

Sexual behavioural change for HIV:

Where have theories taken us?



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ABBREVIATIONS

ARRM	AIDS risk reduction model
CT	Counselling and testing for HIV
HBM	Health belief model
IDU	Injecting drug user
ILOM	Indigenous leader outreach model
MSM	Men who have sex with men
PAR	Participatory action research
RCT	Randomized controlled trial
SCT	Social cognitive theory
STD	Sexually transmitted disease(s)
SW	Sex worker(s)
TASO	The AIDS Support Organization, Uganda
THE	Tools for health and empowerment
UAI	Unprotected anal intercourse

INTRODUCTION

Today, in 1999, interventions to stem the spread of HIV throughout the world are as varied as the contexts in which we find them. Not only is the HIV epidemic dynamic in terms of treatment options, prevention strategies and disease progression, but sexual behaviour, which remains the primary target of AIDS prevention efforts worldwide, is widely diverse and deeply embedded in individual desires, social and cultural relationships, and environmental and economic processes. This makes prevention of HIV, which could be an essentially simple task, enormously complex involving a multiplicity of dimensions.

Either implicitly or explicitly nearly all prevention interventions are based on theory. Most rely on the assumption that giving correct information about transmission and prevention will lead to behavioural change. Yet research has proven numerous times that education alone is not sufficient to induce behavioural change among most individuals. Thus, second-generation interventions were developed based on individual psychosocial and cognitive approaches that educate individuals in practical skills to reduce their risk for HIV infection (Kalichman, 1997). More recently, social researchers have come to realize that because complex health behaviours such as sex take place in context, socio-cultural factors surrounding the individual must be considered in designing prevention interventions. Finally, beyond the individual and his or her immediate social relationships lie the larger issues of structural and environmental determinants that also play a significant role in sexual behaviour (Sweat, 1995).

The aim of this project was to associate outcomes of behavioural interventions around the world with the different models and theories on which they were based. There is however a dearth of information on tests of the relevance of behavioural change models in differing contexts, especially in non-industrialized countries and in regions at later stages of the epidemic. Most intervention reports, whether in peer-reviewed journals or conference abstracts, often do not explicitly state the theoretical framework of the project. And in many cases, there was no explicit intent to base interventions on behavioural change

models as a great number of them have been propelled by the urgency to do anything to slow the epidemic, particularly in resource-poor settings. The primary intention of this review was to look as broadly as possible at all interventions in order to identify what has worked in the enormous variety of situations addressed. However, this would have implied analysing retroactively all prevention programmes to define their theoretical foundations, which was not feasible within the scope, time and resources of this project.

This review thus focused primarily on the following types of reports:

- sexual behavioural change interventions for HIV explicitly mentioning their theoretical approach
- studies testing theoretical models of behavioural change
- and reviews on impact of behavioural changes interventions.

Additional examples of developing countries projects were used to balance the observations and conclusions drawn from the above sources in order to compensate for the lack of tested models in these countries.

Most of the studies cited in this report include control or comparison situations and behavioural outcomes. Reports that included only knowledge and attitudes outcomes were excluded. Also included were some interventions that used constructs from a variety of theories attempting to incorporate social, environmental and cognitive elements, or used constructs alone without testing theories as a whole. Unfortunately, it was difficult to identify interventions based both on a trans-theoretical approach and strong evaluation components.

Finally, this review was organized into four sections, including:

- a brief overview of theoretical models of behavioural change
- a review of key approaches used to stem sexual transmission of HIV
- a summary of successful interventions targeting specific populations at risk
- and a discussion of remaining challenges.

THEORIES AND MODELS OF BEHAVIOURAL CHANGE

This chapter is broken into 4 sections that cover the most frequently used theories and models of behavioural change from varied perspectives (see Table 1). It begins with theories that focus on the individual's psychological process, such as attitudes and beliefs, then goes into theories emphasizing social relationships, and ends with structural factors in explaining human behaviour. This separation is artificial as there is inevitable overlap in categories. It might therefore be useful, as well, to see the theories as a continuum of models moving from the strictly individually-centered to the macro-level of structural and environmentally focused.

(A) FOCUS ON INDIVIDUALS

As HIV transmission is propelled by behavioural factors, theories about how individuals change their behaviour have provided the foundation for most HIV prevention efforts worldwide. These theories have been generally created using cognitive-attitudinal and affective-motivational constructs (Kalichman, 1998). Nearly all the psychosocial theories originated in the West but have been used for AIDS internationally with mixed results. Only one of the psychosocial models discussed below, the *AIDS risk reduction model*, was developed specifically for AIDS.

Psychosocial models of behavioural risk can be categorized into 3 major groups: those predicting risk behaviour, those predicting behavioural change and those predicting maintenance of safe behaviour. Models of individual behavioural change generally focus on stages that individuals pass through while trying to change behaviour. These theories and models generally do not consider the interaction of social, cultural and environmental issues as independent of individual factors (Auerbach, 1994). Although each theory is built on different assumptions they all state that behavioural changes occur by altering potential risk-producing situations and social relationships, risk perceptions, attitudes, self-

efficacy beliefs, intentions and outcome expectations (Kalichman, 1997). Central to HIV prevention interventions based on psychological-behavioural theory is the practice of targeted risk-reduction skills. These skills are generally passed on to individuals in a process consisting of instruction, modeling, practice and feedback (Kalichman, 1997). The psychological theories and models that have been most instrumental in the design and development of HIV prevention interventions are briefly described below.

Health belief model

The *Health belief model*, developed in the 1950s, holds that health behaviour is a function of individual's socio-demographic characteristics, knowledge and attitudes. According to this model, a person must hold the following beliefs in order to be able to change behaviour:

- (1) perceived susceptibility to a particular health problem ("am I at risk for HIV?")
- (2) perceived seriousness of the condition ("how serious is AIDS; how hard would my life be if I got it?")
- (3) belief in effectiveness of the new behaviour ("condoms are effective against HIV transmission")
- (4) cues to action ("witnessing the death or illness of a close friend or relative due to AIDS")
- (5) perceived benefits of preventive action ("if I start using condoms, I can avoid HIV infection")
- (6) barriers to taking action ("I don't like using condoms").

In this model, promoting action to change behaviour includes changing individual personal beliefs. Individuals weigh the benefits against the perceived costs and barriers to change. For change to occur, benefits must outweigh costs. With respect to HIV, interventions often target perception of risk, beliefs in severity of AIDS ("there is no cure"), beliefs in effectiveness of condom use and benefits of condom use or delaying onset of sexual relations.

Social cognitive (or learning) theory

The premise of the *social cognitive or social learning theory* (SCT) states that new behav-

ours are learned either by modeling the behaviour of others or by direct experience. Social learning theory focuses on the important roles played by vicarious, symbolic, and self-regulatory processes in psychological functioning and looks at human behaviour as a continuous interaction between cognitive, behavioural and environmental determinants (Bandura, 1977). Central tenets of the *social cognitive theory* are:

- self-efficacy – the belief in the ability to implement the necessary behaviour (“*I know I can insist on condom use with my partner*”)
- outcome expectancies - beliefs about outcomes such as the belief that using condoms correctly will prevent HIV infection.

Programmes built on SCT integrate information and attitudinal change to enhance motivation and reinforcement of risk reduction skills and self-efficacy. Specifically, activities focus on the experience people have in talking to their partners about sex and condom use, the positive and negative beliefs about adopting condom use, and the types of environmental barriers to risk reduction. A meta-analysis of HIV risk-reduction interventions that used SCT in controlled experimental trials found that 12 published interventions with mostly uninfected individuals all obtained positive changes in risk behaviour, with a medium effect size meeting or exceeding effects of other theory-based behavioural change interventions (Greenberg, 1996).

Theory of reasoned action

The *theory of reasoned action*, advanced in the mid-1960s by Fishbein and Ajzen, is based on the assumptions that human beings are usually quite rational and make systematic use of the information available to them. People consider the implications of their actions in a given context at a given time before they decide to engage or not engage in a given behaviour, and that most actions of social relevance are under volitional control (Ajzen, 1980). The *theory of reasoned action* is conceptually similar to the health belief model but adds the construct of behavioural intention as a determinant of health behaviour. Both theories focus on perceived susceptibility, perceived benefits and constraints to changing behaviour. The theory of reasoned action specifically focuses on the role

of personal intention in determining whether a behaviour will occur. A person's intention is a function of 2 basic determinants:

- (1) attitude (toward the behaviour), and
- (2) 'subjective norms', i.e. social influence.

'Normative' beliefs play a central role in the theory, and generally focus on what an individual believes other people, especially influential people, would expect him/her to do.

For example, for a person to start using condoms, his/her attitude might be “*having sex with condoms is just as good as having sex without condoms*” and subjective norms (or the normative belief) could be “*most of my peers are using condoms, they would expect me to do so as well*”. Interventions using this theory to guide activities focus on attitudes about risk-reduction, response to social norms, and intentions to change risky behaviours.

Stages of change model

This model, developed early in the 1990s specifically for smoking cessation by Prochaska, DiClemente and colleagues, posits 6 stages that individuals or groups pass through when changing behaviour: pre-contemplation, contemplation, preparation, action, maintenance and relapse. With respect to condom use, the stages could be described as:

- (1) has not considered using condoms (pre-contemplation)
- (2) recognizes the need to use condoms (contemplation)
- (3) thinking about using condoms in the next months (preparation)
- (4) using condoms consistently for less than 6 months (action)
- (5) using condoms consistently for 6 months or more (maintenance)
- (6) slipping-up with respect to condom use (relapse)

In order for an intervention to be successful it must target the appropriate stage of the individual or group. For example, awareness raising between stage one and two. Groups and individuals pass through all stages, but do not necessarily move in a linear fashion (Prochaska, 1992). As with previous theories, the *stages of change* model emphasizes the importance of cognitive processes and uses

Bandura's concept of self-efficacy. Movement between stages depends on cognitive-behavioural processes.

Among others (see Table 3), the CDC has used the *Stages of Change* model in its AIDS Community Demonstration Projects for marginal populations in the US and in a research project aiming to change women's sexual behaviour with their main partners (Galavotti 1998).

AIDS risk reduction model

The *AIDS risk reduction model*, developed in 1990 (Catania et al), uses constructs from the *health belief model*, the *social cognitive theory* and the *diffusion of innovation theory* (a social model described below), to describe the process individuals (or groups) pass through while changing behaviour regarding HIV risk. The model identifies 3 stages involved in reducing risk for HIV transmission, including:

- (1) behaviour labelling
- (2) commitment to change
- (3) taking action.

In the first stage, knowledge about HIV transmission, perceived HIV susceptibility, as well as aversive emotions influence how people perceive AIDS. The commitment stage is shaped by four factors: perceptions of enjoyment, self-efficacy, social norms and aversive emotions. Again, in the last stage, aversive emotions, sexual communication, help-seeking behaviour and social factors affect people's decision-making process (Catania, 1990).

Programmes that use the *AIDS risk reduction model* focus on:

- clients' risk assessment
- influencing the decision to reduce risk through perceptions of enjoyment or self-efficacy
- clients' support to enact the change (access to condoms, social support).

Conclusion

These psychosocial theories and constructs were very useful early in the epidemic to identify individual behaviours associated with higher rates of HIV transmission. They contin-

ue to provide important guidance to interventions in formulating design and evaluation with diverse populations in a wide variety of settings. Theories also help in understanding study results. It is important, however, to pay particular attention to these theories across cultures and genders as nearly all the individually based theories were developed in the West with little focus on the role of gender. Although numerous studies have proven the usefulness of these theories, it has become increasingly evident that alone they do not entirely explain why some populations have higher HIV prevalence than others nor the complex interactions between contextual factors and individual behaviour.

(B) SOCIAL THEORIES AND MODELS

Overemphasis on individual behavioural change with a focus on the cognitive level has undermined the overall research capacity to understand the complexity of HIV transmission and control. Focus only on the individual psychological process ignores the interactive relationship of behaviour in its social, cultural, and economic dimension thereby missing the possibility to fully understand crucial determinants of behaviour. Aggleton (1996) points out that, in many cases, motivations for sex are complicated, unclear and may not be thought through in advance.

Societal norms, religious criteria, and gender-power relations infuse meaning into behaviour, enabling positive or negative changes. A main difference between individual and social models is that the latter aim at changes at the community level. Sociological theories assert that society is broken up into smaller subcultures and it is the members of one's immediate surroundings, the peer group that someone most identifies with, that has the most significant influence on an individual's behaviour. According to this perspective, effective prevention efforts, especially in vulnerable communities that do not have the larger societal support, will depend on the development of strategies that can enlist community mobilization to modify the norms of this peer network to support positive changes in behaviour (Kelly, 1995). A greater interest in the context surrounding individual behaviour led to increased numbers of interventions guided by the following theories and models.

Diffusion of innovation theory

The *diffusion of innovation theory* (Rogers, 1983) describes the process of how an idea is disseminated throughout a community. According to the theory, there are four essential elements: the innovation, its communication, the social system and time. People's exposure to a new idea, which takes place within a social network or through the media, will determine the rate at which various people adopt a new behaviour. The theory posits that people are most likely to adopt new behaviours based on favorable evaluations of the idea communicated to them by other members whom they respect (Kegeles, 1996). Kelly explains that when the diffusion theory is applied to HIV risk reduction, normative and risk behavioural changes can be initiated when enough key opinion leaders adopt and endorse behavioural changes, influence others to do the same and eventually diffuse the new norm widely within peer networks. When beneficial prevention beliefs are instilled and widely held within one's immediate social network, individuals' behaviour is more likely to be consistent with the perceived social norms (Kelly, 1995).

Interventions using this theory generally investigate the best method to disperse messages within a community and who are the leaders able to act as role models to change community norms.

Social influence or social inoculation model

This educational model is based on the concept that young people engage in behaviours including early sexual activity partly because of general societal influences, but more specifically from their peers (Howard 1990). The model suggests exposing young people to social pressures while teaching them to examine and develop skills to deal with these pressures. The model often relies on role models such as teenagers slightly older than programme participants to present factual information, identify pressures, role-play responses to pressures, teach assertiveness skills and discuss problem situations (Howard, 1990). Social influence model has been used to reduce smoking among young people as well.

Social network theory

The *Social Network Theory* looks at social behaviour not as an individual phenomenon but through relationships, and appreciates that HIV risk behaviour, unlike many other health behaviours, directly involves 2 people (Morris, 1997). With respect to sexual relationships, social networks focus on both the impact of selective mixing (ie how different people choose who they mix with), and the variations in partnership patterns (length of partnership and overlap). Although the intricacies of relations and communication within the couple, the smallest unit of the social network, is critical to the understanding of HIV transmission in this model, the scope and character of one's broader social network, those who serve as reference people, and who sanction behaviour, are key to comprehending individual risk behaviour (Auerbach, 1994). In other words, social norms are best understood at the level of social networks.

One application of the *Sexual Network Theory* for HIV prevention is the concept of 'bridge populations' that form a link between high and low prevalence groups (Morris, 1997). In Thailand, men who have both commercial and non-commercial sex partners form an important bridge population, which was an integral aspect of the spread of HIV in Thailand. Programmes using this theory to guide them would investigate:

- the composition of important social networks in a community
- the attitudes of the social networks towards safer sex
- whether the social network provides the necessary support to change behaviour
- whether particular people within the social network are at particularly high risk and may put many others at risk.

Although few network-based interventions have been tried, the concept has proven complementary to individual-based theories for the design of prevention programmes by focusing on the partnership as well as the larger social group. Analysis of network mixing provides the means to see efficiency of transmission and effective points of intervention.

Theory of gender and power

Unlike the psychosocial theories which are essentially gender-blind, the theory of gender and power is a social structural theory addressing the wider social and environmental issues surrounding women, such as distribution of power and authority, affective influences, and gender-specific norms within heterosexual relationships (Connell, 1987). Using this theory to guide intervention development with women in heterosexual relationships can help investigate how a woman's commitment to a relationship and lack of power can influence her risk reduction choices (DiClemente, 1995).

Programmes using the theory of gender and power would assess the impact of structurally determined gender differences on interpersonal sexual relationships (perceptions of socially prescribed gender relations).

Conclusion

Social theories and models see individual behaviours embedded in their social and cultural context. Instead of focusing on psychological processes as the basis for sexual behaviour, it tends to be social norms, relationships and gender imbalances that create the meaning and determinants of behaviour and behavioural change. These theories dictate that efforts to effect change at the community level will have the most significant impact on individuals who are contemplating changes and on those who have made changes but need support to sustain those changes. Social theories have been increasingly used with populations especially vulnerable to effects of partners and peers. These theories and models have been developed in the West and few examples have tested their relevance in developing countries.

(C) STRUCTURAL AND ENVIRONMENTAL

Determinants of sexual behaviour can be seen as a function not only of individual and social but of structural and environmental factors as well (Caraël, 1997, Sweat, 1995, Tawil, 1995). These factors include civil and organizational elements as well as policy and economic issues.

Theory for individual and social change or empowerment model

This theory asserts that social change happens through dialogue to build up a critical perception of the social, cultural, political and economic forces that structure reality and by taking action against forces that are oppressive (Parker, 1996). In other words, empowerment should increase problem solving in a participatory fashion, and should enable participants to understand the personal, social, economic and political forces in their lives in order to take action to improve their situations (Israel, 1994). Werner (1997) states that, "*empowerment is the process by which disadvantaged people work together to take control of the factors that determine their health and their lives*". For this to happen he explains that feelings of powerlessness, which can come from lack of skills and confidence, have to be cast off. Although empowerment can only come from the group itself, enabling empowerment is possible by facilitating its determinants. The common struggle against gender or ethnic oppression, economic exploitation, political repression or foreign intervention is what builds necessary confidence (Werner, 1997).

A distinction is made between personal, organizational and community empowerment. Personal empowerment has to do with the psychological processes and is similar to self-efficacy and self esteem. Organizational empowerment encompasses both the processes that enable individuals to increase their control within the organization and the organization to influence policies and decisions in the community. An empowered community uses the skills and resources of individuals and organizations to meet respective needs (Israel, 1994).

Interventions using empowerment approaches must consider key concepts such as beliefs and practices that are linked to interpersonal, organizational and community change. Intervention activities can address issues at the community and organizational level such as central needs the community identifies, and any history community organizing among community members. The theory would prescribe including participants in the planning and implementation of activities.

Social ecological model for health promotion

According to this model, patterned behaviour is the outcome of interest and behaviour is viewed as being determined by the following:

- (1) intrapersonal factors – characteristics of the individual such as knowledge, attitudes, behaviour, self-concept, skills
- (2) interpersonal processes and primary groups formal and informal social network and social support systems, including the family, work group and friendships
- (3) institutional factors – social institutions with organizational characteristics and formal and informal rules and regulations for operation
- (4) community factors – relationships among organizations, institutions and informal networks within defined boundaries
- (5) public policy – local, state and national laws and policies (McLeroy, 1988).

Intervention strategies range from skills development at the intra-personal level to mass media and regulatory changes at other levels (Laver, 1998). The theory acknowledges the importance of the interplay between the individual and the environment, and considers multi-level influences on unhealthy behaviour (Choi, 1998). In this manner, the importance of the individual is de-emphasized in the process of behavioural change.

Socioeconomic factors

Several studies have shown that economic factors have a strong influence on individual sexual behaviour, mostly through poverty and underemployment. Cross-nationally, countries with the lowest standards of living are also the ones with the highest HIV incidence (Sweat, 1995; Tawil, 1995). Within both rich and poor countries, poverty is associated with HIV, and HIV intensifies poverty (Sweat, 1995).

The proposed mechanisms for this relationship are: non-cohabitation between young married couples which can arise from critical economic situations forcing urban migration, seasonal work and truck driving, sex work, civil disturbances and war. Civil disturbance and war lead to displaced and refugee populations who not only lose their social and familial support systems but become highly vulnerable to HIV owing to intense social and

economic strain in a alien culture (Caraël, 1997). In such situations, HIV concerns take a very low priority in a risk hierarchy, and any previous or planned efforts for the control of HIV transmission are disrupted, if not destroyed.

Conclusion

Community level theories, models or factors see human behaviour as a function not only of the individual or his or her immediate social relationships, but as depending on the community, organization and the political and economic environment as well. They are multidimensional with an emphasis on linking the individual to the surrounding larger environmental systems. Interventions using this approach, thus, target organizations, communities and policy.

(D) CONSTRUCTS ALONE AND TRANSTHEORETICAL MODELS

Perception of risk construct

As behavioural interventions are designed to reduce higher risk behaviours, perception of risk is a construct in most individual psychosocial behavioural models and some interventions use the construct without applying any of the models in their entirety. Increasing perception of risk has been shown numerous times to increase HIV protective behaviour (Stevens, 1998). Yet most behavioural models measure risk as individually determined which might not be relevant in many contexts. Not surprisingly, many women often perceive themselves at risk not because of their own behaviour, but because of the past or current, perceived or real behaviour of their sexual partner. In addition, perception of risk as a predictor of future behavioural change has further complexities in circumstances where individuals report high perception of risk and high self-reported behavioural change. This situation may demonstrate limited realistic further behavioural change options, or feelings of fatalism.

Sexual communication

Sexual communication has been noted in various situations to be predictive of condom use. Among incarcerated Latino adolescents

with high numbers of sexual partners in the USA, it was reported that youth who communicated with their sex partners about each others' sexual history were significantly more likely to use condoms (Rickman, 1994). In central Africa condom use was more likely if women reported discussion with their sexual partner about STDs or condoms (van der Straten, 1995). Sexual communication has also been reported as a means to self-efficacy among heterosexuals in Holland (Buunk, 1998).

KEY APPROACHES TO BEHAVIOURAL CHANGE FOR HIV

Early in the AIDS epidemic, results of population survey research alerted public health officials of the diversity of sexual behaviours and of the need to act quickly. The first interventions as well as the first applications of theories were propelled by the urgency to do anything to slow the alarming crisis at hand. Through popular public health channels, information was disseminated to populations at risk.

Today, many of the interventions for the prevention of HIV transmission, rather than using one of the behavioural theories in its entirety, have developed programmes based on one or many constructs often depending on the socio-cultural, political, or economic situation and on the stage of the epidemic. Drawing on various models and modifying them to suit the population and context has been critical to implementation of prevention projects, especially in international settings, as nearly all theories were developed in the West. These transtheoretical approaches are guided by critical constructs such as risk perception, social norms and sexual communication to form the basis of interventions worldwide.

This section looks principally at the most common approaches used to influence HIV risk reduction. Although these approaches are not consistently or directly derived from behavioural change theories or models, they draw on the multiple constructs mentioned above. The section is split between individual and community-level interventions, where the approach is described and then specific examples of its use are reviewed. See Table 2 for a summary of models and theories tested by research or reviews.

(A) APPROACHES AIMED AT INDIVIDUAL LEVEL BEHAVIOURAL CHANGE

Information, education and communication

Mass and small group education

As information was initially, for many, thought to be the key to behavioural change, HIV prevention programmes began with a focus on increasing awareness about the modes of transmission and prevention (Cohen, 1992). Mass education for HIV prevention can take many forms but is often seen as a key component of a comprehensive AIDS prevention programme (Holtgrave, 1997). Mass media, for example, are directed to the general public and aim at teaching people essential facts, promoting healthy behaviour, quieting anxiety about casual transmission and preventing discrimination.

An analysis of the messages adopted by the information and education programmes of national AIDS control programmes of 38 different countries found that over 90% focused on correcting misperceptions about AIDS. About 80% provided information about personal risk assessment (Cohen, 1992). In many countries, mass education provided the first step to national AIDS control programmes. Many mass education efforts successfully raised AIDS awareness by informing individuals of the risks of HIV infection, and in some cases education-based programmes were sufficient to change high risk behaviours, increase condom sales, and reduce new HIV infections (Kalichman, 1997). The channels that national AIDS control programmes have used for mass education include targeted media, printed media and electronic media (Cohen, 1992).

A review of 49 studies covering 18 countries to identify empirical outcomes or evaluate impact of HIV-related mass-media campaigns in 1996 concluded that most campaigns aiming at "individual-level goals of knowledge, attitude or behavioural changes were generally successful at achieving these goals" (Holtgrave, 1997). However, behavioural endpoints of the projects reviewed were not mentioned. In addition, as the author himself

pointed out, a substantial number of the project reports reviewed lacked methodological details; they were reported in conference abstracts. It is therefore difficult to conclude on the relative meaning of the term “successful”, particularly in relation to behavioural outcomes.

Small-group AIDS education is taking place all over the world, advancing general knowledge of HIV in numerous communities. Small-group AIDS prevention programmes can be seen as having 3 main components:

- content
- context
- strategies (Kalichman, 1998).

Content includes goals, objectives, and activities. The main content areas in most small-group intervention activities include: basic education about AIDS, sensitization to one's personal risks for HIV, instruction in individual actions that can reduce one's risk and exploring new ways to communication with sex partners. Entire interventions or research questions are built on any one of these content areas.

The second component in small group HIV prevention is the *context*. The different aspects of the intervention should be designed to fit the cultural, gender and developmental issues of participants. For example, one investigator felt concerns of stigma and sexual identity were paramount to African American gay men and dedicated an entire session of this small-group intervention to concentrate on those issues (Kalichman, 1998).

The third component, *strategy*, is the process itself, where emphasis is placed on *how* the interventions are implemented between participants and group leader. Key elements to consider include how to foster trust, build group cohesiveness, encourage motivation and mutual support among participants and between participants and the facilitator (Kalichman, 1998).

Although evaluations of small-group interventions have focused on content and facilitation skills, all three components have been found to be critical to the success of this approach. The literature reports strong evidence for the beneficial effects of small-group HIV preven-

tion from randomized controlled trials of theory-based skills-building programmes (see chapter III for impact of theory based interventions). Several independent reviews of the literature as a whole found that small group HIV risk-reduction interventions result in meaningful changes in HIV risk behaviour (Kalichman, 1998).

One innovative approach targeting hard-to-reach populations in the USA with information and counselling was a multiple session intervention designed to be delivered over the telephone. One reason for this method was to reach populations that do not want to meet a health care provider face-to-face. In an evaluation of the study, the researcher found significant effects of their telephone-based counselling including a decrease in unprotected intercourse from 47% to 26% of the men who completed the programme (Roffman, 1997).

Another study in Uganda looking at gender differences and perception of risk noted that participation in small-group AIDS education was associated with some protective behaviours for women with evidence of a dose response effect. The author suggests that these AIDS education events may also provide a socially sanctioned opportunity for peer group interaction for women (Bunnell, 1996).

Especially in the USA, small-group AIDS prevention efforts have evolved since the beginning of the epidemic from providing basic information in community groups and sensitizing people to personal risk sensitization. Subsequently, interventions began instructing people on condom use skills, eroticizing safer sex, and building safer sex communication skills. Through interventions encompassing these elements, many people have reduced high-risk sexual behaviour, but not everyone is sensitive to small group behavioural interventions. For example, small-group projects targeting heterosexual men for HIV prevention have not shown significant intervention effects. Longer-term behavioural changes require ongoing support and modifications in the larger social environment within which these behaviours take place.

Peer education

Peer education is one approach to small-group HIV prevention usually aimed at individual behaviour. The peer health educator approach recruits leaders in communities at risk to be implementers of the education programme to their peers (Sepulveda, 1992). Selection of peer educators is a key to the success of a programme and often involves:

- acceptance by other members of the group
- being an opinion leader, thus well respected in the group
- willingness to be trained
- committed to the goals of the programme

Many interventions combine peer education with other approaches such as the use of social networks, condom social marketing (Roy, 1998) and outreach (Seema, 1998 & Boontan, 1998) as these approaches can be complementary. Outreach work using peers has resulted in increased participation of targeted community members as well as increased diversity of participants (Broadhead, 1998).

The benefits of working with peers rather than with 'experts' from outside the social network are many depending upon the group at risk. Wingood noted that peer educators may be a more credible source of information for women, may communicate in a more understandable language, and may serve as positive role models (Wingood, 1996). Other studies have suggested that when the group at risk is very different culturally from the majority, peers know the cultural risks and most appropriate and realistic risk-reduction strategies from experience.

The peer educator approach has been used in as diverse populations as: dock workers in Nigeria (Ogundare 1998), Arabian prisoners in Italy (Vacondio, 1998), street youth in Thailand (Boontan, 1998), in-school youth in Armenia (Ter-Hoyakimyan, 1998) secondary school students in Argentina (Bianco, 1998), taxi drivers in Cameroon (Moughutou, 1998), low- and middle-class general population in Zambia (Kathuria, 1998), factory workers in Zimbabwe (Katzenstein, 1998), sex workers in India (Seema, 1998, Roy, 1998), drug users in USA (Broadhead, 1998) and traditional healers in South Africa (Green, 1994), among many, many others.

In these various situations, peer educators performed differing tasks ranging from development and distribution of IEC materials including video clips and pamphlets, as well as condom discussion and distribution to conversations with peers on diverse topics such as empowerment, health and human rights, and basic AIDS information.

Surprisingly, all of the above studies, even though many were not randomly controlled, indicated positive results. But here again, many of these reports were conference abstracts lacking methodological details. Nevertheless, they show the astonishing diversity of populations and contexts with which peer education is being practised throughout the world.

In one study that randomized 40 factories in Zimbabwe into counselling and testing with or without peer education, results reported a 34% lower HIV incidence in peer education than in control group (Katzenstein, 1998). In Zambia, authors noted dramatic declines in syphilis seropositivity in 3 test vs. 3 control sites (by 77%, 47% and 58%) after a 3-year peer education programme that reached 417,000 men and 385,000 women (Kathuria, 1998).

Two studies analysed cost-effectiveness of peer education interventions among IDUs in the USA and factory workers in Zimbabwe. In Zimbabwe costs compared favorably to other HIV prevention programmes (Katzenstein, 1998), and the US researchers found that the peer-driven intervention cost one thirtieth as much as the traditional (external) intervention (Broadhead, 1998).

As any other approach however, peer education has its limits. For example, in Brazil, participants of a target group became health agents and lost their solidarity and support within the group, which is a key element to successful peer education (Leite, 1998). Another example comes from a convenience sample analysis of several peer education programmes across the USA that found a structural tendency for peer education programmes to employ low-income people and treat peer educators as the most marginal sector of the organization's staff (Maskovsky, 1998).

Testing and counselling

In increasing numbers people in industrialized countries are receiving their HIV test results as therapeutic options become available to more people. Research has shown many reasons developing nations should make voluntary testing and counselling (VTC) accessible to their populations (UNAIDS, 1998). Early detection of the virus enables referral for clinical care and psychosocial support. Ethically people have a right to know their serostatus in order to protect themselves and others. And knowing their own serostatus and the options can motivate people to change higher risk behaviours (De Zoysa, 1995). In addition, De Zoysa notes that HIV testing and counselling may have an important social impact through people knowing their serostatus sharing it with others and laying the groundwork for changes in social norms about HIV and AIDS. A positive HIV result has also encouraged some people to give personal testimonies in community fora, a consequence that can have a powerful effect on individual attitudes, behaviours and social norms. In cultural contexts where fertility is highly valued, testing and counselling provides an important behavioural-change alternative to consistent condom use.

The theoretical foundation on which interventions providing testing and counselling are built principally involves the *stages of change* model (De Zoysa, 1995). HIV testing and counselling may promote progression across the continuum of the stages of change. For example, in rural southwestern Uganda, a setting with high HIV prevalence, the majority of respondents in a research study reported that they had already made behavioural changes because of AIDS, but making further changes to protect themselves was contingent on knowing their HIV serostatus (Bunnell, 1996). It has thus been suggested that counselling promotes risk reduction through increasing perception of risk, self-efficacy and personal skills, and through reinforcing social norms or responsibility (De Zoysa, 1995).

In 1991, in an extensive review of 50 testing and counselling studies in Africa, Australia, Europe and North America, Higgins *et al* found substantial risk reduction only among heterosexual couples with one infected partner. In other groups (homosexual men, inject-

ing drug users, women) risk reduction was not significantly associated with counselling and testing (Higgins, 1991).

An updated review of 35 studies conducted by Wolitski *et al.* in 1997 found similar results to those of Higgins *et al* for some population groups. The clearest evidence for positive behavioural effects of HIV VTC has been heterosexual sero-discordant couples where HIV counselling and testing was a significant motivating factor to risk reduction. Studies of MSM have also indicated significant risk reduction but it was not clearly related to their testing for HIV. Yet a UNAIDS report notes that among a sample of HIV-infected homosexual men in Norway the number of sex partners decreased from an average of 4.3 a year before to 1.6 after counselling and testing (UNAIDS, 1998). In HIV serodiscordant couples a consistent reduction in sexual risk practices followed HIV testing and counselling. Similarly, in most injecting drug users studies, counselling and testing proved to be beneficial in reducing dangerous sexual practices (Wolitski, 1997). Across populations, individuals who learn they are HIV positive have been found to be more likely to change behaviour than those who learn they are HIV negative.

More recently a randomized controlled trial in 3 developing countries (Kenya, Tanzania and Trinidad and Tobago) showed that couples receiving counselling and testing reduced unprotected intercourse among their spouses, especially among serodiscordant and seropositive concordant couples (Coates, 1998a). However, results specifically found that VTC produced significant changes in reducing high-risk sexual practices with non-primary partners (Coates, 1998).

In the USA, a randomized controlled trial evaluating HIV post-test prevention counselling was conducted in 5 STD clinics comparing 3 arms: (1) HIV education including 2 sessions with brief HIV/STD messages, (2) HIV prevention counselling, 2 sessions aimed at increasing risk perception, (3) enhanced counselling, 4 sessions based on theoretical constructs of behavioural change; self efficacy and perceived norms, over a 12-month period. They found marked changes in condom use with both main and other partners across arms of the study (Kamb, 1996). After 12 months, there were 19% fewer new STD cases in the brief counselling group, and 22% fewer in the

enhanced counselling group, compared with the group that had received only educational messages (Kamb, 1998). These findings support other studies showing benefits of client centered counselling combined with HIV test results.

Other, non-randomized studies in Rwanda, Uganda, Kenya and Zaire reported VTC to be a motivating factor especially for couples to change behaviour (Allen, 1992; Campbell, 1997; Choi, 1994; Alwano-Edyegu, 1996). The AIDS Support Organization (TASO) provides counselling and support services to a variety of clients with AIDS in urban and rural Uganda. In an overall evaluation of TASO, it was noted that 90% of all clients had revealed their HIV status to somebody following TASO services. In contrast, a study in the Gambia showed no effect of individual post-test counselling on condom use among prostitutes who already had high rates of condom use before the intervention (Pickering, 1993).

Wolitski sums up by noting that "*there is no question that HIV VTC can and does motivate behavioural change in some individuals*", but also that VTC alone does not always lead to changes and does not have the same effect in all populations and in different situations (Wolitski, 1997). As with most other approaches, the stage of the epidemic and surrounding contextual factors will contribute to the outcome of the intervention. In addition, the quality of the counselling provided is a key variable in predicting the impact of the intervention.

Conclusion

After years of experience with HIV prevention and the variety of interventions aimed at individual behavioural change tested in diverse situations, certain characteristics of successful programmes point to key elements of approaches to behavioural change programmes. These elements include: increasing participants ability to communicate effectively about sex; helping participants increase their condom use skills; personalizing risk, achieving participants perception of risk avoidance as an accepted social norm, providing reinforcement and support for sustaining risk reduction. For individual level interventions to be successful, context specific information and skills are critical.

(B) COMMUNITY-LEVEL INTERVENTIONS

Community-level approaches grew out of the realization that, despite the considerable risk reduction through individual-level behavioural change approaches, different approaches were needed as well. Social epidemiology, pointing to differences in prevalence among different social categories within a given risk category in a community suggested intervening along these lines (Friedman, 1997). The programmes in this section encompass the most widely publicized approaches to community level HIV prevention including: interventions based on *social influence* and *social networks*, outreach programmes, school-based programmes, condom promotion and social marketing, community organizing and empowerment and policy level interventions. Each of these types of interventions either try to reduce individual vulnerability to or transmissibility of HIV, change community norms, limit dispersal of high seroprevalence networks or change community organizational structures making them less dangerous (Friedman, 1997). Changing community cultures or community norms provides motivation and reinforcement for individual HIV risk reduction. Many of the following programmes use ideas from the *theory of reasoned action*, the *diffusion of innovations model* and the *theory of social influence* to mobilize peer pressure or to ostracize individuals who continue high-risk practices. Policy level changes such as closing of bathhouses and enforcing condom use in brothels also account for significant impact in community risk practices.

Social influence and social network interventions

Based on the theories of *social influence*, *diffusion of innovation*, *reasoned action* and *social cognitive theory*, these interventions use peers and social networks to disseminate information. Social influence interventions identify key persons in communities who are capable of influencing others. The *social cognitive theory* posits that trusted role models are an important factor in the environment and the environment has a reciprocal relationship both with behaviour and the individual. In the *theory of reasoned action*, perceptions of social norms have a critical influence on behaviour. Social norms created by opinion leaders will ideally have a strong effect on behaviour. *Diffusion of innovation* theory

asserts that changing behaviour will more likely happen if the new behaviour is compatible with accepted social norms of a specific social network, is simple to do, and has observable outcomes (Kalichman, 1998). One's social network can be a source of emotional and instrumental support and a reference that establishes social norms.

Research implemented using peer educators to influence social networks in gay communities showed significant self-reported changes in safer sex practices after intervention (Auerbach, 1994). Encouraging results in changing social norms and safer sex behaviour have also been noted in a number of community-level social influence interventions in the USA. One programme implemented among men frequenting gay bars in three Southern cities began by identifying and recruiting opinion leaders. Project staff then trained leaders in risk-reduction, and the final stage involved opinion leaders in disseminating prevention messages to friends and other members of their social networks (Kalichman 1998, Kelly, 1992). In a later study using the same methods, researchers used a randomized experimental design with four test and four control cities and showed a decrease in population-level rates of risk behaviour after one year (Kelly, 1997).

The Mpowerment project was similar to the above studies but focused on young gay men in a midsize urban community in the USA, and included in the intervention package a publicity campaign and small group sessions concentrating on individual behavioural change (Kegeles, 1996). In the test city, there was a 26% reduction in unprotected anal intercourse compared to 3% in the control city. A follow-up study examined the effectiveness of the different programme components (small groups, social events, and outreach) on post-intervention sexual risk-taking. The small groups had a large effect size, but reached substantially fewer men than social events and outreach. Although not as powerful, the social events and outreach were critical to the effectiveness of the programme as sources of recruitment to the small groups and as a means of reaching men not interested in attending small groups. Authors concluded that the effectiveness of programme components were not independent; the synergy created by the whole programme makes the net effect of the intervention activities greater than the sum of its parts (Kegeles, 1998a).

Sikkema et al. tested a comparable approach with women living in urban, low-income housing developments. The intervention included outreach, small groups and community activities to encourage social norms supportive of safer-sex as well as reduction of individual high-risk behaviour (Kalichman, 1998). Women who were identified as opinion leaders participated in a 4-session skills-building intervention centered on HIV prevention knowledge and behaviour. These women recruited other women who participated in the same intervention and the cycle continued until about half the women in the housing development were reached. At the same time, social norm-changing events were being implemented. Results of this randomized controlled trial found that condom use reported by women in the intervention site increased from 29% at baseline to 41% at 3-month follow-up (Kalichman, 1998).

The National AIDS Demonstration Research Projects implemented in more than 60 sites in the USA to evaluate strategies among IDUs, combined research methodologies but focused on the social networks of IDUs as the primary target group. The Indigenous Leader Outreach Intervention Model which combines medical epidemiology and community ethnography guided the project. Former IDUs were employed as outreach workers whose job was to identify and access the social network, document the norms, values and situational factors relating to risk practices. Former IDUs were also responsible for delivering the HIV prevention services. After a four-year intervention, incidence of HIV decreased from 8.4 to 2.4 per 100 person years. Sex risk practices decreased less dramatically than drug risk, but went from 71% to 45% (Wiebel, 1996). The same model was tested among sex workers in Indonesia with encouraging results (Gordon, 1998).

Interpreting these results for social influence interventions indicates that multi-component, individual and community level that combine cognitive-behavioural and norm-changing activities can result in positive changes for MSM and heterosexual women. Despite the fact that all published reports described here were based on interventions in the USA, since they are based on conversations with peers one could assume that they would be ideal for other populations (even non-literate) as well.

Outreach interventions

Outreach interventions are conceptualized in a similar manner to social influence interventions in that they use individuals to pass on information within social networks, however the influential person may or may not be from the targeted community. The outreach worker enters the social system to instigate behavioural change as an individual change agent. Targeted communities are often hard-to-reach groups such as drug users, sex partners of drug users, sex workers as well as isolated rural populations. The aims of outreach have often been harm reduction strategies such as providing condoms to sex workers, but not necessarily addressing sex work itself.

Three large-scale research trials in the USA examined the effects of outreach delivered primarily to injecting drug users. The National AIDS Demonstration Research Projects targeted over 36,000 out-of-treatment injecting drug users. Results indicated that sexual practices were much more difficult to change than sharing of drug using equipment. The projects did show reductions in sex risk practices, but less dramatically than for drug risk practices (Wiebel, 1996).

A second initiative entitled the AIDS Evaluation of Street Outreach Projects supported by the CDC was conducted in six US cities, and showed promising outcomes as well as being cost-effective. Again, this project found drug using behaviour easier to change than sexual behaviour. A third outreach project (AIDS Community Demonstration Projects) was implemented in five US cities and had multiple target groups including: IDUs and their partners, MSM, female sex workers, street youth and men who have sex with men but do not identify as gay. The health belief model, social cognitive theory, the theory of reasoned action and the transtheoretical stages of change model guided the outreach intervention. Following formative research, volunteer outreach workers implemented the intervention, by disseminating innovative, carefully designed materials and messages. The evaluation indicated that the communities moved across the continuum of stages of change following the intervention. A dose-response effect was noted according to exposure to the intervention materials (Guenther-Grey, 1996, Kalichman, 1998)

Interventions using outreach as a strategy have been carefully tested in the USA among diverse populations and have shown encouraging results. This approach lends itself as well to hard-to-reach populations and has been used in many parts of the world though randomized controlled trials have not been reported outside the USA.

School-based interventions

By the early 1990s, school-based programmes for HIV education existed in about three quarters of industrialized countries and 60% of developing countries according to a survey of 38 countries (Cohen, 1992). Besides interventions that simply provide basic AIDS information in the classroom, multi-dimensional school-based programmes generally include classroom skills-building sessions, school-wide peer-led activities, and social norm changing programmes. Promotion of condom use was the theme most frequently adopted in programmes for youth in and out of school (Cohen, 1992). An extensive review of school-based interventions revealed that no comprehensive school-based HIV-prevention interventions evaluated showed signs of promoting sexual acting out or hastening the onset of sexual intercourse (UNAIDS, 1997). It was found that effective interventions had a number of characteristics in common:

- accurate information was provided about the risks involved in unprotected sex, enabling informed behavioural decision making
- programmes included skills building sessions enhancing self-efficacy for safer-sex negotiating practices
- components were often based on social cognitive theory including modeling of safer behaviours (Kirby, 1994)
- activities were conducted in small groups or had a minimum of 14 hours of contact
- opportunities for youth to personalize information were provided
- social pressures to engage in sex were addressed with strategies for resisting peer pressure
- reinforced supportive group norms and appropriate individual values for engaging in safer behaviour were emphasized
- extensive training was provided for teachers and/or peers who were to implement the training.

The element distinguishing school-based programmes from other interventions for youth was the supportive structural aspect played by schools and teachers, and the interaction between school, parents, students and community (Peersman, 1998, Kalichman, 1998).

Condom promotion and social marketing

It has now been proven numerous times that correct use of condoms is an effective method of preventing HIV transmission. Yet, countless research studies have identified obstacles to their use in settings throughout the world, including inaccessibility and partner communication among other factors.

Most initial HIV prevention programmes included condom promotion and free distribution as part of a comprehensive HIV prevention package. Free distribution was essentially aimed at introducing condoms where they were not previously available or distributing them to destitute populations at high risk such as sex workers and refugees. Although this approach accomplished its intended outcome of making condoms accessible without delay to large populations, the lack of sustainability and reliability of free condom distribution programmes commanded the introduction of condom social marketing strategies especially aimed at certain populations.

Condom social marketing, which may well be the most developed of public health communication approaches, aims to remove the barriers to condom use by using commercial marketing techniques such as advertising and packaging to make the product accessible, affordable and attractive to all types of people. The theories underlying social marketing programmes derive from many different disciplines including operant conditioning and social cognitive theories as well as economic and marketing principles. Social marketing has been termed a 'strategic planning' approach based on the theoretical 'principal of exchange' which explains that people will only change their behaviour to something less pleasant (like condom use) if they perceive an adequate benefit (Kennedy, personal communication). Social marketing techniques highlight the importance of adapting the campaign to suit the characteristics of the population group being targeted. It dedicates sufficient time to formative research,

which necessitates asking the consumer always and often about his or her point of view. Modifying products requires a good understanding of the culture of the target group. Availing condoms at non-traditional outlets such as truck stops, bars, and hotels is integral to social marketing success. Flooding these non-traditional outlets with condoms aims not only to increase availability but also to increase social acceptability (World Bank, 1997).

Results of these programmes have shown dramatic increases in condom sales in countries, such as Côte d'Ivoire, Uganda, and Malaysia where condoms were practically unavailable before social marketing campaigns (World Bank, 1997). After a 3-year peer-led condom promotion programme among sex workers in West Bengal, India, found that condom use rates rose from 3% to 81%, a social marketing campaign was launched. Six months into the project using peer education and community participation, free distribution of condoms had decreased by 50% and the same amount of condoms had been sold (Banerjee, 1998). Social marketing programmes have also been developed in Mexico, Dominican Republic, Canada, Brazil, Vietnam, Pakistan, Zambia, Botswana, Cameroon, South Africa and Haiti for HIV prevention (Holtgrave, 1997, PSI, 1998). Evaluations have shown success in increasing condom use especially among adolescents in Zambia and among married women in small urban areas in Pakistan (PSI, 1998).

Besides condom promotion, social marketing techniques have also been effective for other HIV prevention strategies such as promotion of testing and counselling for adolescents in the USA (Futterman, 1998), and the recruitment of research participants in Puerto Rico (Torres-Burges, 1998).

Community organizing, empowerment and participatory action research

Empowerment approaches are built on the premise that positive public health impact is fostered by recognizing the relationship between social structure and health, and by recognizing that lasting change is a process that initiates from within a community. Empowerment in connection with HIV in the USA has its historical roots in public health

and community psychology (Beeker, 1998). From the field of education, Wallerstein defined empowerment as:

“Empowerment education, as developed from Paulo Freire’s writings, involves people in group efforts to identify their problems, to critically assess social and historical roots of problems, to envision a healthier society, and to develop strategies to overcome obstacles in achieving their goals. Through community participation, people develop new beliefs in their ability to influence their personal and social spheres. An empowering health education effort therefore involves much more than improving self-esteem, self-efficacy or other health behaviours that are independent from environmental or community change; the targets are individual, group and structural change. Empowerment embodies a broad process that encompasses prevention as well as other goals of community connectedness, self-development, improved quality of life, and social justice.” (Wallerstein, 1988)

Beeker suggests a definition of an empowerment intervention as follows:

“A community empowerment intervention seeks to effect community-wide change in health-related behaviours by organizing communities to define their health problems, to identify the determinants of those problems and to engage in effective individual and collective action to change those determinants.” (Beeker, 1998).

Empowerment approaches assume that health behaviours are not completely under volitional control of individuals, thus are not entirely isolated events, but embedded within social, cultural and economic surroundings.

The impact of society’s defined gender roles on protective health behaviour of women highlights the importance of empowerment approaches, especially for HIV-vulnerable women. Beeker describes ideally what the components of an intervention based on community empowerment for women would look like. The intervention would address the cultural environment by recognizing gender roles that define women as subordinate to

men; the physical environment by including access to appropriate services and materials such as battered women’s shelters and both male and female condoms; the structural environment such as opportunities for women to change their economic status; and the policy/legal environment such as businesses providing paid leave for community service and child care (Beeker, 1998).

Community participation at all levels of implementation is an integral aspect of community empowerment approaches. Interventions include community organizing, and participatory action research (PAR) into their programmes (Israel, 1994, Hiebert, 1998). A strength of PAR resides in the ability of participants in conjunction with committed and creative professionals to adapt methods and content to diverse contexts. The positive outcomes of PAR arise from its collaborative, trust-building capacity, with direct community input that responds to emerging changes in social, political and economic situations (Stevens, 1998). These interventions seek to support communities to be self-determining in their ability to integrate HIV programmes into existing community structures by assessing their own needs and priorities, defining, implementing and evaluating their own work¹.

Empowerment approaches have been used for AIDS risk reduction through numerous different strategies and in countless different settings and contexts. The literature describes empowerment interventions directed at women, young gay men, youth, people with HIV and AIDS as well as many other communities at risk.

A CDC-funded intervention developed for young, pregnant women from low income communities in the USA, randomly assigned women to one of three arms (four sessions AIDS prevention, 4 sessions health promotion, control). The HIV prevention arm focused on enhancing women’s skills in negotiating condom use with their partners using role-play and rehearsal, among other methods. Consistent with empowerment ideals, the content included other health matters in addition to HIV prevention and activities were developed to encourage a feeling of ‘communal mindedness’ in the group. The idea was to promote mutual support in the process

¹ See Israel et al., 1994 or IUCN, 1997 for complete definitions and examples of participatory action research.

of behavioural change. Results indicated that women in the HIV prevention group showed greater changes in intention and practice of safer sexual behaviours than women in other groups (Beeker, 1998). Comments by authors of the report concluded that women in the HIV prevention group gained a sense of perceived control over their lives.

An intervention using PAR among lesbian women highlighted the power of community ownership of the project and its continuity over time that provided a space for engagement and commitment where women focused on community mores, values, and social expectations about sexual relating, drug use and HIV. The feeling of solidarity with peer educators enabled women to reduce risk behaviours (Stevens, 1998).

Empowerment can have far-reaching positive health and welfare benefits. Schuler et al. describes the impact of involving women in credit programmes on contraceptive use. She found that, in Bangladesh, rural credit programmes for women can play an important role in changing fertility norms and accelerating contraceptive use by strengthening women's economic positions and fostering women's empowerment (Schuler, 1994).

Other empowerment interventions for sex workers include a project in Zambia, where women fish traders who often experience sexual exploitation have been supported in forming economic cooperatives as a way of protecting themselves against HIV. A second example is a programme in India where women have been taught how to collectively save sufficient savings to pay bonds binding them to sex work (Aggleton, 1998, Tawil, 1995).

Importantly, Beeker reminds us that empowerment approaches do not strive to substitute for individual psychosocial interventions, but to 'widen the lens to include person-in-environment' approaches. She notes that there is increased commitment to community participation, but that there remains a difficultly surmountable gap between empowerment rhetoric and practice. For that gap to be bridged, one key element is progress in operationalizing new concepts and constructs, and testing hypothesized relationships between, for example, community participation and community capacity to effectively address

health issues (Beeker, 1998). Although tools for measurement of single and multi-level (from personal to community level) empowerment have been developed and tested, they have not yet been used on a wide scale (Israel, 1994).

Policy level interventions

Policy level interventions are 'enabling' approaches that attempt to remove structural barriers at a larger level. Many believe that AIDS interventions are moving from solely investigating individual approaches to multi-dimensional models of community mobilization, empowerment and structural policy level interventions (Beeker 1998, Parker 1996).

The earliest and some of the most effective efforts of community level change for HIV have resulted from social action. ACTUP, formed in 1987 in New York, is responsible for many successful policy initiatives for people living with HIV and AIDS as well as advocating for everyone's responsibility to practise safer sex.

Another widely recognized policy level intervention is the 100% Condom Programme in Thailand that mandated condom use in brothels and during other commercial sex encounters. Components of the programme included a requirement that sex workers use condoms with all clients, that condom use be monitored, that brothel owners and managers assist in promoting condom use with uncooperative clients and that there should be sanctions against brothel owners for non-compliance (Aggleton, 1996). The programme showed a dramatic increase in self-reported condom use during commercial sex acts (14% to 90%), a decline in reported STD attendees in government clinics, and a decline of HIV positive army conscripts (Friedman, 1997). Success of the programme has been attributed to the fact that it was based on harm reduction in a population at very high risk. It did not try to eliminate the brothels but attempted to reduce HIV transmission within them, and it used national policy which ensured a broad and lasting effort (Friedman, 1997).

Conclusion

HIV prevention at the community level is an integral component to check further spread of

HIV. By working with communities, in contrast to individuals, one is focusing on changing policy, social structures, social norms and cultural practices that surround individual risk behaviours. Community level changes working at the level of changing subcultures have potential to effect long-term maintenance of changed behaviours, by changing the environment surrounding individuals to support safer behaviours. At the same time, many of these approaches highlight the importance of participatory methods to include and empower individuals. It is important to note that many of the interventions mentioned above may have initially focused on one level (such as policy, or empowering individuals), but as the programmes developed they generally include more target levels including changing local cultures and subcultures (Friedman, 1997). Programmes discussed here have been the most widely publicized approaches to community level HIV prevention yet many more innovative projects exist worldwide.

Finally, development of methods for implementation and evaluation of community-level programmes has not been operationalized on a broad spectrum. Assessing effectiveness of these programmes introduces a number of challenging issues such as measuring community level changes using the community as the level of analysis rather than the individual. Additionally, identifying elements of the intervention to measure, thus defining new community level indicators and obtaining large enough sample sizes to detect significance add new challenges to community level evaluation. This makes design of such programmes and the ability to carry them out possibly more complex than individual-based programmes.

EXAMPLES OF THE IMPACT OF THEORY-DRIVEN INTERVENTIONS

Theoretic models that have proven useful in explaining and predicting changes in HIV-related sexual behaviour provide guidance in the design and implementation of prevention programmes (Wingood, 1996). Reviews of theory-driven interventions have noted that these interventions emphasize both intrapersonal and interpersonal factors, provide skills training, try to modify social norms and are thus more effective at reducing risk behaviour among participants (DiClemente, 1995). (See Table 3.)

This section summarizes positive outcomes of theory-based interventions by specific population groups, including women, men, and youth. Although injecting drug users fit into any of the above categories, we have placed them in their own group as interventions target them specifically.

(A) WOMEN

A review of 51 reports through 1997 on studies worldwide noted the lack of interventions identifying the mechanisms of preventive effects and theoretical frameworks upon which interventions are built (Ickovics, 1998). This review found differences in effectiveness between target populations and between different types of interventions. Interventions targeting sex workers were the most likely to find increased condom use, decreased incidence of STDs, and reduction in unprotected intercourse (9 out of 10 studies). Effectiveness for other groups at risk was more varied: 13 out of 18 studies of African-American or Latino descent women were effective, as were 3 out of 10 studies for IDUs, 1 out of 3 for partners of IDUs, 2 out of 3 for STD clinic patients, 4 out of 7 for US college students, and 6 out of 14 studies for mixed gender community groups (Ickovics, 1998).

Ickovics et al. identified seven types of interventions tried among women globally: small

group, community-wide, media, HIV counselling and testing, individual counselling, classroom education and laboratory experiment. Community-wide (12 out of 14) and small group interventions (13 out of 19) were more likely to show significant results. Interestingly, Ickovics' review noted that higher intensity (5 or more sessions) were less effective than low-intensity small-group programmes for women. Authors suggested this may reflect the more resistant population targeted. Several international programmes incorporated peer-led *diffusion of innovations* approaches and all reported statistically significant increases in condom use (6 studies out of 6). According to this review, less effective interventions for women overall were individual counselling (0 out of 4) and HIV testing and counselling (3 out of 6) as primary prevention. Testing and counselling and individual counselling, however, have shown effectiveness as secondary prevention with serodiscordant couples (Ickovics, 1998).

A review of randomized controlled trials in the USA conducted by Wingood and DiClemente found that all effective interventions for women had a number of identifiable characteristics. In contrast to the review by Ickovics, the four studies mentioned were guided by the *social cognitive theory* (a theory based on the individual, taking into account environmental and behavioural factors, which places a strong emphasis on self-efficacy) provided skills in condom use and sexual communication and emphasized support for continued maintenance of safer sexual behaviour. In addition, all effective interventions were peer-led and addressed gender-related influences such as gender-based power imbalances within the relationship (Wingood, 1996).

Generally, successful skills training interventions for women consider cultural factors and attempt to personalize messages (Kalichman, 1997). Targeting women in the USA, and adolescents in the USA and Holland with behavioural skills enhancement programmes have produced positive effects (Kalichman, 1997). Studies among women in the USA have generally included four to five sessions and demonstrated positive outcomes with medium-sized effects. Condom use has increased up to double the rate at baseline. Specific components of behavioural skills enhancement that have been tested comprised of: risk

education and sensitization, condom use and safer sex skills training, and sexual communication skills training (Kalichman, 1998). Kalichman notes that behavioural skills enhancement training has not been tested experimentally outside the USA, so it is unclear to what extent it would benefit women in other countries.

An intervention among women in a New York City housing project was based on the *diffusion of innovation theory* in combination with community mobilization. Women were recruited, organized and trained to help develop role model stories for the project newsletters. These women were also expected to initiate discussions with their peers regarding HIV prevention. Information was diffused rapidly and seemed to promote discussion and condom use among the housing project women. Reported condom use of female sex partners within the housing project for IDUs rose from 15% to 45% (Friedman, 1997).

The *theory of gender and power* provided a model for the design of a successful gender-appropriate social skills intervention for African American women in San Francisco. The intervention addressed how to successfully negotiate safer sex and improve partner norms favorable to consistent condom use in comparison to a control group that received similar training in a delayed fashion. The results showed significantly greater consistent condom use, greater sexual self-control, greater sexual assertiveness, and increased partners' adoption of norms supporting consistent condom use in the intervention group (DiClemente, 1995).

The *stages of change model* was used to guide a 6-month longitudinal study among women in drug treatment, housing shelters, and hospital clinics in the USA, and showed that women exposed to individual stage-tailored counselling were twice as likely to report consistent condom use with main partner 'at last sex contact' as women receiving free on-site reproductive health counselling and services (Galavotti 1998). The stage-based counselling also proved useful at preventing relapse from consistent use further along in the process of change.

One study assessed the *AIDS Risk Reduction Model* (ARRM) with HIV-positive, largely dis-

advantaged, women in the USA and found that 6 variables representing the four important constructs of the model were associated with consistent condom use (Kline, 1994). The strongest predictor of condom use was perceived self-efficacy in influencing the partner's sexual behaviour, yet no significant relationship between condom use and general self-efficacy was detected. The two other partner-related variables associated with condom use were his seronegativity and his not wanting more children. The respondents' reproductive intentions were not significantly associated with condom use. The three variables that were negatively related to condom use were: having a conflictual relationship with primary partner, believing that condoms reduce sexual pleasure; and the use of drugs or alcohol in the previous four weeks.

With regards to the *health belief model*, among heterosexual adults in Holland barriers to condom use, such as reduced pleasure of sex, were predictive but cues to action were not related to condom use intentions (Buunk, 1998). The perception that most others in the reference group would engage in condom use with new sexual partners was an important predictor of condom use intentions and emphasizes the importance of the social environment with respect to AIDS protective behaviour.

Again internationally, an intervention guided by the *social cognitive theory* and community health promotion implemented in North-eastern Thailand targeting village women was evaluated using surveys, focus group discussions and village meetings. Elicitation research identified the importance of including entire villages in the intervention rather than women alone. The evaluation found that eight of the nine outcome goals were achieved with significant increases in married women taking the initiative in reducing the risk posed to them by the sexual activities of their husbands (Elkins, 1997). Specific measures taken by women included negotiating condom use with their husbands, and telling their husbands not to visit prostitutes. Men surveyed, however, did not change their condom use behaviour (Elkins, 1997).

One of the rare studies designed to identify the independent effects of intervention components on behavioural outcomes was conducted among African American women from

an inner city US community. Women were randomly assigned to one of the following: (1) sexual communication skills training, (2) self-management skills training, (3) combination of sexual communication and self-management skills training, (4) HIV education and risk sensitization. The study found that all four intervention conditions increased AIDS knowledge and intentions to reduce risk behaviours. Communication skills training produced higher rates of risk-reduction discussions, but combined skills training and sexual communication resulted in the lowest rates of unprotected sexual intercourse at follow-up. Authors concluded that a combination of behavioural skills training and communication is the most effective for reducing risk among vulnerable women in the USA (Kalichman, 1998).

Sex workers

Among the numerous studies involving sex workers, only two will be highlighted here. A year-long intervention targeting sex workers, brothel owners and clients in Thailand used multiple small group sessions with peer educators who were experienced women and were called 'superstars'. The 'model brothel' aspect of the programme worked with owners to enforce mandatory condom use by sex workers, and clients were educated to use condoms. Volunteers were trained to pose as clients to test sex workers' condom negotiation skills. Results indicated that sex workers increased their refusal of sex without a condom rate from 42% before the intervention to 92% following the programme. The authors concluded that this multifaceted approach specifically focusing in sex workers, and acknowledging the importance of working with clients and owners was critical to their success (Visrutaratna, 1995).

A second study that mentioned the theoretical background and its usefulness for sex workers noted the utility of *health belief model* and *social cognitive theory*. One study guided by these two models worked with four groups of female sex workers in Indonesia and found that both increases in knowledge and condom use were significantly related to the number of intervention sessions the women attended (Ford, 1998). Results reflected the different social context of sexual behaviour of the four groups of sex workers

and indicated that the four groups of women had different levels of knowledge about AIDS, different socioeconomic levels, different numbers of clients and different self-efficacy. Beliefs about the benefits of condoms were highly predictive of condom use in 3 of the 4 groups. In the group with lower knowledge about AIDS, perceived susceptibility to other STDs, rather than HIV, was related to condom use. Self-efficacy was highly predictive of condom use in 3 out of 4 of the groups of sex workers. In the fourth group self-efficacy was already high as this group of sex workers do not rely on pimps and contact clients independently. Authors highlight that sex work is a complex business that includes multiple sub-populations and distinct settings (Ford, 1998). These diverse realities must be considered in intervention design and implementation.

Conclusion

Interventions targeting women have lagged behind those of men historically. Women were left out of prevention efforts early in the AIDS epidemic especially in Europe and the US. Today, considering gender, relationship and contextual issues as central to decisions regarding sexual behaviour were universally important for the success of the interventions discussed above. Thus using gender-driven theory across cultures might prove useful as sexual encounters in some situations can be imposed and gender roles as well as cultural values and norms sometimes define, or at the least, influence sexual behaviour (Amaro, 1995). One international review found that peer-led community interventions guided by the *diffusion of innovation* theory were more successful overall than individual level interventions. Skills training especially in condom use and sexual communication, and perception of risk were important variables among women in US studies. As with other populations, interventions facilitated by peers were often more successful than those using a facilitator from outside the target group as peers can often target more appropriate, context specific methods for risk reduction.

Only one study, guided by the *AIDS risk reduction model*, reviewed here looked specifically at HIV-infected women and found that factors related to her sexual partner were more influential than many personal variables.

Interventions with female sex workers often used the *health belief model* and the *social cognitive theory* with significant results in diverse settings worldwide. Successful programmes often realized the importance of including brothel owners and clients in their activities, thus considering the wider environmental factors associated with the behavioural practices involved. The sex worker study conducted in Indonesia highlighted the importance of considering diversity among what is often generically termed a 'sex worker' population. By using a theory driven intervention, investigators were able to identify critical differences in predictive constructs between different sex worker groups.

(B) MEN

Men having sex with men (MSM)

A recent review of interventions with gay men found that studies generally fall into 3 types: individually based, small-group and community-level (Kegeles, 1998). At the individual level, the review noted one unique study that randomly assigned men to one of 3 groups: (1) standard group that analysed HIV-prevention posters, (2) self-justification group that was asked to recall, as vividly as possible, an occasion where they had unsafe sex and then justify according to a pre-determined scale, and (3) control group received no intervention. After 2 months, the self-justification group was significantly less likely to report unsafe sex than the other 2 groups (Gold, 1995).

One randomized controlled HIV-prevention study in the USA using the small-group approach, used a 12-week intervention with 3 booster sessions among 104 men randomized to either receive, (1) the HIV risk-reduction intervention or (2) a waiting list control group. The four main areas covered in the intervention were HIV risk education, behavioural skills training, sexual assertiveness training and lifestyle changes for relapse prevention. The intervention group showed significant reductions in rates of unprotected anal intercourse and increased rates of condom use immediately after the intervention, but 40% relapsed 16 months later (Kelly, 1991). Similar intervention components were tested among ethnic minority men and were found effective in reducing numbers of partners and

rates of unprotected intercourse, with the strongest effects among Chinese and Filipino-American men (Choi, 1996).

In a third study using group intervention approach among African American men, components included: (1) discussions on being Black and gay or bisexual, building social support, and large-group discussion of AIDS misperceptions among Black men, (2) enhancing positive feelings about safer sex, practice of condom application skills, developing plans to use condoms, and (3) dealing with issues of partner resistance, analysing one's own hurdles to staying safer, problem-solving safer-sex alternatives, role play exercises, maintenance of safer sex, and establishing social norms for safer sex. Participants were randomly assigned to either a single session, a triple session or a wait-list control group. Results indicated that men in the triple-session intervention group significantly reduced unprotected anal intercourse after 12 months of follow-up (Peterson, 1996).

Controlled studies with men who have sex with men (MSM) have indicated several characteristics that have enabled men to change behaviour and maintain safer sex:

- eroticizing safer sex materials
- brief training on establishing and maintaining safer sex relationships
- how to negotiate safer sex
- training on how to reduce stress
- intensive group counselling (Auerbach, 1994)

Behavioural skills-enhancement interventions targeting MSM in diverse cultural settings have consistently demonstrated increased condom use during anal intercourse, with the greatest changes occurring with non-primary partners (Kalichman, 1997).

The *diffusion theory* has been shown to be effective in changing sexual behaviour of men who have sex with men of different studies in the USA (Kelly, 1991, 1992, Kegeles, 1996). The model was tested in 3 small southern cities and results indicated systematic reduction in the population's high-risk behaviour with 15% to 29% reductions from baseline levels (Kelly, 1992). Kegeles et al. used the *diffusion theory* to design an intervention to address determinants of high risk sex in young gay men in the USA. The authors identified natural channels of

communication to highlight sexual risk behaviour among the concerns of young gay men and to find alcohol and drug-free alternative environments for them (Coates, 1996). While comparison communities made no significant changes, intervention communities showed significant changes in unprotected anal intercourse with primary and non-primary partners (Kegeles 1996).

Heterosexual men

Within specific populations such as STD clinic attendees, self-efficacy was used to predict risk reduction in two different studies in the USA. Unfortunately, there is a dearth of information on behavioural interventions tested among heterosexual men. Kalichman notes that the behavioural interventions that have been tested in randomized controlled trials have not been effective in reducing high-risk sexual behaviour (Kalichman, 1997). In one randomized controlled trial conducted among inner-city African American men a cognitive-behavioural skills-building intervention was compared with an AIDS educational intervention. No significant differences between groups was noted for AIDS related knowledge, intention to use condoms or condom use. Yet, there were some important lessons learned from this study. Greater importance should be placed on relevant issues for the specific population. In a population with multiple competing risk practices, a social service programme that can provide AIDS education along with drug treatment and job services may be more effective. The other two issues raised by this study were: the format of small group discussions was not well received by all men in the study and that cognitive-behavioural skills training programmes for HIV risk reduction should not be assumed to fit all vulnerable populations (Kalichman, 1997). Possible reasons suggested by Kalichman were that heterosexual men may lack a sense of vulnerability for HIV as they were not identified as engaging in high-risk behaviours for HIV as portrayed early in the epidemic in the USA (Kalichman, 1998).

Conclusion

The first decade of interventions with MSM noted substantial risk reduction with behavioural theory driven interventions including identifiable characteristics such as eroticizing safe sex, and improving sexual communication. Kalichman noted that we should not be

too optimistic as applying aging results to a dynamic epidemic may not continue to give intended results (Kalichman, 1998). Our responses should be evolving as fast as the epidemic changes. More recently innovative programmes have started aiming at the community level rather than the individual. Interventions based on the *diffusion of innovations* theory have shown community level change with gay men in the USA. Most studies highlight that safer sex is easier with one's non-primary partner than with one's primary partner.

Choi points out the limited utility in strictly individually-based theories for specific groups at risk such as Asian-Pacific Islander men who have strong cultural demands and community stigma against homosexuality. Without considering these powerful contextual influences on behaviour, interventions cannot expect significant results. Peterson describes how issues of being an African American MSM were directly addressed in their intervention along with social support and condom skills. As with other population groups, the intervention must be tailored to suit its population group, that is the group itself should be able to express its needs and priorities for the programme to be successful.

Despite the impressive results with gay men in diverse settings, there are few positive findings with heterosexual men in the industrialized world. As this group was not seen as vulnerable early in the epidemic, interventions concentrated on MSM and IDU populations. STD patients, however have been targeted with mixed results. Two studies in the USA, guided by the *social cognitive theory* found increased condom use and one in the UK found no effect on behaviour. In developing countries, approaches such as testing and counselling have proven successful at motivating behavioural change among heterosexual men. Specific population groups, such as farm workers in Zimbabwe were targeted with an intervention guided by the *social ecological model for health promotion*.

(C) YOUTH

Globally, most young people have begun sexual intercourse by the age of 18 or 19 and at least half by the age of 16 (UNAIDS, 1998). In

the USA about half of all adolescents are estimated to be sexually active and this percentage increases to over 80% in some minority groups (Reitman, 1996). Young people between the ages of 15 and 24 make up the majority of new HIV infections. Most of them live in the developing world, but industrialized countries also face severe problems. USAID has estimated that by the year 2010 there will be a total of 41 million orphans who have lost their mother or both parents due to HIV/AIDS worldwide (UNAIDS, 1998a).

Intervention research with young people shows that the success of the approach depends heavily on the youth's level of sexual experience. Intensive sex education among youth that have never had sex has been effective in delaying onset of intercourse among high school students.

A comprehensive international review of 110 outcome evaluations with youth (Peersman, 1998) found that effective programmes:

- focused on understanding social and/or media influences on sexual behaviour to be able to strengthen group norms against unprotected sex
- listened to what young people think and believe to ensure acceptable and appropriate programmes
- included modeling and practice of communication or negotiation skills
- integrated pregnancy and STD prevention with HIV programmes
- focused especially on disadvantaged youth, providing access to resources and/or services to address their basic needs (health care, legal aid).

This review also suggested that, although a clear pattern and full understanding are lacking, *social learning theories* have a greater potential than other theoretical frameworks in changing youth behaviour. Other cross-sectional surveys found that the *theory of reasoned action* and the *health belief model* as well as the *social learning theory* can help understand behaviour of young people. All successful, theory-based interventions have included skills training in addition to information and motivational components for young people (Reitman, 1996).

Howard and McCabe showed success of the *social influence theory* using slightly older

teenagers in the US to identify peer and social pressures that encourage negative health behaviours, to present factual information, teach assertiveness and discuss problem situations. Evaluation results of the programme that included 536 students from a low-income population in Atlanta showed that among students who had not had sexual intercourse, those who participated in the programme were significantly more likely to continue to postpone sexual activity through the end of the ninth grade than were similar students who did not participate (Howard, 1990). A second carefully implemented intervention guided by *social influence theory* among US middle school students resulted in null findings. The authors note inadequate community and family-level intervention, possible dilution of the messages and perhaps over saturation of students with the programme's health messages by the 8th grade (Moberg, 1998).

In addition one study assessing the use of the health belief model to predict condom use among university students in Nigeria found that the major *health belief model* variables, including perceived benefits of condom use, perceived barriers to condom use and cues to action, together with AIDS knowledge and male gender, significantly predicted condom use (Edem, 1998).

Reitman et al. suggest that behavioural constructs need to target specific behaviours. Their study, guided by the *health belief model* and the *theory of reasoned action*, among African American adolescents found that addressing condom use, reduction of the number of partners, or the frequency of sexual intercourse all related to different risk reduction strategies. The adolescents' positive attitude toward condoms emerged as the single strongest correlate of actual condom use.

Although multiple-session interventions have shown effectiveness, one project targeting African American adolescents demonstrated that a single-session workshop focusing on cognitive behavioural skills training produced significant increases in HIV-related knowledge, reductions in risk promoting beliefs, and lower frequencies of high-risk sexual behaviours (Jemmott, 1992).

One of the few studies that tested theoretical constructs in a manner that could delineate

mediators of change was a single-session intervention among US college students to promote STD prevention. Researchers used regression analyses to show that changes in perceived benefits of condom use, acceptance of sexuality, sexual control, attitudes toward condoms, and self-efficacy for condom use were linked to behavioural intentions to use condoms. The authors concluded that the mechanisms for change in their intervention were affective attitudes toward condoms and condom users, as well as self-efficacy for condom use (Kalichman, 1998).

Conclusion

Together, the results of these studies suggest that constructs subsumed in behavioural theory have greatly enhanced our understanding of risk behaviour among youth in varied settings and situations. The *social influences theory* was also useful in one study but a second study using the same theory showed null findings. Skills training, attitudes, norms and self-efficacy have all proven effective in predicting behavioural change among young people. In intervention research, these constructs have also been useful in mediating actual risk behaviours. Results have shown that young people who have already initiated sexual relations must be treated very differently than those who have not, and that interventions have to as well target specific behaviours rather than risk reduction in general. Although we noted one study in Nigeria, most theory-based research and intervention has been conducted in the USA. Without further research, these results may be difficult to apply in settings outside the USA. Reitman correctly concludes that condom use is a behaviour that might be especially sensitive to situational or contextual variations especially among diverse populations such as the youth.

(D) INJECTING DRUG USERS

Drug addiction is a major risk factor for HIV infection in about 80 countries worldwide (Gibson, 1998). Behaviours associated with drug use that are risk factors for HIV transmission are sharing of drug injection equipment and unprotected sex with an infected partner. As this report is focusing on sexual transmission, the sharing of drug injection equipment will not be discussed.

In a recent review of 19 interventions primarily in the USA targeting injecting drug users (IDU), authors found that interventions comprised of:

- individual counselling
- HIV testing and counselling
- group interventions
- street outreach
- social interventions (Gibson, 1998).

In controlled studies, greater impact on behaviour was shown through intense and sustained interventions compared with their comparison conditions. In addition, participants in successful interventions appeared to be more stable and better motivated than their counterparts who were a more heterogeneous group at different stages of behavioural change. The latter finding suggests that future interventions should target subgroups according to risk (Gibson, 1998). As substantial to dramatic behavioural change resulted from both test and comparison groups in many studies, authors concluded that participating in evaluation research may itself have been a valuable intervention and the impact of behavioural assessments was deemed partially responsible for this finding. One recommendation of this review was to consider a social change approach to HIV prevention in IDUs in order to influence social norms towards safer behaviour.

Globally, it has been noted that IDUs need specific information targeting both the individual needs of the IDUs and the social/cultural context of injecting drug use (Case, 1992). The support of specific health and social services is critical, for if an IDU has been motivated by a prevention message to seek treatment or use condoms, the service must be more readily available than drugs. Among 16 countries surveyed in 1992, the success in reaching IDUs varied widely with France reaching less than 5% of that population and Sweden and Australia reporting over 90% of IDU population reached. The gaps identified in IDU prevention programmes centre around not addressing the social construction of addiction including poverty and social inequities that are strong predictors of HIV infection. If programmes only focus on harm reduction without approaching the larger issues, success will remain limited (Case, 1992).

A recent study in Puerto Rico randomly assigned 1004 IDUs to one of two interventions, either a NIDA-developed standard intervention or the standard plus an enhanced intervention. The enhanced intervention consisted in a client-centred approach focusing on the individual's perception of risk, continuous risk evaluation and motivation to change as well as environmental resources (such as availability of condoms and access to services). The *stages of change* model guided the intervention and was used to track individual's passage through a behavioural change process. Participants of the enhanced intervention were found twice as likely as participants in the control group to use condoms during vaginal sex and 11 times as likely to use condoms during anal sex regardless of HIV serostatus. Increase in condom use was more pronounced among HIV and other STD-positive subjects, and with casual more than steady partners (Robles, 1998).

Conclusions

In contrast to what was commonly thought about IDU populations, reviews have noted substantial risk reduction among drug users especially as a result of sustained interventions. Reports on drug users generally emphasize drug use risk rather than sexual risk, but those reports that consider both have noted that sexual risk reduction is much more difficult to achieve than drug use risk. However, a review in 1998 stated that nearly all studies that assessed sexual practices found significant reductions in the number of sexual partners reported by subjects and/or increased use of condoms (Gibson, 1998). Numerous studies have identified drug and alcohol intoxication as associated with high risk sexual behaviour, thus highlighting the importance of understanding and addressing the social construction of drug use. The *stages of change model* has been useful at guiding interventions with drug users. As with all of the above population groups, IDUs as well are an extremely diverse community, that should be seen and addressed in its complexity. Thus, interventions should target sub-groups and consider the social construction of addiction to be effective.

Table 4 summarizes the theories and models that have been applied to different population groups.

CHALLENGES

(A) DESIGN/CONTEXT ISSUES

Design

Interventions based on theory have a better chance of success and theory can make it easier to understand why an intervention was or was not successful. Despite their contributions to the understanding of the psychological processes individuals go through while attempting to change behaviour, the limitations of the psychological theories of behavioural change have been well described in the literature (Auerbach 1994). Most of these models are based on behaviours that are under intentional and volitional control, ignoring the fact that sexual behaviour involves two people, is often impulsive and is influenced by sociocultural, contextual as well as personal and subconscious factors that may be difficult to influence. Numerous studies have identified alcohol and drug intoxication as influencing sexual behaviour highlighting the importance of understanding the social context around sexual behaviour.

In a comprehensive review of behavioural interventions for HIV/AIDS prevention, Oakley et al. found that the most popular type of intervention was giving information. The review looked at 68 separate outcome evaluations among young people and adults, and suggests that sound and effective interventions are most likely to be skills-based interventions provided by peers or clinical psychologists in community settings using interviews or role plays and targeting behaviour or combined behaviour and knowledge outcomes (Oakley, 1995).

The range of study designs is important to note. Randomized controlled trials were not considered exclusively for this report, as these conditions are almost inevitably only found in the industrialized world. In order for this report to consider countries with the highest prevalence, the least amount of resources and some of the most innovative responses the criteria remained broad.

The range of outcome measures encountered in doing a review such as this one, makes 'success' difficult to define. Many interventions oriented by theory rely on reported changes in behaviour as their behavioural outcome measure. Some however were satisfied with 'intentions' to change as intentions often predict behaviour. Others use markers such as changes in rates of STD infection, or HIV infection. All of these outcomes were treated as valid in this report, but were noted for the reader to distinguish the differences.

One of the greatest limitations of interventions and studies assessing these interventions was short follow-up time. Lack of follow-up time can undermine an intervention by not allowing positive feedback, not waiting for possible changes in social and cultural norms, and not taking maintenance of behavioural change into consideration.

Targeting

There has been much discussion around the issue of targeting AIDS interventions. From an epidemiological perspective it has been argued that to have an impact on the sexual transmission of HIV, interventions need to reach those most at risk of acquiring or transmitting the infection especially early in the epidemic (Sepulveda, 1992). In information and education campaigns, many suggest that messages are more effective when they can be directed toward a specific target population as the language and approach ought to fit specific needs and solutions appropriate for different communities (Cohen, 1992). Recent simulation studies have also argued that targeting interventions to priority groups would be an efficient and effective approach for HIV prevention in developing countries (Morris, 1997). For example, when addressing specific groups such as youth, it has been shown that interventions must look at those who have initiated sex as a different group from those who have not, to be effective. The danger arises, when the epidemic spreads into the general population, targeting most at risk populations is no longer sufficient to reduce transmission. Another concern with regards to targeting to reduce transmission is how to define the target group, by occupation, age group, geography (Morris, 1997). Identifying populations at risk and targeting too quickly can miss important vulnerable

groups, such as male sex workers in Asia (Ford, 1995). Targeting populations that are more vulnerable should not be seen as singling them out and therefore increasing stigma. Working with priority groups is still important at any stage of the epidemic, but should be combined with other activities to reach a broader population equally at risk.

Targeting according to risk of transmission is one aspect, but a second issue is how much of the limited resources to place on primary prevention and how much on secondary prevention. Some studies address specifically targeting prevention efforts at already infected individuals.

(B) GENDER

A significant number of studies have shown that gender influences HIV risk behaviour (Auerbach, 1994, Amaro, 1995). As Ulin (1992) notes when referring specifically to women who are poor and dependent on their male sexual partners, reducing the risk of HIV transmission often means changing the balance of power in the relationship and could mean failure in their roles as women which are inextricably linked to their fertility. Many women are torn between the value of motherhood and the risk of HIV for either them or their child. The fear of their partner's violence has also been shown to predict whether women use condoms (Gomez, 1993). In Uganda, stark gender differences were shown in perceptions of risk, women being more likely to perceive risk than men (Bunnell, 1996). The sexual double standard that sanctions many partners for men while restricting female sexuality has engendered confusing HIV prevention messages, such as reducing numbers of partners where this may not be protective. Data globally affirm that, not only are many women monogamous already, but it is unsafe for them to assume they are safe in their monogamous situation (Heise, 1995). Especially in high prevalence communities rates of discordance among married couples can be between 15% and 20% (Allen, 1992, Serwadda, 1995). Amaro notes that there is a growing body of knowledge that HIV among women has to be seen within the larger context (Amaro, 1995). She suggests strategies such as participatory education that stress longer-term goals assessing root causes of gender differences including disempowerment and poverty

(Amaro, 1995). Wingood suggests a transition that will use gender-specific theories for research and programme development for women and HIV (Wingood, 1995).

The same arguments apply with regards to sex workers in particular. de Zalduando emphasizes that the women within the broad category of sex workers represent an exceedingly diverse group with varied life histories and conditions. Without considering the actual situations within which these women live and work, it is impossible to envisage the services or supports needed by this vast range of range people. She advocates the use of ethnographic methods to understand key norms, sexual situations and interactions from the women's point of view (de Zalduando, 1990).

(C) CHANGING EPIDEMIC

As the HIV epidemic and the responses to the HIV epidemic evolve, people's experience accumulates predicting the need to update theoretical models and response. Since the development of anti-retroviral therapies, some studies have assessed preventive behaviour in relation to attitudes regarding combination therapies (Remien, 1998). In Uganda, where the epidemic has matured relative to many communities in the world, the need to incorporate temporal dimensions into measurements of sexual behaviour and perceived risk is clear (Bunnell, 1996). The impact of an epidemic where over 50% of the population in a community knows more than 30 people who have died of the disease is profound. Measuring perceived risk should delineate risk due to past and present behaviour as interventions must target these risks differently. In a more mature epidemic Bunnell suggests "a theoretical framework which recognizes that perceptions of risk and sexual behaviour are not always individually determined, that gender and context are critical determinants of individual control over behaviour, that fear plays different roles at different stages of an epidemic and that lay communities can understand and utilize risk information" (Bunnell, 1996).

(D) NULL FINDINGS

Few studies report on null findings but those that do are critical to complement our under-

standing of the relationships between context, population group, approach, intervention and theoretical background. In some populations behavioural skills training has failed to produce significant differences compared to control conditions. For example, non-impact has been shown with inner city African American men and STD clinic patients in the USA (Branson, 1996). Other reports of null findings include a randomized controlled trial among STD patients in the UK. The intervention was guided by the *social cognitive theory* and results indicated little difference in self reported behavioural change. It is suggested that community as well as individual interventions should address the environment in which risk behaviours take place (James, 1996, 1998). Two interventions that showed little effect were among youth. One was a brief programme based on constructs from the SCT and the *theory of reasoned action*. Authors suggested a longer intervention that addresses the multiple problems of this group that was drawn from a detention center and STD clinic (Gillmore, 1997). The second was based on the *theory of social influence* among middle-school students. Authors noted that inadequate community and family-level interventions, possible dilution of messages and over saturation of students with health messages by the 8th grade may have been responsible for the lack of positive results (Moberg, 1998).

CONCLUSIONS

Safer sexual behaviour remains the single most effective method of preventing HIV infection. Although tremendous challenges still plague public health and the social sciences globally regarding AIDS prevention, much has been learned as well. It has become clear that effective HIV risk reduction interventions extend beyond basic information giving and help: sensitize people to personal risk, improve couples sexual communication, increase individual's condom use skills, the perception of lower risk practices as an accepted social norm, and help people receive support and reinforcement for their efforts at changing (Kelly, 1995). These principles form the foundation of successful HIV prevention strategies, but differences in individual, social, cultural and economic conditions dictate different design and implementation of programmes. Even if the principles underlying programmes are the same, tailoring to specific groups in specific settings will make programmes look very different (Kelly, 1998). Not only should programmes be modified to fit certain cultural settings, but within cultural groups individuals may be at very different stages of readiness to change and successful interventions should take individual differences into consideration as well.

Changes in behaviour, such as dramatic increase in condom use, in very diverse population groups have taken place and some conclusions can be drawn. As Ulin suggests, when interventions have enabled the participants themselves to take part in mobilizing and setting goals themselves, efforts have been highly successful (Ulin, 1992). Highlights have included the normative changes gay men in many US cities and sex workers in Thailand have made within their communities.

Another important point stressed by this broad overview of approaches to behavioural change is the need to see different levels HIV prevention initiatives as complementary. Individual approaches have shown impact, but to stem transmission on a larger scale for longer term maintenance of changed behaviour, community and structural level programmes are a critical complement. These

approaches, despite showing great potential, have not yet been operationalized on a large scale. At this stage programmes should emphasize trans-theoretical approaches that combine individual level constructs with community-level projects that focus on subcultural norm changing. Community organizing can have the powerful affect of imparting a unified sense of purpose and new beliefs in the possibility of change (Stevens, 1998).

An important element highlighted by a review by Oakley and Darrow was that the quality of evaluations was highly variable and often inadequate, which makes it difficult to conclude generalizable lessons about what works where from the heterogeneous literature. On the positive side, it is now possible to report that prospective experimental studies and long term follow-up in many different settings are feasible (Oakley, 1998).

Despite the many advances in the field and many changes in behaviour observed, populations at highest risk have not received their share of the attention and resources allocated to AIDS interventions globally. The countries with the highest prevalences of HIV are those with the least resources and strained medical and social support systems. These countries with rapidly changing epidemics do not have the means alone to develop randomized controlled trials to test behavioural interventions, yet they are the communities needing the interventions the most urgently. Most theory-driven intervention research has been conducted in industrialized countries with very different epidemics to those in developing countries. It is therefore critical to test models and approaches across cultural, economic and social situations.

Following the findings of the importance of social norms and sexual communication for various groups including youth, MSM and heterosexuals, authors recommend community level interventions aiming at strengthening the perception that others also practice safe sex (Buunk, 1998). Gender and power imbalances were also noted in many studies pointing to the necessity to build gender constructs into theories, models and interventions (Buunk, 1998).

Recommendations for interventions aimed at women include greater emphasis on gender-

related influences of behaviour. Studies in the USA and in Africa emphasize that self-protection, especially for vulnerable women may be affected by abusive partners, economic factors, and norms within sexual relationships (Wingood 1996, Bunnell, 1996, van der Straten, 1998). These recommendations apply to many different situations. In both West and Central Africa it has been noted that the ability to discuss sex and contraception with sexual partners as well as the imbalance of gender relations have a potentially significant impact on the capacity to enact changes in sexual behaviour (Edem, 1998, van der Straten, 1995). As Bunnell states, sharp differences in perceptions of risk between males and females in Uganda reflect underlying differences in societal power- the case in multiple settings around the world. To address women's needs for HIV prevention especially in developing countries, the development of female-controlled methods needs greater emphasis as well as a wider approach to HIV prevention that considers the social position of women.

In an epidemic where changes are occurring rapidly at the level of the virus, treatment context and within populations at risk multi-dimensional interventions based on theories and models which address individual as well as contextual and sociocultural variables such as gender, class and ethnicity, and their influence on sexual behaviour are urgently needed.

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TABLE 1: OVERVIEW OF MOST FREQUENTLY USED THEORIES OF HUMAN BEHAVIOUR

Level	Theory or Model	Behavioural Determinants	Examples of Programme Application
Individual Level	Health Belief Model	Perceived susceptibility Perceived severity Perceived benefits & barriers Cues to action	Increase level of risk perception Influence beliefs of severity Assess and influence beliefs about benefits/ barriers of changing behaviour
	Theory of Reasoned Action*	Attitudes Subjective norms Behavioral intentions	Assess and influence attitudes Assess and influence norms in the social group Assess and influence behavioural intentions
	Social Cognitive Theory Social Learning Theory	Outcome expectancies Self-efficacy	Sexual communication, need for social support to reinforce behaviour change Modeling of safer behaviours
	Stages of Change	Precontemplative Contemplative Preparation Action Maintenance	Assess and influence outcome expectations and norms, perceived risk Assess and influence self-efficacy, intention Assess and influence self-efficacy, intentions and outcome expectations Assess and influence outcome expectations and norms Assess and influence norms, self-efficacy
	AIDS Risk Reduction Model	Labelling Commitment Enactment & maintenance	Assess and influence risk perception, aversive emotions and knowledge Assess & influence perceptions of enjoyment, self-efficacy & risk reduction Assess and influence communication, informal networking, formal help-seeking
Social & community level	Diffusion of Innovation	Change agent Communication channels Context	Who are the influential people in the community Most effective means to spread information including community leaders Assess type of social networks in community
	Social Influences	Context of social interactions Social norms Social rewards & punishments	Equip young people with social skills including peer pressure resistance skills Assess and influence social norms
	Social Network Theory	Social networks Social support	Assess composition of social network Assess, build up social support
	Theory of Gender & Power	Social sexual norms & power dynamics	Address social structure of gender relations
	Empowerment	Community organization Community building	Assess community priorities Assess key activities of the community and facilitate alliance building
	Social Ecological Model for Health Promotion	Intra-personal (knowledge, attitudes, perception of risk) Social, organizational, cultural (social networks) Political factors (<i>regulation</i>)	Increase in knowledge, skills development, influence risk perception Community organizing, mass media Advocacy
	Socioeconomic & Environmental Factors	Policy Resources; Living conditions Access to prevention	Advocacy; Community organizing Social services Increasing access to prevention (condoms)

*A more recent theory, *theory of planned behavior* is an update of the *theory of reasoned action*. It was developed by one of the authors of the *theory of reasoned action* to account for behaviors that are subject to forces beyond the individual's control.

TABLE 2: MODELS & THEORIES TESTED THROUGH RESEARCH OR REVIEWS

<i>Author, Year</i>	<i>Model/Theory/Construct</i>	<i>Target group (n), country</i>	<i>Research Methodology</i>	<i>Results</i>
Edem, 1998	Health belief model	University students (395), Nigeria	Self-administered questionnaire distributed in classroom setting.	Three variables (condom benefit beliefs, cues to action, condom barrier beliefs) were significantly correlated to intentions to use condoms and past condom use.
Ford, 1995	Health belief model	Male sex workers (80) & clients (100), Indonesia	Individual survey interviews including questions on AIDS/STD knowledge, sexual behavior and psychosocial measures related to risk taking.	For tourists, factors related to condom use were condom beliefs, self-efficacy, susceptibility of STD infection, and STD knowledge. For sex workers factors related condom use were condom beliefs and self-efficacy.
Ford, 1998	Health belief model + Social cognitive theory	Indonesia –Female sex workers	Testing of 2 behavior change models in 4 different groups of SW, in different socioeconomic settings	'Results reflect social context of sexual behaviour'. Where knowledge of HIV is low, susceptibility to STDs and pregnancy related to condom use. Self-efficacy and belief that condoms can increase pleasure were related to condom use. In a more independent group self-efficacy not related, but susceptibility to HIV related to condom use. In higher priced group, condom use related to beliefs about AIDS prevention and pleasure as well as self-efficacy.
Buunk, 1998	Health belief model, Protection Motivation Theory, Anticipated regret, Social norms	Heterosexual men and women at risk (711), Holland	Heterosexual adult females and males interviewed for predictors of intention to use condoms with new partners	A limited number of well described variables can explain variance in intention to use condoms: self efficacy, anticipated regret and descriptive social norms (belief that most others in the reference group would use condoms with new sexual partners)
Reitman, 1996	Health belief model, Theory of reasoned action, Social cognitive theory	African- American youth (312), USA	Interviews	Adolescent's positive attitude toward condoms was strongest correlate of condom use, and lower self-efficacy was most strongly related to high-risk sexual practices.
O'Leary, 1992	Social cognitive theory	College students, USA (923)	Survey on 4 college campuses	Stronger perceptions of self-efficacy to engage in safer behavior, expecting fewer negative outcomes of condom use, and less frequency of sex in conjunction with alcohol or other drug use significantly predicted safer sexual behaviour.
Nemoto, 1998	Social cognitive theory Self-efficacy	Asian community (254), USA	Interviews of Chinese, Filipino, and Vietnamese adults identified in needle exchange, jail, night clubs, and bars	Self-efficacy to practice safer sex was significantly associated with condom use in past 6 months. Cultural ideas such as shame and fatalism influenced condom use and self-efficacy.
Alary, 1998	Theory of reasoned action, Theory of planned behavior, Social learning theory	Seronegative MSM (2000), Canada	Interviews and self-administered questionnaire every 6 months	Psychosocial variables associated with incident high risk sex were lower perceived behavioural control and perception of higher risk linked other sexual practices
Rotheram-Borus, 1998	Cognitive-behavioral	Youth, USA	Review of cognitive-behavioral interventions for seropositive youth	Significant reductions in risk behavioral with cognitive-behavioural interventions.
Gregson, 1998	Knowledge; Perception of risk	Women (1294), Zimbabwe	Women of childbearing age were interviewed	Effective behavioural change associated with greater knowledge, experience and personal risk perception, but obstructed by low female autonomy, marital status and economic status, alcohol consumption, labor migration.

<i>Author, Year</i>	<i>Model/Theory/Construct</i>	<i>Target group (n), country</i>	<i>Research Methodology</i>	<i>Results</i>
Newcomb, 1998	Implicit cognition	Men and women (579), USA	Participants completed a confidential questionnaire on a variety of health behaviors and predictors.	Memory association variable predicted unprotected sex, but poly-drug use was the strongest and most consistent predictor of the sexual behaviours.
PSI, 1998	Condom social marketing*	Women & men (806), Zambia	Comparison of survey in 1990 with survey in 1996.	Findings suggest that condom marketing, promotion and distribution activities have been responsible for an increase in the use of condoms in Lusaka.
Levy, 1998	Perceived self-efficacy, Perceived community norms Behavioral intention towards safer sex	Prevention agencies for underserved populations (youth, IDU), USA	Evaluation survey.	Increase in the number of people who hang out with others who use condoms (community norms) Increase in number of people who used condoms the last time they had sex (behaviour) Increase in number of people who feel confident that they can tell their sex partners that they want to use a condom (self-efficacy)
Godin, 1996	Theory of planned behavior	Seropositive gay men (96), Canada	Cohort study, 6 month follow-up visits. Face to face interviews.	The best predictor of intention to use condoms (and of reported condom use) and of having sex without anal intercourse was perceived behavioural control.
Jemmott, 1992	Theory of planned behavior	Adolescents (179), USA	Confidential self-administered questionnaire.	Attitudes and subjective norms predicted intentions to use condoms and perceived behavioural control significantly added to the correlation.
Lurie, 1995	Socio-economic factors	Sex workers (600), Brazil	Cross sectional study of prevalence of antibodies to HIV, syphilis, hepatitis B, behavioral factors and socio-economic factors.	Compared to those with a higher socioeconomic status (SES), sex workers with a lower SES worked longer hours and had more clients. Sex workers with lower SES were more likely than those with higher SES to be infected with HIV, syphilis and hepatitis B.
Kline, 1994	AIDS risk reduction model	HIV-infected women (215), USA	HIV infected women from New Jersey medical and social service agencies interviewed.	Factors influencing condom use: ➤ High perceived self-efficacy to influence partner ➤ Partner HIV-negative ➤ Partner doesn't want more children Negatively influencing condom use: ➤ Conflicts with partner ➤ Use of drugs and/or alcohol ➤ Belief condoms reduce sexual pleasure
Rickman, 1994	Sexual communication	Incarcerated Latino adolescents (2132), USA	Sexually active adolescents detained in Los Angeles county juvenile hall were interviewed regarding their sexual communication history and condom use.	High numbers of lifetime sexual partners, low rates of condom use. Respondents who communicated with their sex partners about each others' sexual history were significantly more likely to use condoms.

*Theories behind social marketing come from many different backgrounds including the commercial marketing, '4 Ps' (making the Product appealing, the Price acceptable, the Placement convenient, and the Promotion tailored to a particular audience), operant conditioning and social cognitive theories.

TABLE 3: INTERVENTIONS BASED ON MODELS & THEORIES WITH VARIOUS TARGET GROUPS WORLDWIDE

<i>Author, Year*</i>	<i>Target group (n), country</i>	<i>Model/Theory/ Construct</i>	<i>Research Methodology</i>	<i>Results</i>
Women				
DiClemente 1995	African American women (128), USA	SCT & Theory of Gender and Power	Community based intervention including 5, 2 hour group sessions led by peer educator focusing on gender and ethnic pride, knowledge, skills & norms	Increased consistent condom use, greater sexual communication & increased partners' adoption of norms supporting condom use.
King, 1995	Women (586), Rwanda	Structural	Participants were provided with family planning services and methods	Access to and information about hormonal contraceptives increased use & reduced attrition among both HIV+ and HIV- women in the study.
Elkins, 1997	Village women (600) & men (479), Thailand	SCT and community health promotion	Intervention was village-based including training, motivational audio-drama, posters and village meetings. Evaluation consisted of: KAP surveys, focus group discussions and village meetings.	Eight of the nine outcome goals were achieved with married women taking initiative in reducing risk posed to them by the sex activities of their husbands.
Galavotti, 1998	1289 at risk & 322 HIV-positive women USA	Stages of change	Behavior change counselling intervention delivered by trained peer para-professional counselors based on stage-tailored individual counselling sessions.	Women exposed twice as likely to report condom use with main partner at <i>last sex</i> and <i>always use</i> of condoms
Stevens, 1998	Lesbian and bisexual women (3665)	PAR & Peer education	Collective consciousness-raising qualitative field interviewing & individualized HIV-prevention education in an intense 2 year intervention	Outcomes suggest that the project supported changes to reduce risk, assisted participants in the realm of partner negotiations, and began to change community conventions about sexual expectations and practices.
Sex Workers				
Fox, 1993	Female sex workers (134), Honduras	NS- information and accessibility of condoms	SWs attending STD clinics given weekly talks and free condoms	Statistically significant increase in mean condom use from 64% to 70% of client contacts. Recommend targeting clients.
Asamoah-Adu, 1994	Female sex workers (107), Ghana	peer education & condom promotion	SW followed over 4 year study. Intervention included peer education and condom promotion.	Reported condom use increased dramatically in first 6 months. Relapse occurred after 3 years. Recommend targeting clients.
Opore, 1994	Female sex workers (30), Ghana	NS –audiovisual aids to influence attitudes & behaviors	Education conducted through SW opinion leaders; video, discussion and condom demonstration conducted.	Condom use rose from 10% to 100 % as sex workers identified very high perception of risk.

<i>Author, Year</i>	<i>Target group (n), country</i>	<i>Model/Theory/ Construct</i>	<i>Research Methodology</i>	<i>Results</i>
Visrutaratna, 1995	Female sex workers (500) brothel owners & clients, Thailand	Perception of risk, condom negotiation, policy	A year-long intervention. Small group sessions with SW & peer educators. Brothels required condom use through owners & education of clients. Specially trained volunteers posed as clients to test SW negotiation skills.	Sex workers increased their refusal of sex without a condom from 42% to 92% following the programme.
Williams, 1995	Female sex workers Nigeria	NS - health education, condom promotion & STD services	Health education using film, peer educators distribute educational materials, condom promotion with free distribution and later cost recovery & comprehensive, client oriented STD services.	Sex workers and clients knowledge about AIDS and STDs increased. Condom use among sex workers and clients increased between baseline and follow-up.
Chan, 1996	Female sex workers, Singapore (128)	Behavioral (sexual communication)	Condom negotiation, support from peers and brothel owners and health staff.	Significant improvement in negotiation skill, in always refusing sex without a condom and significant decrease in gonorrhoea rates in intervention vs. control group
Ford, 1996	Female sex workers (300) & clients (300), Indonesia	Health belief model & Social cognitive theory	3 session series to: increase knowledge, perceived susceptibility and skills related to condom use and partner negotiation among SW. Increase knowledge among clients and pimps using outreach workers.	Knowledge and condom use increased significantly between baseline and follow-up for both SW (from 18-75%) and (29-62%) and clients of SW in both intervention sites.
Basu, 1998	Female sex workers India	PAR- – though not stated explicitly	Involving sex workers in research	Accurate sensitive data collected Rapport-building activity
Kelly, 1998	Female sex workers Viet Nam	PAR – though not stated explicitly	Involving sex workers in research	Regardless of method used, must involve participants in research
Gordon, 1998	Female sex workers Indonesia (500)	ILOM model	Works on changing norms; sharing behavioral values	Mobilizes the community and changes culture
Youth				
Howard, 1990	low income youth USA (536)	Social influence	5 classroom periods led by teenagers slightly older than participants presenting factual information, identifying pressures, role-playing responses to pressures, teaching assertiveness and discussing problem situations	By end of 8 th grade students in the programme were five times less likely to have begun sex than similar students who were not in the programme. There was a stronger influence on girls than boys. The programme was not effective for students who had already initiated sex.
Jemmott, 1992	African American adolescents, (109), USA	Social Cognitive Theory	Intervention included a pre and a post-test + factual information, outcome expectancies about condom use and self-efficacy training.	Participation in the programme was associated with increased AIDS knowledge and intentions and self-efficacy to use condoms.

TABLE 3: *continued...*

Author, Year	Target group (n), country	Model/Theory/Construct	Research Methodology	Results
Walter, 1993	Youth (72% Black or Hispanic) (1316), USA	Health belief model, Social cognitive theory, and a model of Social influence	School based, teacher delivered 6-session intervention.	Significant effects in intervention vs. control group in: knowledge, beliefs, self-efficacy, and risk behavior scores (no. partners, consistency of condom use, high risk partners, diagnosis of other STD)
Ré, 1996, 1998	Youth (389), Argentina	NS – participatory methods	Peer education workshops and community project	Peer educators were positive role models and were able to translate messages as ' <i>peer gender specialists</i> '; adolescents had low risk perception overall.
Gillmore, 1997	Youth in detention and at STD clinic (396), USA	Social cognitive theory & Theory of reasoned action	Testing of 3 behavioral interventions: <ul style="list-style-type: none"> • comic book • videotape • group skills training that emphasizes negotiating skills for condom use 	Few differences among conditions; skill based intervention not sufficient to induce consistent condom use in heterosexually active high risk adolescents. Authors suggest longer intervention addressing multiple problems.
Moberg, 1998	Youth (2483), USA	Social influence	Middle school students assigned to either of 3 conditions using blocked randomization: age appropriate, intensive and control	Null findings despite careful implementation of school-based component. Authors note, inadequate community and family-level interventions, possible dilution of message, & over saturation of students with health messages by 8 th grade.
Kelly, 1992	MSM USA	Diffusion theory	Sequential stepwise lagged design, in 3 cities, opinion leaders were contracted to have conversations with peers to endorse actively and visibly the importance and acceptability of behavioral change as well as to convey strategies for change implementation.	Intervention produced systematic reductions of 15% to 29% from baseline in the population's high-risk behaviour with same pattern of effects sequentially replicated in all 3 cities.
Kegeles, 1996	Young MSM (300), USA	Diffusion theory	Implemented in 2 small communities with 1 control group, used natural channels of communication to create alcohol and drug-free alternatives and to place HIV risk among the concerns of young gay men.	Significant (27%) reductions in proportions of young gay men engaging in unprotected anal intercourse with all men, but higher among secondary partners than boyfriends.
Kelly, 1996	MSM (1/3 ethnic minority) (429), USA	Cognitive-behavioral + maintenance	Participants were randomly assigned to one of 4 1-day interventions: cognitive-behavioural risk reduction & relapse prevention, cognitive-behavioural risk reduction & personal relationships or the same 2 with 3 months of follow-up telephone and group boosters.	Greatest reduction and greatest maintenance of risk behaviour change among men in cognitive-behavioural group with discussion and problem-solving about personal relationship issues.

TABLE 3: *continued...*

Author, Year	Target group (n), country	Model/Theory/Construct	Research Methodology	Results
Injecting Drug Users				
Lawrence 1994	Drug-dependent youth (19), USA	Cognitive-behavioral	Substance dependent adolescents in residential treatment - received a 5 session HIV risk reduction intervention that provided HIV education, social competency skills and problem solving training.	Subjects showed increased knowledge about AIDS, better attitudes about prevention, greater internal and lower external locus of control scores, increased self-efficacy, and higher perception of vulnerability.
Wiebel, 1996	IDU (641), USA	ILOM model	Ex-addicts deliver HIV-prevention services targeting IDU social networks in community settings	Observed incidence of HIV infection decreased from 8.4 to 2.4 per 100 person years. Sex risk behaviour decreased but much less dramatically than drug risk behavior.
Fishbein, 1996	IDUs, female sex partners of IDU, SW, MSM who don't gay identify USA	Stages of change	Small media intervention materials were developed for each specific population focusing on key theoretical behaviour change variables as well as condoms.	Significant interactions indicating greater increases in intervention than comparison areas were found with respect to condom use with non-main partners, and similar but non-significant effect with respect to condom use with main partners.
Robles, 1998	Drug users (80% male) (1004), Puerto Rico	Stages of change	Enhanced intervention took place outside of office, included 8, 45 minute sessions using 'motivational interviewing' drawing on individual's perception of risk, motivation to change, continuous risk evaluation, negotiation and communication skills, Community and environmental resources were considered.	Use of condoms during vaginal sex increased from 26.4% to 36.9%. Significant predictors of condom use: HIV-positive, STD diagnosis, and participation in enhanced program. Effect stronger with non-primary partners.
STD Clients				
James, 1996	STD patients (492), UK	Social cognitive theory	RCT – 3 groups (group A, group B, group C) <ul style="list-style-type: none"> • A - counselling intervention + leaflet + condoms • B - leaflet + condoms • C - no intervention 	Group A were significantly more likely than group C to carry condoms, no difference between A & B or B & C. Intervention had no effect on self-reported behaviour.
Kamb, 1996, 1998	Heterosexual STD patients (4328), USA	SCT+ Theory of reasoned action self-efficacy and perceived norms	RCT – of 3 strategies: (1) educational messages, (2) brief counselling, (3) enhanced counselling (greater number of counselling sessions) with steps toward risk reduction beliefs, attitudes and behavioural intentions, skills training to increase self-efficacy	Decrease in rates of STDs in: brief counselling (19%), enhanced counselling (22%) vs. information only

TABLE 3: *continued...*

<i>Author, Year</i>	<i>Target group (n), country</i>	<i>Model/Theory/Construct</i>	<i>Research Methodology</i>	<i>Results</i>
O'Leary, 1998	STD & health agency patients, USA (3706)	Social cognitive theory	7 SCT interventions (1) randomized same-sex groups including information video with question and answer period, or (2) informational comparison condition.	Elements of SCT (self-efficacy, condom use skills, expectations of partner reaction) were significantly different between intervention and control group.
Minority Groups				
Wallerstein 1988	Hispanic, Native American, Anglo, USA	Empowerment	Visits to hospital and detention center, peer education strategies & training, social learning, resistance to peer pressure, life skills competencies and decision-making about alternative choices, analysis of media that influence consumption.	Statistically significant self reported perception of riskiness of drinking, driving and drug use
Kalichman, 1997	Inner-city African American heterosexual men (81)	Theory of Reasoned Action	RCT of a 4 session cognitive behavioral skills training intervention in comparison with an HIV education control condition.	Both interventions significantly increased AIDS-related knowledge, intentions to change HIV risk behaviors, and reduced unprotected vaginal intercourse. There were no significant differences between groups on any of the measures at post-intervention or follow-up assessments.
Others				
Svenson, 1996	University students (37,000), Sweden	Diffusion theory, community organization	HIV-STD prevention approach based on community organization and action, target group empowerment and use of opinion leaders as peer educators	Consistent condom use with new sex partners was significantly higher among project-contacted students than controls, perceived safer sex social norms.
Otto-Salaj, 1998	Seriously mentally ill patients (89 men & 103 women), USA	Cognitive-behavioral (self-efficacy, personal risk assessment)	Random assignment to one of 2, 7 session, skills building (assertiveness, negotiation to resist coercion to engage in high-risk behaviour and to initiate communication with partners about condom use or other safer sex practices), self-management of risk behaviours, reinforcement of safer behaviour	Compared to comparison group, participants in HIV risk-reduction intervention reported increases in both frequency and percent of condom use in vaginal intercourse occasions, self-esteem, positive condom attitudes and risk reduction behavioural intentions. Risk reduction higher in females than males.
Hiebert, 1998	Canada	Participatory action research	Participants defining needs and figuring out how to meet those needs	Participants took control of project
Henry, 1998	Community leaders and governmental officials, Kenya	Structural changes	Government + religion + business; making changes at the policy level	Government's first comprehensive national policy on HIV/AIDS in 1997 through years of research, dialogue and consensus-building.

* = indicates year of publication NS = theory not stated in the report RCT = randomized control trial SCT = social cognitive theory

TABLE 4: SUMMARY OF THEORIES AND MODELS BY POPULATION GROUP

<i>Population Group</i>	<i>Theory/Model</i>	<i>Comments</i>
Heterosexual Women	Social Cognitive Theory (SCT)	Psychological theories such as SCT provided guidance to interventions (especially in the USA), suggesting skills training and strategies to modify perceived peer or partner normative beliefs about risk-taking. Skills training included talking with partners about sex and condom use and practicing condom use skills.
	Theory of Gender and Power	Among African American women in the USA, this model helped guide an intervention based on improving partner norms and increasing sexual communication skills.
	Diffusion of Innovations with Community Mobilization	This model was used effectively in among low income women in the USA
	Stages of Change	Stages of Change model was used to guide interventions in the USA. In the US study among women in drug treatment, investigators found stage tailored counselling more effective than standard
	AIDS Risk Reduction Model	Authors noted that in this US-based study the strongest predictors of increasing condom use were partner-related variables
	Perception of Risk	This construct has been used in studies with women in Africa and predicted condom use especially in low HIV prevalence settings.
Sex Workers	The HBM and SCT used together	Different constructs were useful for different sub-populations, but self-efficacy and the benefits of condoms were predictive of reducing risk among many groups in Indonesia.
	ILOM	This model emphasizing changing cultural norms and mobilizing the community, was used in Indonesia.
	Diffusion of Innovations	This model was used effectively in community interventions with women internationally
Homosexual Men	AIDS Risk Reduction Model	This model was useful in guiding an intervention among African American men to address self-identity, social support, sexual communication and behavioural commitment.
	Diffusion Theory	The diffusion theory has been useful in guiding effective interventions with gay men in the USA in a few different studies.
	HBM, SCT & Theory of reasoned Action (TRA) combined	A combined behavioral model was used with Asian and Pacific Islander men in the USA and found greater than 50% reduction in unprotected anal intercourse in Chinese and Filipino men.
	TRA & SCT combined	Using constructs from both models, perceived behavioral control was most predictive for gay men in Montreal.
Heterosexual Men	Social Cognitive Theory	Elements such as self-efficacy, and condom use skills improved following an intervention.
	SCT & TRA combined	Self-efficacy & perceived norms were useful to predict decreases in STDs among men STD clinic attendees
Youth	Social Cognitive Theory	Interventions guided by SCT have increased self-efficacy and increased condom use in diverse youth populations in the USA
	Health Belief Model	Perceived benefits to condoms, perceived barriers and cues to action were predictive of condom use among university students in Nigeria
	HBM & TRA combined	Attitudes towards condoms - a strong predictor of condom use among African American adolescents
	Social Influence	This model has been particularly useful among youth in the USA who have not yet had sexual intercourse
	Stages of Change	An intervention guided by this model in Puerto Rico found increases in condom use among drug users
IDUs	ILOM Model	This outreach model has shown reductions in sex risk practices, but greater reductions in drug risk practices

Notes:

The Joint United Nations Programme on HIV/AIDS (UNAIDS) is the leading advocate for global action on HIV/AIDS. It brings together seven UN agencies in a common effort to fight the epidemic: the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the United Nations International Drug Control Programme (UNDCP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO) and the World Bank.

UNAIDS both mobilizes the responses to the epidemic of its seven cosponsoring organizations and supplements these efforts with special initiatives. Its purpose is to lead and assist an expansion of the international response to HIV on all fronts: medical, public health, social, economic, cultural, political and human rights. UNAIDS works with a broad range of partners – governmental and NGO, business, scientific and lay – to share knowledge, skills and best practice across boundaries.



Joint United Nations Programme on HIV/AIDS

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