HIV Prevention Interventions for Women:
A Review of the Literature
from
1998 to the Present

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Introduction

The purpose of this literature review is to provide a document to inform decisions as to appropriate HIV intervention materials and messages for women. These decisions will affect and influence interventions for women implemented by contractors of the Colorado Department of Public Health and Environment (CDPHE) for the years 2003 - 2005.

The specific questions which guide this review are first; what, if any, innovative approaches to HIV prevention with women are being used and evaluated by intervention programs in the United States and Canada that could be transferred to Colorado. Second, what etiological or concurrent factors are associated with HIV risk and women? Third, are there are any marked epidemiological trends which might aid in the design and implementation of interventions for women.

Methods

The search engine MEDLINE/PubMed (National Library of Medicine; Bethesda, MD; USA) was accessed via internet. The MEDLINE/PubMed service produces citations for articles meeting search criteria, including authors and, where available, article abstracts. Keywords used to generate the literature search were HIV prevention and women. Three criteria were used; first, articles older than 1998 were excluded; second, articles referencing interventions or populations other than those in The United States and Canada were excluded and third; articles dealing with female injection drug users were

excluded; though female non-injection drug users were included. Articles reviewing female IDUs will be discussed in another document.

The literature search produced a total of 88 citations with abstracts that met the above criteria. These were then divided between those articles that dealt with interventions, etiological and concurrent risk factors and epidemiology. This produced a total of 26 citations and abstracts which met the search criteria for interventions. The Denison Memorial Library (University of Colorado Health Sciences Center; Denver, CO; USA) was then utilized to locate and copy the full articles of these 26 citations.

Epidemiology of HIV and AIDS in Women

Acquired immune deficiency syndrome (AIDS) was first reported in women in 1981 and by 1990 had become the sixth leading cause of death in 25 to 44 year old women in the United States (1, 2). In an overview of HIV/AIDS by Hader et al the authors found that the cumulative percentage of all AIDS cases increased from 6.7% in 1986 to 18% in 1999(3). By 1999 women accounted for 23% of all new AIDS diagnoses and 32% of newly reported HIV diagnoses. The overall AIDS rates remain lower among women than men, at 9.3 per 100,000 women compared to 32.4 per 100,000 men in 1999. By 1995, heterosexual transmission surpassed injection drug use as the most common mode of transmission in women. Increasingly more women have no identified or reported risk, approximately half or more of whom are estimated to be infected heterosexually, and an additional unknown number may be infected through heterosexual contact with a person not known to be infected or of high risk. Black and Hispanic women have been disproportionately affected by HIV and now account for almost three quarters of HIV

infections among women between the ages of 13 and 24 years. Younger women also appear to be at heightened vulnerability to HIV infection, reflected by estimates that 26% to 50% of all persons who acquire HIV do so when they are teenagers or in their early twenties.

In Colorado, heterosexual contact accounts for 5% of all HIV/AIDS cases reported through 9/30/01(4). Of these, women represent 67% of the heterosexual HIV/AIDS cases. Cases among women in Colorado appear to follow the national trend in terms of overrepresentation of Blacks and Hispanics, with Black women accounting for about half of new infections and whites and Hispanics accounting for around 25%, respectively. (Note that whites account for 75% of the states population, Blacks 4% and Hispanics 15%). In addition women between the ages of 13 and 29 represent 46% of the total heterosexual female AIDS cases, again following very closely national trend.

HIV Prevention Interventions and Women

A number of recent articles have presented outcomes from intervention programs for women. In an article by Sikkema et al, a randomized community level intervention was implemented and evaluated in 18 low-income housing developments in five cities [Milwaukee WI, Roanoke VA, Cleveland OH, Rochester NY, and Tacoma WA](5). The intervention included identification of opinion leaders in the community, training these leaders in HIV prevention. These women then organized into Women's Health Councils (WHC) that hosted community events, including picnics, concerts and parties to which women from the housing developments were invited. They also conducted workshops for women from the housing projects and distributed safer sex materials and newsletters to

their respective social networks. The researchers found at two month follow up that among women exposed to the intervention the frequency of protected sexual intercourse was 33% more than at baseline. With respect to condom use, at baseline the mean percentage of intercourse in the past two months protected by condom was 30.2% while at 12 month follow-up the mean percentage was 47.2%. The researchers concluded that the interventions effectiveness was in great part due to the participation of popular and well-liked female opinion leaders who lived in the housing developments.

A surprising majority of the articles discussed theoretically driven models of interventions for women. St. Lawrence et al reported on a randomized controlled trial of three theoretical models for HIV prevention among low-income African American women (6). The three models tested in the study were the theory of gender and power, social learning and cognitive behavioural. The theory of gender and power is based on looking at social influences that compromise disadvantaged women's health and autonomy (7). The model differentiates three primary structures; division of labor, division of power and cathexis. Child care, distinctions between paid and unpaid work and salary inequities between the sexes are subsumed in division of labor. Division of power recognizes the power imbalances in heterosexual relationships that contribute to men's authority, control, and coercion over women. Cathexis refers to society's gender-approved norms and expectations for appropriate sexual behaviour. The theory of gender and power model then produces an intervention where unstructured discussion among participants regarding gender and power issues and their solutions to these issues in their daily lives is the primary activity. The cognitive behavioural model identifies four prerequisites for successful risk reduction: 1) information, 2) mastery of self-protective

skills and self-efficacy for implementing these skills, 3) social competency skills acquired through rehearsal and practice and 4) social support for cautionary changes(8). Of the three separate interventions participants in the social learning and cognitive behavioural models showed greater improvement as regards sexual negotiation and participants in all three interventions increased the frequency of protected sex. Significantly the women involved in the theory of gender and power showed an increase in social competency skills, including providing clear reasons for safer sex, using the first person pronoun to express their opinion and proposing safer alternatives to unprotected sex, which was not part of the curriculum for this intervention. The researchers theorize that this may have been from modeling by peers in the course of the discussions and also suggestions from the group as to how a woman might handle difficult sexual situations.

In another study Nyamathi et al tested a cognitive behavioral intervention implemented in three different modalities, peer-mentored, nurse case-managed and standard format among homeless women and their intimate partners(9). In this study the nurse case managed program consisted of women and their intimate partners in 2 hour sessions for six weeks. The sessions were conducted by a female nurse and an outreach worker of the same ethnicity as the participants. Over the six weekly sessions a couple received, in group format with one or two other couples, information on HIV/AIDS, risk behaviours, and risk-reducing and health-protecting behaviours. The peer mentored program was identical with the exception that the sessions were facilitated by peers of the same ethnicity as the participants and no nurse was in attendance. The standard HIV session was a 15 minute HIV pretest counseling session as well as posttest counseling with either a nurse or an outreach worker. It should also be noted that in the cohorts of

women among whom these interventions were tested that noninjection drug use was also a risk factor. At six month follow-up the women in the peer mentored group had less AIDS related knowledge but greater psychological well-being than those in the other interventions. Members of the peer-mentored group were also less likely than their counterparts to report noninjection drug use (verified by urinalysis). Participants in the nurse case-managed intervention showed greater self-esteem than the others. Finally, all three interventions showed comparable effects as regards decrease in sex with multiple partners and unprotected sex, as measured at six-month follow-up.

Gomez et al studied a program known as Mujeres Unidas y Activas (MUA) a grassroots community action, organizing and advocacy project created by and for low-income Latina immigrant and refugee women in San Francisco's Mission District (10). MUA was founded in 1990 and has grown into a well-respected neighborhood institution with more than 200 active members and 5 paid staff. Included in the MUA HIV prevention program are discussions about HIV and other sexually transmitted diseases. Self-esteem support groups and friendship circles provide venues where women discuss such topics as sexual rights, domestic violence, substance abuse, and other issues that might heighten the awareness of the women regarding HIV/AIDS. HIV specific workshops provide more in-depth information regarding HIV prevention, including viral transmission, condom use negotiation skills, and HIV testing. A total of 94 Latina women entering the MUA program were assessed at baseline, and 74 were followed throughout the study. Of these women at baseline 21% reported having used a condom during their last sexual encounter. At six-month follow-up 26% reported having used a condom at their last sexual encounter. This small increase was accompanied by the fact that those

women who reported condom use also reported increased comfort with sexual communication. Women at six month follow-up also reported a decrease in beliefs concerning traditional gender roles and general increased sexual comfort. Significantly program attendance at political or social events was associated with higher levels of condom use, sexual comfort and increased skills at sexual communication, while participation in smaller more intensive activities regarding HIV/AIDS was not. The authors conclude that nonintimate activities that provide opportunities for assertive and candid communication may train women in the skills for enhanced sexual communication with partners.

Two studies specifically looked at long-term effects of HIV prevention programs with women. The first, by Nyamathi et al followed homeless African American women for two years after having received one of two different culturally competent AIDS education programs (11). The first intervention lasted an hour and provided information and education regarding HIV/AIDS including AIDS etiology, symptoms, and modes of HIV transmission and methods of protection. The second intervention lasted some 2 to 3 hours and included, in addition to the components listed above for the one hour session, a focus on self-worth, self-concept, and a skills-building session where women were asked to identify life problems, find the cause of the problems and enumerate potential solutions. Women in the second program were assisted in reducing risk behaviours through learning experiences pertinent to risk reduction, by rehearsing and practicing activities to build self-esteem, avoiding risky situations, building positive support networks, strengthening negotiating skills, and developing problem-solving strategies for dealing with life experiences. At two year follow-up women in the more traditional group

showed greater AIDS knowledge as opposed to their counterparts. Both sets of program participants showed a marked decrease in the number of multiple partners, though women in the first intervention were more likely to report multiple partners. Noninjection drug use decreased significantly at two year follow-up for both groups.

Fogarty et al also constructed a long term study of a standard and enhanced intervention for HIV positive women and women at high risk for HIV (12). The standard intervention included discussions about HIV/AIDS transmission and methods of protection. This intervention was not tailored to the needs of the individual and was not facilitated by a peer. The enhanced intervention included support groups and one-on-one contacts with peer advocates tailored to participant's needs. The authors, in establishing the interventions, took note of the following," Women at highest risk - intravenous drug users or partners of IVDUs, women who are homeless and women who trade sex for money or drugs - are likely to have needs more pressing than the risk of HIV infection, but typical HIV prevention interventions do not address them. Our intervention identified barriers to change and added a program component to address individual women's current needs, including help in finding a home, enrolling in a GED program, or accessing needed services. We also provided services at sites where women received drug rehabilitation, shelter and medical care." Of those HIV positive women reporting inconsistent condom use 23% moved towards consistent condom use with all partners. What was interesting is that of those women who reported consistent condom use at baseline 27% reported inconsistent condom use at follow-up. In the high risk women, no overall differences were noted between standard and enhanced interventions, most of the women moved towards consistent condom use with main and other partners, though

women in the enhanced intervention were more likely to report increased advantages of condom use overall. The authors in reviewing their data conclude that while the HIV positive women initiated and maintained behaviour change over time, the high risk women did not. Using the Stages of Change (SOC) they theorize that more of the HIV positive women were in an action or maintenance phase of change while the high risk women tended to be more in contemplative or pre-contemplative stages. They also note that of the two groups the HIV positive women may be more motivated to change behaviour, may have more effective support systems and stable living arrangements than the high risk women, many of whom were homeless and struggling with substance and alcohol abuse issues.

A number of articles discussed interventions that utilized the Stages of Change both for outcomes and as an implementation tool. In an article by O'Campo et al, stages of Change were determined for readiness to use condoms or contraception among 3,784 women recruited in three different settings, a medical care facility, HIV treatment facility and the general community (13). Among the findings were that women in the HIV care facility were more likely to be in either the action or maintenance as regards consistent condom use with a main partner (57%). Whereas women recruited form the other two sites were either in pre-contemplation or contemplation. Condom use with a non-main partner found all the women relatively equally split between all five stages of change, with some trending towards maintenance (31% across all women). The authors note in their conclusion," The additional advantage of behaviour stage assessment information is that according to the Transtheoretical Model, stage suggests specific program strategies likely to be maximally effective…For example, raising women's awareness about their

risk is a more effective strategy to influence stage change in the earlier stages, such as pre-contemplation and contemplation. Behavioral strategies, such as rewarding desired health behaviors, are more effective strategies to maintain risk reduction practices (e.g., condom use), the goal in action and maintenance."

In an article by DiClemente et al, the authors question one of the measures used in other studies to determine HIV knowledge and risk reduction, condom carrying by women as indicative of condom use (14). The study sample was made up of African American females between the ages of 14 and 18, who had been sexually active in the prior six months. Past STD was reported by 25.7% and 28.2% tested positive at the time of the interview for *C trachomatis* and/or *N gonorrhoeae* and/or *T vaginalis*. A history of pregnancy was reported by 40.2% of the adolescents with 11% currently pregnant. Of the adolescents, 8% were found to be carrying condoms and could show the condom to an interviewer. Condom carrying was not associated with self-reported condom use, self-reported STDs, or biologically confirmed STDs. Moreover approximately 20% of the adolescents who reported carrying condoms were unable to show the condom to the interviewer. No statistically significant difference was observed between adolescent who carried condoms and those that did not in terms of condom use at last sexual intercourse. The findings suggest that the impact of the male partner may be a critical factor in determining condom use.

Finally as regards SOC, a study by Evers et al, examined longitudinal changes in stage of change for condom use in women (15). Utilizing a survey technique without intervention 545 women were recruited via mail announcements in a New England town, follow-up was done a year later. Perhaps the most striking finding of the study were

regarding relapse and stage regression. The researchers found that the rates of relapse and regression among the women for condom use were higher than in a similarly constructed sample of smokers. They state that," more attention to the situational predictors of relapse may prove useful for condom use, as it has for other addictive behavior problems. More must be learned about both the antecedents of relapse and the consequences of relapse. Researchers need to examine what is lost and what is gained from specific relapse experiences." They conclude that behavior change is more likely a cyclical process including relapse rather than a linear progression which terminates in maintenance.

One study found that assessments can be effective prevention tools. Krauss et al, in a pilot study to test if brief safer sex interventions for female sexual partners of injection drug users influenced perceptions of risk, HIV knowledge, correct condom usage and self-reported consistent safer sex (16). In the test women were randomly assigned to either intervention alone or intervention with pretest assessment. The researchers found that pretest assessment was positively associated with behavior change regardless of whether women participated in the brief interventions or not. This contradicts other findings with injection drug users for instance which found no effect from participants having participated in assessment. The authors conclude that, "it is important to understand the extent to which assessment itself is integral to intervention effects and ought not be discarded as part of the 'research' rather than the 'practice' of intervention."

A study done by Crosby et al queried low-income women regarding strategies that they use to prevent HIV infection (17). Women receiving benefits under the Women, Infants and Children (WIC) program were provided a questionnaire along with mailings

sent from the agency the administers the WIC program. In all 2,256 interviews were returned, of these 1,325 responders indicated use of at least one HIV prevention strategy. Strategies, other than condom use, were: being tested for HIV (68.2%), partner being tested for HIV (44.1%), asking partners about sex history (41.1%), using oral contraceptives (18.8%), asking him if he has HIV ((13.7%), douching (11.8%), withdrawal (9.4%) and having anal or oral sex (6.6%). While clearly some of the above methods not only do not prevent HIV (in some instances they enhance HIV risk), the salient point is that the alternative methods were almost exclusively controlled by the women and that they are all significant attempts to decrease risk, regardless of efficacy.

Finally, one intervention in the recent literature has dealt specifically with women who have a partner in prison (18). The Women Visitors Project was a single session peer-led intervention that presented information on HIV transmission, methods of protection and risks specific to having an incarcerated partner. The researchers found that while many of the women had other partners and were aware of the risks associated with those relationships they underestimated the risks from their main partners in prison. Most women reported never using a condom with their main partner, though family visiting is the only time that condoms are allowed in the correctional facility in which the intervention took place.

Etiological and Concurrent Factors of HIV risk in Women

A wide range of articles dealt with etiological and concurrent factors as they were associated with HIV risk in women. Freeman et al reported on a sample of 1,490 community recruited women sexual partners of injection drug using men who were

interviewed in three U.S. cities[Boston MA, Los Angeles CA, and San Diego CA] (19). Data were collected on respondent's childhood and adolescent sexual abuse histories and duration of abuse. 39% of the women had been sexually abused before the age of twelve. White women reported somewhat higher rates of victimization than did African American and Hispanic women. African American women were the least likely to report sexual abuse but were most likely to report being victimized by a penetrative act. Perpetrators of these acts were most likely, across the entire sample, to have been either an uncle or other relative. When adolescent sexual abuse was factored in fully 56% of the women had been sexually victimized by the age of 18, with one third having been forced to perform one act of penetrative sex by that age. The authors conclude," interventions specifically aimed at treating those effects of the sexual abuse that may hinder adoption of HIV-preventive action-for instance, programs to help participants overcome barriers in negotiating the adoption of sexual risk reduction measures with one's partner-should be strongly considered. …simple reliance on such interventions to alter risk behaviors without attempting to understand and change the unconscious processes and harmful behavior patterns that stem from unresolved early life trauma, is likely to be of limited effectiveness."

Another study conducted by Wyatt et al, compared 490 HIV positive and HIV negative African American, European American and Latina women regarding sexually transmitted disease, number of sexual partners, and history of sexual abuse and trauma (20). Among the women, no specific race/ethnicity factors were associated with HIV positivity. There were however, significant differences among the seronegative and positive women as regards trauma, history of sexually transmitted disease, sexual abuse

and material resources. The authors found that women who were HIV positive reported having more sexual partners, more STDs, and more severe histories of abuse than did their HIV negative counterparts. The authors concluded that the higher morbidity and mortality rates among women of color were not specifically attributable to their race/ethnicity but rather were likely attributable to mainly to differences in socioeconomic resources, exposure to violence, and exposure to risky sexual behaviors.

Champion et al recruited African American and Mexican American women (n = 617) with active STD into a randomized study of a behavioral intervention to reduce recurrence of STD (21). Of the women 32% were identified as having a history of sexual abuse, and 19% reported sexual abuse prior to 14 years of age. Abused women were more likely to be in a current relationship with an abusive partner. There was a strong trend indicating that abused women's partners may be more likely to refuse requests for condom use. The authors state that," A focus on sexual abuse within the community of health programs on STD and HIV to help abused women deal with the threat and experience of partner abuse is an essential element in reducing their risk of STD and HIV."

Finally in a meta-analysis conducted by Logan et al of HIV prevention, the authors in a lengthy section of recommendations for increasing efficacy of interventions state that substance abuse, victimization and mental health problems should also be addressed(22). They recommend imbedding HIV prevention services within other programs or services (including drug treatment, community mental health clinics, and medical clinics) and specifically recommend the targeting of couples with HIV prevention messages. They further state that issues of concurrent victimization must be

addressed by interventions and that safety assessments could be used for the purpose of identifying these factors. The authors urge interventionists to educate women in the use of female controlled HIV prevention materials and in particular the female condom.

One article dealt with specific questions regarding abuse and partner hypermasculinity on the sexual behavior of Latinas (23). Although the sample was only comprised of forty-six Latinas, the results of the surveys are telling. A full 60% of the respondents reported that their partner had engaged in at least one act of physical abuse during the study period (six months). Program participants who described their partners as having hypermasculine traits were less likely to discuss condoms with them and as the authors suggest, reinforce the need for intervention developers to be aware of potential negative reactions from partners to condom promoting interventions.

Wingood and DiClemente conducted an important study of African American women's perceptions of how sexual partners may perceive requests to use condoms (24). A convenience sample of 128 sexually active African American women aged 18 - 29 were recruited and interviewed in San Francisco CA. The researchers found that noncondom use among the interviewees was high; 45.3% reported that over the previous three months that their sexual partner had never used condoms on any sexual occasion. Not using condoms was strongly associated with a woman's perception that asking one's partner to use a condom may imply infidelity or may compromise the stability of the sexual relationship. Women in the sample were almost three times as likely to feel insulted if their partner suggested that condoms be used. The male partner's initiation of a discussion on safer sex appeared to bring out feelings in the female partner that appear to her as disloyalty to the relationship. The authors conclude," a woman's risk for HIV is

strongly influenced by her partner's resistance towards using preventive measures, it is necessary to devise strategies to encourage men's support of women's greater ability to control their sexuality and their lives. Clearly HIV transmission involves a sexual dyad, and within this dyadic relationship, men's perceived norms towards women are key determinants in their behavior."

Cotten-Oldenburg conducted a study among a population of 805 women inmates who were interviewed upon admission into a correctional facility in North Carolina (25). Significant HIV risk was found among the participants, including 35% who had inconsistently used condoms with multiple partners, 28% who reported a previously diagnosed STD, and 16% who had engaged in sex with an injection drug user. Illicit drug use was common among the women with 70% reporting using one or more types of drug prior to incarceration. Sexual risk factors were reported more often among drug users than non-drug users. Crack smokers and drug injectors were found to be at highest risk for HIV infection. The HIV risk of women using marijuana, hallucinogens, inhalants, unprescribed amphetamines and sedatives was no different than risk reported by non-drug using women. The authors conclude that special attention must be placed in HIV prevention interventions on sexual risk among women who smoke crack and inject drugs as they appear to be at heightened vulnerability to HIV infection. Finally, of the sample 4% were HIV positive.

One article dealt specifically with barriers women face in accessing health care and HIV prevention services. Oliva et al conducted focus groups with 63 women who were at high risk due to their own drug use, sex with injection drug users, sex industry work, or who had a history of multiple STD (26). Among the barriers that these women

identified were high cost, lack of insurance, lack of time and transportation, lack of a primary provider, feelings of discrimination and poor provider-consumer relationships. Those barriers that appear to be unique to drug users included fear of legal consequences and also a feeling of stigmatization and being labeled in a way that made them reluctant to access health services. Another important piece of information the researchers found was the pervasive misinformation regarding the efficacy and safety of contraceptive methods. By way of example a number of women refrained from condom usage because of information in the community that they often break. Among the recommendations of the authors to deal with these barriers are using client surveys to measure satisfaction and instituting changes that respond to this feedback, they feel this is essential particularly when addressing the stigmatization felt by drug using women. They also recommend developing policies that provide women who may engage in illicit activity the assurance that no legal consequences will follow from accessing needed services. The women also expressed the desire to have men at trainings regarding HIV and STD prevention because as the women themselves understood they could not change their behavior without the cooperation of their partners.

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