER 1

Quality of Care Provided To HIV-Infected Clients

by Nurse Practitioners at a Specialized Nursing Center

This is a time of dramatic change in the health care industry. Expenses continue to rise while the funds available to provide health care decline. Managed care organizations, government agencies, health care providers and consumers are all looking for ways to provide quality health care at reduced cost. “There is increasing recognition that non-traditional models of health care delivery must be considered and evaluated” (Barger and Rosenfeld, 1993, p. 426).

One way of meeting the health care needs of under-served populations has been to use advanced practice registered nurses, and more specifically, nurse practitioners as primary health care providers. The American Nurses Association (ANA) describe advance practice registered nurses (APNs) as nurses in advanced clinical practice that “provide comprehensive health assessments and demonstrate a high level of autonomy and expert skill in the diagnosis and treatment of the complex human responses of individuals, families, or communities to actual or potential health problems. They formulate clinical decisions to manage acute and chronic illness and promote wellness. They provide and deliver health care that is accessible to clients in various settings and through the life cycle” (1996, p. 1).

The ANA define the standards of care and standards of professional performance for all APNs. The standards of care include “a competent level of advanced practice registered nursing care as demonstrated by the nursing process, involving assessment, diagnosis, outcomes identification, planning, implementation, and evaluation” (1996, p. 9-10). The ANA standards of professional performance “describe a competent level of behavior in the professional role, including activities related to quality of care, self-evaluation, education, leadership, ethics, interdisciplinary process, and research” (1996, p. 10).

The ANA defines a nurse practitioner as “a skilled health care provider who utilizes critical judgement in the performance of comprehensive health assessments, differential diagnoses, and the prescribing of pharmacologic and non-pharmacologic treatments in the direct management of acute and chronic illness and disease” (1996, p.4). Nurse practitioners work in a variety of settings and often provide affordable, high quality health care to under served populations. Appleby states “...more and more non-physicians are delivering primary care because it’s cheaper and, in some ways, superior to the care provided by physicians” (1995, p. 28).

The National Institute of Health, National Institute of Nursing Research has determined the National Nursing Research Agenda goals to include as a priority to “develop and test community-based nursing models designed to promote access to, utilization of, and quality of health services by rural and other under served populations” (1992, p. 2). The second research priority identified by the National Institute of Nursing Research (1992, p. 2) is in the area of effectiveness of nursing interventions in

HIV/AIDS. The number of people infected with HIV continues to rise along with the cost of new therapies and the life expectancy of those infected. Finding ways of meeting the needs of this population in a cost effective and high quality manner is a national priority.

Purpose

This study examined the quality of care given to HIV-infected clients by nurse practitioners working in a specialized nursing center. Quality care was evaluated through a client satisfaction survey, measurements of staff adherence to clinical practice guidelines, and incidence of active cases of *Pneumocystis carinii* pneumonia (PCP) in enrolled clients with CD4 cell counts less than 200 cells per micro liter (cells/ul).

Theoretical Framework

The theoretical framework used in this study was first presented by Avedis Donabedian in 1968 in an article entitled “Promoting Quality through Evaluating the Process of Patient Care” (Donabedian, 1980, p. 133). Donabedian’s original model has been revised and printed in a series of books published in 1980-1985 entitled Explorations in quality assessment and monitoring. Donabedian (1980) proposed that quality could be defined by addressing the areas of structure, process, and outcome (p. 133-138). This is schematically diagramed as

Structure -> Process -> Outcome.

Donabedian defines outcome as “those changes, either favorable or adverse, in the actual or potential health status of persons, groups, or communities that can be attributed to prior or concurrent care” (1985, p. 256). Outcomes alone cannot determine if quality care is being offered because of the many other variables that can come into

play in any persons life and health. For this reason, Donabedian states that another way of using outcomes so as to be more certain of what they have to say about the quality of care, is by examining the process of antecedent care whenever the outcomes are undesirable or fall short of professional expectations (1985, p. 257).

Donabedian further describes quality of care in the Unifying Model which takes into account the risks, benefits, and costs of providing quality health care. Donabedian (1980) offers three other definitions of quality of care; the absolutist, the individualized and the social (p. 16). This study will focus on the individualized definition which includes the patient's wishes, expectations, values, and means (Donabedian, 1980, p. 14). This will be further elaborated on in the discussion of the definition of terms.

Assumptions

The assumptions of this study are based on clinical experience, expert authority, and research findings and are presented as follows;

1. Adherence to clinical practice guidelines results in improved quality of care.
2. Progress notes and problem lists on the client's record accurately reflect the care that the client has received.
3. Clients will be willing to answer the Client Satisfaction Survey completely and truthfully.

Limitations

An unforeseen limitation of this study was in finding another site to collect data. The original plan of this study was to collect data at two different sites and compare the results of the data collected at each site. This did not prove to be possible as permission

to collect data at a second site could not be obtained. The other limitations of this study, based on availability of subjects, geographic area, time and money are listed below;

1. This study will be conducted at one nursing center which specializes in care to those infected with HIV and may not be generalizable to all nursing centers.
2. Clinical practice guidelines change frequently and this study will only reflect adherence to current guidelines available at the time of the study.
3. Not all of the clinical practice guidelines suggested by The Agency for Health Care Policy and Research (AHCPR), or the International AIDS Society-USA Panel Consensus Statement on Antiretroviral Therapy will be assessed.
4. Only a small sample population could be drawn from the clinic and therefore the study sample size is small.

Research Question

The study is based on the following research question: Do nurse practitioners providing care to HIV-infected clients in a specialized nursing center provide quality care as measured by:

1. Client satisfaction
2. Adherence to Clinical Practice Guidelines
3. Incidence of active cases of PCP.

These factors will be measured through the use of the Outpatient Client Satisfaction Survey (Appendix A), Provider Adherence Measurement Tool (Appendix B) , and an outcome measurement of the incidence of active cases of PCP in enrolled clients with CD4 cell counts less than 200 cells/ul. These measurements will be further explained in Chapter Three.

Definition of Terms

Quality care

Quality care will be measured in each domain of Structure, Process, and Outcome.

Structure: Health care provider in a specialized nursing center.

Process: Interpersonal: Client satisfaction.

Technical: Provider adherence to clinical practice guidelines.

Outcome: Incidence of active cases of PCP.

Structure

Theoretical definition. Structure is defined as “the relatively stable characteristics of the providers of care, the tools and resources they have at their disposal, and of the physical and organizational settings in which they work. The concept of structure includes the human, physical, and financial resources that are needed to provide medical care” (Donabedian, 1980, p. 81).

Operational definition. The operational definition of structure in this study will be: nursing center and specialized nursing center. The definitions for each of these centers are described in the following pages.

Nursing center

Theoretical definition. A nursing center is defined by the American Nurses Association (as cited in Kerekes, Jenkins, and Torrasi, 1996) as “organizations that give the client direct access to professional nursing services. Using nursing models of health, professional nurses in these centers diagnose and treat human responses to actual and potential health problems and promote health and optimal functioning among target populations and communities. The services provided at these centers are holistic and client centered and are reimbursed at a reasonable fee level. Accountability and responsibility for client care and professional practice remain with the professional nurse” (p. 44).

Specialized nursing center

Theoretical definition. A definition of a specialized nursing center could not be found in the literature. A specialized nursing center, for this study, will be defined as a community-based center which meets all the characteristics of a nursing center and provides care to a select population with a specific health problem.

Operational definition. A specialized nursing center will be operationally defined as a community-based nursing center, located in Georgia, which provides nursing delivered health care to 200 HIV-infected adults 21-73 years of age.

Client Satisfaction

Donabedian (1980) makes a clear distinction between the interpersonal aspects of process and the technical aspects of process. Both will be evaluated in this study.

Process, Interpersonal

Theoretical definition. Quality of the interpersonal management of the process of care “must meet socially defined values and norms that govern the interaction of individuals in general and in particular situations. The degree of quality in the management of the interpersonal relationship is measured by the extent of conformity to these values, norms, expectations and aspirations” (Donabedian, 1980, p. 5). The author goes on to state that “clients also contribute very heavily to the definition of quality with their values and expectations regarding the management of the interpersonal process. In this domain clients, individually and collectively, are the primary definers of what quality means” (Donabedian, 1980, p. 25). Client satisfaction can be a measurement of process or outcome domains. This study will evaluate client satisfaction in the process domain by asking questions that relate directly to that domain.

Operational definition. The quality of interpersonal process is operationally defined as the clients’ perception of the quality of care as measured by responses to the Outpatient Client Satisfaction Survey (Appendix A).

Provider Adherence

Process, Technical

Theoretical definition. Quality of the technical management of the process of care is defined as “the application of medical science and technology in a manner that maximizes its benefits to health without correspondingly increasing its risks”

(Donabedian, 1980, p. 5). The author also states that this definition is “revealed in the work of the leading exponents of that science and technology; through their published research, their teachings, and their own practice” (Donabedian, 1980, p. 80).

Operational definition. The quality of technical care is operationally defined as adherence of the health care providers to selected clinical practice guidelines. The selected clinical practice guidelines used in this study include the latest guidelines on antiretroviral therapy from the International AIDS Society-USA Panel published in JAMA 1997 (Carpenter et al., p. 1962-1969). The guidelines for the general care of HIV-infected clients used in this study were written by the AHCPR and published in

Evaluation and management of early HIV infection. Clinical practice guideline no. 7.

(El-Sadr et al, 1994). Quality of technical care will be measured from documented treatment plans and actions in the clients’ medical records using the Provider Adherence Measurement Tool (Appendix B).

Clinical practice guidelines

Theoretical definition. Clinical practice guidelines are defined by the Agency for Health Care Policy and Research as “systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical conditions” (El-Sadr et al., 1994, p. ii). The guideline developed for management of early HIV infection states that “This guideline was developed by a multi disciplinary panel of private-sector clinicians and other experts convened by the Agency for Health Care Policy and Research. The panel employed an explicit, science-based methodology and expert clinical judgment to develop specific statements on patient assessment and management for the clinical condition selected” (El-Sadr et al., 1994, p. ii).

Operational definition. The operational definition of clinical practice guidelines will be taken from the clinical practice guideline published by the Agency for Health Care Policy and Research in the Evaluation and management of early HIV infection. Clinical practice guideline no. 7. (El-Sadr et al., 1994). Not all areas of recommendation have been included in this study, the following areas will be assessed; immune system function measurements, antiretroviral therapy, PCP prophylaxis, *M. tuberculosis* (TB) screening, and syphilis screening (see Appendix C for complete details).

Other recommendations related to the use of antiretroviral therapy were taken from the Consensus Statement of the International AIDS Society-USA Panel as published in JAMA (Carpenter et al., 1997, p. 1962-1969), (see Appendix C for complete details).

Outcome of Care

Theoretical definition. The concept of outcome is defined as “a change in a patient’s current and future health status that can be attributed to antecedent health care” (Donabedian, 1980, p. 83). This includes improvements in social and psychological function as well as physical and physiological aspects of performance, patient attitudes, health related knowledge acquired by the patient and health related behavioral changes (Donabedian, 1980, p. 83).

Operational definition. The operational definition of the outcome of care will be a measurement of documented cases of PCP in enrolled clients with CD4 cell counts less than 200 cells/ul in the study population of each clinic during the 12 month period preceding the study.

Other Relevant Definitions

HIV- infected client

Operational definition. An HIV-infected client is an adult, at least 18 years of age, who has documented evidence of a positive Western Blot antibody test on the client record.

Active PCP

Operational definition. An active case of PCP will be diagnosed by sputum or bronchial tissues which contain *P. carinii*, or chest x-ray showing diffuse, bilateral infiltrates and hypoxemia as measured by PaO₂ below 75 mmHg or oxygen saturation below 94%. Some individuals may have normal chest x-rays, lobar or sublobar consolidative patterns, pleural effusions or pneumothorax. The classic presentation may

also include the triad of nonproductive cough, fever and dyspnea, but this may not appear in all patients. The serum lactate dehydrogenase (LDH) may also be elevated. This diagnosis may be based on clinical judgment and response to therapy.

Summary

In an effort to control the rising costs of health care many people are concerned that quality of care may be jeopardized. One way to control the cost of providing care to people who are HIV-infected is by using nurses and nurse practitioners as primary health care providers in community-based nursing centers. This alternative to more traditional models of health care delivery must demonstrate that the care being provided is actually quality health care. M. Roy Schwarz, MD, the AMA's group vice president for medical education, science and patient care standards states "The big battle is over whether or not quality is compromised when you use a lesser trained person" (Appleby, 1995, p. 32). The results of this study will aid in determining if nurses and nurse practitioners are appropriate primary health care providers for people infected with HIV and if nurses and nurse practitioners are capable of providing quality care to this under served population.

CHAPTER 2

Literature Review

An extensive search for literature related to quality of care was conducted in numerous libraries and also via the Internet. Only one article was found which addressed the quality of care provided to HIV-infected clients by nurses. Other areas of related research were examined including; client satisfaction surveys, measuring outcomes in nursing centers, patient satisfaction with nurse practitioner care in primary care, and HIV-infected clients perceived unmet needs. One study in each area is presented in the following review of the literature.

Care of HIV Infected Client by Nurses

At the time of this review only one related study was found. Aiken et al. (1993) conducted an exploratory study which examined whether outcomes of care for HIV-infected patients were related to their primary health care provider being a nurse practitioner (NP) or physician (MD). The researchers measured functional status, symptom occurrence, self management, health service use, and patients' assessment of their care in 87 HIV-infected clients in a teaching hospital outpatient clinic. A convenience sample of patients who attended clinic over the period of data collection was used. The sample included patients seen in the clinic at least once in the year prior to the current index visit. There were 57 clients in the MD group and 30 in the NP

group. The two groups were equal in terms of race, education, income and type of health insurance. The NP group had significantly more women, ($p < .05$). The NP patients also reported their health status as fair or poor (odds-ratio = 3.06, $p = .03$) more frequently than the MD group.

Functional status was measured by using the Medical Outcomes Study Short-form General Health Questionnaire. This questionnaire measures physical functioning, role functioning, social functioning, mental health and pain. The authors report “The scale has demonstrated reliability in samples of patients with different chronic conditions” and “considerable support for the validity of the questionnaire has been reported” (Aiken et al., 1993 p. 175). Aiken et al. (1993) report no significant difference in the functional status of each group. The mean score for each group was reported in each area of assessment but not statistically analyzed.

In this same study symptom occurrence and self-care management was measured by an investigator-developed instrument. No reliability or validity information was reported for this tool. The average number of symptoms experienced in a four-week period was reported as 3.9 in the MD group and 5.1 for the NP group. This was found to be statistically significant using a one-way ANOVA ($p = .03$). More symptoms were reported by females in both groups. Using Poisson analysis, the number of symptoms were regressed against dummy variables for provider type and sex. The NP patients still reported more symptoms ($B = .24$, $p = .04$). The authors report that both groups were equal in engaging in self-care but no statistics were given.

Health service use information was obtained from patients, however a collection tool or method was not reported. The health services were specified as visits to the hospital emergency room, hospital admissions, length of stay, and consultations with a mental health care provider. The authors report that no statistical differences were found in the two groups, however no figures are given.

The clients' assessment of care was measured using a questionnaire which was adapted for this study. No reliability or validity information was given. The data were analyzed using grouped logit analysis, the authors regressed the number of items on which problems were indicated on a dummy variable. This revealed that NP patients reported 45% fewer problems with their care than the MD group ($B = -.60, p = .003$). The authors conclude that the study findings are consistent with previous research and demonstrate that NPs provide care of comparable quality to that of MDs.

Client Satisfaction Surveys

The results of a client satisfaction survey performed at a nursing clinic are reported by Katzman, Holman, and Ashley in 1993. A random sample of clients was obtained by surveying every third client who attended clinic over a two month period. The survey was developed by the authors; and no reliability or validity measurements were reported for this tool. The survey consisted of an 18-item Likert-type questionnaire that assessed client attitudes toward the staff, accessibility to the clinic, and quality of care. The survey also included questions about reasons for choosing the clinic,

respondent's plans to return, demographic data, and if they would recommend the clinic to others. A total of 102 questionnaires were completed, but not all questions were answered on each survey.

The data were then analyzed by frequency counts and resulting percentages. A content analysis was completed on the open-ended questions. The results indicate a high degree of satisfaction with the clinic. There was a 99% agreement of respondents for the question "the staff respected me as an individual". The lowest score, with 66% in agreement, was on the question "nurse showed me how to do things at home". Responses evaluating plans to return to the clinic and "would you recommend the clinic" were 100% in agreement. The authors report a content analysis of the open-ended questions revealing additional positive attitudes toward the clinic, but the specific responses were not published.

Measuring Outcomes In Nursing Centers

A study was done at a university-sponsored nursing center and reported by Matas, Brown and Holman in 1996. This study measured quantitative and qualitative outcomes in children with otitis media that were treated by nurse practitioners at the nursing center. The theoretical framework for the survey was stated by the authors as being based on the outcome analysis work by Jones in 1993.

The researchers contacted 27 clients by telephone who were diagnosed with otitis media, were under 12 years of age and agreed to participate in research. The clients were asked to respond to a seven-item questionnaire that the researchers developed for use in

this study. No reliability or validity results were offered. The questions included information about the history of the child being treated by an NP, medications, outcome of the disease process, follow-up visits, teaching, and provider preference.

The results of the survey indicated that 56% of participants reported that their only exposure to NP care was at this center. All children were prescribed medications and 93% completed the medications. Of the children treated, 81% did not have a re-occurrence of otitis media. Only 37% of the children returned for follow-up visits, of these children 50% had recurrent disease. Health teaching was reported by 74% of respondents and 50% of these people had made behavior changes. A chart review was done and it was determined that all clients had received some type of health teaching. All respondents commented favorably about the services received and 82% saw NP care as preferable or equivalent to physician care for this problem. Of those questioned, 30% stated that they preferred an NP as a primary health care provider. Other comments by the participants “described NPs as more thorough in their examinations by taking more time and speaking to their client’s level of understanding. Also, the parents stated that NPs were easy to talk to, were as knowledgeable as physicians within their scope of practice, volunteered more information, were very professional, and offered affordable health care” (Matas, Brown and Holman, 1996).

Satisfaction with Nurse Practitioner Care

A quantitative, descriptive study was published by Larrabee, Ferri and Hartig in 1997 which described patient satisfaction with four NPs in an outpatient setting. The study was conducted in four primary care clinics at a government hospital. The sample

size was 43 patients with at least 10 patients sampled per NP. All subjects were 18 years of age or older, could speak, comprehend and read English and had received care from the same NP on at least two previous visits.

The researchers used a revised version of the Di Tomasso-Willard Patient Satisfaction Questionnaire (DTWPSQ) which was developed to assess patient satisfaction with family practice residents. This is a 46-item questionnaire which uses a 4-point Likert response scale. Reliability and validity information was given. The participants were given the questionnaire to fill out while waiting to see the NP.

Analysis of the data was done using SPSS and an ANOVA “was performed to determine any differences among DWPSQ items, aggregate scale, and subscale scores of the four groups. In this ANOVA, an alpha level of significance of less than .1 was used to minimize the risk of a type II error because of the small sample size in each group” (1997, p. 11).

The results of the research showed a high level of satisfaction with NP care. There were no differences among the four groups’ satisfaction scores on 74% of the items and two of the five subscales. There was a difference found on 12 items and three subscales. This study evaluated the satisfaction of the clients with the care they received from a specific NP and may not be generalizable.

Unmet Health Care Needs of HIV-Infected

Related research was published in 1996 by Bonuck et al in the Journal of Community Health. This group of investigators extensively studied 2,000 participants over an 18-month period with six interviews each. This study was done by Westat, Inc. under contract to the federal Agency for Health Care Policy and Research. Only adults 18 years of age and older were included in the study. The majority were sampled in hospital outpatient clinics, some private physicians offices were also included.

The subjects were asked about barriers and access to care in emergency room, overnight hospital care, home care, mental health, residential, medication, dental and substance abuse treatment. Five independent variables were identified as illness stage, financial resources, source of care, living arrangement, and AIDS prevalence.

Relationships between the independent variables and unmet needs were analyzed by the chi-square test for association. Ordinal level data were analyzed using the Mantel-Haenszel trend test. "Logistic regression analysis examined multivariate relationships between selected independent variables, and unmet need indicated. These analysis tested for significant associations between each of the independent variables' reference categories, and the (dependent variable) outcome" (Bonuck, 1996, p. 189). The odds ratio was calculated for each independent variable. A non-probabilistic sampling method was used.

The results of the study showed 19% of the sample indicated at least one unmet need. Institutionally-based services and those requiring intensive physical care were more adequately provided. Dental services were the most commonly reported unmet

need followed by mental health services and medications. Illness stage was significantly associated with unmet needs, 20% of persons with AIDS or symptomatic HIV reported an unmet need. Only 13% of asymptomatic persons reported an unmet need. Insurance status was also related to unmet needs. Twenty-one percent who were uninsured and 23% who had Medicaid or Medicare had an unmet need. Only 14% of persons who were privately insured reported an unmet need. The availability and type of routine health care provider was not significantly related to an unmet need, however, persons without a usual source of care were more likely to report an unmet need. “Twenty-two percent of persons living alone had an unmet need, compared to 18% of those living with others, an association that was nearly statistically significant” (1996, p. 193). “Twenty-four percent of those in low AIDS prevalence cities reported an unmet need, compared with 18% in high AIDS prevalence cities. There were no statistically significant differences in the report of unmet need by race/ethnicity or HIV transmission route/sex” (1996, p. 193).

The results of the multivariate analysis showed that having private insurance decreased the odds of having an unmet need by about half. Having Medicaid or Medicare was nearly identical to being uninsured or having other public insurance. Being asymptomatic lowered the odds of having an unmet need by 45% compared with having AIDS. The researchers report that since non-institutional services are more likely to be unmet needs there needs to be a focus of attention and resources on making

community-based care more accessible. “The acute-care orientation of the health care system, which pre-dates the AIDS epidemic, continues to have negative effects on HIV-infected individuals” (1996, p. 195). There are also specific health risks associated with each type of unmet need.

Summary

The literature review presented in this study shows a lack of research in the area of the quality of care provided to HIV-infected clients by nurses or nurse practitioners, as only one article could be found. There is also a lack of literature on the HIV-infected clients perception of unmet health care needs.

There are ample studies discussing the development, testing, and use of client satisfaction surveys. Measuring outcomes in nursing centers, and the outcome and client satisfaction of nurse practitioner provided care has received more attention in the last few years. This study provides information on the demographics of this specific clinic population, the clients satisfaction with nurse practitioner care, the outcome of nurse practitioner care, and the adherence of these nurse practitioners to practice under the direction of clinical practice guidelines .

CHAPTER 3

Methodology

Because there was only one study found in the literature which directly relates to the quality of the care provided to HIV-infected outpatient clients by nurses or nurse practitioners, there is support for the need of this study . This is a descriptive study of the quality of the care provided to HIV-infected adults by nurse practitioners in a specialized nursing center in Georgia. The study design and methodology are as follows.

Study Design and Setting

This descriptive, non-experimental study was conducted in a specialized nursing center that provides primary care services to adults infected with HIV. It is staffed by three nurse practitioners, two registered nurses, and two licensed practical nurses. Other staff include an epidemiologist, five case managers, a dietitian, and a lawyer. Physician consultation is provided by the Deputy Health Director, two family practice physicians, an infectious disease physician, a pulmonary physician, three dentists and a retinologist. Each client is assigned a primary nurse, either an RN or NP, who is responsible for all the clients' health care needs including assessment, diagnosis, treatment and referral. The clinic is funded by federal Ryan White Title II and Title III Grants. The services are also paid for out of pocket by the clients, by Medicaid, Medicare, and by private insurance.

Methodology

This study employed three separate tools to analyze the quality of care provided in this clinic. A retrospective review of the clients' chart was used to determine the level of the providers' adherence to clinical practice guidelines as measured by the Provider Adherence Measurement Tool (Appendix B). A retrospective review of the clients' chart was also used to examine the incidence of active cases of PCP. The Outpatient Client Satisfaction Survey (Appendix A) was developed and used to measure client satisfaction with health care providers and client satisfaction of the health care they received. The results of each of these measurements of quality care were used to describe the quality of care provided by these nurse practitioners in this specialized nursing center. All client comments were reviewed and reported in a summarized format.

Target Population and Sample

The target population for this study was HIV-infected adult clients in Georgia who receive care at the specialized nursing center.

Inclusion criteria

In order to be included in this study the client must:

1. Be 18 years of age or older.
2. Have documented evidence of a positive Western Blot antibody test on the client record.
3. Have been seen by a health care provider and received health care services at the clinic during the 12 month period preceding this study.

4. Be literate in speaking, reading and writing English.
5. Agree to participate in this study as evidenced by completing the Outpatient Client Satisfaction Survey.

Exclusion criteria

Clients were not be included in this study if:

1. Client was diagnosed with PCP on their first visit to the clinic.
2. Client was diagnosed and treated for PCP by another health care provider, and then referred to the clinic with an active or convalescing case of PCP.
3. Client needed assistance in reading, writing or speaking English.

Population

There are approximately 200 adult clients who receive care at this clinic. Of these clients, 152 were determined by the researcher ,using the inclusion criteria tool (see Appendix F), to be eligible participants in this study. Of the 152 in the sample group, 53 clients presented to the clinic for health care services during the study period. Six of the 53 clients who were included in the sample group and presented to the clinic for health care services during the study period reported that they did not want to participate in the study. The number of clients who were selected for the sample group, presented to the clinic for health care services during the study period and agreed to participate in the study was 47.

Sample Size

The sample size was limited based on the availability of participants in the clinic. All available participants who met the inclusion criteria, were seen in the clinic during the data collection period of March and April 1998, and agreed to participate in the study were sampled. The number of participants in this study was 47.

Demographic Data

Demographic data were utilized to describe the sample group. This information was collected from the clients charts and from client responses on the Outpatient Client Satisfaction Survey and documented on the Demographic Report Form (Appendix D).

The demographic data collected included:

- Age
- Most recent CD4 cell count
- Gender
- Race
- Type of insurance coverage
- Risk factor
- Years of education completed
- Income level

Sampling Method

The sample was determined by convenience sampling. All clients in the clinic were evaluated for inclusion in this study. A computer generated list of active clinic clients was used to determine which charts would be analyzed by the researcher using the Sample Inclusion Criteria Tool (Appendix E). All clients who met the inclusion criteria were recorded on a list of potential participants by unique record number (URN). The URN is a computer generated marker consisting of the first two initials of the first name,

the last two initials of the last name, and date of birth. All appropriate clients who were seen in the clinic during the data collection period of March and April, 1998 were used as subjects because of the limited number of available candidates.

Protection of Human Subjects

Approval to conduct this study was obtained by the Institutional Review Board (IRB) of the university where the researcher is currently enrolled. Permission was also obtained from the clinic director and the District Health Director for the health district where the clinic is located. Eligible study participants were given written information about the study with the Outpatient Client Satisfaction Survey (see Appendix F). It was explained that filling out the Outpatient Client Satisfaction Survey, identified only by URN, was consent to participate in the study. There was a space included on the Outpatient Client Satisfaction Survey to mark if the client did not want to participate in this study. It was also explained that the clients' care would in no way be effected by choosing not to participate in the study. The URN list and the list of potential candidates was kept in the clinic in a space provided by the clinic director. These lists were destroyed at the conclusion of data collection.

Instruments

No compatible patient satisfaction survey was identified. The Outpatient Client Satisfaction Survey (Appendix A) was developed for use in this study by the researcher. This survey was developed from published surveys and was written to address this specific population of clients.

Content validity was determined by a panel of five expert patients from the community. These clients were all known to be HIV-infected for at least five years, were actively involved with health care services to treat their disease and were not included in the sample group. The clients represented a cross-section of demographics. The panel included a homosexual not IVDU white male, a homosexual IVDU white male, a heterosexual IVDU black female, a heterosexual not IVDU black female, and a heterosexual not IVDU white female. The tool was evaluated on the clarity of the instructions, questions and answers; and the understandability of the instructions, questions and answers. The tool was also assessed for any vagueness, omissions, or any part of the tool that should not be included. The panel concluded that this tool is valid with 100% agreement. Their comments were taken into consideration and the order of questions were changed, no other changes were deemed necessary by the panel.

The Provider Adherence Measurement Tool (Appendix B) was also developed by the researcher for use in this study. It was developed from clinical practice guidelines published by the AHCPR (El-Sadr et al., 1994). Content validity was determined from a review of the tool by a panel of experts including; two family nurse practitioners, an infectious disease physician, and a public health physician. The tool was assessed for clarity, correctness, vagueness, omissions, and understandability. This tool was determined valid by 100% of the panel. It was suggested to also include the 1997 treatment guidelines published as the Consensus Statement on Antiretroviral Therapy for HIV Infection by the International AIDS Society USA Panel (Carpenter, C. et.al., 1997). The new guidelines were reviewed, and selected guidelines were also included in the

tool. The reliability was determined by administering the tool to 5 randomly selected HIV-infected clients' records by two family nurse practitioners familiar with the care of HIV-infected individuals. Interrator reliability was determined to be 90%.

Data Collection

After clients were selected for inclusion in the study by the researcher, the Outpatient Client Satisfaction Survey was placed in the client record to be completed independently by the client at their next clinic visit. Included with the survey was information about the study and a statement that completing the survey was consent to participate in the study (see Appendix F). The surveys were identified by URN only. The clients were asked to place the completed surveys in a collection box which the researcher placed in the lobby of the clinic. After the surveys were completed and turned in they were matched by URN to the data collected from the chart review.

The data to evaluate provider adherence to clinical practice guidelines and incidence of PCP were derived from a retrospective review of the clients charts. The clients charts including problem lists, laboratory and test reports, and progress notes were reviewed by the researcher and a graduate nursing student research assistant using the Provider Adherence Measurement Tool (Appendix B). Each selected client record was reviewed and the information was recorded on the Provider Adherence Measurement Tool.

CHAPTER 4

Analysis of Data

Population Characteristics

A total of 152 clients in the clinic met the inclusion criteria. Of the clients that were seen in the clinic during the sampling period, and were selected as part of the sample, six reported that they did not want to participate. Forty-seven clients were seen in the clinic during the sampling period, were included in the sample group, and agreed to participate in the study. The response rate of the clients who were seen in the clinic during the sampling period and were included in the study was 89%.

On the days of data collection most of the clients (94%, $n=43$) came to the clinic for a scheduled appointment for a physical exam, and not because they were ill. The majority of the clients, 68% ($n=32$), reported that they were on time for their appointments. Fifteen percent were early ($n=7$), 11% were late ($n=5$), and 6% walked in without an appointment ($n=3$). The average waiting time of the clients to see the health care providers was less than 10 minutes.

Three types of health care providers in this clinic were studied; physicians, nurse practitioners and nurses. Sixty-six percent of the clients were seen by a nurse practitioner ($n=31$). The other clients were seen by a registered nurse (21%, $n=10$), or a physician (13%, $n=6$).

Demographic Data

Demographic data were analyzed to describe the sample population in this clinic. The descriptive variables include race, gender, age, insurance coverage, risk factor, most recent CD4 cell count, education completed, and monthly income level. This data is presented in Tables 1 - 5, and Figures 1- 4 and all the sample population was included in these statistics.

The ages of the clients had a range of 24 years old to 67 years old. The mean was 37, and the median 35. The mean and median of the number of years of education completed by these clients was 12th grade, with a range from 6th grade to completion of 4 years of college. The mean CD4 cell count was 348, the median was 368, with a range from 21 to 828 showing a relatively healthy population (see Table 1).

Table 1

Age, Education Completed and CD4 Cell Counts for Respondents

Characteristic	Mean	Median	Range	Number
Age	37	35	24-67	47
Education Completed	12	12	6-16	43 a
CD4 Cell Count	349	368	21-828	47

a-n-Four clients did not report their number of years of completed education.

The income levels of these clients were varied with nearly 37% having an average monthly income between \$301 and \$600 (see Table 2). Fifty-three percent of the clients were uninsured (n =25), and 42% were insured by Medicaid and/or Medicare (n =20).

Table 2

Income Reported by Respondents

Income (a)	Clients (<u>n</u> =46)	%
Below \$300	11	24
\$301-\$600	17	37
\$601-\$900	10	22
Above \$900	8	17

a-n The number of clients reporting an income level was 46 of 47 (n =46).

Of the clients sampled 38% were white, 57% were black, and 6% were Hispanic. These numbers were compared to the United States HIV and AIDS rates through June 1997 as reported by the Centers for Disease Control and Prevention in the latest HIV/AIDS Surveillance Report (US Department of Health and Human Services, 1997). The sample in this study appeared to be disproportionately black as compared to the national statistics (see Figure 1). Gender differences also appeared in this clinic population with 60% male and 40% female, with the female population being much higher in this clinic as compared to the national statistics (see Figure 2).

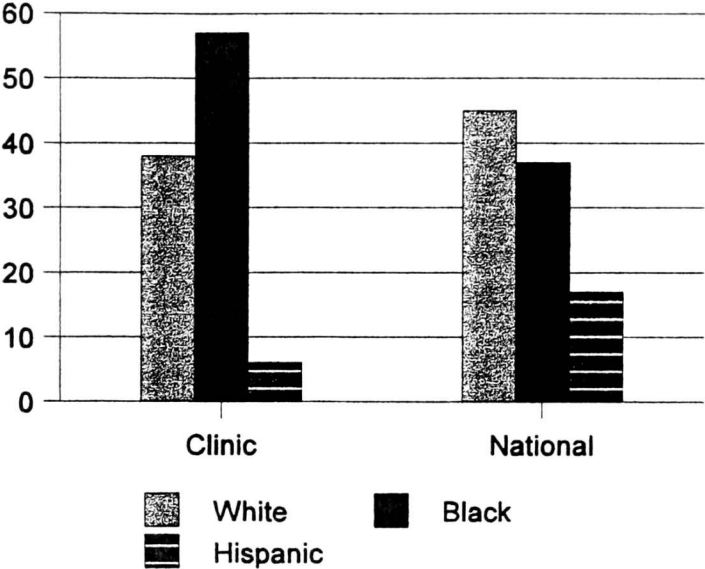


Figure 1
Race For This Sample as Compared to the National Data

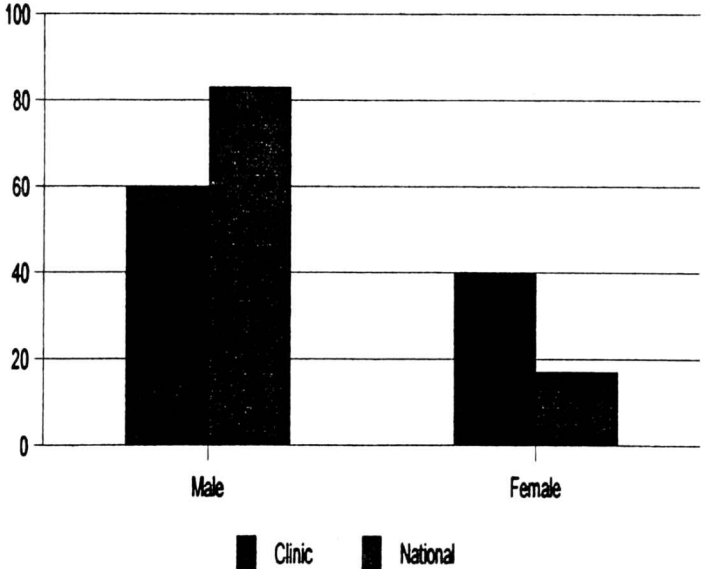


Figure 2
Gender For This Sample Compared to National Data

Risk factors of the clients in this clinic were also compared to the reported national statistics. This study used different risk factor categories than the CDC uses, therefore the bisexual data were not included in the comparisons. The results of this comparison show that nationally, most males are infected through homosexual sex, as were the males in this clinic. Nationally, intravenous drug use (IVDU) was the second highest cause of infection (see Table 4 and Figure 3). In this clinic, the second highest rate of infection was through heterosexual contact, and was twice as high as the IVDU infection rate (see Table 3 and Figure 3).

In comparing the females in this clinic to the national statistics, more differences were found. Nationally the leading cause of HIV infection for females is through IVDU, closely followed by heterosexual contact (see Table 5 and Figure 4). The females in this clinic were overwhelmingly infected through heterosexual contact with 54% in this category. IVDU by females in this clinic only accounted for 4% (see Table 3 and Figure 4). When combined with the bisexual IVDU cases, the total only equals 25%, still far below the national statistics. These statistics appear to demonstrate that HIV is a more heterosexually transmitted disease in this part of Georgia. It is also speculated that IVDU rates are lower in this part of Georgia than the overall national rates.

Table 3

Risk Factors Reported by Respondents

Risk Factor	Male (n)	Male %	Female (n)	Female %	Clinic (n)	Clinic %(a)
Homosexual not IVDU	13	39%	0	0%	13	21%
Homosexual IVDU	1	3%	0	0%	1	2%
Heterosexual not IVDU	8	24%	15	54%	22	36%
Heterosexual IVDU	4	12%	1	4%	5	8%
IVDU Sex Partner	0	0%	1	4%	1	2%
Bisexual not IVDU	4	12%	0	0%	4	5%
Bisexual IVDU	1	3%	6	21%	7	11%
Bisexual Sex Partner	0	0%	2	7%	2	3%
Blood Recipient	2	6%	3	11%	5	8%

a-n 7 clients reported more than one risk factor, chart does not add to 100%

Table 4

National Risk Factor-Male

Risk Factor	Male HIV (n)	Male HIV %	Male AIDS (n)	Male AIDS %	Male (n)	Male % (a)
Homosexual not IVDU	28,795	45%	298,699	58%	327,494	62%
Homosexual IVDU	4,206	7%	38,923	8%	43,129	8%
Heterosexual not IVDU	3,621	6%	18,811	4%	22,432	4%
Heterosexual IVDU	10,074	16%	113,635	22%	123,709	23%
IVDU Sex Partner	937	2%	6,906	1%	7,843	1%
Blood Recipient	356	1%	4,634	1%	4,990	1%

a-n Not all of the CDC risk factors are included in chart, chart does not add to 100%

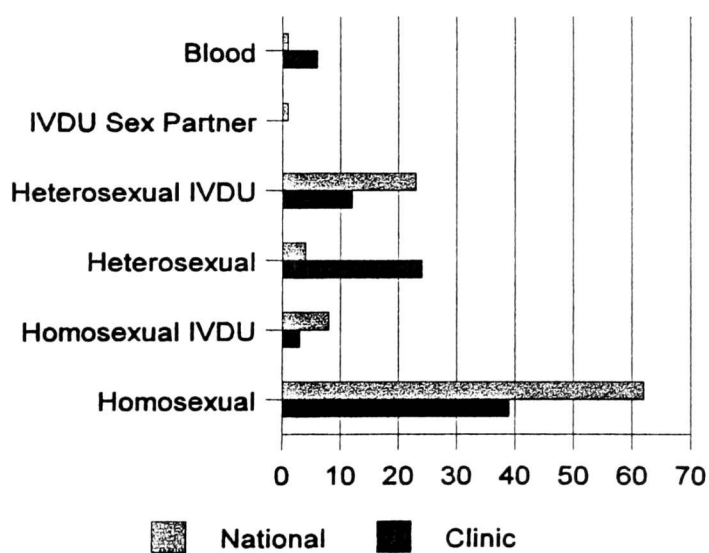


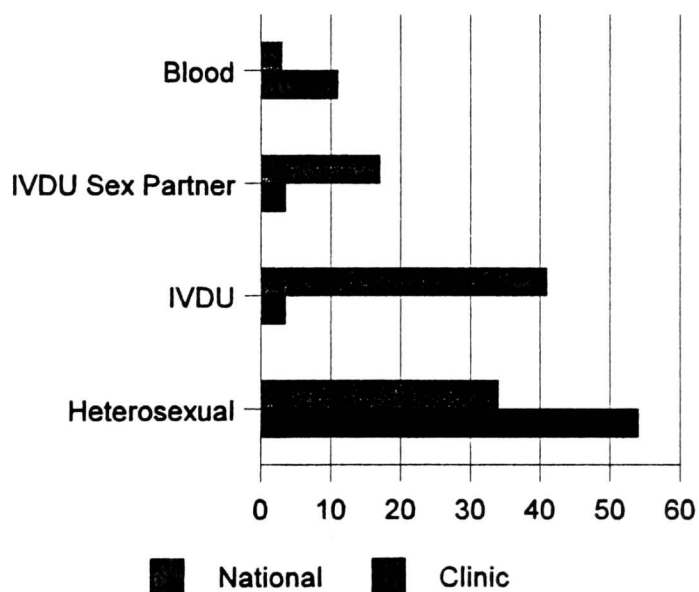
Figure 3

Combined Clinic and National Risk Factor- Male

Table 5

National Risk Factor-Female

Risk Factor	Female HIV (n)	Female HIV %	Female AIDS (n)	Female AIDS %	Female (n)	Female %
Heterosexual not IVDU	8,017	49%	35,760	37%	43,777	39%
Heterosexual IVDU	5,253	32%	41,029	43%	46,282	41%
IVDU Sex Partner	2,652	17%	15,984	17%	18,636	17%
Blood Recipient	355	2%	3,441	3%	3,796	3%

Figure 4

Combined Clinic and National Risk Factor- Female

Provider Adherence

The results of the data collected from the client charts were documented on the Provider Adherence Measurement Tool (Appendix B). Scores were obtained for provider adherence to clinical practice guidelines by totaling the number of guidelines met for each patient and dividing it by the possible total score. This was recorded as a percentage and labeled the Provider Adherence Score. In this clinic, the staff work as a team under the direction of the primary nurse who is a nurse or nurse practitioner. Only the nurse practitioner provided care was analyzed in this study ($n = 31$). The rationale for limiting the analysis to only the nurse practitioner seen clients was done in an effort to answer the research question: Do nurse practitioners providing care to HIV-infected clients in a specialized nursing center provide quality care. Including the data of the nurse and physician would have resulted in data that would not answer the research question. The mean Provider Adherence Score of the nurse practitioner-seen client charts was 91%, median was 90%; with a range of 43% to 100%.

The nurse practitioner adherence data from The Provider Adherence Measurement Tool were further analyzed in relation to the clients age; CD4 cell count; education completed; gender; race; income; risk factor; and insurance coverage. The correlation between adherence and age; CD4 cell count; and education completed was analyzed using a Pearson's Correlation Coefficient, and is shown in Table 6. This analysis showed no statistically significant relationship between the nurse practitioners adherence and the clients age or education completed (see Table 6).

Table 6

Correlation Between NP Adherence and Client Age, CD4 Count and Education

	Adherence	Age	CD4 Cell Count	Education Completed
Age	$r = .20$ $n = 31$ $p = .15$		$r = .18$ $n = 31$ $p = .17$	$r = -.18$ $n = 28$ $p = .19$
CD4 Cell Count	$r = -.43$ $n = 31$ $p = .01$	$r = .18$ $n = 31$ $p = .17$		$r = -.12$ $n = 28$ $p = .27$
Education Completed (a)	$r = -.04$ $n = 28$ $p = .43$	$r = -.18$ $n = 28$ $p = .19$	$r = -.12$ $n = 28$ $p = .27$	

an- Three clients did not report education completed ($n = 28$)

There was a moderately strong and statistically significant negative correlation between the clients CD4 cell count and the nurse practitioners adherence ($r = -.43$, $n = 31$, $p = .01$). As the CD4 cell count decreased the nurse practitioners adherence increased. No significant correlations were found between the other variable pairs (as indicated in Table 6).

The nurse practitioners adherence scores were also analyzed with gender, race and income using a One-Way Analysis of Variance (ANOVA). Gender was divided into two groups, male or female (see Table 7). Race was divided into two groups, white or nonwhite, to make statistical analysis possible. The nonwhite group consisted of the black and Hispanic clients combined (see Table 8). The monthly income categories were divided into two groups to make statistical analysis possible. The low income group consisted of clients who reported their monthly income as below \$600 ($n = 19$). The high

income group consisted of clients who reported their monthly income as above \$600 ($n = 11$). One client did not report a monthly income and was not included in this analysis ($n = 30$) (see Table 9). These results showed no statistically significant relationships between the nurse practitioners adherence level and the clients gender, race, or income (see Tables 7-9).

Table 7

One-Way ANOVA- NP Adherence by Client Gender

Gender	Number	Mean	Standard Deviation	Standard Error	
Male	19	93.95	6.00	1.38	
Female	12	86.92	16.95	4.89	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	363.56	1	363.56	2.77	.11
Within Groups	3809.86	29	131.38		

Table 8

One-Way ANOVA- NP Adherence by Client Race

Race	Number	Mean	Standard Deviation	Standard Error	
White	17	90.00	13.96	3.39	
Nonwhite	14	92.71	8.77	2.34	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	56.56	1	56.56	.40	.53
Within Groups	4116.86	29	141.96		

Table 9

One-Way ANOVA- NP Adherence by Client Monthly Income

Income	Number	Mean	Standard Deviation	Standard Error	
Below \$600	19	90.47	12.80	2.94	
Above \$600	11	91.73	10.64	3.21	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	10.95	1	10.95	.08	.79
Within Groups	4082.92	28	145.82		

The relationships between nurse practitioner adherence with risk factor and insurance coverage were analyzed using a Chi Square (see Table 10 and 11). Risk factors were analyzed in a 2X2 contingency table comparing the providers adherence as high (90% and above) and low (89% and below). These groupings were used to make the numbers in each group large enough to be statistically relevant. These groups were compared to the risk factors of homosexual not IVDU, and heterosexual not IVDU in both males and females. These groups were chosen because the numbers in each group were large enough to make statistical analysis possible. The number in the other groups proved to be too small for statistical analysis with the largest group only having 8 clients. The results of this analysis showed no relationship between the variables, using Chi Square with a Fishers exact test correction for small sample size (see Table 10 and 11).

Table 10

Chi Square- NP Adherence by Client Risk Factor

Count = \underline{n} Percent of Column = \underline{P}	Low Adherence ($\leq 89\%$)	High Adherence ($\geq 90\%$)	Row Total
Homosexual not IVDU	$\underline{n} = 4$ $\underline{P} = 45\%$	$\underline{n} = 6$ $\underline{P} = 33\%$	$\underline{n} = 10$ $\underline{P} = 100\%$
Heterosexual not IVDU	$\underline{n} = 5$ $\underline{P} = 55\%$	$\underline{n} = 12$ $\underline{P} = 67\%$	$\underline{n} = 17$ $\underline{P} = 100\%$
Column Total	$\underline{n} = 9$ $\underline{P} = 100\%$	$\underline{n} = 18$ $\underline{P} = 100\%$	$\underline{n} = 27$ $\underline{P} = 100$
Chi Square = .32	$\underline{n} = 27$	$\underline{df} = 1$	$\underline{p} = .44$

Nurse practitioner adherence was also analyzed in relationship to the clients insurance coverage. Clients with Medicaid and Medicare were added together and compared to the group with no insurance coverage. The client who was covered by a private insurance plan was not included in this analysis because the client did not fit either category of uninsured or insured with Medicaid or Medicare. This client was not added into the Medicaid/Medicare group because there was no way of knowing if the insurance plan was similar to the coverage of Medicaid or Medicare. This client was also not analyzed separately because no conclusions can be drawn from a sample of one. The same high/low scale was used for adherence as in the calculations performed on the risk factor data. The analysis demonstrated no relationship between the providers' adherence to clinical practice guidelines based on the clients' having or not having insurance coverage (see Table 11).

Table 11

Chi Square- NP Adherence by Client Insurance Coverage

Count = <u>n</u> Percent of Column = <u>P</u>	Low Adherence ($\leq 89\%$)	High Adherence ($\geq 90\%$)	Row Total
No Insurance	<u>n</u> =8 <u>P</u> =73%	<u>n</u> =12 <u>P</u> =63%	<u>n</u> =20 <u>P</u> =100%
Medicare and/or Medicaid	<u>n</u> =3 <u>P</u> =27%	<u>n</u> =7 <u>P</u> =37%	<u>n</u> =10 <u>P</u> =100%
Column Total	<u>n</u> =11 <u>P</u> =100%	<u>n</u> =19 <u>P</u> =100%	<u>n</u> =30 <u>P</u> =100
Chi Square =.29	<u>n</u> =30	<u>df</u> =1	<u>p</u> =.45

An analysis of the specific adherence issues was performed. The answers from the Provider Adherence Measurement Tool of the clients that were seen by a nurse practitioner were entered into a table (see Table 12). All of the responses were tallied by the categories of met, not met, or not applicable. Percentages were determined for each item by taking the number of times that the item was met and dividing it by the number of times should have been met. This eliminated situations where the item was not applicable from the analysis.

The results of this analysis demonstrate the nurse practitioners adherence to the current clinical practice guidelines that were measured in this study. The nurse practitioners provided the care that was described in the measured clinical practice guidelines 91% of the time.

The highest area of compliance, 100%, was reported in the PCP prophylaxis of clients with oral candidiasis, unexplained fevers or constitutional symptoms. Other areas of 100% compliance included prophylaxis of PCP with an appropriate agent, and screening for syphilis on initial evaluation and after one client had an STD or reported exposure.

Another very high area of adherence, 97%, was reported surrounding antiretroviral therapy. Only one client was found where the staff had not discussed antiretroviral therapy; it is noted that this is a client with numerous health problems which were determined by the staff to take precedence over the discussion, or initiation of antiretroviral therapy. In 97% of all cases the antiretroviral therapy consisted of at

least two reverse transcriptase inhibitors (RTIs). The one client who was not on two RTIs had failed all RTIs and was currently on one RTI and two protease inhibitors (PIs).

The lowest level of adherence was reported in the area of annual syphilis screening. Only 76% of the clients seen by a nurse practitioner had an annual screening for syphilis. Clients who were not yet due an annual syphilis screen at the time of study were not counted against the adherence score. No rationale could be found for this variance.

Table 12

NP Adherence to Measured Clinical Practice Guidelines

Adherence Issue	Met in Appropriate Cases	Not Met in Appropriate Cases	Not Applicable
Was antiretroviral therapy discussed?	(30) 97%	(1) 3%	0
If started, did this therapy consist of at least 2 RTIs?	(30) 97%	(1) 3%	0
Was a PI or NNRTI also offered?	(27) 87%	(4) 13%	0
CD4 count < 200, was patient started on PCP prophylaxis?	(13) 93%	(1) 3%	17
Client has a prior history of PCP, started on secondary prophylaxis after recovery?	0	0	(31) 100%
Clients with oral candidiasis, unexplained fevers or constitutional symptoms, were they started on PCP prophylaxis?	(10) 100%	0	21
Is prophylaxis TMP-SMX, aerosolized Pentamidine, or Dapsone?	(15) 100%	0	16
On initial evaluation was PPD and Anergy panel planted?	(23) 85%	(4) 15%	4
Was PPD and Anergy panel repeated in the last 12 months?	(17) 81%	(4) 19%	10
Was RPR or VDRL done at initial evaluation?	(29) 100%	0	2
Was RPR or VDRL repeated during the last 12 months?	(19) 76%	(6) 24%	6
Was RPR or VDRL repeated after an STD diagnosis or reported exposure?	(1) 100%	0	30
Totals	(213) 91%	(21) 9%	107

Outcome: Cases of PCP

Results of active cases of PCP were also documented on the Provider Adherence Measurement Tool. In this sample population, no active cases of PCP were found despite having at least 29% of the clients at risk with CD4 cell counts below 200 cells/ul ($n=9$). Although the CDC report that clients are at risk for developing PCP at CD4 cell counts below 200, it is the experience of many providers that clients with CD4 cell counts at 215 and below are also at risk. There are an additional 5 clients in this sample who have CD4 cell counts at or below 215, making the total number of clients in this population at risk to be 45%.

Client Satisfaction

The results of the Outpatient Client Satisfaction Survey (Appendix A) were totaled to form the Client Satisfaction Score for each client. This score was determined by giving a numeric score to each answer, totaling the number and dividing it by the possible score. Unanswered questions were not included in this calculation. The score for each client was recorded as a percentage. Only the clients who were seen by a nurse practitioner were included in this sample ($n=31$). A mean score was determined for the clients satisfaction with their care at 86%, median was 96%, with a range from 50% to 100%.

The data were further analyzed by performing a Pearson's Correlation Coefficient on the variables of age, CD4 cell count, and years of completed education against client satisfaction (see Table 13). Three clients did not report their years of completed

education ($n=28$). No statistically significant relationships appeared between any of the variables (see Table 13).

Table 13

Correlation Between Client Satisfaction and Client Age, CD4 Cell Count, and Education

	Client Satisfaction	Age	CD4 Cell Count	Education Completed
Age	$r = .16$ $n = 31$ $p = .20$		$r = .18$ $n = 31$ $p = .17$	$r = -.18$ $n = 28$ $p = .19$
CD4 Cell Count	$r = .14$ $n = 31$ $p = .22$	$r = .18$ $n = 31$ $p = .17$		$r = -.12$ $n = 28$ $p = .27$
Education Completed	$r = -.04$ $n = 28$ $p = .43$	$r = -.18$ $n = 28$ $p = .19$	$r = -.12$ $n = 28$ $p = .27$	

Gender, income, wait time and race were analyzed against client satisfaction using an ANOVA. Gender was divided into groups of male or female (see Table 14). Income was divided into two groups to make statistical analysis possible. The clients with a reported monthly income below \$600 were placed in the low income group ($n=19$). The clients with reported monthly incomes above \$600 were placed in the high income group ($n=11$). One client did not report a monthly income and was not included in the analysis ($n=30$) (see Table 15). Wait time was divided into two groups, those who waited less than 10 minutes to see a nurse practitioner and those who waited 10-20

minutes to see a nurse practitioner (see Table 16). There were no statistically significant relationships found between client gender, income or wait time and client satisfaction (see Tables 14-16).

Race was divided into white or nonwhite groups to make the size of the groups testable. Blacks and Hispanics were added together to form the nonwhite group. There was a statistically significant relationship determined between client satisfaction and client race ($p = .03$). The nonwhite group appears to be less satisfied with their care, and had a broader range of satisfaction than the white group (see Table 17).

Table 14

One-Way ANOVA-Client Satisfaction by Client Gender

Gender	Number	Mean	Standard Deviation	Standard Error	
Male	19	85.37	19.03	4.37	
Female	12	88.08	18.57	5.36	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	54.21	1	54.21	.15	.70
Within Groups	10311.34	29	355.56		

Table 15

One-Way ANOVA- Client Satisfaction by Client Income

Monthly Income	Number	Mean	Standard Deviation	Standard Error	
Below \$600	19	84.58	18.74	4.30	
Above \$600	11	88.36	19.37	5.84	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	99.79	1	99.79	.28	.60
Within Groups	10075.18	28	359.83		

Table 16

One-Way ANOVA-Client Satisfaction by Client Wait

Wait	Number	Mean	Standard Deviation	Standard Error	
< 10 Minutes	24	87.13	18.88	3.85	
> 10 Minutes	7	84.00	18.75	7.09	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	52.92	1	52.92	.15	.70
Within Groups	10312.63	29	355.61		

Table 17

One-Way ANOVA-Client Satisfaction by Client Race

Race	Number	Mean	Standard Deviation	Standard Error	
White	14	94.43	13.32	3.56	
Nonwhite	17	79.82	20.04	4.86	
Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Between Groups	1637.65	1	1637.65	5.441	.03
Within Groups	8727.90	29	300.96		

Risk factors were also analyzed with client satisfaction using a Chi Square with a Fisher's exact test correction for small sample size. The clients were divided into groupings of clients with low satisfaction, 87% and below ($n=7$), and high satisfaction, 88% and above ($n=15$). No statistically significant relationships were found (see Table 18).

Table 18

Chi Square- Client Satisfaction by Client Risk Factor

Count = \underline{n} Percent of Column = \underline{P}	Client Satisfaction Low ($\leq 87\%$)	Client Satisfaction High ($\geq 88\%$)	Row Total
Homosexual not IVDU	$\underline{n} = 2$ $\underline{P} = 25\%$	$\underline{n} = 8$ $\underline{P} = 42\%$	$\underline{n} = 10$ $\underline{P} = 100\%$
Heterosexual not IVDU	$\underline{n} = 6$ $\underline{P} = 75\%$	$\underline{n} = 11$ $\underline{P} = 58\%$	$\underline{n} = 17$ $\underline{P} = 100\%$
Column Total	$\underline{n} = 8$ $\underline{P} = 100\%$	$\underline{n} = 19$ $\underline{P} = 100\%$	$\underline{n} = 27$ $\underline{P} = 100\%$
Chi Square = .71	$\underline{n} = 27$	$\underline{df} = 1$	$\underline{p} = .35$

Insurance coverage was again grouped into those having Medicaid and Medicare ($\underline{n} = 10$), and those with no insurance ($\underline{n} = 20$). The client with private insurance coverage was not included in this analysis. Client satisfaction was divided into two groups, those with low satisfaction (87% and below, $\underline{n} = 8$), and those with high satisfaction (88% and above, $\underline{n} = 22$). These groupings were used to make the numbers in each group large enough to be statistically analyzed. A Chi Square with a Fisher's exact test correction for small sample size was performed on these data and no statistically significant relationships were demonstrated (see Table 19).

Table 19

Chi Square- Client Satisfaction by Client Insurance Coverage

Count = <u>n</u> Percent of Column = <u>P</u>	Low Satisfaction ($\leq 87\%$)	High Satisfaction ($\geq 88\%$)	Row Total
No Insurance	<u>n</u> =4 <u>P</u> =50%	<u>n</u> =16 <u>P</u> =73%	<u>n</u> =20 <u>P</u> =100%
Medicaid and/or Medicare	<u>n</u> =4 <u>P</u> =50%	<u>n</u> =6 <u>P</u> =27%	<u>n</u> =10 <u>P</u> =100%
Column Total	<u>n</u> =8 <u>P</u> =100%	<u>n</u> =22 <u>P</u> =100%	<u>n</u> =30 <u>P</u> =100%
Chi Square =	<u>n</u> =30	<u>df</u> =1	<u>p</u> =.23

The responses of the clients who were seen by a nurse practitioner, to the Outpatient Client Satisfaction Survey were then placed in a table. The responses were coded as SA for strongly agree, A for agree, DK for don't know, D for disagree, SD for strongly disagree, and NA for no answer. The responses were then analyzed to determine which questions evoked the strongest positive(SA or A) and negative (SD or D) responses (see Table 20). Items answered with don't know (DK) or no answer (NA) were not included in calculating the levels of client satisfaction.

The strongest levels of satisfaction, 90% SA, were found in the questions dealing with the clients perception of the nurse practitioners' answering their questions and understanding their medical condition. Other areas of high satisfaction, having 87% SA, was to the questions dealing with the clients perception of the helpfulness of the clinic staff, and the clients perception of the nurse practitioners' attempts to understand their

needs. The lowest level of satisfaction, 57% SA, was to the question “The clinic is easy for me to get to.”. This is also the only question that a client answered: strongly disagree. No questions were answered: disagree. Overall the participants reported being satisfied with 80% of the total questions answered strongly agree, and another 20% of the questions answered agree.

Table 20

Frequency of Responses to The Outpatient Client Satisfaction Survey

	SA	A	DK	D	SD	NA
It was easy for me to schedule my appointment today.	(24) 77%	(7) 23%	0	0	0	0
The clinic is open at convenient times for me.	(23) 74%	(8) 26%	0	0	0	0
The clinic is easy for me to get to.	(17) 57%	(12) 40%	1	0	(1) 3%	0
The clinic staff was helpful.	(27) 87%	(4) 13%	0	0	0	0
The waiting room was comfortable.	(21) 68%	(10) 32%	0	0	0	0
The exam room was comfortable.	(23) 74%	(8) 26%	0	0	0	0
The health care provider had a good understanding of my medical condition.	(27) 90%	(3) 10%	0	0	0	1
The health care provider tried to understand my needs.	(27) 87%	(4) 13%	0	0	0	0
The health care provider answered my questions.	(28) 90%	(3) 10%	0	0	0	0
I am satisfied with the care I have received at this clinic in the past.	(25) 81%	(6) 19%	0	0	0	0
I am satisfied with the care I received at this clinic today.	(26) 84%	(5) 16%	0	0	0	0
I will return to this clinic for health care in the future.	(26) 84%	(5) 16%	0	0	0	0
I would recommend this clinic to someone else with a similar health problem.	(25) 83%	(5) 17%	1	0	0	0
Totals	80%	20%		0		

All of the comments written on the Outpatient Client Satisfaction Survey by nurse practitioner seen clients were reviewed. Fifty-eight percent of the clients wrote comments on their surveys ($n = 18$). Of these comments, 89% were positive ($n = 16$), and 11% were negative ($n = 2$). The positive comments included praise for specific clinic staff and providers, and overall praise for the clinic. Some of the specific comments included:

- “I believe the care here is GREAT! I’ve been HIV+ for 11 years and I’ve seen many doctors.”
- “The people here made me feel more safe, and helped me face my sickness .”
- “I have been here 2 years and am pleasantly surprised at the quality of care.”
- “Everyone is wonderful here. The quality of care is excellent. They let me know they really care about me and my health.”

Negative comments were reported by two clients. Their comments were:

- “Will do a one on one .”
- “Cable TV would be nice and maybe seeing my doc once in a while.”

CHAPTER 5

Summary

This research study supports the premise that nurse practitioners providing care to HIV-infected clients in a specialized nursing center do provide quality care as measured by:

1. Client satisfaction
2. Adherence to Clinical Practice Guidelines
3. Incidence of active cases of PCP.

The study has also aided in determining that nurse practitioners are appropriate primary health care providers for HIV-infected clients.

Technical Process of Care

The findings of this study support the theoretical framework of quality health care. The technical process domain of the theoretical framework was measured by the nurse practitioners adherence to selected clinical practice guidelines. These guidelines met the criteria of the definition provided by the theoretical framework. The selected guidelines promote the application of medical science and technology and maximize the benefits without increasing the risks. The guidelines were developed by leading experts in the field of the care of HIV-infected clients, and validated by a panel of experts.

This research demonstrates that the nurse practitioners in this clinic function with a high level of adherence to the clinical practice guidelines. The mean Provider Adherence Score for these nurse practitioners was 91%, the median was 90%. The extent of the providers' adherence was analyzed in relationship to the clients age, education completed, gender, race, income, risk factor, and insurance coverage with no statistically significant relationships found with regard to any of these intervening variables. This suggests that all the clients in this clinic receive the same level of care regardless of personal characteristics or ability to pay. The clients with no insurance did not receive care that was any different from the care received by the clients with Medicaid and Medicare.

There was a statistically significant difference found in the providers' level of adherence which increased as the clients CD4 cell count decreased. This may be attributable to the fact that the clients with lower CD4 cell counts have more health problems and are seen in the clinic more often than the healthier clients. An increase in the number of client visits over time increases the chance that the care detailed in the clinical practice guidelines will be provided.

The highest levels of adherence were seen in the appropriate use of antiretroviral therapy, the prophylaxis of PCP in appropriate clients, and screening for syphilis at initial visit and after STD exposure. In the ever-changing field of HIV and AIDS care, it is difficult to keep up with all the new drugs and therapies available to clients. The findings support that the nurse practitioners in this study have done a very good job of keeping up with the most current suggested antiretroviral therapies for their clients and

of finding a way to provide these costly therapies to a non-insured, or at least under-insured, population. Providing PCP prophylaxis with an appropriate agent at the appropriate time is also a very important aspect of HIV and AIDS care. Other STDs are frequently seen as co-infections in this population. Screening for syphilis is another way the nurse practitioners are working to prevent, as well as diagnose and treat, the illnesses that most often affect their clients.

The lowest levels of adherence were seen in the yearly screening for syphilis, although all appropriate clients had been screened for syphilis on their initial visits to the clinic, this was not maintained yearly. It is not clear as to the reason for this variance.

The high level of nurse practitioner adherence to the clinical practice guidelines which were evaluated in this study demonstrates quality in the technical aspect of the process domain of health care. The technical aspect of health care includes the application of medical science to situations without increasing the risk of illness or harm. The nurse practitioners have provided the appropriate care to the clients to ensure positive outcomes and minimize illness or harm.

This high quality of care was provided irrespective of reimbursement to the clinic. It is noted that the clients with no insurance are given the same level of care as the clients with an insurance plan. It is also noted that in this clinic of poorly insured clients, 97% of the nurse practitioners' clients were on combination antiretroviral therapy including the very expensive protease inhibitor class of drugs.

Interpersonal Process of Care

The quality of the interpersonal process domain of the theoretical framework is measured by the clients' satisfaction of the care. The clients in this study reported a high level of satisfaction with the care received in this clinic. The mean Client Satisfaction Score was calculated to be 86%, with a median of 96%. This research did not demonstrate any relationships between the clients' level of satisfaction and age, CD4 cell count, years of completed education, gender, insurance coverage, risk factor, waiting time or income level. This may be the result of the unexpectedly small sample size. There was a statistically significant negative relationship found in the non-white clients' satisfaction, it was noted that the non-white group responses spanned a broad range. Two of the nurse practitioners in this clinic are white, while one is non-white. The majority of clients in this clinic, 63%, are nonwhite and may feel more comfortable with a non-white health care provider. Overall the clinic staff, as previously defined, are 69% non-white.

The highest level of satisfaction reported by the clients on The Outpatient Client Satisfaction Survey was about their perceptions of the nurse practitioners' answering their questions and understanding their medical condition. Other questions with high levels of satisfaction included the clients' perception of the nurse practitioners' attempt at understanding their needs, and the clients' perception of the helpfulness of the clinic staff. The only negative response recorded by the clients on The Outpatient Client Satisfaction Survey was in relation to the accessibility of the location of the clinic. The written comments on The Outpatient Client Satisfaction Survey by nurse practitioner

seen clients were highly positive about their care. This data supports a high level of satisfaction on the part of the clients in this clinic.

Based on the high level of the clients satisfaction, quality has been demonstrated in the interpersonal process domain of quality health care. These findings support earlier findings in the study done by Katzman, Holman, and Ashley on client satisfaction in a nursing center (1993), and the study by Larrabee, Ferri and Hartig on client satisfaction with nurse practitioner care (1997). In both studies the clients sampled reported a high degree of satisfaction.

The findings of this study support the positive outcomes of care at a nursing center as reported by Matas, Brown and Holman (1996). The clients in that study reported favorable comments regarding the nurse practitioners' thoroughness, communicating at the client's level of understanding, ease of conversation, knowledge level and professionalism as did the clients in this study.

Outcome of Care

The outcome domain of the theoretical framework was measured by identifying active cases of PCP in clients with CD4 cell counts under 200 cells/ul. PCP is often prevented by starting an appropriate prophylactic agent as the clients CD4 cell nears 200. The providers demonstrated a high level of adherence to starting an appropriate agent to prophylax against PCP when the clients CD4 cell count was under 200. There were no active cases of PCP found in this sample demonstrating quality in the outcome of the

care that was provided. Positive outcomes were also reported in the study by Aiken et al. (1993), when HIV-infected clients were cared for by nurse practitioners, and the study by Matas, Brown and Holman (1996) in clients treated for otitis media by nurse practitioners.

This study has demonstrated that the nurse practitioners in this specialized nursing center are providing quality care as evaluated in the interpersonal and technical aspects of the process of the care that is delivered, and by the positive outcomes of the care delivered.

Conclusions

This study describes the care given by nurse practitioners in a specialized nursing center. The conclusions drawn from this study cannot be generalized to all nurse practitioners, or all HIV-infected clients. The limitations of this study include the fact that the data represents the care provided at one nursing center which specializes in the care of HIV-infected clients therefore may not be generalizable to all nursing care or all nursing centers. The clinical practice guidelines that were used in this study were the most current available. Clinical practice guidelines in HIV/AIDS care change frequently as new therapies, technology and knowledge are found. This data only represents an evaluation of the current practice standards in place at the time the study was conducted. Not all of the guidelines that were suggested by the Agency for Health Care Policy and Research or the International AIDS Society-USA Panel Consensus Statement on Antiretroviral Therapy were assessed. Some of these guidelines proved to be out of date,

while others did not lend themselves well to study or statistical analysis. The guidelines were chosen which were measurable, current, and supported the concept of quality health care to those with HIV and AIDS.

Another limitation of this study was the use of convenience sampling and the small sample size. All clients who met the inclusion criteria, agreed to participate, and were seen in the clinic during the study period were included in the study. This study was originally designed to be carried out at two different types of health care settings, a nursing center and a more traditional clinic. Approval to conduct the second phase of the study could not be obtained from the four traditional settings that were approached. The more traditional settings were chosen based on the similarities of the populations being studied, location, and client population size. Those settings not agreeing to participate included a federally funded public health clinic, two state funded health clinics, and a private physicians office. Several different reasons were given for the unwillingness of the sites to participate and included fear of losing funding if negative data were reported, concern for client confidentiality, and not having a large enough population to support such a study. The findings of this study would have been stronger had a traditional setting agreed to participate.

Another problem with this study was the risk factor categories used to describe the clinic demographics. It proved to be difficult to relate the clinic findings with the national statistics as reported by the CDC because of the differences in categories. It would have also been helpful to have known which clinic clients were HIV-positive and

which clients had an AIDS diagnosis. Further statistical analysis could have been possible had this information been documented.

An analysis of the demographic data suggests that the clients in this clinic do not match the national profile of an HIV-infected client. The clients in this clinic were disproportionately black, with a much higher level of females than is reported in the national statistics. The risk factors of these clients also proved to be different from the national statistics. In this clinic, heterosexual transmission of HIV far outweighs the IVDU rates. This supports the idea that IVDU is not as prevalent in this area of Georgia as previously reported.

The average age of the clients in this study was 37 years old. The average number of years of completed education was 12. Most clients earn \$301-\$600 per month. The majority of clients, 53%, were uninsured and 42% were insured with Medicaid or Medicare. Bonuck et al (1996), reported in their study of the unmet needs of HIV-infected clients, that having Medicaid or Medicare was equivalent to having no insurance coverage at all.

The average CD4 cell count of the clients in this study was 349, the median was 368 with a range from 21 to 828 cells/ul. This is a large range and suggests that there are many different types of needs and issues in this clinic population. The study by Bonuck et al. (1996) on unmet health care needs of the HIV-infected demonstrated that the most frequent unmet needs were seen in clients who were symptomatic or ill. Unmet needs also increased in clients who needed community health services, were uninsured or had Medicaid or Medicare, or were living in low AIDS-prevalence cities. These statistics

were not supported by this study. The authors of this study also suggest that more attention and resources need to be directed to community-based care for the HIV-infected.

The results of this study suggest that quality health care can be delivered by nurse practitioners working in a specialized nursing center. This non-traditional model of health care delivery can be considered a viable option to more traditional models of care. The National Institute of Nursing Research has set goals which include the testing of community-based nursing models of health care which are designed to promote access to, utilization of, and provide quality health care services to rural and other underserved populations. The National Institute of Nursing Research is also interested in testing the effectiveness of nursing interventions in HIV/AIDS. The overall concern is to find ways of meeting the needs of these populations in a cost-effective and high-quality manner. This study suggests that this is an attainable goal and can be met by nurse practitioners working in a specialized community-based nursing center.

Recommendations

Further research relating to the quality of the care provided by nurses, nurse practitioners, and other advanced practice nurses to HIV-infected clients is needed. There is only one previous study in the literature that addresses the issue of nurse provided care to HIV-infected clients.. The theoretical framework of Structure-Process-Outcome from the Unifying Model of Health Care by Donabedian which was used in this study was very helpful and has been validated numerous times in the past. An updated version of Donabedians' model that was not available at the time of the study has been

published by Mitchell, Ferketich and Jennings (1998). This model expands on Donabedian's linear model of Structure-Process-Outcome to include the relationships that affect the components. This model may be useful in studying the effects of nursing care on HIV-infected clients.

This research needs to be repeated at other sites, nursing centers and more traditional settings. The reliability and validity of the tools designed for this study should be further tested and evaluated. As new clinical practice guidelines emerge, they should be incorporated into any research that studies care provided to HIV-infected clients. A larger sample size would strengthen the relationships and data reported in this study.

Further research is also needed in the area of HIV-infected client demographics. The HIV pandemic is quickly spreading into smaller towns and cities across the United States. Research is needed which describes the differences between the clients in these smaller populations, including rural areas, and the more traditional urban settings. It is important, at this stage of the history of this disease, to determine if the needs of the smaller populations in lower AIDS-prevalence communities are different from the well documented needs of the urban areas. This research could also aid in the development of community-based health care settings which would specifically address the needs of the smaller population groups in lower AIDS-prevalence communities. The health care settings could be developed with specific goals and a specific population in mind. The health care provided in these community-based settings could also be planned to

specifically meet the needs of the specific demographic of clients it is planned to serve. This would improve the quality of the health care that is needed in these areas, and to this underserved population.

Further research also needs to be done to determine if there are any differences in the values, norms, expectations or aspirations of HIV-infected clients. Determining if there are any specific issues or needs in this population could be used to implement and enhance the clients satisfaction with the care received.

Other studies of the outcomes of HIV/AIDS care needs to be performed. Other outcome measurements could include rates of opportunistic infections in specific populations of clients, and measurements on the effect of antiretroviral therapy by evaluating CD4 cell counts and HIV viral load results. Specific outcome studies could include the HIV-infected clients quality and quantity of life at specific points in the disease process and other measurements on the client satisfaction of the care they receive in numerous types of settings.

Further research is needed to determine more cost effective ways of providing quality health care. The use of non-traditional providers of health care, including nurse practitioners, and non-traditional models of delivering health care, including community-based nursing centers, are only a few areas that deserve further investigation. There needs to be more research done on assessing the quality of health care provided by non-traditional health care providers.

This study of one community-based, specialized nursing center is a first step toward identifying nurse practitioners as one group of health care providers who is able to provide high-quality, cost-effective health care to HIV-infected clients. The experience of this clinic indicates when the care provided at a non-traditional setting by nurse practitioners is determined to be high-quality and cost-effective, it should be considered a viable alternative to the more traditional and cost intensive health care system we currently have.

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Appendices

Appendix A

Outpatient Client Satisfaction Sur

Outpatient Client Satisfaction Survey

URN _____ Date _____

_____ Check here if you do not wish to participate in this study and return this form to the collection box in the waiting room.

1. Which health care provider did you see today? (Please check one).

_____ Physician _____ Nurse Practitioner _____ Nurse

2. What are you here for today? (Please check one):

_____ Physical exam or check up _____ Treatment for an illness (cold)

3. Was your appointment:

_____ Scheduled for today or _____ You came in because you were ill?

4. How long did you have to wait before being seen by the health care provider?

_____ Less than 10 minutes _____ 10 to 20 minutes

_____ 20 to 30 minutes _____ More than 30 minutes

5. Did you arrive on time for your appointment?

_____ Yes _____ No, I was early _____ No, I was late

6. Please write the last grade you finished in school _____

7. What is your monthly income?

_____ Below \$300 _____ \$301 to \$600 _____ \$601 to \$900 _____ Above \$900

*****GO TO THE NEXT PAGE PLEASE*****

Please rate your responses by circling one answer for each question, write any additional comments in the space provided.

Strongly agree(SA) Agree(A) Don't Know(DK) Disagree(D) Strongly Disagree(SD)

- | | |
|--|--------------|
| 8. It was easy for me to schedule my appointment today. | SA A DK D SD |
| 9. The clinic is open at convenient times for me. | SA A DK D SD |
| 10. The clinic is easy for me to get to. | SA A DK D SD |
| 11. The clinic staff was helpful. | SA A DK D SD |
| 12. The waiting room was comfortable. | SA A DK D SD |
| 13. The exam room was comfortable. | SA A DK D SD |
| 14. The health care provider (doctor or nurse) had a good understanding of my medical condition. | SA A DK D SD |
| 15. The health care provider tried to understand my needs. | SA A DK D SD |
| 16. The health care provider answered my questions. | SA A DK D SD |
| 17. I am satisfied with the care I have received at this clinic in the past. | SA A DK D SD |
| 18. I am satisfied with the care I received at this clinic today. | SA A DK D SD |
| 19. I will return to this clinic for health care in the future. | SA A DK D SD |
| 20. I would recommend this clinic to someone else with a similar health problem. | SA A DK D SD |

Comments _____

Thank You for taking the time to fill out this survey. Please return it to the collection box in the lobby of the clinic.

Appendix B

Provider Adherence Measurement Tool

Provider Adherence Measurement Tool

URN _____

Date _____

1. A. List CD4 cell counts measured during the 12 month period preceding this study

- B. List HIV viral load measurements during the 12 month period preceding this study

For all questions, please answer YES, NO or NA.

2. During the 12 month period preceding this study

A. Was Antiretroviral therapy discussed? _____

B. If started, did this therapy consist of at least 2 RTI's? _____

C. Was a PI or NNRTI also offered? _____

3. During the 12 month period preceding this study

A. CD4 cell count < 200, was the patient started on PCP prophylaxis? _____

B. Client has a prior history of PCP, were they started on secondary PCP prophylaxis after their recovery? _____

C. Clients with oral candidiasis, unexplained fevers or constitutional symptoms, were they started on PCP prophylaxis? _____

D. Is this prophylaxis TMP-SMX, aerosolized Pentamidine or Dapsone? _____

4. A. On initial evaluation was a PPD and Anergy panel planted? _____

B. Was the PPD and Anergy panel repeated during the last 12 months? _____

5. A. Was RPR or VDRL done at initial evaluation? _____
- B. Was the RPR or VDRL repeated during the last 12 months? _____
- C. Was the RPR or VDRL repeated after a STD diagnosis or reported exposure? _____
6. In clients with a CD4 cell count <200 , is there documented diagnosis of an active case of PCP in the last 12 months? _____

Provider Adherence Score _____

Appendix C

Selected AHCPR Clinical Practice Guidelines from

Evaluation and Management of Early HIV Infection, Clinical Practice Guideline

(No. 7, 1994)

and

Selected guidelines from the International AIDS Society-USA Panel as reported in

JAMA, 277, (1997, 1962-1969)

Evaluation and Management of Early HIV Infection, Clinical Practice Guideline

(No. 7, 1994)

1. Prophylaxis for PCP should be initiated if any of the following conditions are met: the CD4 cell count is less than 200 cells/ul; there has been a prior episode of PCP; and/or oral candidiasis or constitutional symptoms such as unexplained fevers are present (El- Sadr et al., 1994, p. 31). Recommendation: Oral trimethoprim-sulfamethoxazole (TMP-SMX) is the preferred agent, aerosolized Pentamidine or Dapsone may be substituted (El-Sadr et al., 1994, p. 32-33). Adherence will be measured during the 12 month period preceding the study.
2. Purified protein derivative (PPD) screening for *M. tuberculosis* infection with anergy testing should be completed on all HIV infected individuals. This should be done during their initial evaluation then annually if not anergic and there is no history of a positive reaction to previous PPD skin testing (El-Sadr et al., 1994, p. 38). Recommendation: PPD testing should be performed by the Mantoux method. Following intradermal injection of 0.1 ml PPD, the reaction should be assessed after 48 to 72 hours by a trained observer. Reactions of 5 mm or greater induration should be considered positive in persons with HIV infection, regardless of prior Bacille Calmette-Guerin (BCG) vaccination (El-Sadr et al., 1994, p. 38). Adherence will be measured on initial visit and during the 12 month period preceding the study.

3. The initial serologic screening for current or past syphilis should be performed by rapid plasma reagin (RPR) or Venereal Disease Research Laboratories (VDRL) test at initial visit and then annually and after any sexually transmitted disease (STD) diagnosis or exposure (El-Sadr) et al., 1994, p. 46-54). Adherence will be measured on the initial visit and during the 12 month period preceding this study.

Selected guidelines from the International AIDS Society-USA Panel as reported in

JAMA, 277, (1997, 1962-1969)

1. [Antiretroviral] therapy is now recommended for all patients with plasma HIV RNA concentrations greater than 5000 to 10,000 copies/ml regardless of CD4 cell count.
2. Therapy should be considered for all subjects with HIV infection and detectable plasma HIV RNA who request it and are committed to lifelong adherence to the necessary treatment.
3. The panel now recommends that the preferred initial regimen is one that is most likely to reduce and maintain plasma HIV RNA levels below the level of detection.
Currently such a regimen would include 2 NRTIs and a protease inhibitor with high in vivo potency.
4. The primary recommended alternative is a combination of 2 NRTIs plus a NNRTI.

Appendix D

Demographic Report Form

Demographic Report Form

From Outpatient Client Satisfaction Survey

Last grade completed _____

Income level:

_____ Below \$300 _____ \$301 to \$600 _____ \$601 to \$900 _____ Above \$900

From chart review

Age _____

Gender: _____ Male _____ Female

Race: _____ White _____ Black _____ Hispanic _____ Other

Insurance coverage: _____ None _____ Medicaid _____ Medicare

_____ Private Insurance _____ Other

Risk factor:

_____ Homosexual not IVDU _____ Homosexual IVDU

_____ Heterosexual not IVDU _____ Heterosexual IVDU

_____ Bisexual not IVDU _____ Bisexual IVDU

_____ Sex Partner of IVDU _____ Sex partner of bisexual

_____ Blood recipient _____ Sex Partner of Blood recipient

_____ Occupational Exposure _____ Sexual assault victim

Most recent CD4 cell count _____

Appendix E

Sample Inclusion Criteria Tool

Sample Inclusion Criteria Tool

<u>Inclusion Criteria</u>	YES	NO
1. Does the client receive health care services at the specialized nursing clinic?	_____	_____
2. Is the client 18 years of age or older?	_____	_____
3. Is there a + Western Blot documented on the chart?	_____	_____
4. Has the client seen a health care provider and received health services at the clinic during the 12 month period preceding this study?	_____	_____
5. Can the client speak, read and write English?	_____	_____
 <u>Exclusion Criteria</u>		
6. Did the client have an active case of PCP at their first clinic visit?	_____	_____
7. Was the client diagnosed and treated for PCP by another health care provider and then referred to either clinic with an active or convalescing case of PCP?	_____	_____

Appendix F
Instructions for Clinic Staff
and
Instructions for Clients

Instructions for Clinic Staff

This research project will evaluate the quality of care provided by the staff to enrolled HIV infected clients. One aspect of quality will be determined by the client's perspective. The clients will be asked to participate by answering a satisfaction survey. This survey will be placed inside some of the clients charts. At the end of the clinic visit please give this survey to the client. Ask them to fill it out and return it to the survey response box in the waiting room. All responses will be confidential. Please DO NOT assist the client in completing the form. If you have any questions regarding this research project please contact the IRB Coordinator at the Office of Research Services and Sponsored Programs at Georgia Southern University at 912-681-5465. Thank you for your cooperation and help in this matter.

Georgia Southern University MSN Student

Instructions for Clients

A research project to study quality of care is being done at this clinic by a graduate nursing student. Your input on your satisfaction or dissatisfaction of the care you receive here is very important. Your responses will be completely confidential and identified by a computer generated identification number only. All information with your name on it will remain in the clinic. After the data is collected, the researcher will destroy any computer generated lists of names or identifying numbers that were produced for this research project. Please answer the questions on the following pages as honestly as you can. Place the completed surveys in the survey response box in the waiting room.

Completing this survey will be consent to participate in this study. You will not be contacted or asked for any other information. Your chart will be reviewed by a researcher for information about the care you have received at this clinic. All information viewed will remain confidential. Your name will not appear with any of the results. A copy of the results of this study will be available for you to review. This will be placed at the front desk of this clinic at the end of the study.

If you choose not to participate in this study please indicate this by marking the space provided on the first page of the survey. Your care will in no way be affected if you chose not to participate in this study.

Thank you for your cooperation and help in this matter. If you have any questions about the questionnaire or the research project please call the IRB Coordinator at the Office of Research Services and Sponsored Programs at Georgia Southern University at 912-681-5465. Georgia Southern University MSN Student

Appendix G
Approval Letter



ACADEMIC EXCELLENCE
**GEORGIA
SOUTHERN
UNIVERSITY**

OFFICE OF RESEARCH SERVICES & SPONSORED PROGRAMS

GEORGIA SOUTHERN UNIVERSITY
POST OFFICE BOX 8005
STATESBORO, GEORGIA 30460-8005
TELEPHONE (912) 681-5465

October 8, 1997

Deborah Griggs
2410 East 39th St.
Savannah, GA 31404

Dear Ms. Griggs:

I have reviewed your proposed study entitled, "Quality of Care Provided by Nurses and Physicians to HIV Infected Clients in Two Outpatient Settings." After reviewing the proposal, the data collection instruments, and informed consent, it appears that only minimal risk exists for the research subjects. I am, therefore, on behalf of the Institutional Review Board able to certify that adequate provisions have been planned to protect the rights of the human research subjects.

This approval is in effect for one year. If at the end of that time, there have been no changes to the approved research protocol, you may request an extension of the approval period for an additional year. If circumstances change or unforeseen events occur, please notify the IRB immediately. Upon completion of your research notify the IRB so that your file may be closed.

I wish you every success with this and future research efforts.

Respectfully,

Howard M. Kaplan, Chair
Institutional Review Board
Georgia Southern University

Cc: Dr. Charlene Hanson