EVALUATION OF FOOD SAFETY EDUCATION MATERIALS FOR PERSONS WITH HIV/AIDS

By

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the thesis of EMILY WILLMORE HOFFMAN find it satisfactory and recommend that it be accepted.

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EVALUATION OF FOOD SAFETY EDUCATION MATERIALS FOR PERSONS WITH HIV/AIDS

Abstract

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Persons with HIV/AIDS are more at risk than the general population for foodborne illness due to their immune compromised state. This thesis reports data from extensive pre-testing of five pilot food safety education materials for patients with HIV/AIDS (n=32) and their health care providers (n=25). Initial patient data identified patient health beliefs about food safety utilizing the Health Belief Model. Following review of pilot materials by patients, patient data were collected to evaluate the materials and determine patient stage of change relative to using the food safety materials. All patient data were collected during four focus group sessions and included both quantitative data (survey questionnaire, materials evaluation forms) and qualitative data (focus group discussion). Provider data were collected by mail questionnaires to assess perceptions of effectiveness of the food safety materials for patients, to identify how the health care provider would use the educational materials, and to identify providers' perceptions of patient health beliefs related to food safety. Overall, patients had positive health beliefs, appeared receptive to food safety messages and materials, and appeared confident in using the materials. Health beliefs did not differ among patients by age,

education, or time since diagnosis. However, following food safety education, intention to avoid raw eggs was greater among older ($p<0.05$) and more educated patients ($p<0.05$), and intention to properly store and reheat leftovers was greater among older patients ($p<0.01$). Findings suggest that HIV/AIDS patients may need education emphasizing the use of food safety recommendations in every day life. Providers had positive health beliefs about food safety and felt positively toward the materials. The booklets, *Keeping Foods Safe* and *Take Control*, were highly rated among both patients and providers. Most providers felt that they did not need additional information on food safety to distribute the materials to patients. A comparison of health beliefs of providers versus patients using logistic regression revealed that providers had a stronger belief in the importance of handling and cooking food safely ($p<0.05$). Further research is needed to determine actual food safety behavior change in HIV/AIDS patients with use of the food safety education materials.

TABLE OF CONTENTS

LIST OF TABLES

Page

LITERATURE REVIEW

HIV/AIDS

Introduction

In 1981, physicians in New York and California first discovered an immunodeficiency syndrome among young, previously healthy homosexual men who presented cases of rare diseases such as Kaposi sarcoma, and opportunistic infections such as *Pneumocystis carinii* pneumonia and lymphadenopathy (1). The term Acquired Immunodeficiency Syndrome (AIDS) was used to describe this syndrome. After several false leads, investigators concluded that AIDS cases and their occurrence in diverse risk groups could be explained only if an infectious microorganism caused AIDS and that this organism was transmitted through sexual contact and/or blood (1). In 1983, a French research team published experimental data indicating an association between a retrovirus and AIDS (1). In 1984, the French research team and researchers at the U.S. National Institutes of Health published virological and epidemiological evidence that the virus now known as Human Immunodeficiency Virus (HIV) was the cause of AIDS (1).

Incidence in the Population

According to the Centers for Disease Control and Prevention (CDC), in the United States there are an estimated 800,000 to 900,000 people currently living with HIV, with approximately 40,000 new HIV infections occurring in the U.S. every year (2). Approximately 70% of new HIV infections each year occur among men and 30% occur among women (2). Men who have sex with men represent the largest proportion of new infections (42%), followed by men and women infected through heterosexual sex (33%) and injection drug use (25%) (2). All 50 states, the District of Columbia, and all U.S.

territories require reporting of AIDS cases to local health authorities, which in turn use a uniform surveillance case definition and case report form to report cases to the CDC (3).

Cases of AIDS show patterns by gender and race. As of December 2000, 774,467 AIDS cases have been reported in the U.S., with 640,022 cases reported among men and 134,331 among women (2). Forty-two percent of AIDS cases are reported among whites, 37% among blacks, and 18% among Hispanics (2). By race, 54% of new HIV infections occur among blacks, though they only represent 13% of the U.S. population (2). Hispanics, who make up about 12% of the U.S. population, account for 19% of new HIV infections (2). Whites make up 26% of new HIV infections (2). Sixty-four percent of new infections in women occur in blacks, followed by 18% in Hispanics and 18% in whites (2). Among women with new infections, 75% are infected though heterosexual sex and 25% are infected through injection drug use (2). In men, 50% of new HIV infections occur in blacks, 30% in whites and 20% in Hispanics (2). Of those men, 60% are infected though men who have sex with men, 25% are infected through injection drug use and 15% are infected through heterosexual sex (2).

A total of 448,060 deaths from AIDS were reported in the U.S. through December 2000 (2). Due to continual advances in treatment of HIV and AIDS, there has been a dramatic decline in these deaths and a slower progression of HIV to AIDS. More people are living with AIDS than ever before. For example, in 1998, 274,624 persons were living with AIDS in the U.S; by 2000, the number reached 322,865 (2).

In the state of Washington, 291 persons were diagnosed with HIV and 363 persons were diagnosed with AIDS in 2003 (4). From 1982 to 2003 in Washington, a total of 3,638 persons have been diagnosed with HIV and 10,892 have been diagnosed

with AIDS (4). Of those persons diagnosed with HIV, 85% were men and 15% were women (4). Of those persons diagnosed with AIDS, 92% were men and 8% were women (4). Men who have sex with men represent the largest proportion of new infections (73%), followed by injection drug use (18%), and heterosexual sex (3%) (4). In Washington State, 73% of HIV cases are reported among whites, 14% among blacks, and 8% among Hispanics (4). A total of 5,912 AIDS-related deaths and 133 HIV-related deaths have been reported for Washington through December 2003 (4).

Disease State and Pathology

The pathogenic events of an HIV infection are extremely complex and multi-factorial (1). HIV enters the body and binds to Langerhans or dendritic cells, which carry the virus to CD4+ T cells (1). The HIV virus is an enveloped virus that contains two copies of RNA (4). Through a surface glycoprotein, the virus binds to cellular receptors, most commonly CD4+ T cells in association with a chemokine receptor (3).

Once inside the cell's cytoplasm, the viral reverse transcriptase (RT), along with other viral proteins, converts the viral RNA into a double-stranded DNA molecule (3). To do this, the virus first uses the viral RNA as a template to polymerize DNA and form a RNA:DNA hybrid (3). Then it degrades the RNA with the Rnase H activity associated with the enzyme (3). The resulting single-stranded DNA is then used as a template to polymerize the second DNA strand (3). Once double-stranded viral DNA is formed, it is transported to the nucleus of the CD4+ T cell, where it is integrated into the cellular genome with the aid of other enzymes (3). After integration, HIV DNA is transcribed and translated using predominantly cellular transcription and protein synthesis (3). Viral

replication of HIV accelerates, and massive viremia leads to the widespread release of virus throughout the body's lymphoid tissue (1).

After widespread release of the HIV infected cells, an HIV-specific immune response occurs and the virus is trapped on the follicular dendritic cells of the germinal centers in the lymphoid tissue (1). Despite both cellular and humoral immune responses after HIV infection, the HIV virus is not completely contained and leads to progressive immune suppression (5). At this point, chronic and persistent infection is established despite the immune response to the virus (1). Immune activation is an important driver of HIV replication and is mediated by the secretion of various cytokines and by aberrant cell signaling caused by interaction of the viral envelope with cellular receptors (1). Because there is usually only partial immune control of virus replication, a continual, accelerated production of virus continues (1). This is associated with a rapid turnover of CD4+ T cells. Ultimately, lymphocyte depletion occurs, along with destruction of the architecture of lymph tissue (1).

Initial or primary infection with HIV can be followed by an acute mononucleosis-like illness (3). Features of this acute illness associated with becoming HIV-positive include fever, lymphadenopathy, sweats, myalgia, arthralgia, rash, malaise, lethargy, sore throat, anorexia, nausea, vomiting, diarrhea, headache, photophobia, and mucocutaneous ulcers (3). Estimates of the prevalence of these symptoms among persons with primary HIV infection range from 40% to 90% (3). The signs and symptoms of acute HIV infection are usually manifested days to weeks after exposure with the duration of the illness lasting from 1 to 2 weeks (3). After the acute illness a period of asymptomatic illness occurs while HIV infection is still progressing (3). Factors that may enhance the

efficiency of transmission of HIV include higher viremia in the infecting partner, receptive anal intercourse, sex during menses, and the presence of other Sexually Transmitted Diseases (STD) (3).

AIDS is the most severe manifestation of a clinical spectrum of illnesses caused by HIV (3). AIDS is defined by the development of serious opportunistic infections, neoplasms, or other life-threatening manifestations resulting from progressive HIV-induced immunosupression (3). The progression of an untreated HIV infection to AIDS takes an average of 10 years (6). However in untreated HIV infection, ongoing viral replication generally leads to progressive damage to the immune system, ultimately resulting in AIDS or death (3). Although the rate of disease progression varies widely, exceptions to this principle are rare (3). Use of antiretroviral therapy can prolong the HIV state but may not completely stop the progression to AIDS.

Immunity and Treatment

"Immune compromised" can be defined as having suppressed immune function. An immune compromised state manifests itself in different ways; for example, in pregnancy there is a down regulation of cellular immune function to support the fetus, leading to increased susceptibility to certain infections (7). For patients with HIV/AIDS, the immune-compromised state is caused by the destruction of the immune system through the HIV virus. This destruction of the immune system can facilitate the multiplication of opportunistic pathogens and infections.

One of the most impressive scientific advances in HIV/AIDS is in the development of effective antiretroviral drugs for treating individuals infected with HIV and AIDS (1). Many different drugs have been developed to center on the vulnerable

targets in the replication cycle of the virus (1). Currently there are 20 FDA-approved drugs or combinations of drugs for HIV (1). The availability of these drugs or drug therapies has transformed the treatment of individuals infected with HIV so that incidence of the immune compromised state and death from AIDS have decreased in the U.S. and other countries where the drug therapies are available (1).

An untreated HIV infection with ongoing viral replication generally leads to progressive damage to the immune system, ultimately resulting in opportunistic infections, neoplasms, and death (3). The goal of antiretroviral therapy is to prevent and possibly reverse immunologic deterioration and avoid opportunistic infections related to HIV disease, thereby prolonging survival (3).

The finding of latent reservoirs of HIV in persons taking antiretroviral therapy has had a sobering effect on hopes that HIV has been eliminated in individuals whose viral load of HIV is rendered 'undetectable' (1,8). Studies have shown that individuals who have received antiretroviral therapy for up to three years and whose plasma viral levels are undetectable may nevertheless have the HIV virus return within weeks of discontinuing the therapy (1).

Along the replication cycle of HIV, several points are targeted for antiretroviral therapy. Nucleoside analogue reverse transcriptase inhibitors (NRTI) inhibit viral replication by acting as nucleoside analogues and interfering with the DNA polymerase function of the viral RT (3). Non-nucleoside reverse transcriptase inhibitors are noncompetitive inhibitors of RT and cause allosteric inhibition of enzyme function by binding at sites distinct from the nucleoside-binding site (3). Because enzymes responsible for these steps are ubiquitous, nucleotide RT inhibitors may have antiviral

activity in a broader range of tissues and cell types (3). Once converted intracellularly to its diphosphate form, the nucleotide analogue competes with RT's natural substrates and can function as a chain terminator (3). Finally, protease inhibitors appear to block the necessary cleavage of polyproteins used to produce mature HIV proteins in the late stages of the viral replicative cycle, causing the production of immature, defective viral particles (3).

In 1995, through several clinical drug trials, scientists found clinical efficacy for using a protease inhibitor in combination with two NRTIs (8). Subsequent landmark studies demonstrated the efficacy of triple combination therapy, or highly active antiretroviral therapy (HAART), in markedly reducing mortality and suppressing the HIV viral load (8). HAART is defined as the combination of at least three antiretroviral drugs or any combination containing a protease inhibitor (9). Some major obstacles of HAART are the complicated regimens requiring high pill burdens, multiple daily administrations and differing interactions with food (8). Despite the many problems faced with HAART, it has dramatically changed the face of AIDS in the developed world by significantly reducing morbidity and mortality (8).

Another positive effect of HAART is the restoration of immune function, which routinely occurs in long-term therapy and leads to the regeneration of healthy CD4+ cellular responses to antigens (8). This commonly results in the resolution of persistent opportunistic infections (8). With an increase in the immune response due to drug therapy, there has been a dramatic improvement in patient care (8). Physicians are now able to withdraw suppressive antimicrobial therapy for many opportunistic infections caused by such organisms as *Pneumocystis carinii* and *Toxoplasma gondii* (8).

Health Costs Incurred With HIV/AIDS

In 1996, the annual direct expenditures for the care of HIV in the U.S. exceeded $20,000 per patient per year (8, 10). Bozzette et al (1996) randomly sampled HIV-infected adults receiving medical care in the U.S. during the first two months of 1996 (11). The expenditures for the estimated 335,000 HIV-infected adults seen at least as often as every six months were $6.7 billion, which is roughly about $20,000 per patient per year (11). The estimated annual direct expenditures for the care of the patients seen during the first two months of 1996 were $5.1 billion (11). Bozzette et al (1996) also found that 46% of persons sampled had incomes of less than $10,000 and 68% had public health insurance or no insurance (11). Therefore, many persons were relying on the state and national governments for the treatment and management of their HIV/AIDS.

Food Safety Issues

Since many opportunistic infections are foodborne and can cause serious illness in immune compromised individuals, these individuals are at a higher risk compared to the general population. Food safety becomes an important area of care and self-management in long-term immune compromised individuals, especially for persons with HIV/AIDS.

Food Safety Issues in the General Population

It was estimated in 1996 that over 10% of the U.S. population experienced a foodborne illness each year, at an annual cost to the economy that approaches $10 billion (1996) (12). Changes in population demographics, available foods, and diverse sources of food have facilitated the emergence of new pathogens and food vehicles for their transmission (13). However, the extensive work of food safety educators, the food industry and government programs have contributed to a decrease in several major

bacterial foodborne illnesses in the United States (14). Since 1996, CDC FoodNet has collected data on seven bacterial foodborne diseases in the U.S (14). During 1996-2001, incidence of infections caused by *Listeria monocytogenes*, *Campylobacter jejuni, Escherichia coli* O157*, Cryptosporidium parvum*, and *Salmonella species* has shown a substantial and sustained decline (*Listeria* decreased 35%, *Campylobacter* 27%, *Salmonella* 15%, *E.coli* O157 21% and *Cryptosporidium* 33%) (14). While the decrease in foodborne illnesses is promising, there is still research and education needed to diminish illness caused by pathogens in food.

Over the past 26 years, at least 88 consumer food safety studies have been carried out; the majority of these studies have been conducted in the United Kingdom and Northern Ireland (48%) or in the United States (42%) (15). These studies were analyzed by Redmond and Griffith (2003) for social cognitive components, observed behaviors, and food safety findings (15). In one consumer mail survey (n=605) conducted in the U.S., the majority (80%) of consumers felt that they are adequately informed and knowledgeable regarding food safety (15). However, while consumers are aware of some safe food handling practices, they lack knowledge of others (15). Based on four observational studies conducted in consumers' homes in North America and the U.S. from 1997-2000, Redmond and Griffith reported that 25%-71% of U.S. consumers used improper procedures leading to cross-contamination (15). One observational study in 2000 found that 84% of cross-contamination actions observed involved potential transmission of pathogens from contaminated raw foods to ready-to-eat foods (15). A U.S. phone survey (n=1,620) regarding food safety issues found that 86% of U.S. consumers knew that hand washing reduced the risk of food poisoning (15). In addition,

a mail survey (n=426) from the U.S. found that 88% of consumers demonstrated an understanding of cross-contamination from raw to cooked food (15). Redmond and Griffith concluded that consumers' knowledge has been found to be insufficient to ensure safe food preparation in the home to lower the risk of foodborne illness (15).

Redmond and Griffith estimated that over the past decade, up to 87% of reported foodborne disease outbreaks in the United Kingdom, Europe, Australia, New Zealand, the United States, and Canada have been associated with food that was prepared or consumed in the home (15). Thus, the food safety measures taken by consumers play a very important role in preventing foodborne illnesses. Redmond and Griffith concluded that consumers are usually the final step in the food preparation process (15). Therefore, safe food handling by the consumer in the kitchen is considered to be "the final line of defense" (15).

Other observational studies have been conducted in North American homes to determine if households were using proper food handling practices. Audits International, a private auditing company that audits foodservice establishments in North America, conducted a Home Food Safety Study (HFSS) in 1997, 1999, and 2000 to determine how often consumers used proper food safety practices at home (16). In the 2000 survey, which included a convenience sample of 115 households in 74 metropolitan areas, auditors observed meal preparation, service, post-meal cleanup and handling/storage of leftovers (16). Critical violations were assessed and defined as any behavior with the potential to cause foodborne illness or injury, for example, neglected hand washing, improper food preparation techniques, cross-contamination, improper cooling of leftovers, and finished internal cooking temperatures too low (16). Major violations were

defined as contributing factors to foodborne illness such as improper thermometer use, use of expired food products, improper food preparation techniques, and dishtowel misuse (16). Of the 115 households, only 24% met the criteria for acceptable performance, defined as a household with no critical violations and no more than four major violations (16). Households averaged 1.6 critical violations, and at least one critical violation was observed in 74% of the participating households (16). The most common critical violations included neglected hand washing (29%), improper food preparation techniques (26%), and behaviors causing cross-contamination (25%) (16). Also, 40% of critical violations were associated with a lack of education, 40% with a lack of conscious awareness, and 20% with a lack of motivation (16).

More recently, Anderson et al (2004) published an article comparing consumer food-handling behaviors with the Fight BAC! consumer food-safety recommendations (17). The authors recruited 99 individuals to be videotaped in their home while preparing a meal. The videotapes were coded according to the Fight BAC! recommendations: clean, separate, cook, and chill to keep food safe from harmful bacteria (17). The authors found that the subjects did not follow the recommendations for safe food handling. Of the 477 observed cross-contamination incidents, 84% were transmitted to ready-to-eat foods from raw meat, poultry, seafood, or egg (17). Unwashed hands were the most common cross-contamination agent. Many subjects undercooked the meat and poultry entrees (17). The entrée that was most frequently undercooked was the chicken breast, with 20 of 33 (61%) of subjects failing to meet the Fight BAC! temperature standards (17).

Unsafe food handling practices may be underreported by survey research, as opposed to observational studies. In 1996 the FDA analyzed data from a nationwide survey of 1,620 consumers who were asked about their awareness and knowledge of specific pathogens in food, their knowledge of certain food safety principles, and their typical food-handling practices (12). Approximately two-thirds of the respondents reported safe practices for three principles of food handling (washing hands, preventing cross-contamination, and adequate cooking of meat) (12). However, knowledge of specific food-handling principles was more prevalent than the corresponding safe hygiene practices (12). Eighty-six percent of the food preparers knew that hand washing reduces the risk of food poisoning, but only 66% washed their hands after handling raw meat or poultry (12). Eighty percent of the food preparers knew that serving steak on a plate that had held raw steak increased the risk of food poisoning, but only 67% cleaned a cutting board after contact with raw meat or poultry (12).

Other survey data that has been collected on food handling and food consumption of consumers during the 1990's includes the Behavioral Risk Factor Surveillance System Survey (BRFSS). From 1995 to 1996, a multi-state BRFSS survey of consumer food-handling and food consumption practices was completed (13). The authors of the study analyzed the BRFSS data on risky food handling and food-consumption behaviors from 19,356 interviews with adults in Colorado, Florida, Indiana, Missouri, New Jersey, New York, South Dakota, and Tennessee (13). Almost one out of five respondents reported not routinely washing their hands with soap after handling raw meat or chicken, and 19% reported not routinely washing cutting boards with soap or bleach after cutting raw meat or chicken (13). Overall, 20% of respondents reported eating pink hamburgers during the

previous 12 months and fifty percent of respondents reported eating undercooked eggs during the previous 12 months (13). Men and young adults were most likely to report risky behaviors (13). Findings suggest that many consumers could benefit from food safety education (13).

Foodborne Illness Rates

Rates of certain types of foodborne illness indicate areas of greatest risk, particularly for vulnerable populations, as well as directions for public health action including consumer education. Using various data sources[1], Mead et al determined foodborne illness rates for specific pathogens (18). The authors adjusted the figures to account for underreporting and estimated the proportion of illnesses, hospitalizations, and deaths specifically attributable to foodborne transmission (18). Foodborne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the U.S. each year (18).

Some specific foodborne illnesses are of interest to the HIV/AIDS population owing to common opportunistic pathogens that impose greater risk when the immune system is compromised. Table 1 presents a summary of specific pathogens, their foodborne illness rates and causes, and related hospitalizations, deaths, and costs for the general population. *Campylobacter jejuni* represents the most cases of foodborne illnesses (1,963,141) and the most money spent on a foodborne illness ($1,798,000,000).

[1] Foodborne Diseases Active Surveillance Network (FoodNet), the National Notifiable Disease Surveillance System, the Public Health Laboratory Information System, the Gulf Coast States Vibrio Surveillance System, the Foodborne Disease Outbreak Surveillance System, the National Ambulatory Medical Care Survey, the National Hospital Ambulatory Medical Care Survey, the National Hospital Discharge Survey, the National Vital Statistics System, and selected published studies

However, per treatment of individual case, *Listeria monocytogenes* ($11,632/case) and *Toxoplasma gondii* ($11,084/case) account for the most money spent. The food handling practices most associated with these pathogens are inadequate cooking and cross-contamination.

Table 1: Foodborne illness rates for the general populations (18, 21)

Disease	Foodborne Illness	Hospitalizations	Deaths	Costs (in Millions)	Causes
Campylobacter jejuni	1,963,141	10,539	99	1,798	Inadequate cooking and cross-contamination
Salmonella spp	1,341,873	15,608	553	1,190	Inadequate cooking and cross-contamination
Toxoplasma gondii	112,500	2,500	375	1,247	Inadequate Cooking and Cross-contamination
Escherichia coli O157:H7	62,458	1,843	52	205	Inadequate cooking and cross-contamination
Cryptosporidium parvum	30,000	199	7	—[1]	Contaminated food or water
Listeria monocytogenes	2,493	2,298	499	29	Contaminated food

[1]Data not available

Food Safety Issues for the HIV/AIDS Population

Susceptibility of Foodborne Illness for Immune Compromised Individuals

Foodborne infections pose the greatest risk to immune-suppressed individuals because pathogens more easily invade host cells when cell-mediated immunity has been compromised (7). All population groups widely known for being at high risk for

foodborne illness are collectively characterized by suppressed immune function, whether from age, reproductive state, pharmacological therapy treatment, or diseases such as HIV/AIDS (7).

Foodborne illness rates in HIV/AIDS Patients

Studies of foodborne illness conducted with HIV/AIDS patients have found that HIV/AIDS patients are more susceptible to *Toxoplasma gondii* (toxoplasmosis), *Salmonella* species (salmonellosis), *Campylobacter jejuni* (campylobacteriosis), *Vibrio* species (*Vibrio* infection) and *Listeria monocytogenes* (listeriosis) (7,19,20). Data on salmonellosis suggest that risk for nontyphi *Salmonella* infections is increased 20- to 100-fold among AIDS patients compared to the general population (19, 20). Persons infected with AIDS who have salmonellosis have a several fold increase in the risk for septicemia (19). AIDS also increases risk of infection at extra intestinal sites, compatible with an overall increase in risk for dissemination of the organism (19).

The prevalence of listeriosis - an infection of *Listeria monocytogenes* - is higher in people with AIDS than in the general population (20). The incidence of listeriosis in AIDS patients in San Francisco was estimated to be approximately 280 times that of the general population (19, 20). Of 98 nonpregnant adults with invasive *Listeria* infection identified between November 1988 and December 1990 in selected areas of California, Tennessee, Georgia, and Oklahoma, 20% were HIV-positive (20). Thus, there was a higher prevalence among persons with HIV with a *Listeria* infection compared to the normal population (19). Bacteremia and acute meningitis are the major clinical symptoms of AIDS-associated listeriosis (20). Untreated listeriosis in AIDS patients has a case-fatality rate as high as 70% (20).

A 35-fold increase in the *Campylobacter jejuni* case rate among persons with AIDS was noted in one study from Los Angeles (19). Other data indicate that HIV-positive patients can contract persistent *C. jejuni* infections, with chronic diarrhea, fever, and fecal leukocytes (19).

Before AIDS awareness, *Toxoplasma gondii* was of concern primarily because of the risk for congenital infection in mothers who had acute toxoplasmosis illness during pregnancy (19). *T. gondii* is now the leading cause of cranial lesions in persons with AIDS (19). Data from the 1980s suggests that 5% to 10% of AIDS patients develop toxoplasmic encephalitis (19). In an estimated 50% of cases, *Toxoplasma* is transmitted by food (19).

The three principle types of infections due to *Vibrio* spp in humans are gastroenteritis, wound infections, and septicemia (20). Patients infected with HIV are potentially at increased risk for *Vibrio* septicemia; an elevated risk of *Vibrio* septicemia has been observed in patients with other immune compromised conditions (20).

The AIDS epidemic has also drawn attention to microorganisms not previously recognized as pathogens (19). In early investigations of AIDS-associated diarrhea, it became apparent that most patients were not infected with traditional enteric pathogens (19). Many of these patients were infected with *Cryptosporidium parvum* (see Table 1); an estimated 10% to 20% of cases of AIDS-associated diarrhea are due to this microorganism (19).

Food Safety Issues of the Immune Compromised Population

According to Kendall et al (2003) only a few types of food handling errors are responsible for the majority of foodborne illness cases (7). Also, when educators focus

on messages about changing behaviors that can cause foodborne illness, food safety education is most effective (21). Food safety educators should concentrate their food safety education efforts on high-risk behaviors instead of emphasizing all food handling behaviors equally (7). There is also a need for nutrition and health education programs to educate the most vulnerable population groups so these groups can become aware of their greater risk of foodborne illness (7).

Using a convenience sample of known food safety experts, Medeiros et al (2001) used the Delphi process to identify key behaviors that can act as control factors for food safety for consumers (22). Five major factors for pathogen control were advocated to reduce common foodborne pathogens and errors in food handling: 1) maintain personal hygiene, 2) cook foods adequately, 3) avoid cross-contamination, 4) keep foods at safe temperatures, and 5) avoid foods from unsafe sources (21,22).

Core content of food safety education needs to address preventing pathogens from being transmitted through the five major factors for pathogen control. Pathogens that are associated with practicing personal hygiene are mainly transmitted through human feces (21). Pathogens associated with cooking foods adequately are transmitted through animal foods to humans (21). Pasteurization and/or cooking is the primary control mechanism for pathogens in meat, eggs, and dairy products (21). Food producers and processors are not able to provide raw foods that are pathogen-free; therefore cross-contamination in the home kitchen can cause foodborne illness (21). Messages about keeping food at safe temperatures include thawing, storing, and serving foods at a safe temperature (21). Foods from unsafe sources are foods likely to be contaminated with pathogens and include unpasteurized milk and fruit juices, raw sprouts, raw seafood, and raw eggs. In

addition, *Listeria* contamination of some ready-to-eat products, including soft cheeses, smoked fish, deli salads, hot dogs, and lunchmeat, occurs on an occasional basis; these foods are not recommended for persons infected with HIV unless they are heated prior to consumption (21).

Persons with HIV/AIDS may be susceptible to opportunistic foodborne pathogens. Also, certain behaviors they use can lead to an increased risk of foodborne illness. These behaviors need to be determined and addressed through content of food safety education materials. Using a Delphi method by web-based survey, Kendall et al (2003) asked food safety professionals to rank-order consumer behaviors that were related to 13 pathogens and 5 pathogen control factors for immune compromised persons (7). The authors found 12 behaviors that were rated by more than 80% of the informants as being of special importance to the HIV/AIDS target audience. Of these twelve, eight were associated with avoiding foods from unsafe sources and two were associated with cooking foods inadequately and permitting cross-contamination (7). Two of the highest-rated or most critical behaviors to avoid foodborne illness were “Avoid eating raw or undercooked seafood” and “avoid eating raw sprouts" (7).

USDA Food Safety Project

In response to evidence for increased risk of immune compromised populations to foodborne illness, the USDA funded competitive grants for projects developing food safety education materials for selected at-risk audiences. As part of a tri-state project funded by the USDA, food safety education materials were developed and pilot-tested for persons with HIV/AIDS, pregnant women, and cancer/transplant patients. This thesis represents part of the work completed for the HIV/AIDS population. The USDA tri-state

food safety project is entitled “Food Safety for the Immune Suppress/Compromised: A Multi-Media Approach.” The project’s goals were: 1) to understand the beliefs, motivators and barriers that potentially affect adoption of safe food handling practices among immune compromised individuals; 2) to understand the food safety attitudes and beliefs of health care professionals that work with these high-risk audiences; 3) to use this knowledge in developing and evaluating the effectiveness of consumer/patient education materials (23).

Each university participating in the project was to develop food safety education materials designed to raise awareness of the target audience about increased risk for acquiring certain foodborne illnesses and the potential for long-term complications. Food safety education materials from the Washington team were designed to increase self-efficacy in the HIV/AIDS patient's ability to prevent foodborne illness. Another purpose of the food safety education materials was to provide educational resources to persons with HIV/AIDS (29).

Steps to develop the materials were designed by the three collaborating universities. First, focus groups were conducted with persons with HIV/AIDS in Washington, Colorado, and Ohio. From this data, key motivators and barriers to adopting safe food handling practices were identified for patients. The theoretical framework for both the focus groups and the development of the materials was the Health Belief Model. Existing literature on pathogens, risk and prevention of foodborne illness, and educational materials development contributed to content and approach of the food safety materials. Five different materials were developed for pilot testing: two booklets, "Take Control" and "Keeping Foods Safe"; two brochures, "Safe Food Handling" and

"Dining Out and Traveling"; and one magnet, "Keeping Your Body Safe". After materials were developed, a protocol was designed to pre-test the materials with patients. The protocol utilized a focus group setting in which selected interview approaches would be used: a focus group discussion guide, a Materials Reaction Form to capture initial impressions of each material, and a Material Rating Form for the patient to rate understandability and other features of the material.

For thesis research, two components were added: patient surveys during the focus group sessions and health care provider surveys. Therefore the thesis included the following components:

- Analysis of data from the focus group discussion and Materials Reaction and Rating Forms;
- Design, collection, and analysis of survey data from patients during the focus group session to determine pre-existing health beliefs (prior to review of materials) and readiness to use the food safety materials (after review of materials);
- Design, collection, and analysis of survey data from providers working with HIV/AIDS patients to determine the providers' evaluation of the materials and perspective on potential use of the materials.

In the following section, the preliminary project, materials development, and steps leading up to the thesis project are described. Then, goals and objectives of the thesis component are identified.

Preliminary Project: Developing Food Safety Materials

Preliminary Data From Patients

Focus groups with HIV/AIDS patients were conducted as a precursor to materials development. Focus group data identified attitudes and beliefs that affect food selection, preparation and handling behaviors related to food safety, as well as patients' motivators and barriers to adoption of food handling behaviors. This information was needed to assess what HIV/AIDS patients knew about food handling behaviors, what might motivate them to follow these behaviors, and what might hinder them from using them. Data were incorporated into the food safety education materials for HIV/AIDS patients.

During 2002, HIV/AIDS patients were recruited to participate in eight focus groups in Washington (4 groups), Ohio (2 groups), and Colorado (2 groups). Subjects were recruited through flyers at health care agencies and health care providers that work with HIV/AIDS patients. Participants were asked to complete a demographic questionnaire and participate in a focus group discussion about specific food safety recommendations. The discussion guide was developed using guidelines recommended by Krueger (24). The focus group session started with an introduction about the purpose of the project and then a series of general questions were asked regarding foodborne illness concerns for HIV/AIDS patients. Specific food safety recommendations for persons with HIV/AIDS and questions about participants' food safety information needs were discussed. Table 2 presents the food safety recommendations presented to patients. The discussion guide was based on constructs from the Health Belief Model, specifically asking patients about motivators and barriers to following recommendations as well as specific cues to action to following the recommendation.

Table 2: Recommendations used in patient focus groups (7,21,22)

Recommendations
Drink only pasteurized milk and fruit juices.
Use cheese and yogurt made from pasteurized milk.
Use a thermometer to make sure the meat and poultry (including ground) are cooked to safe temperatures.
Avoid eating foods containing raw eggs. Use pasteurized eggs or egg products in uncooked foods containing eggs.
Avoid eating raw sprouts.
Avoid eating raw or undercooked seafood.
Avoid soft cheese, smoked fish served cold, or cold deli salads (soft cheeses include Brie, Camembert, blue-veined and Mexican-style cheese).
Heat hot dogs and lunch meats to steaming hot or 165°F before eating.
Do not handle pets when preparing food.

The focus group audiotapes were transcribed and analysis was conducted in four stages (25). First, all comments were organized into grids by discussion topic per focus group using the cut and paste method (25). Handwritten grids were recorded into Microsoft Word 2000 and summarized to identify themes within each focus group (25). A theme was defined as one or more persons with HIV/AIDS stating the same information in a group, with few or no opposing comments (25). The total number of participants commenting on each theme was counted and totaled. Next, one other researcher independently analyzed each focus group using the same method. Results were compared and discussed until consensus was reached (25). Third, for each theme identified, the number of groups who identified the theme out of the total number of focus groups conducted was noted as a measure of the overall strength of a theme across groups (25). In the fourth and final step of analysis, two researchers independently assessed each focus group's general level of acceptance of each recommendation (25). All themes identified for each recommendation were coded as acceptance, rejection or

neutral (25). For each recommendation, a group was recorded as having a generally good, mixed, or poor acceptance of the recommendation, based on responses (25). Any differences in categorization between the two researchers were discussed until a consensus of opinion was reached (25). Themes were identified for each food safety recommendation as well as the Health Belief Model constructs of motivators, barriers, and cues to action (25). Focus group data contributed to the content of the food safety pilot education materials.

Conceptual Framework of the Preliminary Study

The Health Belief Model

For the last five decades, the Health Belief Model has been one of the most widely used conceptual frameworks in fields of health behavior (26). The Health Belief Model has been used to explain both change and maintenance of health-related behaviors, and as a guiding framework for health behavior interventions (26). The Health Belief Model was developed in the early 1950s by a group of social psychologists in the U.S. Public Health Service to explain the widespread failure of people who did not participate in programs for detection and prevention of disease (26). The Health Belief Model is a value-expectancy theory and posits that behavior is driven by values and expectations: 1) the desire to avoid illness or to get well (value) and 2) the belief that a specific health action available to a person would prevent or ameliorate illness (expectation) (26).

It now is believed that people will take action to prevent, to screen for, or to control health conditions if they regard themselves as susceptible to the condition, if they believe the condition would have potentially serious consequences, if they believe that a course of action available to them would be beneficial in reducing either their

susceptibility to or the severity of the condition, and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits (26). Applied to preventing foodborne illness, a person will take action to prevent or to control foodborne illness if they regard themselves as susceptible to foodborne illness or having a serious complication relating to that illness. They would also take action if they see a way that would be beneficial in reducing either susceptibility to or severity of a foodborne illness and if the barriers to preventing foodborne illness are far outweighed by the benefits.

The Health Belief Model consists of the following six components: 1) perceived susceptibility, 2) perceived severity, 3) benefits to taking action, 4) barriers to taking action, 5) cues to action and 6) self-efficacy, or confidence in one's ability to take action (Table 3). Discussion guide questions for the preliminary focus groups were based on the Health Belief Model. Content for the food safety materials was to be partly guided by accounting for patient perspectives on benefits and barriers to foodborne illness or avoidance of risky foods and incorporating this information to increase knowledge and enhance self-efficacy. Findings from the focus groups related to the Health Belief Model were utilized directly in materials development. For example, participants in the focus groups kept asking why they had to follow certain recommendations. To increase cues to action, explanations were included to answer "why" some foods are risky and ways to avoid risky foods or prepare foods in ways to reduce the risk. Motivators to follow food safety recommendations expressed by participants in the focus groups were emphasized in the content of the materials to increase self-efficacy.

Table 3. Use of The Health Belief Model in the development of food safety materials

Component	Definition	Application to Food Safety Materials
Perceived Susceptibility	One's belief regarding the chance of getting a condition	Provided statistics and stated that persons living with HIV/AIDS are more at risk for foodborne illness in the materials.
Perceived severity	One's belief regarding the seriousness of a condition and its sequelae	Stated that a foodborne illness can result in long-term health problems and even death.
Perceived benefits	One's belief in the efficacy of the advised action to reduce risk or seriousness of impact	Provided positive action-oriented effects of properly preparing and eating food safely. Gave information on how to act, what to do.
Perceived barriers	One's belief about the tangible and psychological costs of the advised action	Gave enough information on food preparation and pathogens to correct misinformation. Gave information to assist in properly preparing food and gave reassurance.
Cues to action	Strategies to activate one's "readiness"	Explanations were given to issues brought up in focus groups: e.g., "why" some foods are risky, ways to avoid risky foods or change them.
Self-efficacy	One's confidence in one's ability to take action	Materials provided positive action-oriented food selection and handling tips designed to reduce anxiety, and guidance in performing food safety actions to prevent foodborne illness.

Other Resources Used for Format of Materials

Literature on principles of materials development and on testing of materials was used as a guide to develop food safety education materials. For example, bold print,

colorful graphics, text highlighted in colored boxes, bold borders and specific points in text that are marked with dark bullets are identified as 'attention getters' (27). Graphic design features viewed positively for low-literacy nutrition education include a fact or tip sheet format, a card format, a 'modern' appearance and a size that is easy to file (28). Heavier card stock implies importance and thus the materials are less likely to be thrown away (28). Materials should be sized so that they may be easily filed or tucked into a recipe book or notebook (28). Features of printed materials that stimulate reader interest and attentiveness include paperweight, color, texture, print size, and use of graphics (27).

Materials should also be developed to be readable, comprehensive, and clear (27). Education materials should aim to change the primary beliefs related to current thoughts of the target audience (27). Research indicates that low-literacy target audiences in nutrition education want simple, practical, and relevant information about what foods to eat, incorporating suggestive rather than directive information (29). Furthermore, clear information and explanations, features that help personalize the issue being addressed, and information in the 'how to' form is more positively received for low-literacy audiences (30). Also, text with ambiguous terms should have definitions alongside it (28). For the general population, "scare tactics" have little effect and may not be successful in an education campaign (31). For any audience, a threatening persuasive message must be carefully balanced with positive alternatives so that the message doesn't divert the audience into avoiding healthy behavior as a result of being scared or fearing to take steps necessary to change the behavior (31).

Other Resources Used for Content of Materials

Medeiros et al (2003) reported that 5 major food safety behaviors for consumers should be emphasized (21). These five behaviors relate to consumers' errors associated with foodborne illness as well as food sources most associated with common foodborne illness-causing pathogens. They include: 1) practice personal hygiene, 2) cook foods adequately, 3) avoid cross-contamination, 4) keep foods at safe temperatures, and 5) avoid foods from unsafe sources (7). Furthermore, materials describing safe food handling may be more beneficial than materials that focus primarily on the threat of foodborne illness (22). These five food safety behaviors were incorporated into the pilot food safety education materials as the basis for content.

Specific foodborne pathogens were chosen from the literature to fit the context of the education materials as it pertains to content for the HIV/AIDS population. Information was derived from the Food and Drug Administration (FDA) Bad Bug Book and the Centers for Disease Control and Prevention (CDC). The FDA Bad Bug Book lists specific pathogens and their information (32). The CDC website contains fact or tip sheets about HIV/AIDS, specific pathogens and their link to HIV/AIDS as well as information on traveling and pets (33). The final messages in the food safety material are described in Table 4.

Peer Review of Pilot Food Safety Materials

A sequential protocol was used to obtain peer review of the documents. Several groups of technical reviewers were utilized. The first group reviewed the materials for

Table 4: Final Messages of Materials

	Material				
Topics	Safe Food Handling	Dining Out and Traveling	Keeping Foods Safe	Take Control	Keep Your Body Safe
Symptoms of foodborne illness	**X**		**X**	**X**	
Definitions	**X**		**X**	**X**	
Risk to Self	**X**		**X**	**X**	
Information about *Listeria*	**X**		**X**	**X**	
Information about *Toxoplasma*	**X**				
Information about *E.coli*	**X**				
Information about *Salmonella*	**X**				
General food safety guidelines	**X**		**X**	**X**	
General nutrition information				X	
Dining out information		**X**			
Food shopping information			**X**		
List of risky foods to avoid	**X**	**X**	**X**	**X**	**X**
Safe cooking temperatures	**X**		**X**	**X**	
Websites	**X**	**X**	**X**	**X**	

overall technical content and included the principal investigators of the tri-state team (n=3), the team's assistant principal investigators (n=3), and nutrition graduate students (n=2). The principal investigators are academic food safety experts and the assistant principal investigators are nutrition staff at their corresponding universities. After

changes were made from the first peer review, a second technical group reviewed the nutritional content of the *Take Control* booklet. This technical team included four registered dietitians who are public health experts in HIV and nutrition that work in the state of Washington at hospitals, clinics, and health departments. They reviewed the nutrition content from the perspective of a nutrition expert working with HIV patients. Finally, a third group that represented health care professionals who work directly with the HIV population including physicians, case managers, nurses, registered dietitians, a microbiologist and food safety experts reviewed the materials. All reviewers were given a technical review form (Appendix A) for each material and asked to assess technical accuracy and appropriateness, and needed improvements to the materials or food safety information. Thirteen technical reviewers reviewed the material and returned the completed forms. Overall the technical reviewers liked the materials. Some of the reviewers thought the reading level was too high. After peer review, there were only minor wording changes and changes to graphics that were incorporated into the materials.

A WSU team member also conducted an initial pretesting of the food safety education materials with HIV/AIDS patients. This WSU team member contacted three different providers who then forwarded a set of materials to three different persons infected with HIV. The providers were a Licensed Nurse Practitioner in Tacoma, an AIDS foundation caseworker in Tacoma, and a health educator from the Tacoma Pierce County Health Department. The patients (n=4) reviewed the material and contacted the WSU team member using a toll-free phone number for a short anonymous interview. Patient reviewers generally liked the materials; following pretesting, minor wording changes were made to the materials.

Preliminary Project: Development of Material Reaction and Rating Forms and Discussion Guide

A focus group methodology was designed to pre-test the pilot materials with patients. Different kinds of data collection were planned to occur during focus group sessions: 1) the Material Reaction form was used to determine a first qualitative response to each material individually; 2) the Material Rating form was used to determine numeric ratings of quality of each material individually; and 3) a focus group discussion guide was used to prompt open group discussion of the materials.

Material Reaction and Rating Forms

The Material Reaction Form (Appendix B) was designed to obtain the focus group participants' first confidential and independent response to each material. The Material Reaction form was administered after each participant finished reading a specific material. The form asked participants to write down whatever they were thinking to get an initial reaction, even if it wasn't related to the materials they had just read. This form was used to collect feedback that may be forgotten in the course of the focus group discussion or after reading other materials.

The Material Rating Form (Appendix C) used seven-point semantic differential scale with anchored end points as response to questions about the quality of the materials. The form was used to obtain quantitative answers on the material the participants had just viewed. Questions on the Material Rating Form asked about domains of usefulness (1=not very useful to 7=very useful), understandability (1=not very easy to understand to 7=very easy to understand), difficulty (1=not very difficult to read to 7=very difficult to

read), graphics (1=not very appropriate to 7=very appropriate) and recommendations (1=not very willing to 7=very willing).

Discussion Guide

A core Discussion Guide (Appendix D) based on Health Belief Model constructs was developed at Colorado State University, one of the collaborating universities. Table 5 shows the questions adapted for the HIV/AIDS patient sample. Patients were asked questions about what they liked and did not like about the materials, layout, usefulness and readability. After each material was discussed individually, materials were compared and contrasted by asking patients which material they liked best and least, followed by questions about the food safety recommendations given. The discussion guide was peer-reviewed by all collaborating universities. Minor changes were made to the discussion guide to maximize sensitivity to the HIV/AIDS population.

Thesis: Evaluation of Food Safety Materials For HIV/AIDS Population

Evaluation of the materials was needed from both the patient and the provider perspectives. For the original USDA funded project, patient evaluation was to be collected through focus group discussion and Material Reaction and Material Rating forms. For this thesis, two additional survey forms were administered to patients during the focus group session. The survey forms, Patient Survey 1 and Patient Survey 2, were designed to acquire information before (Survey 1) and after (Survey 2) exposure to the food safety education materials. Patient Survey 1 measured health beliefs related to food safety. Patient Survey 2 measured intention or readiness to use the food safety education materials. The health care providers were also an important key to evaluating the materials. Two additional surveys were added onto the project to evaluate the materials

Table 5: Focus Group Discussion Guide

Content	Questions
Introduction and explanation of session	
Review of each material individually	▪ What part in this booklet "stands out the most" or was most helpful? ▪ What part of this booklet did you not like or did not find helpful? ▪ How useful to you is this information provided in this piece? ▪ How would you describe the readability? (Easy or difficult to read?) ▪ In terms of overall layout, how do you like the way it looks?
Questions for the magnet	▪ What are your impressions of this piece as a magnet to put on your refrigerator in your kitchen? ▪ How useful would this be to you as something to hang on your refrigerator? ▪ Would you prefer to receive food safety information on a magnet like this or would you prefer a printed handout or brochure? Why or why not? ▪ How well does the magnet stand-alone or should it be distributed along with one of the other materials?
Comparison of Materials	▪ Which of all of these materials do you like best and why? ▪ After reading these handouts, how willing would you be to follow the recommendations given? ▪ After reading these, how confident do you feel in your ability to prevent foodborne illness? ▪ When considering all the lifestyle changes a person living with HIV/AIDS makes to stay healthy, where does food safety rank with you? ▪ What are some situations or events that might persuade you or spur you to use the material? ▪ What are some of the situations or events that might prevent you from using the material?

through the perspective of health care providers. The health care provider is the gatekeeper to the HIV/AIDS patient. The providers spend time with HIV/AIDS patients and provide information on personal health, potentially including food safety.

The objectives for this thesis project were as follows, with reference to the patient and provider surveys:

Objectives

Specific Objectives for the Patient Surveys 1 and 2:

1. To identify perceived susceptibility to, and severity of, foodborne illness;
2. To identify magnitude of barriers to and benefits of, food safety measures;
3. To identify extent to which distribution of materials to patient would be a cue to action to take food safety steps.
4. To determine patient stage of change relative to using the food safety materials provided.

Specific Objectives of the Health Care Providers Survey 1 and 2:

1. To assess providers' perceptions of effectiveness of the materials for patients, including appropriateness and utility of these materials;
2. To identify how the health care provider would use the educational materials (e.g., with which patients, at what stage, in what circumstances);
3. To identify providers' perceptions of patient characteristics:
    A. Perceived susceptibility and severity related to foodborne illness
    B. Barriers and benefits to taking food safety action

METHODS

This thesis reports on an extensive pretesting of pilot food safety materials developed by a research team at Washington State University in collaboration with Colorado State University and Ohio State University. Five food safety materials for HIV/AIDS patients were evaluated: *Take Control* (booklet), *Keeping Foods Safe* (booklet), *Safe Food Handling* (brochure), *Dining Out and Traveling* (brochure), and *Keep Your Body Safe* (magnet). For the purpose of this thesis, patients are defined as persons attending focus groups or associated with the health care providers. Methods used to pilot-test the materials with patients are described, including focus group sessions and survey forms administered in conjunction with the sessions. As part of the thesis, a survey administered to health care providers is presented as a means to assess appropriateness of the materials from the perspective of the individual who would disseminate them. The WSU Institutional Review Board approved all procedures for the patient and provider surveys.

Thesis data include information collected during patient focus groups using forms designed in cooperation with the tri-state team (Material Reaction and Material Rating Forms, focus group discussion guide). Thesis data were also collected using two patient surveys and two provider surveys, described below. The two patient surveys were used during the focus group session to quantify views about food safety and use of food safety education materials before and after initial contact with pilot materials. The two provider surveys were part of a packet mailed to providers so that they could review the materials for use with HIV/AIDS patients.

Development of Patient Surveys 1 and 2

Two survey instruments, Patient Survey 1 and Patient Survey 2, were developed to acquire information from the patients before (Survey 1) and after (Survey 2) exposure to the pilot food safety materials. Patient Survey 1 (Appendix E) was self-administered before the start of the focus group and prior to administration of any other forms or materials. Survey 1 measures utilized the Health Belief Model. Five Health Belief Model constructs were assessed: perceived susceptibility, perceived seriousness, barriers, benefits, and cue to action relating to food safety. These constructs collectively assessed readiness to receive the food safety education materials. Health Belief Model items were measured using Likert-type scales (see Table 6). For validity, focus group discussion guide questions also addressed these Health Belief Model constructs (See Appendix D, questions 15-17). Patient Survey 1 also included a set of demographic questions, including length of time since HIV/AIDS diagnosis, education, age, ethnic group, and whether the patient was the primary shopper or preparer of food.

Table 6: Patient Survey 1 Questions and The Health Belief Model Constructs

Health Belief Model Construct	Questionnaire Item
Perceived Susceptibility	In my opinion, persons infected with HIV are at a greater risk than other people for getting sick from eating unsafe food.[1]
Perceived Seriousness	As a person infected with HIV, getting sick from eating unsafe food would be a serious threat to my health.[1]
Barriers	I would find it difficult to make changes in how I handle or cook food to lower my chances of getting sick from unsafe food.[1]
Benefits	Handling or cooking food safely is important to staying healthy for a person infected with HIV.[1]
Cue to Action	If you ran across food safety information, how likely would you be to read it? [2]

[1] 1=strongly disagree, 2= slightly disagree, 3=neither agree nor disagree, 4=slightly agree, 5=strongly agree

[2] 1=very likely, 2=somewhat likely, 3=somewhat unlikely, 4=very unlikely, 5= don't know

The Patient Survey 2 (Appendix F) was administered to patients after they read and discussed the materials in the focus group. Patient Survey 2 included five questions to determine intention to use the food safety education materials based on the Stages of Change theory. The Stages of Change theory was developed by Prochaska and DiClemente (34). According to the model, behavior change is a dynamic and nonlinear process that involves a series of stages (34,35). The stages include precontemplation, contemplation, preparation, action, and maintenance (34). Table 7 summarizes Stages of Change steps and definitions.

Table 7: Stages of Change Constructs and Definitions (34)

Constructs	Definition
Precontemplation	Has no intention to take action within the next 6 months
Contemplation	Intends to take action within the next 6 months
Preparation	Intends to take action within the next 30 days and has taken some behavioral steps in this direction
Action	Has changed overt behavior for less than 6 months
Maintenance	Has changed overt behavior for more than 6 months

In Patient Survey 2, Stages of Change measures included asking the participants their intention to use each food safety material (Table 8). As an assessment of intention to follow food safety messages inherent in the materials, one item asked the patient to indicate if they would or would not follow each recommendation (Table 8). Other evaluative measures included newness of the food safety information to the patients, perceived usefulness of two booklets and two brochures as reference for food safety information, and perceived usefulness of the magnet in focusing attention on food safety.

Peer Review and Pretesting of Surveys 1 and 2

Peer review of the Patient Surveys 1 and 2 was conducted with faculty at Washington State University in nutrition (n=3), and graduate students in nutrition (n=2); all were experts in behavioral nutrition and the specific behavioral theories used. Initial

Table 8: Patient Survey 2 Stages of Change Questions

Questions and Constructs	Response Choices
We would like to know your intentions for using the food safety information that you've received today.[1]	
Precontemplation	I have no intention to use any of the food safety information I received today.
Contemplation	I probably will not use any of the food safety information I received today.
Preparation	I intend to use some of the food safety information in the near future
Action	I intend to use some of the food safety information right away
During the next 30 days, please indicate for each of the food safety recommendations below, please indicate if you will follow the recommendation.[2, 3]	
Precontemplation	Definitely won't follow
Contemplation	Probably won't follow
Preparation	Probably will follow
Action	Definitely will follow
Maintenance	Already follow

[1] 1=I have no intention to use any of the food safety information I received today, 2=I probably will not use any of the food safety information I received today, 3= I intend to use some of the food safety information in the near future, 4=I intend to use some of the food safety information right away

[2] 1=definitely will follow, 2=probably will follow, 3=probably won't follow, 4=definitely won't follow, 5=already follow

[3] Recommendations included: washing hands before handling food or eating, avoid cross-contamination, avoid risky foods: soft cheeses, raw shellfish, raw eggs, ground beef cooked rare, unheated lunchmeats, use a thermometer to determine safe cooking temperatures, drink water from safe sources, properly store and reheat leftovers, follow food safety tips while dining out or traveling.

pretesting for the Patient Survey 1 and the Patient Survey 2 was planned with three patients that participate in the Pierce County AIDS Foundation. Patients were selected by providers and requested to call a toll free number to give feedback on the survey forms to

the investigators. However, only one person called back within the project timeframe. The interviewer followed a script and took notes. Minor changes were made to the surveys from peer review and pretesting stages.

Focus Group Sessions

Focus Group Sample

Four focus groups were conducted in May, June, or July of 2003, one in each of the following four locations: Spokane AIDS Network in Spokane, WA, Pierce County AIDS Foundation with the Tacoma Pierce County Health Department in Tacoma, WA, Infections Limited in Tacoma, WA, and Madison Clinic in Seattle, WA. The persons who recruited participants for the focus groups were two registered nurses, two registered dietitians, a case manager, and a health educator; all were affiliated with the aforementioned agencies. Each recruiter was asked to recruit 10 HIV/AIDS patients for a focus group.

To characterize the local HIV/AIDS patient populations from which the focus group samples were drawn, patient profiles were obtained where available from each site. The health care provider at Spokane AIDS Network described the patient population as follows: 80% earn less than $1,000 a month with an average monthly income of $417 per month, 15% to 20% are minorities, 12% are women, 95% of clients live in Spokane County, and 84% live within the Spokane city limits (Personal Communication, Stimpson) (36). Other available patient demographic information was derived from AIDSNet region data (37). In 1988 as a result of the AIDS Omnibus law, the state of Washington divided the state into six AIDSNet regions for distribution of resources, primarily for HIV prevention and but also for care (37). Washington Administrative

Code directs health care providers and facilities to report each diagnosis of HIV and AIDS to the local health jurisdiction within seven days and requires the local health jurisdiction to report to the Washington State Department of Health (37). The Department of Health reports the results for the AIDSNet regions. The reference populations for each AIDSNet region are shown in Table 9. The Seattle and the two Tacoma sites would not release demographic information about their clientele.

Table 9: HIV/AIDS Patient Characteristics Per AIDSNet Region Each Focus Group Was Held, Washington State, and Focus Group Patients (4,37)

Characteristic	Region 1[1] (Spokane)	Region 4[2] (Tacoma)	Region 5[3] (Seattle)	Washington State[4]	Patient Sample
Gender					
Male	689	1,268	8,751	13,073	22
Female	70	298	660	1,457	10
Age					
13-19	14	35	99	206	0
20-29	157	386	1,931	3,079	3
30-39	326	663	4,404	6,529	5
40-49	170	343	2,235	3,463	20
>50yrs	92	139	736	1,256	4
Ethnicity					
White	641	1,062	7,224	11,172	19
Black	41	312	1,183	1,687	8
Hispanic	40	118	644	1,062	1
Native American/ American Indian	21	34	141	335	1
Asian/Pacific Islander	5	38	181	259	1
Other	11	2	38	69	2
Totals	759	1,566	9,411	14,530	32

[1]Adams, Asotin, Columbia, Ferry, Garfield, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman Counties (37)
[2]Kitsap and Pierce Counties (37)
[3]King County (37)
4Washington State Health Department, http://www.doh.wa.gov/cfh/hiv_aids/Prev_Edu/Statistics/0401.pdf (4)

The first focus group was at the Spokane AIDS Network (SANS) on May 21, 2003 at 2:30pm, with recruitment by a coordinator who is a Treatment Adherence

Coordinator/Dietitian for SANS. The coordinator used four caseworkers to recruit patients. Seven men and one woman arrived for the focus group. The focus group lasted approximately 2 hours and 15 minutes.

The second focus group was at the Pierce County AIDS Foundation on June 3, 2003 at 5:00pm; this focus group was recruited from two agencies, Pierce County AIDS Foundation and the Tacoma-Pierce County Health Department. The recruiters were a Communicable Disease Surveillance Liaison for the Tacoma-Pierce County Health Department and a case manager for Pierce County AIDS Foundation. Flyers were handed out at the two locations with a phone number for patients to contact the health department to sign up. Four men and five women arrived for the focus group. The Pierce County AIDS Foundation case manager also attended the focus group. The focus group lasted approximately 2 hours and 30 minutes.

The third focus group was at Infections Limited in Tacoma on June 4, 2003 at 2:00. The contact person was a Licensed Nurse Practitioner (LPN) who works directly with HIV/AIDS patients. Recruitment flyers were given out during visits to the clinic and persons with HIV/AIDS contacted a WSU team member using a toll free number to be recruited. Four men and two women arrived for the focus group. The focus group lasted approximately 2 hours.

The fourth focus group was at Madison Clinic at Harbor View Medical Center in Seattle on July 15, 2003 at 12:00pm. Contact persons were a registered nurse and a registered dietitian. The registered nurse contacted persons interested and signed them up. Six men and three women arrived for the focus group. The focus group lasted approximately 2 hours and 30 minutes.

Focus Group Discussion Guide, Materials Rating Form, and Materials Reaction Form

Team members from Colorado State University developed the focus group Discussion Guide (Appendix D), Material Rating Form (Appendix C), and Material Reaction Form (Appendix B). The Discussion Guide, Materials Rating Form and Materials Reaction Form are explained in detail in the Literature Review section of this thesis. The Material Reaction Form was used to qualitatively determine a first response to each individual material. The Material Rating Form was used to quantitatively evaluate each individual material for educational use. The focus group discussion guide was used to prompt group discussion of the materials.

Focus Group Protocol

For each focus group session, the order of patient data collection was as follows: 1) Patient Survey 1; 2) review of each material individually, followed by Material Reaction and Material Rating Forms; 3) focus group discussion of materials; 4) Patient Survey 2. Written informed consent was received from the focus group participants prior to data collection. The order of the food safety education materials was randomly assigned to each focus group. After completing the review of each material, the focus group was conducted (see Appendix D for discussion guide). Focus group discussion was audio taped. The participants and the moderator sat at the table and an assistant moderator sat apart and recorded notes and observations. A participation gift of $20 was offered to each focus group participant.

Focus Group Data Analysis

Focus group audiotapes were transcribed and content analyzed. A WSU team member conducted the focus group analysis according to Krueger (24). Analysis was

conducted in four parts. The first step was to sort responses according to questions asked from the discussion guide. Each page for analysis had a different question or probe from the discussion guide at the top of the page. The WSU team member then used a cut and paste method to put the focus group participants' answers on the correct page (24,25). This was done for each separate focus group transcript. The second step was to identify themes for each transcript. A theme was defined as one or more persons with HIV/AIDS stating the same information in a single focus group session (24,25). The third step for each transcript was to lift out important quotes and points verbatim and put them under the theme headings (25). General comments not related to analysis were taken out and marked as comments. After the theme headings were set up for each focus group transcript, the fourth step was to set up comment grids or tables where all four transcripts were combined and themes were matched and counted (25). For each theme identified, the number of groups who identified the theme was noted as a measure of the overall strength of a theme across groups. Data was transferred to Microsoft Excel (2000). The same project co-investigator analyzed all focus groups and combined the data into tables.

Intercoder reliability was conducted on the initial transcript using two team members, including the team member who subsequently analyzed all the transcripts. These team members compared their lists of themes; ones that did not match were then agreed upon and counted. Results were compared and discussed until consensus on analysis method was reached. A reliability coefficient was verified by calculating number of initial agreements divided by number of agreements plus disagreements for the first focus group (38). The level of agreement between researchers was 97%.

Data Analysis for Material Reaction Form and Material Rating Form

The Material Reaction forms for each focus group were transcribed and combined into one transcript per food safety education material. Two investigators independently conducted a theme analysis of these transcripts. Step one of the analysis was to separate out statements unrelated to food safety. Step two was to divide the results into three category codes - food safety content, visual presentation, and perceived impact on self or others - for each separate material. The food safety content category was sub-divided into four topics: A) new or not new information, B) questions about food safety, C) food safety messages retained, and D) evaluation of food safety messages or materials. The team therefore identified responses based on six categories. In a final step, the two investigators summarized the analysis into themes. Consensus was reached in concordance and specificity of themes.

Data from the Material Rating Form was transferred to an Excel sheet (Microsoft Excel 2000). A WSU team member did descriptive statistics for all domains of the Material Rating Form.

Data Analysis for Patient Surveys 1 and 2

Data from Patient Survey 1 and Patient Survey 2 were transferred to an Excel sheet (Microsoft Excel 2000) and analyzed using SAS (Release 8.2, the sessions were executed on the WIN_PRO platform). All patient survey data were summarized descriptively. For Patient Survey 1, correlations between demographic characteristics and health belief responses were tested by Kendall's tau b statistic. In addition, intercorrelations of the Health Belief Model constructs were tested by Kendall's tau b. Cue to Action for using food safety information was tested for correlation with

demographic characteristics and health beliefs (Kendall's tau b). Chi-square tests were run between health belief constructs and who in the household was the main food preparer (respondent versus other). For Patient Survey 2 data, demographic characteristics were tested for relationship with intention to use food safety materials and to follow food safety recommendations (Kendall's tau b). Health beliefs were also tested for correlations with usefulness of material, newness of information, intention to use food safety information, and intention to follow food safety recommendations (Kendall's tau b). Additional chi-square tests were used to test an association between the patient as the food preparer in the household and intention to use the material, readiness to follow the recommendations, and usefulness and newness of the material.

Health Care Provider Surveys

The provider surveys were developed for two purposes: 1) to assess the providers' views of the readiness of patients for food safety materials, using health belief questions matched to the Patient Survey 1 items (Provider Survey 1); and 2) to assess providers' views about appropriateness and utility of the food safety materials for patient food safety education (Provider Survey 2). The provider surveys followed the principles of the Total Design Method (39). In the 7-item Provider Survey 1 (Appendix G), the five Health Belief Model questions from the Patient Survey 1 were posed to the health care providers with questions re-phrased to refer to patients (Table 10). Other items included whether the health care provider was a sole provider or worked with a team of providers. After providers read through the food safety materials, they filled out the 18-item Provider Survey 2 (Appendix H). This survey asked questions about difficulty, appearance, and usefulness of the five food safety materials relative to patients' use, reflecting the same

domains used to query patients about the materials in the focus group setting. Additional Provider Survey 2 questions asked about whether food safety is addressed in the providers' clinic or agency, who provides the food safety education, and

Table 10: Provider Survey 1 Questions and the Health Belief Model Constructs

Health Belief Model	Question
Perceived susceptibility	Most persons infected with HIV are at a greater risk than other people for getting sick from eating unsafe food.[1]
Perceived Seriousness	For most persons infected with HIV, getting sick from eating unsafe food would be a serious threat to their health.[1]
Barriers	Most people infected with HIV find it difficult to make additional changes in how they handle or cook food to lower their chances of getting sick from unsafe food.[1]
Benefits	Handling or cooking food safely is important for a person infected with HIV to stay healthy.[1]
Cue to Action	Most clients with HIV/AIDS that I know would read food safety information if it was made available to them.[2]

[1] 1=strongly disagree, 2= slightly disagree, 3=neither agree nor disagree, 4=slightly agree, 5=strongly agree
[2] 1=very likely, 2=somewhat likely, 3=somewhat unlikely, 4=very unlikely, 5= don't know

if there was information in the pilot food safety materials that was new to the provider. Providers were further queried about likelihood that they would start discussing food safety with clients after reading the materials, if they would personally use any of the food safety materials, and which food safety materials they would use. The providers were also asked about the likelihood of their patients following the recommendations given in the food safety materials, and if the providers felt they needed any more food safety background information to give the materials to patients. Providers were also asked about cues to action relative to giving their clients food safety information: they were asked if food safety information should be given to all newly diagnosed HIV/AIDS clients. In addition, the providers were asked professional background questions including professional position, over what time period they have worked with patients, and for how many hours per week on average they work with HIV/AIDS patients.

Peer Review and Pre-Testing of Surveys

Peer-review of the two provider surveys was conducted with faculty (n=3) and graduate student (n=2) experts in behavioral nutrition. Minor changes were made to the survey forms. As a result of peer review, a question was added to assess if a low CD4+ count (as an indicator of immune suppression) was a cue to start addressing food safety issues. Pre-test respondents were two contacts used for patient recruitment, a registered nurse in Tacoma and a health educator at the Tacoma Pierce County Health Department. The two respondents were sent a survey packet and asked to review the entire packet according to instructions. The respondents were then telephoned and asked to go through the packet step by step. The interviewer led the respondents through the packet starting with the letter, Survey 1, the pilot education materials, and Survey 2, asking them their perceptions of the documents and if there were any changes needed. In addition, eight pre-test questions were administered to respondents, regarding the survey forms and protocols for recruiting health care providers. Questions asked about whether persons with HIV/AIDS should be referred to as clients or patients, patient profile factors that differ the most among health care providers, and a good proxy variable for economic status for HIV/AIDS patients. Respondents were also asked to interpret three specific items to determine if they were too simple. Finally, respondents were asked about the clarity of instructions for the survey forms, if the respondents could be used as a reference to health care providers, and ideas for provider recruitment. Changes from this pre-test included deleting certain redundant questions and adjusting confusing wording to some items.

Provider Sample

A sampling frame of health care professionals was compiled through the assistance of provider contacts who had also helped recruit focus group participants. Contacts included a physician in Tacoma, a registered nurse in the Seattle/Tacoma area, a registered dietitian in the Spokane area, a case manager in the Tacoma area and a health educator for a health department in the Tacoma/Seattle area. From each of these contacts a list of providers was obtained, including physicians, nurses, registered dietitians, case workers/case managers, and pharmacists. Selection criteria (Appendix I) of the providers included that the health care provider must work directly with HIV/AIDS patients, must be certified or work as a case worker or case manager, and may include holistic healers only if recognized by an insurance carrier or as a health care team member. Out of this recruitment stage, a sampling frame of 51 names was acquired.

Survey Administration

An introduction letter was sent out to the 51 providers on August 8, 2003, informing them that a survey was going to be sent to them in the next week. The letter explained who referred them to participate as well as a description of project (Appendix J).

The health care provider survey was mailed to providers on August 15, 2003 with a cover letter following the guidelines of the Total Design Method (TDM) (10) and including informed consent. The cover letter requested the respondent to fill out Survey 1, read through the materials, and then complete survey 2. One week later, reminder postcards were sent to all names on the sampling frame as both a thank-you to responders and a reminder to non-responders. In a departure from the TDM, 20 non-responders were

telephoned as a follow-up three weeks later. After the phone calls, 30 surveys were sent to remaining non-responders. A total of 25 health care providers completed and returned surveys for an overall response rate of 49%. Table 11 shows the samples of both patients and providers used during the study.

Table 11: Number of Providers and Patients Per Area Surveyed

	Providers (n=25*)	Patients (n=32)
Site 1 – Spokane AIDS Network	10	8
Site 2 – Pierce County AIDS Foundation	7	9
Site 3 – Infections Limited	5	6
Site 4 – Madison Clinic	2	9

*n=1 health care provider from out of state

Provider Survey Data Analysis

Data were entered into Microsoft Excel 2000 and analyzed using SAS (Release 8.2, the sessions were executed on the WIN_PRO platform). Provider Survey 1 and Provider Survey 2 were summarized using descriptive statistics. To identify beliefs that might differ by professional position held by the provider, the chi-square statistic was used to test an association between position and beliefs about when to give food safety information or cues to giving food safety information. To assess potential impact of the materials, a series of chi-square tests were run between items assessing how the provider would use food safety information and an item indicating if the provider's agency currently gives food safety information. To further estimate impact of materials on potential use by health care providers, chi-square analyses were run between items assessing likelihood that the provider would start addressing food safety and willingness to use individual food safety education materials. Extent of patient contact was

correlated (Kendall's tau b) with different perceptions of the materials: appearance, difficulty, and usefulness. Extent of patient contact was also related to perceived use of the food safety education materials by patients and providers as well as providers' need for more information (Kendall's tau b). In addition, provider's health beliefs were tested for intercorrelations (Kendall's tau b). Finally, logistic regression was used to compare health beliefs of providers versus patients to determine differences (if any) in orientation to food safety.

RESULTS AND DISCUSSION

Patient Survey 1 Data

Respondent Characteristics

Background characteristics of HIV/AIDS patients participating in the four focus groups are presented in Table 12. The mean age of participants was 43±7.6 years (mean± SD) and the majority (63%) of the participants were 40-49 years old. Most participants were male (69%) and identified themselves as White (59%) or Black (25%). American Indian/Native American, Asian/Pacific Islander and Hispanic participants comprised 9% of the total sample. The mean length of time since diagnosis of HIV/AIDS was 7.6±6.25 years (mean± SD). The majority (73%) of respondents had been diagnosed with HIV or AIDS for 2-15 years. The predominant educational level was high school graduate (41%) followed by 2-year technical school or some college (31%). A small percentage (12%) had less than high school completed and a few reported a 4-year college degree (10%) or an advanced degree (6%). When identifying whom in the household shops and handles food, roughly one-half of respondents reported that they personally shop (53%) or prepare food themselves (50%), while some reported shopping (22%) or handling (19%) food as being shared between household members.

The patient population was compared to the available reference populations, the AIDSNet regions from which the four focus groups were sampled as well as HIV/AIDS cases reported in Washington by the Washington State Department of Health (see Table 9, Methods). As the three AIDSNet regions were similar to the Washington State HIV/AIDS population, the Washington State population was used as the reference population. Participants differed in several ways from the reference population. There

were more females (30%) than the reference population (10%) and there was a shift towards older patients among participants (62% between 40-49 years) compared to the reference population (65% between 20-39 years). The study recruited fewer Whites, Hispanics, and Native Americans, and more Blacks and persons defining themselves as the "Other" category.

Respondents' Health Beliefs

Five Health Belief Model constructs were used to assess selected health beliefs of patients prior to exposure to the pilot materials (Table 13). More than two-thirds of the participants strongly (47%) or somewhat (22%) agreed that persons infected with HIV are at a greater risk for getting sick from eating unsafe food. A majority also strongly (53%) or somewhat (31%) agreed that getting sick from unsafe food would be a serious threat to the health of a person with HIV/AIDS. By contrast, participants tended to strongly (31%) or somewhat (22%) disagree with the barrier statement, "I would find it difficult to make changes in how I handle or cook food to lower my chances of getting sick from unsafe food." Almost one out of five participants chose neither agree nor disagree (19%) or somewhat agree (19%) to this barrier statement. The majority of participants strongly (56%) or somewhat (16%) agreed with the benefit statement, "Handling or cooking food safely is important to staying healthy for a person infected with HIV." Few participants disagreed (12%) with the statement. Most participants were very (60%) or somewhat (25%) likely to read food safety information if they came across it. Only (15%) were unlikely to read food safety information.

Correlates of Health Beliefs

Respondent characteristics (time since diagnosis, educational level, and age) were not significantly correlated with the Health Belief Model variables or likelihood of reading food safety information. Other personal characteristics not assessed in this study may relate to differing health beliefs. There were no available studies of perceived threat of foodborne illness for the general population. However, comparison of our findings with research on older adults can be made, as older adults are known to have suppressed immune function. Hanson and Benedict examined older adults' food handling behaviors using the Health Belief Model (40). In contrast to our study, the authors found that age of participants was positively correlated with educational cues to action and negatively correlated with susceptibility. Other respondent characteristics such as educational level were not tested (40).

Among the Health Belief Model variables, perceived susceptibility significantly related to perceived seriousness (0.58, $p<0.001$) and benefits (0.68, $p <0.0001$). Perceived seriousness also significantly related to benefits (0.64, $p<0.0001$). Greater likelihood of reading food safety information if the patient encountered it (cues to action) related to a stronger belief in the seriousness of getting sick from unsafe food (-0.41, $p<0.05$) and a less strongly perceived barrier to making changes in food handling to lower risk of foodborne illness (0.41, $p<0.01$). Hanson and Benedict found that in the elderly, a perceived threat of foodborne illness (severity and susceptibility) was positively related to cues to action concerning safe food handling (40). Further, these authors found that cues to action were related to safe food handling behaviors such as practicing sanitation and avoiding cross-contamination (40).

Role as Food Preparer Related to Health Beliefs

Cross-tabulations were used to test an association between the participant as a food preparer and health beliefs. Two response categories defined who currently prepares most of the food in the participant's household: the patients themselves (preparers, 50%) or others (combined responses including other household member (15%), shared among household members (19%) or another person (15%)). Sample size did not allow the valid use of chi-square tests; therefore, proportions are reported. Among patients who did not prepare their own food, a somewhat greater percentage (73%) were likely to agree they were at risk for getting sick from unsafe foods compared to food preparers (69%) (perceived susceptibility). A majority of both preparers (87%) and others (81%) agreed that getting sick from unsafe food would be a serious threat to their health (perceived seriousness). About one-half of both preparers (56%) as well as others (53%) disagreed that it would be difficult to make changes in how they handled or cooked food to lower chances of getting sick from unsafe food (barriers). Patients who don't prepare their own food were more likely to agree (87%) than preparers (67%) that handling or cooking food safely was important to staying healthy for HIV/AIDS patients (benefits). These latter findings may partly relate to a control issue; HIV/AIDS participants may be more worried about the control of their food if they are not preparing it themselves. The majority of both preparers (81%) and others (87%) were likely to read food safety information if they came across it (cue to action).

Patient Qualitative Assessment of Food Safety Materials

Material Reaction Form

The Material Reaction Form (Appendix L) was designed to obtain the focus group participants' first confidential and independent response to each material. The form asked participants to write down whatever they were thinking to get an initial reaction, even if it wasn't related to the materials they had just read. This form was used to collect feedback that may be forgotten in the course of the focus group discussion or after reading other materials.

Dining Out and Traveling Brochure

Overall, participants were very enthusiastic about *Dining Out and Traveling*. Participants wrote that it was "informative," "good," "easy to read," and presented "much needed information." Comments included liking the section that explained reasons for choosing safe alternatives to risky foods. Other comments included that some things in the pamphlet may not be practical, that others are a conscious trade off, or that participants may continue to conduct risky practices, or eat risky foods that are an acceptable risk to them. Another person stated that some of the recommendations might not be practiced consistently when dining out due to the great deal of research needed to find safe foods and safe restaurants. Suggestions for change included adding precautions when traveling to other communities that use well or surface water, and to define "harmful bacteria, viruses, harmful germs" in less vague or generic terms.

Take Control Booklet

The information in *Take Control* surprised many participants. Participants (n=4) said they learned new information about pathogens, unsafe food, leftovers, and items on

exercising. One participant said, "This booklet corrected information previously thought true." Participants found the information "very informative," "well written," "easy to read," "well thought out and organized." Participants suggested including portion sizes for food as well as recommendations on how much water to drink everyday. Other recommendations for change included defining "pathogens" earlier in the material, and how to properly wash fruit and vegetables.

Safe Food Handling Brochure

Participants (n=3) liked the information on *Toxoplasma gondii* in relation to cats' litter boxes. Some participants felt "more aware of risky foods" after reading *Safe Food Handling* and were able to identify specific risky foods. However, participants suggested that this pamphlet had too much information and that the information was explained too briefly. Participants also stated that the pamphlet "was hard to read" and "lengthy." Nevertheless, participants stated that the information was "well received" and "informative." Participants understood the importance of the information in this pamphlet and were concerned about foodborne illness as a result of reading the brochure. Recommendations for change included: increasing the font size, reducing clutter, and getting rid of the four-fold brochure format.

Keeping Foods Safe Booklet

Certain principles of food handling such as using a thermometer, cooking foods, and storing leftovers were new to some participants (n=3). Also, participants had remaining questions about specific foods that were mentioned in the booklet, such as alfalfa sprouts, lunchmeats, and meat jerky. One participant found the information to be lengthy and boring. Other participants said the booklet was "informative," "direct," "easy

to understand," and "well written." One participant suggested the booklet would be "very useful for teenagers and young adults." One recommendation for change was to add information about specific pathogens such as *Salmonella*.

Keep Your Body Safe Magnet

Some participants (n=2) found the information in the magnet to be "common sense," but other participants (n=2) reported that the magnet added information about some risky foods of which they were unaware. Participants felt they learned about "storage guidelines" and "the importance of avoiding risky foods." Participants said the magnet was "handy," "concise," "well written with good information," and "easy to read." Five participants said they would put the magnet on their refrigerator and would use the information given. Recommendations for change included increasing font size, using more colors and pictures, and addressing why HIV/AIDS patients need to follow the information given.

Focus Group Analysis of Materials

There were diverse comments from participants regarding the pilot food safety education materials (Appendix K). Major ideas and themes are summarized below by material, with "major" defined as mentioned by a majority in any single focus group or by one or more individuals in at least three of the groups.

Take Control Booklet

Participants identified controlling side effects from medication as the topic that stood out the most in *Take Control*. One focus group discussed the idea that "*Take Control* is an empowering statement," while another suggested that the *Take Control* focus should be on food safety rather than a mix of nutrition and food safety. Participants

in another group suggested enhancing the booklet by giving a food thermometer with *Take Control*. All groups reported that *Take Control* was easy to read, with two groups stating the overall layout was good. A dominant theme in all four focus groups was that the participants liked the addition of more graphics and pictures compared to the other materials. Participants in three focus groups liked the font size and thought it was good for the visually impaired.

Keeping Foods Safe Booklet

Participants in two groups identified the guidelines for using the sell-by-date and use-by-date as being the most useful sections from this booklet. Other focus group participants indicated that information about temperatures and definitions of foodborne illness stood out the most. Participants of one focus group were interested to learn that "It doesn't matter how brown it (ground beef) is, it matters how hot you got it and the process to get it there." Two groups indicated that overall they liked the entire booklet and that they couldn't find anything they didn't like. All four groups overwhelmingly found that *Keeping Foods Safe* was easy to read and had a good visual layout. Two groups indicated that they liked the booklet format better than the pamphlet format.

Dining Out and Traveling Brochure

A majority in all four groups found the material to be easy to read, with participants in three groups stating that the pamphlet had a good layout. The majority of one group thought the material was eye-catching and liked the picture of an outdoor restaurant setting on the front cover. Participants in three of four groups approved the pictures, graphics, and font.

Safe Food Handling Brochure

Participants in three of the four groups found that *Safe Food Handling* gave them new information about *Listeria*, *Salmonella*, *Cryptosporidium*, and cat litter boxes. The majority in one group liked the explanation of each disease. A majority from two groups stated there were not enough pictures or graphics. Other problems with the pamphlet included participants not knowing the correct way to open the four-fold brochure, and that it was difficult to read due to the way it was folded (i.e., with overly short and narrow columns). Participants in one focus group offered the advice of numbering the pages to clear up problems in reading the brochure. Three of four groups reported that the font size was too small.

Keep Your Body Safe Magnet

Participants in all four groups said that the *Keep Your Body Safe* magnet's font was too small and suggested that the font size needed to be larger and bolder. Participants in three of four groups said they would prefer to receive food safety information on a magnet and that it should be distributed with other food safety materials. Three or four groups suggested that a temperature magnet that listed safe food temperatures would be more beneficial and helpful. The majority of one group suggested that the *Keep Your Body Safe* magnet would be useful if you didn't know about the information on the magnet.

Other Focus Group Discussion

Following discussion of each material, participants were asked several questions about the materials collectively and general food safety. Questions included: which food safety education material they liked best and least, how willing they would be to follow

the food safety recommendations given, and how confident they felt in their ability to prevent foodborne illness. Another question asked was how does food safety rank for the participants personally compared to all the lifestyle changes a person with HIV/AIDS needs to make to stay healthy. In addition, patients were asked to list some situations or events that might persuade or spur them to use the materials, and some situations or events that might prevent them from using the food safety education materials. Finally, participants were asked how likely they would be to pick up the food safety education materials and read them if they saw them in a doctor's office or grocery store as well as what are the best ways for the material to be distributed. Four questions- which materials they liked best and least, food safety rankings, events that might spur and events that might prevent participants from using the materials- were specifically asked to all participants and therefore numbers of participants in each focus group are reported.

Materials Liked Best and Least

Overall, *Take Control* (n=12) and *Keeping Foods Safe* (n=6) were the materials that participants liked best. Two participants in two different focus groups chose *Safe Food Handling* as their favorite. Participants liked *Safe Food Handling* (n=14) the least, followed by *Dining Out and Traveling* (n=8), and *Keep Your Body Safe* magnet (n=8).

Willingness to Follow Recommendations

Participants in all four groups stated that they were willing or very willing to follow the food safety recommendations given. Two participants said they would change some of their behaviors but not all. Only one participant said that some of the information was ridiculous and no participants stated that they would not follow any of the food safety recommendations given.

Confidence to Prevent Foodborne Illness

Persons from each group stated that they felt confident or more confident in their ability to prevent foodborne illness after reading the material. One group agreed that they felt more knowledgeable about preventing foodborne illness and felt that the food safety education materials provided them with ways to implement safe food handling practices.

Food Safety Rankings

The majority of participants (n=16) ranked food safety as being top priority, very important, or very high relative to other lifestyle changes patients make to stay healthy. Participants in all four focus groups (n=10) stated that food safety is more important now that they know more and are more aware.

Likelihood to Pick Up and Read Food Safety Materials

Participants in only two out of four groups said they would pick up the booklets and read them. Participants in the other two groups said if they had nothing better to do then they would read them. One group suggested that they would pick up one nicely formatted booklet like "*Take Control*" or "*Keeping Foods Safe*," but not many booklets or brochures.

Situations or Events that Persuade or Spur Participants to Use the Materials

Participants in three groups (n=7) suggested that eating out in restaurants might persuade them to use the material. Some participants stated that their health status (n=4) or having a foodborne illness (n=2) would get them to use the material. Several participants stated that social events such as eating at other people's houses or at family gatherings (n=2), picnics, and barbecues (n=3) might persuade them to use the material.

Situations or Events That Might Prevent Participants From Using the Materials (Barriers)

Participants in three groups (n=5) stated that nothing would prevent them from using the material. Other participants (n=2) suggested that if their favorite foods such as rare steak, prime rib, or Indian tantori were served in restaurants or at events, it might prevent them from following the recommendations in the material. Other favorite foods that represent barriers to following the recommendations in the materials included sushi and raw oysters (n=2). Participants in one group suggested that eating unsafe food out of politeness at someone's house or in a social setting (n=2) might prevent them from using the materials. Two participants also suggested that being hungry or starved might be barriers preventing them from using the material because they would eat whatever they found first to eat, whether it was prepared safely or not.

How Materials Should Be Distributed

Persons generally chose distribution channels affiliated with where they were recruited. Persons in all four groups chose their physicians as the best means to distribute the pilot food safety education materials. Others identified AIDS networks and foundations as means to distribute materials. Participants from two groups chose the Internet as a means to distribute materials. Other suggestions included special AIDS events or the supermarket checkout.

Material Rating Form

The Material Rating Form was used after the focus groups to get quantitative responses to the pilot food safety education material the focus group participants had just viewed individually. The form was developed at Colorado State University, one of the

collaborating universities. The form used a one to seven semantic differential scale with anchored endpoints (e.g., 1="not useful" and 7="very useful"). Results for the Material Rating Form are summarized below. Overall, materials were well received by patients (see Appendix M).

Dining Out and Traveling Brochure

The majority of the participants felt that the information given in *Dining Out and Traveling* was very easy to understand (72%) and very believable (66%). Fewer participants felt that the material was very eye-catching (25%) or that the graphics were very appropriate (31%). The majority found that *Dining Out and Traveling* was not very difficult to read (66%) and would highly recommend this handout to a friend with HIV/AIDS (69%).

Take Control Booklet

Many participants extremely liked (53%) *Take Control*; the greatest proportion of patients extremely liked this material compared to the four other food safety education materials pilot tested. Fifty-nine percent of participants were very willing to follow recommendations given in the booklet. Fewer participants found the graphics very appropriate (34%) or the information eye-catching (34%).

Safe Food Handling Brochure

Safe Food Handling was one of the least liked materials the participants reviewed. A smaller proportion of participants found the information very eye-catching (22%) or the graphics appropriate (19%) compared to other materials. However many found the information very understandable (38%) and very useful (50%). *Safe Food Handling* was the handout that was least "liked overall" (38%).

Keeping Food Safe Booklet

Participants overwhelming rated *Keeping Foods Safe* high in the categories of very easy to understand (59%) and very believable (69%). Fewer participants rated the graphics as very appropriate (34%) or very eye-catching (37%).

Keep Your Body Safe Magnet

The majority of participants found the magnet very understandable (72%), very useful (47%), and very believable (59%). However fewer participants rated the magnet as very eye-catching (34%) and having appropriate graphics (37%).

Summary of Participants' Responses to the Materials

Overall, participants liked all five pilot food safety materials. During the focus group discussion, participants chose *Take Control* and *Keeping Foods Safe* as the materials they liked the best because of the food safety content, format (pictures, graphics, and font size), and readability. *Safe Food Handling* was liked the least mainly due to the format of the four-fold brochure. Participants wanted more pictures and graphics in the *Take Control* booklet. Participants also wanted one easy to read booklet with a larger font size, such as *Keeping Foods Safe*. Information in the pilot materials that stood out the most were definitions of foodborne illness and pathogens, information on pathogens, sell-by-dates and use-by-dates, safe cooking temperatures and thermometer use, as well as alternatives to risky foods. From Material Reaction Form data, participants found all the materials to be informative, easy to read, and/or well written, with the exception of *Safe Food Handling*. Participants suggested changing the format rather than the content of *Safe Food Handling* to make it easier to read and understand. From Material Rating Form data, participants found that the most eye-catching or

visually appealing material was *Keeping Foods Safe*, followed by *Take Control* and *Dining Out and Traveling*. Participants appeared most willing to follow the recommendations in *Take Control*.

Other studies of consumer reviews of food safety education materials are limited; however, a study of older adults' views on food safety education materials is used as a comparison. Gettings and Kiernan (2001) had older adults in focus groups review five food safety education materials (41). From review of the materials, three key characteristics emerged: print size (larger), white space (less congestion), and the content reflected in the titles (words like 'quick' or 'safe' in the title) (41). When asked which material they liked best, participants chose a USDA booklet entitled "Quick Guide to Safe Food Handling" because of the content type, the extensive amount of content, the format (booklet format, could be placed with recipes and cookbooks), and the pictures of families and elderly adults (41).

The pilot materials had a positive attitudinal impact on the participants. After reading and discussing the food safety materials, the majority of HIV/AIDS participants ranked food safety as being of top priority and very important when considering all the lifestyle changes a person with HIV/AIDS makes to stay healthy. Participants also stated that after reading the material, food safety was more important to them than before and that they were more aware of food safety. After reading the pilot materials, participants stated that they felt confident or more confident in their ability to prevent foodborne illness.

Despite a positive response to the materials, it is not clear that patients would use them in everyday life. Participants suggested that situations or events that persuade or

spur them to use the materials were not necessarily everyday occurrences, but rather special events such as eating out in restaurants or eating in social settings including picnics, barbecues, or at other peoples homes. Participants also suggested that their declining health status or getting a foodborne illness would spur them to use the materials. Participants further stated that there were some situations or events that would prevent them from using the material (barriers) such as their favorite foods, if they were hungry, or in social settings.

Patients appeared inclined to receive materials in the same way they receive other health information. They reported that the best way to receive food safety material was to use the normal distribution channels for getting HIV/AIDS information, such as their doctor's office or an AIDS foundation or network. Participants also suggested the Internet, special AIDS events, and the supermarket checkout.

Patient Survey 2: Patient Quantitative Assessment of Utility of Food Safety Materials

Participants' Response to Materials: Newness of Information and Participant's Intention to Use the Food Safety Material

Patient Survey 2 included two questions to determine patients' response to newness of the food safety information and intention to use food safety education materials after patients reviewed the materials (Table 14). Most patients found some (53%) or a lot (31%) of the information to be new to them. All participants responded that they intended to use some of the food safety information either in the near future (37%) or right away (63%).

Usefulness of Food Safety Education Material

When rating usefulness of each material (Table 15), a majority of participants identified the booklets, *Keeping Foods Safe* (72%) and *Take Control* (69%) as being very useful. Only 44% rated as very useful the *Dining Out and Traveling* brochure and 28% rated *Keep Your Body Safe* magnet as being very useful. Thirty-four percent of respondents found the *Keep Your Body Safe* magnet to be not at all useful.

Willingness to Follow Food Safety Recommendations

Participants were asked how willing they would be to follow the eleven food safety recommendations provided in the materials (Table 16). Of these recommendations, 50% said they "already follow" washing hands before handling food or eating. Many participants reported that they "definitely will follow" certain recommendations, including: avoid raw eggs (50%), and avoid cross-contamination (50%), properly store and reheat leftovers (47%), avoid unheated lunchmeats (47%), and avoid raw shellfish (47%). Some participants stated that they probably wouldn't follow avoiding unheated lunchmeats (22%) or using a thermometer to determine safe cooking temperatures (22%). Two of the recommendations that patients responded to strongly - avoid eating raw shellfish and raw eggs - were among the most important identified by food safety experts for persons with HIV/AIDS (7). Other behaviors, avoid soft cheeses (93% of experts) and avoid lunchmeat that have not been reheated to steaming hot (>80% of experts) (7) were not valued by most patients. Because patients did not respond strongly to all recommendations deemed important by food safety experts, further food safety education about these recommendations is warranted.

It was of interest to note participants' response to avoiding rare ground beef, since this has been a recent message to the general population. Among participants, 38% were already following the recommendation to avoid ground beef cooked rare and 44% said that they definitely would follow this recommendation. In a study done by McIntosh et al (1994) on the perceptions among adults of risk of eating undercooked hamburger, 79% of participants said they cook their hamburger patties medium, medium-well, or well done (42). When asked how they would respond if they knew they could become sick from improperly preparing or cooking a hamburger patty, 83% said they would change their preference for degree of doneness (42). In both studies, participants may have read information on the risks of eating rare ground beef and how to adequately cook ground beef.

Factors Related to Willingness to Following Food Safety Recommendations

Likelihood of following specific food safety recommendations was tested for correlation with intention to use food safety information to identify specific recommendations most strongly associated with overall intention. Intention to use food safety information was not significantly correlated with any of the recommendations. However, there were intercorrelations of responses to certain specific recommendations. For example, there was a pattern for willingness to avoid specific risky foods. Avoiding soft cheese significantly correlated with avoiding raw shellfish (0.60, $p<0.005$), raw eggs (0.65, $p<0.001$), and ground beef cooked rare (0.44, $p<0.04$). Avoiding raw shellfish was related to avoiding raw eggs (0.81, $p<0.0002$), ground beef cooked rare (0.71, $p<0.001$), and unheated lunchmeats (0.68, $p<0.001$). Those patients intending to avoid raw eggs were also likely to try avoiding ground beef cooked rare (0.86, $p<0.0002$) and unheated

lunchmeats (0.50, $p<0.02$). Avoiding ground beef cooked rare was also related to avoiding unheated lunchmeats (0.71, $p<0.001$). Other recommendations were inter-related. Intention to follow food safety recommendations for washing hands before handling food or eating was significantly correlated with avoiding cross-contamination (0.67, $p<0.01$), avoiding raw eggs (0.76, $p<0.01$), avoiding unheated lunchmeats (0.51 $p<0.04$), and properly storing and reheating leftovers (0.61, $p<0.02$). Thus, responses to the three critical at-home food-handling procedures were interrelated. Intention to properly store and reheat leftovers related to avoiding raw eggs (0.70, $p<0.002$) and avoiding ground beef cooked rare (0.60, $p<0.01$). Following general food handling procedures at home seemed most related to avoiding raw eggs and improperly heated meats as risky foods. Finally, patients intending to follow food safety tips while dining out or traveling also intended to avoid raw eggs (0.68, $p<0.002$), avoid raw shellfish (0.47, $p<0.03$), and avoid rare ground beef (0.47, $p<0.04$). Use of a thermometer to determine a safe-cooking temperature was not significantly related to other recommendations. Thermometer use may be a stand-alone recommendation requiring specific food safety education to promote learning and use.

Role of Food Preparer Related to Perceptions of Food Safety Materials and Food Safety Recommendations

It was of interest to see if participants who prepare food in the household reported different perceptions than others of newness and usefulness of the pilot food safety education materials as well as likelihood of following food safety recommendations. A small sample size did not allow use of valid chi-square statistical tests; however, some patterns of cross-tabulation are reported.

A large percent of food preparers (94%) and others (100%) said that some or all the food safety information was new to them. A greater percent of patients who were not food preparers (69%) reported intentions to use food safety information right away compared to the patients who prepared the food themselves (56%).

Almost all patients found the *Dining Out and Traveling* brochure (100% food preparers, 94% others) and the *Safe Food Handling* brochure (94% food preparers, 93% others) to be very useful references for food safety information. A majority found the *Take Control* booklet (94% food preparers, 100% others) and the *Keeping Foods Safe* booklet (94% food preparers, 100% others) to be very useful references. When the participant was a food preparer, they had a greater tendency to see the magnet as being somewhat or not at all useful (81%) compared to others (50%).

For the recommendations to avoid risky foods, a greater percentage of food preparers (31%) than others (7%) indicated that they would not follow the recommendation to avoid soft cheese. Participants who had others prepare their food were two times as likely to already follow the recommendation to avoid soft cheese. More food preparers (44%) than others (25%) were already following the recommendation to avoid raw shellfish. Somewhat more preparers (62%) than others (56%) stated that they would follow the recommendation to avoid unheated lunchmeats. Patients who have other persons (44%) prepare their food were more likely than patients who were the primary preparers (25%) to say they already follow the recommendation to drink water from safe sources. Intention to follow the recommendation of using a food thermometer did not appear to differ between food preparers (62%) and others (62%).

Relationship of Patient Characteristics with Response to Food Safety Materials

Certain characteristics of patients related to the willingness to follow recommendations presented in the session during the next 30 days. Patients with more education showed more willingness to follow recommendations about avoiding raw eggs (-0.43, $p<0.02$) and properly storing and reheating leftovers (-0.49, $p<0.01$). Older participants showed more willingness to follow the recommendation to avoid raw eggs (-0.40, $p<0.02$). Time since being diagnosed with HIV/AIDS was not significantly correlated with willingness to follow any of the food safety recommendations given in the material. In addition, perception of how much food safety information was new (after session) did not significantly relate to patient characteristics.

Relationships of Patient Health Beliefs with Response to Food Safety Materials

Perception of how much food safety information was new (after session) did not significantly relate to Health Belief Model variables (food safety beliefs). Of all the Health Belief Model variables, only perceived seriousness positively related to intention to use food safety information after the session (Kendall's tau $b=0.35$, $p<0.03$).

Willingness to follow food safety recommendations during the next 30 days was tested for correlations with Health Belief Model variables. Perceived barriers was significantly and positively related to willingness to drink water from safe sources (0.41, $p<0.03$). Cues to action was significantly correlated with likelihood to drink water from safe sources (0.43, $p<0.03$) and to properly store and reheat leftovers (0.40, $p<0.04$). Health beliefs of HIV/AIDS participants did not significantly relate to which recommendations about risky foods they would follow.

Health Care Provider Survey 1 and 2: Providers' Background and Response to Food Safety Education Materials

Provider Characteristics

Health care providers were asked a series of questions to group them according to their practice (Table 17). The questions included their professional position, whether they were part of team care or sole providers, who else was part of team care, length of time worked with HIV/AIDS clients, and hours per week providing direct care for HIV/AIDS clients. Most providers surveyed were case managers (32%), physicians (28%) or characterized themselves as others (20%) (medical assistant, AIDSNet coordinator, food program coordinator, support and education coordinator, and advanced registered nurse practitioner (ARNP)). Most health care providers (84%) considered themselves part of team care. The majority worked with other case managers (71%) or physicians (62%). The mean months worked with HIV/AIDS patients was 85.8±72.6 months (mean±SD) or approximately 7 years. More than two-thirds of providers (68%) had worked with HIV/AIDS patients 10 years or less. Many providers (44%) provided direct care to HIV/AIDS clients for more than 40 hours per month. The mean hours per month of direct care for HIV/AIDS patients was 71.9±64.0 hours (mean±SD) or 18 hours per week.

The majority of providers surveyed were from the Tacoma area (Pierce County AIDS Foundation and Infections Limited), followed by the Spokane area (Table 11). Providers responded from each of the sites where the patient sample was obtained. However, there were few providers responding from Madison Clinic, where a large number of patients are seen (n=1,300).

Provider Health Beliefs

Five Health Belief Model constructs were used to assess health care providers' views about food safety risks of patients. These beliefs were assessed prior to providers' review of the food safety education materials (Table 18). A majority of providers strongly (48%) or somewhat (36%) agreed that persons infected with HIV are at a greater risk for getting sick from eating unsafe food (perceived susceptibility). Many providers also strongly (60%) or somewhat (24%) agreed that getting sick from eating unsafe food would be a serious threat to persons with HIV (perceived seriousness). By contrast, 44% of health care providers said they somewhat or strongly disagreed with the statement, "Most people infected with HIV find it difficult to make additional changes in how they handle or cook food to lower their chances of getting sick from unsafe food" (barriers). Most providers strongly agreed (84%) that handling or cooking food safely is important to staying healthy for a person infected with HIV. The majority of providers stated the HIV/AIDS clients that they knew were very (20%) or somewhat (60%) likely to read food safety information if it was made available to them.

Providers' perceived susceptibility positively correlated with perceived seriousness (0.40, $p<0.03$) and benefits (0.40, $p<0.03$). No other significant intercorrelations of health beliefs occurred.

Providers' Evaluation of Food Safety Materials: Difficulty, Appearance, and Usefulness

Providers were asked to evaluate the difficulty of reading level, appearance, and usefulness to clients of the education materials provided (Table 19). The majority of providers rated *Keep Your Body Safe* magnet as being not at all difficult (76%), followed by the *Dining Out and Traveling* brochure (68%), the *Keeping Foods Safe* booklet (60%),

the *Take Control* booklet (56%) and the *Safe Food Handling* brochure (36%). Almost one-half of providers rated *Safe Food Handling* as being very (20%) or somewhat difficult (24%). From the Material Rating Form data, patient response was similar. A comparison was made to patient ratings of difficulty, using combined scale responses of 1 (1=not very difficult to read) and 2 on a seven-point scale. The majority of patients (88%) rated the *Dining Out and Traveling* brochure as being not very difficult to read, followed by the *Take Control* booklet (79%), the *Keeping Foods Safe* booklet (75%), the *Keep Your Body Safe* magnet (72%), and the *Safe Food Handling* brochure (72%).

For appearance, about one-third of health care providers found *Take Control* (36%) and *Keeping Foods Safe* (32%) to be excellent. Twenty percent of providers found *Safe Food Handling's* appearance to be poor.

Almost three-fourths of providers found *Dining Out and Traveling* (72%) and *Take Control* (72%) to be very useful references for HIV/AIDS patients. *Safe Food Handling* was the only handout that was rated as not at all useful by two providers (8%). For usefulness, patients rated the *Keep Your Body Safe* magnet (91%) and *Take Control* booklet (84%) as being very useful (combined responses 6 and 7=very useful), followed by the *Keeping Foods Safe* booklet (78%), the *Dining Out and Traveling* brochure (78%), and the *Safe Food Handling* brochure (63%). Both patients and providers evaluated *Safe Food Handling* as being the least useful. However, patients' and providers' views on the most useful materials differed with the top percentage (91%) of patients rating the *Keep Your Body Safe* magnet as very useful and top percentage (72%) of providers rating *Dining Out and Traveling* to be very useful.

It was of interest to test for correlation between provider experience with patients (number of months and number of hours per month worked with HIV/AIDS patients) and perceived difficulty, appearance, and usefulness of materials. Experience with patients did not significantly relate to perceptions of difficulty of reading level or usefulness of materials. Overall, experience with patients did not relate to perceptions of appearance; however, more hours per month spent with patients related to a poorer appearance rating for the magnet (-0.34, $p<0.05$).

Involvement of Provider in Food Safety Education

Providers were asked a series of questions about whether they address food safety and give food safety materials to HIV/AIDS clients (Table 20). Approximately three-fourths of providers said that food safety was currently being addressed in their clinic or agency. Of these, 55% personally provided food safety educational materials to their HIV/AIDS clients. Most of the providers who personally provide food safety education materials (80%) said that some of the information in the pilot materials was new, while 20% reported that none was new. None of the providers found all of the information to be new. Providers not currently addressing food safety information or not providing food safety educational materials were asked if they refer patients to someone else for food safety information. Of these, only thirty-six percent referred their HIV/AIDS clients to someone who provides food safety information. Those providers who referred their clients for food safety information referred them to registered dietitians (n=6), physicians (n=2), nurses (n=2), others (Health Department and Adherence Coordinator) (n=2), and case manager (n=1).

Issues Related to Use of Food Safety Recommendations

After reading the material, providers were asked how likely they would be to start discussing food safety with clients, if they would personally use any of the pilot materials, and which pilot materials they would be willing to use (Table 21). These items helped assess the pilot materials as cues to action for providers in food safety education. The majority of providers stated they were very (32%) or somewhat (44%) likely to start discussing food safety with their clients. The majority (84%) of providers said they would personally use the food safety materials that they read. Of the five pilot food safety education materials, providers were willing to use *Keeping Foods Safe* (81%), *Take Control* (76%), *Dining Out and Traveling* (76%), *Keep Your Body Safe* (67%), and *Safe Food Handling* (57%). Thus, the food safety materials had a positive impact on providers and would reportedly be used. Although intention to use specific materials was not assessed for patients, patients extremely liked *Take Control* (91%) and *Dining Out and Traveling* (81%). Somewhat fewer liked *Keep Your Body Safe* (75%), *Keeping Foods Safe* (72%), and *Safe Food Handling* (66%). Patients and providers seemed to value *Take Control*, *Dining Out and Traveling*, and *Keeping Foods Safe* most highly.

Other issues were assessed relative to providers' response to food safety education (Table 21). Sixty percent of providers said that a low CD4 count was a pertinent risk factor for deciding to give food safety information, while most said it was very (56%) or somewhat (44%) important to give food safety information to all newly diagnosed HIV/AIDS clients. The majority of providers stated that they would need additional information to a slight extent (24%) or not at all (68%) in order to use the education materials. Three-fourths of providers stated that their patients would be somewhat likely

to follow the food safety recommendations in the pilot food safety materials. Over three-fourths of patients said they were very willing to follow the recommendations in all five pilot food safety education materials. Patients indicated a greater willingness to follow recommendations in the food safety materials than that anticipated by health care providers. Of the five pilot food safety materials, patients said they were very willing to follow the recommendations in the *Take Control* booklet (93%), followed by the *Keep Your Body Safe* magnet (87%), the *Dining Out and Traveling* brochure (85%), the *Safe Food Handling* brochure (82%), the *Keeping Foods Safe* booklet (81%).

Providers' experience with patients did not significantly relate to perceived likelihood that patients would use the food safety education materials, need for additional information for provider to use the materials, or importance of giving food safety information to newly diagnosed patients.

The two variables representing cues to action to give food safety information (low CD4 count and importance of giving food safety to all newly diagnosed patients) were tested for inter-relationship using cross-tabulation. For those who said a low CD4 count is a risk factor for giving food safety material about one-half said it was somewhat (53%) or very (47%) important to give food safety information to all newly diagnosed patients. Of those who said a low CD4 count is not a factor for giving food safety information, one-third said it was somewhat important and two-thirds said it was very important to give food safety information to all newly diagnosed patients. It is possible that the two cues to action are independent of each and may not tap the same kind of stimulus for use of the pilot materials. Other possible influences on decisions about when to conduct food safety education were not assessed.

Use of Pilot Materials Among Providers Addressing and Not Addressing Food Safety in Their Clinic or Agency

It was of interest to look at the providers whose agencies currently address food safety and those whose agencies do not in relation to potential use of the food safety materials. Willingness to start using the materials, especially among those providers whose agencies do not address food safety, would imply that the materials had a considerable impact. Of seven providers who reported that food safety education is not addressed in their agency, four were somewhat likely and two were very likely to start food safety discussion with clients after receiving the materials. Among these seven health care providers, all said that they would personally use the pilot food safety education materials. Specifically, providers showed willingness to use *Keeping Foods Safe* (7 out of 7), *Dining Out and Traveling* (6 out of 7), *Take Control* (6 out of 7), *Safe Food Handling* (5 out of 7), and *Keep Your Body Safe* magnet (4 out of 7). Among providers whose agencies addressed food safety (n=14), there were clear trends for willingness to use *Dining Out and Traveling* (10 out of 14), *Keeping Foods Safe* (10 out of 14), *Take Control* (10 out of 14), *Keep Your Body Safe* magnet (10 out of 14), and *Safe Food Handling* (7 out of 14). Thus a majority of both provider groups showed willingness to use the food safety materials.

An even greater impact of the materials would be seen if providers who personally do not provide food safety information indicated intention to start discussing food safety, or if providers already conducting food safety education indicated intention to use the pilot materials. Among the providers who do not personally provide food safety educational materials to clients, most said they were somewhat (37%) or very

(37%) likely to start discussing food safety with patients, and 75% said they would personally use the pilot food safety materials. Among health care providers that do personally provide food safety materials, 80% said they would personally use the pilot food safety materials. Among those providers, there was a trend for most to be willing to use *Dining Out and Traveling* (8 out of 8), *Take Control* (8 out of 8), *Keeping Foods Safe* (7 out of 8), *Keep Your Body Safe* Magnet (6 out of 8), or *Safe Food Handling* (5 out of 8). Thus, the materials were seen as valuable by those providers already conducting food safety education. Of the providers who did not personally provide food safety education materials to clients with HIV/AIDS, relatively fewer said they would use *Keep Your Body Safe* Magnet (4 out of 6), *Keeping Foods Safe* (3 out of 6), *Dining Out and Traveling* (2 out of 6), *Safe Food Handling* (2 out of 6), or *Take Control* (2 out of 6).

Differences in Response to Use of Food Safety Materials by Providers With Different Professional Positions

Providers with different professional positions had varying responses to issues relating to use of food safety materials. Importance of giving food safety information to all newly diagnosed patients was rated as very important by proportionally more registered dietitians (4 out of 4), others (4 out of 5), and case managers (5 out of 8), than physicians (1 out of 7). Health care providers who believed a low CD4 count is a cue to action for giving food safety material to a patient included physicians (7 out of 7), nurses (1 out of 1), registered dietitians (2 out of 3), case managers (3 out of 8), and others (2 out of 5).

Comparison of Providers' Health Beliefs with Patients' Health Beliefs

Logistic regression was used to compare responses to health beliefs between providers and patients. Among the five health beliefs tested, only one showed significantly different responses between providers and patients. Providers and patients both positively valued all health belief statements; however, a greater proportion of providers positively valued the benefits statement "Handing/cooking food safely is important to staying healthy for persons with HIV/AIDS" ($p<.05$).

Limitations of the Findings

There are some limitations to this study. This study was cross-sectional in design and partly qualitative in nature. It would have been beneficial to use a pre-test/post-test study design to see whether the materials had an actual impact on behavior. However, due to the constraints of this restricted population, it was not feasible to conduct a pre-test/post-test study. Also, qualitative data, limited to a small sample, cannot be used to draw inferences about the general population.

For the focus groups, patients may have perceived the moderator as a health educator or professional and felt pressured to give socially desirable answers. Also, the overall topic of food safety could have prompted socially desirable answers. However, the participants gave a range of views both of acceptance and criticism. A third potential limitation to the focus groups was the number of focus groups; however, after four focus groups, little new information was provided, following the accepted strategy for exhaustive content (35). It can be concluded that four focus groups were sufficient to qualitatively evaluate the pilot education materials.

The patient sample may have had some self-selection biases. The original recruiting intent for the study was to access a representative HIV/AIDS population at each location where the focus group sessions were held. Investigators asked for more women due to the increasing incidence of HIV/AIDS in women. The cohort was on average ten to twenty years older with more women compared to estimates of the population in Washington State. Participants may have been more interested in, and therefore more accepting of, food safety recommendations. Furthermore, self-selection may have excluded persons who may not be open about their disease, may mistrust others, or may see a focus group as an intrusion into their privacy. The persons that chose not to participate in the focus groups may have been less accepting of the food safety education materials.

For the providers, the response rate was low (49%), and the sample was especially lacking in pharmacists, nurses, and registered dietitians. There is legitimate concern that the respondents may not be representative of the health care provider population that works with HIV/AIDS patients, especially given the low recruitment from Madison Clinic. Recruitment was accomplished through contacts in Tacoma, Spokane, and Seattle; providers in other areas of Washington may have different experiences and responses to food safety education.

There were limits to validity and reliability. Only a small number of questions were used to assess the concepts related to the Health Belief Model and Stages of Change theory. More questions may have enhanced the validity of constructs assessed from these models. Furthermore, there was limited initial review of patient surveys for reliability testing (1 patient); however, there was no apparent problem with participants

understanding the questions during the focus group sessions and there were few or no missing responses on the questionnaires.

There were some limits to data analysis. Analysis was done with small samples for both the patients and providers, precluding the use of some statistical tests sensitive to small sample sizes (e.g., chi-square statistic test of association).

CONCLUSIONS

Participants had strong health beliefs about food safety and were a receptive audience to the food safety education materials. Prior to reading the materials, participants generally agreed that they are more susceptible to getting sick from unsafe food than the general population and recognized that getting sick from unsafe food may be a serious threat to their health. Participants further understood that handling or cooking food safely is important to staying healthy. Only a minority indicated that it would be difficult to make changes in handling or cooking food to lower chances of getting sick from unsafe food; thus, barriers to preventing foodborne illness appeared to be low initially. Furthermore, the majority of participants (85%) said if they ran across food safety information they were somewhat or very likely to read it. After reading the materials, all participants said they intended to use some of the food safety information either in the near future (37%) or right away (63%). Participants indicated that food safety was a high priority and that they were willing to follow the majority of the food safety recommendations given. Therefore, this group of HIV/AIDS participants appeared receptive to food safety messages and materials, and appeared confident in using the materials. Participants felt confident in their ability to prevent foodborne illness after reading the food safety education materials.

Although receptive to the food safety education given, participants may need food safety education that emphasizes use of recommendations in every day life. The majority of participants had some intention to use the food safety education materials. However, when asked what would spur them to use the material, participants identified instances outside the home such as eating out in restaurants, and social events such as picnics and

barbecues. It may be that participants trust the food they purchase for themselves and feel the food cooked at home is safe.

Barriers to adopting food safety recommendations identified by participants could be addressed in future programming. Participants stated that barriers to following the food safety recommendations may include: preference for their favorite foods, needing to be polite at someone's house, pressures to eat in a social setting, or being hungry or starved. Food safety recommendations that participants rated as probably won't follow or definitely won't follow were: avoid unheated lunchmeats (25%), use a thermometer to determine safe cooking temperatures (22%), avoid soft cheeses (19%), and avoid raw shellfish (19%). These barriers could be addressed in additional materials by suggesting different ways to eat favorite foods safely, how to politely decline unsafe food in social settings, and by emphasizing the importance of following the food safety recommendations.

Certain food safety education materials worked best with both patients and providers. Providers were most willing to use *Keeping Food Safe* (81%), *Take Control* (76%), and *Dining Out and Traveling* (76%). During the focus groups, participants likewise chose *Take Control* and *Keeping Foods Safe* as the materials they liked the best. The majority of the providers (84%) said they would personally use the food safety materials and did not need any additional information on food safety in order to use the materials (71%).

Following this research, selected changes to the food safety education materials were made based on patient and provider comments. One focus group suggested using one nicely formatted booklet instead of five different education materials. During focus

group discussion, there was some confusion in the *Take Control* booklet about the medication side-effect guidelines that were located in the nutrition section and about some of the guidelines in the food safety section. Investigators decided to take out the nutrition part of the *Take Control* booklet and use it in a separate educational piece. The food safety information remaining in *Take Control* was the same information in *Keeping Foods Safe*. Thus, the investigators chose to print *Keeping Foods Safe* and *Dining Out and Traveling*. Since the participants liked the content in the brochure, *Safe Food Handling*, investigators decided to format the brochure into a web-based design.

Certain kinds of providers may need more encouragement to use the food safety education materials. The importance of giving food safety information to all newly diagnosed patients was rated highly by registered dietitians, other health care professionals, and case managers, but less importantly by physicians and nurses. Health care providers who believed a low CD4 count is a pertinent cue to giving food safety information included physicians, nurses and registered dietitians, as opposed to case managers and other health care professionals. Some health care providers may need further information about food safety education as a preventive measure for newly diagnosed patients or patients with a low CD4 count. Thus, different health care providers may need additional information to understand the importance of giving food safety information at critical times to HIV/AIDS patients.

Further research is needed to determine food safety behavior change in HIV/AIDS patients as a result of using the food safety education materials. A pre-test/post-test control group study design is needed to show the effect of the food safety education materials on behavior change and nature of the actual use of materials. The

post-test data collection could be enhanced by including qualitative methods such as focus groups or in-depth interviews with HIV/AIDS patients, so that impact data could be interpreted in a more detailed context of patient life. After distribution of the food safety materials to the health care providers, a yearly questionnaire-based assessment could be conducted to evaluate actual use of and response to the materials, and to provide information on dissemination to patients. Providers could be assessed for their views on utility of the food safety information and which education materials need updating.

To better place the materials in the health care network, further research could be conducted. First, additional pre-testing could utilize stratified focus groups with newly diagnosed patients and patients who had been diagnosed for a longer period of time. The stratified focus groups would glean values and reactions from newly diagnosed patients versus patients who have been diagnosed for a longer period of time to determine readiness to receive the food safety materials of these two different groups. In addition, it is essential to further explore the roles of the health care providers and their views of potential use of the food safety materials. Also, more information is needed about clinical stages of HIV/AIDS pertinent to increased risk of foodborne illness.

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Table 12: Background Information on Patients (n=32)

Variable	Percent	Frequency
Gender		
Male	69	22
Female	31	10
Age (yrs)		
20-29	9	3
30-39	16	5
40-49	63	20
>50yrs	12	4
Ethnicity		
White	59	19
Black	25	8
Hispanic	3	1
American Indian/Native American	3	1
Asian/Pacific Islander	3	1
Other	6	2
What is the highest level of education you have achieved?		
Less Than High School	6	2
Some High School	6	2
High School Graduate	41	13
2-Year Technical School or Some College	31	10
4-Year College Graduate Degree Completed	10	3
Advanced Degree	6	2
How long have you been diagnosed with AIDS or HIV?		
6-23 mo	12	4
2-5 yr	38	12
6-10 yr	16	5
11-15 yr	19	6
16-21 yr	12	4
Missing	3	1
Who does most of the food shopping for your household?		
SELF	53	17
SHARED	22	7
MEMBER	12	4
OTHER	12	4

Table 12 Background Information on Patients cont.

Variable	Percent	Frequency
Who currently prepares most of the food for your household?		
SELF	50	16
SHARED	19	6
MEMBER	15	5
OTHER	15	5

Table 13: Health Belief Model Questions for Patients

Variable	Percent	Frequency
Perceived Susceptibility		
Persons infected with HIV are at a greater risk than other people for getting sick from eating unsafe food.		
STRONGLY DISAGREE	9	3
SOMEWHAT DISAGREE	9	3
NEITHER AGREE NOR DISAGREE	9	3
SOMEWHAT AGREE	22	7
STRONGLY AGREE	47	15
MISSING	3	1
Perceived Seriousness		
As a person infected with HIV, getting sick from eating unsafe food would be a serious threat to my health.		
STRONGLY DISAGREE	10	3
SOMEWHAT DISAGREE	3	1
NEITHER AGREE NOR DISAGREE	3	1
SOMEWHAT AGREE	31	10
STRONGLY AGREE	53	17
Barriers		
It would be difficult for a person with HIV to make changes in handling or cooking food to lower chances of getting sick from unsafe food.		
STRONGLY DISAGREE	31	10
SOMEWHAT DISAGREE	22	7
NEITHER AGREE NOR DISAGREE	19	6
SOMEWHAT AGREE	19	6
STRONGLY AGREE	6	2
MISSING	3	1
Benefits		
Handling or cooking food safely is important to staying healthy for a person infected with HIV.		
STRONGLY DISAGREE	6	2
SOMEWHAT DISAGREE	6	2
NEITHER AGREE NOR DISAGREE	10	3
SOMEWHAT AGREE	16	5
STRONGLY AGREE	56	18
MISSING	6	2

Table 13 Health Belief Model Questions cont.

	Patients	
Variable	Percent	Frequency
Cues to Action		
If you ran across food safety information, how likely would you be to read it?		
VERY LIKELY	60	19
SOMEWHAT LIKELY	25	8
SOMEWHAT UNLIKELY	6	2
VERY UNLIKELY	9	3

Table 14: Response to Material: Newness of Information and Intention to Use Food Safety Information

Variable	Percent	Frequency
Of all the information you heard today about food safety, how much of it was new to you?		
NONE OF IT WAS NEW TO ME	3	1
SOME OF IT WAS NEW TO ME	53	17
A LOT OF IT WAS NEW TO ME	31	10
ALL OF IT WAS NEW TO ME	13	4
We would like to know your intentions for using the food safety information that you've received today.		
I HAVE NO INTENTION TO USE ANY OF THE FOOD SAFETY INFORMATION I RECEIVED TODAY	0	0
I PROBABLY WILL NOT USE ANY OF THE FOOD SAFETY INFORMATION I RECEIVED TODAY	0	0
I INTENT TO USE SOME OF THE FOOD SAFETY INFORMATION IN THE NEAR FUTURE	37	12
I INTEND TO US SOME OF THE FOOD SAFETY INFORMATION RIGHT AWAY	63	20

Table 15: Usefulness of Food Safety Education Materials

Variable	Percent	Frequency
For each specific material you received today, please indicate how useful each material is as a reference for food safety information.		
Dining Out and Traveling		
VERY USEFUL	44	14
SOMEWHAT USEFUL	53	17
NOT AT ALL USEFUL	3	1
Safe Food Handling		
VERY USEFUL	63	20
SOMEWHAT USEFUL	28	9
NOT AT ALL USEFUL	6	2
Missing	3	1
Take Control		
VERY USEFUL	69	22
SOMEWHAT USEFUL	28	9
NOT AT ALL USEFUL	3	1
Keeping Foods Safe		
VERY USEFUL	72	23
SOMEWHAT USEFUL	25	8
NOT AT ALL USEFUL	3	1
How useful is the magnet in focusing your attention on food safety?		
VERY USEFUL	28	9
SOMEWHAT USEFUL	38	12
NOT AT ALL USEFUL	34	11

Table 16: Willingness to Follow Food Safety Recommendations

Variable	Percent	Frequency
During the next 30 days, please indicate for each of the food safety recommendations below, if you will definitely follow, might follow, definitely won't follow, or already follow the recommendations.		
Wash hands before handling food or eating		
ALREADY FOLLOW	50	16
DEFINITELY WILL FOLLOW	44	14
PROBABLY WILL FOLLOW	3	1
PROBABLY WON'T FOLLOW	3	1
DEFINITELY WON'T FOLLOW	0	0
Avoid cross-contamination		
ALREADY FOLLOW	28	9
DEFINITELY WILL FOLLOW	50	16
PROBABLY WILL FOLLOW	13	4
PROBABLY WON'T FOLLOW	3	1
DEFINITELY WON'T FOLLOW	0	0
Missing	6	2
Avoid risky foods		
Soft cheeses		
ALREADY FOLLOW	19	6
DEFINITELY WILL FOLLOW	37	12
PROBABLY WILL FOLLOW	22	7
PROBABLY WON'T FOLLOW	16	5
DEFINITELY WON'T FOLLOW	3	1
Missing	3	1
Raw shellfish		
ALREADY FOLLOW	35	11
DEFINITELY WILL FOLLOW	47	15
PROBABLY WILL FOLLOW	6	2
PROBABLY WON'T FOLLOW	13	4
DEFINITELY WON'T FOLLOW	0	0
Raw eggs		
ALREADY FOLLOW	34	11
DEFINITELY WILL FOLLOW	50	16
PROBABLY WILL FOLLOW	9	3
PROBABLY WON'T FOLLOW	3	1
DEFINITELY WON'T FOLLOW	3	1

Table 16: Willingness to Follow Food Safety Recommendations cont.

Variable	Percent	Frequency
Ground beef cooked rare		
ALREADY FOLLOW	38	12
DEFINITELY WILL FOLLOW	44	14
PROBABLY WILL FOLLOW	9	3
PROBABLY WON'T FOLLOW	6	2
DEFINITELY WON'T FOLLOW	3	1
Unheated lunchmeats		
ALREADY FOLLOW	16	5
DEFINITELY WILL FOLLOW	47	15
PROBABLY WILL FOLLOW	12	4
PROBABLY WON'T FOLLOW	22	7
DEFINITELY WON'T FOLLOW	3	1
Use a thermometer to determine safe cooking temperatures		
ALREADY FOLLOW	16	5
DEFINITELY WILL FOLLOW	34	11
PROBABLY WILL FOLLOW	28	9
PROBABLY WON'T FOLLOW	22	7
DEFINITELY WON'T FOLLOW	0	0
Drink water from safe sources		
ALREADY FOLLOW	34	11
DEFINITELY WILL FOLLOW	41	13
PROBABLY WILL FOLLOW	19	6
PROBABLY WON'T FOLLOW	3	1
DEFINITELY WON'T FOLLOW	3	1
Properly store and reheat leftovers		
ALREADY FOLLOW	28	9
DEFINITELY WILL FOLLOW	47	15
PROBABLY WILL FOLLOW	19	6
PROBABLY WON'T FOLLOW	3	1
DEFINITELY WON'T FOLLOW	0	0
Missing	3	1
Follow food safety tips while dining out or traveling		
ALREADY FOLLOW	25	8
DEFINITELY WILL FOLLOW	44	14
PROBABLY WILL FOLLOW	25	8
PROBABLY WON'T FOLLOW	6	2
DEFINITELY WON'T FOLLOW	0	0

Table 17: Demographic Characteristics of Providers (n=25)

Variable	Percent	Frequency
Personal Professional Position		
Case Manager	32	8
Physician	28	7
Other	20	5
Registered Dietitian	16	4
Nurse	4	1
Would you consider yourself part of team care or a sole provider to persons with HIV/AIDS?		
Team	84	21
Sole	16	4
Which health care professionals, other than yourself, are included in the team care you participate in?		
Case Manager	71	15
Physician	62	13
Nurse	43	9
Other	43	9
Registered Dietitian	38	8
How long have you been working with HIV/AIDS clients?		
Less than 2 years	20	5
2-4 years	28	7
5-10 years	20	5
>10 years	28	7
Missing	4	1
On average, how many total hours per month do you provide direct care to all your HIV clients?		
Less than 10 hours	16	4
10-40 hours	32	8
Greater than 40 hours	44	11
Missing	8	2

Table 18: Health Belief Model Questions for Patients and Providers

	Patients		Providers	
Variable	Percent	Frequency	Percent	Frequency
Perceived Susceptibility				
Persons infected with HIV are at a greater risk than other people for getting sick from eating unsafe food.				
STRONGLY DISAGREE	9	3	4	1
SOMEWHAT DISAGREE	9	3	8	2
NEITHER AGREE NOR DISAGREE	9	3	4	1
SOMEWHAT AGREE	22	7	36	9
STRONGLY AGREE	47	15	48	12
MISSING	3	1	0	0
Perceived Seriousness				
For a person infected with HIV, getting sick from eating unsafe food would be a serious threat to health.				
STRONGLY DISAGREE	10	3	4	1
SOMEWHAT DISAGREE	3	1	8	2
NEITHER AGREE NOR DISAGREE	3	1	4	1
SOMEWHAT AGREE	31	10	24	6
STRONGLY AGREE	53	17	60	15
Barriers				
It would be difficult for a person with HIV to make changes in handling or cooking food to lower chances of getting sick from unsafe food.				
STRONGLY DISAGREE	31	10	12	3
SOMEWHAT DISAGREE	22	7	32	8
NEITHER AGREE NOR DISAGREE	19	6	16	4
SOMEWHAT AGREE	19	6	36	9
STRONGLY AGREE	6	2	4	1
MISSING	3	1	0	0

Table 18 Health Belief Model Questions cont.

	Patients		Providers	
Variable	Percent	Frequency	Percent	Frequency
Benefits				
Handling or cooking food safely is important to staying healthy for a person infected with HIV.				
STRONGLY DISAGREE	6	2	0	0
SOMEWHAT DISAGREE	6	2	0	0
NEITHER AGREE NOR DISAGREE	10	3	4	1
SOMEWHAT AGREE	16	5	12	3
STRONGLY AGREE	56	18	84	21
MISSING	6	2	0	0
Cues to Action				
If you ran across food safety information, how likely would you be to read it?				
VERY LIKELY	60	19	-	-
SOMEWHAT LIKELY	25	8	-	-
SOMEWHAT UNLIKELY	6	2	-	-
VERY UNLIKELY	9	3	-	-
Most clients with HIV/AIDS that I know would read food safety information if it was made available to them				
VERY LIKELY	-	-	20	5
SOMEWHAT LIKELY	-	-	60	15
NOT AT ALL LIKELY	-	-	16	4
DON'T KNOW	-	-	4	1

Table 19: Provider Measures of Difficulty, Appearance and Usefulness of Materials

	Dining Out and Traveling Brochure		*Safe Food Handling* Brochure		*Take Control* Booklet	
Questions	Percent	Frequency	Percent	Frequency	Percent	Frequency
Difficulty of Reading Level						
Very Difficult	0	0	20	5	0	0
Somewhat Difficult	12	3	24	6	8	2
Slightly Difficult	20	5	20	5	36	9
Not at All Difficult	68	17	36	9	56	14
Appearance						
Poor	0	0	20	5	0	0
Fair	24	6	32	8	12	3
Good	48	12	32	8	52	13
Excellent	28	7	16	4	36	9
Usefulness to Clients						
Not at All Useful	0	0	8	2	0	0
Somewhat Useful	28	7	44	11	28	7
Very Useful	72	18	48	12	72	18

Table 19: Provider Measures of Difficulty, Appearance and Usefulness of Materials cont.

	Keeping Foods Safe Booklet		*Keep Your Body Safe* Magnet	
Questions	Percent	Frequency	Percent	Frequency
Difficulty of Reading Level				
Very Difficult	0	0	0	0
Somewhat Difficult	20	5	0	0
Slightly Difficult	20	5	24	6
Not at All Difficult	60	15	76	19
Appearance				
Poor	0	0	4	1
Fair	16	4	40	10
Good	52	13	36	9
Excellent	32	8	20	5
Usefulness to Clients				
Not at all Useful	0	0	0	0
Somewhat Useful	32	8	36	9
Very Useful	68	17	64	16

Table 20: Involvement of Provider with Food Safety Education and Materials

Variable	Percent	Frequency
Is food safety currently addressed in your clinic or agency with HIV/AIDS clients?		
YES	72	18
NO	28	7
Do you personally provide food safety educational materials to clients with HIV/AIDS?		
YES	40	10
NO	32	8
SKIPPED[1]	28	7
Did the materials you received provide any new information? [2]		
NONE OF IT WAS NEW TO ME	8	2
SOME OF IT WAS NEW TO ME	32	8
ALL OF IT WAS NEW TO ME	0	0
SKIPPED	60	15
Do you refer clients to someone else for food safety information?[3]		
YES	36	9
NO	64	16
Who provides food safety information to your clients?[4]		
PHYSICIAN	22	2
REGISTERED DIETITIAN	67	6
NURSE	22	2
CASE WORKER	11	1
PHARMACIST	0	0
OTHER	22	2

[1] Providers who do not have food safety addressed in their agency
[2] Response from providers who personally provide food safety materials to clients
[3]Response from providers whose agencies address food safety, but do not provide materials themselves
[4]Response from providers who refer to others for food safety education

Table 21: Issues Related to Use of Food Safety Recommendations

Variable	Percent	Frequency
After reading these food safety materials, how likely are you to start discussing food safety with your clients?		
NOT AT ALL LIKELY	12	3
SOMEWHAT LIKELY	44	11
VERY LIKELY	32	8
MISSING	12	3
Would you personally use any of the food safety materials that you read today?		
YES	84	21
NO	16	4
Which of these education materials would you be willing to use?[1]		
Keeping Foods Safe Booklet	81	17
Dining Out and Traveling Brochure	76	16
Take Control Booklet	76	16
Keep Your Body Safe Magnet	67	14
Safe Food Handling Brochure	57	12
If your HIV/AIDS clients were given these food safety materials, how likely do you think they would be to follow the recommendations?		
DON'T KNOW	8	2
NOT AT ALL LIKELY	0	0
SOMEWHAT LIKELY	76	19
VERY LIKELY	16	4
If you wanted to use any of these materials with clients, to what extent would you personally need additional background information on food safety?		
NOT AT ALL	68	17
TO A SLIGHT EXTENT	24	6
TO A MODERATE EXTENT	4	1
TO A GREAT EXTENT	0	0
MISSING	4	1
In your view, is a low CD4 count a pertinent risk factor for deciding to give a client food safety material?		
DON'T KNOW	4	1
NO	36	9
YES	60	15

Table 21: Provider's Perception of Use of Food Safety Recommendations cont.

Variable	Percent	Frequency
How important is it to give any food safety information to all newly diagnosed HIV/AIDS clients?		
NOT AT ALL IMPORTANT	0	0
SOMEWHAT IMPORTANT	44	11
VERY IMPORTANT	56	14

[1] Responses of providers only who would personally use the food safety material

APPENDIX

Appendix A: Technical Review Form

Technical Review
Food Safety Educational Materials for Persons with HIV/AIDS

Title of Material _____

Name of Reviewer _____

Date Reviewed_____

1. Is this piece technically accurate? (check one)

_____Yes _____Mostly _____Somewhat _____No

If not yes, what needs to be changed? (Feel free to make changes on the material itself)

2. Given the space limitations, does this piece cover the most important food safety information for the target audience? (Target audience is persons with HIV/AIDS of all ages, ethnicities, education levels, social status, etc)

_____Yes _____No If no, what changes need to be made?

3. How appropriate is the material for the target audience?

a) Is the reading level appropriate? (We're striving for 8th or 9th grade level)

____Yes ____No

Suggestions:

b) If you were a member of the target audience, would you read this brochure?

____Yes ____No

Suggestions:

c) Is it clear and understandable?

____Yes ____No

Suggestions:

d) Are the graphics appropriate?

_____Yes ____No

Suggestions:

4. What would you do to improve this piece?

Thank you very much for your time and comments. Your input is greatly appreciated!
Return to:

Val Hillers, PhD, RD
P.O. Box 646376
Washington State University
Pullman, WA 99164-6376

OR

Fax: 509-335-4815
Email to Emily Hoffman:
ewillmore@wsu.edu

Appendix B: Material Reaction Form

Code #:

Dining Out and Traveling

MATERIALS REACTION FORM

Now that you have read this material, please write down any thought or impressions that you have, including thoughts that are unrelated to the message you read.

Appendix C: Material Rating Form

Keep Your Body Safe Magnet

Code #:

MATERIALS RATING SHEET

What is your reaction to the food safety educational material you have just reviewed? For each item, please circle the number that represents your rating of the handout.

Is this information:

Easy to understand?	1 Not very easy to understand	2	3	4	5	6	7 Very easy to understand
Useful to you?	1 Not very useful	2	3	4	5	6	7 Very useful
Believable?	1 Not very believable	2	3	4	5	6	7 Very believable
Difficult to read?	1 Not very difficult to read	2	3	4	5	6	7 Very difficult to read
Eye-catching?	1 Not very eye-catching	2	3	4	5	6	7 Very eye-catching
Are the graphics appropriate?	1 Not very appropriate	2	3	4	5	6	7 Very appropriate
Would you be willing to follow the recommendations given in the handout?	1 Not very willing	2	3	4	5	6	7 Very willing
Overall, do you like this handout?	1 Dislike extremely	2	3	4	5	6	7 Like extremely
Would you recommend this handout to a friend with HIV/AIDS?	1 Would not highly recommend	2	3	4	5	6	7 Would highly recommend

Comments:

Appendix D: Discussion Guide

Food Safety Education for High Risk Groups
Focus Groups with People with HIV/AIDS
Moderator's Script

Purpose: To assess people with HIV/AIDS' opinions of and reactions to the food safety educational materials for people with HIV/AIDS that are currently under development.

Introduction (5min.)

Hello and welcome to today's discussion group. I'm _____, from Washington State University and this is _____, also from Washington State.

Today's topic is Food Safety, or in other words, what to eat or not eat to lessen your chance of ever getting a foodborne illness. This is part of a project that is looking at specific groups that could be considered at higher risk for foodborne illness. Persons infected with HIV or who have AIDS are included because they are at higher risk for developing foodborne illness.

Our purpose today is to gather your opinions and reactions regarding some educational materials on food safety designed specifically for persons living with HIV/AIDS that have been developed by our research team. We want to know what you think about these materials. We are very interested in your feedback, so please be open as possible with your comments.

The way this will work is that we will spend the 1st hour reading over the education materials and completing some forms about each one. Then the 2nd hour, we will have a moderated discussion about your thoughts and feelings about each piece. We will be tape-recording our discussion session so that we don't miss any of your comments. We'll be on a first name basis, and no names will be attached to the comments you make in reports that come from this study, so you are assured of complete confidentiality. We will finish about 15 minutes later than anticipated. I hope this does not inconvenience anyone.

Let's take a minute right now, with the tape recorder running, to go around the room and tell everyone your first name and one or two foods that you enjoy eating. I'll begin. My name is _____, and I enjoy eating _____. Now we can shut off the tape recorder until we start our discussion later.

Is everyone ready to begin? Great. Each of you has 5 sets of materials in your folders. For each set, there is an educational piece (a pamphlet, booklet, magnet), a Materials Reaction Form and a Materials Rating Sheet (hold up the forms) that you will be asked to fill out. There are 3 sets in the left pocket and 2 sets in the right pocket. We will guide you. We will go through these one set at a time. Everyone will have ~5 minutes to read over each piece and 2 minutes to complete each form. Emily will keep track of the time for you. The first form that you will fill out is the Materials Reaction Form. In this form we want you to give use your first impression or gut reaction to what you just read. Give

us your thoughts even if unrelated to the material. Don't worry about grammar or making complete sentences. The second form that you fill out is the Materials Rating Sheet that goes over things like how easy it was to understand and how well you liked it. It is ok to write down any specific comments you may have under any of the sections. Emily will collect these forms when you complete them after you read each of the materials. Try to only think about the piece you're currently reading, as if it were the only piece of information you have read on this topic. When we get to the end, you will be given the opportunity to compare the different materials and talk about which ones you like best.

After we go through 3 sets of materials, we will take a 5-minute break, so you can stretch, get some more refreshments or use the rest room. Of course, if you need to get up before then, please go ahead. After the break, we will go through the remaining 2 sets of materials and then begin our tape-recorded discussion about your thoughts and feelings for the remainder of the time. If you have any questions for us, there will be an opportunity at the end of the discussion to answer these questions. You will be able to take these materials home with you. We will keep the forms that you fill out today.

Is everyone clear about what you are doing? Any questions about this part? OK. Let's begin.

Set 1. Time Reading Begun: _____Reaction Form: _____ Rating Sheet:_____

Set 2. Time Reading Begun: _____Reaction Form: _____ Rating Sheet:_____

Set 3. Time Reading Begun: _____Reaction Form: _____ Rating Sheet:_____

***** 5 MINUTE BREAK *****

Set 4. Time Reading Begun: _____Reaction Form: _____ Rating Sheet:_____

Set 5. Time Reading Begun: _____Reaction Form: _____Rating Sheet: _____

You've finished! That was the hard part. Now let's go ahead and begin our discussion. As I mentioned, we will tape record this portion. In order to hear each voice, we ask that you speak clearly and loud enough to be heard and that only one person speaks at a time. Remember that head nods and shakes don't translate into the tape recorder. Our purpose is to get your viewpoints, not to reach agreement. Each person's opinion is equally important to us, so there are no right or wrong answers. We want to hear what each person has to say. Please say your name when you respond for the first time or two. My job as the moderator is to guide the discussion rather than answer food safety questions.

We won't be taking a formal break again, but please feel free to get up if you need to. Are there any questions? If not, let's turn on the tape recorder and begin.

First, we'll discuss each material one by one. Later you'll have a chance to compare the materials. We'll start with the first piece, the one called _____ ***(Hold up copy).*** (**Spend ~5-10 min. on each section. Watch your time!)**

1. What part in this booklet "stands out the most" or was most helpful? Why?
   Probe: What did you learn?

2. What part of this booklet did you not like or did not find helpful? Why?

3. How useful to you is this information provided in this piece? Why or why not?
   Probe: What could be changed to make it more useful or meaningful?

4. How would you describe the readability? (Easy or difficult to read?)
   Probe: What parts were difficult to understand?
   What parts were easy to understand?

5. In terms of overall layout, how do you like the way it looks?
   Probe: What about the pictures? How well do the graphics fit the message?
   Do you like the size of the letters?

Take Control Booklet only:

If you saw this booklet in a doctor's office or grocery store, which of these titles would you most likely pick up and read?
Probe: Why or why not?

Repeat questions for next sets of materials(except magnet – see below):

_____***;*** _____***;***

_____***;*** _____. **(hold up copies of each before discussing)**

Magnet

I have a few questions to ask you about the, **"Keep Your Body Safe Magnet".** *(hold up copy)*

6. What are your impressions of this piece as a magnet to put on your refrigerator in your kitchen?
   Probe: What do you like about it?

Probe: What do you not like about it?

7. How useful would this be to you as something to hang on your refrigerator?
   Probe: Is it something you would refer to more than once?
   Probe: How likely would you be to put this magnet on your refrigerator at home? Why or why not?

8. Would you prefer to receive food safety information on a magnet like this or would you prefer a printed handout or brochure? Why or why not?

9. How well does the magnet stand-alone or should it be distributed along with one of the other materials?

Next, we would like you to compare the materials.

10. Which of all of these materials do you like best and why?
    Probe: Which did you like the least? Why?

11. After reading these handouts, how willing would you be to follow the recommendations given?
    Probe: Why or why not?

12. After reading these, how confident do you feel in your ability to prevent foodborne illness?
    Probe: (If not…) What would make you feel differently?

13. When considering all the lifestyle changes a person living with HIV/AIDS makes to stay healthy, where does food safety rank with you?

14. What are some situations or events that might persuade you or spur you to use the material?

15. What are some of the situations or events that might prevent you from using the material?

We're almost finished! There are just two general questions to cover and one more form to fill out before we wrap up today's discussion.

16. If you saw these booklets in a doctor's office or grocery store, how likely would you be to pick these up and read them?
    Probe: Why or why not?

17. What would be the best ways for these materials to be distributed?
    Probe: Any other ideas?

18. Is there anything we've missed that you would like to say?

The last form in your folder to complete is the Food Safety Form. This form contains a few questions about your intentions to use the food safety materials that you viewed today. Emily will collect this form when you've finished.

We're done. Thank you for coming and thank you for your time. Your comments and suggestions today will be valuable as we further develop food safety educational materials for people living with HIV/AIDS.

As our gift to you, please take the folder and educational material that you read here today. Before you leave, please see Emily for your check (or Safeway gift card), more educational material and thank you letter.

Reminder:
If personal checks are given - **You must cash the check within 90 days or it will become void.**

If Safeway Gift Cards are given - **Emily will give you a Safeway Gift Card receipt form to fill out. Please complete the form and give it to Emily before you leave so that we have a record that you received your honorarium today.**

We will be glad to discuss any questions you may have for us at this time.
Again, thank you for your participation.

Appendix E: Patient Survey 1

BACKGROUND QUESTIONS

The following questions will help us better understand our various audiences who participate in these focus groups.

Q-1. How long have you been diagnosed with AIDS or HIV? (please fill in months or years)

____ Months
OR
____ Years

Q-2. Who does most of the food shopping for your household? (circle only one number)

1 Self
2 Other Household Member
3 Shared Among Household Members
4 Other (please specify):_____

Q-3. Who currently prepares most of the food for your household? (circle only one number)

1 Self
2 Other Household Member
3 Shared Among Household Members
4 Other (please specify): _____

Q-4. What is the highest level of education you have achieved? (circle number)

1 Less than High School
2 Some High School
3 High School Graduate
4 Two-year Technical School or Some College Completed
5 Four-year College Graduate Degree Completed
6 Advanced Degree

Q-5. What is your present age?

_____ Years

Q-6. Which ethnic group do you identify yourself with? (circle all applicable)

1 White/Non-Hispanic
2 Hispanic/Latino
3 American Indian or Alaska Native
4 Asian or Pacific Islander
5 Black/African-American
6 Other (please specify): _____

Q-7. Do you have any pets? (please check answer)

1 Yes
2 No → If no, skip to Q-8. If yes, what kind of pet do you have?_____

For the next set of questions, please circle the number that best describes how you feel about the statement.

Q-9. In my opinion, persons infected with HIV are at a greater risk than other people for getting sick from eating unsafe food. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-10. As a person infected with HIV, getting sick from eating unsafe food would be a serious threat to my health. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-11. I would find it difficult to make changes in how I handle or cook food to lower my chances of getting sick from unsafe food. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-12. Handling or cooking food safely is important to staying healthy for a person infected with HIV. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-13. If you ran across food safety information, how likely would you be to read it? (circle answer)

1 VERY LIKELY
2 SOMEWHAT LIKELY
3 SOMEWHAT UNLIKELY
4 VERY UNLIKELY
5 DON'T KNOW

Thank you.

Appendix F: Patient Survey 2

Code #:

FOOD SAFETY FORM

Q-1 Of all the information you heard today about food safety, how much of it was new to you?

1 None of it was new to me.
2 Some of it was new to me
3 A lot of it was new to me.
4 All of it was new to me

Q-2 We would like to know your intentions for using the food safety information that you've received today. Please read all the choices and circle just one.

1 I have **no intention** to use any of the food safety information I received today.
2 I **probably will not** use any of the food safety information I received today.
3 I intend to use some of the food safety information in the **near future**.
4 I intend to use some of the food safety information **right away**.

Q-3 For each specific material you received today, please indicate how useful each material is as a reference for food safety information. (circle number)

	Usefulness as Food Safety Information		
Materials	Very Useful	Somewhat Useful	Not at all Useful
A. Brochure: *Dining out and Traveling*…….3		2	1
B. Booklet: *Safe Food Handling*……..3		2	1
C. Booklet: *Take Control*……...3		2	1
D. Brochure: *Keeping Foods Safe*…....3		2	1

Q-4 How useful is the magnet in focusing your attention on food safety? (circle one number)

1 Very useful
2 Somewhat useful
3 Not at all useful

Q-5 During the next **30 days**, please indicate for each of the food safety recommendations below, please indicate if you will definitely follow, might follow, definitely won't follow, or already follow the recommendation. (circle number)

Recommendations	Definitely Will Follow	Probably Will Follow	Probably Won't Follow	Definitely Won't Follow	Already Follow
A. Wash hands before handling food or eating…….1	2	3	4	5	
B. Avoid cross-contamination……1	2	3	4	5	
C. Avoid risky foods:					
• Soft cheeses……1	2	3	4	5	
• Raw shellfish……..1	2	3	4	5	
• Raw eggs……....1	2	3	4	5	
• Ground beef cooked rare…1	2	3	4	5	
• Unheated lunchmeats…….1	2	3	4	5	
D. Use a thermometer to determine safe cooking temperatures…….1	2	3	4	5	
E. Drink water from safe sources…...1	2	3	4	5	
F. Properly store and reheat leftovers..1	2	3	4	5	
G. Follow food safety tips while dining out or traveling……1	2	3	4	5	

Thank You!

Appendix G: Provider Survey 1

Form 1-page 1 TO BE FILLED OUT BEFORE YOU READ THE MATERIALS

Questions About You

Q-1. Would you consider yourself part of team care (including other health care providers within or outside your agency) or a sole provider to persons with HIV/AIDS? (circle answer)

1 PART OF TEAM CARE
2 SOLE PROVIDER → GO TO Q-3 THROUGH Q-7

Q-2. Which health care professionals, other than yourself, are included in the team care you participate in? (circle all that apply)

1 REGISTERED DIETITIAN
2 PHYSICIAN
3 NURSE
4 CASE MANAGER
5 PHARMACIST
6 OTHER (please specify): _____

Questions About Patient Lifestyle Factors

Please circle the answer that bests describes your opinion.

Q-3. Most persons infected with HIV are at a greater risk than other people for getting sick from eating unsafe food. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-4. For most persons infected with HIV, getting sick from eating unsafe food would be a serious threat to their health. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-5. Most people infected with HIV find it difficult to make additional changes in how they handle or cook food to lower their chances of getting sick from unsafe food. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Form 1-page 2

Q-6. Handling or cooking food safely is important for a person infected with HIV to stay healthy. (circle answer)

1 STRONGLY DISAGREE
2 SOMEWHAT DISAGREE
3 NEITHER AGREE NOR DISAGREE
4 SOMEWHAT AGREE
5 STRONGLY AGREE

Q-7. Most clients with HIV/AIDS that I know would read food safety information if it was made available to them. (circle answer)

0 DON'T KNOW
1 NOT AT ALL LIKELY
2 SOMEWHAT LIKELY
3 VERY LIKELY

Next, please do the following, in order:

- **Read food safety education materials (*Take Control* booklet, *Keeping Foods Safe* booklet, *Safe Food Handling* brochure, *Dining Out and Traveling* brochure, and *Keep Your Body Safe* magnet)**

- **Fill out form 2**

Appendix H: Provider Survey 2

Form 2-page 1 TO BE FILLED OUT AFTER YOU READ THE MATERIALS

Materials Evaluation

Q-1. For each material, please rate the level of reading difficulty for your clients with HIV/AIDS. (circle number)

	Level of Difficulty of Food Safety Information			
Materials	Very Difficult	Somewhat Difficult	Slightly Difficult	Not At All Difficult
A. Brochure: *Dining out and Traveling*……1	2	3	4	
B. Brochure: *Safe Food Handling*.....1	2	3	4	
C. Booklet: *Take Control*……...1	2	3	4	
D. Booklet: *Keeping Foods Safe*……..1	2	3	4	
E. Magnet: *Keep Your Body Safe*…..1	2	3	4	

Q-2. For each material, please rate its appearance (for example, font size, layout, attractiveness) for your clients with HIV/AIDS. (circle number)

	Appearance of Food Safety Information			
Materials	Poor	Fair	Good	Excellent
A. Brochure: *Dining out and Traveling*……1	2	3	4	
B. Brochure: *Safe Food Handling*……..1	2	3	4	
C. Booklet: *Take Control*……...1	2	3	4	
D. Booklet: *Keeping Foods Safe*……..1	2	3	4	
E. Magnet: *Keep Your Body Safe*……..1	2	3	4	

Q-3. Please indicate overall how useful you think each material is on its own as a reference for your clients with HIV/AIDS. (circle number)

	Usefulness as Reference for Patients		
Materials	Not at all Useful	Somewhat Useful	Very Useful
A. Brochure: *Dining out and Traveling*……1	2	3	
B. Brochure: *Safe Food Handling*……..1	2	3	
C. Booklet: *Take Control*……...1	2	3	
D. Booklet: *Keeping Foods Safe*……..1	2	3	
E. Magnet: *Keep Your Body Safe*……..1	2	3	

Form 2-page 2

Potential Use of Material

Q-4. Is food safety currently addressed in your clinic or agency with HIV/AIDS clients? (circle answer)

0 DON'T KNOW → **GO T0 Q-9**
1 YES
2 NO → **IF NO GO TO Q-7**

Q-5. If yes, do you personally provide food safety educational materials to clients with HIV/AIDS? (circle answer)

1 YES
2 NO → **IF NO GO TO Q-7**

Q-6. If yes, did the materials you received provide any new information? (circle answer)

1 NONE OF IT WAS NEW TO ME
2 SOME OF IT WAS NEW TO ME
3 ALL IF IT WAS NEW TO ME

→ **GO TO Q-11**

Q-7. Do you refer clients to someone else for food safety information? (circle answer)

1 YES
2 NO → **IF NO GO TO Q-9**

Q-8. If yes, who provides food safety information to your clients? (circle all that apply)

1 PHYSICIAN
2 REGISTERED DIETITIAN
3 NURSE
4 CASE WORKER
5 PHARMACIST
6 OTHER (please specify): _____

Q-9. After reading these food safety materials, how likely are you to start discussing food safety with your clients? (circle answer)

1 NOT AT ALL LIKELY
2 SOMEWHAT LIKELY
3 VERY LIKELY

Q-10. Would you personally use any of the food safety materials that you read today? (circle answer)

1 YES
2 NO → **GO TO Q-12**

Q-11 Which of these education materials would you be willing to use? (circle all that apply)

1 *Dining Out and Traveling* Brochure
2 *Safe Food Handling* Brochure
3 *Keeping Foods Safe* Booklet
4 *Take Control* Booklet
5 *Keep Your Body Safe* Magnet

Form 2-page 3

Q-12. If your HIV/AIDS clients were given these food safety materials, how likely do you think they would be to follow the recommendations? (circle answer)

0 DON'T KNOW
1 NOT AT ALL LIKELY
2 SOMEWHAT LIKELY
3 VERY LIKELY

Q-13. If you wanted to use any of these materials with clients, to what extent would you personally need additional background information on food safety? (circle answer)

1 NOT AT ALL
2 TO A SLIGHT EXTENT
3 TO A MODERATE EXTENT
4 TO A GREAT EXTENT

Q-14. In your view, is a low CD4 count a pertinent risk factor for deciding to give a client food safety material? (circle answer)

1 DON'T KNOW
2 NO
3 YES

Q-15. How important is it to give any food safety information to all newly diagnosed HIV/AIDS clients? (circle answer)

1 NOT AT ALL IMPORTANT
2 SOMEWHAT IMPORTANT
3 VERY IMPORTANT

Professional Background Questions

Q-16 How long have you been working with HIV/AIDS clients? (please fill in one answer)

_____ MONTHS OR _____ YEARS

Q-17. On average, how many total hours per week or month do you provide direct care to all your HIV clients? (please fill in one answer)

_____ HOURS PER WEEK OR _____ HOURS PER MONTH

Q-18. For background purposes, how would you describe your professional position? (circle all that apply)

1 REGISTERED DIETITIAN
2 PHYSICIAN
3 NURSE
4 CASE MANAGER
5 PHARMACIST
6 OTHER (please specify): _____

Thank you very much for your time. **Please return these forms in the enclosed, pre-addressed and pre-stamped envelope**. Please keep the food safety materials for your use. If you have lost your pre-stamped envelope please return to:

Jill Armstrong Shultz, Professor
Washington State University, Department of Food Science and Human Nutrition
PO Box 646376 Pullman, WA 99163-6376

Appendix I: Selection Criteria for Health Care Provider Survey

Criteria for the WSU Food Safety Project Health Care Provider Survey

We are looking for:
Doctors
Nurses
Registered Dietitians
Case workers/Case Managers
Pharmacists

Selection Criteria:
1) Health Care Provider must work directly with HIV/AIDS patient.
2) Health Care Provider must be certified or a Case Worker/Case Manager
3) May include Holistic Healers only if recognized (insurance covered and members of a Health Care Team)

Appendix J: Letter for Health Care Provider Survey

August 2003

Health Care Provider
Clinic or Agency
Address
City, State Zip Code

Dear [Name],

We are currently developing **educational materials about food safety for persons living with HIV/AIDS**, a project funded by the United States Department of Agriculture. We have tested these materials with patients themselves for effectiveness in assisting people living with HIV/AIDS. The second phase of the study is to have health care providers review these educational materials and fill out a survey to evaluate them.

We were referred to you by a health care provider in your area to be a potential reviewer for this material and we hope that you can provide us with your evaluation. **In a week or so we will be sending you five short pilot educational pieces to review: two booklets, two brochures, and a refrigerator magnet.** In the mail packet, we will include two short questionnaires for you to fill out that will assess your views about the material. Your response is totally voluntary, and the information you provide will not be associated with your name at any point. The review of materials and response to the two questionnaires will take about 30 minutes of your time. **We would greatly appreciate it if you reviewed the materials, filled out the surveys, and sent the surveys back to us in a prepared envelope we will include in the packet.**

Thank you very much in advance for your time and effort in helping us develop useful food safety materials to support persons living with HIV/AIDS.

Sincerely,

Jill A. Shultz, PhD
Professor of Nutrition
Washington State University
Phone: 509-335-6181
Fax: 509-335-4815
Email: armstroj@wsu.edu

Emily W. Hoffman
Graduate Student
Washington State University
Email: ewillmore@wsu.edu

Appendix K: Focus Group Analysis

TAKE CONTROL

What part stands out the most or was most helpful?	**FG #1**	**FG #2**	**FG #3**	**FG #4**	**TOTALS**
Controlling side effects	Yes 1/8	Yes 3/9	Yes 2/6	Yes 1/9	4 out of 4
Symptoms listed in "Controlling Side Effects" help me evaluate if I have FBI	Yes 1/8	No	No	Yes 1/9	2 out of 4
First time I've seen food odors and (as it relates to) nausea mentioned	No	No	Yes 1/6	No	1 out of 4
Points out need to differentiate between medication side effects and FBI	No	Yes 1/9	No	No	1 out of 4
Informative	Yes 2/8	No	Yes 1/6	No	2 out of 4
Tells everything you need to know about FBI and how to prevent it	No	No	Yes 1/6	No	1 out of 4
Description of illnesses, how we get illnesses and preventing them	No	No	Yes 1/6	No	1 out of 4
Food safety was not an issue in the 80's, now food safety is big issue, especially for us	No	No	Yes 1/6	No	1 out of 4
This was good/liked it/favorite	No	No	Yes 2/6	Yes 1/9	2 out of 4
Risky foods: lunch meats, hot dogs	Yes 1/8	No	No	No	1 out of 4
Related to immune compromise (population) in general	Yes 1/8	No	No	No	1 out of 4
Exercise	Yes 1/8	Yes 3/9	No	No	2 out of 4
Exercise, nutrition and food safety	Yes 1/8	No	No	No	1 out of 4
Exercise and dieting	No	Yes 1/9	No	No	1 out of 4
Nutrition	No	No	Yes 1/6	No	1 out of 4
I liked the water statement in this booklet better than in the Dining Out pamphlet	No	Yes 1/9	No	No	1 out of 4
Crypto, Salmonella	No	No	Yes 1/6	No	1 out of 4
Summary on the back of the booklet	No	No	Yes 1/6	No	1 out of 4
Hands on Guide to Choices	No	No	Yes 1/6	No	1 out of 4
Print is big enough	No	No	Yes 1/6	No	1 out of 4
Take control is an empowering statement	No	Yes 4/9	No	No	1 out of 4
Red square	No	Yes 1/9	No	No	1 out of 4
Comments:					
You need to tell them that you can't think you've got FBI all the time	No	Yes 1/9	No	No	1 out of 4
Useful information: How to get through appetite loss, nausea and vomiting	Yes 1/8	No	No	No	1 out of 4
Useful information: How to avoid FBI	Yes 1/8	No	No	No	1 out of 4
FBI interferes with taking your medications on time, it throws off all your meds and it takes a long time to get back on schedule	Yes 1/8	No	No	No	1 out of 4
I have to be very careful with food	Yes 1/8	No	No	No	1 out of 4
What part did you not like or not find helpful?					
Nutrition guidelines:					
Did not discuss nutrient necessity for medication effectiveness	No	No	No	Yes 1/9	1 out of 4

Need protein requirements for medications instead of only basic nutrition	No	No	No	Yes 1/9	1 out of 4
Did not list number of food portions required	No	No	No	Yes 1/9	1 out of 4
How much water is recommended?	No	Yes 1/9	No	No	1 out of 4
Highlight vitamins/minerals; consult MD before starting new regime	No	No	No	Yes 2/9	1 out of 4
Exercise guidelines:					
30 minutes 3 days/week is too much exercise according to my MD	Yes 1/8	No	No	No	1 out of 4
Focus should be on food safety	No	No	No	Yes 4/9	1 out of 4
Too cluttered with nutrition, exercise and food safety in one booklet; "I don't know what's important or what I should do first"	No	No	No	Yes 1/9	1 out of 4
Side effects of medications and HIV	Yes 1/8	No	No	No	1 out of 4
Confusion: "Store leftovers 7 days, discard in 4 days"	Yes 1/8	No	Yes 3/6	No	2 out of 4
(I'll have a) hard time following this one	Yes 1/8	No	No	No	1 out of 4
Comments:					
Keep nutrition but make it a separate booklet	No	No	No	Yes 3/9	1 out of 4
Combine all pamphlets into 1 - this one					
Add statement "Contact MD before starting any new regime"	No	No	No	Yes 1/9	1 out of 4
Want more depth about appetite loss	No	No	No	Yes 1/9	1 out of 4
Add mint, spearmint, peppermint to nausea recommendations	No	No	Yes 3/6	No	1 out of 4
Clarify keeping and discarding leftovers	No	Yes 1/9	No	No	1 out of 4
I can't afford a water filter, am I going to get sick?	No	Yes 1/9	No	No	1 out of 4
I don't know if water is safe in the homes of other people	No	Yes 1/9	No	No	1 out of 4
I go to the tap and drink water - it tastes fine	No	Yes 1/9	No	No	1 out of 4
It scares me because you can't determine what water is bad	No	Yes 1/9	No	No	1 out of 4
US water is safe but out of the country is a worry	No	Yes 1/9	No	No	1 out of 4
I'm disappointed that sprouts, soft cheese and smoked salmon are unsafe	No	No	Yes 1/6	No	1 out of 4
Don't know if beef jerky is unsafe	No	No	Yes 1/6	No	1 out of 4
It's more common sense	No	No	Yes 1/6	No	1 out of 4
Include a thermometer with material	No	No	No	Yes 4/9	1 out of 4
Readability? Easy or hard?					
Easy	Yes 4/8	Yes 5/9	yes 6/6	Yes 6/9	4 out of 4
Easy to find information	Yes 1/8	No	No	No	1 out of 4
Informative	No	No	No	Yes 1/9	1 out of 4
Information is broken down	No	No	No	Yes 1/9	1 out of 4
Overall layout?					
Good	Yes 4/8	No	No	Yes 1/9	2 out of 4
Pictures? Graphics fit message? Size of letters?					

Liked pictures; I liked that this had more graphics than others; makes it easy; I get into the material with pictures; keeps my attention	Yes 1/8	Yes 1/9	Yes 1/6	Yes 1/9	4 out of 4
Graphics went well with the subjects	No	Yes 1/9	No	No	1 out of 4
Color good on graphs and charts	Yes 1/8	No	No	No	1 out of 4
Want more graphics	No	Yes 2/9	No	No	1 out of 4
Want graphics saying things, it would draw my attention and make me smile while I'm learning something	No	Yes 1/9	No	No	1 out of 4
Liked real pictures instead of clip art - use more; pictures nice; appealing	Yes 2/8	Yes 2/9	No	No	2 out of 4
Font good; especially for visually impaired	Yes 1/8	Yes 4/9	Yes 4/6	No	3 out of 4
Thermometer picture good, showed me how to use it	No	No	No	Yes 1/9	1 out of 4

KEEPING FOOD SAFE

What part stands out the most or was most helpful?	**FG #1**	**FG #2**	**FG #3**	**FG #4**	**Totals**
Sell by dates, use by dates	No	No	Yes 4/6	Yes 2/9	2 out of 4
Use by dates - "Explains it in a way I've never heard before"	No	Yes 1/9	No	No	1 out of 4
Shopping tips:	No	Yes 1/9	Yes 1/6	No	2 out of 4
Use a couple of ice bags when shopping	No	Yes 3/9	No	No	1 out of 4
"I ride a bus when I go shopping". It takes time to ride the bus, get from the store to the bus, wait for the bus and ride home	No	Yes 3/9	No	No	1 out of 4
I go shopping with a duffle bag or rock sack "but I also got freezer pack gels and I can throw one of them in the plastic bag (with the meat)"					
Refrigerating foods	No	No	Yes 1/6	Yes 1/9	2 out of 4
Learned about explanation of FBI symptoms	No	No	No	Yes 2/9	1 out of 4
Temperatures	Yes 4/8	No	Yes 1/6	No	2 out of 4
Storage; thawing foods	Yes 2/8	No	Yes 1/6	Yes 1/9	3 out of 4
Pasteurization	Yes 1/8	No	Yes 1/6	No	2 out of 4
Doesn't say enough about hand washing	No	No	No	Yes 1/9	1 out of 4
Not as technical, so more attractive to more people	Yes 2/8	No	No	No	1 out of 4
Definitions - we're on the same page	No	Yes 4/9	No	Yes 1/9	2 out of 4
Tells us where to get more information	No	Yes 1/9	No	No	1 out of 4
Thermometers	No	No	Yes 1/6	Yes 1/9	2 out of 4
"It doesn't matter how brown it (ground beef) is, it matters how hot you got it and the process to get it there"	No	No	Yes 3/6	No	1 out of 4
"It appears ground beef is more likely than steak to have pathogens, steak is intact, you can have it medium-rare	No	No	Yes 1/6	No	1 out of 4
Comments:					
Tips give me something to think about	No	Yes 1/9	No	No	1 out of 4
Some foods are riskier than others	Yes 1/8	No	Yes 1/6	No	2 out of 4
Informative but not crammed with junk	Yes 1/8	No	No	No	1 out of 4
Like it all, good	Yes 1/8	No	Yes 4/6	No	2 out of 4
One of my favorites, balanced, easy on the eyes, easily arranged, simple, concise; covered food safety completely	Yes 2/8	No	Yes 1/6	No	1 out of 4

I've not run across a lot of this information before	No	Yes 1/9	No	No	1 out of 4
This one says you don't have to throw away 7 day leftovers until 7 days - that's good	No	No	Yes 1/6	No	1 out of 4
What part did you not like or not find helpful?					
Nothing, liked it	Yes 1/8	No	Yes 4/6	No	2 out of 4
Nothing about washing fruits and vegetables	No	No	No	Yes 1/9	1 out of 4
"If I can eat carrots (after I wash them) why can't I drink the carrot juice (without heating to 160 degrees F)	No	No	Yes 1/6	No	1 out of 4
Heating juice doesn't make sense to me	No	No	Yes 2/6	No	1 out of 4
Too much like Take Control	No	No	No	Yes 1/9	1 out of 4
Pamphlets don't say enough about hand washing	No	No	No	Yes 1/9	1 out of 4
Prefer "safe choices vs. unsafe choices" instead of "Instead of …….,choose….."	No	Yes 1/9	No	No	1 out of 4
Booklet says you can keep leftovers in the refrigerator for 7 days, I eat mine in 2 days	No	No	No	Yes 1/9	1 out of 4
Comments:					
People will eat fruit unwashed "because it's been at the grocery store and it's been washed"	No	No	No	Yes 1/9	1 out of 4
"I wouldn't be thinking about taking (ice packs) when I go shopping"	No	Yes 1/9	No	No	1 out of 4
People would think I'm shopping lifting if I put meat in a vegetable bag	No	Yes 1/9	No	No	1 out of 4
If you have a lot of time you'll look, otherwise you'll grab	No	Yes 1/9	No	No	1 out of 4
Up to individual and how they choose to live and progress with their health	No	Yes 1/9	No	No	1 out of 4
Helpful but it's not going to be done	No	Yes 1/9	No	No	1 out of 4
Readability? Easy or hard?					
Easy	Yes 2/8	Yes 5/9	Yes 1/6	Yes 7/9	4 out of 4
Nothing difficult	No	Yes 3/9	No	No	1 out of 4
Need common words, especially for medical words	No	No	No	Yes 1/9	1 out of 4
Want words spelled out phonetically: "It throws me off and I lose interest when I can't pronounce words, I don't know what the whole sentence is saying. How do you pronounce Listeria monopsycho-genic, it drives me crazy"	No	No	No	Yes 1/9	1 out of 4
Define pathogens better	No	No	No	Yes 1/9	1 out of 4
Information needs to be broken down more	No	No	No	Yes 1/9	1 out of 4
Overall layout?					
Good lay out	Yes 3/8	Yes 2/9	Yes 2/6	Yes 1/9	4 out of 4
Like booklet format better than pamphlet	No	Yes 3/9	Yes 4/6	No	2 out of 4
Amount of information per page is good	Yes 2/8	No	No	No	1 out of 4
Ease of reading, I don't see well	Yes 1/8	No	No	No	1 out of 4
Pictures? Graphics fit message? Size of letters?					
Like colors	No	No	No	Yes 1/9	1 out of 4
Like headings in color	Yes 1/8	No	No	No	1 out of 4
Like pictures next to recommendations	Yes 1/8	No	No	No	1 out of 4
Good mix of art and pictures	Yes 1/8	No	No	No	1 out of 4
Don't like black print on blue color on front cover	Yes 2/8	No	No	No	1 out of 4

These graphics are the best of all the material	Yes 1/8	No	No	No	1 out of 4
Like big pictures	No	Yes 1/9	No	No	1 out of 4
Font is big enough	No	Yes 1/9	No	No	1 out of 4
Writing is easier to read in this one	No	Yes 1/9	No	No	1 out of 4
Temperatures with dotted lines around them, makes it look like something to clip out and put on refrigerator, I like it	No	Yes 1/9	No	No	1 out of 4

DINING OUT AND TRAVELING

Part that stands out the most or was most helpful?	**FG #1**	**FG #2**	**FG #3**	**FG #4**	**TOTALS**
Water information	No	No	No	Yes 2/9	1 out of 4
Plan ahead when traveling	No	No	No	Yes 3/9	1 out of 4
When dining out, request that food be prepared to order	No	No	No	Yes 1/9	1 out of 4
It's okay to send food back in a restaurant	Yes 3/8	No	No	No	1 out of 4
It's okay to ask how a particular food is made when dining out	No	Yes 1/9	No	No	1 out of 4
Travel information - we travel; I travel to other countries	Yes 2/8	No	No	Yes 3/9	2 out of 4
Like "when dining out choose …."	Yes 1/8	No	No	No	1 out of 4
Like "when traveling to other countries …."	Yes 1/8	No	No	No	1 out of 4
Common sense tips	Yes 1/8	No	No	No	1 out of 4
Food handling	No	Yes 1/9	No	No	1 out of 4
Temperatures	No	Yes 3/9	No	No	1 out of 4
Listeria information	Yes 1/8	No	No	No	1 out of 4
Ice should be made from boiled water	Yes 1/8	No	Yes 1/6	No	2 out of 4
Learned about raw sprouts	No	Yes 2/9	No	No	1 out of 4
Learned about deli meats and hot dogs	No	No	No	Yes 1/9	1 out of 4
Taking leftovers home, storing leftovers	Yes 2/8	No	No	No	1 out of 4
Recognize properly cooked fish	No	Yes 1/9	No	No	1 out of 4
Comments:					
Follow same rules on the road that you do at home or can get sick	No	No	yes 1/6	No	1 out of 4
This pamphlet good by itself because it's talking about someone else preparing your food	Yes 2/8	No	No	No	1 out of 4
Include this information in other pamphlets	Yes 1/8	No	No	No	1 out of 4
Brought awareness	No	Yes 3/9	No	No	1 out of 4
I'm going to eat what I want to (in foreign countries) but I'll be more aware	No	Yes 1/9	No	No	1 out of 4
Dining out and food shopping has to be done a certain way	No	Yes 1/9	No	No	1 out of 4
I already do this stuff	No	No	No	Yes 1/9	1 out of 4
Language barrier is a problem when traveling abroad	No	No	No	Yes 1/9	1 out of 4
I'm more careful when I'm dining out	Yes 1/8	No	No	No	1 out of 4
How do I make ice from boiled water, how much time do you want to waste	No	Yes 1/9	No	No	1 out of 4
These food safety food standards re valid worldwide	No	No	No	Yes 1/9	1 out of 4
When traveling preparation is important, especially for people with HIV/AIDS; do your homework before traveling	No	No	No	Yes 2/9	1 out of 4

Part that you did not like or did not find helpful?					
No changes, liked it	No	Yes 2/9	Yes 2/6	No	2 out of 4
Confusing "Avoid same foods that you do at home". "I don't avoid certain foods at home I just don't have them available, i.e. seafood." "When I travel I want to try foods I might avoid at home, i.e. oysters"; limited value for traveling	No	No	No	Yes 2/9	1 out of 4
Consider the statement "Look at food you want to eat and make sure it is prepared as safely as if you were at home", rather than avoid specific foods	No	No	No	Yes 1/9	1 out of 4
Don't like "When dining out choose…", I'm paying for it and I don't want anyone telling me what to chose	No	Yes 1/9	No	No	1 out of 4
Does not take into account that food in other countries is not the same as ours	No	No	No	Yes 1/9	1 out of 4
Add travel section for eating different foods in other countries, "What should we do when we go to a different country and faced with a whole different diet and new set of rules?"	No	No	No	Yes 2/9	1 out of 4
Unrealistic expectations of waitress	No	No	No	Yes 2/9	1 out of 4
Confusing water recommendation: says buy water or boil it, which is it; says no coffee or tea (but both are boiled so it should be ok)	No	No	No	Yes 1/9	1 out of 4
Readability? Easy or hard?					
Easy	Yes 6/8	Yes 7/9	Yes 6/6	Yes 5/9	4 out of 4
Concise	No	No	Yes 1/6	No	1 out of 4
Difficulty pronouncing words, especially medical terms; need layman's terms, want phonetic pronunciation	No	No	No	Yes 2/9	1 out of 4
Difficult - too many letters, too small, everything runs together	No	No	No	Yes 1/9	1 out of 4
Layout?					
Good	Yes 1/8	No	Yes 1/6	Yes 1/9	3 out of 4
Spacing great	Yes 1/8	No	No	No	1 out of 4
Eye catching	No	Yes 4/9	No	No	1 out of 4
Informative	No	No	No	Yes 1/9	1 out of 4
Suggested titles: "Dangers of Dining Out" or "Warnings About Dining Out"	No	No	Yes 1/6	No	1 out of 4
Liked how statement was made and then you told why	No	No	Yes 3/6	No	1 out of 4
Pictures? Graphics fit message? Size of letters?					
Want different cover: better picture, no star (looks like a restaurant brochure)	Yes 2/8	No	No	No	1 out of 4
Like picture on front cover, eye catching	No	Yes 4/9	No	No	1 out of 4
Pictures good, gave you an idea	Yes 2/8	No	Yes 3/6	Yes 1/9	3 out of 4
Font good	Yes 1/8	Yes 4/9	Yes 2/6	No	3 out of 4
Colors good	Yes 2/8	No	No	No	1 out of 4
Liked graphics	Yes 2/8	Yes 1/9	No	No	2 out of 4
Didn't like graphics	No	Yes 1/9	No	No	1 out of 4
Spacing good	Yes 1/8	No	No	No	1 out of 4
Picture on cover needs to be updated, looks like 60's picture	No	Yes 1/9	No	No	1 out of 4

Comments:					
Need letters big and clear for people like me who don't read much	No	No	No	Yes 1/9	1 out of 4
Simple	No	Yes 2/9	No	No	1 out of 4
Won't get bored	No	Yes 1/9	No	No	1 out of 4
Confusion:					
Avoid shellfish if you go to a restaurant	No	Yes 2/9	No	No	1 out of 4
Didn't know smoked fish wasn't good for you because it's not cooked all the way through	No	Yes 1/9	No	No	1 out of 4
Want more information about canned oysters and fish in general	No	Yes 2/9	No	No	1 out of 4

SAFE FOOD HANDLING

Part that stands out the most or was most helpful?	**FG # 1**	**FG #2**	**FG #3**	**FG #4**	**TOTALS**
Told me information I didn't know: Listeria, Salmonella, Crypto, litter box	Yes 2/8	Yes 1/9	Yes 1/6	No	3 out of 4
Explanation of each disease	No	Yes 5/9	No	No	1 out of 4
Definitions	No	Yes 2/9	No	No	1 out of 4
Hard cold facts	No	No	No	Yes 1/9	1 out of 4
Wash hands	No	Yes 1/9	No	No	1 out of 4
Prepare and store foods properly	No	Yes 1/9	No	No	1 out of 4
Temperatures	No	Yes 2/9	Yes 1/6	No	2 out of 4
Talks about different FBIs in one pamphlet	No	No	Yes 1/6	No	1 out of 4
How to pasteurized eggs	No	No	Yes 1/6	No	1 out of 4
Learned that CD4 count <100 is more susceptible	No	Yes 1/9	No	No	1 out of 4
Learned about cats	No	Yes 3/9	Yes 1/6	No	2 out of 4
Like colors on the front cover	No	No	Yes 1/6	No	1 out of 4
Comments:					
Information is not just for HIV/AIDS, appeals to many	No	Yes 1/9	No	Yes 2/9	2 out of 4
Keep ourselves informed with what's going on in foods	No	Yes 1/9	No	No	1 out of 4
Nice that everything is repeated	No	No	Yes 1/6	No	1 out of 4
Helpful information for friends and family	No	Yes 1/9	No	No	1 out of 4
Part that you did not like or did not find helpful?					
This pamphlet was horrible	No	No	No	Yes 3/9	1 out of 4
I didn't even read it, wouldn't take it home	No	No	No	Yes 2/9	1 out of 4
Too much information, cluttered	Yes 1/8	No	No	Yes 1/9	1 out of 4
Not enough pictures	No	Yes 6/9	No	Yes 1/9	2 out of 4
Words too big, doesn't make sense	No	No	No	Yes 2/9	1 out of 4
Add recommendation for people who don't have someone to clean litter box	No	No	Yes 1/6	No	1 out of 4
Not enough information about the specific types of E.coli	No	No	Yes 1/9	No	1 out of 4
Comments:					
Better if given to provider or advocate, than directly to client	No	No	No	Yes 1/9	1 out of 4
Readability? Easy or hard?					
Easy, wasn't difficult, Latin names necessary	No	Yes 3/9	Yes 2/6	No	2 out of 4
Don't understand what the words mean	No	No	No	Yes 1/9	1 out of 4

Too much and too difficult to understand for newly diagnosed HIV positive person	No	No	No	Yes 1/9	1 out of 4
Difficult to read, flow not good	Yes 1/8	No	No	No	1 out of 4
Nice to have definitions for big words	No	No	Yes 1/6	No	1 out of 4
Used to hearing toxoplasmosis, not Toxoplasma	Yes 1/8	No	No	No	1 out of 4
Overall layout					
Confusing, don't know correct way to open pamphlet	Yes 3/8	No	No	Yes 1/9	2 out of 4
Information jumbled	No	No	No	Yes 1/9	1 out of 4
Did not like, prefer booklet	No	No	No	Yes 3/9	1 out of 4
Want information categorized, i.e. shopping	No	No	No	Yes 1/9	1 out of 4
It was tough for me to read, maybe it was the way it was folded, its' short and narrow columns.	Yes 3/8	No	No	No	1 out of 4
Numbering pages wouldn't help	Yes 1/8	No	No	No	1 out of 4
Could be easier if pages were numbered	No	No	Yes 4/6	No	1 out of 4
Try colored bars between sections, feel less overpowered	Yes 1/8	No	No	No	1 out of 4
Place tips first as pamphlets opens up	Yes 1/8	No	No	No	1 out of 4
Size good, put in pocket	Yes 1/8	No	No	No	1 out of 4
Looks fine, easy to follow	No	Yes 2/9	No	No	1 out of 4
Great layout for temperatures	Yes 2/8	No	No	No	1 out of 4
Pictures? Graphics fit message? Size of letters?					
Letters too small	Yes 1/8	No	Yes 2/6	Yes 1/9	3 out of 4
Too crammed together	Yes 1/8	No	No	No	1 out of 4
Difficult for visually impaired	Yes 1/8	No	No	No	1 out of 4
Great layout for the cooking temperatures	Yes 1/8	No	No	No	1 out of 4
Not enough pictures	No	Yes 1/9	No	No	1 out of 4
Font fine	No	No	Yes 1/6	No	1 out of 4
Need big letters, easy to read simple	No	No	No	Yes 1/9	1 out of 4

KEEP YOUR BODY SAFE MAGNET

What are your impressions of this piece as a magnet to put on your refrigerator in your kitchen?	**FG #1**	**FG #2**	**FG #3**	**FG #4**	**TOTALS**
Good to hang on the refrigerator; excellent idea	Yes 1/8	No	No	Yes 1/9	2 out of 4
Magnet needs to be bigger	No	Yes 2/9	Yes 1/6	No	2 out of 4
Need bigger letters; writing is small, but it's a magnet	Yes 1/8	Yes 1/9	No	No	2 out of 4
What do you like about it?					
Like "Choose this food instead of that food"	No	No	Yes 1/6	Yes 2/9	2 out of 4
General enough, not specific to any disease - I could put it on my refrigerator	Yes 1/8	No	No	No	1 out of 4
Small letters - I hate too large a print	No	No	No	Yes 1/9	1 out of 4
What do you not like about it?					
Font too small; letters need to be big and bold; make letters on magnet as big as letters on temperature chart (e.g. Keep Foods Safe booklet)	Yes 1/8	Yes 1/9	Yes 4/6	Yes 5/9	4 out of 4
Magnet is too small, can't see it, takes too long to read it	Yes 1/8	Yes 1/9	No	No	2 out of 4

Doesn't say anything to me; doesn't pertain to me	No	Yes 1/9	Yes 1/6	No	2 out of 4
I'm dyslexic, I jump from side to side, magnet is difficult to read	Yes 1/8	No	No	No	1 out of 4
Need darker line down the center of the magnet	Yes 2/8	No	No	No	1 out of 4
I didn't think I should have to work so hard to read this	No	No	No	Yes 1/9	1 out of 4
Need more decoration	No	No	No	Yes 1/9	1 out of 4
Need more pictures	No	No	No	Yes 1/9	1 out of 4
It's an authority problem, don't like "choose this instead of that"	No	No	Yes 1/6	No	1 out of 4
Don't mix shopping for foods and food preparation on one magnet	Yes 1/8	No	No	No	1 out of 4
Comments:					
I don't think you can store leftovers for 7 days	No	No	Yes 4/6	No	1 out of 4
Keep leftovers for 4 days	No	No	Yes 2/6	No	1 out of 4
Add "When in doubt, throw it out"	No	No	Yes 1/6	No	1 out of 4
Add temperatures; want two sided magnet with this information and temperatures	Yes 1/8	No	Yes 1/6	No	2 out of 4
How useful would this be to you as something to hang on your refrigerator?					
Useful	Yes 2/8	No	No	Yes 2/9	2 out of 4
Not useful	Yes 2/8	Yes 1/9	No	No	2 out of 4
Useful information, but magnet is too small	Yes 1/8	No	No	No	1 out of 4
Good information, but not pertinent	Yes 1/8	No	No	No	1 out of 4
Useful if you didn't know about it	No	No	Yes 3/6	No	1 out of 4
I would put it on the refrigerator and forget about it, it's too small to read	No	Yes 1/9	No	No	1 out of 4

Would you prefer to receive food safety information on a magnet like this or would you prefer a printed handout or brochure?

Prefer magnet	Yes 2/8	Yes 5/9	No	Yes 1/9	3 out of 4
Magnet doesn't appeal to me, it's like a bunch of scribble	No	Yes 1/9	No	No	1 out of 4
Printed material	Yes 1/8	No	No	No	1 out of 4
Prefer temperature magnet; more helpful; would catch my eye	Yes 6/8	Yes 5/9	Yes 6/6	No	3 out of 4
Comments:					
I loose papers	No	No	No	Yes 1/9	1 out of 4
Can refer to magnet versus trying to find pamphlet	No	Yes 1/9	No	No	1 out of 4
Magnet is a reference guide	No	Yes 2/9	No	No	1 out of 4
Look at magnet and think "let's figure out what we're going to eat"	No	Yes 1/9	No	No	1 out of 4
It's up to each individual	No	Yes 1/9	No	No	1 out of 4

How well does the magnet stand-alone or should it be distributed along with one of the other materials?

Distribute with other materials	Yes 5/8	No	Yes 2/6	Yes 1/9	3 out of 4

Okay by itself	No	No	No	Yes 1/9	1 out of 4
Not believable alone, unless your MD or RD gave it to you	No	No	No	Yes 2/9	1 out of 4
Wouldn't pick it up unless a trusted friend gave it to me	No	No	No	Yes 1/9	1 out of 4
Magnet alone doesn't discuss what food to buy, how to prepare food or what to eat	No	No	Yes 1/6	No	1 out of 4
Comments:					
Telling what type of food to eat won't get it, but how to cook it is the idea	No	Yes 1/9	No	No	1 out of 4
What is the central issue for having this on your refrigerator?	No	No	Yes 2/6	No	1 out of 4
I liked lots of information packed into a small piece, it can become part of my life, liked cook eggs (well) and beware of deli salads	No	No	No	Yes 1/9	1 out of 4
Does not pertain to me, I already do these things	No	No	No	Yes 1/9	1 out of 4
It would grow mold	No	Yes 1/9	No	No	1 out of 4

Which of all these materials do you like best?

Take Control	Yes 2/8	Yes 4/9	Yes 3/6	Yes 2/9	4 out of 4
"The one with the red square" (Take Control)	No	Yes 1/9	No	No	1 out of 4
Keeping foods safe	Yes 4/8	No	Yes 2/6	No	2 out of 4
Dining Out and Traveling	No	No	No	No	0 out of 4
Safe Food Handling	Yes 1/8	No	No	Yes 1/9	2 out of 4
Liked both Take Control and Keeping Foods Safe	No	Yes 2/9	No	No	1 out of 4
Combine Take Control and Keeping Foods Safe	No	Yes 1/9	No	Yes 4/9	2 out of 4
Combine Take Control, Keeping Foods Safe and Safe Food Handling	No	No	No	Yes 1/9	1 out of 4
Combine all into one booklet	No	No	No	Yes 2/9	1 out of 4
Add magnet to all in 1 booklet	No	No	No	Yes 1/9	1 out of 4
Liked them all	No	No	No	Yes 1/9	1 out of 4
Keep Dining Out and Traveling separate	No	No	No	Yes 1/9	1 out of 4
Comments:					
Keeping Foods Safe					
Easiest for me; easy readability; liked color, font; lack of ultra technical stuff; concise, simple; easy on eyes; good for general use and just food safety	Yes 3/8	No	No	No	1 out of 4
Pertains to me, sell dates, covered all the bases	No	No	Yes 1/6	No	1 out of 4
With this one (Keeping Foods Safe) you only need one	No	No	Yes 1/6	No	1 out of 4
Take Control					
Take Control is an empowering statement, "Implies you got to do it for yourself"	No	No	Yes 1/6	Yes 1/9	2 out of 4
More info; has all the info other pamphlets have; covered areas important to HIV: nutrition, vitamins, exercise, side effects; made me think of dieting	Yes 2/8	Yes 2/9	Yes 2/6	No	3 out of 4
Informative on nutrition and food safety for persons with HIV	No	No	Yes 1/6	No	1 out of 4

Would keep this with cookbooks	No	No	Yes 1/6	No	1 out of 4
Covered everything, nicely categorized	No	No	No	Yes 1/9	1 out of 4
Don't like title	Yes 1/8	No	No	No	1 out of 4
Keeping Foods Safe and Take Control					
Liked layout, information bold statements on what content is about	No	Yes 2/9	No	No	1 out of 4
Include sell by dates, Salmonella, Listeria	No	No	No	Yes 2/9	1 out of 4
Safe Food Handling					
Need this information now that I cook at home; gave me added information	No	No	No	Yes 1/9	1 out of 4
Liked cat and litter box information	Yes 1/8	No	No	No	1 out of 4
Common sense in addition to having lots of information	No	Yes 1/9	No	No	1 out of 4
Dining Out					
Change cover, looks like an ad to restaurant	Yes 1/8	No	No	No	1 out of 4

Which of all of these materials do you like the least?

Safe Food Handling	Yes 5/8	Yes 1/9	Yes 4/6	Yes 4/9	4 out of 4
Dining Out and Traveling	No	Yes 3/9	No	Yes 5/9	2 out of 4
Magnet	Yes 1/8	Yes 4/9	Yes 2/6	Yes 1/9	4 out of 4
Take Control	Yes 1/8	No	No	No	1 out of 4
Keeping Foods Safe	No	No	No	No	0 out of 4
None that I did not like	No	Yes 1/9	No	Yes 1/9	2 out of 4
Comments:					
Safe Food Handling					
Overwhelming	No	No	No	Yes 1/9	1 out of 4
Not formatted correctly; open it up and it's like where are we	No	No	Yes 1/9	Yes 1/9	2 out of 4
Presented like a textbook	No	No	No	Yes 1/9	1 out of 4
Readability is difficult	Yes 1/8	No	Yes 1/9	No	2 out of 4
With my illness I have so many pamphlets, I'd probably throw it away	No	No	Yes 2/9	No	1 out of 4
Dining Out and Traveling					
Don't have control over restaurant food	No	No	No	Yes 2/9	1 out of 4
Don't like anyone cooking my food	No	No	No	Yes 1/9	1 out of 4
Don't dine out much	No	No	No	Yes 1/9	1 out of 4
Don't travel, if I was going to get myself sick I would do it at home	No	No	No	Yes 1/9	1 out of 4
Nothing real in content	No	No	No	Yes 1/9	1 out of 4
Less useful but nice to have	No	No	No	Yes 1/9	1 out of 4

Magnet					
Not pertinent	Yes 1/8	No	No	No	1 out of 4
Magnet too small	No	Yes 1/9	No	No	1 out of 4
Not enough information	Yes 1/8	No	No	No	1 out of 4
Need larger print	No	Yes 3/9	No	No	1 out of 4
Don't like "choose"	No	Yes 1/9	No	No	1 out of 4
Prefer temperature magnet	No	Yes 1/9	No	No	1 out of 4
Take Control					
Too long, hard to read	Yes 1/8	No	No	No	1 out of 4

After reading these handouts, how willing would you be to follow the recommendations given?

Willing/very willing	Yes 3/8	Yes 2/9	Yes 1/6	Yes 3/9	4 out of 4
Would change some things, but not all	Yes 1/8	Yes 1/9	No	No	2 out of 4
Comments:					
Handouts increase awareness	Yes 2/8	Yes 1/9	Yes 1/6	No	1 out of 4
We're more susceptible to everything, I hadn't thought about increased susceptibility to FBI	No	No	Yes 1/6	No	1 out of 4
Willing to listen, read everything and apply it, "it's all about me and my health"	No	No	No	Yes 3/9	1 out of 4
Now that I have the (recommendations) I would be (willing to follow them)	No	Yes 1/9	No	No	1 out of 4
Material is encouraging; reminds me what I need to do to love myself; I want to be around for the cure	No	No	No	Yes 2/9	1 out of 4
Food is a big part of life, we don't think of the damage it can do	No	No	No	Yes 1/9	1 out of 4
Information good in all materials	Yes 1/8	No	Yes 1/6	No	2 out of 4
I don't believe these handouts would mislead someone and I agree with them	No	Yes 1/9	No	No	1 out of 4
You have a choice, are you going to eat this or that	No	Yes 1/9	No	No	1 out of 4
I know a lot of information being a cook and parent	No	No	Yes 1/6	No	1 out of 4
Younger generation has no clue, there is a "new wave" out there, this info would be helpful to them	No	No	Yes 1/6	No	1 out of 4
Some of it is ridiculous	No	Yes 1/9	No	No	1 out of 4
"I'm willing (to follow some of the recs) except lunch meat, maybe I'll give it awhile, I would never have thought to give it awhile before reading these pamphlets"	No	No	Yes 1/6	No	1 out of 4
Raises questions I'm going to investigate	No	No	Yes 1/6	No	1 out of 4
Some of my behaviors won't change like exercise and certain food preferences that I know I should avoid, but I've lucked out so far	No	No	Yes 1/6	No	1 out of 4
I've heard similar info when I was diagnosed with HIV	No	No	Yes 2/6	No	1 out of 4

After reading these, how confident do you feel in your ability to prevent foodborne illness?

Confident/more confident	Yes 6/8	Yes 2/9	Yes 3/6	Yes 4/9	4 out of 4
I'm not confident	No	Yes 1/9	No	No	1 out of 4
Comments:					
I feel more knowledgeable, got tools to implement, helpful information	No	No	No	Yes 5/9	1 out of 4
I'm going to take this information home and read it	No	No	No	Yes 1/9	1 out of 4
The lay out, comments and briefness make it easy to pass on to others	Yes 1/8	No	No	No	1 out of 4
It would be nice to not get sick this year; I will keep myself safer with this information	No	Yes 1/9	No	Yes 1/9	2 out of 4
This information will help me prevent Salmonella	No	No	No	Yes 1/9	1 out of 4
I'm more contentious after having a FBI	No	No	No	Yes 1/9	1 out of 4
Helps me know how to do it right, reminds me that I need to watch it, know what to look for and not do	Yes 3/8	No	No	No	1 out of 4
When I do the right thing I feel like I have a lot of control	Yes 1/8	No	No	No	1 out of 4
Most of my FBI comes from eating out, delis and a certain grocery store	Yes 1/8	No	No	No	1 out of 4
When I'm out I don't feel like I have control					
More confident when I cook food myself; don't know if people cooking my food know this information; I'm not there supervising them	No	No	No	Yes 2/9	1 out of 4
Just because my hamburger is brown it could still not be cooked right	No	No	Yes 1/6	No	1 out of 4
I've been doing this for years	Yes 1/8	No	No	No	1 out of 4
Most of my eating is at home	Yes 1/8	No	No	No	1 out of 4

When considering all the lifestyle changes a person living with HIV/AIDS makes to stay healthy, where does food safety rank with you?

Very important/#1/100%/top of the list/very high/high	Yes 4/8	Yes 2/9	Yes 6/6	Yes 4/9	4 out of 4
Very important like many things; Important but not #1; there are other things above FS that I have to work on	Yes 1/8	No	No	Yes 2/9	2 out of 4
Top of the list next to safe sex	Yes 1/8	No	No	No	1 out of 4
Middle	Yes 1/8	Yes 1/9	No	No	2 out of 4
Comments:					
Important now that I know; important now that I'm moving out on my own; this (FS education material) raises its' importance to me; I am more aware; it's higher now; it's one of the main things I pay attention to; always in back of my mind	Yes 2/8	Yes 6/9	Yes 1/6	Yes 1/9	4 out of 4
Important to know it can affect your immune system even more	Yes 1/8	No	No	No	1 out of 4
Without safe food in my body it will not continue to run	No	Yes 1/9	No	No	1 out of 4
It's just common sense	No	Yes 1/9	No	No	1 out of 4
Can't let it rule my life; not going to get paranoid	No	Yes 2/9	No	No	1 out of 4

I cook and store foods properly	No	Yes 1/9	No	No	1 out of 4
I don't eat raw eggs	No	Yes 1/9	No	No	1 out of 4
I don't have control over some things so I just go along with it	No	Yes 1/9	No	No	1 out of 4
I got violently ill with FBI; had 3 out of 5 FBI	No	Yes 1/9	Yes 1/6	No	2 out of 4

What are some situations or events that might persuade you or spur you to use the material?

My health; avoid getting sick; I'll do anything to keep me healthy; concern about my immune system	No	No	Yes 1/6	Yes 3/9	2 out of 4
Getting sick might change my ways	Yes 1/8	No	No	No	1 out of 4
Having had FBI; hospitalized for crypto and collected FS information when discharged	No	No	Yes 1/6	Yes 1/9	2 out of 4
Avoid side effects of new medications; assistance with appetite loss	No	No	No	Yes 1/9	1 out of 4
Eating out	Yes 4/8	Yes 2/9	Yes 1/6	No	3 out of 4
Eating out and traveling	Yes 2/8	No	No	No	1 out of 4
Eating at other people's houses, family gatherings	Yes 1/8	Yes 1/9	No	No	2 out of 4
Picnics, barbeques	Yes 1/8	Yes 2/9	No	No	2 out of 4
When dining out I pay attention to temperature of food	No	Yes 1/9	No	No	1 out of 4
Gives me permission to ask how food is prepared when dining out	No	Yes 1/9	No	No	1 out of 4
Articles	No	No	No	Yes 1/9	1 out of 4
Outbreaks	No	No	No	Yes 1/9	1 out of 4
Don’t want my children to get food poisoning	No	No	Yes 2/6	No	1 out of 4

What are some situations or events that might prevent you from using the material

Nothing	Yes 1/8	Yes 2/9	No	Yes 2/9	3 out of 4
Temptation; food preference rises above FS information	Yes 1/8	No	Yes 1/6	No	2 out of 4
Rare steak and prime rib, Indian tantori	Yes 2/8	No	No	No	1 out of 4
Sushi, raw oysters	Yes 1/8	No	No	No	1 out of 4
Holidays	Yes 1/8	No	No	No	1 out of 4
Going to someone's house; social settings	Yes 2/8	No	No	No	1 out of 4
Buffets	Yes 1/8	No	No	No	1 out of 4
Hunger; starvation	Yes 1/8	Yes 1/9	No	No	2 out of 4
Past habits	No	No	Yes 1/6	No	1 out of 4
Shyness to speak up in restaurant	No	No	Yes 1/6	No	1 out of 4
Can't check on fast food	No	Yes 1/9	No	No	1 out of 4
Time - making quick sandwiches that now have to be heated	No	No	Yes 1/6	No	1 out of 4
If only in pamphlets (no personal experience)	No	No	Yes 1/6	No	1 out of 4
HIV/AIDS cover	No	No	Yes 1/6	No	1 out of 4
Not much since be hospitalized with crypto	No	No	Yes 1/6	No	1 out of 4

If you saw these booklets and pamphlets in a doctor's office or grocery store, how likely would you be to pick these up and read them?

I would pick it up and read it	No	Yes 8/9	Yes 1/6	No	2 out of 4
Nothing better to do in MD office	No	Yes 1/9	Yes 1/6	No	2 out of 4
Probably would pick them up	Yes 1/8	No	No	No	1 out of 4
Would read it but might not take it home	No	No	Yes 1/6	No	1 out of 4
Would read it more than 1-2 times	No	Yes 1/9	No	No	1 out of 4
If I didn't know the information I would pick them up and take them home	No	No	Yes 1/6	No	1 out of 4
Very likely, especially if more HIV/AIDS directed	Yes 1/8	No	No	No	1 out of 4
Somewhat likely, depends on group I'm with, setting and what they say	Yes 3/8	No	No	No	1 out of 4
What it needs to say on the cover for me to pick it up depends on where I was and who is there, in some situations it could say HIV/AIDS	No	No	Yes 1/6	No	1 out of 4
If it were big	No	No	Yes 1/6	No	1 out of 4
I would pick up one nicely formatted booklet, but not many pamphlets	No	No	No	Yes 5/9	1 out of 4
I would pick up Take Control	No	No	No	Yes 1/9	1 out of 4

What would be the best ways for these materials to be distributed?

MDs	Yes 8/8	Yes 2/9	Yes 1/6	Yes 1/9	4 out of 4
Health care providers	No	No	No	Yes 2/9	1 out of 4
Nutritionist	No	No	No	Yes 1/9	1 out of 4
Case manager	No	No	No	Yes 1/9	1 out of 4
Dentist	No	Yes 1/9	No	No	1 out of 4
Pharmacy	No	Yes 1/9	No	No	1 out of 4
Spokane AIDS Network	Yes 5/8	No	No	No	1 out of 4
Pierce County AIDS Foundation	No	Yes 1/9	Yes 2/6	No	2 out of 4
Community health center	Yes 1/8	No	No	No	1 out of 4
Health department	No	No	Yes 4/6	No	1 out of 4
Methadone clinic	No	Yes 1/9	No	No	1 out of 4
Grocery store	Yes 2/8	No	No	No	1 out of 4
Supermarket check out	No	No	No	Yes 5/9	1 out of 4
Library	No	Yes 1/9	No	No	1 out of 4
Internet	Yes 2/8	Yes 1/9	No	No	2 out of 4
Community newsletters	No	No	Yes 1/6	No	1 out of 4
Mail to households	No	No	Yes 1/6	No	1 out of 4
Cooking classes, seminars	No	No	No	Yes 2/9	1 out of 4
Special events, e.g. Gay Parade, Ethnic Festival	No	No	Yes 4/6	No	1 out of 4
Comments:					
Don't have internet access	No	No	Yes 2/6	No	1 out of 4
Not in library; especially since FBI is going to be checking	No	No	Yes 2/6	No	1 out of 4

Appendix L – Material Reaction Form*

*(Footnote: ideas from a single individual will be a bullet, multiple comments from a single individual will be distinguished by a semi-colon)

Keeping Foods Safe

Content:

<u>New information or not new information (response to targeted content that the person found to be new information to them versus not new information)</u>

- Did not tell me anything I did not already know;
- I didn't realize alfalfa sprouts needed to be cooked;
- Don't know Listeria can grow in the fridge; lunchmeat, never would have thought about heating it again (I eat a lot); importance of washing utensils used to prepare food, didn't really know;
- Discussion on digital versus metal-coil thermometer was new to me and useful;
- Same as the 3 others to me, but still useful;
- I didn't know that I couldn't eat certain things;
- How to use a meat thermometer;

<u>Questions (statements framed as questions about the materials)</u>

- I wonder if both cheeses need to be heated at 160°F and if so is it to prevent pathogens?;
- What about safety of dried meat jerky?;
- Salmonella is not presented as to how it is gotten;
- Sometimes you just don't now what is good and what is bad;

<u>Messages retained (statements containing messages directly from the content of the materials)</u>

- Cook foods well, store them separate, cook meat well, stay away from raw milk, wash foods well, cook eggs until yolks are white, use a meat thermometers to test doneness of meat;
- Heat meat well and there are some foods not to assume that the dates on products that say expiration date are not necessarily all right, also to rinse off lids;
- Clean, clean, clean, always-clean areas with bleach and water; never cross contaminate;
- It is important for HIV people to know how to handle food and how to cook it plus always wash your hands is very important;

<u>Evaluation of content (feelings, thoughts, attitudes, and beliefs about the content)</u> (subcategories – informative content and recommended changes)

- Very direct, to point;
- But was informative;
- This booklet gives good information;
- Very informative; Had a lot of easy to understand material; Very easy to follow guidelines;
- The material in this booklet was written well, with much good information;

- It was a review of healthy living. Very good information, all wrapped up in one book;
- Pretty boring and long winded;
- Well written; easily understood pamphlet; excellent presentation of materials;
- Good and informative; great highlights;
- You keep repeating in some booklets; I do like some of the tips you have; Temperature and bags when shopping and good;
- Good explanation of the type of food thermometers; safe cooking temperatures can't ever see it enough;
- I liked the "instead of…choose" section;
- A good shopping guide, expiration dates and past due food freshness;
- I agree with this booklet because it tells us how to shop for food;
- I love this material because there is some easy part;
- Reading about safe food was great; Shopping tips was helpful too; I like the way they keep telling you to wash your hands;
- Like your defining words, foodborne illness, pathogens, and leads to clearer understanding;

Presentation:
- Good graphic layout – color's not easily seen; Black on blue hard to see; Liked this one well;
- Well put together pamphlet; with striking colors; good format;
- Too long;
- Great graphics;
- You get all you need to know in one book;
- One single pamphlet would be most effective;
- Like lists-good bullet presentation; good graphics; good use of different colors; nice little pictures, makes information "user friendly" not like reading a textbook; Little pictures disarms any anxiety or resentment;

Perceived impact on self or others:
- I will now be careful of how I eat my hot dogs, salad and cheese;
- Could be very useful to teenagers and younger;
- Pleasure to read;
- I will try my best to follow a lot of the information I received today;
- So people can follow the instruction;
- Make me want to use the information to make food that looks like the pictures;

Dining Out and Traveling
Content:
New information or not new information
- I didn't realize raw meat such as deli needs to be heated to a certain temperature; I now realize to boil my hot dogs before I eat; I'm not really sure what to think about cheese anymore; I didn't realize eggs needed to be boiled or fried all the way to prevent foodborne;

- I learned a few new things as well;
- I never use to think that it made that much difference I don't eat bloody meat but have eaten raw hot dogs;
- I learned some important things that I did not know or had forgotten;
- I didn't know that about sprouts and cheese;
- Reheating lunchmeat tripped me out;
- I didn't never think about how my food should be cooked;

Questions
- Should mention precautions when traveling in other communities that might use well or surface water?;
- I am not sure about my thoughts on traveling because of lack of information;
- Opposite, references to "harmful bacteria, viruses, harmful germs" too vague, generic, what do these mean?;

Messages retained
- Cooking foods well, cooking eggs till done, being careful about fish, staying away from soft cheese;
- Ice should be made from boiled water;
- Be real careful when you don't prepare your own food;

Evaluation of content (subcategories – informative content and recommended changes)
- Very good topic; good specific s on water precautions in other countries;
- Very informative;
- Much needed info;
- I really liked this one and found it informative; doesn't over do the info;
- Very good information; Good new education;
- I thought the material was informative;
- Material is great about food safety; easy to understand and very helpful;
- Very good information sheet, has a lot of info that is not common sense;
- Very informative; some good ideas about when your out;
- I like the parts on water and what to look for when traveling and going out;
- Thank you for using "immune compromised";
- Liked the why after each statement; boiling water is something people don't always think about doing;
- The section explaining "why" to make these choices was useful;
- Very good info on watching how one with AIDS can stay healthy eating away from their own cooking;
- Tell you all you need to know about dining out and what to look for;
- Useful info; particularly like the idea of heated/grilled sandwiches; some things may not be practical and are a conscious trade off;
- "When dining out, choose" is very good and nice information for me to understand why what should we eat;
- Was easy to read and understand;
- I like the forth right manner in which the valuable tips were gotten into;

- Good detail about food in other countries;

Presentation:
- Good letter coloring; eye-catching cover;
- Presented in a manner that was simple to understand;
- Good well wrote;
- I thought the folder was great; cute pictures too;

Perceived impact on self or others:
- Will follow advice;
- Makes me think more about what and where I eat;
- I'll probably continue to eat smoked salmon and soft cheese – acceptable risk;
- I'm very happy to know about this because of my disease;
- Not always able to do consistently; for some people it would mean really having a great deal of research on where to eat, good explanation of why it is needed;

Keep Your Body Safe Magnet
Content:
New information or not new information
- I never really know how to get germs out of food;
- Common sense stuff;
- Not to buy already prepared salads, You would think that it would be okay;
- Mostly common sense info;
- Some things I did not know;

Questions
- There is no "why" answer, that might make someone who's living with HIV want to know why she/he has to follow this information;

Messages retained
- 7 days, throw out unused food, a time frame to go by;
- Importance of not eating raw eggs; Getting rid of leftovers promptly;
- The issue of uncooked eggs is very important as is leftovers kept too long or not properly stored;
- I think it's very important for people to cook foods well done everyday;

Evaluation of content (subcategories – informative content and recommended changes)
- Liked very much;
- This could be very handy;
- Good info, concise and to the point;
- Thought that information was conveyed well;
- The information was helpful, also easy to understand;
- I don't like the word CHOOSE!;
- Very well written;

- The information was given in good context; showed a great concern over cooking foods; the contamination exceptionally;
- It's a good idea;
- Don't say HIV/AIDS – thank you – on cove;
- Easy to read and knowledgeable;
- Easy; short;
- Helpful;

Presentation:
- Nice idea for a quick handy reference;
- Nice order to ideas, easy to read, tones are easy on eyes, simple;
- Writing could be a bit bigger;
- Print is too small!!!;
- Might need to be a little larger;
- Could be in larger print, difficult to read;
- Material was eye-catching; materials well put together;
- Makes for quick reference;
- Good size, nice colors;
- Good to have on fridge for reminder; print small for some people to read;
- I think it's a great idea;
- I think it will do well;
- Printing too small; could be more decorative; more bright colors; more little picture of "safe food"; cut down on words; use bullet statements;

Perceived impact on self or others:
- Now I will know how and use those techniques (getting germs out of food);
- I would probably put it on my refrigerator;
- I'm very thankful for the information on this keep your body safe magnet, now I finally understand how to eat a lot of different food and not be afraid to go out and buy groceries and know how to prepare them;
- This as a refrigerator magnet could help remind those of us not likely to follow the "temperature" rule to the letter;
- I would use it;
- Would like to have this as a magnet to put on the refrigerator as a reminder;

Take Control

Content:

New information or not new information
- Showed me some things that I didn't know;
- I learned more about germs and unsafe food; never really thoroughly known anything about safe and unsafe food;
- Most of the stuff I already knew;
- There is also information that corrects something I thought was fact, one interesting thing is that when my CD4 count was below 200 I was not told to boil my water;
- Surprised at some of the information I need to learn more;

- This gives us a lot more insight why bread might be bad and how to store different items; Also items on exercise;
- I didn't know leftovers went bad or should be discarded after 4 days; I rarely cook food so the guidelines for that are all new to me;
- *Listeria* 300 times higher in those with HIV and AIDS and *Salmonella* 12-20 times higher;

Questions
- What is a portion size, how big?; How much is too much?; How much water is recommended for a person each day?;
- What about washing fruits and vegetables carefully?;
- You make mention of "necessity of medication effectiveness" – where in text do you develop this vis-à-vis nutrition and food safety?;

Messages retained
- Careful washing of food; making sure food is fresh; keeping certain food chilled; staying away from shellfish; eating of the 4 food groups; if foods are old throw them away;
- Always cook your food till it's done and wash hands and areas with bleach and soap;

Evaluation of content (subcategories – informative content and recommended changes)
- Nice overview; good reading level for the majority of audience;
- Very informative;
- The material I found was quite interesting;
- Very informative;
- Well written; direct to the point;
- Very complete booklet;
- Take Control is an empowering statement; good handout;
- I thought that everything in this one particularly is very much like its predecessor and once again the same almost every word;
- Easy to read; gives a lot of information;
- Take Control is a good book;
- Add amount; Nice to have exercise included;
- Materials seem to be very well thought out and organized;
- Page 1 – define "pathogens" sooner;
- Very well thought out; food issues; very good info about the foodborne pathogens;
- Some helpful info on taking care of myself when sick;
- Page 2 you talk about milk, you want cheese and water on you finally clarify the issue; Should have a referral to that page;
- I love this material more than the others that I read before;
- This booklet was great; part about the meat was also great; good to know about exercise; always talk to doctor before you do anything or change something;

Presentation:
- Give it a high rating on pictures and graphics;

- Wrote it looks good;
- Like the bold print marking off important points; Good use of diagrams, different colors and bullets; It would not hurt to use more colors – more drawings – fancy; Print in bulk text areas;

Perceived impact on self or others:
- But I will read it again when a question arises;
- All the information you have given me I will use it for the rest of my life and have decided to change my way of eating;
- Information that will help me as well as other's with HIV;
- I would love to have this book; this would help me a lot;

Safe Food Handling
Content:
New information or not new information
- I have two cats at home and I always knew that it wasn't safe to change their litter box; but what I didn't know is that I could get *Toxoplasma gondii;*
- It told me a lot I didn't know;
- I didn't realize by eating or drinking milk that was unpasteurized was bad, for me or yogurt or seafood or uncooked meat and poultry;
- I learned about certain foods I did not know before that can be unsafe;
- Didn't know HIV/AIDS people were at more of a risk for foodborne illnesses (duh)!!!; Didn't know about not keeping ready to eat foods for very long or some trendy foods such as sushi should be avoided entirely;
- I only knew a little bit about safe cooking, the book helped a lot; I also did not know about *Toxoplasma*, this was very helpful;

Messages retained
- *Toxoplasma* – owning a cat take great care, being very careful of cat box, etc; Making sure food is not raw and being careful to wash all foods that need to be washed; Being sure to cook food;
- I realize not to have a cat; I now understand to wash my hands all the time.
- Don't eat raw food; cook to regular temperatures;
- It cannot be stressed enough that those who are immune compromised are at significantly greater risk of becoming sick from these illnesses;
- Food safety is very important with or without HIV so you won't get sick if you handle food correctly;
- When handling food you should always be conscious of clean hands and cloth should be clean;

Evaluation of content (subcategories – informative content and recommended changes)
- Lots of information; conflict in number of days to keep leftovers, other brochure says throw away after 4 days;
- I liked that pamphlet; very informative;
- The information was useful to me;

- Very informative pamphlet;
- The information is very easy to understand and also helpful; Some very good information, really like the safe cooking temperature guide located on back of pamphlet;
- Too much material explained way too fast; Just one or two points at a time is my only complaint;
- Hard to read; lengthy in content;
- I like outline of the illnesses fact it's easy to read and understand;
- Thank you for using "immune compromised person" on the front instead of HIV/AIDS;
- Very good information;
- Not everyone has access to the web – suggest books they can read;
- Covered specific food and water borne diseases well; a bit technical but decisive and necessary information;
- Didn't know how it affected HIV; some very good tips;
- It tells you all you need to know about all of the food;
- Confusing of the order of pamphlet started with criteria first. *Toxoplasma* should be added with other parasites at the end after *E.coli;*
- Lots of very good and pertinent information;

Presentation:

- Print is too small; hard to see to read;
- Seems cluttered;
- Nice use of bold script and color;
- Print may be too small for some people;
- It looks good, you can read it well;
- The letters are too small for my eyes;
- All in one page is good, but the small letter might not catch the reader's eye;
- Format of presentation is too tight, too succinct; layout is too concentrated; spread it out a little, more empty spaces; don't think folded up format lends itself to achieving this effect;

Perceived impact on self or others:

- Much of information would be skipped over by many people;
- I find this very disturbing that I could be sick so easily; this concerns me a lot;
- If I go by a deli section, I'm not going to buy it;
- I understand that importance of what I've read;
- I'm very surprised about what I've read; by reading this I will watch out for a lot of these different types of bacteria;
- The book should be in everybody's house, HIV or not;
- Seems like it would take too much effort to get into; the result – put it aside to read later; probably not pick it up again;

Appendix M: Descriptive Statistics of Material Rating Form

Questions	Response Scale	Percent	Frequency
Dining Out and Traveling			
Understandable	1=Not very easy to understand	3	1
	2	3	1
	3	0	0
	4	0	0
	5	3	1
	6	19	6
	7=Very easy to understand	72	23
Useful			
	1=Not very useful	6	2
	2	0	0
	3	0	0
	4	9	3
	5	6	2
	6	25	8
	7=Very useful	53	17
Believable			
	1=Not very believable	3	1
	2	0	0
	3	0	0
	4	6	2
	5	0	0
	6	25	8
	7=Very believable	66	21
Difficulty			
	1=Not very difficult to read	66	21
	2	22	7
	3	3	1
	4	0	0
	5	0	0
	6	6	2
	7=Very difficult to read	3	1
Eye-catching			
	1=Not very eye-catching	6	2
	2	6	2
	3	6	2
	4	6	2
	5	25	8
	6	25	8
	7=Very eye-catching	25	8

Questions	Response Scale	Percent	Frequency
Appropriate Graphics			
	1=Not very appropriate	3	1
	2	0	0
	3	6	2
	4	9	3
	5	16	5
	6	31	10
	7=Very appropriate	34	11
Willing to follow recommendations			
	1=Not very willing	3	1
	2	0	0
	3	0	0
	4	6	2
	5	6	2
	6	16	5
	7=Very willing	69	22
Overall like handout			
	1=Dislike extremely	0	0
	2	0	0
	3	6	2
	4	3	1
	5	9	3
	6	31	10
	7=Like extremely	50	16
Recommend handout to friends			
	1=Would not recommend	0	0
	2	0	0
	3	0	0
	4	3	1
	5	6	2
	6	19	6
	7=Would recommend	69	22
	Missing	3	1
Take Control			
Understandable	1=Not very easy to understand	3	1
	2	0	0
	3	0	0
	4	6	2
	5	3	1
	6	19	6
	7=Very easy to understand	69	22

Questions	Response Scale	Percent	Frequency
Useful			
	1=Not very useful	0	0
	2	3	1
	3	0	0
	4	6	2
	5	6	2
	6	28	9
	7=Very useful	56	18
Believable			
	1=Not very believable	6	2
	2	0	0
	3	0	0
	4	3	1
	5	3	1
	6	28	9
	7=Very believable	56	18
	Missing	3	1
Difficulty			
	1=Not very difficult to read	60	19
	2	19	6
	3	0	0
	4	6	2
	5	6	2
	6	3	1
	7=Very difficult to read	3	1
	Missing	3	1
Eye-catching			
	1=Not very eye-catching	3	1
	2	3	1
	3	6	2
	4	28	9
	5	9	3
	6	16	5
	7=Very eye-catching	34	11
Appropriate Graphics			
	1=Not very appropriate	0	0
	2	0	0
	3	0	0
	4	12	4
	5	25	8
	6	28	9
	7=Very appropriate	34	11

Questions	Response Scale	Percent	Frequency
Willing to follow recommendations			
	1=Not very willing	0	0
	2	0	0
	3	0	0
	4	3	1
	5	3	1
	6	34	11
	7=Very willing	59	19
Overall like handout			
	1=Dislike extremely	0	0
	2	0	0
	3	0	0
	4	6	2
	5	3	1
	6	38	12
	7=Like extremely	53	17
Recommend handout to friends			
	1=Would not recommend	0	0
	2	0	0
	3	0	0
	4	6	2
	5	6	2
	6	25	8
	7=Would recommend	63	20
	Missing		
Safe Food Handling			
Understandable	1=Not very easy to understand	6	2
	2	0	0
	3	13	4
	4	6	2
	5	6	2
	6	31	10
	7=Very easy to understand	38	12
Useful			
	1=Not very useful	0	0
	2	3	1
	3	6	2
	4	6	2
	5	19	6
	6	13	4
	7=Very useful	50	16
	Missing	3	1

Questions	Response Scale	Percent	Frequency
Believable			
	1=Not very believable	0	0
	2	0	0
	3	0	0
	4	6	2
	5	6	2
	6	16	5
	7=Very believable	72	23
Difficulty			
	1=Not very difficult to read	56	18
	2	16	5
	3	0	0
	4	9	3
	5	9	3
	6	6	2
	7=Very difficult to read	3	1
Eye-catching			
	1=Not very eye-catching	0	0
	2	3	1
	3	22	7
	4	22	7
	5	12	4
	6	19	6
	7=Very eye-catching	22	7
Appropriate Graphics			
	1=Not very appropriate	0	0
	2	3	1
	3	6	2
	4	22	7
	5	16	5
	6	34	11
	7=Very appropriate	19	6
Willing to follow recommendations			
	1=Not very willing	0	0
	2	0	0
	3	9	3
	4	0	0
	5	9	3
	6	16	5
	7=Very willing	66	21

Questions	Response Scale	Percent	Frequency
Overall like handout			
	1=Dislike extremely	0	0
	2	9	3
	3	3	1
	4	6	2
	5	16	5
	6	28	9
	7=Like extremely	38	12
Recommend handout to friends			
	1=Would not recommend	3	1
	2	0	0
	3	3	1
	4	6	2
	5	16	5
	6	19	6
	7=Would recommend	53	17
Keeping Foods Safe			
Understandable	1=Not very easy to understand	3	1
	2	0	0
	3	3	1
	4	0	0
	5	3	1
	6	31	10
	7=Very easy to understand	59	19
Useful			
	1=Not very useful	0	0
	2	0	0
	3	3	1
	4	9	3
	5	9	3
	6	22	7
	7=Very useful	56	18
Believable			
	1=Not very believable	0	0
	2	0	0
	3	0	0
	4	6	2
	5	3	1
	6	22	7
	7=Very believable	69	22

Questions	Response Scale	Percent	Frequency
Difficulty			
	1=Not very difficult to read	69	22
	2	6	2
	3	9	3
	4	6	2
	5	3	1
	6	6	2
	7=Very difficult to read	0	0
Eye-catching			
	1=Not very eye-catching	0	0
	2	9	3
	3	6	2
	4	16	5
	5	16	5
	6	16	5
	7=Very eye-catching	37	12
Appropriate Graphics			
	1=Not very appropriate	0	0
	2	0	0
	3	3	1
	4	9	3
	5	19	6
	6	31	10
	7=Very appropriate	34	11
	Missing	3	1
Willing to follow recommendations			
	1=Not very willing	0	0
	2	0	0
	3	3	1
	4	3	1
	5	13	4
	6	22	7
	7=Very willing	59	19
Overall like handout			
	1=Dislike extremely	0	0
	2	0	0
	3	6	2
	4	6	2
	5	16	5
	6	31	10
	7=Like extremely	41	13

Questions	Response Scale	Percent	Frequency
Recommend handout to friends			
	1=Would not recommend	0	0
	2	3	1
	3	3	1
	4	0	0
	5	9	3
	6	16	5
	7=Would recommend	69	22
	Missing		
Keep Your Body Safe Magnet			
Understandable	1=Not very easy to understand	3	1
	2	0	0
	3	0	0
	4	0	0
	5	6	2
	6	19	6
	7=Very easy to understand	72	23
Useful			
	1=Not very useful	3	1
	2	0	0
	3	0	0
	4	3	1
	5	0	0
	6	44	14
	7=Very useful	47	15
	Missing	3	1
Believable			
	1=Not very believable	3	1
	2	0	0
	3	0	0
	4	0	0
	5	3	1
	6	34	11
	7=Very believable	59	19
Difficulty			
	1=Not very difficult to read	56	18
	2	16	5
	3	6	2
	4	3	1
	5	6	2
	6	9	3
	7=Very difficult to read	0	0
	Missing	3	1

Questions	Response Scale	Percent	Frequency
Eye-catching			
	1=Not very eye-catching	3	1
	2	3	1
	3	6	2
	4	25	8
	5	19	6
	6	9	3
	7=Very eye-catching	34	11
Appropriate Graphics			
	1=Not very appropriate	0	0
	2	3	1
	3	9	3
	4	16	5
	5	16	5
	6	19	6
	7=Very appropriate	37	12
Willing to follow recommendations			
	1=Not very willing	3	1
	2	0	0
	3	3	1
	4	0	0
	5	6	2
	6	28	9
	7=Very willing	59	19
Overall like handout			
	1=Dislike extremely	3	1
	2	0	0
	3	9	3
	4	6	2
	5	6	2
	6	44	14
	7=Like extremely	31	10
Recommend handout to friends			
	1=Would not recommend	3	1
	2	0	0
	3	0	0
	4	0	0
	5	6	2
	6	31	10
	7=Would recommend	59	19