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Methamphetamine Use and High-Risk Sexual Behavior Among Men Who Have Sex With Men:

A Review of the Literature and Plan for Intervention

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Introduction to the Problem

Methamphetamine use is highly prevalent among men who have sex with men (MSM) and presents a serious public health issue (Shoptaw & Reback, 2006). Use of the drug is associated with increased engagement in high-risk sexual behaviors with a greater number of partners, and therefore with increased transmission of HIV, hepatitis, syphilis, and other sexually transmitted illnesses (STIs) (Shoptaw & Reback, 2007; Mansergh, et al., 2006).

Methamphetamine use may also directly increase the risk of STI contraction by suppressing immunological functioning (In, Son, Rhee, & Pyo, 2005; Mahajan, 2006). In this vein, it is relevant to note that immunological functioning may already be reduced in members of this population as a result of the increased social stress and discrimination that they encounter (Meyer, 2003; Richman, Bennett, Pek, Siegler, & Williams, 2007). Increased risk of psychological disorders is also a reality for this population (King & Nazareth, 2006; Meyer, 2003; Cochran, Mays, & Sullivan, 2003), and methamphetamine use dramatically increases this risk by negatively impacting neurophysiological health through several mechanisms (Scott et al., 2007). Furthermore, methamphetamine use actually potentiates the adverse neurological consequences of HIV infection (Cadet & Krasnova, 2007). Throughout the western world, MSM comprise the singular group most affected by the HIV epidemic (Herbst et al., 2006). It is possible that the increasing rate of high-risk sexual behavior that is responsible for recent outbreaks of HIV, syphilis, and gonorrhea among this group may be at least partly accounted for by the equally epidemic spread of methamphetamine use through its communities.

The perspectives and techniques of community psychology are vital to addressing this issue. It is important, first, to understand the unique psychosocial factors affecting members of

the gay community in order to surmise the psychodynamic and sociocultural reasons for the drug's appeal to this group. We will need to develop an understanding of the contexts in which methamphetamine is being used, and the purposes that its use may serve. What cognitive styles or personality components might be most predictive of methamphetamine use, and are their etiologies relevant from an interventionist perspective?

Due to the powerful immediate effects of methamphetamine and the wide array of cumulative neuropsychological effects that it exerts on its users, it is difficult to assess the premorbid psychological state of an individual methamphetamine user, or to assert causality in either direction with regard to behaviors that they exhibit. There do seem to be two readily identifiable groups of methamphetamine users in general: chronic users and binge users. Chronic users seem to use the drug as a part of an avoidant coping strategy, in order to evade unpleasant emotions and mediate the experience of social discomfort (Halkitis & Shrem, 2006). Binge users, on the other hand, tend to score much higher on measures of impulsivity and, notably, depression. These users tend to consume larger quantities of methamphetamine in a sitting, to have a larger number of sexual partners, and to engage in a greater number of sexual risk behaviors than users of the chronic type (Semple, Zians, Grant, & Patterson, 2005). Essentially, methamphetamine users seem to be divided between those self-medicating for anxiety and those self-medicating for depression. Methamphetamine bridges this divide by offering its users increased self-esteem and confidence, decreased inhibition and sexual ability, and feelings of euphoria (Halkitis, Fischgrund, & Parsons, 2005).

The causes of the dramatically disproportionate prevalence of anxiety and depression among the gay community (Meyer, 2003) are likely the same as those which have created a

subculture conducive to methamphetamine abuse. On the surface, long-standing social stigmas surrounding homosexuality and the ‘minority stress’ of belonging to a group that is increasingly the target of discriminatory violence (Bello, 2007) nurture individual expectations of rejection and discrimination. The social attitudes which cause these types of psychosocial difficulties, however, are also internalized in many MSM—possibly owing to the concealable nature of sexual orientation, the psychosocial complexity of the ‘coming out’ process, and personal ambivalence resulting from negative conceptions of homosexuality acquired through socialization. The resulting “internalized homophobia” is itself significantly correlated not only with the occurrence of anxiety and depression in this population, but of substance abuse as well (Meyer, 2003).

In addition to the self-medication aspect of methamphetamine use, the majority of meth-using MSM report using the drug for sexual enhancement (Halkitis, Fischgrund, & Parsons, 2005). For many users, methamphetamine induces a profound sexual disinhibition, relief from feelings of shame and isolation, increased physical and emotional pleasure and vitality, delayed and prolonged ejaculation, and the ability to take part in sexual marathons sometimes lasting a dozen hours or more. The intensity of these internal and external experiences in combination frequently produces a situation in which the drug becomes integrated into the individual’s sexual identity. Methamphetamine becomes idealized as a means to “reclaim a sense of pre-AIDS sexuality” (Reback & Grella, 1999, as cited in Halkitis, Fischgrund, & Parsons, 2005, p. 1332). Methamphetamine is therefore experienced as an agent of social connection and cohesion for many members of this embattled community, and so is deeply embedded in the social fabric of many gay bars, clubs, and commercial sex venues. As individuals become socialized into this

subculture, they identify more strongly with the drug and find it more difficult to remove themselves from the pattern of high-risk behaviors it encourages.

Review of the Historical and Contemporary Scientific and Theoretical Literatures

The Centers for Disease Control (CDC) have recognized social marketing campaigns as an effective means of promoting health within a targeted population, but the use of this technique for minority groups is relatively new. The movement toward using social marketing campaigns as an intervention for methamphetamine use within the gay community began with a New York activist named Peter Staley who used his own money to fund the placement of a variety of cheeky yet ominous ads in gay areas and gay magazines. A follow-up study (Nanín et al., 2006) revealed that the results of Staley's experiment were not ideal, but definitely promising: placement of the ads was highly effective in targeting groups at the highest risk, and most respondents reported feeling glad that "someone was doing something about crystal use in the gay community." About half were inspired to "think about not starting to use crystal or cutting down on my use." More than a third of respondents reported wanting to "talk to my friends/partner about their use of crystal" and to "get help to stop using crystal or avoid starting use" as a result of viewing the ads. However, 11% of all respondents, and 27% of those at the highest risk, reported that the ads actually increased their urges to partake of methamphetamine.

In exploring the potential weaknesses of early Meth/HIV social marketing campaigns, Nanín et al. (2006) cite a meta-analysis of HIV interventions by Albarracín et al. (2005) in support of their hypothesis that the campaigns' emphasis on fear of HIV may have undermined their effectiveness. This meta-analysis and several other studies have demonstrated the general ineffectiveness of fear-based community interventions, possibly due to the avoidant nature of

many self-destructive behaviors. The results of the meta-analysis should prove extremely useful, because it examines not only the effectiveness of attempted interventions, but the implications that those results have for acceptance of the interventions' theoretical underpinnings. In addition to finding poor support for the idea that enhancing individuals' perception of threat will result in behavioral change—even when effort is made to improve coping skills in conjunction with disseminating the threat-based messages—the researchers found little support for approaches which focus on the modification of behavioral norms within a target community. They found instead that models which aim to modify attitudes, motivations, and perceptions of self-efficacy, and to provide information and behavioral skills, can probably be expected to have more desirable effects. Furthermore, they found that the specific types of approaches which will tend to have the greatest effect on an individual are those which are congruent with the individual's current stage of behavior change.

Dissemination of information, as a tactic for behavioral change, appears to have some efficacy for individuals at all stages of methamphetamine use, including those who have yet to make use of the drug (Albarracín et al., 2005). Campaigns which seek to modify attitudes also appear to possess this quality, while interventions focusing on behavioral and coping skills are likely to prove beneficial for only individuals who have already reached the stage of contemplating behavioral changes. This information complicates our efforts due to the finding that informational and attitudinal arguments for condom usage tended to be successful only for female recipients, whereas males were more responsive to behavioral skills-based arguments and training. MSM, in particular, responded very poorly to attitudinal arguments but tended to respond better than other males to all other types of interventions.

Alberracín et al. conclude that condom provision is, overall, a particularly effective method of preventing the spread of HIV due to the long-term attitudinal changes that can result from an individual's reflection on their own convenience-based usage of the condoms they have been provided. That is, based on their own previous usage, individuals estimate their attitudes toward condom use much more positively than they otherwise would. These individuals are then likely to extend those attitudes forward into more active roles in obtaining and using condoms. These findings leave us with the task of discovering the types of arguments that will be effective for individuals who are male, gay or bisexual, and users of or at risk for using methamphetamine. Although the distribution of condoms to high-risk populations should still be considered a sound component of comprehensive community intervention, the overconfidence and impulsivity that methamphetamine use incites may negate the effectiveness of efforts to promote general condom use.

Another large, systematic review of behavioral risk reduction interventions for MSM was conducted by an independent Task Force on Community Preventive Services with the support of the CDC and the U.S. Department of Health and Human Services (Herbst et al., 2006). This study focused on person-to-person interventions operating at the individual, group, and community levels. Individual interventions reduced the incidence of unprotected anal intercourse (UAI) by 43% overall, including a 59% reduction in UAI with non-primary partners. Overall HIV contraction rates for the treatment groups were 38% lower than for controls. Surprisingly, individual interventions produced no significant changes in the number of sex partners. Also, no data was available regarding the cost-effectiveness of this type of intervention.

Interventions at the group and community levels were both found to be not only cost-effective but cost-saving, and both were effective in decreasing UAI by significant margins (Herbst et al., 2006). Effective group interventions were comprised of more than one meeting, were led by MSM, and included a skill-building component such as condom use training. Unfortunately, the most difficult aspect of implementing the group interventions tended to be recruiting and retaining participants. Use of “club drugs” (including methamphetamine) tended to be predictive of attrition. Community-level person-to-person interventions, on the other hand, may show some promise for our purposes. They involve the recruitment of MSM from key demographics who will act as peer-leaders by initiating discussions about sexual safety with their own personal contacts, and by then recruiting their contacts to do the same in order to continue the spread of risk reduction messages from peer to peer. These interventions reduced overall UAI by a very respectable 35%, and reduced the average number of sexual partners by 20%. Particularly given the strong social component of methamphetamine use among MSM, a person-to-person intervention at the community-level seems a natural choice for attempting to curb the spread of methamphetamine use and its associated high-risk sexual practices.

These and other types of community-based interventions for reducing methamphetamine use among MSM must be informed by factors that are specific to the subcultures in which the behaviors typically arise. Citing an under-emphasis on the “symbolic and interactional spheres,” Green & Halkitis (2006) set about collecting and analyzing qualitative interviews with MSM living in Manhattan in order to understand the meanings that sexual “circuit parties” and similar sociosexual events hold for their participants, and the ways that interactional norms and pressures within the subculture may shape drug-taking motivations and behaviors. They found

that individual motivations were largely inseparable from participation in “contexts of sexual sociality and their attendant interactional pressures” (p. 319), and that these pressures—“the need for sexual arousal on demand, sustained sexual endurance, and the ability to have sex with newly acquainted partners”—were in the direction of precisely those behaviors which are enabled and perhaps even instigated by methamphetamine use. Study participants reported a level of sexual arousal and activity that they sometimes characterized as ‘compulsive’ and which often resulted in UAI, but the researchers point out that methamphetamine alone does not always induce a sexual response. Rather, there is a socialization process involved in shaping the user’s response to the drug so as to fit the needs of the particular social environment.

A 2006 Gay and Lesbian Medical Association (GLMA) report points out that casual methamphetamine use becomes problematic for a majority of users, and that treatment for methamphetamine addiction is often a “difficult and long-term process” that requires ongoing methamphetamine-specific treatment (p. iii). The standard of care is CBT combined with some form of contingency-management program in which incentives are offered for demonstrated abstinence from the drug. Alternate treatment models have proven more effective in the short-term, but about the same in the longer term. As with any drug addiction treatment, it is helpful for the user to receive support for the exploration of specific issues and triggers that lead them to use and abuse the substance. The GLMA notes that the most common triggers for MSM tend to be sexual, and asserts that treatment should therefore be tailored to this group in order to prevent the post-treatment relapse that has been common in recovery programs that fail to address the unique needs of this population.

According to the GLMA (2006), there is disagreement about the usefulness of harm-reduction approaches which aim to reduce harmful behaviors resulting from and associated with methamphetamine use rather than directly attempting to promote abstinence from the drug. From the perspective of this examination, in which the potentiation of sexually transmitted disease is considered as the primary reason for elevating methamphetamine use among MSM to the status of public health crisis, harm reduction measures are clearly desirable. As we have already seen, members of this group—and particularly those at highest risk—are significantly less likely to visit their primary care physicians. The GLMA reports that they are also unlikely to report their methamphetamine use to their healthcare providers. However, the provision of methamphetamine use assessment training to healthcare professionals in high-risk areas may be a very effective way of intervening in both individual usage and community perceptions of methamphetamine usage.

Critical Discussion of the Literature Reviewed

Based on their interviews, Green & Halkitis (2006) concluded that the social characteristics of the Manhattan gay and bisexual subculture, due to their emphases on sexual disinhibition, arousal, and sustained performance, demonstrated an elective affinity for the specific psychophysiological effects of methamphetamine above all other drugs. While there is yet no empirical evidence that this holds true to for other gay communities, it makes intuitive sense that this should be a common feature of methamphetamine-rich gay subcultures.

Consider that we are examining a minority group whose entire identity, as separate from the majority, rests upon the performance of and desire to perform specific sexual acts. From this perspective, it seems natural that a significant proportion of these individuals would cohere into

subcultures which relied upon enhancement of sexual performance and willingness as a means of establishing and maintaining a sense of belonging. Since methamphetamine readily provides these effects for many users, it becomes not only a natural choice for members of the subculture in question, but also a reinforcer and even accelerator of that subculture's normative sexual behaviors.

Methamphetamine furthermore counteracts what must be an immense sense of fearfulness and alienation surrounding a sexuality that has been strongly associated with the spread of disease and which has been consistently subject to public perceptions of filth and moral ineptitude. We are examining a group that is widely discriminated against and frequently victimized, and which is at high risk for a range of psychological disorders that center around narcissistic deflation resulting in symptoms of anxiety and depression. Methamphetamine is a drug which temporarily alleviates these symptoms, and allows individuals who have been the subjects of unusually difficult and intolerant acculturative experiences—and who are therefore subject to feelings of isolation and awkwardness—to experience a sense of social belonging and efficacy. If not for the horrific psychophysiological effects of the drug, its high level of addictiveness, its tendency to induce high-risk sexual behaviors and to reduce both endogenous and exogenous forms of resistance to infectious disease, it would behoove us to recommend this drug. It is as though methamphetamine were created with the psychosocial plight of today's gay community in mind.

These observations are not intended to promote the value of methamphetamine use, of course, but simply to illustrate the inherent sensibility of the current situation when the available data is understood holistically. The significance of this understanding is that any interventions

which would curtail methamphetamine use within the gay community can probably be expected to succeed only to the degree that they are able to account for and counteract this basic sensibility underlying the drug's use.

For example, the literature is clear that inducing fear of the harmfulness of methamphetamine or the behaviors that it supports is an unsuccessful strategy. Why should this be? It is because the social structure we are addressing has developed in reaction to a state of pervasive individual and collective fearfulness. Exacerbating that fear will, as the research bears out, actually reinforce the problem behaviors in those individuals for whom the risk is the greatest. Interventions must therefore focus on providing relief from fear, as well as from social and sexual alienation. Again, this is exactly what the research has shown: interventions which work to instill senses of efficacy, informedness, and community have reliably promoted behavioral change in this population.

It is interesting how difficult it has been for researchers to pin down the specific factors that enhance or detract from the effectiveness of interventions for MSM. It is currently unclear whether arguments targeting behavioral skills or those aimed at advancing coping skills may be more effective. More research that specifically targets this demographic may be helpful for optimal program design. It seems likely from other research, however, that the key ingredient has more to do with social and community factors than with either of those two studied elements. Researchers in this area would do well to examine methods for increasing the overall social interest of study participants—their feelings of community connectedness versus isolation—as a factor in the decisions to use methamphetamine and to engage in high-risk sexual practices.

Our basic task, given what is currently known and unknown, is to surmise what types of interventions are best suited to the purpose of discouraging methamphetamine use and its associated high-risk behaviors by undermining the psychological conditions from which they arise. A major problem in accomplishing this task, which we encounter throughout the literature, is that interventions aimed at reducing methamphetamine use among MSM are relatively new, and insufficiently studied. However, there is a good deal of useful information available in the existing research on HIV prevention, which has largely been targeted at this same population. For this reason, it has been possible to develop a reasonable understanding of the issues involved and the types of interventions best suited to addressing them by reviewing this body of existing literature in combination with the somewhat less robust fund of more specific research.

It is worth noting, for example, that the comprehensive meta-analysis we have discussed by Alberracín et al. (2006) found that the only community-based interventions that have ultimately been effective in reducing the spread of HIV were those offering HIV counseling and testing. It seems possible that the direct, visceral involvement that HIV testing facilitates could initiate and/or solidify attitudinal change. While it is difficult to see any way to directly apply this principle to the reduction of methamphetamine use, it may be possible to develop a system of cognitive conditioning within the context of HIV testing which implicitly links the two concepts. Such an intervention could be as simple as asking a few specific questions about methamphetamine-usage each time an HIV test is administered, as a way of impressing upon the individual being tested that their risk is much higher if they are using methamphetamine.

Much of the research focusing on interventions for methamphetamine use within the gay community has focused on social marketing. Targeted advertising campaigns of this type

constitute a relatively cheap and effective form of intervention which can be implemented quickly. Unfortunately, it can be difficult to measure the effectiveness of any single ad campaign due to the unlimited range of confounding factors and the difficulty of designing followup studies. However, it is evident from examination of Peter Staley's early and even fairly naive attempts at social marketing toward these ends that profound impacts are possible even when the ads being used succumb to the popular tendency to use fear as a motivating factor for behavioral change. With a higher level of psychological conceptualization, this type of intervention has the potential to be one of our greatest tools in advancing broad improvements within our target subculture.

The other extremely interesting intervention model that arose in the literature is the community-level, person-to-person intervention, which operates on a model much like viral or multilevel marketing by recruiting recipients of the intervention as its next level of administrators. In this way, the intervention has a far greater potential of eventually reaching those individuals with the least probability of actively becoming a part of any program—who, incidentally, are also at the greatest risk for methamphetamine addiction and for sexually transmitted infection. This model may also take advantage of the motivation that individuals who have recovered from addiction often find to help those who are currently under its sway, as well as the motivation of healthier members of the gay community to improve the overall health of their social support network. Recruitment practices that specifically aim to exploit these factors are definitely worthy of additional study.

Synopsis of Future Action

Given that a majority of current methamphetamine-using MSM have tried to quit or wish to try but have not sought professional assistance (GMLA, 2006), it is of central importance that information regarding the availability of treatment services be made readily available. As the Gay and Lesbian Medical Association suggests, the family doctor's office is an excellent place to start. The venue itself allows for the framing of methamphetamine use as a health issue at a time when members of affected subcultures likely consider it a primarily social one. Simply placing informative pamphlets in the physician's office conveys, in a non-threatening way, that the doctor is knowledgeable about methamphetamine and can provide assistance in the case that the user should ever want or need it.

However, as we have seen, those most at risk are also the least likely to visit family physicians. While it is reasonable to expect that shifting community norms instigated by efforts to reach higher-functioning members of this group will exert some influence on the attitudes and behaviors of the lower-functioning members, it is important that informational campaigns also explicitly target those who are at the highest risk of methamphetamine-related sexual risk behaviors and sexually transmitted infections. This is the case not merely for altruistic reasons, but because the individuals who are most profoundly affected by the psychosocial factors which characteristically affect this group act as hubs for the transmission of sexually transmitted disease within the community. Any action which inhibits the self-destructive actions of this minority of individuals within the gay community—whose drug consumption is the greatest, who suffer the most exhaustive psychological disturbances, and who engage in UAI with the greatest number of

often anonymous partners—has the potential to prevent an immense range of negative outcomes for the rest of the community.

Unfortunately, this group is most elusive—to the point of being nearly hypothetical. It is comprised of those individuals who are the least likely, as has been noted, to engage primary healthcare services. They are the least likely to participate in studies or focus groups, to seek out or utilize drug treatment or other psychological services, or to retain membership in education or support groups to which they have been recruited. This group is an essential bogeyman that lurks in the shadows of nearly all of the relevant literature. Identifying their characteristics, predisposing psychological traits, social tendencies, and responsiveness to various types of interventions is a vital task for researchers in this area to attend to. It seems likely that comparisons could be drawn to similar groups within other minority populations and/or within other groups of substance abusers, so there may already be a pool of literature to draw from in those areas.

Further evaluation of community reactions to the social marketing campaigns which have targeted MSM in major US cities over the last decade is also necessary, in order to understand the types of effects that they are having on different demographics within the highly heterogeneous gay community (Nanín et al, 2006). As several researchers have noted, the healthiest subgroups seem to reliably show the greatest response to all interventions. While primary prevention messages have dominated existing campaigns and may have some effectiveness, a majority of MSM methamphetamine users report no access to treatment services. Future campaigns should certainly provide information on the availability of these services for individuals who wish to stop using methamphetamine, as this can be included as a secondary

function of any campaign. It is also possible that a review of existing literature in the field of consumer psychology might help to inform future marketing efforts to undermine methamphetamine use by helping to apply psychological understandings in ways that exert directed influence on key demographics. In this way it may be more feasible to manipulate the dynamics of this relatively delicate subculture toward the end of improving the personal security and social interest of involved individuals.

Proposal for an Innovative, Socially Responsible Action Plan

A certain ingenuity will be necessary in order to convey truthful messages about the horrific effects of methamphetamine without evoking additional fear in an already fearful population. After all, it is true that the drug causes anxiety, depression, psychosis, permanent damage to neurological and other soft tissues, erosion of the teeth and bones, failure of the immune system and resultant physiological susceptibility to the very sexually transmitted diseases which one is likely to become exposed to when participating in the behaviors that are conscious motivations for a large percentage of MSM to use the drug at all. Simply communicating these facts, however informative, is likely to heighten the anxiety and hopelessness of a group far too affected by those emotions already and to therefore undermine individuals' abilities to rationally assess their social and behavioral choices.

To some extent, the problem may be bypassed through the selection of messages that focus on the reasons that MSM are using the drug, using consequences as merely supporting data. The core of any communication will have to convey the basic message that methamphetamine does not help MSM to feel well-adjusted, and that it does not help to overcome feelings of isolation or of alienation. People intuitively connect with the idea of

something being ‘too good to be true,’ but may be unable to reconcile terrifying consequences with euphoric present realities, particularly when those realities are being sought for the purpose of drowning out a troubling social circumstance. Alternative means to that end are needed to soften the dissonance.

Social marketing campaigns seem to be an excellent tool, but it will be difficult to achieve the level of subtlety necessary to make an impact on the most troubled elements of our target population. Perhaps the best solution would be a combination of social marketing designed to deflate the perceived benefits of methamphetamine use coupled with community outreach efforts offering a safe alternative for achieving the sought-after benefits. Group psychotherapy, after all, is generally valued precisely because it addresses psychological issues which inhibit social relatedness. Even as cost-effective as group psychotherapy generally is, however, the condition of scarcity must be anticipated when thinking in terms of community psychological interventions. For this reason, long-term investment in individuals will be avoided in this plan in favor of broader community-level interventions. There is some evidence that methamphetamine-specific twelve step programs are effective in reducing meth use as well as sexual risk behaviors (Lyons, 2005), which could make such programs an ideal ‘landing pad’ for our community interventions if we chose to address those MSM who are already using methamphetamine. This has the benefit of affording our most direct attention to those individuals most in need of assistance, while influencing group norms by spreading messages which presuppose that methamphetamine use is undesirable.

Taking twelve-step program attendance as our intended destination for wayward MSM, then, it becomes much simpler to design interventions which target this outcome. From the

literature we have reviewed, two excellent intervention methods for engaging the community have emerged: social marketing strategies, which we have already discussed; and community-level, person-to-person interventions. This latter type of intervention is the more difficult, but also provides a great deal more depth in terms of the messages that can be delivered and the level of community feeling which can be invoked and leveraged.

As with our social marketing strategy, negative and fear-inducing messages should be heavily downplayed in favor of positive and empowering messages. Individuals recruited into the program should receive thorough instruction in this manner of delivery and the reasons for it, as well as training in the manner of providing instruction to others who will extend the program. The experiences of the individuals involved, as members of the community, should be heavily utilized. It would be much less effective, for example, for an individual to simply list the benefits of attending Crystal Meth Anonymous to a peer, than to convey their own experience of being a member of the community who has felt oppressed and confused and troubled, and for whom an increased level of community involvement has provided a level of day-to-day relief that methamphetamine did not.

It is to our benefit in designing programs of this type that there are a large number of fairly autonomous gay communities scattered throughout the United States and throughout the world. With relatively small amounts of funding, we can institute pilot programs in smaller communities where benefits and shortcomings of the program can be easily assessed before enacting improved versions of the programs in larger cities.

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